

# 2024 SUBMISSION

to the

Regional  
Telecommunications  
Independent  
Review

The logo for Warren Shire Council features the word "WARREN" in a large, grey, sans-serif font. The letter "A" is stylized with a purple stem, an orange top, and a blue wave-like shape extending from its base. Below "WARREN" is the word "shire council" in a smaller, blue, lowercase sans-serif font.

WARREN  
shire council

**PRESENTED BY**



GENERAL MANAGER  
WARREN SHIRE COUNCIL

# FORWARD

As General Manager of Warren Shire Council, I am pleased to present this submission to the Committee for the 2024 Regional Telecommunications Independent Review.

Our region, nestled in the picturesque Central West of NSW, comprises a mosaic of small rural towns and communities, each facing unique challenges in telecommunications infrastructure.

Across Warren Shire, one of our greatest obstacles is the vast geographical spread and varying terrain. Many remote areas struggle with limited broadband access and unreliable mobile coverage, hindering everyday activities such as business operations, education, and accessing essential services. These connectivity gaps not only impact economic opportunities but also pose challenges for emergency services and community resilience.

Moreover, the digital divide between urban centres and rural communities continues to widen, exacerbating disparities in education, healthcare, and social connectivity. Despite efforts to improve infrastructure, outdated technologies and insufficient investment remain significant barriers to achieving equitable access to modern telecommunications services.

This submission underscores Warren Shire Council's commitment to advocating for comprehensive solutions that address these challenges head-on. We call for targeted investments in infrastructure upgrades, innovative solutions for remote connectivity, and policies that promote digital inclusion and economic development across our region. By bridging these gaps, we aim to empower our communities and unlock their full potential in the digital age.

As General Manager, my primary concern revolves around enhancing and expanding our telecommunication infrastructure to meet the growing demands of our community. Given the diverse geography and economic activities in our region, the issue of reliable and high-speed access is paramount for both our residents and businesses.

The central question I would like to address in this submission relates to the strategies and commitments that the Federal government and telecommunications providers can implement to ensure equitable and efficient broadband service across all areas of the shire. Specifically, how we can close the digital divide that currently exists between our urban centres and remote areas?

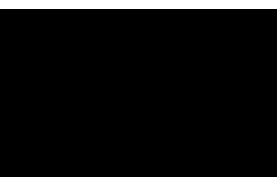
Our Shire objectives are clear: to foster an environment where digital connectivity is not a barrier to economic development, education, or access to health services. To achieve this, we advocate for a multi-faceted approach that includes:-


- **Investment in Infrastructure**  
Direct funding and incentives for the expansion of fibre-optic networks and other high-speed solutions in underserved areas.
- **Regulatory Support**  
Simplification of the regulatory framework to expedite the deployment of necessary telecommunications infrastructure.
- **Public-Private Partnerships**  
Encouragement of collaborative ventures between the government and private sector to leverage resources and expertise.
- **Community Involvement**  
Active engagement with community stakeholders to ensure that the development of telecommunication strategies aligns with local needs and priorities.

Addressing these points will be crucial for our council and community, ensuring that no resident or business will be left behind in today's increasingly digital world. We look forward to the implementation of robust and forward-thinking policies that will secure our digital future and enhance the quality of life for all our residents.

I extend my gratitude to all contributors to this submission, including our dedicated council staff, community leaders, and stakeholders. In compiling this report my staff have spoken with local farmers, primary producers, residents, business leaders, medical personnel and peak industry bodies such as NSW Farmers. Their feedback, issues, advice and recommendations have been incorporated into this submission. Over 20 hours of interviews and consultation have been undertaken to ensure that this submission is completely representative of the needs of our community, businesses and agricultural industries.

Together, we stand united in our pursuit of a future where reliable telecommunications are not just a luxury but a fundamental right for all residents of Warren Shire.



  
General Manager  
Warren Shire Council

# BACKGROUND

The Warren Shire is located in the Orana Region of NSW and covers an area of 10,860 square kilometres. Warren Shire includes the town of Warren and the villages of Nevertire and Collie.

The main service centre being Warren is situated on the banks of the Macquarie River and is located 120km from the regional centre of Dubbo and 525km from Sydney.

The Shire is economically dependent on agriculture, particularly sheep and cattle, grain and irrigation. Aside from those directly employed by the agriculture industry, there are also significant flow-on economic benefits from this industry to other related enterprises.

Warren was gazetted as a town in June 1861. The town of Warren falls within the boundaries of the Wayilwan Nation. The area covered by Warren Shire sits at the convergence of two Aboriginal Nation groups, the Wongaibon to the southeast: Narromine, Trangie through to Nyngan, and the Weilwan also known as Wayilwan and Ngemba Weilwan to the north and northwest. The Weilwan Nation sits within Warren, Gulargambone, Gilgandra, parts of Coonamble, Quambone and extends into the Macquarie Marshes. Warren is recognised as the 'Gateway to the Marshes'.

The Macquarie Marshes region is recognised as nationally significant and is an Internationally listed RAMSAR Wetland ecosystem. Warren Shire's natural local attractions include the Macquarie Marshes Nature Reserve, Burrima Boardwalk, Macquarie River and Tiger Bay Wetlands and Window on the Wetlands Centre that was officially opened on World Environment Day 2015.

Approximately 20% of people in the Warren Shire identify as being Aboriginal or Torres Strait Islander. The Warren Shire Council was established by the amalgamation of the Marthaguy Shire Council and the Warren Municipal Council in 1957.

# IMPORTANCE OF TELECOMMUNICATIONS

The small rural towns of Central West New South Wales (NSW) are nestled in the heart of Australia, where vast landscapes and remote properties define the region. In these communities, reliable and up-to-date telecommunications and related technologies are not merely conveniences—they are essential lifelines that sustain various critical aspects of daily life and community well-being.

## Medical Advancements:

In rural areas, access to healthcare can be a significant challenge due to the distances involved. Reliable telecommunications enable the provision of telehealth services, allowing residents to consult with specialists without the need to travel long distances. This is particularly important for those with chronic conditions or in need of regular consultations. Telehealth can provide timely medical advice, improve health outcomes, and ensure that emergency services are more responsive, which can be lifesaving in critical situations.

## Business Viability:

For small businesses in rural towns, robust telecommunications infrastructure is vital. High-speed internet and reliable phone services allow local businesses to operate efficiently, connect with broader markets, and compete on a global scale. Entrepreneurs can manage operations remotely, engage in e-commerce, and maintain strong communication channels with customers and suppliers. This connectivity not only helps sustain local economies but also attracts new businesses to the region, fostering economic growth and diversification.

## Empowering Remote Properties:

Farmers and residents of remote properties depend heavily on telecommunications for their daily operations. Modern farming techniques often require internet access for monitoring weather conditions, managing crops, and automating irrigation systems. Reliable telecommunications also facilitate access to online marketplaces, enabling farmers to sell their products more effectively. Furthermore, communication technologies enhance safety by allowing quick contact with emergency services and neighbors, which is crucial in isolated areas.

### Social Interaction and Mental Wellness:

Isolation can be a significant issue in rural communities, affecting social interaction and mental wellness.

Reliable telecommunications provide a crucial link to the outside world, helping residents stay connected with family and friends, reducing feelings of loneliness and isolation. Social media, video calls, and online support groups offer platforms for social engagement and mental health support. Access to mental health resources and counseling services online is particularly important, providing necessary support to those who might otherwise have limited access to such services.

### Conclusion:

In conclusion, the importance of reliable and up-to-date telecommunications and related technologies in the small rural towns of Central West NSW cannot be overstated. They are essential for advancing healthcare, supporting local businesses, empowering remote properties, and fostering social interaction and mental wellness. Continued investment in telecommunications infrastructure is crucial to ensure these communities thrive and remain resilient in the face of ongoing challenges and opportunities. The future of Central West NSW depends on bridging the digital divide and providing its residents with the tools they need to succeed in an increasingly connected world.

# REVIEW QUESTIONS

The Warren Shire Council is pleased to present its comprehensive submission to the 2024 Regional Telecommunications Independent Review. This submission is crafted in response to the Issues Paper released in April 2024, which outlines 20 critical questions aimed at evaluating and enhancing telecommunications services in regional areas. Our submission is structured to address each of these questions directly, providing detailed insights and recommendations based on the unique experiences and challenges faced by the residents and businesses of Warren Shire. Located in the heart of Central West New South Wales, Warren Shire encompasses a diverse community that relies heavily on robust telecommunications infrastructure for various aspects of daily life, including healthcare, business, agriculture, and social interaction. Each section has been prepared to be read as a stand-alone response to each question, in anticipation that the submission may be broken up for review by individual committee members.

## [KEY AREAS OF FOCUS](#)

### [Healthcare:](#)

We explore how reliable telecommunications enable telehealth services, enhance emergency response, and improve overall health outcomes for our residents.

### [Business:](#)

Our submission examines the critical role of telecommunications in supporting local businesses, fostering economic growth, and facilitating e-commerce in rural settings.

### [Agriculture and Remote Properties:](#)

We highlight the importance of connectivity for modern farming practices, safety, and access to markets for our agricultural community

### [Social Interaction and Mental Wellness:](#)

The submission addresses the impact of telecommunications on social connectivity, mental health, and community well-being in rural areas.

By systematically addressing the 20 questions posed in the Issues Paper, the Warren Shire Council aims to provide a clear and thorough perspective on the current state of telecommunications in our region. We offer practical recommendations for improvement, grounded in the lived experiences of our community members. Our goal is to ensure that the voices of rural Australians are heard and that meaningful advancements in telecommunications infrastructure are achieved to support the continued growth and resilience of Warren Shire and similar communities across the nation.

We trust that our insights will contribute significantly to the 2024 Regional Telecommunications Independent Review and help shape policies and initiatives that bridge the digital divide, ensuring equitable access to telecommunications services for all Australians.

# Question 1

*What initiatives or tools could be implemented by the telecommunications industry or the Australian Government to improve connectivity literacy and make it easier for regional consumers and businesses to understand their connectivity options and help them to choose affordable services that meet their needs?*

Improving connectivity literacy and helping regional consumers and businesses understand and choose affordable telecommunications services that meet their needs is crucial for the economic and social development of regional Australia. The telecommunications industry, in partnership with the Australian Government, can implement several initiatives and tools to achieve these objectives:-

## Educational Campaigns and Workshops:

- **Objective:** Increase awareness and understanding of the various connectivity options available.
- **Implementation:** Launch targeted educational campaigns using multiple media platforms tailored to regional audiences. Conduct workshops and seminars in partnership with local councils and community organisations to educate residents and businesses on how to evaluate and select internet services.

## Digital Literacy Programs:

- **Objective:** Equip individuals with the necessary skills to make informed decisions about their internet needs.
- **Implementation:** Offer free or subsidised digital literacy courses that cover topics such as internet safety, the basics of broadband, and understanding data plans. These could be provided in community centres, libraries, or online platforms.

## Telecommunications Advisory Service:

- **Objective:** Provide personalised advice to consumers and businesses about the best connectivity options for their specific circumstances.
- **Implementation:** Establish a government-supported advisory service that can be accessed via phone, online chat, or in-person consultations. This service would help de-mystify the technical aspects of telecommunications services and guide choices based on individual or business needs.



### Interactive Online Tools:

- **Objective:** Simplify the process of comparing and selecting internet plans.
- **Implementation:** Develop an interactive website or mobile app that allows users to input their location, usage needs, and budget to receive recommendations for the most suitable service providers and plans. This tool should be user-friendly and accessible to people with limited tech skills.

### Community-Based Internet Navigators:

- **Objective:** Offer hands-on support to help individuals and businesses in remote areas access and understand connectivity options.
- **Implementation:** Train residents as 'Internet Navigators' who can assist their communities in understanding connectivity options and setting up services. These navigators can be particularly effective in areas with low digital literacy rates.

### Regulatory Measures:

- **Objective:** Ensure transparency and fairness in how connectivity services are marketed and sold to regional customers.
- **Implementation:** Strengthen regulations to require clear, straightforward language in advertising broadband speeds and data plans. Enforce transparency in pricing and contract terms to protect consumers from misleading offers and ensure they are getting fair value.

### Public-Private Partnerships:

- **Objective:** Leverage resources for broader reach and impact.
- **Implementation:** Encourage partnerships between government, non-profits, and private sector providers to fund and promote programs aimed at increasing connectivity literacy.

*CONCLUSION: By implementing these initiatives, the telecommunications industry and the Australian Government can significantly enhance connectivity literacy, ensuring that regional consumers and businesses are well-equipped to make informed decisions about their telecommunications services. These steps will not only improve access to technology but also empower communities to participate fully in our digital world.*

# Question 2

*What further initiatives can be implemented to support First Nations communities in developing and leading their own digital inclusion solutions while ensuring cultural appropriateness?*

Ensuring that digital inclusion solutions for First Nations communities are culturally appropriate and community-led requires a thoughtful, collaborative approach. There are several initiatives that can be implemented to support First Nations communities in this Endeavor:

## Community Consultation and Engagement:

- **Objective:** Ensure that digital inclusion strategies are developed with direct input and leadership from First Nations communities.
- **Implementation:** Establish ongoing consultation processes that involve community leaders, elders, and youth in the planning and decision-making stages. This could involve setting up advisory committees or councils that guide the initiatives from conception through to implementation.

## Cultural Training for Tech Providers:

- **Objective:** Educate external service providers on cultural sensitivities and the specific needs of First Nations communities.
- **Implementation:** Develop and mandate cultural competence training for all telecommunications providers and tech companies working with First Nations communities. This training should be developed in collaboration with First Nations educators and cultural experts.

## Support for Indigenous Tech Enterprises:

- **Objective:** Encourage and support the growth of First Nations-owned technology enterprises.
- **Implementation:** Provide grants, low-interest loans, and business mentoring to support First Nations entrepreneurs in starting and scaling tech businesses. Additionally, government and industry procurement policies could be adjusted to favour First Nations-owned businesses for technology and connectivity projects.

### Local Digital Champions Program:

- **Objective:** Empower community members to lead digital literacy and inclusion efforts.
- **Implementation:** Train residents as digital champions who can teach digital skills, provide tech support, and lead digital literacy workshops within their communities. These champions should be equipped with the tools and resources necessary to address the unique challenges of their communities.

### Development of Culturally Relevant Content:

- **Objective:** Ensure that digital content is relevant and resonates with First Nations cultures and languages.
- **Implementation:** Support initiatives that focus on the creation of digital content in Indigenous languages and that reflect cultural heritage, such as storytelling apps, educational materials, and local news in Indigenous languages. This could involve partnerships with local media, educational institutions, and content creators.

### Digital Inclusion Research and Data Collection:

- **Objective:** Base digital strategy on solid data that reflect the unique contexts of First Nations communities.
- **Implementation:** Fund and conduct research on digital access and usage within First Nations communities. Ensure that data collection methods are respectful and culturally sensitive, and results should be used to tailor digital inclusion strategies effectively.

### Infrastructure Development in Remote Areas:

- **Objective:** Improve physical access to digital technologies in remote First Nations communities.
- **Implementation:** Collaborate with local governments and international bodies to fund and develop necessary infrastructure, such as broadband and mobile networks, which respects the land and culture of the communities it serves.

*CONCLUSION: By implementing these initiatives, governments and organisations can help ensure that digital inclusion strategies for First Nations communities are not only effective but also respectful and culturally enriched. These efforts should aim to empower First Nations communities to lead their digital transformation, preserving their cultural heritage while embracing the opportunities of the digital age.*

# Question 3

*How can government and industry address any misleading and inaccurate information surrounding telecommunications services in regional, rural, and remote areas, to ensure consumers and businesses have access to reliable and unbiased information when making decisions about their connectivity options?*

Addressing misleading and inaccurate information in telecommunications services, especially in regional, rural, and remote areas, is crucial to ensure that consumers and businesses have access to reliable and unbiased information. There are some strategies that both government and industry can implement to enhance transparency and accuracy.

## Regulatory Oversight and Compliance:

- **Objective:** Ensure that telecommunications companies provide accurate and clear information about their services.
- **Implementation:** Strengthen regulations around advertising and disclosure related to telecommunications services. This could include requiring clearer explanations of service limitations, expected speeds, and potential additional costs. Regulatory bodies should actively monitor compliance and impose penalties for misleading practices.

## Standardised Information Disclosure:

- **Objective:** Make it easier for consumers to understand and compare service offerings.
- **Implementation:** Develop standardised templates for presenting key information about telecommunications services, such as coverage maps, speed tests, and pricing structures. These should be straightforward and easily comparable across different providers and plans.

## Consumer Education Programs:

- **Objective:** Improve the digital literacy of consumers so they can make more informed choices.
- **Implementation:** Launch government and industry-funded initiatives to educate consumers on how to interpret and use information about telecommunications services. These could be through workshops, online resources, and printed materials distributed in community centres and libraries.

#### Partnerships with Local Governments and Community Organisations:

- **Objective:** Ensure that information reaches all segments of the population, including those less likely to access online resources.
- **Implementation:** Work with local governments and community organisations to disseminate information and educate residents about their telecommunications options, focusing particularly on those without internet access or those who are less tech-savvy.

*CONCLUSION: Through these measures, government and industry can work together to provide a more transparent, fair, and consumer-friendly telecommunications landscape, particularly for those in regional, rural and remote areas.*

# Question 4

*Deploying and maintaining telecommunications infrastructure in remote areas requires a skilled workforce. What initiatives can be implemented to ensure there is a skilled workforce in regional and remote Australia capable of supporting the construction, maintenance, and operation of future-proof telecommunications infrastructure?*

*Developing a skilled workforce in regional and remote Australia to support the deployment, maintenance, and operation of telecommunications infrastructure involves a multifaceted approach that addresses education, training, and retention strategies. There are some suggested initiatives that could be implemented.*

## Vocational Training and Education Programs:

- **Objective:** Equip local populations with the necessary skills to participate in telecommunications projects.
- **Implementation:** Collaborate with vocational schools and community colleges to develop specialised training programs in telecommunications. These programs could offer certifications and degrees in network installation, maintenance, and repair, tailored to the specific technologies used in remote telecommunications infrastructure.

## Apprenticeship and On-the-Job Training:

- **Objective:** Provide practical experience and training under the guidance of experienced professionals.
- **Implementation:** Establish apprenticeship programs linked with local businesses and government projects in telecommunications. These programs should focus on hands-on-training and could include incentives for businesses to hire and train local residents.

## Scholarships and Incentives:

- **Objective:** Attract and retain talent in remote area.
- **Implementation:** Offer scholarships and financial incentives to students from regional and remote areas to pursue studies in fields related to telecommunications. Additionally, provide relocation incentives for skilled workers willing to move to these areas.

### Remote Learning and Training Opportunities:

- **Objective:** Overcome geographical barriers to education.
- **Implementation:** Utilise online platforms and distance learning tools to deliver educational content and training modules directly to remote locations. This can help prospective workers in remote areas gain access to high-quality training without needing to leave their communities.

### Partnerships with Tech Companies:

- **Objective:** Leverage expertise and resources from the private sector.
- **Implementation:** Encourage partnerships between local governments, educational institutions, and technology companies. These partnerships can facilitate the transfer of knowledge and technology, as well as provide direct access to the latest tools and methodologies used in the industry.

### Career Pathways in Local Government Planning:

- **Objective:** Ensure long-term employment opportunities in telecommunications.
- **Implementation:** Integrate career pathways into local government economic development strategies that highlight opportunities in telecommunications. This could involve developing roles within local government for infrastructure management and oversight, ensuring a steady demand for skilled workers.

### Community-Based Training Centres:

- **Objective:** Provide localised training hubs.
- **Implementation:** Establish training centres in regional and remote areas that serve as hubs for education and innovation in telecommunications. These centres can also act as incubators for local tech startups and small businesses, fostering a broader tech ecosystem.

### Continuous Professional Development:

- **Objective:** Keep the workforce up to date with technological advancements.

- **Implementation:** Offer ongoing professional development courses that workers can access to stay current with new technologies and techniques in telecommunications. This could be supported by a combination of online courses, workshops, and seminars.

**CONCLUSION:** By implementing these initiatives, Australia can build and sustain a skilled workforce that can support the construction, maintenance, and operation of advanced telecommunications infrastructure in remote and regional areas. This will not only help bridge the digital divide but also stimulate local economies by creating high-value jobs.

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# Question 5 - Part A

*Could the NBN (National Broadband Network) fixed wireless network or other alternative networks be used to provide reliable and affordable voice services in remote areas?*

As the General Manager of Warren Shire Council, I am acutely aware of the challenges faced by our residents in remote areas regarding access to reliable and affordable telecommunications services. In our submission to the Telecommunications Review, we would like to explore the potential of leveraging the National Broadband Network (NBN) fixed wireless network, along with other alternative networks, to enhance voice service delivery in these remote locations.

## POTENTIAL OF NBN FIXED WIRELESS FOR VOICE SERVICES

The NBN fixed wireless network, designed to provide broadband internet to areas where it is economically challenging to deliver fibre-optic cable, represents a viable infrastructure for extending reliable voice services. Fixed wireless connections utilise radio signals to transmit data, providing a broadband service that can support VoIP (Voice over Internet Protocol) services effectively. VoIP technology can deliver voice services over the internet, which could be an efficient solution for remote areas currently underserved by traditional telephony.

To utilise the NBN fixed wireless network for voice services in remote areas, the following considerations and enhancements are necessary:-

### Quality of Service (QoS) Enhancements:

- Prioritisation of voice traffic over other types of data is crucial to ensure clear and reliable voice communication. Implementing QoS on the NBN fixed wireless network would help manage bandwidth allocation and improve the quality of voice calls.

### Battery Back Up Solutions:

- To ensure continuity of voice services during power outages, the installation of battery backup systems for NBN equipment is essential. This is particularly important in remote areas where power reliability can be an issue.

### Infrastructure Upgrades:

Assessing and upgrading the existing NBN fixed wireless towers and related infrastructure to handle increased traffic and the specific requirements of high-quality voice transmission.

## EXPLORING ALTERNATIVE NETWORKS

While the NBN fixed wireless network provides a foundational platform, exploring alternative networks can offer supplementary solutions to ensure comprehensive coverage and reliability:

### Satellite Services:

- Satellite communication is another viable option for providing voice services in the most remote areas. Recent advancements in satellite technology, such as low-earth orbit (LEO) satellites, offer lower latency and higher bandwidth, which are suitable for both voice and internet services.

### Mobile Networks:

- Expanding the reach of existing mobile networks or deploying new mobile infrastructure, where feasible, could support mobile VoIP solutions, leveraging the widespread use of smartphones.

### Hybrid Solutions:

- Combining fixed wireless, satellite, and mobile networks to create a hybrid system can provide a robust solution that minimises connectivity gaps and ensures service reliability across different scenarios and topographies.

*CONCLUSION: The NBN Fixed wireless network, along with alternative network solutions, holds significant potential to provide reliable and affordable voice services in remote areas of Warren Shire. NBN Fixed wireless network, along with alternative network solutions, holds significant potential to provide reliable and affordable voice services in remote areas of Warren Shire. Implementing these technologies requires a strategic approach involving infrastructure enhancement, technological upgrades, and regulatory support to ensure that all residents have access to essential communication services. Warren Shire Council is committed to working with the government, NBN Co, and other stakeholders to explore and implement these solutions, aiming to achieve a digitally inclusive community regardless of geographical challenges.*

# Question 5 - Part B

*Are there any consumer safeguards or guarantees that need to remain or be changed under reformed universal service arrangements?*

Under reformed universal service arrangements, particularly in a landscape increasingly dependent on digital connectivity, it is crucial to reassess and potentially enhance consumer safeguards and guarantees, to ensure they remain relevant and effective. There are the key aspects of consumer safeguards that need attention, either to be maintained or modified:

## Quality of Service Guarantees:

- **Current State:** Guarantees typically focus on availability rather than the quality of service. As digital services become more essential for everyday life, ensuring high quality connectivity is as important as its availability.
- **Recommendation:** Revise quality of service standards to include minimum speed guarantees and uptime percentages, tailored to both urban and rural settings, to ensure that services are not only available but also usable for modern needs.

## Coverage Obligations:

- **Current State:** Coverage obligations often prioritise urban and populated areas, leaving rural and remote areas less well-served.
- **Recommendation:** Update coverage obligations to ensure equitable access across all regions, with specific targets and timelines for rural and remote areas. This might involve incentivising private sector investments in underserved areas or direct government interventions.

## Reliability and Continuity:

- **Current State:** Current policies may not adequately address the reliability needs of critical services in remote areas, such as health, education, and emergency services.

### Reliability and Continuity contined:

- **Recommendation:** Introduce specific reliability standards for critical services that require uninterrupted connectivity. Implement robust backup solutions, such as battery backups and secondary network routes, to ensure continuity during outages.

### Affordability Measures:

- **Current State:** While there are measures in place to ensure service affordability, these may not be sufficient or adaptable to changing economic conditions.
- **Recommendation:** Establish dynamic pricing models or subsidies that adjust based on economic factors and inflation rates, ensuring services remain affordable for all socio-economic groups. Additionally, consider implementing a tiered service model to provide basic internet and telecommunications access at a reduced or no cost for low-income households.

### Transparency and Disclosure Requirements:

- **Current State:** Consumers often face challenges understanding terms, conditions, and the actual costs associated with telecommunications services.
- **Recommendation:** Strengthen transparency and disclosure requirements to ensure providers clearly communicate service limitations, data caps, and all fees. Required disclosures should be straightforward and provided through multiple accessible formats.

### Complaints Handling and Dispute Resolution:

- **Current State:** Existing mechanisms may be too slow or bureaucratic, causing frustration among consumers.
- **Recommendation:** Streamline complaints handling and dispute resolution processes to be more efficient and consumer friendly. This could involve setting stricter timelines for responses and resolutions and integrating online dispute resolution tools.

#### Accessibility:

- **Current State:** Services may not be fully accessible to all users, including those with disabilities.
- **Recommendation:** Mandate that all telecommunication services and equipment comply with accessibility standards to ensure that persons with disabilities can use these services on an equal basis with others.

#### Data Protection and Privacy:

- **Current State:** As digital connectivity increases, so does the risk to personal data and privacy.
- **Recommendation:** Enforce stringent data protection regulations specific to telecommunications providers, ensuring that consumer data is protected and that privacy standards are maintained or enhanced in response to new technologies and threats.

*CONCLUSION: These recommended changes and enhancements to consumer safeguards and guarantees would ensure that as the telecommunications landscape evolves, consumer rights and service quality are not only preserved but also strengthened.*

# Question 6 - Part A

*In modernising universal service arrangements, should access to public phone infrastructure continue and are there particular areas of need?*

In the context of modernising universal service arrangements, the question of whether to maintain access to public phone infrastructure is a significant one. While the use of public phones has declined due to the widespread adoption of mobile devices, there are compelling reasons to continue supporting this infrastructure in certain contexts and areas:

## Emergency Services Access:

- Public phones provide vital access to emergency services, especially in areas where personal mobile devices may not be available, functional, or affordable. This is crucial during emergencies where power outages or natural disasters can render mobile devices unusable.

## Support for Vulnerable Populations:

- Not all individuals own mobile phones or have continuous access to mobile services due to financial constraints or personal circumstances. Homeless populations, low-income individuals, and others in transient situations often rely on public phones as a critical means of communication.

## Areas with Poor Mobile Coverage:

- In remote and rural areas where mobile coverage can be unreliable or non-existent. Assessing and upgrading the existing NBN fixed wireless towers and related infrastructure to handle increased traffic and the specific requirements of high-quality voice transmission.

## Tourist Locations:

- Tourists, in particular international visitors, who may not have immediate access to local mobile networks, benefit from public phones. These are vital for emergencies and for situations where mobile service is unavailable or prohibitively expensive due to roaming charges.

### Redundancy and Resilience:

- Public phone infrastructure provides a redundant communication option in the event of network failures affecting mobile and landline services. This redundancy is crucial for maintaining communication during infrastructure failures or cyber incidents.

### RECOMMENDATIONS FOR MODERNISATION

With consideration, the following recommendations can help guide the decision on modernising public phone infrastructure:

#### Selective Maintenance and Upgrades:

- Instead of a broad maintenance approach for all public phone units, focus on maintaining and upgrading units in strategic locations such as remote areas, low-income neighbourhoods, disaster-prone areas, and major tourist spots.

#### Integration with Modern Technology:

- Modernise public phone units to include capabilities for internet access, charging stations for mobile devices, and touchscreen interfaces for ease of use. These enhancements can make public phones more relevant and useful in the digital age.

#### Assessment of Usage and Needs:

- Regularly assess the usage and functionality of existing public phone infrastructure to determine which units are essential and which might be phased out. This assessment should consider local demographics, tourist statistics, and emergency service reports.

#### Funding and Partnerships:

Explore partnerships with private companies for the maintenance and operation of public phone infrastructure, potentially using advertising or sponsorship models to offset costs.

*CONCLUSION: There are still critical areas and populations where public phones provide essential services. The decision to continue, discontinue, or modify public phone infrastructure should be based on a thorough assessment of current and future needs, ensuring that all community members have access to reliable communication services.*

# Question 6 - Part B

*Could technologies beyond traditional payphones be explored to meet this need?*

Exploring technologies beyond traditional payphones is a valuable strategy in modernising and enhancing public communication infrastructure, especially in an era where digital connectivity is crucial. The following could be adapted to meet the need for accessible public communication services:

## Multi-function Kiosks:

- These kiosks can service multiple purposes beyond just voice communication. They can be equipped with touchscreens for internet access, video calling facilities, and information services (like local maps, weather, and news). Such kiosks can also serve as charging stations for mobile devices and Wi-Fi hotspots, increasing their utility in public spaces.

## Portable Communication Units:

- In remote or disaster-prone areas, portable communication units that can be easily moved and set-up as needed would be highly beneficial. These units could operate on solar power or have battery backups and provide essential communication services during emergencies or in areas lacking permanent infrastructure.

## Community Smart Hubs:

- These hubs could be established in community centres, libraries, or other public spaces. They could offer high-speed internet, voice communication services, digital literacy programs, and other community driven services. Smart hubs could become centres for digital inclusion, particularly in underserved areas.

## Integrated Public Transport Solutions:

- Implement communication technologies within public transport systems, such as buses and trains, which could offer Wi-Fi connectivity and emergency call services. This would not only enhance safety but also improve the daily commute experience by allowing passengers to stay connected while on the move.



#### Augmented Reality (AR) Information Points:

- Leverage AR technology at public points to provide interactive information, guidance, and emergency communication services. Users could access a wide range of services through their smartphones by interacting with AR markers located in strategic public locations.

#### Mobile Apps for Public Services:

- Develop and promote mobile applications that provide access to public services, including communication, local government services, and emergency reporting. These apps could also integrate with existing public communication infrastructure to enhance service accessibility.

#### Telecommunication Drones:

- For extremely remote or temporarily inaccessible areas, drones equipped with telecommunication equipment could provide temporary connectivity for both voice and data services. This could be particularly useful in disaster recovery situations or in areas where building permanent infrastructure is not feasible.

#### Blockchain Enabled Communication Services:

- Utilise blockchain technology to create decentralised communication networks that can operate independently of traditional infrastructures. These networks can provide secure and reliable communication services, especially in regions where conventional services are susceptible to disruptions.

*CONCLUSION: Each of these technologies presents a unique opportunity to enhance public communication services while addressing the diverse needs of different communities. By integrating these advanced solutions into public communication strategies, governments and service providers can ensure that all the community have access to reliable, modern, and convenient communication options, thereby closing the digital divide and enhancing public welfare.*

# Question 7 - Part A

What should the minimum internet speed guarantee be (currently a peak speed of 25/5 Mbps) to meet modern needs?

The determination of an appropriate minimum internet speed guarantee to meet modern needs depends on various factors, including the types of usage expected, the number of devices typically connected in households and businesses, and the technological advancements in digital services. Given the increasing reliance on the internet for education, work, entertainment, and communication, the current minimum guarantee of 25 Mbps download and 5 Mbps upload may not suffice for many users, particularly in households with multiple users or businesses requiring robust connectivity.

## FACTORS TO CONSIDER FOR A NEW MINIMUM SPEED GUARANTEE

### Multiple Device Connectivity:

- With the average household now using multiple internet-connected devices simultaneously, including smart home devices, the bandwidth needs have significantly increased.

### High-Definition Streaming and Telecommunications:

- Services like video streaming, video conferencing, and online gaming require higher speeds for optimal performance. High-definition (HD) and ultra-high-definition (UHD) streaming require more bandwidth to function without buffering or interruptions.

### Upload Requirements:

- Modern internet usage involves not just consuming content but creating and uploading substantial amounts of data. This is particularly important for remote workers, content creators, and during synchronous online learning sessions.

### Technological Advancements:

- The deployment of more sophisticated cloud-based services and applications, including augmented and virtual reality, demands higher bandwidth.

### Equity and Access:

Ensuring that all users, regardless of location, have sufficient speeds to fully participate in digital life is crucial for reducing the digital divide.

### RECOMMENDED MINIMUM INTERNET SPEED GUARANTEE

Considering these factors, a more robust minimum speed guarantee would be advisable. A potential new standard could be:

- Minimum Download Speed: 50 Mbps
- Minimum Upload Speed: 10 Mbps

This would better support modern digital activities such as HD video streaming, sophisticated online applications, and multiple-device households. It also considers future-proofing the standard to accommodate the growth in internet usage and technological advancements.

### IMPLEMENTATION CONSIDERATIONS

#### Phased Rollout:

- Implementing this new standard could occur in phases, prioritising areas with currently inadequate speeds, particularly rural and remote areas.

#### Technology Neutral Approach:

- The implementation should be technology-neutral, allowing for any technology (fibre, wireless, satellite) that can deliver these speeds reliably.

#### Monitoring and Evaluation:

- Regular monitoring and evaluation should be conducted to ensure that the actual user experience reflects the speeds promised, adjusting the standards as necessary as technology and usage patterns evolve.

#### Affordability:

- Policies should ensure that these improved speeds are offered at an affordable price point to all consumers, supplemented by government programs for low-income households.

#### Business and Special Use Cases:

- Consideration for higher tiers for businesses and special use cases, such as telehealth and remote education centres, where higher speeds are often crucial.

*CONCLUSION: Setting a higher minimum internet speed guarantee reflects the evolving needs and ensures that infrastructure developments are aligned with global standards and future requirements.*

# Question 7 - Part B

## Should minimum data download/upload allowances be regulated?

Regulating minimum data download and upload allowances is a significant policy consideration, especially as internet usage becomes increasingly essential for daily activities in education, business, healthcare, and entertainment. Following are some key points to consider when debating whether to regulate these allowances:

### REASONS TO REGULATE MINIMUM DATA ALLOWANCES

#### Preventing Data Caps That Limit Access:

- Data caps can disproportionately affect low-income households and those in rural and remote areas, where alternative connectivity options are limited. Regulating minimum data allowances ensures that all users have sufficient data to meet their basic needs without incurring excessive additional costs.

#### Supporting Digital Equity:

- As more critical services move online, including government services, education, and job applications, ensuring that everyone has enough data to access these services is crucial for promoting digital equity.

#### Encouraging Economic Activity:

- Businesses increasingly rely on digital tools and cloud services that consume significant data. Ensuring they have sufficient data allowances can foster innovation, support remote work, and drive economic growth.

#### Adapting to Increasing Data Demands:

- With the rise of high-definition streaming, video conferencing, and other data-intensive applications, the average data usage per household is rapidly increasing. Setting a regulated minimum helps ensure that data allowances keep pace with technological advancements and usage patterns.

## POTENTIAL CHALLENGES OF REGULATION

### Flexibility for Providers:

- Mandatory minimum data allowances could reduce the flexibility of internet service providers (ISPs) to offer varied packages that cater to different user needs, potentially leading to higher prices for consumers who might not need large data packages.

### Impact on Infrastructure and Costs:

- Requiring ISPs to offer higher data allowances might lead to increased stress on existing telecommunications infrastructure and could lead to higher operational costs, which might be passed on to consumers in the form of higher prices.

### Market Competition:

- Regulation might stifle competition by limiting the ability of ISPs to differentiate themselves in the market. This could lead to a homogeneous market where all providers offer similar plans, potentially slowing innovation in service offerings.

## RECOMMENDATIONS FOR POLICY CONSIDERATIONS

### Establish a Reasonable Minimum:

- If regulation is considered necessary, establishing a reasonable baseline that reflects average consumer and small business needs without imposing excessive burdens on providers could be a balanced approach.

### Periodic Review and Adjustment:

- Data needs are rapidly evolving, so any regulatory measures should include mechanisms for periodic review and adjustment based on current technology and consumer usage trends.

### Consider Variations by Region and Usage:

- Recognise that data needs can vary significantly by region and user type. Urban users might have different consumption patterns compared to rural users, and such differences should be considered in setting minimum allowances.

#### Focus on Transparency and Consumer Protection:

- Instead of strict regulations on data allowances, focusing on improving transparency about data caps and ensuring that consumers are well-informed about the terms of their internet service might be a more effective approach.

#### Support for Under-served Communities:

- Special programs could be designed to ensure that under-served communities, such as those in rural or low-income areas, receive sufficient data allowances to meet their needs, potentially through subsidies or government-funded programs.

*CONCLUSION: Regulating minimum data allowances is a complex issue that requires a balanced approach to ensure that the benefits of digital connectivity are widely available while maintaining a healthy, competitive market that can innovate and adapt to changing consumer needs.*

# Question 7 - Part C

## What other factors are important, like latency, reliability, and affordability?

When considering the broader spectrum of telecommunications services, especially in the context of ensuring effective and equitable access, several additional factors beyond just speed and data allowances are crucial. These include latency, reliability, and affordability, each of which plays a significant role in the overall quality and utility of internet service. Following is a deeper look into why these factors are important:

### LATENCY

#### Definition and Impact:

- Latency refers to the delay before a transfer of data begins following an instruction for its transfer. Low latency is crucial for real-time applications such as video conferencing, online gaming, and any real-time control systems such as those used in telemedicine and industrial automation.

#### Importance in Rural and Remote Areas:

- In remote areas, where data might have to travel longer distances, especially where satellite internet is common, latency can be a significant issue. Improving latency is critical to ensuring that these areas can leverage modern technologies comparable to urban centres.

### RELIABILITY

#### Consistency of Service:

- Reliability means having a consistently available internet connection with minimal downtime. This is crucial for businesses that rely on cloud services, for students participating in online learning, and for essential services that use the internet for day-to-day operations.

#### Emergency Services:

For emergency services, reliability is non-negotiable. In critical situations, a reliable internet connection can make the difference between life and death, making it imperative for systems to be robust and redundantly designed.



#### Scalability:

- Telecommunications infrastructure must be scalable to adapt to rapidly changing technologies and increasing demands without requiring completely new installations.

#### Customer Service:

- Efficient customer service is essential for addressing connectivity issues swiftly and effectively, ensuring minimal disruption to users.

*CONCLUSION: Addressing these factors holistically in telecommunications policy and service provision ensures not only that services meet current needs but are also resilient, adaptable, and accessible enough to support future developments and demands.*

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# Question 8

How can we achieve equity with respect to mobile services (voice, data, and SMS) in regional, rural, and remote communities and on regional and remote roads?

Achieving equity in mobile services (voice, data, and SMS) for regional, rural, and remote communities, as well as along regional and remote roads, requires a comprehensive approach. This includes infrastructure development, regulatory adjustments, and community-focused initiatives. Below is a strategic outline to address these challenges:

## INFRASTRUCTURE EXPANSION

### Increased Investment:

- Direct significant investments toward building mobile network infrastructure in underserved areas. This includes towers, small cells, and satellite connectivity options where traditional infrastructure is not feasible.

### Public-Private Partnerships:

- Encourage partnerships between government and mobile service providers to share the financial burden and risks associated with expanding services in less profitable areas.

### Use of Innovative Technologies:

- Deploy new technologies such as Low Earth Orbit (LEO) satellites and high-altitude platform stations (HAPS) to provide reliable mobile coverage in geographically challenging areas.

## REGULATORY FRAMEWORK ADJUSTMENTS

### Universal Service Obligations:

- Strengthen universal service obligations to include specific and enforceable targets for mobile service coverage in rural and remote areas, ensuring that these are on par with urban areas.

### Incentives for Coverage Expansion:

- Provide tax incentives, subsidies, or grants to mobile service providers that invest in extending networks into under-served areas.

#### Roaming Agreements:

- Mandate or encourage national roaming agreements among providers to maximise coverage and service availability, especially along remote roads.

#### FINANCIAL ACCESSIBILITY

##### Affordable Pricing Models:

- Develop pricing regulations or guidelines to ensure that mobile services remain affordable in rural and remote areas, through cross-subsidisation schemes or regulated pricing caps.

##### Subsidies for Users:

- Offer subsidies or vouchers for low-income residents in remote areas to help them afford mobile services, ensuring that cost is not a barrier to connectivity.

#### QUALITY AND RELIABILITY IMPROVEMENTS

##### Minimum Service Quality Standards:

- Implement and enforce minimum quality standards for mobile services that include aspects of reliability, connectivity speed, and latency.

##### Monitoring and Compliance:

- Establish a robust monitoring framework to ensure compliance with these standards and publicly report on providers' performance to encourage transparency and accountability.

#### LOCAL COMMUNITY ENGAGEMENT

##### Community Consultations:

- Engage with local communities to understand their specific needs and priorities. This can help tailor solutions that are culturally appropriate and more effectively meet local demands.

#### Local Workforce Development:

- Support training and hiring of residents to build and maintain mobile network infrastructure, fostering community involvement and economic benefits.

#### TECHNOLOGY AND SERVICE INNOVATION

##### Encouraging Innovation:

- Support research and development into new technologies and business models that could make providing mobile services in remote areas more viable and sustainable.

##### Adaptive Service Models:

- Encourage service providers to develop flexible and innovative service models tailored to the unique challenges of remote areas, such as community-based networks or mobile network solutions driven by renewable energy sources.

#### EMERGENCY AND SAFETY ENHANCEMENTS

##### Critical Connectivity for Emergencies:

- Ensure that all areas, especially isolated roads, and communities, have access to reliable mobile services for emergency and safety communications.

##### Infrastructure Resilience:

- Invest in making mobile infrastructure resilient against natural disasters, which can be more common in certain remote areas.

*CONCLUSION: Achieving equity in mobile services for rural, regional, and remote areas is not only about installing technology but also about ensuring that these technologies are supported by appropriate policies, financial models, and community-focused solutions. This approach will help bridge the digital divide and bring tangible benefits to these communities*

# Question 9

How can we ensure regional, rural, and remote areas have access to the networks, equipment, and capacity they need for improved household connectivity and to foster innovation and efficiency across regional industries, including for IoT applications?

Ensuring that regional, rural, and remote areas have access to the networks, equipment, and capacity necessary for improved household connectivity and to foster innovation across industries, including for IoT (Internet of Things) applications, involves a multi-faceted approach.

Key strategies that can be implemented to achieve these goals:

## INFRASTRUCTURE DEVELOPMENT

### Broadband Expansion:

- Invest in expanding broadband infrastructure to cover remote areas, using a mix of technologies such as fibre, fixed wireless, and satellite communications to ensure comprehensive coverage and high-speed access.

### Incentives for Private Investment:

- Offer tax breaks, grants, and other financial incentives to encourage private companies to build infrastructure in less profitable rural and remote areas.

### Public-Private Partnerships:

- Engage in partnerships between government entities and private firms to share the cost and expertise needed to develop and maintain essential network infrastructure.

## REGULATORY SUPPORT AND POLICY FRAMEWORK

### Clear Policy Directives:

- Create clear policy directives that prioritise digital access for all, including specific mandates for coverage in rural and remote areas.

#### Spectrum Allocation:

- Ensure efficient and fair allocation of radio spectrum to support wireless technologies, particularly for IoT applications that require reliable and continuous connectivity.

#### Streamlining Permit Processes:

- Simplify and expedite permit processes for new infrastructure projects to reduce delays and costs associated with deploying new technologies.

### CAPACITY BUILDING AND LOCAL ENGAGEMENT

#### Training Programs:

- Implement training programs for local populations to increase technical skills related to ICT (Information and Communication Technology), enabling residents to participate in and benefit from the digital economy.

#### Support Local Businesses:

- Offer support and training for local businesses to adopt digital tools and IoT technologies that can enhance efficiency, such as precision agriculture tools in farming or real-time monitoring systems in fisheries.

### INNOVATION AND RESEARCH

#### Funding for Innovation:

- Provide funding for research and development projects that focus on solving connectivity issues in rural and remote areas, including innovative uses of IoT.

#### Pilot Projects:

- Encourage pilot projects that deploy new technologies in remote areas, allowing for real-world testing of IoT applications in sectors like agriculture, mining, and health care.

## TECHNOLOGY NEUTRAL SOLUTIONS

### Encourage Diverse Technologies:

- Promote a technology-neutral approach where the best technology for the scenario is used, whether it is satellite, fibre, or wireless, ensuring that solutions are tailored to local needs and conditions.

## AFFORDABILITY AND ACCESSIBILITY

### Subsidies and Vouchers:

- Provide subsidies or vouchers to households and businesses in rural and remote areas to make the transition to digital technologies more affordable.

### Economies of Scale:

- Utilise government and large industry procurement to create economies of scale for essential technologies, reducing costs for end users.

## ENSURING QUALITY OF SERVICE

### Minimum Service Standards:

- Establish and enforce minimum service standards for internet speeds and reliability, ensuring that businesses and households in remote areas can depend on their internet service for critical operations and communications.

## COMMUNITY BASED INITIATIVES

### Local Cooperatives:

- Support the formulation of local cooperatives to manage internet services, which can be particularly effective in areas that are not attractive to large providers.

*CONCLUSION: By implementing these strategies, governments and industries can significantly enhance connectivity in rural, regional, and remote areas, providing the foundation necessary for households and businesses to thrive in an increasingly digital world and to leverage IoT technologies effectively.*

# Question 10

The cost of buildings and maintaining telecommunications infrastructure in rural and remote areas can be a barrier to offering better services. What can be done to improve the fixed broadband options available to regional, rural, and remote Australians?

Addressing the high costs of building and maintaining telecommunications infrastructure in rural and remote areas is critical for improving fixed broadband options for regional, rural, and remote Australians. Several strategies that can help overcome these barriers and enhance service offerings:

## LEVERAGE PUBLIC-PRIVATE PARTNERSHIPS (PPPS)

Implementation:

- Governments can partner with private companies to share the financial risks and rewards of building infrastructure in less profitable areas. These partnerships can leverage government funding, incentives, and resources alongside private sector technology, expertise, and operational efficiencies.
- **Example:** A government might provide financial incentives or subsidies to private companies that agree to build broadband infrastructure in remote areas.

## UTILISE INNOVATIVE AND COST-EFFECTIVE TECHNOLOGIES

Implementation:

- Explore and deploy more cost-effective broadband technologies suitable for rural areas. This includes fixed wireless access (FWA), long-range Wi-Fi, and satellite internet services, which can often be deployed at a lower cost compared to traditional fibre-optic cables.
- Example: Using low-earth orbit (LEO) satellite technologies, which have become more viable and affordable, can provide high-speed broadband access with lower latency.

## GOVERNMENT GRANTS AND SUBSIDIES

Implementation:

- Increase government funding directed towards the development of telecommunications infrastructure in remote areas. This could be through grants, loans, or direct subsidies to reduce the financial burden on providers and encourage investment.



- **Example:** A targeted subsidy program for telecommunications companies that commit to expanding services in designated underserved areas.

### REGULATORY REFORM

#### Implementation:

- Simplify regulatory processes to make it easier and faster for companies to build infrastructure. This can include streamlining permit processes and reducing bureaucratic hurdles that can delay projects and increase costs.
- **Example:** Creating a one-stop shop for all telecommunications-related permits and approvals needed to start infrastructure projects in rural areas.

### Community-Based Projects and Local Involvement

#### Implementation:

Support and encourage local community projects where the community itself invests in and manages its broadband infrastructure. This can include forming cooperatives or local utility models.

- **Example:** Support for local cooperatives to build and manage their own broadband networks, providing training and resources necessary for maintenance and operations.

### UNIVERSAL SERVICE FUNDS AND OBLIGATIONS

#### Implementation:

Utilise or reform existing universal service funds to specifically target and support broadband expansion in rural and remote areas. This can involve setting clear obligations for service providers to extend service to these areas as a condition of their broader market operations.

- **Example:** Revising universal service obligations to include specific benchmarks for broadband speeds and reliability in rural areas, funded by a universal service levy on telecommunications revenue.

### TECHNOLOGY NEUTRAL FRAMEWORKS

#### Implementation:

Implement policy frameworks that encourage the use of any technology capable of delivering high-speed internet, rather than prescribing specific technologies, which allows for the most appropriate solutions for each area.

- **Example:** Policies that support both wired solutions like fibre and wireless solutions like FWA or satellite based on regional needs and cost-effectiveness.

### FOCUS ON SUSTAINABILITY AND LONG-TERM PLANNING

#### Implementation:

Plan for the long-term sustainability of infrastructure projects by considering ongoing maintenance and upgrade costs from the outset, ensuring that these aspects are integrated into the funding and operational models.

- **Example:** Establishing a maintenance fund as part of initial infrastructure projects, funded by a combination of user fees, government subsidies, and private investment.

*CONCLUSION: By adopting these strategies, the Australian government and industry stakeholders can significantly improve the fixed broadband options available to rural and remote residents, ensuring more equitable and effective digital connectivity across the country.*

# Question 11 - Part A

Have you had experience with new or alternate service providers such as Starlink or WISPs? If not, why not?

## STARLINK

Starlink, operated by SpaceX, is a satellite internet service that aims to provide high-speed internet to remote and rural areas worldwide. It uses a constellation of low-earth orbit (LEO) satellites to deliver internet service, which is particularly beneficial for locations where traditional broadband infrastructure is impractical or too expensive to deploy.

### Advantages:

- **Broad Coverage:** Can provide internet access to geographically challenging and underserved areas.
- **High Speeds:** Offers competitive speeds and lower latency compared to traditional satellite internet services, making it suitable for streaming, gaming, and other high-bandwidth activities.

### Disadvantages:

- **Cost:** Initial setup costs and monthly fees can be high, making it less accessible for some users.
- **Weather Sensitivity:** Service can be affected by weather conditions, although this is a common issue with most satellite services.

## WISPs

Wireless Internet Service Providers typically use fixed wireless technology to provide broadband service. They are particularly common in rural areas where laying cables is not viable. WISPs often use towers to transmit internet service directly to a receiver installed at the user's location.

### Advantages:

- **Rapid Deployment:** Quicker and cheaper to set up compared to laying fibre optic cables.

- **Scalability:** Can be easily scaled by adding more towers or transmitters as the need for service grows.

#### Disadvantages:

- **Line of Sight Issues:** Requires a clear line of sight between the transmitter and the receiver, which can be obstructed by buildings, trees and similar.
- **Varied Service Quality:** Speed and reliability can vary significantly depending on the distance from the transmitter and the number of users sharing the bandwidth.

#### WHY SOME AREAS MAY NOT USE THESE SERVICES

- **Cost:** The expense of new technologies like Starlink may be prohibitive for some users or regions.
- **Availability:** While expanding, services like Starlink and many WISPs may not yet cover all remote or rural areas.
- **Regulatory Hurdles:** In some regions, regulatory approvals and spectrum rights may delay or restrict the availability of services from new providers.
- **Community Awareness and Adoption:** There might be a lack of awareness about these options, or communities might be hesitant to switch from traditional providers due to concerns about reliability or support.

*CONCLUSION: If you are considering alternative service options for a specific region or project, assessing the unique geographical, economic, and regulatory conditions of the area will be crucial in determining the most viable solution.*

# Question 11 - Part B

What additional measures would persuade you to consider new technologies?

To persuade communities, businesses, or individuals to consider new technologies for internet services, especially in contexts like regional, rural, and remote areas, several key measures can be implemented to address common concerns and enhance the attractiveness of these solutions:

## DEMONSTRATION PROJECTS AND PILOT PROGRAMS

- **Purpose:** To showcase the effectiveness and reliability of new technologies such as satellite internet (e.g., Starlink) or WISPs in real-world settings.
- **Implementation:** Set up pilot programs in select communities, offering free or subsidised service for a limited period to allow potential users to experience the benefits firsthand without financial risk.

## SUBSIDIES AND FINANCIAL INCENTIVES

- **Purpose:** To make new technologies more affordable and reduce the financial risk for users.
- **Implementation:** Offer government subsidies, tax incentives, or rebates for the initial installation costs and service fees associated with new technologies.

## REGULATORY SUPPORT

- **Purpose:** To ensure that new technologies can be deployed swiftly and without undue regulatory barriers.
- **Implementation:** Streamline the regulatory process for approving new technologies and service providers, ensuring faster deployment and lower compliance costs.

## ENHANCED CUSTOMER SUPPORT

- **Purpose:** To provide reassurance that users will receive adequate support when transitioning to new technologies.

- **Implementation:** Ensure that new service providers offer comprehensive customer support, including local troubleshooting and technical assistance, which can be crucial for gaining user trust and acceptance.

#### TRANSPARENT AND FAIR CONTRACT TERMS

- **Purpose:** To build trust and ensure that users are not locked into unfavourable conditions.
- **Implementation:** Regulate service agreements to ensure they are fair, transparent, and provide guarantees against sudden price increases, service outages, or penalties for switching providers.

#### COMMUNITY ENGAGEMENT AND EDUCATION

- **Purpose:** To raise awareness about the benefits of new technologies and address any concerns or misinformation.
- **Implementation:** Conduct community workshops, seminars, and informational campaigns that explain the technology, the benefits, potential risks, and the support available to users.

#### PARTNERSHIPS WITH TRUSTED LOCAL ENTITIES

- **Purpose:** To leverage the trust and reach of local institutions or organisations.
- **Implementation:** Form partnerships with local businesses, schools, healthcare providers, and community organisations to promote and support the adoption of new technologies.

#### RELIABILITY AND QUALITY GUARANTEES

- **Purpose:** To assure potential users of the consistent performance of new technologies.
- **Implementation:** Require new service providers to meet specific performance benchmarks, offering compensation or other remedies if these are not met.

### INFRASTRUCTURE RESILIENCE

- **Purpose:** To ensure that the new technology can withstand local environmental conditions and other potential disruptions.
- **Implementation:** Design and deploy infrastructure with a focus on durability and resilience, particularly in areas prone to severe weather, to minimise service disruptions.

### CUSTOMISATION OF SERVICES

- **Purpose:** To cater to the specific needs and preferences of different user groups.
- **Implementation:** Allow for service customisation where users can choose packages that best fit their needs and usage patterns, ensuring they only pay for what they need.

*CONCLUSION: These measures, individually or combined, can significantly increase the likelihood of successful adoption of new technologies for internet services, particularly in areas traditionally underserved by conventional broadband providers.*

# Question 12

What can be done to maximise access to multiple connectivity options in case of outages?

Maximising access to multiple connectivity options to ensure reliability and continuity during outages is essential, especially in critical areas such as healthcare facilities, emergency services, and businesses that rely heavily on internet connectivity. There several strategies that can be implemented to enhance resilience and ensure uninterrupted access to connectivity:

## REDUNDANCY IN CONNECTIVITY OPTIONS

Implementation:

- Establish multiple connectivity methods for critical areas, such as a combination of wired broadband, wireless (fixed or mobile), and satellite connections. This ensures that if one service is disrupted, others can take over without significant downtime.
- **Example:** A hospital could have a primary fibre connection supplemented by a 4G LTE or 5G mobile network and a backup satellite link.

## DIVERSIFIED SERVICE PROVIDERS

Implementation:

- Encourage the use of different internet service providers (ISPs) for these redundant connections. This reduces the risk of a single point of failure affecting all connectivity options.
- **Example:** A business might use one ISP for its primary fibre connection and a different ISP for its secondary wireless backup.

## ENHANCED INFRASTRUCTURE RESILIENCE

Implementation:

- Invest in infrastructure upgrades that enhance resilience to physical and cyber threats, such as more robust cable housing, elevated or underground conduits in flood-prone areas, and advanced cybersecurity measures.



- **Example:** Upgrading network infrastructure to withstand extreme weather conditions, using materials and designs that are resistant to flooding, wind, and other environmental stressors.

### REGULAR TESTING AND MAINTENANCE

#### Implementation:

- Conduct regular testing of backup systems and redundancy measures to ensure they are functional when needed. Scheduled maintenance should also be rigorously adhered to.
- **Example:** Implementing a routine schedule where backup connections are activated monthly to ensure they are operational and ready to serve in an emergency.

### COMMUNITY NETWORKS AND LOCAL SOLUTIONS

#### Implementation:

- Support the development of local and community-based networks that can operate independently of main ISPs. These can provide additional redundancy and are often more directly managed by those who rely on them.
- **Example:** Community mesh networks that can share local resources and connectivity during an outage.

### LEGISLATIVE AND REGULATORY FRAMEWORKS

#### Implementation:

- Develop and enforce regulations that require critical service providers to have contingency plans and backup connectivity options in place.
- **Example:** Regulations that mandate hospitals, schools, and emergency services to have a minimum of two independent connectivity solutions from separate providers.

### CLOUD-BASED SOLUTIONS AND EDGE COMPUTING

#### Implementation:

Utilise cloud services and edge computing to minimise the impact of local outages. By distributing data and processing across multiple locations, services can remain operational even if one site goes offline.

- **Example:** Using cloud-based applications and storage ensures that data is accessible from any location, regardless of local connectivity issues.

### POWER BACKUP SOLUTIONS

#### Implementation:

- Ensure that all connectivity equipment has reliable power backup solutions, such as generators and uninterruptible power supplies (UPS), to remain operational during power outages.
- **Example:** Installing UPS systems in all critical networking equipment locations to provide seamless power during transitions to generators.

*CONCLUSION: By implementing these strategies, organisations and communities can significantly enhance their resilience to connectivity outages, ensuring continuous access to vital information and services when they are most needed. This approach not only minimises downtime but also strengthens overall service reliability and public trust in connectivity infrastructure.*

# Question 13

What can be done to increase capacity and improve the reliability of telecommunications services in regional, rural, and remote Australia?

Improving the capacity and reliability of telecommunications services in regional, rural, and remote areas of Australia requires a comprehensive approach that combines technological upgrades, regulatory reforms, strategic partnerships, and community involvement. There are several key strategies to effectively enhance these services:

## INFRASTRUCTURE UPGRADES

### Investment in Fiber Optics:

- Where feasible, extend fibre-optic networks to rural and remote areas to provide high-speed, reliable internet access.

### Enhanced Wireless Solutions:

- Deploy advanced wireless solutions such as 4G LTE and 5G networks, as well as fixed wireless access (FWA), which can provide high-speed internet without the extensive infrastructure required for fibre.

### Satellite Internet:

- Utilise satellite technology, particularly Low Earth Orbit (LEO) satellites like those used by Starlink, which offer lower latency and higher speeds compared to traditional geostationary satellites.

## DIVERSIFIED CONNECTIVITY OPTIONS

### Multiple Provider Options:

- Encourage the presence of multiple telecommunications providers in remote areas to stimulate competition, improve service quality, and offer consumers a choice.

### Community Networks:

- Support the development of community-owned and operated networks that can tailor their services to local needs and conditions.

## REGULATORY AND POLICY INITIATIVES

### Incentives for Providers:

- Implement policies that provide tax incentives, subsidies, or grants to telecommunications companies for expanding services in underserved areas.

### Universal Service Obligations:

- Strengthen and enforce universal service obligations that require providers to extend reliable telecommunications services to all geographic areas, including rural and remote regions.

## TECHNOLOGICAL INNOVATIONS

### Adoption of New Technologies:

- Encourage the adoption of emerging technologies such as mesh networks, which can increase coverage and reliability by allowing multiple points of interconnection among users' devices.

### Edge Computing:

- Promote the use of edge computing to process data closer to the end-user, reducing latency and reliance on long-distance data transmission.

## CAPACITY BUILDING

### Skill Development:

- Invest in local training programs to develop the skills needed to build, maintain, and operate telecommunications infrastructure within rural communities.

### Support for Local Businesses:

- Provide technical and financial support to local businesses to adopt digital technologies and enhance their connectivity.

## REDUNDANCY AND RESILIENCE

### Network Redundancy:

- Build redundant network paths to ensure continuity of service in case one path fails.

### Disaster-Resilient Infrastructure:

- Design and construct infrastructure that can withstand local environmental challenges such as floods, bushfires, and extreme weather conditions.

## PARTNERSHIPS AND COLLABORATION

### Public-Private Partnerships (PPPs):

- Foster partnerships between government entities and private sector companies to share resources, risks, and rewards associated with telecommunications projects.

### Collaboration with Educational and Research Institutions:

- Engage with universities and research institutions to innovate and test new technologies suitable for rural telecommunications.

## MONITORING AND FEEDBACK MECHANISMS

### Service Quality Monitoring:

- Implement systems to continuously monitor the quality of telecommunications services and gather feedback from users to guide improvements.

### Responsive Customer Service:

- Ensure that providers offer responsive and effective customer service to address issues as they arise, particularly in remote locations.

*CONCLUSION: By implementing these strategies, Australia can significantly enhance the telecommunications infrastructure in its rural and remote areas, ensuring that these communities have access to reliable, high-quality services that support their economic development and connectivity needs. This will help bridge the digital divide and foster greater equity in access to digital resources.*

# Question 14

How can the energy and telecommunications sectors work more effectively, especially with respect to redundancy?

Enhancing collaboration between the energy and telecommunications sectors is crucial for improving resilience and redundancy in both industries, which are increasingly interdependent. Effective strategies can ensure that both sectors support each other to enhance service reliability, especially during emergencies or in remote areas. Following are how these sectors can work more effectively together:

## INTEGRATED INFRASTRUCTURE PLANNING

### Joint Development Projects:

- Coordinate infrastructure development to minimise costs and maximise efficiency. For example, laying fibre optic cables alongside new or existing power lines, or using utility poles for telecom equipment.

### Shared Resources:

- Share logistical and infrastructure resources, such as maintenance costs, vehicle fleets, or data centre facilities, to reduce overheads and improve response times.

## CROSS-SECTOR REDUNDANCY

### Dual-Powered Telecommunications Equipment:

- Design telecommunications infrastructure to be powered by multiple sources, such as the main grid and solar panels, to ensure continuity during power outages.

### Energy Sector as Telecommunications Customer:

- Utilise telecommunications networks to monitor and control energy distribution, which increases the telecommunications network's criticality, incentivising greater investment in its resilience.

## COLLABORATIVE EMERGENCY RESPONSE AND RECOVERY PLANS

### Unified Response Frameworks:

- Develop and implement integrated response plans for disasters that affect both sectors. This can include coordinated emergency command centres and predefined action plans.

### Simulated Crisis Drills:

- Conduct joint emergency drills to test the resilience of interconnected systems and the effectiveness of collaborative strategies during crises.

## TECHNOLOGY AND DATA SHARING

### IoT and Smart Grid Technologies:

- Share technologies and data to improve the management of resources. For instance, telecommunications can facilitate the real-time data transfer needed for smart grid operations.

### Cybersecurity Protocols:

- Collaborate on cybersecurity measures, given the interconnected nature of both sectors. Joint initiatives could include shared cybersecurity monitoring centres and unified threat intelligence sharing.

## REGULATORY AND POLICY COORDINATION

### Joint Advocacy for Policy Support:

- Work together to advocate for government policies that recognise the symbiotic relationship between energy and telecommunications, such as regulations that facilitate joint projects or shared use of rights-of-way.

### Regulatory Frameworks for Cross-Sector Support:

Develop regulatory frameworks that encourage or require cross-sector support during the deployment and operation phases, ensuring both sectors contribute to national resilience.

## INNOVATIVE FINANCING MODELS

### Cross Sector Investment Funds:

- Establish investment funds that focus on projects benefiting both sectors, such as infrastructure upgrades that improve energy efficiency and telecommunications resilience.

### Public-Private Partnerships (PPPs):

- Encourage PPPs that include stakeholders from both sectors to leverage private investment in public interest projects across both industries.

## ADVANCED RESEARCH AND DEVELOPMENT

### Joint R&D Initiatives:

- Invest in research and development projects that explore new technologies benefiting both sectors, such as energy-efficient telecommunications technologies or enhanced data analytics for energy management.

### University and Research Institution Partnerships:

- Collaborate with academic and research institutions on projects that span both sectors, promoting innovation and practical applications.

## COMMUNITY ENGAGEMENT AND CONSUMER EDUCATION

### Unified Communication Strategies:

- Jointly develop and disseminate information to educate the public on how the sectors are working together to improve services and resilience.

### Community-Based Projects:

- Engage in community projects that showcase the benefits of cross-sector collaboration, such as community solar projects that include telecommunications enhancements.

*CONCLUSION: Through these strategies, the energy and telecommunications sectors can forge a partnership that not only enhances their individual operational efficiencies and resilience but also significantly contributes to national infrastructure reliability and security.*



# Question 15 - Part A

What innovative solutions can be explored to ensure telecommunications infrastructure remains operational during and after natural disasters?

Ensuring that telecommunications infrastructure remains operational during and after natural disasters is critical for emergency response, recovery efforts, and maintaining societal functions. Innovative solutions for enhancing the resilience and reliability of these systems can include a mix of advanced technology, strategic planning, and community involvement. Below are several key strategies:

## DEPLOYMENT OF DISASTER-RESISTANT INFRASTRUCTURE

### Reinforced Structures:

- Enhance physical infrastructure such as cell towers, data centres, and network facilities to withstand severe weather conditions, including floods, gale force winds etc.

### Elevated Equipment:

- In flood-prone areas, position critical infrastructure components such as generators and fuel tanks above expected flood levels.

## USE OF MOBILE AND RAPID-DEPLOYMENT TECHNOLOGIES

### Mobile Cell Units:

- Deploy mobile cell units, such as Cells on Wheels (COWs) or Cells on Light Trucks (COLTs), that can be quickly brought to disaster-affected areas to restore communication.

### Portable Satellite Phones:

- Distribute satellite phones to emergency services and community leaders in vulnerable areas, ensuring communication capabilities if terrestrial networks fail.

## INCORPORATION OF RENEWABLE ENERGY SOURCES

### Solar-Powered Stations:

- Equip telecommunications infrastructure with solar panels and battery storage systems to maintain functionality during power outages.

### Wind and Hybrid Systems:

- Explore the use of small-scale wind turbines or hybrid systems combining solar, wind, and traditional power sources for remote or isolated installations.

### ADVANCED NETWORK TECHNOLOGIES

#### Mesh Networks:

- Develop and implement mesh network systems that can dynamically reroute data through multiple pathways, ensuring continued service even if some nodes are damaged or destroyed.

#### Software-Defined Networking (SDN):

- Utilise SDN to manage network traffic dynamically and prioritise emergency communications automatically during disasters.

### ROBUST DATA BACKUP AND RECOVERY SYSTEMS

#### Remote Data Mirroring:

- Ensure data centres mirror information to multiple geographically dispersed locations to prevent data loss.

#### Cloud Services:

- Leverage cloud computing for critical communications infrastructure to enable real-time data access and resource management from anywhere.

### ENHANCED CYBERSECURITY MEASURES

#### Increased Protection During Disasters:

- Strengthen cybersecurity protocols to protect networks from increased vulnerabilities due to disaster-related disruptions.

#### Continuous Monitoring:

- Implement advanced monitoring systems to detect and respond to security threats rapidly, especially when infrastructure is at its most vulnerable.

## COMMUNITY BASED COMMUNICATION SYSTEMS

### Local Communication Networks:

- Support the development of local, community-managed communication networks that can operate independently of the main infrastructure.

### Public Access Points:

- Establish designated public communication access points that are well-known and can be accessed during emergencies for communication and information.

## STRATEGIC COLLABORATION AND PLANNING

### Partnerships with Other Utilities:

- Collaborate with other critical infrastructure providers (e.g., energy, water) to develop integrated emergency response strategies.

### Comprehensive Disaster Drills:

- Regularly conduct disaster drills that include telecommunications outage scenarios to test resilience and improve response strategies.

## REGULATORY AND POLICY INNOVATIONS

### Incentives for Resilience Investments:

- Implement policy measures that provide incentives for telecommunications companies to invest in disaster resilience.

### Standards and Regulations:

- Develop and enforce standards for disaster resilience across the telecommunications industry.

*CONCLUSION: By implementing these innovative solutions, telecommunications infrastructure can not only withstand the immediate impacts of natural disasters but also quickly recover and maintain operational stability, playing a crucial role in overall disaster management and community resilience.*

# Question 15 - Part B

How could partnerships with local communities improve the maintenance, security, and availability of infrastructure?

Partnerships with local communities are essential for improving the maintenance, security, and availability of telecommunications infrastructure, especially in regional, rural, and remote areas. These collaborations can leverage local knowledge, foster mutual benefits, and enhance the sustainability of infrastructure projects. Following are how such partnerships can be effectively implemented:

## COMMUNITY-BASED MAINTENANCE PROGRAMS

### Local Maintenance Teams:

- Train and employ residents to carry out routine maintenance checks and minor repairs on telecommunications equipment. This approach not only provides employment opportunities but also ensures quicker response times for addressing issues.

### Incentive Programs:

- Develop incentive programs that reward communities for taking active roles in maintaining the infrastructure, such as reduced service rates for communities that achieve certain maintenance or security goals.

## COMMUNITY WATCH PROGRAMS FOR SECURITY

### Local Monitoring:

- Establish community watch programs that involve residents in monitoring the physical security of telecommunications infrastructure. This can be particularly effective in deterring vandalism and theft.

### Integration with Local Law Enforcement:

- Coordinate with local law enforcement to provide training and resources to community members, enabling them to effectively report and respond to security threats.

## COMMUNITY ADVISORY BOARDS

### Local Decision-Making:

- Create community advisory boards that include local leaders, business owners, and residents to advise on the placement, maintenance, and management of telecommunications infrastructure.

### Feedback and Adaptation:

- Use these boards to gather feedback on service quality and community needs, which can guide future infrastructure development and maintenance practices.

## EDUCATIONAL AND AWARENESS PROGRAMS

### Infrastructure Education:

- Conduct educational programs that inform community members about the importance of the telecommunications infrastructure, how it works, and the roles they can play in its upkeep.

### Disaster Preparedness Training:

- Provide training on how the community can utilise telecommunications systems in emergency situations and how to protect this infrastructure during natural disasters.

## JOINT DEVELOPMENT PROJECTS

### Community-Driven Infrastructure Projects:

- Engage communities in the planning and implementation of infrastructure projects from the outset. This can include decisions on where to lay cables or where to place new cell towers, ensuring that these decisions align with local needs and priorities.

### Shared Resource Models:

- Explore models where communities can own a stake in the infrastructure, potentially through co-operatives or public-private-community partnerships, giving them a direct interest in the system's success and longevity.

## INNOVATIVE FINANCING AND RESOURCE SHARING

### Microfinancing for Local Initiatives:

- Support microfinancing initiatives that allow communities to invest in their local telecommunications infrastructure, thereby increasing their commitment to maintaining and protecting it.

### Resource Sharing Agreements:

- Implement agreements where communities provide local resources (e.g., land for tower installations) in exchange for improved service rates or community development funds.

## TECHNOLOGY SHARING INITIATIVES

### Access to Technology:

- Provide communities with access to technology and training that can help them monitor and manage local telecommunications infrastructure more effectively.

### Smart Technology Integration:

- Use smart technologies that allow for remote monitoring of infrastructure health, which can be managed jointly by service providers and trained community members.

## LOCAL CUSTOM SOLUTIONS

### Tailored Infrastructure Solutions:

- Develop customised infrastructure solutions that consider local geographic, climatic, and social characteristics, designed with input from the community to meet specific local needs.

*CONCLUSION: By forming strong partnerships with local communities, telecommunications providers can enhance the maintenance, security, and availability of their infrastructure, leading to more resilient and responsive services that are better tailored to meet local demands and conditions.*

# Question 16

## What lessons can be learned from private sector investment in regional communications in closing the digital divide in regional and remote areas?

Private sector investment in regional telecommunications offers valuable lessons on strategies to effectively close the digital divide in regional and remote areas. By analysing these investments, stakeholders can glean insights into what works, what does not, and how to scale successful models. Below are key lessons learned from these initiatives:

### IMPORTANCE OF INCENTIVES

- **Lesson:** Financial incentives can significantly motivate private companies to invest in less profitable areas. Subsidies, tax breaks, and other financial supports lower the risk and enhance the attractiveness of deploying infrastructure in underserved regions.
- **Application:** Governments should consider structured incentive programs that specifically target the unique challenges of regional and remote telecommunications.

### PARTNERSHIPS ARE CRUCIAL

- **Lesson:** Collaborations between the private sector, government, and local communities can lead to more sustainable and tailored solutions. These partnerships often combine public funding and oversight with private expertise and efficiency.
- **Application:** Foster multi-stakeholder partnerships that include local input to ensure that solutions are culturally appropriate and meet actual needs.

### COMMUNITY ENGAGEMENT ENHANCES OUTCOMES

- **Lesson:** Investments are more successful when there is strong community engagement. When local populations are involved in the planning and implementation phases, there is greater support and upkeep of the infrastructure.
- **Application:** Encourage investors to engage with communities from the outset, incorporating their feedback and providing them with ownership or revenue-sharing opportunities.

### SCALABILITY AND FLEXIBILITY

- **Lesson:** Solutions that are scalable and flexible to different regional conditions tend to succeed more. Investments that consider geographic and demographic diversity can adapt to various local realities.
- **Application:** Design investment models that are adaptable, allowing for the scale-up of successful pilots and the flexibility to adjust to local conditions and technological advancements.

### TECHNOLOGY NEUTRALITY

- **Lesson:** Embracing a technology-neutral approach—where the best technological solution is applied based on specific regional needs, rather than a one-size-fits-all model—enhances service delivery and efficiency.
- **Application:** Regulatory frameworks should encourage the use of a broad spectrum of technologies—from fibre optics to satellite—to ensure the most appropriate solutions are deployed.

### LONG-TERM VIABILITY

- **Lesson:** Private investments are more effective when they include long-term operational and maintenance plans. Initial deployments must be accompanied by long-term service and maintenance agreements to ensure sustainability.
- **Application:** Ensure that investment agreements include long-term maintenance commitments and local capacity building to handle ongoing operations.



### IMPORTANCE OF RELIABLE DATA

- **Lesson:** Decision-making based on reliable data leads to better-targeted investments and reduces waste. Accurate data on local needs, usage patterns, and existing infrastructure can guide more effective deployments.
- **Application:** Invest in data collection and analysis as foundational steps before deploying telecommunications projects.

### REGULATORY ENVIRONMENT

- **Lesson:** A supportive regulatory environment that simplifies permits, reduces bureaucratic barriers, and protects investments is crucial for encouraging private sector involvement.
- **Application:** Streamline regulatory processes and provide a stable policy environment that assures investors of the security and predictability of their investments.

*CONCLUSION: By learning from these lessons, policymakers, businesses, and community leaders can more effectively collaborate to develop and implement strategies that significantly reduce the digital divide in regional, rural, and remote areas. This collaborative approach ensures that investments are not only financially viable but also socially beneficial and widely supported by the communities they serve.*

# Question 17 - Part A

What has been your experience as a consumer of Australian Government Programs aimed at improving regional communications?

Based on my knowledge, the Australian Government has initiated various programs to enhance telecommunications in regional, rural, and remote areas, aiming to bridge the digital divide and provide equitable access to communication services. Some of the key initiatives I am aware of, include:

## Mobile Black Spot Program:

- **Objective:** To improve mobile coverage in areas where there are significant coverage gaps.
- **Impact:** This program has funded the construction of hundreds of new mobile phone towers across remote and regional Australia, significantly improving mobile coverage and connectivity.

## Regional Connectivity Program (RCP):

- **Objective:** To provide funding for bespoke telecommunications infrastructure projects that improve digital connectivity at the local level.
- **Impact:** The RCP supports a wide range of projects, from upgrading mobile infrastructure to deploying advanced wireless broadband solutions, directly addressing the specific needs of communities.

## NBN (National Broadband Network) Rollout:

- **Objective:** To provide nationwide broadband access with specific attention to rural and remote areas using a mix of technologies including fibre, fixed wireless, and satellite.
- **Impact:** While the NBN has significantly expanded broadband access, its implementation in rural areas has faced challenges such as delays, mixed service levels, and issues with reliability and speed, particularly in areas relying on satellite and fixed wireless services.

## CONSUMER FEEDBACK AND CHALLENGES

From consumer feedback and program evaluations, several common themes and challenges emerge:

### Access and Quality:

- While there has been a notable improvement in access to telecommunications in regional areas, consistent quality and reliability remain issues, particularly in very remote areas.

### Affordability:

- Costs associated with new installations and ongoing services can be prohibitive, despite government subsidies and initiatives aimed at reducing these.

### Complexity and Information:

- There is often a lack of clear information about what services are available, eligibility for subsidies, and how to get the most out of these services. Consumers in rural areas sometimes struggle to navigate these complexities.

### Engagement and Customisation:

- Programs that have successfully engaged with local communities to tailor solutions to their specific needs tend to be more positively received than one-size-fits-all approaches.

*CONCLUSION: The Australian Government's efforts have made significant strides in improving regional communications; however, ongoing challenges suggest that there is still considerable work to be done. Ensuring the sustainability of these initiatives, alongside improving service quality and customer experience, is crucial for their long-term success. Programs that involve active community participation and feedback tend to yield better outcomes, highlighting the importance of continued engagement and adaptation to local needs.*

# Question 17 - Part B

## What improvements would you suggest?

To further enhance the effectiveness of Australian Government programs aimed at improving regional communications, several improvements can be made. These recommendations are designed to address the ongoing challenges and to ensure that the initiatives are more responsive to the needs of regional, rural, and remote communities:

### INCREASED TRANSPARENCY AND SIMPLIFICATION

#### Implementation:

- Provide clearer, more accessible information about the available services, funding opportunities, and technological options. Simplify the application processes for subsidies and services to make them more user-friendly.
- **Benefit:** Reducing complexity and increasing transparency will help consumers better understand their options and how to access government-supported services.

### ENHANCED COMMUNITY ENGAGEMENT

#### Implementation:

- Engage more directly with local communities in the planning and implementation phases of telecommunications projects. This could involve setting up regional advisory councils that include local leaders, businesses, and consumer representatives.
- **Benefit:** Local input ensures that the solutions developed are closely aligned with the actual needs and priorities of the communities they are intended to serve.

### ROBUST SERVICE LEVEL AGREEMENTS

#### Implementation:

- Establish strict service level agreements (SLAs) with service providers to ensure quality and reliability standards are met, especially for newly deployed services under government programs.
- **Benefit:** SLAs will hold providers accountable for the performance and reliability of their services, ensuring that communities receive the benefits promised.

### FOCUS ON SUSTAINABLE AND SCALABLE SOLUTIONS

#### Implementation:

- prioritise investments in sustainable technologies that can be scaled as needed. This includes supporting renewable energy-powered telecommunications infrastructure and scalable network designs.
- **Benefit:** Sustainability in design not only addresses environmental concerns but also ensures that the infrastructure can grow with the community's needs without requiring completely new installations.

### REGULAR PROGRAM EVALUATION AND ADAPTATION

#### Implementation:

- Implement a framework for the regular evaluation of telecommunications programs, including community feedback mechanisms to continually assess the effectiveness of the initiatives.
- **Benefit:** Continuous evaluation and adaptation help ensure that programs remain relevant and effective in meeting the changing needs of regional, rural, and remote communities.

### IMPROVED AFFORDABILITY MEASURES

#### Implementation:

- Introduce more aggressive pricing regulations or additional subsidies for low-income households in remote areas to make services more affordable.
- **Benefit:** Ensuring affordability is crucial for true digital inclusion, allowing everyone, regardless of economic status, to benefit from enhanced connectivity.

### ENHANCED COLLABORATION WITH INDUSTRY EXPERTS

#### Implementation:

- Foster partnerships with technology companies, academic institutions, and industry innovators to bring cutting-edge solutions to regional communications challenges.

- **Benefit:** Leveraging external expertise can accelerate the development and deployment of more effective telecommunications technologies and methodologies.

### STRENGTHENING REDUNDANCY AND RESILIENCE

#### Implementation:

- Invest in building redundant network capabilities and disaster-resilient infrastructure to ensure continuity of services during emergencies.
- **Benefit:** Enhancing resilience is key to maintaining communication and information access during natural disasters, which are crucial for effective response and recovery efforts.

*CONCLUSION: These improvements are designed to enhance the structure, execution, and outcomes of government programs, leading to more reliable, effective, and inclusive telecommunications services across Australia's diverse regional, rural, and remote landscapes.*

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# Question 18

What changes to the Australian Government Investment programs are required to ensure they are successful, efficient, and effective in delivering improved, reliable, and equitable telecommunications for regional, rural and remote consumers?

To ensure that Australian Government investment programs are successful, efficient, and effective in delivering improved, reliable, and equitable telecommunications for regional, rural, and remote consumers, several key changes can be implemented. These changes should focus on enhancing program design, administration, and monitoring to better meet the needs of these communities. The following are strategic recommendations:

## TARGETED INVESTMENT BASED ON NEEDS ASSESSMENT

### Change Required:

- Implement a detailed, ongoing needs assessment process to accurately identify the specific telecommunications challenges and requirements of different regional, rural, and remote areas.
- **Benefit:** This ensures that investments are directed where they are most needed and that they address the specific challenges faced by each community, rather than a one-size-fits-all approach.

## STREAMLINED FUNDING AND APPLICATION PROCESSES

### Change Required:

- Simplify the funding and application processes to make it easier for small providers and community organisations to access government funds.
- **Benefit:** Reducing bureaucratic hurdles and simplifying processes will encourage more providers to participate, increasing competition and innovation in the provision of services.

## GREATER FLEXIBILITY IN TECHNOLOGY CHOICES

### Change Required:

- Adopt a technology-neutral approach that allows for the use of the best technology suited to each area's geographical and demographic needs, whether it be fibre, satellite, fixed wireless, or emerging technologies.

- **Benefit:** This flexibility ensures that the most effective and cost-efficient technologies are used, maximising the impact of investments.

### ENHANCED PUBLIC-PRIVATE PARTNERSHIPS

#### Change Required:

- Foster more robust partnerships between government, private sector, and non-profits to leverage private investment and expertise in telecommunications infrastructure.
- **Benefit:** Partnerships can bring additional resources, innovation, and operational efficiencies to the table, enhancing the scope and scale of infrastructure projects.

### ACCOUNTABILITY AND PERFORMANCE METRICS

#### Change Required:

- Implement strict accountability measures and clear performance metrics for all funded projects. Require regular reporting and independent audits to assess program effectiveness.
- **Benefit:** These measures will ensure transparency and motivate all stakeholders to adhere to high standards in both implementation and maintenance of telecommunications services.

### COMMUNITY INVOLVEMENT AND EMPOWERMENT

#### Change Required:

- Increase community involvement in planning and decision-making processes to ensure that the solutions provided align with actual needs and preferences.
- **Benefit:** Engaging communities directly leads to higher satisfaction levels and promotes local stewardship of telecommunications infrastructure, enhancing long-term sustainability.



### REGULAR PROGRAM REVIEW AND ADAPTATION

#### Change Required:

- Establish mechanisms for regular review and adaptation of investment programs based on feedback and evolving needs.
- **Benefit:** This will keep the programs responsive and relevant, allowing them to adapt to new technologies, market conditions, and community needs.

### FOCUS ON SUSTAINABILITY

#### Change Required:

- Integrate sustainability considerations into the investment programs, including the support for renewable energy sources and environmentally friendly technologies in telecommunications infrastructure.
- **Benefit:** Promoting sustainability not only protects the environment but also ensures the long-term viability and cost-effectiveness of telecommunications infrastructure.

### ENHANCED TRAINING AND SUPPORT

#### Change Required:

- Provide training and technical support to local businesses and communities to enable them to maintain and manage their telecommunications infrastructure effectively.
- **Benefit:** Building local expertise ensures that infrastructure is well-maintained and can be efficiently managed and expanded as needed without always relying on external contractors.

*CONCLUSION: Implementing these changes would significantly improve the structure, management, and outcomes of government investment programs, leading to more robust, reliable, and equitable telecommunications services across Australia's regional, rural, and remote areas.*

# Question 19

How could Australian Government Programs better align with state, territory and local government planning and funding processes in delivering telecommunications services and infrastructure?

To improve the alignment of Australian Government programs with state, territory, and local government planning and funding processes for delivering telecommunications services and infrastructure, a coordinated and collaborative approach is essential. This alignment ensures that efforts are complementary, resources are utilised efficiently, and services meet the nuanced needs of various communities. Following are several strategies to enhance this alignment:

## INTEGRATED PLANNING FRAMEWORKS

### Implementation:

- Develop integrated planning frameworks that include representatives from federal, state, territory, and local governments. These frameworks should facilitate regular communication and coordination on telecommunications projects.
- **Benefit:** Ensures that all levels of government are working towards common goals, avoiding duplication of efforts, and leveraging synergies in planning and execution.

## JOINT FUNDING INITIATIVES

### Implementation:

- Establish joint funding initiatives where costs are shared between different levels of government. This could involve pooled funds for specific projects that align with both local needs and national priorities.
- **Benefit:** Maximises the financial resources available for telecommunications projects and ensures that investments are directed towards projects with multi-level support.

## UNIFIED REGULATORY PROCESSES

### Implementation:

- Streamline regulatory processes across different government levels to simplify approvals and reduce bureaucratic delays for telecommunications infrastructure projects.

- **Benefit:** Reduces time and cost associated with deploying new infrastructure, making projects more viable and attractive to private sector partners.

### SHARED DATA AND RESEARCH

#### Implementation:

- Create a shared digital platform for data and research related to telecommunications needs and infrastructure, accessible to all levels of government.
- **Benefit:** Provides a comprehensive, evidence-based approach to planning and allows for better-targeted interventions based on shared knowledge and analytics.

### LOCAL CUSTOMISATION OF NATIONAL PROGRAMS

#### Implementation:

- Allow for local customisation of national telecommunications programs to address the specific needs and challenges of different regions, guided by input from state and local governments.
- **Benefit:** Increases the effectiveness of national programs by ensuring they are relevant and adapted to local conditions and priorities.

### CROSS-LEVEL ADVISORY BODIES

#### Implementation:

- Establish advisory bodies that include stakeholders from federal, state, territory, and local governments, as well as industry experts and community representatives, to advise on telecommunications strategy and policy.
- **Benefit:** Facilitates a more inclusive and informed decision-making process that considers diverse perspectives and expertise.

### COORDINATED EMERGENCY MANAGEMENT

#### Implementation:

- Coordinate telecommunications emergency management strategies across all levels of government to ensure a unified response during disasters, focusing on maintaining or quickly restoring communications infrastructure.
- **Benefit:** Enhances the resilience of telecommunications services and ensures effective communication in emergency situations.

### CAPACITY BUILDING AND TRAINING

#### Implementation:

- Develop joint capacity-building and training programs for local government staff on the latest telecommunications technologies and project management techniques.
- **Benefit:** Empowers local governments to take a proactive role in the planning, deployment, and maintenance of telecommunications infrastructure.

### REGULAR INTER-GOVERNMENTAL MEETINGS

#### Implementation:

- Schedule regular meetings between different levels of government to discuss ongoing projects, share updates, and resolve issues collaboratively.
- **Benefit:** Maintains open lines of communication and ensures ongoing alignment of projects with evolving policies and community needs.

*CONCLUSION: By implementing these strategies, the Australian Government can better align its telecommunications programs with those of state, territory, and local governments, leading to more efficient, effective, and comprehensive delivery of telecommunications services and infrastructure across the country.*

# Question 20

What other matters should the Committee consider in its telecommunications review that has not already been covered and why are they important?

In conducting a comprehensive telecommunications review, the Committee should consider a range of additional matters that are critical for the future development, deployment, and management of telecommunications services in Australia. These additional considerations help ensure that the telecommunications infrastructure is robust, equitable, and capable of meeting future demands. Summarising the key areas, including those that have already been covered, include:

## DIGITAL LITERACY AND INCLUSION

Importance:

- Enhancing digital literacy is crucial for ensuring that all Australians can benefit from digital advancements. A focus on digital inclusion ensures that no segment of the population is left behind due to lack of skills or access to technology.
- **Recommendation:** Implement national strategies for improving digital literacy across all age groups and communities, particularly targeting rural, remote, and disadvantaged groups.

## CYBERSECURITY MEASURES

Importance:

- As reliance on digital communications increases, so does the risk of cyber threats. Ensuring robust cybersecurity measures are in place is essential for protecting national infrastructure and individual privacy.
- **Recommendation:** Strengthen cybersecurity frameworks for telecommunications networks, including mandatory cybersecurity standards and regular audits for providers.

## FUTURE-PROOFING TELECOMMUNICATIONS INFRASTRUCTURE

Importance:

- With the rapid pace of technological change, telecommunications infrastructure must be adaptable to future technologies to avoid obsolescence.

- **Recommendation:** Invest in scalable and modular infrastructure designs that can be upgraded as new technologies, such as 5G and beyond, become mainstream.

### ENVIRONMENTAL SUSTAINABILITY

#### Importance:

- Telecommunications infrastructure and operations have significant environmental impacts, including energy consumption and electronic waste.
- **Recommendation:** Develop guidelines and incentives for reducing the environmental footprint of telecommunications operations, including the use of renewable energy sources and sustainable materials.

### ENHANCING RURAL AND REMOTE ACCESS

#### Importance:

- Despite ongoing efforts, disparities in access to reliable and high-speed telecommunications continue to exist between urban and rural areas.
- **Recommendation:** Develop targeted programs to accelerate infrastructure deployment in rural and remote areas, potentially using innovative technologies like drone-based internet delivery or advanced satellite services.

### ECONOMIC IMPACTS AND OPPORTUNITIES

#### Importance:

- Telecommunications is a critical sector that drives other parts of the economy, offering new opportunities for growth, especially in digital economies.
- **Recommendation:** Conduct studies to identify and foster economic opportunities that can be enhanced or created through improved telecommunications, such as telehealth, online education, and remote work.

### INTERNATIONAL COMPARISONS AND BEST PRACTICES

#### Importance:

- Learning from international experiences can provide insights into effective strategies and avoid potential pitfalls.
- **Recommendation:** Benchmark Australian telecommunications policies and infrastructure against leading countries to identify gaps and opportunities for improvement.

### CONSUMER RIGHTS AND PROTECTIONS

#### Importance:

- As telecommunications services become more integral to daily life, protecting consumer rights becomes increasingly important.
- **Recommendation:** Review and strengthen consumer protection laws related to telecommunications, focusing on fair pricing, service reliability, and transparent contracts.

### TELECOMMUNICATIONS WORKFORCE DEVELOPMENT

#### Importance:

- The sector's growth is dependent on a skilled workforce capable of building, maintaining, and innovating within the telecommunications infrastructure.
- **Recommendation:** Invest in education and training programs to ensure a steady supply of skilled telecommunications professionals.

**CONCLUSION:** By addressing these areas, the Committee can help ensure that Australia's telecommunications infrastructure is robust, inclusive, and prepared to meet the future needs of all Australians. These considerations are not only critical for maintaining the competitiveness of the national economy but also for ensuring the social and economic well-being of the community.

# WARREN SHIRE SPECIFIC EXAMPLES

As detailed in earlier pages of this submission, Warren Shire Council appreciates the opportunity to submit a detailed report on the telecommunications challenges faced by rural residents within our region. As already outlined, reliable telecommunications services are crucial for safety, health, economic growth, and social connectivity. However, Warren Shire faces significant difficulties due to inadequate mobile phone coverage and internet connectivity.

This section of our report aims to highlight these issues, providing concrete examples to underscore the urgent need for improved telecommunications infrastructure in rural areas.

## [MOBILE PHONE COVERAGE CHALLENGES](#)

### Safety Concerns on Rural Roads:

Many residents and visitors in Warren Shire travel long distances on rural roads, often with little to no mobile phone coverage. This poses significant safety risks, particularly in emergencies such as vehicle breakdowns, accidents, or medical crises. For instance, residents traveling on the Oxley Highway or the Mitchell Highway frequently encounter stretches without any mobile service, making it impossible to call for roadside assistance or emergency services. This lack of coverage can lead to prolonged periods of vulnerability and potential harm, especially in harsh weather conditions or during night-time travel.

### Economic and Social Impact:

Inadequate mobile phone coverage also impacts the local economy and social life. Farmers and small business owners rely on mobile connectivity for operations, communications, and accessing market information. The inability to connect can delay critical business decisions and transactions, negatively affecting productivity and profitability. Socially, the lack of mobile coverage hinders residents' ability to stay connected with family and friends, contributing to feelings of isolation, particularly among the elderly and those living in more remote parts of the Shire.

### Impact on Travellers and Visitors:

The beautiful and remote areas of Warren Shire, such as the Macquarie Marshes, attract tourists and nature enthusiasts. However, these visitors often find themselves without adequate mobile coverage, which impacts their ability to access maps, information about the area, or call for assistance in case of an emergency. For example, a group of hikers exploring the Macquarie Marshes might get lost and be unable to use their mobile devices to navigate or contact emergency services, putting their safety at risk.



# WARREN SHIRE SPECIFIC EXAMPLES

On rural roads, it is vital that visitors have access to reliable coverage to ensure that in times of emergency they can access essential services. This includes calling for services such as the NRMA in the event of breakdown, emergency tyre replacement or to contact mechanics or tow services.

Visiting Friends and Relatives (VFAR) is one of the most significant reasons for travel to the Central West region. Visitors, especially those from the larger cities, are unaware of the differences in coverage that can occur in the regional, rural or remote areas. Many would expect that the networks they are contracted to in the city areas will work in exactly the same manner in the country, giving the same coverage, internet access speeds and so on. We have many examples of travelers not understanding why their phone coverage is poor, even though they are close to a rival network owned tower. It is a reasonable expectation by these travelers that they should not need to purchase new mobile phones or sign up to a new provider, just to use their phones on a trip to see relatives.

## Challenges for Farmers in the Field:

Farmers working in remote fields face numerous challenges due to the lack of mobile coverage. For instance, during the cropping season, farmers need real-time information about weather conditions and market prices. The inability to access this information promptly can lead to poor decision-making and financial losses. Additionally, in the event of an injury or equipment breakdown in the field, farmers may be unable to call for help, leading to prolonged periods of downtime and potential health risks.

## TELEHEALTH DIFFICULTIES

### Reliance on Telehealth Services:

With a shortage of doctors and medical professionals in local hospitals, Warren Shire residents increasingly rely on telehealth services to access medical care. However, this reliance is severely hampered by poor internet connectivity and mobile phone service. Patients often experience screen freezing, dropped calls, and poor video quality during telehealth consultations. These technical issues can lead to miscommunication, incomplete medical assessments, and delays in receiving necessary treatments.

# WARREN SHIRE SPECIFIC EXAMPLES

## Case Example: Telehealth Challenges:

A local resident, Mrs. Jane Smith (name changed) suffers from a chronic health condition requiring regular telehealth consultations with specialists located in Sydney. During one of her sessions, the video call repeatedly dropped, and the screen frequently froze, making it difficult for her doctor to conduct a thorough examination. As a result, Mrs. Smith's consultation was cut short, and she had to reschedule, causing stress and delaying her treatment plan.

As an another example, Warren Shire has a large elderly population, many of whom are no longer legally able to operate a motor vehicle. This significantly restricts their ability to travel to and from medical appointments. In these cases, there is a strong reliance on telephone and internet consultations with their medical practitioners. Without reliable coverage, these elderly residents are at risk of complicating their health issues and receiving the ongoing support and guidance they require.

Warren Shire Multipurpose Hospital, as a small facility, on many occasions must transport patients to other hospitals within the region and state. Often this involves ambulance transfer or helicopter transfer and there is a considerable risk to patient care, if medical personnel are not able to remain in constant contact with medical personnel, while the patient is transient between hospitals.

The impact of loss of mobile phone coverage, internet access or internet speeds not being sufficient to transmit and receive vital medical data, is significant and failures in the system can lead to serious complications or death of patients.

## [ADDITIONAL CHALLENGES FACED BY RURAL RESIDENTS](#)

### Educational Impact:

Students in Warren Shire also face significant challenges due to inadequate telecommunications infrastructure. Access to online learning resources is essential, especially during periods of remote learning. However, poor internet connectivity often disrupts virtual classes, hampers access to educational materials, and limits students' ability to participate in interactive learning experiences. This digital divide can put rural students at a disadvantage compared to their urban counterparts. For example, a high school student trying to complete their assignments via correspondence may struggle to upload their work or participate in interactive sessions, impacting their academic performance.

# WARREN SHIRE SPECIFIC EXAMPLES

## Impact on Emergency Services:

The lack of reliable telecommunications can also affect emergency services' ability to respond effectively. In areas with poor mobile coverage, residents may be unable to contact emergency services promptly, delaying response times during critical situations such as fires, floods, or medical emergencies. This delay can have severe consequences for the safety and well-being of the community.

## Additional Case Example: Impact on Travellers and Visitors:

A family visiting the remote areas of Warren Shire, such as the Macquarie Marshes, found themselves unable to access necessary maps or information about the region due to lack of mobile coverage. When their vehicle broke down, they were unable to call for roadside assistance and had to wait for hours until another traveler passed by and offered help. This situation not only caused significant distress but also highlighted the vulnerability of visitors in remote areas without reliable telecommunications.

## Farmers' Technological Challenges:

Farmers in Warren Shire face technological challenges that impede their operations. For example, during the cropping season, farmers often use precision agriculture technologies that require stable internet connectivity for real-time data analysis. Without reliable mobile coverage, these technologies become ineffective, leading to suboptimal farming practices and reduced yields. Additionally, when equipment breaks down in the field, farmers may be unable to contact repair services promptly, resulting in prolonged downtime and financial losses.

## Preventable Deaths and Delays in Medical Assistance:

The lack of telecommunications or poor coverage significantly increases the risk of preventable deaths in rural areas like Warren Shire. In emergency medical situations, timely access to care can mean the difference between life and death. In urban areas, quick response times and immediate medical assistance often lead to favourable recovery outcomes. However, in rural areas, the delays caused by poor telecommunications can result in complications, lack of recovery, and even death. For instance, a resident suffering a heart attack in a remote area with no mobile coverage may be unable to call for an ambulance promptly, resulting in delayed treatment and a higher likelihood of fatality.

# WARREN SHIRE SPECIFIC EXAMPLES

## [ECONOMIC DEVELOPMENT IMPACT](#)

### Challenges in Attracting Businesses:

The lack of reliable mobile phone coverage and fast internet significantly hampers economic development in Warren Shire. Potential businesses looking to invest in the area may be deterred by the inadequate telecommunications infrastructure. Modern businesses, regardless of their size, rely heavily on reliable and high-speed internet for their operations. Poor connectivity can be a major deterrent, leading businesses to establish themselves in urban areas with better infrastructure. This results in lost opportunities for local job creation and economic growth.

### Impact on Existing Businesses:

Current businesses in Warren Shire face challenges due to inadequate telecommunications. Small businesses, including retail shops, cafes, and service providers, need reliable internet and mobile services for transactions, communications, and marketing. Frequent disruptions and poor connectivity can lead to customer dissatisfaction and lost revenue. For instance, a local café relying on internet-based payment systems may face issues completing transactions, affecting customer service and sales.

### Case Example: Impact on Agricultural Businesses

The agricultural sector, which is vital to Warren Shire's economy, also suffers due to poor telecommunications. Farmers need reliable internet access for market updates, weather forecasts, and precision farming technologies. Without these, they struggle to optimise their operations, resulting in lower productivity and profitability. Additionally, farmers seeking to expand their businesses through online sales and marketing are hampered by poor connectivity, limiting their market reach and growth potential.

## [SOCIAL AND COMMUNITY IMPACT](#)

### Mental Health Support:

The lack of reliable internet and mobile phone coverage has profound implications for mental health support in Warren Shire. Residents in remote properties often experience feelings of isolation, which can lead to mental health issues such as anxiety and depression. Reliable telecommunications are essential for accessing mental health services and support networks. Poor connectivity can prevent individuals from participating in online counseling sessions or support groups, exacerbating their sense of isolation and hindering their mental health recovery.

# WARREN SHIRE SPECIFIC EXAMPLES

## [Social Communication:](#)

Effective communication within remote properties and the rest of the town is crucial for maintaining social ties and community cohesion. Poor mobile phone coverage and internet connectivity make it difficult for residents to stay connected with family and friends, particularly during significant life events or emergencies. For example, elderly residents who rely on video calls to communicate with their distant relatives may find it challenging to maintain these connections, contributing to loneliness and social isolation.

## [Community Activities and Information Sharing:](#)

Community activities and events are vital for social cohesion and community spirit. Reliable telecommunications enable the efficient organisation and promotion of these activities. Without it, residents may miss out on important community announcements, events, and services. For example, local clubs and groups that rely on social media and online platforms to coordinate activities may struggle to keep their members informed and engaged, leading to a decline in community participation and vibrancy.

# REPORT CONCLUSION

As the General Manager of Warren Shire Council, I would like to conclude this submission by reiterating the significant challenges faced by our community due to inadequate telecommunications infrastructure.

As a regional, rural, and remote location, Warren Shire experiences unique difficulties that are significant, and profoundly impact the safety, health, education, economic development, and social well-being of our residents. The lack of reliable mobile phone coverage and high-speed internet connectivity not only hampers our ability to attract new businesses and support existing ones but also places our community at a significant disadvantage compared to urban areas.

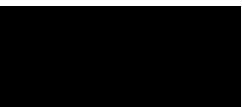
The issues detailed in this submission, including safety concerns on rural roads, telehealth difficulties, educational disruptions, emergency service delays, and the social and mental health impact all highlight the urgent need for a comprehensive review and upgrade of telecommunications in the Central West Region. Addressing these challenges is essential to bridging the digital divide, fostering economic growth, and ensuring the safety and well-being of our community.

We urge the Independent Committee to prioritise the needs of rural areas like Warren Shire in their telecommunications review and to advocate for the necessary investments and improvements.

To ensure the well-being and prosperity of our rural communities, it is crucial to invest in and improve mobile phone coverage and internet connectivity in Warren Shire. Enhanced telecommunications infrastructure will provide our residents with better access to essential services, improve their quality of life, and contribute to the overall development of our region.

Thank you for your time and consideration in reviewing this submission. We look forward to seeing positive changes that will support the growth and prosperity of Warren Shire and the broader Central West Region.

Yours faithfully,



General Manager  
Warren Shire Council

# Glossary of Terms

Extracted from the 2024 Regional Telecommunications Independent Review Issues Paper, April 2024

<b>Term</b>	<b>Definition</b>
<b>3G, 4G, 5G mobile service</b>	Progressive generations of mobile services
<b>Asymmetric Digital Subscriber Line (ADSL)</b>	A technology for delivering data transmission over a copper phone line using a signal splitter.
<b>backhaul</b>	The connection between an access node and a core network. For instance, a fibre cable running from neighbourhood exchange to the core network.
<b>Closing The Gap</b>	An Australian Government strategy that aims to reduce disadvantage among Aboriginal and Torres Strait Islander people.
<b>copper network</b>	A copper-based customer access network used to deliver standard voice telephony and ADSL services.
<b>exchange</b>	A node in a network where local consumer connections are aggregated and connected to the core network backhaul.
<b>fibre</b>	Refers to the glass cored fibre-optic cables used to transfer data between points in the form of pulses of light.
<b>fixed line</b>	Network design in which voice, data or broadband services are delivered over a physical line.
<b>fixed wireless</b>	Network design in which network connections are provided through radio signals between fixed antennas.
<b>Internet of Things (IoT)</b>	A concept that refers to devices such as sensors and machines which are connected to each other and the internet so that they are able to collect and exchange data.
<b>latency</b>	The time it takes a data packet to be transmitted from one point in a network to another, expressed in milliseconds (ms).
<b>Long Range Wide Area Network (LoRaWAN)</b>	A proprietary low-power wide-area network (LP-WAN) modulation technique. Power is conserved by keeping components powered down as much as possible.
<b>Low Earth Orbit (LEO)</b>	Satellite systems used in telecommunications which orbit between 200 and 2,000 km above the earth's surface and do not stay fixed relative to a position on the surface.
<b>MNIPs</b>	Mobile Network Infrastructure Providers
<b>mobile roaming</b>	The ability for a consumer device to connect to base stations which are not owned or operated by their mobile network provider (e.g. Telstra, Optus).
<b>NBN (NBN Co Limited)</b>	An Australian Government Business Enterprise established to build and operate the NBN.
<b>network congestion</b>	Where a network unit is carrying more data throughput than it can handle and service quality is impacted as a result. Congestion results in increased data transfer times, data packet loss and blocking of new connections.
<b>Regional Tech Hub</b>	An Australian Government initiative, delivered by the National Farmers' Federation in collaboration with ACCAN, to provide regional Australians with independent advice and support on phone and internet options and technical issues.
<b>Sky Muster</b>	A satellite internet service provided by NBN Co through the use of 2 geosynchronous satellites. Provides broadband internet outside of the Fibre network footprint.
<b>Statutory Infrastructure Provider (SIP)</b>	Carriers that must provide basic wholesale broadband services in the areas they service. This includes voice services if they operate fixed-line or fixed-wireless networks.

# Glossary of Terms

Continued

**Telecommunications Industry Ombudsman (TIO)**

A not for profit organisation that provides a free and independent dispute resolution service for small business and residential consumers who have an unresolved complaint about their telephone or internet service.

**Telstra USO Performance Agreement (TUSOPA)**

The Agreement which sets out the scope of services to be performed by Telstra in delivering standard telephone services and payphone services under the USO.

**Universal Service Obligation (USO)**

A longstanding safeguard that ensures all people in Australia can access fixed phone services and payphones regardless of where they live or work. Telstra is required to supply fixed voice services and payphones across Australia on reasonable request.

**Wi-Fi**

**A wireless local network protocol that operates using unlicensed spectrum in the 2.4 GHz and 5 GHz bands.**



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Thank you for your consideration

