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Darling Downs Regional Organisation of Councils Limited

Submission to the Australian Government

on the

BROADBAND CONNECT AND CLEVER NETWORKS:

Supporting Investment in Sustainable Broadband Infrastructure

Discussion Paper

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Section 2 Response to the Specific Questions

This section 2 provides DDROC response to the Broadband Connect and Clever Networks discussion paper specifically relevant to the question posed within the discussion paper.

In the following section please find the response from DDROC with regard to the Broadband Connect section of the *Connect Australia* Discussion Paper.

The response to the Clever Networks section immediately follows this section.

Please note that the responses to the questions in this section should be read in conjunction with section 1 of this response paper to understand how DDROC intend to approach the development of next generation broadband infrastructure across the region.

Broadband Connect

Q1 How can the design and delivery of Broadband Connect be optimised to achieve long term sustainable quality broadband solutions for regional, rural and remote Australians?

The first sections of the response cover this important matter. To summarise, we believe regional broadband solutions need to be treated in two parts:

i) **Regional backhaul** – this first component of the solution is not subject to improvement through an enhanced competitive environment that might be enhanced by federal government activities. This is because of the relatively high cost of regional backhaul infrastructure and because duplication is wasteful and still subject to competitive blocking by a retail provider who also owns the backhaul infrastructure. This is the area where we believe government intervention is essential but it must result in wholesale backhaul access that permits the delivery of competitive broadband services in regional areas. Relevant technologies are fibre optic cables, microwave point to point radio and satellite. We do not expect any of these technologies to change significantly in their costs, to change these views.

ii) **Local Distribution** – this second component of the solution of broadband delivery is where competitive pressures will provide useful gains in service performance and cost competitiveness. Current and emerging technologies are changing the delivery options and promise to reduce prices and increase reach to customers. Relevant technologies include optical fibre, ADSL in it's evolving forms, wireless including WiMax, Wifi, 3G and a multiplicity of proprietary technologies. We believe the barrier to further investment by the supply side of the industry in these technologies has largely been the absence of cost effective backhaul capacity to the points of distribution.

The backhaul component of the solution needs to be the focus of government assistance and where necessary, intervention in the telecommunications market. Open access to service providers over wholesale backhaul networks is the ideal solution. This paper considers commercial and technical models that will achieve this desirable outcome.

In addition, having linkages between the *Connect Australia* funding programs would assist in achieving more strategic and efficient use of the available funds and in turn will derive better outcomes.

In the past we have observed that broadband infrastructure projects funded through CCIF and HiBis have not been strategically aligned with regional community initiatives. This misalignment cannot be supported into the future. All funding applications must be aligned to a region's strategic plan and have support from the regional representative body.

Furthermore, it would appear that HiBIS was focussed on entry level broadband speeds, however, some businesses in HiBIS eligible areas require greater than entry level broadband to compete effectively in the global marketplace. Broadband Connect needs to also address where the requirement is greater than entry broadband.

Q2 What means can/should be used to encourage further capital investment in infrastructure that will support competitive networks and services under Broadband Connect and beyond?

The supply side of the telecommunications industry faces a number of limitations at present:

a) Regional infrastructure investment has no real history of success by third parties, so there is a belief that regional Australia presents a poor business case.

b) Suppliers are risk averse and seek guarantees of revenues before they will invest. Other than at a State Government level, this has been almost impossible in the past.

c) The nature of competition is such that it is expected that Telstra as the incumbent provider of services in regional Australia, may object to further infrastructure investment in regional areas

Each of these beliefs must be resolved through policies adopted by the Federal Government. We suggest the following processes be considered:

- Government work closely with communities and their chosen suppliers to ensure a number of infrastructure initiatives are successful and become active models for other communities to consider and implement or adapt.
- Ensure business models used by communities and their suppliers are realistic and that all parties understand the importance of risk sharing and demand

aggregation. Where necessary, place pressure on state and local government to aggregate their demand in support of regional initiatives.

- Work very closely with the ACCC to protect regional community initiatives from anti competitive behaviour.

Q3 How can Broadband Connect funding be structured to provide the best incentives for investment?

Preferably only as start up funding to close 'gaps' that allow backhaul or local distribution business models to be established. It is imperative that there is an ability to utilise the different *Connect Australia* funding programs collectively under a coordinated and strategic investment approach. That is, allowing funding under the individual funding programs to be used collectively to maximise the investment by the private sector to extend the reach of commercially viable networks into identified non-commercially viable areas. This strategic investment approach can only be provided for well structured business models where the following key elements have been confirmed, and perhaps independently assessed:

a) The application is auspiced by a recognised representative regional body that demonstrates a holistic and coordinated approach to the development of telecommunications infrastructure for a defined region;

b) A telecommunications infrastructure plan for the region is provided that articulates how the region will engage with the supply and demand-sides of the market and the linkages to the region's strategic plan for growth;

c) A complete infrastructure design is provided for the defined region highlighting those areas that are non-commercial and why;

d) A business plan is provided that identifies demand, revenues and realistic penetration rates;

e) Committed support for the project from state and local government, and committed demand from these bodies;

f) Committed demand from key regional businesses;

g) Meets the criteria as identified in the *Connect Australia* finding requirements;

h) All capital expenditure 'gaps' are identified and proven to be needed to be covered by once off Federal funding.

Q4 Is terrestrial or satellite the most appropriate means of delivering broadband in regional, rural and remote areas?

Terrestrial is the preferred solution where economies of scale make this technology more cost effective. Satellite delivery has some technical problems, especially for business applications, and the infrastructure and it's recurring costs cannot be easily

owned or controlled. An ideal ‘edge’ technology where other terrestrial forms are uneconomic.

Q5 Can satellite be delivered as competitively as terrestrial services?

This is unlikely for high speeds that are increasingly needed, especially both way high speed services. In metro and urban environments, it is more likely that terrestrial delivery mechanisms will be more cost effective.

Q6 Should participating providers be required to commit formally to service the areas they identify in registration applications?

Yes. If they don’t it is increasingly difficult to get a second entrant into that local market to fill the gaps that the first entrant has declined to service. If there are business model problems with delivery of the service, the first in entrant should have to identify the ‘gaps’ in cost and work with DCITA via the regional representative body to resolve the gaps, or else reduce the identified areas.

Q7 Should annual renewal of funding agreements specify timeframes for commencement of services in areas of greatest need?

Yes – again, in consultation with the business model provided as part of the funding application.

Q8 Should a system of prioritised funding for services connected in areas of greatest need (beyond what has been provided under the HiBIS two-tiered incentive structure) be introduced?

There maybe a requirement to support upgrades to some remote localities once the initial installation is fully occupied (eg 24 port DSLAM) and more services are required. Similarly, where a DSLAM is installed yet unable to service all potential end users (due technical limitations), there may be a requirement to provide funding for an alternative technology such as WiMax to satisfy this demand. That is, areas should not be deemed HiBiS ineligible because DSL has been installed in the local telephone exchange. It is important that any ‘tiering system’ be simple and easy to apply.

Q9 What can be done further to overcome barriers to capital investment in sustainable technologies in less commercially viable regional areas?

Fix the backhaul costs to these areas through enabling the development of open access wholesale broadband capacity to these areas.

Q10 How can the high cost of some technologies be reconciled with increasing customer expectations for higher speeds and usage allowances especially in more remote areas?

We may have to accept that we cannot subsidise services in remote areas to achieve the same high speed services and prices that would be available in regional population centres, for example. At some point, costs will become unreasonable.

Q11 Should it be mandatory for program participants under Broadband Connect to provide additional information as listed below as a condition of registration?

- intended future service areas (with approximate dates of commencement of supply; **yes**
- the viable geographic reach of broadband services from central transmission points for service delivery; **yes, with performance conditions at increasing distance limits**
- technical barriers limiting the application of providers' technology in regional communities; **yes**
- the capacity of providers' technology to support varying types of broadband traffic and use; **yes**
- the range of service speeds providers' technology would be able to support; **yes, and what cost penalties the provider might incur to deliver these additional speeds**
- the capacity of providers' technology to provide services now and to accommodate new developments such as increased speed , usage and applications in the future**; yes – many providers have chosen 'dead end' technologies in our view and will not be able to evolve to meet growing demand from the community.**
- the particular relevance of the technology to other communication services (for example, capacity to be used also for supporting mobile telephony services); **yes**
- a summary of the broad nature of technology they employ; and **yes**
- anticipated timing and target areas for their technology deployment in regional Australia. **Yes**

Please see the answers in bold above. In addition please note that these questions will be seen as 'threatening' by many providers as they will assume DCITA has pre conceptions as to 'suitable' technology, and will therefore discriminate against providers who have the 'wrong' technology. This will therefore be a difficult matter to resolve.

Q 12 On what basis would you argue that certain specific technologies will have the most impact on the delivery of regional broadband services in the next three to five years?

Technologies will have the following success criteria

a) To reach beyond ADSL geographic coverage

b) To provide speeds beyond ADSL as customer demand increases

c) To offer portability/mobility

We are not willing to argue which specific technologies should be supported or even mentioned, but rather suggest these criteria will be more effective in judging technology offers. In general, we believe there will always be a hybrid of technologies used to deliver broadband applications. The following technologies are currently effective, but other technologies might be more effective in the future:

Backhaul Technologies: fibre optic cable ideal, microwave point to point radio proven and reliable although ultimately bandwidth limited, and satellite as a final solution where these first two are not cost effective.

Distribution Technologies ; fibre optic cable ideal, with ADSL in various forms cost effective in metro and urban environments until bandwidth demand leaves this technology behind. Point to multi point wireless in its many forms appears to offer a cost/benefit solution for demand outside ADSL coverage, and as an effective competitor for ADSL (ie low bandwidth speeds). Satellite ultimately will not offer enough capacity for mass high speed service delivery, and latency problems will affect some broadband applications. This tends to make this technology suitable for very remote service delivery and perhaps relatively low speed asynchronous services – ie residential and small business.

Q13 How would you compare the effectiveness of these technologies to others in the market place?

This is a rapidly changing field, especially in the distribution technologies. We prefer to favour proven technologies until they cannot perform through distance and other limitations. This means ADSL and direct fibre are preferable, with a wireless technology (802.11, 802.16, 3G, satellite etc) to be used beyond the economic service areas of these currently proven technologies.

Q14 To what extent will broadband technologies be able to augment capacity to meet rapidly expanding consumer expectations for higher bandwidth and more advanced applications?

This will be difficult. Ideally, the best solution is to deliver services using fibre optic cables, but the economies of scale may never permit this to be the final solution in many regional areas. Nevertheless, this technology should be

investigated carefully to find ways to spread it's reach as far as possible in regional areas. Ideas include:

a) Consolidation of backhaul demand with power authorities, health and education to bring large bandwidth to every possible power control point, school and health centre on a wholesale basis to ensure this bandwidth is available to other providers and for the surrounding community.

b) Overhead reticulation is cheaper than underground installation and should be used wherever possible.

c) All new housing and commercial developments should have fibre reticulation mandated as part of local government requirements.

Q15 Can complementary technologies provide better solutions for delivery of services in regional Australia?

Yes – a mix of ADSL, wireless and fibre optic technologies can be viable and each has it's place in a regional community.

Q16 What innovative approaches should Broadband Connect adopt in its program design to utilise these technologies most efficiently and effectively?

The region should be encouraged to develop a regional telecommunications infrastructure plan developed in conjunction with their chosen supply-side partners. The plan should identify those areas that are not commercially viable and why and how *Connect Australia* funding will achieve a sustainable solution for the region as a whole.

Q17 What capacity do existing technologies have to accommodate the introduction of new developments, such as increased speeds, usage and other applications?

Optical fibre appears to be the only technology that can easily scale to meet bandwidth increases.

Both Copper and Wireless technology will remain constrained in their ability to deliver high speed bandwidth due their technical limitations.

Q18 Should the current system of incentive payments to providers for the supply of broadband services be retained?

Q19 Would an up front method of payment be more effective?

Q20 How else could the method of payments to providers be adjusted to achieve more satisfactory outcomes for providers and people living in regional, rural and remote Australia?

Q21 Should funding be provided:

- based on the number of customers connected?

- the number potential premises with potential access?

- a combination of both methods?

Q22 If funding was based on the number of premises with potential access should it then only be provided for infrastructure?

General Comment

It would appear that there are possibly three prevailing infrastructure development models that could apply to the different parts of the Australian landscape.

- In CBD/metro areas infrastructure competition appears commercially sustainable with complete overbuilding occurring in most major cities. However a high level of duplication of infrastructure would appear to be inefficient.
- In major city urban areas and regional cities, a shared infrastructure model may be commercially sustainable under an alliance contract arrangement or public private partnership arrangement whether that be through a service payment, capital injection or subsidy for those areas that are commercially uneconomic to service.
- In more remote areas it would appear that the only financial model would be one of ongoing subsidy.

It is unlikely to attract competitive infrastructure outside of the major city CBD environments unless there is an engagement model that provides certainty for return on investment. A critical success factor of the engagement model will be the appropriate sharing of risks so that the party that can best manage the risk takes accountability for that risk.

Furthermore, unless a medium to long-term horizon view is taken, it is unlikely that any substantial investment in next generation broadband infrastructure will occur outside of the major city CBD environments.

Please review the earlier sections of this document to understand how DDROC intend to approach the development of next generation broadband infrastructure across the region.

Clever Networks

In the following section please find the response from DDROC with regard to the Clever Networks section of the *Connect Australia* Discussion Paper.

Please note that the responses to the questions in this section should be read in conjunction with section 1 of this response paper to understand how DDROC intend to approach the development of next generation broadband infrastructure across the region.

What form of broker network will provide the best outcome?

Q1 Considering the current DAB program structure - involving State, community and sectoral brokers - is the current arrangement the best model for catalysing broadband developments in regional, rural and remote Australia or how should it evolve?

The DAB program should become more strategic in its application. The Sectoral, State and Community brokers need to focus on aligning government purchasing policy to maximise the ability to leverage the demand at the regional level.

As the regional representative bodies are becoming more actively involved in the strategic planning for economic growth and in particular the infrastructures that will catalyse this growth, it is critical to involve regional representatives in any broadband communications infrastructure development initiatives.

We have seen some examples where HiBiS and CCIF initiatives have undermined the success of Community Broadband projects because of lack coordination and strategic alignment. Such misalignment cannot be supported into the future.

To attract investment at the regional level it is critically important to have the regional representatives involved in any infrastructure development plan for their region. The Community Broker as the representative of the regional body, in conjunction with other key players including Sectoral and State brokers, local councils, local business organisations and the supply side should be required to develop a strategic plan for the development of telecommunications infrastructure for a defined region aligned to the region's strategic plan for growth. This plan should provide the blue print for the development of broadband infrastructure for the region and should be the basis for any application to access *Connect Australia* funding.

Q2 What role can/should brokers play in promoting or facilitating the effective use of broadband applications in order to enable communities and businesses to capture the transformational benefits of broadband?

Q3 What other resources or programs should the brokers be aware of in this role?

Brokers should be encouraged and tasked to pull together other resources and programs at the community (regional) level. Such programs would include Health and Aged Care programs, education programs and resources such as the Area

Consultative Committee, GP Associations, etc and assist them integrate their information and communications and broadband initiatives into a co-ordinated regional plan.

The Demand Broker should grow into the role of 'facilitator' working with the various groups and stakeholders within the region to establish a common direction for all programs relating to information and communications technology development for both soft and hard infrastructure.

From a broadband infrastructure perspective, currently Large Pair Gain System polygons are available only to customers of Telstra Wholesale (eg DSL carriers who rent Unconditioned Local Loop services) and not available to Demand Aggregators.

These data sets are a critical component for identifying broadband blackspots and would assist Demand Aggregators in mapping such gaps. Telstra Wholesale should be required to provide Demand Aggregators with "approval to purchase" the ExchangeInfo Plus dataset.

Such a move would facilitate comprehensive ADSL blackspot analysis for the Demand Aggregation community.

Q4 Should the broker role include an increased focus on 'effective use' outcomes and, if so, how can this best be achieved?

Yes

Q5 Should uptake and effective use of broadband by specific groups be targeted and, if so, which ones?

Yes

Q6 How might the brokers play a role in facilitating/supporting community-wide connectivity and community-wide (cross-sectoral) networks?

It is important to realise that telecommunications is a business built on scale. Therefore, to influence the supply-side of the market requires critical mass sufficient to make them respond. The Broker should be encouraged and tasked to work at the regional level with a group of Councils and relevant stakeholders to put in place a regional solution that is integrated with State and National initiatives. Also see response to question 3.

Q7 Should future demand aggregation activities be focussed in areas that have yet to receive terrestrial broadband services under HiBIS to support the delivery of the new Broadband Connect program?

We need to move beyond just demand aggregation. Regions need to become involved in planning for telecommunications development which includes not only the hard infrastructure but also soft infrastructure such as local capacity to use broadband applications and support those that use it.

The Broker's role should be to provide expertise in the technical aspects as well as facilitate the development of a telecommunications strategic plan for the region and its implementation through developing sustainable relationships between the supply and demand sides of the market.

Targeted services for Clever Networks initiatives

Q8 Are health, education, emergency services and local government the appropriate services for Clever Networks to target?

Q9 Should there be priorities within this group?

Q10 What other sectors, if any, should also be considered?

Q11 Should there be a focus on particular applications/sectors which will require and drive network or industry capabilities?

Q12 What strategies could be incorporated into the program design to ensure that investment under Clever Networks provides the greatest holistic community benefit?

Targeting education, health, emergency services and local government applications would appear to be adequate in driving network development into regional Australia. However, better coordination at the regional level would achieve greater acceleration of uptake of these applications. Brokers appear to be largely left to their own devices, and we believe many are ineffective.

Promoting the benefits and applications of affordable next generation broadband beyond the office or school and therefore into the premises of businesses and residents with a concerted effort to assist them to adopt (and have confidence in adopting) advanced applications, would provide an increased level of demand on which the supply-side of the market could justify investment.

With support from the Australian and State Governments and the supply-side of the market, this is best coordinated and delivered at the regional level by regional organisations that have an established connection with the target market.

It would appear that previously a number of CCIF projects were not aligned to the priorities of the regions in which infrastructure deployment occurred. In fact, in some cases the CCIF (& HiBiS) programs were detrimental to initiatives commenced by regional communities to facilitate the development of Broadband in their communities (some of which were funded by the DAB program). Such misalignment cannot be supported into the future.

To be considered under the Clever Networks funding program, every application must reflect the community's involvement in the development of the funding application either through the regional representative body and / or the Community Broadband Broker. The application must identify how it aligns to the region's strategic plan for the development of telecommunications infrastructure for the region.

Infrastructure and application-focussed investment issues

Q13 Is there an ideal balance between infrastructure and applications streams and, if so, how can it be identified?

Q14 What is the best balance between competitively determined and strategic investment funding?

Q15 Would potential proposals be improved if the guidelines permit proposals which encompass both infrastructure and applications aspects?

Q16 What key strategic investments in broadband infrastructure have the potential to provide the best outcomes?

We agree that there is a direct connection between applications and network development. The greater use of advanced applications will drive greater use of broadband and therefore greater justification for the development of next generation broadband infrastructure.

It is difficult to identify a balance between infrastructure and applications streams. DDROC believe that there is no single 'killer application' for the development of next generation broadband, but it is the aggregation of a number of applications that provides the value proposition to the end-user customer that will pull through the infrastructure required to deliver ubiquitous high speed broadband to businesses and residents.

Critical mass is a key factor in attracting investment in establishing next generation networks which is directly related to the level of demand.

We would encourage that Clever Network funding is not limited to support only traditional government applications and networks and that the funding should be extended to include networks that service general communities (businesses and residents).

As outlined earlier in DDROC proposed Strategic Framework, DDROC intend to take a holistic approach to the development of next generation networks in the region working with all key demand stakeholders to maximise the opportunity to leveraging demand.

DDROC would encourage the Australian Government to consider linkages between the *Connect Australia* programs so that the available funding could be used strategically. The proposition is to coordinate and strategically leverage all demand in a particular region including education, health, emergency services and local government services to maximise commercial investment by the supply-side of the market.

Funding for Clever Networks initiatives

Q17 Are there complementary sources of funding/contributions which should be considered in developing the guidelines for the Clever Networks program?

Where existing State investment is planned for telecommunications infrastructure (for example in power utilities) much more effort should be applied to aligning these

initiatives to ensure timing and geographic rollouts assist the broadband demand work. In Queensland, both Ergon and Energex are an essential part of aligning telecommunications investment with these community broadband projects. Ideally, this alignment should become a State government policy, enforced wherever investment synergies apply.

Q18 Should there be specified minimum broadband specifications (eg. bandwidth, latency etc) for Clever Networks and, if so, what should they be and how should they be determined?

Where possible, yes. These limits will be largely determined by economics, which in turn are largely dictated by geography, so hard rules will be counter productive. A set of policy guidelines in this matter would be more effective.

Q19 What steps / mechanisms can or should be incorporated, if any, into Clever Networks to enable regional, rural and remote communities progressively to transition to high / higher bandwidth networks?

A regular review of needs and capacity to deliver could offer additional funding for infrastructure upgrades on the same basis as the first investment by the *Connect Australia* fund.

Q20 New technologies are showing considerable promise in providing broadband access to users well outside the current DSL limitations. What strategies should be adopted to encourage and support deployment of these new technologies, and to ensure newly emerged technologies are not precluded during the lifecycle of the program?

An argument is to let the economics dictate the use of these technologies – market forces are the most effective approach.

However, consideration must be given to the implementation cycles of the different technologies and their ability to scale to meet future demands. For example optical fibre is well suited to scale to meet any future bandwidth demands however it is capital intensive and takes longer to deploy than other technologies such as wireless and DSL.

The concept behind Clever Networks should be to develop broadband networks that are designed to be scalable to meet future requirements of volume, functionality and performance. Any application for funds must demonstrate a technology pathway to meet these future needs.

There will be a need for a simple set of policies to control some technology deployment such as non standards based or those that use unlicensed spectrum, but in general, it would be a mistake to intervene to promote ‘promising’ technologies.

Sustainability of Clever Networks initiatives

Q21 What supporting information should be required in Clever Networks proposals in order for their sustainability beyond the life of the program to be evaluated effectively, and what factors should be considered in determining sustainability?

An application for funding must include a comprehensive business plan that is subject to annual review and reports by the community/provider. The business plan should demonstrate its alignment to the regions strategic plan for growth and must have endorsement from the recognised regional representative body.

Key criteria of sustainability should be defined up front and would be:

a) Capex/opex costs over the first 3-5 years of the project

b) Revenue forecasts

c) Profit forecasts

d) Risks and mitigation strategies

New infrastructure access arrangements

Q22 For any new infrastructure created or made available, should there be specified minimum infrastructure access arrangements for parties other than infrastructure owners, such as a wholesale-rate for backhaul?

Q23 How realistic is such a requirement, and how tangible are the likely benefits of the approach?

Q24 How can an appropriate charging regime for such access be determined?

As a principle DDROC believe that sharing of infrastructure should be encouraged and that development of an open access regime to next generation broadband infrastructures irrespective of technology should be a policy goal of the Australian Government.

Contribution of public money to the development of next generation broadband infrastructure should benefit the community in perpetuity and this should translate into a requirement for that infrastructure to be made available on equitable terms to multiple digital content and online service providers.

Q25 What other program activities should be taken into consideration in determining Clever Network program eligibility and entitlement?

The application should include as a minimum:

- how it aligns with the region's strategic plan for growth and the State and National broadband infrastructure plans and policies;

- endorsement by the recognised regional representative body;
- how it addresses infrastructure for the region as a whole and integrates with any other initiatives within the region;
- how access will be provided to other service providers and on what terms;
- demonstration of a technology pathway to achieve scale for future requirements of volume, functionality and performance;
- the commercial case identifying the commercially and non-commercially viable elements, the reasons why and how the funds will be used to achieve a commercially sustainable outcome;
- how existing infrastructures have been leveraged;
- track record of the provider(s);
- roll-out plan and timeframes.

In addition, we believe that the ACCC should represented on the implementation of these projects to ensure that there is competitive control of the incumbent.

Embedding and undertaking program evaluation

Q26 Having regard to the possible diversity of the activities under Clever Networks, what strategies can/should be considered?

Given that the infrastructure development should improve the communities (businesses and residents) access to digital content and on-line services, the evaluation of the program needs to include a measurement of the impact on the region's community and economic performance.

General Comment

It would appear that there are possibly three prevailing infrastructure development models that could apply to the different parts of the Australian landscape.

- In CBD/metro areas infrastructure competition appears commercially sustainable with complete overbuilding occurring in most major cities. However a high level of duplication of infrastructure would appear to be inefficient.
- In major city urban areas and regional cities, a shared infrastructure model may be commercially sustainable under an alliance contract arrangement or public private partnership arrangement whether that be through a service payment, capital injection or subsidy for those areas that are commercially uneconomic to service.
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Furthermore, unless a medium to long-term horizon view is taken, it is unlikely that any substantial investment in next generation broadband infrastructure will occur outside of the major city CBD environments.

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