Northern Rivers

Digital Activation Plan

3 May 2016

A regional collaboration between Regional Development Australia, State and Local Government.

NORTHERN RIVERS NSW

An Australian Government Initiative

A NSW Government Initiative

Document History

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DIGITAL
ECONOMY
GROUP

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Terms & Abbreviations

Terms and Abbreviations	Description
ADSL	Short for asymmetric digital subscriber line, ADSL is a type of DSL broadband communications technology used for connecting to the internet. ADSL allows more data to be sent over existing copper telephone lines (POTS) compared to traditional modem lines.
ADSL2+	ADSL2+ is an extension to ADSL broadband technology that provides subscribers with significantly faster download speeds when compared to traditional ADSL connections.
Black Spot	A location where mobile (phone) cannot be achieved for any of the carriers
Fibre Optic	A technology that uses glass (or plastic) threads (fibres) to transmit data. Fibre optics has several advantages over traditional metal communications lines.
Fibre To The Premises (FTTP)	Network design in which the fibre network is deployed to each Premises. It involves connecting homes and businesses with an optical fibre cable which can be used to provide a range of high-speed broadband services and phone services.
Fibre To The Basement (FTTB)	Network design in which the fibre network is deployed to the basement of a building.
Fibre To The Node (FTTN)	Network design in which the fibre network is deployed to the node (i.e. a VDSL cabinet), while copper lines are used for the connection between the node and the Premises.
Fixed Wireless	Network design in which network connections are provided through radio signals.
Hybrid Fibre Coaxial (HFC) Cable Networks	Networks utilising both optical fibre and coaxial cable for the delivery of Pay TV, internet and voice services
IoT – Internet of Things	The Internet of Things (IoT) is the network of physical objects—devices, vehicles, buildings and other items—embedded with electronics, software, sensors, and network connectivity that enables these objects to collect and exchange data. https://en.wikipedia.org/wiki/**Internet_of_Things**
IP Telephony (Internet Protocol Telephony)	An IP telephone system uses packet-switched Voice over IP (VoIP), or internet telephony, to transmit telephone calls over the internet instead of the circuit-switched telephony used by the traditional Public Switched Telephone Network (PSTN). Also known as VoIP phone systems.
Digital Phone Lines (ISDN)	Abbreviation of Integrated Services Digital Network, an international communications standard for sending voice, video, and data over digital telephone lines or normal telephone wires.
Kilobits per second (Kbps)	A unit of measurement of transmission speed. One Kilobit Per Second is equal to 1,024 bits per second.

Terms and Abbreviations	Description
Megabits Per Second (Mbps)	A unit of measurement of transmission speeds. One Megabit Per Second is equal to 1,000 kbps. X / Y Mbps means a maximum wholesale downstream speed of X Mbps and a maximum upstream speed of Y Mbps at nbn™ network's boundary
Macrocell	The widest range of cell sizes used in a mobile phone network served by a mobile base station, often used in rural areas and along highways. Generally providing larger coverage than microcells, with a typical power output of tens of watts.
Microcell	A 'small cell' in a mobile phone network, with a typical range less than two kilometres. Often used to add network capacity in areas of dense population, utilising power control to limit coverage area. Source:
MTM	Multi-Technology Mix.
National Broadband Network (nbn)	The nbn will provide high-speed broadband access to all Australian homes and businesses through a mix of three technologies: optic fibre, fixed wireless and next-generation satellite. nbn is the wholesale provider which will be resold through telecommunication companies.
nbn	nbn co limited.
Picocell	A small cellular base station, typically with a range of less than 200 metres. Often used to extend coverage to indoor areas or to add network capacity to areas of dense mobile phone usage.
Point of Interconnect (POI)	The connection point that allows RSPs and WSPs to connect to the nbn access capability. In the field, this is the physical port on the Ethernet Fanout Switch (EFS) switch located at nbn's POI, where an Access Seeker connects to establish exchange of traffic with nbn™'s network.
Public Switched Telephone Network (PSTN)	Short for Public Switched Telephone Network, which refers to the international telephone system based on copper wires carrying analogue voice data. This is in contrast to newer telephone networks base on digital technologies, such as ISDN and FDDI.
Retail Service Provider (RSP)	A third party provider of Retail broadband services to End–Users.
Transit Network	The fibre rings which connect the regional FAN sites and the nearest POI, served by Transit Fibre.
VDSL	Very-High-Bit-Rate Digital Subscriber Line.
VoLTE	Voice over LTE (or VoLTE) allows you to use the Mobile Network to make phone calls on your compatible handset. Up until recently this network has been reserved exclusively for mobile data usage.
Wireless Broadband Ethernet	Wireless internet enables wireless connectivity via radio waves rather than wires on a person's home computer, laptop, smartphone or similar mobile device.

Sources:
http://www.nbnco.com.au/content/dam/nbnco2/documents/nbn-corporate-plan-2016.pdf
http://www.webopedia.com/
https://crowdsupport.telstra.com.au/t5/General-Mobiles-KB/How-to-Enable-VoLTE-on-Your-Mobile-Device/ta-p/510717
https://www.communications.gov.au/sites/g/files/net301/f/Mobile%20Black%20Spot%20Programme%20Guidelines%20Version%201.1%20%28PDF%2C%20600%20KB%29.pdf

Executive Summary

New economic forces challenge every generation. The digital economy has been gaining momentum for over 20 years and is now influencing every business, community and environment from the periphery to the core. For some, it may represent a threat to their traditional way of operating, for others it is an opportunity. The primary risk comes from inaction. The strengths of the **Northern Rivers** region must be harnessed to actively choose a future where digital becomes a foundation and **catalyst for economically sustainable growth.**

This **Digital Activation Plan** (the Plan) seeks to draw on local strengths and provide a practical platform for the region to embrace digital solutions and technologies. The Plan contains 18 proposed actions categorised into 3 headings reflecting feedback from the consultation process:

- Connectivity
- Productivity
- Implementation

Key to the success of implementation will be the **adoption and commitment of regional stakeholders** and partnering with extra regional partners. The Plan identifies actions that can be completed in the **short term** (1-6 months), **medium term** (in the first year) and **longer term** (years 2 & 3).

The identification of local **Digital Champions** and businesses to act as examples of proactive digital first companies and local mentoring leaders will help the region to **upskill using talent from within the region**.

The region has many excellent companies already building digital into their DNA and achieving success within and outside of the region. **Many operate Manufacturing, Hospitality, Retail or Knowledge-based businesses**. What is different though is the way they utilise digital technologies and systems to serve as the **catalyst for their business growth**. The identification of a local digital narrative helps to achieve core objectives of this Plan, which is to provide the region with the skills and ability to **self-lead transition to a digital economy**.

'Always connected & mobile' and 'independent & self-serving' are two of the top five characteristics of the resident in 2025 as described in a recent survey of 250 council executives in Australia and New Zealand. **The seven local councils of the Northern Rivers region can be Digital Champion exemplars.**

The Regional Demand Profile section draws on the information about the current economy and illustrates the way these strengths can be further developed through the use of digital technologies and systems to fuel the **next wave of business growth and employment**. It will be vitally important that the region understands the **digital business models** that generate success and recognise how to plant the seed for growth.

Digital Infrastructure and connectivity are critical elements for the Northern Rivers regions success. **Working with nbn** to facilitate their deployment schedule and actively pursuing investment in mobile and WiFi networks is key to providing the connectivity fabric for all businesses large or small, wherever they are. Empowering people with independent guides to connecting is so important, it is recognised as an action and included as an appendix to the Plan.

Through the consultation phase – 8-12 February 2016, local leadership representatives, digital champions and other interested parties provided input and expressed their views about the draft action plan (list of 24 proposed actions). The consultation phase has significantly assisted in the shaping of the Digital Activation Plan for the Northern Rivers.

Introduction

Access to high speed broadband is a critical utility of the digital economy. Each region and community also needs to develop skills and talents to strengthen the existing economic pillars. The preparation of a digital activation plan is an opportunity to consolidate investment and actions, continuing towards the achievement of this objective. It provides the platform for each region or community to proactively pursue new employment opportunities and generate new business growth. In the digital economy, successful regions will sow to harvest. The Northern Rivers community will already have many digital champions, and the next step is to identify them, plant the seeds for the expansion of the economy and transition to a self-led future.

Alongside employment, understanding the changing nature of business models are key to shaping the way each business and community succeeds. If a local ecosystem can serve as an analogy for the economy and community of the Northern Rivers, it will be important to recognise when some species will begin to fail due to the evolution of the economy and will require replacing with new stronger and resilient versions or replacement with a completely new sub system. It is the responsibility of the community (business and leaders) to diagnose these changes and provide support through the transition.

RDA Northern Rivers has engaged Digital Economy Group to prepare a Digital Activation Plan. This document will assess digital infrastructure (supply and demand) draft a digital narrative based on interviews with local business leaders and scope out an activation plan designed to provide the Northern Rivers with a set of tools and resources to sow the digital economy seeds and nurture them over the coming years.

The Northern Rivers Region

The Northern Rivers Regional Profile (November 2013) describes the Northern Rivers:

- Covering 20,706 square kilometres between Queensland border at Tweed Heads and Grafton to the south
- At 30 June 2012, the region had a population of 250,860 persons
- Is comprised of seven local government areas:
    - o Ballina Shire Council
    - o Byron Shire Council
    - o Clarence Valley Council
    - o Kyogle Shire Council
    - o Lismore City Council
    - o Richmond Valley Council
    - o Tweed Shire Council
- Gross Regional Product – 13.305B (13,305,180M) June 2014, RDA Northern Rivers website
- 25,555 registered businesses
- Employees – 90,079 jobs, RDA Northern Rivers website
- Regional Exports over all industries 4.892B (4,892.473M) RDA Northern Rivers website
- Average Wage $835.00 per week approx. Census 2011 ABS

Map 1: Study Area – RDA Northern Rivers

Source:http://rdanorthernrivers.org.au/download/regional_data/regional plan/Northern_Rivers_Regional_Plan_2013-2016_WEB.pdf

Context

The Northern Rivers region has a high level of commonality in identity and vision. Beyond the individualistic characteristics of each of the seven local community plans, each share a consistency and set of values that places the Northern Rivers in a great position to act collaboratively.

The seven local government community plans are:

- Ballina Shire Our Community: Our Future Community Strategic Plan 2013-2023
- Byron Shire Community Strategic Plan 2022
- Clarence Valley Our Community Plan 2015-2024
- Kyogle Community Strategic Plan 2012-2025
- Lismore City Imagine Lismore 10 Year Plan 2013-2023
- Richmond Valley Towards 2025 Community Strategic Plan
- Tweed Shire Community Strategic Plan 2013/2023

The Northern Rivers Regional Plan 2013-2016 identifies six regional priorities underpinned by a collaborative region:

- Connected Communities
- Natural Infrastructure
- Inclusive Communities
- Regional Identity
- Sustainable Industry
- A learning Region

Specific actions in the Regional Plan identifying the need for the preparation of a Digital Action Plan are:

- The region must be 'digital-ready'.
- Broadband infrastructure delivery is critical to regional development.

Given the potential benefit from the digital economy, RDA Northern Rivers may need to review the Regional Strategy to ensure 'digital' is recognised as a foundation element. Through digital technologies:

- Employment can be provided to local residents by remote businesses – retaining residents and drawing Gross Regional Product
- Local businesses are now able to export to state, national and international markets without a physical product leaving the region – the knowledge economy - again employment retained and growing GRP
- Through the use of sensors and other technologies, government and business services can be tailored to when they are needed rather than a standard cycle – tailored bus and other routine services to meet the needs of the community – efficient systems reduce overheads
- Inclusive community programs can be delivered through physical and online modules including gamification and use of social networks to increase reach and diversification of modes
- Online collaborative consumption techniques can connect local producers with local consumers
- Education within, and access from outside of the region can be provided where and when a 'learner' needs it

> **Priority Action:** Use and promote a digital benchmarking tool to guide and promote digital adoption by small businesses

Productivity - Regional Demand Assessment

The Northern Rivers Regional Profile 2013 (prepared for RDA Northern Rivers by SC Lennon and Associates) provides a good basis to inform the Digital Activation Plan Actions. A high level assessment shows each area also has an advantage that it can use to position it for investment attraction. Each of these economic and strategic advantages will influence the priorities for digital activation.

Businesses by Employment Size

Over the period 2007 to 2011 business numbers by employment changed marginally with the proportion of non-employing business increasing marginally. In contrast, the number of micro businesses (1-4 employees) reduced, as did the number employing 5 or more – See Figure 1 below. This points to the restructuring of the economy that is reflected by the declines in Agriculture, Forestry and Fishing, Manufacturing and Retail.

We know that over the 2001 -2011 period many logging and sawmilling businesses declined with the reduced access to old growth forests. In Manufacturing the continued adoption of mechanised production has reduced employment, while in Retail, the access to the internet economy has seen many people purchase online rather than locally.

For Retailers, a move to bricks and clicks (creating and serving online clients as well as instore ones) together with harnessing social media to drive business growth are digital economy solutions worth considering.

Priority Action: Investigate the opportunity to access the Digital Enterprise Program (current to end June 2016) seek alternative if not available.

Figure 1: Businesses by employment size 2007-2011

Figure 55 – Businesses by employment size 2007-2011

(source: ABS 2012b)

Source: Northern Rivers Regional Profile 2013
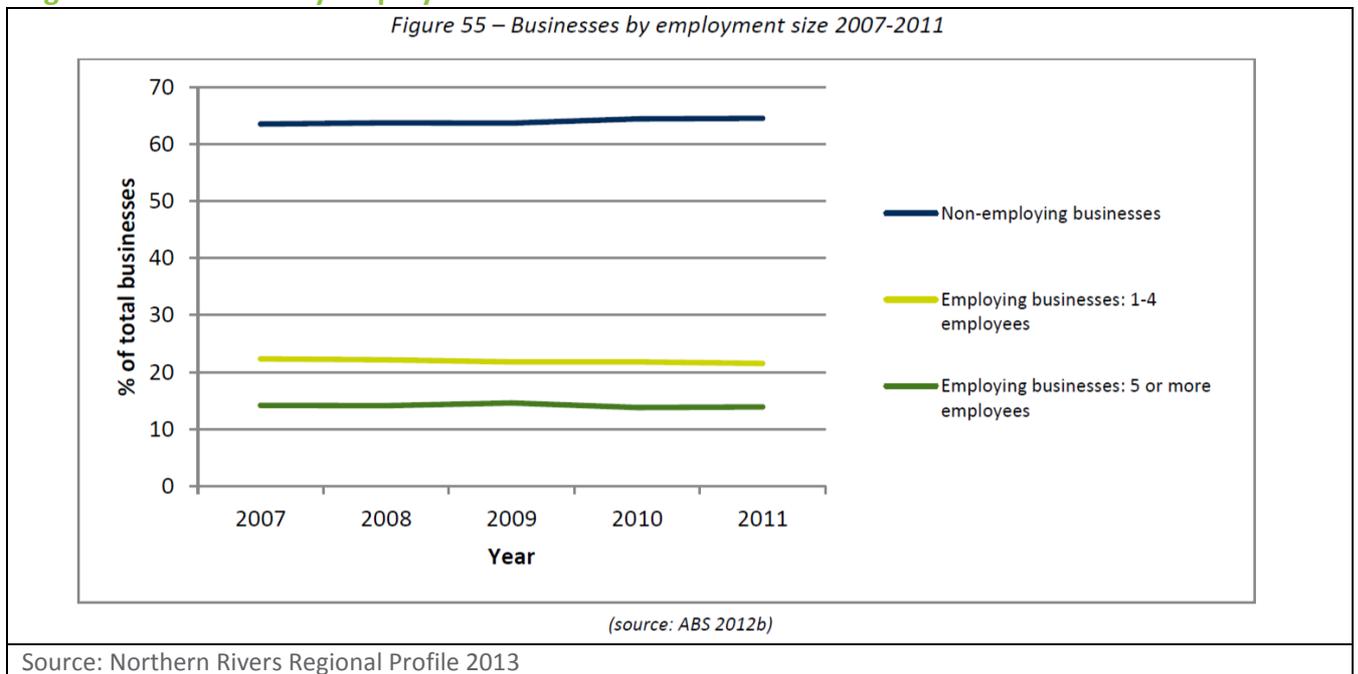
Total Business Numbers

All seven Northern Rivers councils experienced a drop off in the number of businesses in their area over 2007 to 2011- See Figure 2 below. In a research report by Deloitte for Google entitled, The

Connected Continent II[1], small businesses and micro business are expected to grow. The issue for the Norther Rivers is the types of business, or rather how those businesses are operating, may account for the decline in numbers.

The same Connected Continent report also identified the value of the Digital Economy as $79bil in 2013 and growing rapidly compared to other industry sectors. The challenge is how to achieve a share of that economy and future growth for your region.

Figure 2: Number of Businesses 2007-2011

Figure 54 – Number of businesses 2007-2011

(source: ABS 2012b)

Source: Northern Rivers Regional Profile 2013
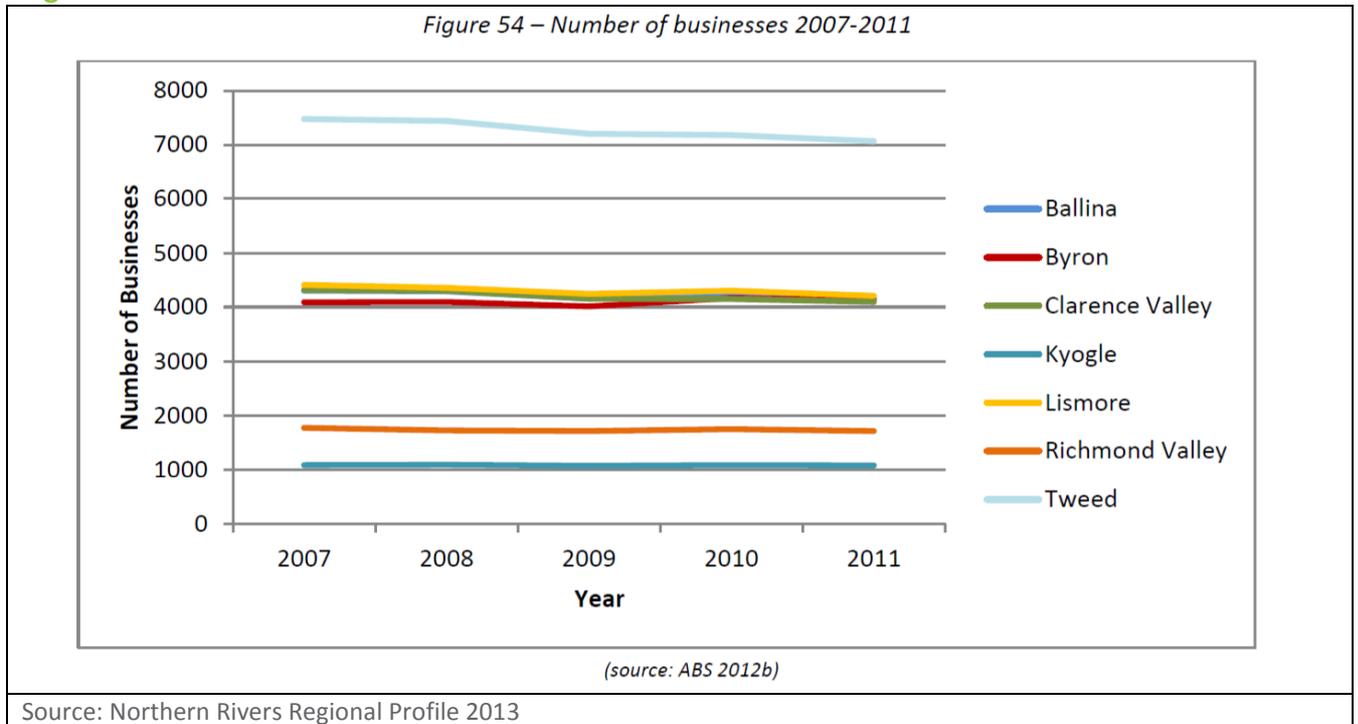
The figures in the two tables above point to a need to take action and prepare to access areas of the economy where there is growth. DEG sees the following actions as the seeds for new economic growth (Each of which was examined for relevance to the Northern Rivers Region during the consultation phase of this project):

Develop and deliver a **Digital Productivity Skilling Program** for small businesses in partnership with industry vendors (I.e. Xero) including the production of appropriate case studies. RDA Northern Rivers should collaborate with the private sector to audit and improve the existing use of digital technologies and platforms by Retailers.

Priority Action: Develop and deliver a Digital Productivity skilling program for small businesses in partnership with industry vendors (I.e. Xero) including the production of case studies.

Teach your kids to code – Coding is the language that underpins the digital economy. From websites to games to apps, the demand for coding is growing not declining. Look at CoderDoJo and Code.org. Use your libraries to host these low cost programs

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[1]   http://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-connected-continent-ii-2015-300315.pdf

> **Priority Action:** The teaching of code – coding is the language that underpins the digital economy. From web sites to games to apps, the demand for coding is growing not declining. Look at CoderDoJo and Code.org. Consider using your libraries to host these low cost programs.

- **Use your libraries as hubs for community** Living Lab for example - Bristol Living Lab is a place where people can come together to explore new ways of doing things – from solar power initiatives to cutting-edge healthcare work using sensors – and local people are involved every step of the way. Many of these facilities work like a maker space where the tools of the digital economy are provided cost effectively aspiring designers and entrepreneurs. They can use items such as 3D printers to develop their ideas into a business model or that can be used free of charge or on a fee for service basis.
- **Commission Apps** that support outdoor recreation and sustainable living. The Northern Rivers has a wide range of unique environments and experiences. Apps can provide an enhanced user experience and get people to stay another night. App development does not need to be expensive. Collaborative groups can share funding or raise money through **crowd sourcing and funding** tools (e.g. https://www.indiegogo.com/)

New types of economic activity

Recently, the NSW government recognised that changing business models can be good for the economy. Innovation Minister Victor Dominello has announced that they are now developing a framework for encouragement and regulation of the collaborative economy. These new businesses - Uber, home sharing AirBnB, financial services such as Kickstarter and online marketplaces such as Gumtree are estimated to be providing an income to 45,000 people in NSW. Deloitte Access Economics also estimates these collaborative economy businesses contributed around $504 million to the NSW economy last year (Refer Appendix 1).

The **Open Food Network** (www.openfoodnetwork.org.au) is a global not-for-profit, founded on open source code and principles. It licenses the platform to non-profit partners and supports them to bring OFN to life in their region. The not-for-profit software platform connects and empowers food producers and hubs in regions or countries. They reach new markets, networks, and tell their stories. People can buy awesome food from local producers and hubs they know and trust. It's diverse, transparent, local and sustainable. It's transaction as transformation.

Selecting esuppliers is a real issue for newcomers to the online environment according to Dr James Crowley (based in Lismore). He says *There are some excellent suppliers; There are many dreadful ones; There are many out of date ones. How does a business choose? It gets one chance to get it right*? Dr Crowley believes that mentors and/or paid consultants are critical.

THE introduction of **robotic milking and the construction of a state-of-the-art dairy** on the Wilson family's Northern Rivers farm (Kyogle Shire) is paving the way for production increases where buying additional land and increasing herd size is not an option[2].

Decentralisation driven by high cost capital city environments. International accounting and consulting firm Deloitte, in early 2016, announced its intention to actively decentralise across the regions of England as London and surrounds becomes prohibitively expensive. This reverse in trend from centralisation represents an opportunity for regions such as the Northern Rivers to seek decentralised work forces from both Sydney and Brisbane. The availability of high-speed broadband via nbn and other carriers is a key enabler in a digital decentralisation plan.

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[2]http://adf.farmonline.com.au/news/magazine/equipment-and-technology/technology/striving-for-efficiency/2672884.aspx

Leadership and connectivity connecting supply and demand

Armidale, Ipswich (Qld), Whittlesea (Vic), Prospect (SA) and Sunshine Coast (Qld) are councils that have been recognised by the Intelligent Community Forum (ICF) through their Smart 21 program. These councils have been assessed against cities and communities internationally and have reached the shortlisting of 21 smart communities worldwide. Armidale (http://www.armidaleregion.com.au/why-armidale/smart21 and Ipswich were recognised for 2016 with the others in recent years. The Smart 21 assessment process itself is an effective self-diagnosis tool to help identify and target improvements (http://www.intelligentcommunity.org/index.php?src=).

Within the RDA Northern Rivers region, the **Byron Technology Taskforce** is an active group originally established to raise and address concerns from major employers in the Byron Arts and Industry Estate about their current and future internet connectivity, reliability and speeds. The focus of this group is to address connectivity priorities for Byron ranging from connectivity for business through to developing the capability to be known as the Smart Shire.

Priority Action: Develop a Smart Community deployment model which would include deployment and display of IoT concepts to be used in development of a Smart Community, Smart Region.

Teaching coding should be built into the curriculum. Meet with Department of Education and try to get agreement that every school will teach coding and robotics and entrepreneurial thinking.

Companies like **Advatel Wireless** (Leon Cornwell – info@advatel.net.au) are meeting the current gap in the market be delivering fixed wireless internet and phone capable connections from the Gold Coast to the Clarence Valley. They scope the network to suit the budget and connection needs of the customers from residential to business to commercial grade services.

Feros Care – a local Northern Rivers aged care provider are using **technology to keep people in their homes and not in hospital** or other facilities.

Industry growth – Trends and Disruptive Change

Traditional economic research uses retrospective statistics and trend line analysis to identify areas to prioritise and target specific structural assistance. A new and contemporary approach now needs to be taken to harness the potential of the digital economy.

Figure 3 below highlights in the top right quadrant, industries with growth and relative strength (hence the size of the circles). In this standard scenario, Health Care, Retail Trade, Education and Accommodation are the four 'winners'.

In the future digital economy business model, this information needs to be combined with the dynamics arising from the disruptive systems and technologies coming about through the use of the internet and technology.

Figure 3: Industry growth and share 2006-2011

Figure 58 – Industry growth and share 2006 - 2011

Source: ABS Census of Population and Housing, Working Population Profile, 2006 and 2011 with interpretations by SC Lennon & Associates

Source: Northern Rivers Regional Profile 2013
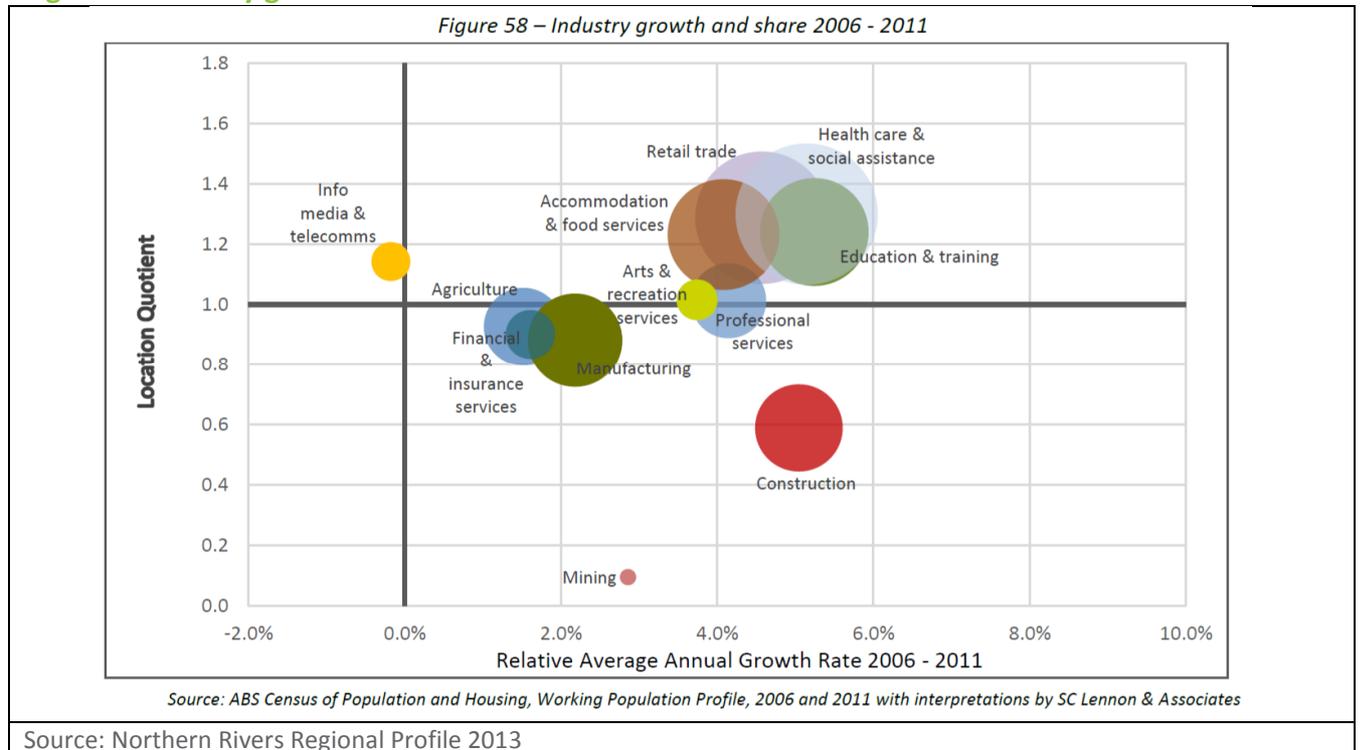
New research from the McKinsey Global Institute (MGI) uses novel data to analyse the extent of the connections and their economic impact:

> Globalization was once driven almost exclusively by the world's governments, large multinational corporations, and major financial institutions. But now—thanks to digital platforms with global reach—artisans, entrepreneurs, app developers, freelancers, small businesses, and even individuals can participate directly[3].

What does this look like and how can the Northern Rivers replicate larger centre dynamics locally?

Existing economy

Within the current economy, existing industry may look to value-adding and exporting to niche markets at higher value. Former Premier of Tasmania (David Bartlett), uses the example of a Wagyu cattle farmer from Scottsdale in Tasmania adding 40% profit through personalised digital stories about each animal when sold to the high value Japanese market.

Tourism may welcome or feel threatened by AirBnB, but the growth of this alternative and collaborative economy points to the potential to identify new or expanding market segments not previously tapped.

Organic, natural or location brands (King Island) driven by social media can serve as pivot points for traditional economies driven through digital lenses.

Future economy

The future is here now; it is just occurring in small pockets and needs to be expanded.

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[3] http://www.mckinsey.com/insights/globalization/globalization_for_the_little_guy

The Future of Jobs - a World Economic Forum Report[4], released January 2016 – highlights the critical need for all regions to understand the employment, skills and workforce strategy requirements to address what they are referring to as the 'Fourth Industrial Revolution'. How the Northern Rivers responds to these issues will define its success into the future.

Digital economy activities come in many different formats and can be easily implemented (by governments and larger businesses).

Regional Leadership – actively choose to pursue a digital economy and make it one of the Northern Rivers' foundation priorities. 'Always connected & mobile' and 'independent & self-serving' are two of the top five characteristics of the resident in 2025 as described in a recent survey of 250 council executives in Australia and New Zealand[5]. **The seven local councils of the Northern Rivers region can be Digital Champion exemplars.**

The digital economy needs new jobs, new businesses and retaining/upskilling of existing businesses to meet the challenge and opportunities that are available now. Support the growth and expansion of existing privately led incubators, Co-Working Spaces and Digital Learning Hubs to encourage digital innovation and collaboration. There is a need to build on existing facilities and improve the promotion and connection for local entrepreneurs to access

Priority Action: Support the growth and expansion of existing privately led incubators, Co-Working Spaces and Digital Learning Hubs to encourage digital innovation and collaboration.

Regional collaboration – harness the existing networks – at government, business and community levels to facilitate digital literacy programs and identify digital champions to act as locally recognised leaders. Support, train and develop your **digital champions to become mentors** for their community

Priority Action: Identify Digital Businesses and Digital Champions – provide training to develop as mentors. Mentoring and educational workshops for businesses to provide Digital upskilling development

Open data – business investment decisions are often delayed by time to access accurate data. By opening data sets, government removes another barrier to the investment decisions. Combine regional data sets and participate in [GovHack](#) every July[6]. These programs open the door to easier access of information and assist in the raising of awareness of open data.

Priority Action: Open data – Combine regional data sets and participate in GovHack every July. These programs open the door to easier access of information and assist in the raising of awareness of open data.

Advocate for connectivity – High-speed broadband. Treat broadband as a utility. Without it your economy is at risk. Work with nbn, current carriers and mobile network providers. Use demand aggregation and map existing business grade coverage. See example- http://digitalsunshinecoast.com.au/existing-coverage to demystify the current market. Help people get connected. Create Smart WiFi [7]hotspots and publicise their locations.

Priority Action: Advocate for Mobile Blackspot Funding and accelerated 4G LTE deployment based on independently tested mobile network evidence base. Target future Mobile Black Spot Programme Rounds and existing network upgrades.

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[4] https://www.weforum.org/reports/the-future-of-jobs/
[5] Civica Changing Landscape for Australia and New Zealand December 2015.
6 A 'hack' is when you take something and make it better.

7 Smart WiFi includes business intelligence analytics. This provides your community with an ability to add sensors and other smarts.

Priority Action: Extend the current WiFi network deployment with high capacity (e-band) WiFi in partnership with relevant Carriers / Service Providers and incorporate Hotspot 2.0 authentication technology.

Connectivity - Digital Infrastructure Assessment

The digital infrastructure assessment report for RDA Northern Rivers seeks to:

- provide a clear understanding of the current connectivity status as a baseline – the supply side
- articulate recommendations to provide pathways to access and increase demand
- identify potential advocacy and communications tools to provide the region with solutions for:
    - increased competition,
    - a facilitation pathway for higher quality coverage and
    - increased capacity measurable in both upload and download performance.

High quality broadband connectivity is achievable in almost all locations. Carriers use a wide range of tools to deliver broadband to where a client is based. The cost to the consumer for that service can be prohibitive, particularly where a carrier identifies a monopoly opportunity. One option to improve the situation is to identity the range of technical solutions, identify the depth of competitive service providers that are available and, where possible, to generate demand aggregation to break the pricing nexus.

Communication is a critical feature of the digital economy. Many people find broadband complex and confusing. The development of a digital information portal provides the region with the capacity to offer independent unbiased information and guidance that is relevant to their own place. The use of crowd sourcing solutions such as demand aggregation, competition mapping and simple step by step based advice allows regions to show leadership without the need to invest directly in new services themselves.

Part of nbn communication Priority Action: Include the development of a digital information portal as an action in the activation plan.

Understanding the digital infrastructure in the Northern Rivers is the first step towards maximising the connectivity options for the businesses, communities and individuals of your local area. Every regional economy has different foundations, and every region has different standards of service, strengths and weaknesses. DEG has developed a Digital Infrastructure Ecosystem to illustrate the competing elements of digital infrastructure in Australia. See Figure 4 below.

Connectivity is the central criteria for any region or place to have access to the rapidly growing digital economy. Understanding the multiple layers of competing (largely) private infrastructure is now mandatory for regions seeking to facilitate participation in the digital economy. The stakes are high and the opportunities are significant. The Connected Continent II[8] estimates the value of the Internet and digital technologies economic contribution in Australia alone to be $78.8 billion in 2013-14.

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[8] https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-connected-continent-ii-2015-300315.pdf

Figure 4: Digital Infrastructure Ecosystem - Australia

Source: DEG December 2015.
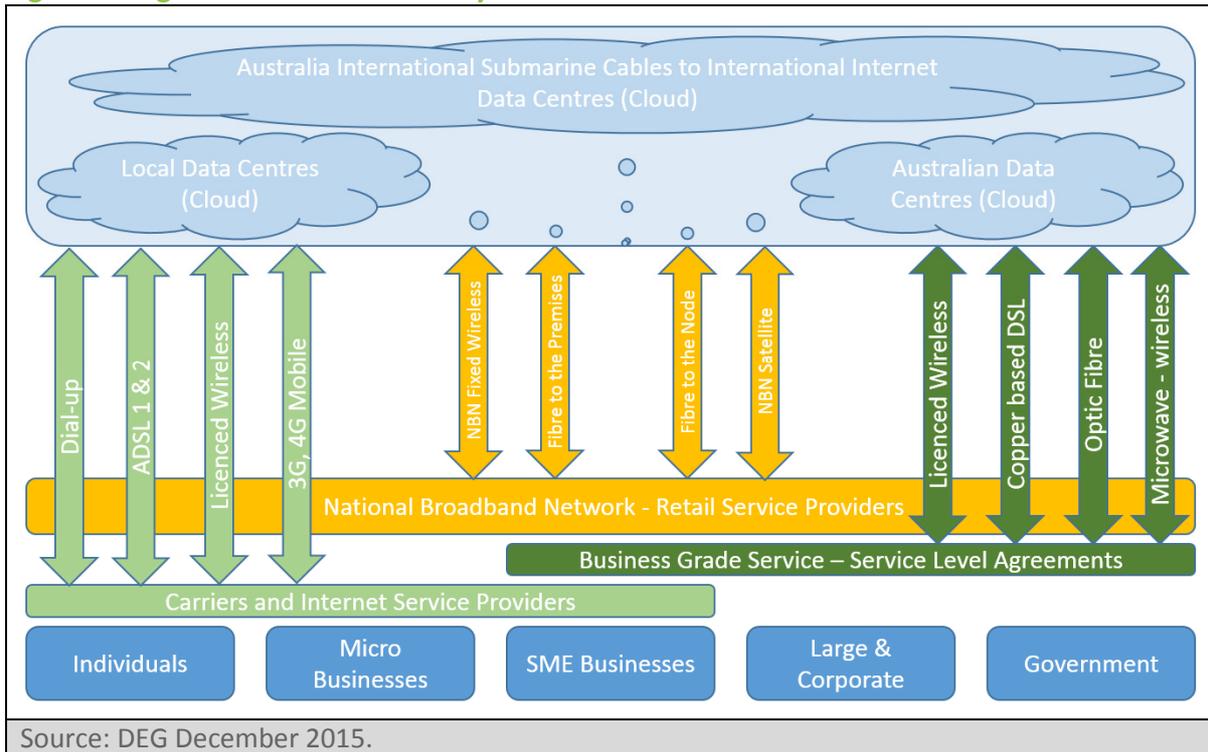
Traditional Networks

For over a century communication has been focussed on voice. The next phase of communications, data (with voice carried as data) has been increasing in pace for almost 40 years. The advances in communications have centred on the change from copper to optic fibre or wireless technologies. The first priority for carriers internationally was the reduction in cost for international connections and in turn inter-city backhaul. It has only been in the last decade that the local access network (from the exchange to the customer) could afford the use of the faster data transfer potential of the optic fibre. The cable networks in most Australian capitals used another higher speed solution (hybrid coaxial fibre cable).

The limitations of copper as a vehicle for data traffic have become an increasingly critical issue due to the rapid loss of speed over distance. The DSL (Dialler Subscriber Line) limitation of 4.5 to 5klms from the exchange is a good example of this. In capital cities and large urban centres where the average distance from the exchange to customer is 5klms or less, this was not a great issue. In regional, rural and remote locations where this distance is far greater, the so called 'tyranny of distance' becomes the digital divide. The advent of the ADSL2+ technology with an effective service radius of 1.5klms has only served to heighten the divide, this time in the cities and rural/remote Australia.

The direct implication for the Northern Rivers comes down to two fundamental challenges. The first is that to receive broadband with a similar level of service to a capital city resident, you need to live or operate your business within 1.5klms of the exchange. Secondly, ADSL2+ technology needs to be there, with enough ports to allow you to connect. The National Broadband Network (nbn) will substantially improve connectivity and is currently under construction, but will not be available in many areas for the next few years. Since the announcement of the nbn, expectations and demand for high speed connectivity have grown almost exponentially.

Exchanges and Exchange Service Areas

The RDA Northern Rivers region has 108 exchanges servicing almost 21,000 klms^2. These exchanges are owned by Telstra and provide access to other carriers and ISPs via commercial arrangements facilitated by the Telecommunications Act 1997.

The following map shows the Exchange locations and Exchange Service Areas across the seven local government areas of the Northern Rivers Region.

Despite Telstra network upgrades in recent years, there are many who cannot connect to broadband due to:

- The distance from the exchange,
- Poor quality of copper networks or
- Absence of ports to service users.

Due to the lack of independent advice on the availability of ports or the difference between ADSL1 and ADSL2, the http://www.adsl2exchanges.com.au/ site has emerged as a useful reference site for those seeking independent information. The location of exchanges, exchange service boundaries and current (indicative) providers and available ports is a good starting point for independent advice.

For users or businesses in these situations, a checklist providing advice on options and connectivity until the nbn is available is a key short term priority.

> **Priority Action:** Prepare a checklist for users to self-diagnose access to reliable and competitively priced broadband services. See Appendix 6 for draft checklist. Access to independent information on current supply options is the first step to generating new demand.

Map 2: RDA Northern Rivers Exchanges and Exchange Service Areas
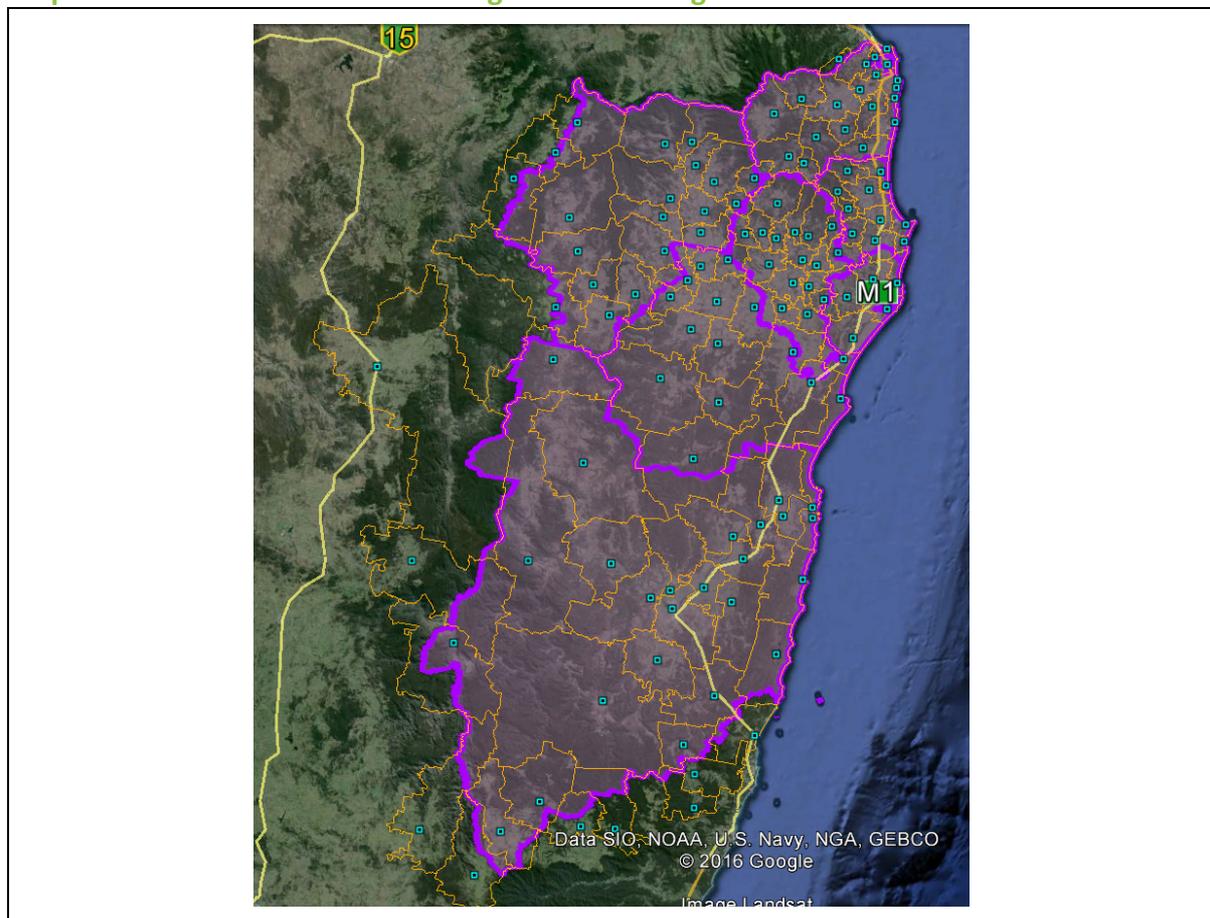
Source: Google Earth Pro, NSW Local Government Areas, ASGC 2008; DEG 2016

Business Grade Services

Businesses rely on telephony and internet data services to deliver a wide range of business function outcomes. Financial institutions rely on secure high speed networks to manage transactions and hospital and health environments need large volumes of traffic moved securely in real time. Carriers support these needs with a wide range of technologies and products and pricing to suit the service level required.

Pricing, Supply and Demand

For areas outside the CBD of a capital city, pricing and product availability are influenced by the location, level of competition and individual businesses demand.

There are generally four tiers of pricing – CBD (of a capital city), Metro (again in a capital city), Regional and Remote. Pricing is also often broken down to four sub pricing levels. Businesses are bound by confidentiality clauses in their contracts from revealing what they are paying

The key challenge for regions such as the Northern Rivers is to understand who the current providers are, their technologies for delivery, and look for ways that they can facilitate increased competition, coverage and capacity to ensure local businesses are not paying higher rates than comparable parts of Australia.

Other locations in Australia have sought to convene the business grade market place by creating online maps showing business grade services by location and carrier (e.g. Digital Sunshine Coast - http://digitalsunshinecoast.com.au/existing-coverage). The key benefit here is that it provides regional organisations and councils a solution to businesses saying they can't get competitive broadband and internet.

Business Grade solutions require a market to warrant investment. A tool that regions can use to assist in the business case for smaller carriers to fill a space left by the larger carriers is to use demand aggregation. Again, Digital Sunshine Coast (http://digitalsunshinecoast.com.au/campaign/speed-it) has created this mechanism and is using it to resolve this same issue on the Sunshine Coast.

> **Part of nbn Priority Action:** RDA Northern Rivers to consider creating a demand aggregation mechanism similar to Digital Sunshine Coast site.

National Broadband Network by nbn

The Northern Rivers is now beginning to take advantage of the accelerating nbn Rollout:

1. fixed wireless- for rural areas around the urban centres – now fully operational or operational in 6-8 months
2. satellite services to be activated from June 2016
3. new developments – the few locations where this is occurring - are now operational;
4. fixed deployment beginning now and complete by late 2018 with over 75% before the end of 2017

The National Broadband Network (nbn) is a Federal Government initiative to deliver a wholesale only broadband network to achieve 100% coverage of the Australian continent. nbn is the Government Business Enterprise created to deliver the nbn[9].

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[9] For more information, go to www.nbnco.com.au

The nbn is a multi-technology mix including Fibre to the Premises - FTTP, Fibre to the Node - FTTN (where optic fibre goes to within a kilometres of the premises), Hybrid Fibre Coaxial – HFC, fixed wireless and satellite to deliver coverage.

Currently 11 million premises accommodate the business, community and residential locations for the 24 million people who live in Australia. By the time the nbn build is completed over a 10-year period, a further 2 million premises will be constructed and occupied. The nbn new developments program has been created to address this growth.

All four delivery solutions will occur in the Northern Rivers region:

- new developments
- fixed wireless, and
- brownfields – current and three-year schedule
- interim satellite and long term satellite are both now operational

The current nbn work program (public information) is available on their website. This is a useful resource for short term information. Another resource that is of use for nbn information is http://www.finder.com.au/nbn-tracker/map. This independent site often explains things in a simple and relevant way. Councils are encouraged to host information on a dedicated council page providing links (or if possible, embedded nbn information) together with the suburb names of the 3-year rollout plan.

RDA Northern Rivers and the councils are encouraged to work with nbn on a number of fronts simultaneously.

Priority Action: The RDA Northern Rivers as brokering role on behalf of the local economy in discussions with the nbn as to its roll-out schedule and locations – and in relation to accelerated deployment of competitive mobile services. Also action the following:
RDA Northern Rivers host a dedicated webpage designed to provide current nbn available services, current build information and the 3-year rollout locations. Cross referencing this information in an investment prospectus document will assist investors with their decision to locate there – or not.
RDA Northern Rivers appoint a single point of contact to manage all aspects of nbn interactions with Council. The value of the investment in your region together with value of higher quality broadband connectivity to the region warrants this level of commitment. This may currently be happening in an adhoc way. Prioritising and systemising the RDA Northern Rivers response together with active facilitation will lead to a faster or at least better informed, rollout for Councillors, executive, impacted teams and business/residents.

nbn network, today, current plans and possible roadmap to completion

With the nbn multi technology mix, individuals and businesses accessing Retail Service Providers need to know what the range of services available are and any limitations that there may be compared to what they currently expect to use.

The figure below shows the time frame for introduction of services by technology. The interim satellite services for example, will not provide business services, users will have to wait for the long-term satellite services that have recently been activated for eligible locations.

Figure 5: nbn technology options deployment roadmap – 2016 Corporate Plan

Source: http://www.nbnco.com.au/content/dam/nbnco2/documents/nbn-corporate-plan-2016.pdf
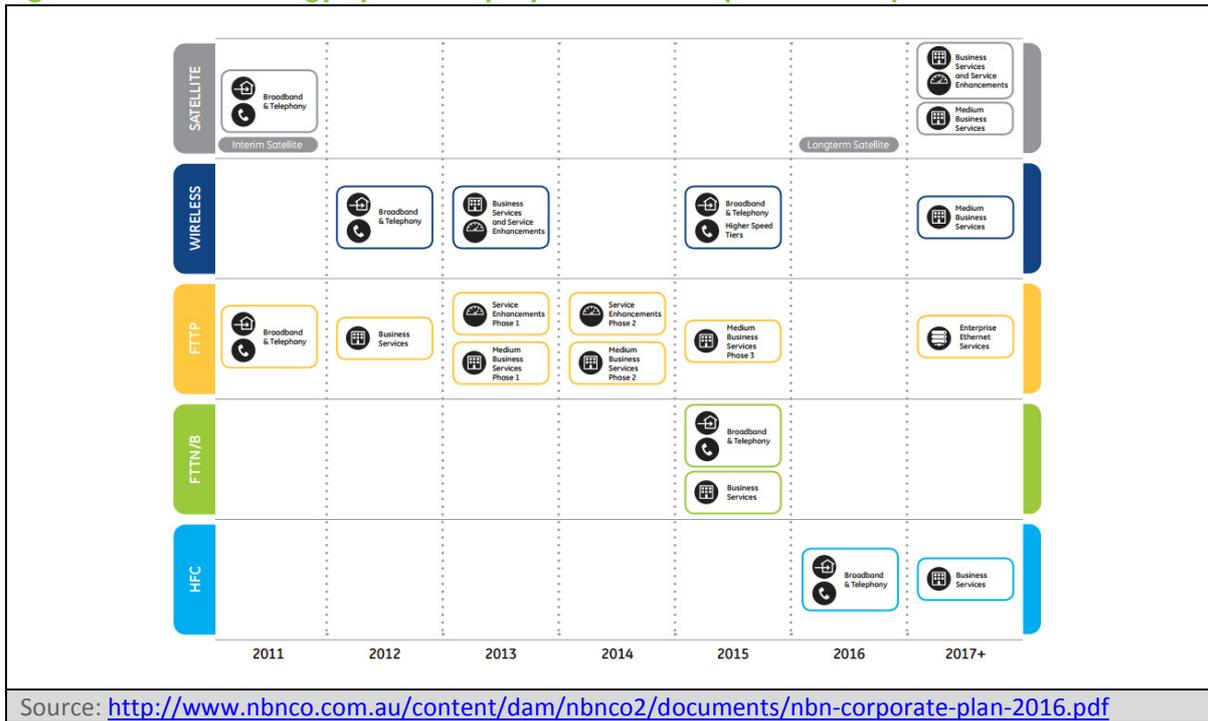
nbn Brownfield build – existing, current build and 3-year plan

In October 2015 nbn revealed their next three-year rollout plan. With the move to a broader technology mix – FTTN and HFC has allowed a rapid acceleration in deployment. Some 7.5 million homes are now expected to start construction over the 36-month period.

The following areas are identified for construction over the next 3 years. At the current planned construction rate most if not all of the Northern Rivers communities will be fully serviced by one of the nbn multi technology offerings by the end of 2018.

Alstonville	Grafton	Mullumbimby
Ballina	Hastings Point	Murwillumbah
Byron Bay	Kingscliff	Richmond
Coraki	Kyogle	Tweed Heads
Casino	Lismore	Woodburn
Evans Head	Maclean	Yamba

As these localities are added to the nbn Service Available List during 2016, this will provide a new incentive to communicate and seek to activate the digital economy benefits. In October 2015, nbn added new extensive areas to the Northern Rivers three-year rollout plan as indicated in Appendix 2. The addition of these locations will provide increased certainty. The Northern Rivers needs to be cautious announcing these locations without the clear message that these are subject to change. Parts of Springfield (in Ipswich City Council area) were added then removed from the three-year rollout plan.

The nbn Australia wide three-year rollout plan has been filtered to just the Northern Rivers areas (refer Appendix 2.) It must be noted that the designation of a suburb name does not mean that the entire area will be covered by that technology. Encourage members of the public to log on to http://www.nbnco.com.au/develop-or-plan-with-the-nbn/check-rollout-map.html and register for updates directly from nbn[TM]. Another resource that is of use for nbn fixed wireless information is http://www.finder.com.au/nbn-tracker/map.

nbn – Copper Switch off.

As parts of the nbn are completed, areas that have been operational for 18 months are phased out of the previous connection technology – this is referred to as the Copper Switch off. An assessment needs to be made of where this will occur and then target messaging to align with the nbn copper switch off.

> **Part of nbn Priority action:** Identify areas that will have the copper Switch off and align regional messaging with that of nbn.

nbn New Developments

nbn new development builds are triggered when a development has more than 100 lots (standard or strata, vertical or horizontal) over a 3-year period. Developments that don't meet these criteria become the responsibility of Telstra. In recent years, the Northern Rivers benefited from a small number of new development builds. The nbn website publishes the progress of the national roll-out including new development sites. The new development sites are only published when they reach a certain status with the developer and construction. See Map 3 below showing a number of new development sites for nbn in Casuarina Beach.

Map 3: Example nbn new development Sites – Casuarina Beach

Source: http://www.nbnco.com.au/develop-or-plan-with-the-nbn/check-rollout-map.html
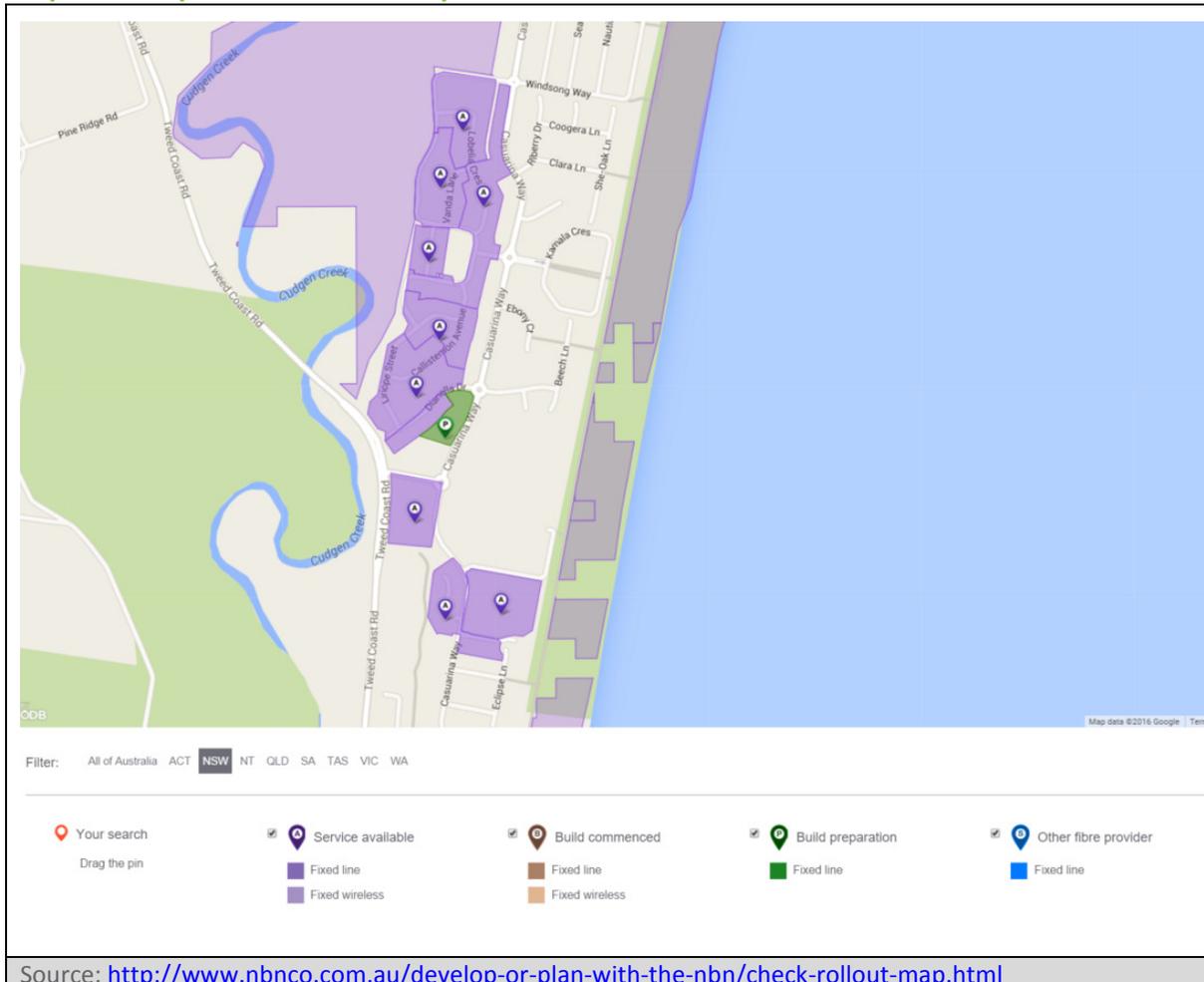
nbn fixed wireless

The nbn fixed wireless network will use fibre to 2,600 transmission towers located around Australia. These towers will then transmit broadband services to homes using TD-LTE 4G (a mobile broadband technology). Another resource that is of use for nbn fixed wireless information is http://www.finder.com.au/nbn-tracker/map.

This type of technology is planned to cover around 500,000 premises and will help to deliver fast broadband to some regional areas for the first time ever. nbn[TM] is currently trialling the fixed wireless network and has seen trial wholesale speeds of up to 50Mbps/20Mbps.

While some of the nbn fixed wireless sites are using existing radio transmission sites, many are new sites. This increases the potential for the three mobile carriers to co-locate on the new nbn sites to increase competition and remove some remaining mobile Black Spots.

Map 4: Existing and approved nbn fixed wireless sites for RDA Northern Rivers

Source: ACMA licences nbn December 2015
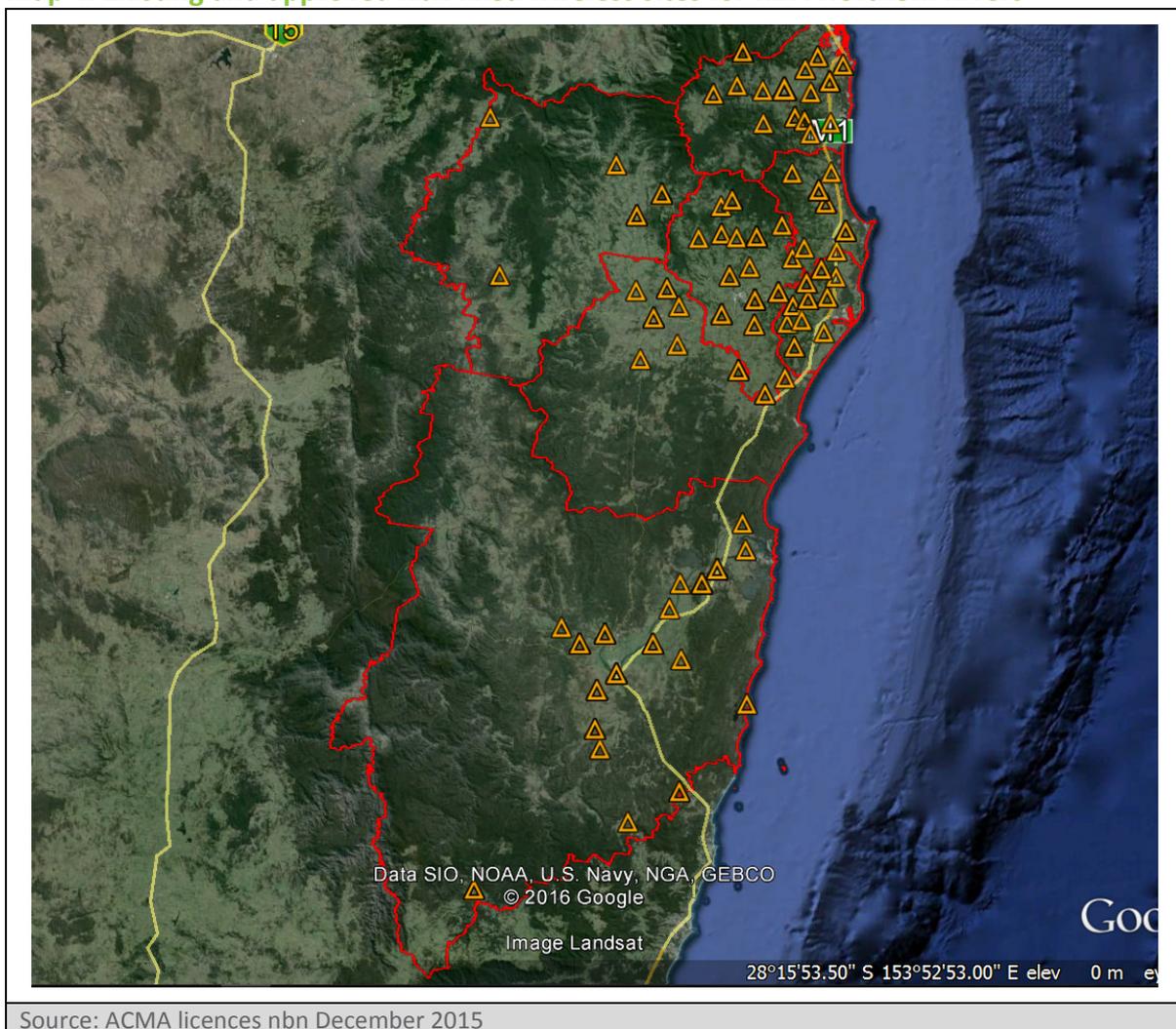
What will the Northern Rivers region coverage map look like when all nbn services are deployed?

Using Toowoomba and surrounds as an example (Map 5 below) shows the fixed wireless covering much of the land area outside of the City, with fixed services to the city centre built or in construction stages. The remaining gaps highlight that satellite will become the service solution for those difficult to reach locations.

Map 5: Example of fixed and fixed wireless services illustrated on a coverage map - Toowoomba

Source: http://www.nbnco.com.au
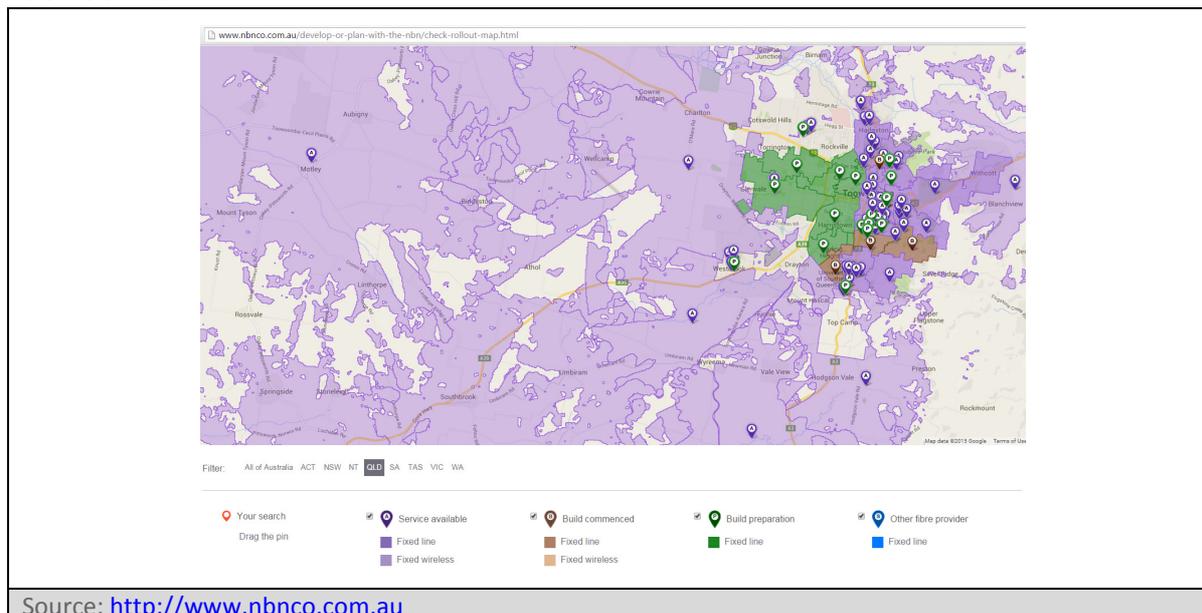
nbn satellite in the Northern Rivers region

For those people who are unable to connect to fixed line or fixed wireless technology, the nbn network will make use of two new specially designed satellites. These next-generation satellites will cover nearly every corner of Australia. The existing interim satellite service has a capacity of 4Gbps. When the two new satellites are in orbit, they will have a combined capacity of 135Gbps.

The first satellite launched on 1 October 2015 and will become available to homes and business progressively from mid-2016. This increase in capacity will deliver peak wholesale speeds of up to 25Mbps/5Mbps.

Map 5 above shows an example of fixed and fixed wireless services illustrated on a coverage map for Toowoomba and highlights the random locations that the nbn satellite will service.

Priority Action: RDA Northern Rivers are encouraged to understand the implications of the satellite coverage, ongoing uncertainty regarding coverage for those affected, timing, locations impacted and build into the digital information portal narrative.

Identification of current nbn Retail Service Providers

nbn are now offering over 80 Retail Service Providers (RSPs) in the Northern Rivers region (see Table 1 below and Appendix 3 for detailed information). Many well recognised brands feature in the list – Telstra, TPG and Optus for example. The range of choice available to users allows for competition to drive products to suit the user. It may be a small data allowance and lower price or larger allocations with other differentiations.

Some focus on satellite or fixed wireless or the fixed services to urban areas (FTTP, FTTN and HFC). The addition of business services is now improving the depth of offerings.

Part of nbn Priority Action: RDA Northern Rivers to develop communications messaging around nbn availability and range of services available from RSPs as part of the digital information portal.

For locations where nbn services are available, there are two next levels of challenge. The first is to have premises connect to the nbn and the second is for users to actively use the nbn for more than just broadband connectivity and entertainment purposes.

DIGITAL ECONOMY GROUP

> **Part of nbn Priority Action**: RDA Northern Rivers develop/revise digital economy activation plans to harness the available nbn services and tie in with investment prospectus material showing footprints of access for businesses and residents.

Table 1: Sample of nbn Retail Service Providers in RDA Northern Rivers

AAPT	Delphin Telecom	North Queensland Telecom
ACN	DiffTel	NuSkope
ANT	ECN	OntheNet
Activ8me	Easynet	Optus
Advanced NBN	EscapeNet	OzLinked
Alpha Dot Net	EveryNet	Phone Systems Brisbane
Anittel	Exetel - 1300 EXETEL	Q Telecom
Applied VoIP	Fantel	Roctel
Arcon Communications Pty	Fastel	SavinGreen
Arrow Voice & Data	Faxem	Southern Phone
Astron	Graytech Hosting Pty Ltd	Spintel
AusBBS	HOT NET	Spirit Telecom
Aussie Web IT Solutions	IIG	Switched On Australia
Australia Online	Infinity NBN	T Gen
Australia Telecom	Internode - 1300 NBN NOW	TPG
Bendigo Bank Telco	Key Internet	TelAustralia
Bendigo Telco	Loadednet	Telarus
Best Telecom Australia	Logitel	TelcoGreen
Boom Broadband	Macquarie Telecom	Telcoplus
Brennan IT	ManageMy Group	Telecom West
Broadband Solutions	Matilda	Telesurf
Business Technology	MyFibre	Telstra
CareTel	MyNetFone	Telstra Business
Carrier1 Telecom	NBNSP	TransACT
Central Connect	National Voice and Data	Value Telecommunications
Community Telco	New Sprout	Westnet
Countrytell - 13 TELL	Nexon	Your Call Telecom
Cybertel Telecom	Nobleheart Telecommunications	iiNet
DeVoteD NBN		
Source: http://v1.mynbn.info/		

Identification of backhaul networks (fibre and microwave) to and from the region

Telstra, Optus, TPG and a number of other major carriers have key backhaul links traversing through coastal and hinterland routes. The hinterland routes tend to be via Tenterfield to the West. Along the coastal route there will be a number of options to access wholesale and retailed product sets.

Data-centres, Connecting to the cloud and International Connectivity

Role of Data Centres, peering and interconnection points

Data-centres are the 'cloud of the digital economy'. Often misunderstood, these pieces of infrastructure are most commonly privately owned and operated, and users typically do not actually know where their data is stored.

It is not critical for a data-centre to be located in your region for you to be successful in the digital economy, regions that do, tend to build an ecosystem of symbiotic employment generators. This happens in much the same way that the presence of a major hospital tends to have specialists, medical imaging, and other health related activities around it.

If our power or water utilities operated in a two-way flow, they would reflect the communications system at is simplest. The exchanges are like substations and reservoirs, while the power stations or dams are the data-centres of the communications utility system. The difference with communications is that there are multiple utility providers and many different levels of service.

Data-centres with peering or interconnection to other networks are more valuable than those which have limited connectivity.

Mobile Networks

According to the International Telecommunications Union, Australian mobiles subscriptions grew from 8.5 million in the year 2000 to 31 million in 2014. The rate of growth slowed from 2008-to 2013 but has grown steeply in 2014 – possibly in line with the demands for Internet of Everything connected devices using sim cards. Australians expect high quality coverage everywhere they go. This has been recognised by the Australian government and resulted in the Mobile Black Spot Programme with hundreds of new towers announced in June 2015. A further second round commenced in early 2016.

Figure 6: Australian Mobile Subscriptions in Millions

Source: https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx
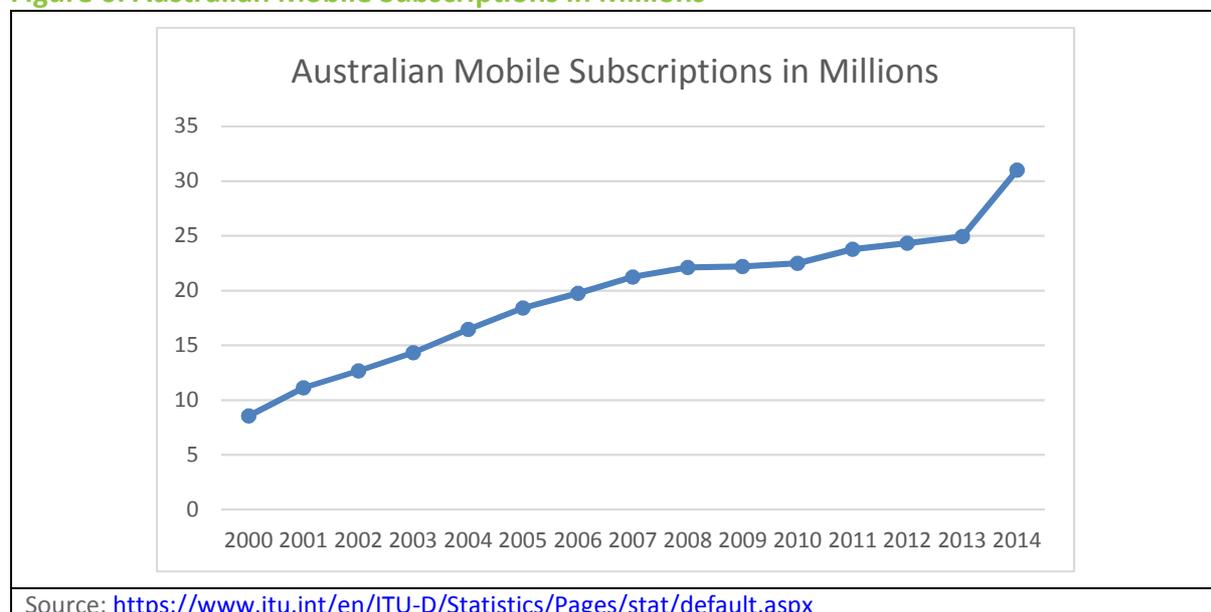
The Australian Communications Media Authority (ACMA) manages the spectrum and licences for mobile providers. In Australia, Telstra, Optus and Vodafone are the three major network owners (TPG now has some spectrum and is expected to begin building a presence in 2016).

The Combined Current Mobile Carrier Sites Map 6 below (Telstra in blue, Optus yellow and Vodafone in red) shows the intensity of carrier presence in the urban areas and the varying levels of investment

in the rural and hinterland areas. The high level overview of the three carriers reveals the following number of sites across Northern Rivers.

Table 2: RDA Northern Rivers Carrier sites by Local Government

Location	Telstra	Optus	Vodafone	Totals
Ballina	11	12	5	28
Byron	16	13	12	41
Tweed	24	17	19	60
Lismore	8	10	4	22
Kyogle	10	2	2	14
Richmond	6	7	3	16
Clarence	27	20	6	53
Carriers Totals	102	81	51	

Map 6: Combined Current Mobile Carrier Sites – RDA Northern Rivers

Source: ACMA Radio Frequency Licences (Telstra, Optus & Vodafone) at 30 November 2015, Google Earth 2015, NSW Local Government Boundaries & DEG interpretation.
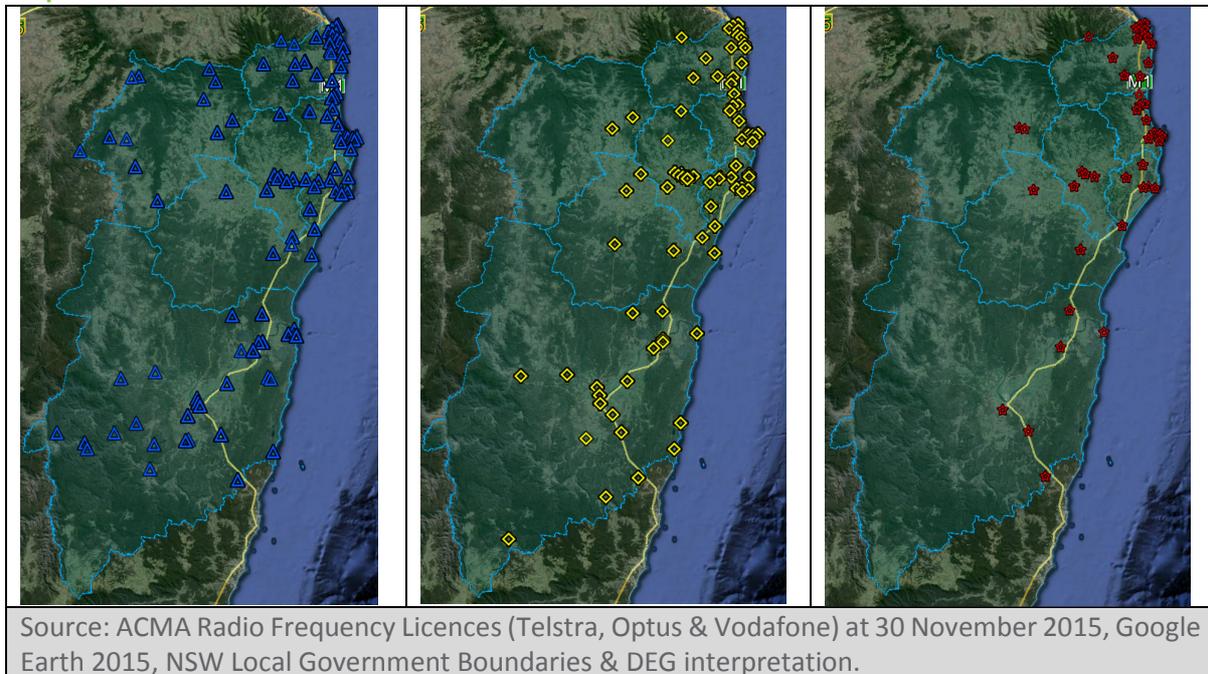
Carrier Baseline

The carrier baseline developed below uses the most recent release of ACMA data (capturing licence information up to December 2015 – See Appendix 4 for summary of Telstra, Optus and Vodafone Spectrum in the Northern Rivers). The full database contains over 30 columns of information and many thousands of licences for all radio frequency licences in Australia. This has been filtered to ensure only the Telstra, Optus and Vodafone radio licence information is used. This is further filtered to remove satellite earth receive and send sites, navigation and aeronautical equipment maintained by these companies.

Mobile Black Spot Programme

In 2014, the Australian Government announced the Mobile Black Spot Programme (the Programme) and committed $100 million towards a funding programme involving eligible carriers, state and local governments and other contributing stakeholders.

On 25 June 2015, the Round 1 sites were announced with 499 sites funded using a total funding pool of $385 million. On the same date, the Australian Government committed a further $60 million as the foundation commitment to Round 2 of the Programme.

To assist with the identification of Black Spot locations, the Department of Communications established a database and provided the opportunity for individuals and organisations to register where they considered there to be Black Spots – See Map 7 below. The nature of the user contributed database means that there are no qualitative parameters. A user with an Optus account may resister a site despite having Telstra and Vodafone coverage and so on. The concentration of submitted Black Spots in the Northern Rivers region highlights this. In addition, areas that are Black Spots may not have been nominated. To qualify for the Programme, an area must not have signal from any of the three carriers.

In Round 1 of the Mobile Black Spot Programme, The Northern Rivers were very successful in achieving new funded locations with the following number of sites by council:

- Ballina – nil – due largely to existing levels of coverage
- Byron – 2
- Clarence Valley – 5
- Kyogle – 7
- Lismore – 3
- Richmond Valley – 2
- Tweed – 4

Map 7: Mobile Black Spot Programme Community contributed Black Spot locations and funded locations - Round 1
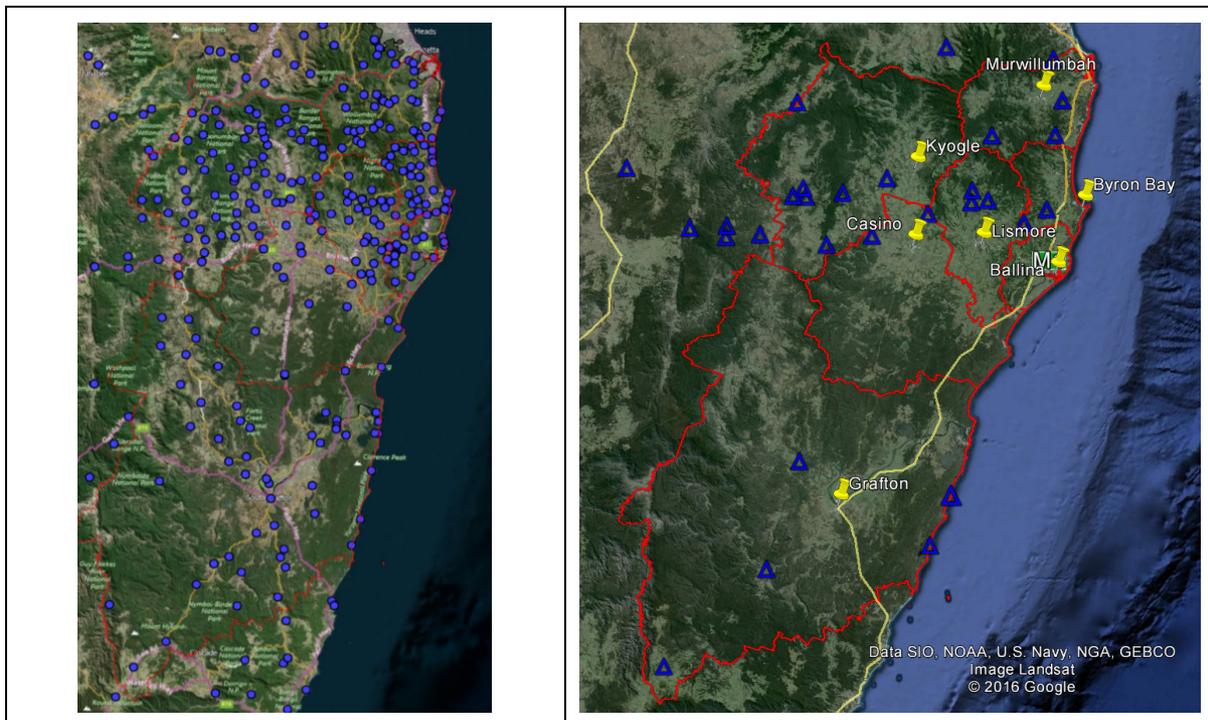
Source: http://nationalmap.gov.au/ - Layer: mobile-black-spot-programme: database-group Date: 5 December 2015

Mobile Black Spot Programme – Round 2

Round 2 of the Programme is expected to operate under similar guidelines as the first round of the Programme. The Government will review the results of Round 1 to determine if there should be any changes. Round 2 of the Programme will offer further opportunities to meet unmet demand and provide coverage to more locations around regional and remote Australia.

The competitive selection process for the second round of funding commenced in February 2016 and will close in June 2016. The locations to be funded under Round 2 are expected to be announced by the end of 2016.

Part of Mobile Black Spot Priority Action: The RDA Northern Rivers are encouraged to prepare for future carrier and government investments in mobile coverage. Community Black Spot identification and independent testing and solution assessments are key preparation steps.

Broadband Connectivity Checklist

Many businesses and residents contact councils and other regional government organisations for assistance with access to broadband. Seeking assistance from government agencies is usually a final resort and the result of frustration. Although telecommunications are a Federal Government responsibility, it is in the interest of local agencies to provide a way to short circuit these frustrations and assist businesses and individuals with independent advice and knowledge to help make choices.

The Broadband Connectivity Checklist (See Appendix 5 for the full version) is designed to serve as a self-help guide. It is not intended to answer every question and is not designed to replace any other formal advisory services

The checklist covers the following key areas:

Introduction
    1: Do you have an existing service?
    2: Check the quality and speed of your connection
    3: Compare your contract with your current service
    4: Talk to your carrier / internet service provider
    5 - Look at the alternatives
        Fixed Services
        Fixed Wireless Services
        Mobile Broadband
        Independent Advisory Sites & Resources

Consultation

A key part of the Digital Activation Plan development is the consultation phase. A number of informal interviews and discussions have taken place with local digital champions, chambers of commerce, Council and state agency representatives. In addition, a formal consultation phase was undertaken during the week of 8-12 February 2016, with a series of workshops and meetings held in each of the Council areas. Digital Economy Group led these sessions and sought input and feedback from councillors, staff and local leaders.

Formal Consultation

The formal presentation and workshop with each of the seven local governments in the RDA Northern Rivers area involved a 90-minute session with the following structure:

- presentation -overview of the draft Digital Activation Plan
- workshop with participants covering a number of key areas:
    1. Key industry nodes and local priorities
    2. Top ten priorities for your community
    3. What 3 priorities should be removed from the list?
    4. Who could be your digital champions?
    5. Who are your Regional Collaborators – organisations, businesses, not for profits, individuals?

1. *Key industry nodes and local demand drivers*

The key node locations identified through consultation are in no particular order:

Ballina, Byron, Bangalow, Lismore, Kyogle, Casino, Tweed Heads, Murwillumbah, Yamba, Grafton,

The key businesses or industry sectors identified were:

- Tourism, Kimberley Campers, Duroplass – Water Tanks, Ramada Ballina, Construction – Morgans, Crowley Rest – Aged Care, Ballina RSL, Rock of Ages tattoo parlour, Mitre 10 Ballina – Industrial shed & online, North Coast Holiday Parks, TAFE college & Education, Council is major employer, many small & micro businesses
- Byron Industrial Estate – Start Inno, SAE – Education, Byron Community College, Macadamia Castle – use of electric vehicles, Tourism, Elements – Accom, Crystal Castle, Food Manufacturing Music/Festivals/Entertainment
- Link – Business Incubator, Hospital and University – have own network but not associated businesses, Lismore Investment Prospectus, e-Rescue - copyright facilitation and incubator, Norco – Automation/robotic dairy farm, Social services – defunding is driving alternative delivery, NDIS
- Feros – has to move out of (the Tweed Area) using technology to keep people in home for the last 10 years, Professional Services – Accountants, Employment services
- Agribusiness, Council running program to encourage generation transition to get younger gen onto farms – share Farming arrangements etc., Ghinninghi Beef (providence of region important)
- Mara Seeds/Global Foods – cutting edge tech to export globally, Tabulum Blueberries, Hurfords Timber, Brown & Hurley (trucking company), Incubators - Retail/Visitor economy 'Emporium' being developed by Council, Tourism - AWOL adventuring (based in Murwillumbah), Opportunity to educate city based school kids in Ag, Integrated resorts may be setting up on GC and could provide potential tourist market for Kyogle, Communication of events could be done better via digital tech Farm Stays growing massive potential international markets not really being tapped currently

Accessible Tourism, Cultured Tourism – Product ready, Evans Head, Richmond Valley potential, North Coast Destination Network, Capilano Honey, Agri/Marine/Tourism/Property Services, Strategy Monsters, Aged Care/Social, Digital Transition/Change

Connectivity Comments & Issues
- satellite, FttN & nbn fixed wireless
- Communication of timing and type of technology being deployed in the region would be a huge asset
- Communication of the difference between 'old' satellite and 'new' nbn satellite will be important given Kyogle experience in outlying areas
- Mobile Black Spot rollout
- Priority of nbn – what is the process
- Awareness
- Mobile Operators – lack of coverage,
- Need for Co-Working Spaces, teaching of code to kids,
- Schools – Adopt a business program (reverse mentoring)
- Health – Ageing in home program being run by Council
- $5m NPS being set up in Bonalbo
- Telehealth - huge potential

2. Top ten priority actions

Using the voting results to prioritise the draft actions the following 10 actions received the highest number of votes, in order:

Action #	Ballina	Tweed	Lismore	Kyogle	Richmond Valley	Clarence Valley	Byron Bay	Totals	Voted Highest Priorities
1	4	0	6	4	4	0	6	24	1
2	3	1	7	2	4	2	4	23	2
10	3	1	7	3	5	1	2	22	3
20	2	1	3	0	2	0	9	17	4
6	0	0	2	1	2	1	7	13	5
11	0	1	3	3	1	1	3	12	6
8	2	0	2	3	1	0	3	11	7
12	0	1	0	3	2	1	1	8	8
23	0	1	0	0	0	1	6	8	8
4	0	0	1	1	3	2	0	7	10

1. Action 1 - Identify Digital Businesses and Digital Champions

Action 2 - Digital Productivity skilling program for Small Businesses - **Note: Following feedback from the reviewing councils,** (Actions 2 & 4 to be combined in final Action Plan)

2. Action 10 - Advocate for Mobile Blackspot Funding and accelerated 4G LTE deployment based on independently tested mobile network evidence base
3. Action 20 - Support the growth and expansion of existing privately led incubators, Co-Working Spaces and Digital Learning Hubs
4. Action 6 - RDA NR Digital Partnership involving all key forces required for the strategy – One Body One Voice.

5.   Action 11 - Extend the current WiFi network deployment with high capacity (e-band) WiFi in partnership with relevant Carriers / Service Providers and incorporate Hotspot 2.0 authentication technology
6.   Action 8 - Prepare a checklist for broadband internet users
7.   Action 12 - RDA NR to develop communications messaging around nbn availability and range of services available from RSPs.
8.   Action 23 - Teach your kids to code – Coding is the language that underpins the digital economy.
9.   Action 4 - Use and promote a digital benchmarking tool to guide and promote digital adoption by small businesses **Note: Following feedback from the reviewing councils,** (Actions 2 & 4 to be combined in final Action Plan)

3.   Lowest Priority Actions

Using the voting results to identify and prioritise the lowest draft actions the following five actions received the highest number of votes, in order and therefore should be removed from the draft action list:

Action	Ballina	Tweed	Lismore	Kyogle	Richmond Valley	Clarence Valley	Byron Bay	Total	Voted Lowest Priorities
24	3	1	9	1		2	4	20	1
23		1	6	3	3	2	3	18	2
16	2		1	3	3	1	1	11	3
7	2	1	3	1			2	9	4
3		1			2	1	4	8	5
8		1	3	1	1		2	8	5

1.   Action 24 - Commission Apps that support outdoor recreation and sustainable living.
2.   Action 23 - Teach your kids to code – Coding is the language that underpins the digital economy.
3.   Action 16 - Implement and empower a Digital Officer (DO) position – Full time/Part time
4.   Action 7 - Partner with Southern Cross University to investigate opportunities for innovation and entrepreneurial research
5.   Action 3 – Equal 5th - Digital Information Portal – incorporate information about the Activation Plan – RDA NR
6.   Action 8 - Equal 5th - Prepare a checklist for broadband internet users to self-diagnose access to reliable and competitively priced broadband services

4.   Identifying Digital Champions

In every community there are individuals and businesses that are leaders in the adoption of digital technologies. These leaders are the catalysts for change in the community. Nothing beats examples of locally based people who are successfully navigating through the new economy as examples for others to follow and learn from.

The following section draws on conversations with some Northern Rivers digital champions and information about regional businesses that are already actively generating digital economy outcomes.

Luke Bodley – www.gnfrealestate.com.au & President Casino Chamber of Commerce – actively uses social media to build a network of prospective clients in his real estate business. With an active network of 1,000 people on his Facebook page, he has 10% of the local community on tap. Luke is tapping into social media with the Richmond Valley Property Hub (http://on.fb.me/1PpBYcc) and has videos of properties captured using drones to cost effectively share the opportunity. A great example of digital innovation.

Luke sees a great need for mentoring, upskilling and programs that can introduce the digital age to the rural areas. Great need for organisations to have training in a series of high impact seminars. There is a great need for traditional businesses, accounting etc, to understand the collaborative economy i.e. Uber & Air BnB – and choose a future by transitioning to digital platforms.

Cliff Harris – CyberConsulting.com.au - Former 25 year veteran of the NSW Police Cybercrime Unit and more recently assisting supporting government efforts in IT intrusion and the investigation of serious hacking incidents.

Next Wave Media www.nextwavemedia.com.au, are a digital business and their value add is the support of local businesses to optimise ecommerce and export to the world. Their Virtual Byron project provides a digital platform to draw people to the location and generate new revenue for the economy. By incorporating an online shopfront, they are able to trade 24/7.

Based in the Bonalbo area west of Casino, **Louisa's Fine Foods**, www.louisas.com.au, are an Australian Disability Enterprise which employs supported employees to produce a wide range of quality foods sold online through their website direct to the public. This combination of community-based employment and digital sales delivers a great outcome and a cost effective path to the market.

Valley Country, Grafton - http://www.valleycountry.com.au/, this Australian Country Lifestyle company combine bricks and clicks to provide 24/7 sales and expand outside of traditional Retail catchments. A great way to improve the long-term sustainability of the business.

Byron-based DNA Digital (https://www.dnadigital.com.au/) proves that you don't have to be a capital city location to provide web hosting, domain names and other digital products.

Toast Expresso at Grafton and Yamba (http://on.fb.me/1Q23M2E) use Facebook to connect with their customers. With over 2,150 followers they have a great channel to their local market.

Nicholson's Fine Food - http://www.nicholsonfinefoods.com.au/ based in Yamba, began in 2002 and has developed its niche market high quality speciality food Manufacturing business into an environmentally responsible and digital business. Not only can customers buy directly on-line, the award winning business runs all operations on 100% renewable electricity.

Toni Zuschke – Creative Director - Barking Toad Creative (http://www.barkingtoad.com.au/) based at Murwillumbah, is a digital advertising and media company. Their 20 years of local production and exporting of products online is a testament to the potential of the digital economy. They recognise that it is vital to remain updated as progress and development of digital technologies occurs.

Companies like **Advatel Wireless** (Leon Cornwell – info@advatel.net.au) are meeting the current gap in the market be delivering fixed wireless internet and phone capable connections from the

Gold Coast to the Clarence Valley. They scope the network to suit the budget and connection needs of the customers from residential to business to commercial grade services.

Feros – a local Northern Rivers aged care facility are using **technology to keep people in their homes and not in hospital** or other facilities.

E-Reserve is **an Ed-tech business** –currently based at the Nortec business incubator in Goonellabah – Lismore http://www.przoom.com/news/157146/

The list above identities just a few potential digital champions. The next step for RDA Northern Rivers is to develop a program to identify train/develop the existing talented individuals and business in the region to continue being role models and actively mentor others in the region. The Advance Queensland Digital Community Champions is well developed and may serve as a model for the Northern Rivers to follow:

Advance Queensland Digital Community Champions - The Advance Queensland Community Digital Champions program aims to encourage Queenslanders to explore and enjoy the benefits of the digital age – through the stories and activities of inspirational champions. Champions come from all walks of life and may represent an industry, community or demographic group in Queensland. http://godigitalqld.dsiti.qld.gov.au/godigitalqldchampions provides one example of how a digital champion network could be established. http://godigitalqld.dsiti.qld.gov.au/MicBlack is an example of a digital champion profile.

5. *Regional Collaborators*

The successful implementation of the Digital Activation Plan is dependent on the combined contributions of regional stakeholders as delivery partners. This plan relies on the regional partners fully supporting the whole program and leading or supporting individual actions. Contributions to the overall success can be made through human resources, project funding and importantly, the active participation in each initiative as it is implemented.

Key potential collaborators, partners and stakeholders in implementing this plan include
- RDA Northern Rivers
- All seven local governments
  - Ballina Shire Council
  - Byron Shire Council
  - Clarence Valley Council
  - Kyogle Shire Council
  - Lismore City Council
  - Richmond Valley Council
  - Tweed Shire Council
- NSW State Agencies
- Southern Cross University with two Campus location in the Northern Rivers region (Lismore & Tweed Heads)
- Chambers of Commerce
- TAFE NSW – North Coast Institute
- Industry leading companies.
- nbn Co (nbn)
- Telstra
- Optus
- Vodafone
- iiNet (iiN)

DIGITAL ECONOMY GROUP

Draft Digital Activation Plan

Overview

Many aspects of the Northern Rivers future can be enhanced by the uptake of digital technologies. The adoption of a comprehensive activation plan will contribute to achieve the community objectives set out in the region's community and economic plans. The current economic statistics show a need to identify opportunities to improve employment, business numbers and GRP. The proposed target metrics allow the region to benchmark with other regions and work from an initial baseline towards a stronger future where digital moves from a new ancillary function to a foundation element of the economy.

The Activation Plan is a practical set of actions that are achievable with adequate resourcing, leadership and prioritisation. Each action reflects the scale and size of the region and seeks, where possible, to harness existing infrastructure, spend and priorities.   It is recognised that each agency will have its own operational expenditure and resource constraints which will dictate the level of engagement that will be possible in the delivery of the proposed initiatives.

RDA Northern Rivers Targets

Current Economic Statistics

- Gross Regional Product – 13.305B (13,305,180M) June 2014 RDA Northern Rivers website
- Employees – 90,079 jobs RDA Northern Rivers website
- Regional Exports over all industries 4.892B (4,892.473M) RDA Northern Rivers website
- Average Wage $835.00 per week approx. Census 2011 ABS
- 25,555 registered businesses - RDA Northern Rivers website

Digital Activation Target Metrics (2019 compared to 2014)

- Increased % of businesses conducting business online
- Increased % consumers transacting online
- Increased % households connected to Internet
- 100% access to minimum 25Mbps download Broadband
- Increased % of workforce with technology skills
- Increased Gross Regional Product from ICT digital technology industries
- Increased exports from ICT digital technology industry sector
- Increased % of Research and Development spend to GDP / GRP

Digital Activation Plan

Ref #	Category	Actions	0-6 mths	Year 1	Years 2&3	Lead	Partners
1	Productivity	Identify Digital Businesses and Digital Champions – provide training to develop as mentors. Mentoring and educational workshops for businesses to provide Digital upskilling development	■			RDA NR Councils	Chambers, NSW Government
2	Productivity	Develop and deliver Digital Productivity skilling program for Small Businesses in partnership with Industry Vendors including the production of case studies. Use and promote a digital benchmarking tool to guide and promote digital adoption and/or work with Australian Smart Communities. RDA NR to develop such a tool for local use.		■		RDA NR Councils	Xero, CoC
3	Connectivity	Advocate for Mobile Blackspot Funding and accelerated 4G LTE deployment based on independently tested mobile network evidence base. Target future Mobile Black Spot Programme Rounds and network upgrades.	■			RDA NR Councils	NSW Govt Tel/Opt/Vod
4	Productivity	Support the growth and expansion of existing privately led incubators, Co-Working Spaces and Digital Learning Hubs to encourage digital innovation and collaboration.		■		RDA NR Councils	SCU, RDA NR, Councils Collaborators
5	Implementation	The region should create and chair an RDA NR Digital Partnership involving all key forces required for the strategy – One Body One Voice. Incorporate the assistance of identified Digital Champions.		■		RDA NR Councils	All
6	Connectivity	Extend the current WiFi network deployment with high capacity (e-band) WiFi in partnership with relevant Carriers / Service Providers and incorporate Hotspot 2.0 authentication technology.		■	■	RDA NR Councils	Carrier partner
7	Connectivity	Prepare a checklist for users to self-diagnose access to reliable and competitively priced broadband services.	■			RDA NR	
8	Connectivity	RDA NR to develop communications messaging around nbn availability and range of services available from RSPs. Also address the Copper Switch off that occurs 18 months after the nbn build become operational	■			RDA NR	nbn

DIGITAL
ECONOMY
GROUP

Ref #	Category	Actions	0-6 mths	Year 1	Years 2&3	Lead	Partners
9	Implementation	Coding is the language that underpins the digital economy. From web sites to games to apps, the demand for coding is growing not declining. Look at CoderDoJo and Code.org. Use your libraries to host these low cost programs.				RDA NR Councils	Libraries & digital businesses employing coders
10	Connectivity	The RDA NR as brokering role on behalf of the local economy in discussions with the nbn as to its roll-out schedule and locations – and in relation to accelerated deployment of competitive mobile services.				RDA NR Councils	nbn
11	Implementation	RDA NR to harness the available nbn services and tie in with investment prospectus material showing footprints of access for businesses and residents.				RDA NR	nbn
12	Productivity	Develop a Smart Community deployment model which would include deployment and display of IoT concepts to be used in development of a Smart Community, Smart Region.				RDA NR Councils	ASCA, Implementation Partners
13	Connectivity	RDA NR to recognise the benefit and challenge of new mobile and nbn fixed wireless sites being lodged with Council				RDA NR Councils	nbn
14	Implementation	Access resources and learning facilities to inform the ongoing refinement of the Digital Activation Plan. Through RDA NR membership of the Australian Smart Communities Association (ASCA),				TBC	ASCA
15	Connectivity	RDA NR are encouraged to understand the implications of the satellite coverage, ongoing uncertainty regarding coverage for those affected, timing, locations impacted and build into the digital economy communications narrative.				RDA NR	nbn
16	Productivity	**Open data** – Combine regional data sets and participate in GovHack every July. These programs open the door to easier access of information and assist in the raising of awareness of open data.				RDA NR Councils	GovHack
17	**Productivity**	Investigate the opportunity to access the Digital Enterprise Program (current to end June 2016) seek alternative if not available.				RDA NR Councils	Department of Comms

Towards Implementation

Following the adoption of the Digital Action Plan, implementation is phase where the results can be realised. Throughout the research and consultation base, numerous tools and resources have been identified that may assist the region, councils or individual business to make the transition to harness the potential of the digital economy.

This is not an exhaustive list, but with some additional research, this could become a key reference for Northern Rivers councils and/or their businesses to go to for ideas and inspiration to peruse digital activation of their region business.

- **Australian Smart Communities Association** - http://www.australiansmartcommunities.org.au/. The Australian Smart Communities Association (ASCA) is a collaborative coalition of local government, business, industry and communities across Australia, built on the premise of sharing information and advocating for the resources to assist the localised transition to a digital economy. Their vision is to significantly advance Australia's digital economy.

> **Priority Action:** Access resources and learning facilities to inform the ongoing refinement of the Digital Activation Plan. Through RDA NR membership of the Australian Smart Communities Association (ASCA)

- Etsy (https://www.etsy.com/au/) is a peer-to-peer e-commerce website focused on handmade or vintage items and supplies, as well as unique factory-manufactured items. The idea of artisan products in a mass market world has appeal and by definition lines up with small regional businesses. **Source:** Scott Walters, Manager Information and Technology Services - Richmond Valley Council.

- Bricks and mortar could do some different marketing such as Periscope (https://www.periscope.tv/) to push events. If targeting the under 30 year old's use snapchat not Facebook etc.:

  > *Just over a year ago, we became fascinated by the idea of discovering the world through someone else's eyes. What if you could see through the eyes of a protester in Ukraine? Or watch the sunrise from a hot air balloon in Cappadocia? It may sound crazy, but we wanted to build the closest thing to teleportation. While there are many ways to discover events and places, we realized there is no better way to experience a place right now than through live video. A picture may be worth a thousand words, but live video can take you someplace and show you around.*

- **Swarm Farm** http://www.swarmfarm.com/ Campbell Newman (Ex QLD premier) and his investment into agricultural robots. (http://www.abc.net.au/news/2015-09-17/campbell-newman-eyes-future-in-agricultural-robots/6783448.) Idea is basically relatively low cost small scale robotic agricultural equipment that seed the fields, then constantly tend the fields zapping weeds with microwaves when they are spotted and eliminating pests before they grow to plague proportions etc. **Source:** Scott Walters, Manager Information and Technology Services - Richmond Valley Council.

- Combine that with some of the concepts coming out with drones at the moment, some of the ideas for rechargeable batteries from **Tesla Motors** or the interchangeable parts ideas coming from Open Source Ecology http://opensourceecology.org/gvcs/gvcs-machine-index/#prettyPhoto, and GoPro and other standard CCTV technology and you get a world where the farmer is able to manage his fields 24x7 using solar energy, without using chemicals, pesticides or herbicides, hence achieving lower fixed and ongoing costs. **Source:** Scott Walters, Manager Information and Technology Services - Richmond Valley Council.

- **Advance Queensland Digital Community Champions** - The Advance Queensland Community Digital Champions program aims to encourage Queenslanders to explore and enjoy the benefits of the digital age through the stories and activities of inspirational champions. Champions come from all walks of life and may represent an industry, community or demographic group in Queensland. http://godigitalqld.dsiti.qld.gov.au/godigitalqldchampions provides one example of how a digital champion network could be established. http://godigitalqld.dsiti.qld.gov.au/MicBlack is an example of a digital champion profile.

- There is an increasing need to provide guidance and mentoring to children in the area to show them what is achievable in the field of programming and development. This has the potential to have a great impact on the local economy into the future and does not necessarily require significant funding. Another great

resource for training children in programming concepts is scratch from MIT. https://scratch.mit.edu/ as well as the low cost Kano computer which can be used for coding sessions http://us.kano.me/

Conclusion and Next Steps

The commitment to actively nurturing the digital economy in the Northern Rivers was very clear through the consultation phase. Often the hardest part of any initiative involving multiple stakeholders is the transition from the ideas to implementation. In this program, the highest priority actions facilitate this transition as they identify a range of proactively affordable and tangible activities that can be implemented or substantially delivered on within 12 months.

The next key challenge for RDA Northern Rivers is the active implementation. This may be by one organisation (eg the RDA) on behalf of the region. In other actions, it may require the funding of a project by all parties.

Next Steps

Following the review and adoption of the RDA NR Digital Activation Plan, the focus can move towards implementation. The five highest priority actions are:

1. Identify **Digital Businesses and Digital Champions**. The list of potential champions is already started, there is a need to provide some structure and nurture the existing and future digital champions and exemplar businesses. **Mentoring and educational workshops for businesses** to provide digital upskilling. With resourcing this can occur very quickly. Some structure and a form of curriculum could enhance the outcomes and acceleration. One region used online training (including testing for participants) to ensure that common identity and consistent information delivers results. Using this approach, results can be achieved in 2016.
2. Develop and deliver Digital Productivity skilling program for Small Businesses in partnership with Industry Vendors including the production of case studies. Use and promote a digital benchmarking tool to guide and promote digital adoption and/or work with Australian Smart Communities. RDA NR to develop such a tool for local use.
3. Advocate for **Mobile Blackspot Funding and accelerated 4G LTE** deployment based on independently tested mobile network evidence base. Moderate expense with the potential to drive multimillion dollar investment upgrades – could be completed within 3-months of funding.
4. **Support the growth and expansion of existing privately led incubators, Co-Working Spaces and Digital Learning Hubs** to encourage digital innovation and collaboration. Explore facilitation role to activate and support access. Leadership encouraging use and linkage to digital champion and mentoring programs will help to nurture the interrelationship between these three key priorities. Results can be achieved throughout 2016.
5. The region should create and chair an **RDA NR Digital Partnership involving all key forces required for the strategy – One Body One Voice**. Incorporate the assistance of identified Digital Champions. Drive forwards through unity.

Appendices

Appendix 1: Uber just the start as NSW Govt. embraces 'collaborative economy'

SYDNEY – One month after announcing plans to legalise the Uber X ride sharing system, the NSW Government has moved to further embrace what it calls the "collaborative economy" which Deloitte Access Economics estimates contributed around $504 million to the NSW economy last year.

Innovation Minister Victor Dominello announced the plan and said the Government is already developing a framework for encouragement and regulation of the collaborative economy.

Apart from Uber, other examples of collaborative industries and projects include home sharing AirBnB, financial services such as Kickstarter and online marketplaces such as Gumtree.

Deloitte estimates around 45,000 people in NSW last year earned an income from the collaborative economy.

Dominello says the Baird Government will henceforth work with the industry to make it easier for start-ups to do business in NSW and will take a "digital-first approach" in its attitude towards legislation.

Source: http://www.startupsmart.com.au/advice/growth/innovation/the-nsw-government-is-putting-a-stake-in-the-ground-by-embracing-disruption-and-the-sharing-economy/

Appendix 2: nbn 3-year rollout plan

Area name	Localities	Premises	Technology	Timing
Alstonville	Broken Head, Federal	510	Fixed Wireless*	Q4-2016
Alstonville	Alstonville, Wollongbar	3400	FTTN	H2-2017
Ballina	Ballina, Cumbalum, East Ballina, Lennox Head, Skennars Head, West Ballina	13600	FTTN	H2-2017
Byron Bay	Bangalow, Byron Bay, Ewingsdale, Suffolk Park	7400	FTTN	Q1-2017
Coraki	Coraki	500	FTTN	H2-2017
Casino	Cedar Point, Doubtful Creek	250	Fixed Wireless*	Q4-2016
Casino	Casino	4700	FTTN	H2-2017
Evans Head	Doonbah, Evans Head	1800	FTTN	H2-2017
Grafton	Kangaroo Creek	130	Fixed Wireless*	Q3-2016
Grafton	Clarenza, Grafton, Junction Hill, South Grafton, Waterview Heights	9500	FTTN	Q1-2017
Hastings Point	Bogangar, Cudgera Creek, Hastings Point, Pottsville	5100	FTTN	Q3-2016
Kingscliff	Crabbes Creek, Pottsville Beach	340	Fixed Wireless*	Oct-2015
Kingscliff	Casuarina, Chinderah, Cudgen, Kingscliff	7400	FTTN	H2-2017
Kyogle	Kunghur, Stony Chute	250	Fixed Wireless*	Q4-2016
Kyogle	Geneva, Kyogle	1500	FTTN	H1-2018
Lismore	Caniaba North, Coffee Camp, Eltham, Georgica, Lismore Industrial, Modanville, Rock Valley, Tullera South	1130	Fixed Wireless*	Feb-2016
Lismore	Bexhill, Chilcotts Grass, East Lismore, Girards Hill, Goonellabah, Lismore, Lismore Heights, Loftville, North Lismore, Richmond Hill, South Lismore	15300	FTTN	Q1-2017
Maclean	Mororo, Palmers Island	480	Fixed Wireless*	Q3-2016
Maclean	Gulmarrad, Maclean, Townsend	2400	FTTN	H1-2018
Mullumbimby	Eureka East, Main Arm, Possum Creek	530	Fixed Wireless*	Q3-2016
Mullumbimby	Billinudgel, Brunswick Heads, Mullumbimby, Mullumbimby Creek, New Brighton, Ocean Shores, South Golden Beach	5500	FTTN	H1-2018
Murwillumbah	Murwillumbah West	180	Fixed Wireless*	Q3-2016
Murwillumbah	Bray Park, Condong, Dunbible, Kielvale, Murwillumbah, South Murwillumbah	4700	FTTN	Q4-2016
Terranora	Glengarrie West, Tomewin, Uki North	590	Fixed Wireless*	Q2-2016
Terranora	Bilambil Heights, Terranora, Tweed Heads West	3900	FTTN	Q1-2017
Tweed Heads	Banora Point, Bilinga, Feros, Fingal Head, Tweed Heads, Tweed Heads South, Tweed Heads West	21900	FTTN	Q2-2016
Woodburn	Uralba	220	Fixed Wireless*	Q2-2016
Yamba	Angourie, Freeburn Island, Iluka, Wooloweyah, Yamba	5400	FTTN	H1-2018

Source: http://www.nbnco.com.au/content/dam/nbnco2/documents/three-year-construction-plan.pdf

Appendix 3: nbn Retail Service Providers in Northern Rivers

RSP	Phone	Web Address
4 FIBRE AND BROADBAND	1300 434 273	
AAPT	13 88 77	www.aapt.com.au/ip-line
ACN	1300 881 778	http://www.acnpacific.com.au/nbn
ACTIV8ME	1800 804 410	http://www.activ8me.net.au/nbnco-fibre
ALPHA DOT NET	02 9211 7782	http://alpha.net.au/business-nbn-fibre-12-months/
AMNET	1301 562 466	http://www.amnet.com.au/nbn
ANITTEL COMMUNICATIONS	1300 10 11 12	www.anittel.com.au/internet-a-networking/nbn
ANT	1300 268 266	http://www.ant.com.au/nbn/
APPLIED VOIP	02 8014 9696	http://www.appliedvoip.com.au/av/index.php?id=27
ARCON COMMUNICATIONS PTY LTD	1300 780 649	http://www.arcon.com.au/internet/adsl-adsl2-broadband
ARROW VOICE & DATA	1300 555 330	http://arrowvoice.com.au/internet/nbn/
ASTRON	1300 72 42 72	http://www.astron.net.au/
AUSSIE WEB & IT SOLUTIONS	07 4911 4059	http://aussieit.net.au/isp.htm
AUSTRALIA ONLINE	1300 650 661	http://www.australiaonline.net.au/nbn
AUSTRALIA TELCOM	1300 13 23 10	http://australiatelcom.com.au/fiber-plans/
AUSBBS	1300 775 828	www.ausbbs.com.au
BAREFOOT TELECOM	1300 017 622	www.barefoottelecom.com.au
BENDIGO BANK TELCO	1300 737 881	https://www.bendigobanktelco.com.au/mainpage.aspx?service=nbn
BENDIGO TELCO	1300 228 123	http://www.bendigotelco.com.au/nbn-broadband
BLUEAPACHE	1800 248 749	www.blueapache.com/home/services/network/nbn
BOOM BROADBAND - 1300 00 BOOM	1300 00 2666	http://boombroadband.com.au/
BRENNAN IT	1300 500 000	http://www.brennanit.com.au/nbn
BROADBAND SOLUTIONS	1300 683 000	www.broadbandsolutions.com.au
BEST TELECOM AUSTRALIA	1800 792 151	http://besttelecom.mobi/nbn
BUSINESS TELECOM	1300 721 100	http://www.businesstelecom.com.au/make-your-business-future-ready-nbn-ready-with-business-telecom
BUSINESS TECHNOLOGY CENTRE	1300 595 000	http://www.businesstc.com.au/btc-nbn/
CARETEL	1300 39 69 79	www.caretel.com.au
CARRIER1 TELECOM	1300 865 426	http://carrier1telecom.com.au/nbn/
CENTRAL CONNECT	1800 426 855	http://www.centralconnect.com.au/products.html
CLOUD TELECOM	1800 358 339	http://www.cloudtelecom.com.au/internet/business-nbn/
COMMANDER	1300 682 163	www.commander.com/nbn
COMMUNITY TELCO	1300 737 881	www.communitytelco.com.au
COUNTRYTELL - 13 TELL	13 8355	http://www.countrytell.com.au/our-services/nbn-plans/
CYBERTEL TELECOM	1300 763 201	http://cybertel.net.au/services/data/nbn-fab/
DELPHIN TELECOM	1300 883 528	http://nbn.delphintelecom.com.au/
DEVOTED NBN	1300 728 884	www.devotednbn.com.au
DIFFTEL	02 9959 1935	http://www.difftel.com.au
DODO - 13 DODO	13 36 36	www.dodo.com/nbnco
EASYNET	07 4953 3331	http://easynet.net.au/wordpress/nbn/
ECN	1300 790 111	http://www.ecn.net.au/page.php?pageid=39
ENGIN	1300 965 426	www.engin.com.au/broadband/nbn.aspx
ENOXTEL	1300 783 408	http://enoxtel.com.au/business-nbn/
ESCAPENET	1300 135 235	www.esc.net.au/nbn
EVERYNET	02 6100 4750	http://www.everynet.com.au/services/nbn
EXETEL - 1300 EXETEL	1300 393 835	http://www.exetel.com.au/broadband/nbn

RSP	Phone	Web Address
FAIRTEL	08 9779 9966	http://www.fairtel.com.au/dsl-broadband/nbn-broadband
FANTEL	1300 304 288	http://fantel.com.au/nbn-plans/
GOINTERNET	1300 667 355	http://www.goisp.com.au/
GRAYTECH HOSTING PTY LTD	03 5410 1135	http://www.graytech.net.au/nbn
HARBOUR ISP	1300 366 169	http://www.harbourisp.com.au/nbn-plans/fibre
HOT NET	1300 653 660	http://www.hot.net.au/index.php
IF TELECOM	1800 436 659	www.iftelecom.com.au/nbn/nbn
IIG	07 3193 2300	https://www.iig.com.au/nbn
IINET	1300 455 806	www.iinet.net.au/nbn
INFINITY BROADBAND	1300 661 965	www.infinitybroadband.com.au
INTERNODE - 1300 NBN NOW	1300 626 669	www.internode.on.net/nbn
IPC SOLUTIONS	02 6140 4656	http://www.ipcsolutions.com.au/ibc/nbn
IPRIMUS - 1300 FIBRE 1	1300 342 731	http://www.iprimus.com.au/products/nbn-fibre/
IPSTAR	1800 477 888	www.ipstaraustralia.com/retail
KEY INTERNET	1300 300 056	http://www.key.net.au/
LINKNET DIGITAL	1300 49 89 39	http://www.linknetdigital.com.au
LOADEDNET	1300 851 154	http://www.loadednet.com.au/nbn-plans/
LOGITEL	1300 30 1428	http://www.logitel.com.au/new_residential_nbn.php
MACQUARIE TELECOM	1800 004 943	www.macquarietelecom.com/data_internet/nbn_for_business.html
MANAGEMY GROUP	02 8985 9990	http://www.managemy.com.au/internet-pricing-nbn-2/
MATILDA	1300 665 865	www.matilda.net.au/nbn
MINO	1300 654 168	http://mino.com.au/business/nbn/
MONTIMEDIA INTERNET	1300 79 49 69	http://www.montimedia.com.au/nbn/nbn-fibre-plans/
MORE TELECOM	1800 733368	http://www.moretelecom.com.au/internet/business-nbn
MYFIBRE	1800 288 871	http://www.myfibre.net.au
MYNETFONE	1300 731 048	https://www.mynetfone.com.au/residential/nbn
NBNSP		www.nbnsp.com.au
NEHOS COMMUNICATIONS	1300 726 889	http://www.nehos.net/dsl/broadband-nbn.html
NEW SPROUT	02 66876533	http://www.newsprout.com.au/nbn-broadband-plans
NEXGEN - 1300 0 NEXGEN	1300 063 943	http://www.businessphonesaustralia.com.au/
NEXON	1300 800 000	http://www.nexon.com.au/our-solutions/high-performance-networks/national-broadband-network
NEXT TELECOM	1300 006 398	http://www.nexttelecom.com.au/services/national-broadband-network
NOBLEHEART TELECOMMUNICATIONS	02 89013577	http://nobleheart.com.au/internet/nbn-internet/
NORTH QUEENSLAND TELECOM	1300 664 178	http://www.nqtelecom.com/nbn/nbn/
NUSKOPE	1800 733 418	http://www.nuskope.com.au/nbn-services.php
NATIONAL VOICE AND DATA	1300 900 265	http://www.nvdgroup.com.au/nbn.html
ONE DIAL	1300 306 938	www.onedial.com.au/nbn.php
ONTHENET	07 5553 9222	http://www.onthenet.com.au/nbn
OPTUS	1300 652 080	www.optus.com.au/nbn
ORACLE TELECOM	1300 660 153	http://oracletelecom.com.au/critical-information/nbn-plans
ORIGIN TELECOM	02 9037 1477	http://origintelecom.com.au/nbn.html
PEAKCONNECT	1300 761 492	http://peakconnect.com.au/nbn-information/
PHONE SYSTEMS BRISBANE	1300 851 411	http://phonesystemsbrisbane.net.au/critical-nbn-questions/
PRISM TELECOM	1300 306 983	www.prismtelecom.com.au/nbn.php
Q TELECOM	1300 857 863	http://qtelecom.com.au/internet/nbn

RSP	Phone	Web Address
QUEENSLAND COMPUTERS	1300 910 915	http://queenslandcomputers.com.au/nbn/
ROCTEL	1800 762 835	http://www.roctel.com.au/services/nbn
SAVINGREEN	1300 152 701	http://savingreen.com.au/nbn-what-you-need-to-know/
SOUTHERN PHONE	1800 238 390	www.southernphone.com.au/nbn.php
SPEED TELECOM	1300 885 925	www.speedtelecom.com.au/nbn.php
SPINTEL	132 210	https://www.spintel.net.au/products/nbn
SPIRIT TELECOM	1300 007 001	www.spirit.com.au
SUPERCHEAP TELCO	1800 556 789	http://www.supercheaptelco.com.au/page.php?id=4
SWITCHED ON AUSTRALIA	1300 455620	http://switchedonaustralia.com/residential/nbn/plans.php
TANGERINE TELECOM	1800 211 112	http://www.tangerinetelecom.com.au/nbn-broadband-and-phone
TELARUS	1300 788 848	http://www.telarus.com.au/solutions/network/nbn-national-broadband-network/
TELAUSTRALIA	1300 783 528	http://www.telaustralia.com.au/internet/nbn-internet-plans
TELCO HUT	1300 478 007	http://www.telcohut.com.au/?portfolioentry=residential-nbn-fibre-and-fixed-wireless-broadband
TELCOBLUE	1300 835 262	www.telcoblue.com.au/nbn-fibre-broadband-plans/nbn-fast-12-1-mbps/
TELCOGREEN	1300 669 265	http://www.telcogreen.com.au/data#section-3
TELCOPLUS	1300 726 310	http://www.telcoplus.com.au/nbn-internet.html
TELE BYTE	1300 307 024	www.telebyte.com.au/nbn.php
TELECOM CONNECT	02 8882 8200	http://www.telecomconnect.com.au/nbn.html
TELECOM WEST	1300 739 331	http://telecomwest.com.au/nbn.php
TELESURF	1300 795 528	http://www.telesurf.com.au/index.php?id=21
TELKO CHOICE	1300 307 043	www.telkochoice.com.au/nbn.php
TELLNET	1300 707 250	http://www.tellnet.com.au/products/nbn
TELSTRA	1800 834 273	www.telstra.com.au/unlockamazing
TELSTRA BUSINESS	1800 179 852	http://www.telstra.com.au/small-business/broadband/nbn/
T GEN	1300 851 411	http://phonesystemsbrisbane.net.au/voip-the-truth/voip-phone-systems/the-nbn-is-just-about-fast-internet-right/
TPG	13 14 23	www.tpg.com.au/nbn
TRINITY TELECOM	1300 786 192	www.trinitytelecom.com.au/nbn.php
V4 TELECOM	1300 843 130	https://v4.net.au/nbn/
VALUE TELECOMMUNICATIONS	1300 361 157	http://valuetelco.com.au/nbn
VAYA	1300 008 292	http://www.vaya.net.au/?option=nbn
VEETEL	1300 833 835	http://www.veetel.com.au/nbn-plans.html
WESTNET	1300 455 806	www.westnet.com.au/nbn
YOUR CALL TELECOM	1300 765 985	http://www.yourcalltelecom.com.au/internet
ZETTANET	1300 139 550	http://www.zetta.net.au/services/internet/nbn-broadband/

Appendix 4: Telstra, Optus and Vodafone Spectrum for Northern Rivers by Local Government

Telstra Spectrum and Sites by Local Government

Spectrum	Ballina	Byron	Clarence Valley	Kyogle	Lismore	Richmond Valley	Tweed City
700MHz	44	44	48	14	30	12	54
800MHz	66	66	84	34	46	24	124
PMTS Class B	0	18	0	0	0	0	0
1800MHz	24	82	52	6	30	6	168
2 GHz	16	92	24	0	30	6	190
2.5GHz	0	24	0	0	6	0	6
Point to Point licences	24	24	80	32	28	4	34
Point to Multi-Point	0	4	2	0		0	0
Total Site Licences	174	354	290	86	170	52	576

Optus Spectrum and Sites by Local Government

Spectrum	Ballina	Byron	Clarence Valley	Kyogle	Lismore	Richmond Valley	Tweed City
700MHz	30	58	68	6	44	32	72
800MHz	0	0	0	0	0	0	0
PMTS Class B	88	74	104	16	56	56	0
1800MHz	0	30	0	0	0	0	84
2 GHz	98	244	36	6	76	22	333
2.5GHz	12	70	6	6	26	18	0
Point to Point licences	122	54	80	8	28	44	68
Point to Multi-Point	0	0	0	0		0	0
Total Site Licences	350	530	294	42	230	172	557

Vodafone Spectrum and Sites by Local Government

Spectrum	Ballina	Byron	Clarence Valley	Kyogle	Lismore	Richmond Valley	Tweed City
700MHz	0	0	0	0	0	0	0
800MHz	39	105	30	15	42	31	134
PMTS Class B	0		0	0	0	0	0
1800MHz	0	24	0	0	0	0	37
2 GHz	48	74	0	12	42	32	217
2.5GHz	0	0	0	0	0	0	0
Point to Point licences	0	30	18	0	16	10	26
Point to Multi-Point	0	0	0	0	0	0	0
Total Site Licences	99	233	50	27	102	73	418

Source(s): ACMA December 2015 Spectra (http://www.acma.gov.au/Industry/Spectrum/Radiocomms-licensing/Register-of-radiocommunications-licences/radiocomms-licence-data)

Appendix 5 - North coast innovation will languish without nbn

Source: http://www.abc.net.au/news/2015-12-07/innovation-expert-and-start-up-mentor-dr-dan-swan/7007992

Updated 7 Dec 2015, 3:28pm

The start-up business sector on the north coast says the Federal Government's innovation announcements will make people scream louder for the nbn.
A $1 billion plan aims to kick start an innovation culture in Australia.
Doctor Dan Swan from the Byron Bay business hub StartInno said poor internet connectivity is causing headaches for new regional businesses.
Dr Swan was this year awarded a doctorate in Creative Industries and Innovation from the Queensland University of Technology in Brisbane.
Dan Swan has spent many years working in and reflecting on the industry and created his first dot com 20 years ago, fresh out of university.
He applauds the Prime Minister's efforts but said the announcement needs technological back-up for Australia to succeed.
"I've got no doubt this is going to make people scream a lot louder and if we want these big investors to come over like a Microsoft or a Google and build a data centre that's going to employ lots of people we've got to have the infrastructure, that's the first point," Dr Swan said.
Dr Swan said the northern New South Wales region is already a hub of new ideas.
But he believes those ideas will languish unless internet connection becomes more reliable.
"Regionally we're not going to see any decent bandwidth speed for the next couple of years, nobody really knows what's happening around the nbn, are we going to get fibre?" he said.
"Some of the regional centres like here in Byron Bay or its industrial estate or in Mullumbimby they're not going to get fixed wireless, which is pretty poor pathetic connectivity."

Appendix 6: Broadband Connectivity Checklist

This Broadband Connectivity Checklist has been prepared for RDA Northern Rivers to assist businesses and residents to identify how to access broadband. This Checklist is not intended to replace any formal advice you may receive from your current Carrier, Internet Service Provider (ISP) or Retail Service Provider (RSP).

Access to broadband is based on your location and what connection technologies and providers are offering as a product or price. There is no easy 'one-size fits all' way to get high speed and affordable broadband. One of the key drivers for the Australian Government in creating the National Broadband Network (nbn), was a realisation that the current market place was not delivering universal high speed broadband at competitive prices to all Australians. It is still a number of years before the nbn is rolled out to everyone[10]

Until the nbn is available everywhere, you may need to use the following checklist as a guide to accessing broadband for your location.

Solution Checklist

1: Do you have an existing service?

Let's start with what you have now:

- Do you have a phone/internet connection where you are?
- Check your contract/agreement and establish the monthly price, total Gb (Gigabits) and if possible the offered speed of connection. E.g. an ADSL service will have up to 8Mbps and an ADSL2+ will have up to 24Mbps

2: Check the quality and speed of your connection

Now let's go to the Speed Test website. www.speedtest.net Speed Test have completed over 8 billion tests worldwide. They assess download, upload and ping. Note: ignore the ads around the edge. To get started press the "Begin Test" when loaded.

BEGIN TEST	**Download** measures the speed a typical download takes; the larger the number the better. Check against the contract you currently have. **Ping** is the time for a data packet to go from you to the internet and back. The smaller the number the better.

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[10] To find out more about the NBN rollout in relation you your premises or business go to http://www.nbnco.com.au/connect-home-or-business/check-your-address.html
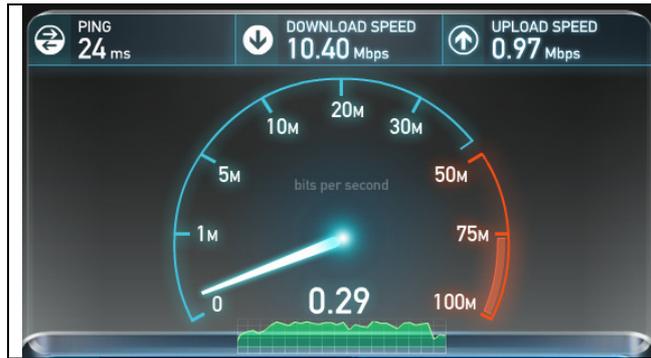
Upload measure is the most critical. If you are sending information to others or uploading to the web this is the critical link and often the weakest. Often contracts don't mention their expected upload service level.

3: Compare your contract with your current service

By testing your service and recording the results regularly you can better understand if you are getting what you pay for.

Sample table- examples included are from a ADSL2+ location

Description	Your provider service	Your test results
Latency or Ping (time to the Internet and back)	Not often provided	24ms
Download Speed Mbps	Up to 24Mbps	10.40Mbps
Upload Speed	Up to 1Mbps	0.97Mbps

4: Talk to your provider

Ask them to guide you through any tests or ways to improve the service using existing equipment. If there continues to be a gap between the service that you should be able to get and what you have, consider discussing your options with the Telecommunications Industry Ombudsman (TIO)

Step 5 - Look at the alternatives

Fixed Services

Fixed services include the nbn Fibre Optic Broadband, Ethernet Broadband, Fibre Ethernet Broadband, ADSL2+ amongst others.

Have a look at http://www.nbnco.com.au/when-do-i-get-it/rollout-map.html and checkout where you are in the pipeline for the nbn. If you are in a rural location, you are most likely to benefit from the fixed wireless or satellite services.

Business

If you are looking for high quality, high speeds, and a Service Level Agreement (SLA) speed services, the main providers in the Northern Rivers currently are listed below. We will continue to add other carrier names to this list as they become known to us. Please contact us if you would like to be added to this list.

- TPG Telecom   http://www.tpg.com.au/
- Telstra   http://www.telstra.com.au/
- Optus Business   http://www.optus.com.au/all-business

Fixed Wireless Services

For businesses looking to achieve high quality connections, a point to point microwave solution may suit your needs. This would mean a dedicated aerial on the roof of your building pointing to the site by a line of sight. Then you would have access to a range of service levels and price points, symmetrical business grade connectivity.

Some of the providers with active services in Northern Rivers are:

- Cirrus Communications network - http://cirruscomms.com.au/ - Acquired Chariot Wireless in the Northern Rivers area.
- Somerville - http://somerville.com.au/ - New South Wales based & provides services from a number of carriers.
- Big Air Community Broadband - http://www.bigairuniverse.com.au/ - New South Wales based and typically service education and health facilities
- Wires Broadband - http://wiresbroadband.com.au/ - Based in Palm Beach and covers a significant proportion of the Northern Rivers area.
- Northern Rivers Communications - http://www.nrcomms.com.au/index.html - Grafton based and provides a wide range of wireless communications products & access to fixed wireless services.

Mobile Broadband

If you are not in an area where you can access fixed line services due to location or another limiting factor, you may need to consider using mobile broadband. Over 2015, the major carriers significantly improved their mobile broadband packages. They are still far more expensive than fixed line services but they do provide scope for those with no other options:

- Optus is now offering 12Gb for $60/month
- Telstra is now offering 8Gb data packs for $55/month
- Vodafone is now offering 12Gb for $65/month
- Don't forget to check the terms and conditions on these prices.
- The carrier resellers may have better offers.

Also, check the carrier coverage maps to ensure your will have coverage where you need it most:

Telstra   http://www.telstra.com.au/mobile-phones/coverage-networks/our-coverage/mobile-broadband/

Optus   http://www.optus.com.au/home/mobile-phone/coverage/

Vodafone   http://www.vodafone.com.au/aboutvodafone/network/checker

Note: Each carrier has fine print messages about service experience at individual locations. That is why if you choose this option, you will need to trial and test extensively to ensure you are personally happy with the service.

Aerial use: You may also find that a professionally installed aerial can substantially improve a wireless service. Information about this option is not generally advertised as it suggests their network may not perform as well as expected. A range of mobile signal extenders are available – consult your carrier or provider directly for more information.

Independent Advisory Sites

- Whirlpool.net.au is a fully independent community website devoted to keeping the public informed about the state of internet access in Australia. The wiki is a great source of information http://whirlpool.net.au/wiki/

- http://www.adsl2exchanges.com.au/ This page is designed to help you find out which broadband options and broadband internet plans are available to you.
    o The ADSL2+ providers in your exchange
    o Broadband ADSL, ADSL2+ and Naked DSL Internet plans
    o Automatic updates of each providers' status
    o A map of where your nearest exchange is located.
    o Is your address NBN enabled?