

Connecting Rural New Zealand

Insights from the 2018
Rural Connectivity Symposium

26 JUNE 2018



tuanz

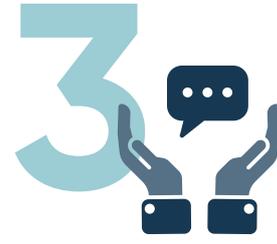
Your Three Key Messages



Everyone has a right to connectivity, regardless of geography or social status, how do we make it so?



Technology, such as IoT, is here to stay and innovation is happening all the time, how can it be used to improve your rural lifestyle?



Collaboration is key. Engage with Government and provide ideas and solutions for what rural NZ needs. To get connected, they need to hear from you.



Take Outs From The Day

WHAT PARTICIPANTS SAID

The state of connectivity today post-RBI1

- RBI1 was a start, but it didn't go far enough
- It isn't easy to connect (even when near fibre connected schools)
- Dissatisfied and so rural people are taking matters into their own hands
- Uptake isn't high enough, and cost is in the way
- Needs to be affordable for lower income families to connect
- WISPs should get a bigger piece of the procurement pie
- The Rugby World Cup will drive demand – rural communities must not miss the rugby

Creative ways IoT could make a difference to life in rural NZ

- Security of assets
- Better environmental monitoring – water quality, fertiliser use
- Animal health monitoring
- Pest and predator control

- Automation and Virtualisation with robotics, drones and virtual fencing
- Health and Safety with GPS tracking for high risk activities with lone workers and quad biking
- Supply chain tracking – farm to fork

With current RBI2 plans in mind – where are the gaps?

- Northland
- Rural medical practices
- Mobile coverage and roaming across all mobile infrastructure
- RBI providers should tell end users where gaps are
- What's the plan for the 13% who miss out
- Education for end users around what solutions are available in their region along with digital literacy
- Can potential customers self-identify

Pictured: The Rural Symposium 2018



Intro from the TUANZ CEO

On Tuesday 26th June in Wellington we hosted the 2018 Rural Connectivity Symposium. This was the fourth event since we relaunched these events, and was once again an incredibly valuable forum for discussions around the future of connectivity and technology in one of the most important sectors for our future prosperity & wellbeing in New Zealand.

TUANZ has a proud history of leading the charge when it comes to improved connectivity in rural NZ, and as it has been 15 years since we published the report titled "Survival of the Fastest" we kicked off the day hearing from Ernie Newman, CEO of TUANZ at the time. He covered off several of the areas we have done well since then as well as laid down some new challenges. And that basically set the tone for the day.

We know that there's been a tremendous amount of investment and and developments in this area, but we also know that many challenges remain. These range from the traditional ones of trying to work towards ubiquitous coverage of quality connectivity, to educating people on what is

already available, right through to the challenges to the way we farm, including how we respond to the rise of such innovations as alternative protein products.

Our ongoing message arising out of the event is very much in line with our overall vision of ensuring NZ makes the most of the digitally connected world. We know that connectivity is key to digital businesses and a force for social good and so remain committed to the idea that the end goal where rural NZ have the same connectivity experience as urban NZ. We think our symposium is and will remain a unique chance to bring together many of the stakeholders involved in sharing this vision, to hear the latest plans and to share ideas.

I hope you enjoy reading the summary of the event in this document, and that it provides you with questions, ideas and even prompts you to seek solutions to the challenges ahead.

Craig Young
CEO, TUANZ

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How have the Fastest Survived?

We started the day by looking back on the past 15 years with Ernie Newman, previous TUANZ CEO, providing a flashback to the turn of the century where because of the “Telco Wars”, New Zealand found itself at the bottom of the OECD league table by nearly every telecommunications measure. Telecom had an unassailable market position and Vodafone (previously Bell South) were struggling for traction in the emerging cell phone market. It was within this environment that in 2002 TUANZ undertook the “National Broadband Applications Project” which led to the publication of a report titled “Survival of the Fastest”.

Since then we have done several things well. We have seen some high achievers in the use of technology and applications such as in the financial sector, tourism and travel, and retail with innovation coming from new entrants (for example TradeMe and MyFoodBag). We have also seen some good developments from Government departments with some exceptions though, which Ernie shared with his recent experiences with one department in particular.

We are tantalisingly close to ubiquitous coverage for connectivity, with the Rugby World Cup in 2019 may well be the catalyst to finish the job.

— Ernie Newman

However, there are four key opportunities identified in the 2002 report that have not yet realised.

1. Health.

In Ernie’s view, this area is lagging decades behind other sectors in digitizing its interactions with customers. Many pilots have been successful but with no ability to migrate to BAU. There’s a leadership vacuum with an absence of a sector vision on how to make the most of the digital tech and connectivity opportunities. To overcome this Ernie proposed a consumer-led group to develop a vision for a 21st century customer interface.

2. Regional Development.

With the improvements in connectivity, location-independent working is a reality, but Government is missing the opportunity to re-balance the work force through continued centralisation. He suggests that every government agency should relocate a business unit to a regional centre.

3. Digital Divide.

The divide for children should be diminishing but it continues to increase due to the increasing rich/poor gap and the lack of action to address the unaffordability question. To overcome this we need to set a realistic target of digital education for every child by 2020.

4. Agriculture.

There’s been some really big success stories around farming technology but are we failing to implement tech solutions to real problems. A real recent issue is about the NAIT animal tracking system and Ernie suggested that this system really needs stronger enforcement, along with a promotion of online farm management.

Tech and Agribusiness

ASB Bank Senior Rural Economist Nathan Penny set the scene and talked about how technology is impacting agribusinesses today, and where it's leading the rural sector. Agri incomes are the highest they've been across rural commodities since 2011, putting them at the second highest level on record. Milk prices and horticulture are both strong, with lamb, kiwifruit, and forestry all reaching record prices.

Conversely, rural sentiment is weak. Potential contributing factors to this could be the change in Government, unusual weather extremes affecting dairy production, and last year's discovery of mycoplasma bovis.

Penny identified the biggest medium-term risk to the sector as being the disruption from new technologies – particularly synthetic protein production. However, he also pointed out that a similar predicament has been faced and overcome before by the wool market, when synthetic alternatives were introduced – forcing the market to reposition itself around the uniquely valuable characteristics of merino wool as opposed to the easily synthetically replicable commodity of standard wool.

Looking ahead – besides the imminent threat of synthetic meat products – Penny expects that significant impacts on the rural sector via future technology are likely to come from blockchain technology, and IoT. He also gave an example of technology meeting sustainability in the form of seaweed farming in Hawaii, which enables the production of eco-friendly jet fuel, diesel, and stock feed, without any run-off – and while lowering CO² emissions.

Krissy Satler-Bridge from MYOB talked through results from MYOB's annual Business Monitor Report and the insights into the current thoughts of rural businesses regarding the role of technology in the rural sector.

Rural businesses see technology as having already significantly impacted the sector, identifying the current top three most impactful advances as being improvements in connectivity, IoT, and cloud computing.

Looking ahead, connectivity remains the leader in what they anticipate will most affect their industry

– Krissy Satler-Bridge



The Political View

A new year, a new government. The Honourable Clare Curran, Minister for Broadcasting, Communications, and Digital Media opened her address with the Labour government's vision for connectivity in New Zealand.

The Minister described her two main goals as being to close the digital divide as soon as possible, and to make ICT the second largest contributor to GDP by 2025.

Building on the now complete first phase of the Rural Broadband Initiative (RBI), the government has begun an "unashamedly ambitious" programme to help rural communities compete equally in our 21st century economy. Phase two of RBI was originally scheduled for completion by the end of 2022, will now follow an accelerated timetable which will see the build finished in 2021. The Minister emphasised that she'd like to see completion happen even earlier than this.

There are also plans for further expansion of RBI2, with MBIE initiating a dedicated workstream to enhance rural connectivity. At its conclusion, the government aims for broadband to be accessible to 99% of Kiwis. The Minister indicated that there is a plan in progress to extend connectivity even further than that – but was unable to elaborate due to commercial sensitivity. She expected to make a joint announcement (with Infrastructure Minister Shane Jones) on this soon.

A Chief Technology Officer (CTO) role has been created along with the recently formed Digital Economy and Digital Inclusion Ministerial Advisory Group. They will look to address digital inclusion, maximising potential, building capability, digital connectivity and adapting to disruption.

According to the Minister, the next important step is how connectivity is utilised. The Minister quoted a Digital Nation New Zealand report which notes that companies making smart use of internet services are 6% more effective than average firms in their sector.

Adopting technology is essential for both the survival and economic growth of rural NZ, as connected technology is a proven link to increased productivity. The government is now trialling new ways to help small – medium sized businesses to understand the value of digital tools. As it is estimated that 28% of New Zealand's GDP is produced by businesses with fewer than 20 staff, MBIE has initiated pilot programmes for SMEs (small to medium enterprises) focussed on tourism, construction and arable farming. The Minister indicated pressure on these projects to move as quickly as possible, to enable the government to determine how to add value in those sectors.

The Minister concluded with a call for action to New Zealanders to take part in the formation of our collective digital future. "We all need to be innovative and to make our services more effective, more inclusive and accessible in a digital rich world. We need the right frameworks in place so that communities and industries both rural and urban can enjoy the benefits of a digital world. We need your ideas to grow the digital economy, to work with us so that all New Zealanders – even those who live in our most remote areas – can embrace digital opportunities."

**A digitally connected
technology enabled
future for every Kiwi.
It's about access to
technology – regardless
of your income,
geography, or skills –
to take the opportunities
that it presents.**

– Hon. Clare Curran

So where to now IoT?

Spark's Michael Stribling defined IoT as being about collecting data out of the environment and doing things differently with it rather than just technology. In an agribusiness or farming context, he gave examples of how IoT technology can be applied to enhance efficiency, productivity, and health and safety on farm, including;

- Lone worker sensors
- Soil moisture probes
- Fuel tank monitoring
- Milk vat monitoring
- Animal tag and collar monitoring
- Vehicle tracking and monitoring
- Asset security

For IoT to work, connectivity is vital. If data is to be captured and analysed in real time and used to inform farm management, strong network platforms are needed.

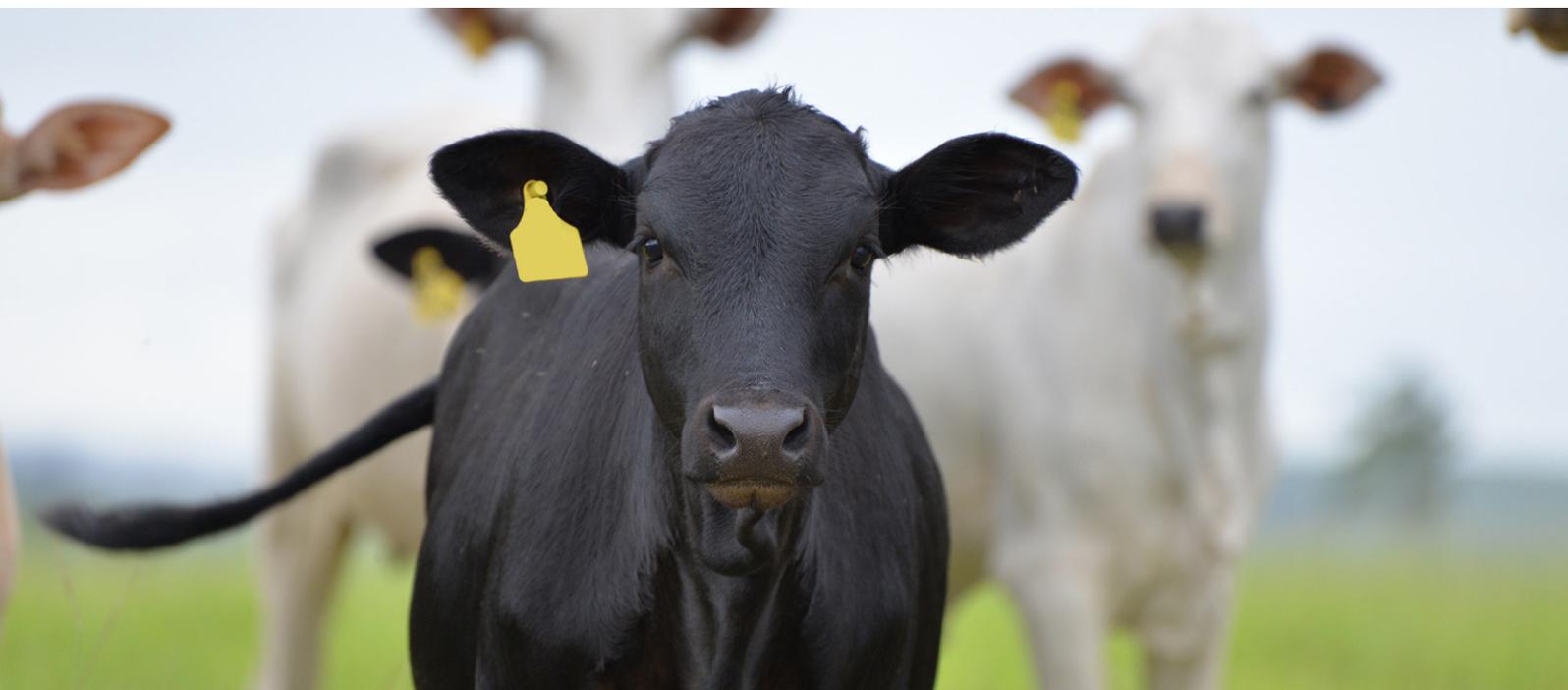
The potential for IoT to support and create opportunities in sustainability was a key point in the broader IoT discussion. Michael talked about water quality monitoring and management as a key sustainability challenge where IoT environmental monitoring solutions can be applied to great effect. Ericsson Country Manager Theresa Corballis also talked about an IoT driven "connected water" initiative undertaken by Ericsson in the US as part of its Technology for Good initiative, which is linked to the UN Sustainable Development Goals.

Also, from Ericsson, Nigel D'Rozario likened the evolution of IoT to that of mobile broadband, going from WAP based internet to 3, 4 and upcoming 5G network capability. From remote surgery to cloud robotics, the vision and likely reality for the future of IoT according to D'Rozario is that there will be one network, within which multiple instances of use cases will be able to operate according to their unique requirements.

"IoT and 4G/5G are the foundation for the technology platforms upon which the innovation for rural initiatives will occur in the coming years in NZ." – Nigel D'Rozario

Ericsson's recently released biannual mobility report found that cellular IoT connections are expected to reach 3.5 billion by 2023, with a 30% annual growth rate.

Visionstream's Garth Spencer offered insight into the cost saving potential of IoT technology. He talked about a Visionstream client using a real time IOT network saved tens of millions of dollars in planned capex spend because of having a better understanding of their infrastructure performance. "We need to embrace this new technology across all aspects of our business including in the rural sector and take advantage of the stuff that's available right now."



The build goes on



Phase one of the Rural Broadband Initiative (RBI) is complete and planning for RBI two is underway. But the question of the programme's capability to reach our most remote areas is still real and remains on the minds of rural NZ.

The Rural Connectivity Group (RCG), established by the three mobile network operators, to help address that issue by building a network where current telco infrastructure build plans won't reach. RCG Programme Director Andrew Button opened his presentation by emphasising the need for collaboration between his team and symposium attendees.

"The network that the RCG is looking to build is going to be around for the next 20-25 years. How do we want it to evolve? Where do we start, where do we take it? This is not a project of work that will be over in 3-4 years. A network that will be leveraged upon by service providers, by WISPs – more importantly, by those who live in rural NZ. Everybody who's in the room today has an obligation by being in this room to help rural NZ to do the best with what we've been asked to do.

It's a cop-out to turn around and say, "you got it wrong." I ask you, please, help me and my team get it right for rural NZ."

The RCG is tasked with building the 4G and mobile infrastructure required using a new shared Radio Access Network based on 4G MOCN. This "open access network" aims to provide mobile coverage and connectivity to;

- 100 tourist locations
- Approximately 34,000 homes
- 1000km of State Highways
- The Chatham Islands

And Button intends that if possible – they won't stop there. The RCG intends to foster strong collaborative relationships across multiple industries and sectors – as well as with end users – to help come up with efficient and innovative solutions that will enable the build to extend as far as possible beyond its current scope.

Rural NZ, No8 fencing wire NZ, businesses in rural NZ have been finding creative ways to do things for years because they've had to.

"I will beg, borrow, steal – partner with anybody and everybody that can make my dollar go further and mean that I can build one more site; build one more rural location that's going to provide value to one more community, one more group of under-served people." – *Andrew Button*

Formed in January 2017, industry association WISPA.NZ represents 23 wireless internet service providers (WISPs) operating in regional NZ. Deputy Chair Mike Smith gave an overview of WISPA's membership profile, describing most WISPs starting out as small owner operator businesses, many led by people with a history in the telecommunications industry. Having experienced rapid growth in recent years, WISPA's member companies now have 40,000 customers across 800 sites collectively – and counting. Nine WISPs have now been awarded RBI2 contracts with Crown Investment Partners, and more successful bids are expected.

Challenges faced by WISPs include the need for constant reinvestment due to the ever-increasing necessity for greater bandwidth, unavoidable overbuild from bigger build programmes, the potential opportunity to incorporate mobile coverage in future, and the common issue for all – getting connectivity to the most remote end users. In terms of strengths – innovation, technology leadership including utilisation of low

power alternative energy technology, reliability, longevity, and closeness to their customers and communities were all identified by Smith as being key to the success of the WISP model. Referring to the importance of the relationship between WISPs and local landowners, Smith described a common scenario of having locals assist in maintenance efforts in an outage situation. "They'll help us get back online, if we have a power outage, they'll help us because they know how important connectivity is."

Representatives from three WISPs spoke, introducing their companies and offering insight into their niche position in the market. Small but agile, solutions focussed and committed to the improvement of connectivity for the communities in which they operate were common characteristics.

"Whilst fibre's penetrating the whole of the country and is gradually moving into rural areas, we still can provide flexibility and agility and responsiveness – and we have a lack of bureaucracy behind us which means we can respond really quickly to customer needs."

– *Dave Parker*

The symposium also heard an update from Chorus as the provider of the local fixed line services. They talked of two priorities – ensuring that rural people can get the fastest connection available, as well as ensuring a congestion free network.

We've been asked to build a network that is going to sustain.

– **Andrew Button**



What matters to Maori, matters to everyone!

“Like everybody else we want to be connected. We want to participate, we want to contribute.” We want to be competitive, we want to be safe, we want to be smart and we want to be part of a vibrant economy.” – Robyn Kamira

The big issue for everyone is connectivity. For Maori, this issue takes two main forms. Geography, for those living in the most remote places in NZ without access to telco infrastructure. And access – for those within network reach but unable to connect due to the prohibitive cost, both for connecting and then staying connected.

In 2015 the remote far North community of Miti Miti became the first site in NZ to access RBI fibre through collaborative project “Miti Miti on the Grid.” This saw the collaboration of sponsors, funders, technical experts, volunteers and community members who worked together to leverage fibre deployed to Miti Miti’s local school to connect the local marae. The project, also undertaken with support from Maori TV programme Marae DIY, enabled both the marae and the surrounding area to have fast speed internet, cell phone coverage, and wifi. Previously, the only connectivity available to Miti Miti was sporadic cell phone coverage – which was only accessible from the beach, and only at low tide.

Kamira described the attitude of people involved with the project as being, “If you can connect that place, you can connect anywhere.”

Antony Royal who has a long history in telecommunications, spoke to the issue of inequitable access, during the planning and rollout of the RBI programme Royal’s involvement with Ngā Pū Waea saw him advocating for end users unable to connect to the network. Despite being within connectable range – either because of their proximity to a fibred up school or by having fibre running outside their property – people still couldn’t connect due to issues with bureaucracy, and cost. The bureaucracy problem may now be largely resolved, but cost continues to be a barrier.

Other topics raised by Royal were;

- The potential for fibre deployment over poles
- Investigation into barriers preventing higher uptake of co-location opportunities on RBI towers
- Need for a new ministerial advisory group to continue advocacy work started by Ngā Pū Waea
- Ahead of the upcoming spectrum auction, consideration needed for how this spectrum could be managed differently in NZ



Today's on-farm issues



From the farmer's perspective – Federated Farmers Vice President and dairy farmer Andrew Hoggard talked about utilising technology to influence and improve three areas – efficiency of farm/ agribusiness management, compliance, and social interaction. A survey into the use of connectivity/ technology run by Federated Farmers received responses from 1000 members. Results showed:

- Wireless is the main source of internet access
- Speeds are getting better, but there are indications that some people may not be aware of the speeds available to them
- High use of mobile and smart phones
- Mobile phone coverage patchy across farms, often is dependent on the provider
- Good use of mobiles on farms for assisting farm management

Geographical gaps in terms of the locations from which responses were or were not received suggested where internet coverage is likely to be lacking.

Today's most pressing issue though has arisen through the discovery of the bacterial disease *Mycoplasma bovis* on a South Island farm last year and its subsequent impact on the overall rural sector.

Mark Bryan, a Southland Vet spoke about the need for a comprehensive animal movement and health monitoring system, which he asserted was the norm in nearly every other first world country. Here, NAIT is supposed to fulfil that role. Andrew Hoggard also shared his thoughts about how the NAIT (National Animal Identification and Tracing) system could be improved.

In his view, NAIT needs to:

- Talk to all herd management programmes
- Be more intuitive
- Be available via phone apps, to enable farmers to record data on the go
- Have more verification in movements through tech investment in trucks/sale yards

In fact, the whole system needs to be more user friendly to help the time-poor farmer easily update the system on the go.

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