nbn™ Future of Farming Roundtables Report

November 2020

Foreword

I was pleased to be invited to facilitate two recent roundtable briefings on behalf of **nbn** to discuss the challenge of achieving growth in the agricultural sector through digital innovation and technology.

There is much to celebrate and be proud of in the agricultural sector. As someone who is invested in agriculture and rural and regional Australia, both as a farmer and as the director of an agribusiness communications SME, I see both the challenges and opportunities faced by our sector. Rural communities and agricultural industries have been built on the back of hard-working agriculturalists and businesses, who have created strong, flourishing livelihoods with a commitment to ensuring a sustainable, productive and profitable agriculture sector.

In my recent work as Chair of the **Panel for the Independent Assessment of Social and Economic Conditions in the Murray-Darling Basin**[1], I have seen communities experiencing many challenges as a result of the drought, and more recently bushfires and COVID-19.

But opportunity also abounds. The National Farmers' Federation (NFF) has set an ambitious target to **exceed $100 billion of farm gate output by 2030**[2]. There are many factors that the sector must consider and embrace in order to achieve this, and an important one is digital innovation and technology, the third pillar of the NFF's **2030 Roadmap**[3].

Ten years out from this audacious goal, now is the time for the sector to collaborate with experts in agtech and digital innovation, to share knowledge and harness each other's capability to embrace the opportunity digital innovation presents. Through listening, learning and removing barriers using a considered approach, the sector can harness this potential.

Australian agricultural productivity growth rates have effectively been close to just 1% since the 1970s, while the agricultural productivity growth rates of other comparable nations have been in the range of 1%–3% per annum, according to Agribusiness Australia's **2020 State of the Industry Report**[4]. Digital innovation and technology are key factors in increasing productivity. Importantly, attention must also be given to profitability and sustainability.

In 2018 I was invited to be part of the federal government's **Regional Telecommunications Independent Review Committee**[5]. The Committee heard a range of views on regional telecommunications services from hundreds of individuals, organisations and businesses. These views informed our report to the then Minister for Regional Services, Sport, Local Government and Decentralisation.

The **report**[6] demonstrated that there are great opportunities to maximise economic benefits for regional communities through the use of digital technologies, but digital inclusion in the regions lags far behind the access available in the major cities.

In response to that report, the Australian Government recently committed to a **$220 million Stronger Regional Digital Connectivity Package (SRDCP)**[7], including the Regional Connectivity Program grants opportunity which will provide up to $83 million of targeted investment in 'place-based' telecommunications infrastructure projects which will maximise economic and social opportunities in regional, rural and remote Australian communities.

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[1]mdba.gov.au/publications/independent-reports/independent-assessment-social-economic-conditions-basin

[2]nff.org.au/wp-content/uploads/2020/02/NFF_Roadmap_2030_FINAL.pdf

[3]nff.org.au/wp-content/uploads/2020/02/NFF_Roadmap_2030_FINAL.pdf

[4]agribusiness.asn.au/documents/item/575

[5]rtirc.gov.au

[6]communications.gov.au/publications/2018-regional-telecommunications-review-getting-it-right-out-there

[7]communications.gov.au/what-we-do/internet/regional-connectivity-program

These grants are now coming to fruition. Better Internet for Rural, Regional and Remote Australia (BIRRR) group – founded by two young women from remote Queensland, started as a determined team of volunteers six years ago and quickly evolved into a professional service to help boost digital connectivity for regional Australians. BIRRR will transition its voluntary advice and trouble shooting services around digital technologies and telecommunications to the National Farmers' Federation as part of the Regional Tech Hub which is backed by federal government funding. This shows primary producers and rural communities can work with government decision-makers and corporate stakeholders to clearly articulate the issues they are facing, and put forward pragmatic solutions. When they do that, they can inspire real action and change.

A 2017 **report**[8] by the **Accelerating Precision Agriculture to Decision Agriculture Project (P2D)**[9], involving all Rural Research and Development Corporations, found that primary producers are constrained, not by technology, but by low levels of awareness and limited service provider options.

Connectivity and data are consistently cited as key issues and barriers for the agricultural sector when it comes to embracing digital innovation and technology. Indeed, similar issues were uncovered by the **Panel for Independent Assessment of Social and Economic Conditions in the Murray-Darling Basin. The Panel's report**[10] included the following recommendation:

Commonwealth and Basin state governments should invest to improve essential infrastructure in Basin communities that are at a relative disadvantage and consider developing a Basin-specific infrastructure fund focusing on digital connectivity.

These themes were also central to the discussions at the recent **nbn** roundtable events, in addition to the issues of digital literacy and confidence.

Now is the time for the agriculture sector to collaborate to harness the opportunities that agtech has to offer. **nbn**'s research via AlphaBeta, presented at the roundtables, highlights the role agtech can play in achieving the NFF's 2030 production goal. **nbn** is poised to support Rural Research and Development Corporations (RDCs) and their associated entities in uncovering the barriers and working on the priorities for each and every industry within the sector when it comes to digital ag. Together, it is this group who can galvanise the sector and work towards the shared goal of harnessing the potential of agtech and overcoming connectivity access and data issues to increase agricultural outputs in line with the NFF's 2030 Roadmap.

In addition, this collaboration can ensure that the recently announced Australian Government Digital Agriculture Strategy delivers the right policy and regulatory settings for Australian primary producers, and in turn, the whole of agriculture.

Robbie Sefton
Managing Director, Seftons

[8]crdc.com.au/sites/default/files/CRD18001-001%20CRDC%20P2D%20 Report%20low%20res.pdf

[9]crdc.com.au/precision-to-decision

[10]mdba.gov.au/sites/default/files/pubs/seftons-report-september-2020_0.pdf

Background

On 14 and 16 September 2020, **nbn** held briefing roundtables for a range of key stakeholders in the agricultural sector, using a virtual meeting platform. **nbn** presented its latest agtech research, '**Connecting Australia: Future of Farming**'[11], and its strategy for growing the sector through innovation and connectivity. It then sought the participants' feedback and comments.

The **nbn** research estimates that connectivity, combined with the right digital technologies, could increase the sector's gross value of production by $15.6 billion per year by 2030. In the context of the National Farmers' Federation's Roadmap 2030, and its objective that the value of agricultural production exceed $100 billion by 2030, it was noted that adoption of digital was essential to achieving the sector's vision.

Modelling undertaken by economics and analytics firm AlphaBeta suggests that in order to achieve its potential farming productivity gains, the sector will need to fully embrace the adoption of emerging digital capabilities. Increased on-farm adoption of digital technology is essential for the industry to achieve its objective of being Australia's next $100 billion industry. **Poor connectivity is estimated to cost primary producers up to $5 per hectare**[12], and access to services over the **nbn**™ network could help enable the realisation of digital agriculture across Australia.

The roundtables were an opportunity for research and development corporations (RDCs) and other agricultural sector stakeholders to hear about the **nbn**'s research and learn about **nbn**'s approach to lifting digital capability in regional Australia, and particularly in the agriculture sector. They were also an opportunity for the RDCs to contribute to a discussion about the current challenges and needs in the sector around agtech, and about how **nbn** could work with RDCs to develop strategies to help address these issues.

[11]nbnco.com.au/content/dam/nbnco2/images/blog/nbn-connecting-australia-agri-culture-future-of-farming.pdf

[12]The Cost of Digital Inequality in Regional Areas: bcg.org.au/wp-content/up-loads/2017/08/170804-Connectivity-report-fin.pdf

Participants

The roundtables were facilitated by Robbie Sefton, Managing Director of Seftons. The 15 RDCs, selected Cooperative Research Centres, the CSIRO and other key research stakeholders in the sector were invited to attend. This report refers to 'primary producers' to reference the collective fishers, farmers and foresters relevant to the participants at the roundtable sessions.

Discussion

The following key questions were posed to roundtable attendees ahead of the events to stimulate discussion and gather feedback:

1. What are the barriers to agtech adoption?

2. What are three current agtech priorities for your organisation?

3. How do you believe **nbn** can support your organisation to increase agtech adoption?

Each participant was asked to introduce themselves and speak to the three discussion questions. Thereafter, presentations were given by Sam Dimarco (**nbn**), Shaun Chau (AlphaBeta) and Robert Hardie (**nbn**).

Connectivity[13]

Understanding connectivity, both availability and 'how to', and the various connection options available was a common discussion thread at both roundtables. Participants nominated this issue as a key barrier to adoption, particularly the need to improve the understanding of connectivity to the homestead versus the entire property. Ensuring primary producers better understood how to connect beyond the farm house, including the types of technology that can enable enhanced on-farm connectivity, would remove an identified adoption barrier. Deeper understanding of data needs and speed requirements would also improve knowledge of the connectivity necessary for the business.

There was a wide-ranging discussion about the types of connections available in regional Australia; one participant noted that notwithstanding the purpose, a reference to a 'non-standard' installation/connection would sow a seed of doubt in the mind of the farmer about the efficacy of the connection. There was a concern expressed about 'trust' in the connection type, leading to a broader want of confidence in the connection and the wider benefits of digital agriculture. Trust and confidence were

linked themes – in terms of the availability and type of connection, through to adoption of digital agtech, capability of data platforms and understanding of the 'value proposition'.

The point was also made around simplicity coupled with connectivity – if primary producers currently struggle to provide data via a paper-based system, will this be better or worse if it is digitised?

Participants noted that improving the understanding of the availability of connectivity, as well as the different types of connections, speeds and needs of enterprises, was essential. Doing so in plain English, or 'producer speak', and without a heavy focus on 'selling' a product, was considered critical. Through enhanced education and awareness about connectivity, participants felt primary producers would be more confident asking questions about, and adopting, digital agriculture in their businesses.

Digital confidence and literacy

As referenced in the Connectivity section (above), the issue of aversion to both change and risk, linked to the adoption of new digital technology was also raised. Participants also recognised that a lack of confidence in and understanding of the benefits of digital agtech and was coupled with perceived digital illiteracy and that this represented a barrier to adoption.

Digital literacy was discussed as not just understanding the technology itself and being able to access it, but also knowing what a primary producer wants to achieve with the technology and the skills required to do so.

One participant mentioned a general 'digital immaturity' in the sector and that the challenges in this area are both social and technical. Some primary producers reported negative experiences with poorly designed or incorrectly-recommended technology solutions (described by one participant as 'crap tech') that was difficult to use and unfit for purpose. This meant that working out how to properly use the technology became one more task to perform – when the technology device did not perform as anticipated, the user's experience reflected negatively on digital agriculture and the primary producer's adoption journey was further set back. There was a sense from another participant that agtech adoption had stalled beyond a fairly basic uptake of entry-level technology.

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[13]NBN Co is a wholesaler. People should contact their preferred phone and internet provider who can assist them in purchasing an **nbn**™ powered plan, and answer questions in relation to their service, troubleshooting and getting connected.

The value proposition of agtech, and how primary producers value technology generally was seen as critical – and not just value in terms of economics, but more broadly to include non-financial benefits. Many participants said there was a need to better refine and explain the 'value proposition' of digital ag, in language that can be understood easily by primary producers, so that it specified tangible outcomes for primary producers. A clearer understanding of the tangible, operational level benefits of agtech will assist with digital literacy because it will enable primary producers to match the tangible outcomes offered with what they want the technology to do.

One participant argued that until digitisation is essentially compulsory in agriculture, it will be hard to change the prevailing culture. Primary producers and agricultural industries can value the investment in technology, but they have many competing priorities.

In better defining the value proposition of digital agriculture, participants believed that explaining how digital solutions can support, and make easier, existing tasks would be essential to increasing confidence and adoption. By explaining, in 'producer-speak', that digital processes can co-exist with existing processes, and potentially assist in making manual tasks faster, adoption of digital agriculture can hasten with reduced resistance.

Participants also asked whether primary producers need to become digitally literate, or whether technology solutions need to be designed in a way that requires minimal digital literacy to use effectively and efficiently.

Data

Governance of and trust in data privacy and security was also identified as a barrier or challenge to digital agriculture adoption. Long-term industry concern about the robustness of data security, ownership and commercialisation rules means that there remains a need to build trust around how data is shared, and to develop models and technologies that allow individuals to combine their data without 'releasing' it. Primary producers are nervous about contributing data to systems that might allow others to reap commercial gain at their expense.

The Farm Data Working Group at the National Farmers' Federation launched the **Data Code**[14] at **EvokeAg**[15] in February 2020; it found that producers were mistrustful about what service providers were doing with their data. Accreditation for service providers may be the next step needed. Participants pointed to work already underway by industry to develop a data capture platform as a demonstration of the sector's interest in solving the challenge of data security and ownership in agriculture.

Independent advice and support

In addition to trust in data, participants identified the need for a trusted source of digital advice being available to primary producers, allowing them to sense-check their digital plans and to provide in-field technical support as the need may arise. Participants identified anecdotal concerns from primary producers about being sold products that were not fit for purpose – primary producers want their problems understood at a conceptual level before launching to solution or sales mode.

At an industry-wide level, participants suggested that it would be helpful to have a 'Chief Technical Officer' for the agricultural sector. This would help producers to have certainty about technology before they invested in it.

[14]nff.org.au/programs/australian-farm-data-code
[15]evokeag.com

Current agtech priorities

Broadly summarised, the key priorities by farming system are outlined below:

Forestry:

- Information transfer from (tree) harvest
- Genetics through supply chain
- Remote capture of data

Livestock (includes meat processing and Integrity Systems Company):

- Remote monitoring and data collection
- Shearing automation
- Animal performance; benchmarking; block chain for traceability; extension and adoption
- Digitisation of systems end-to-end (Integrity Systems Company)
- Yield management
- Robotics and CT sensing
- Connectivity throughout a property for data capture (meat processing)

Sugar:

- Automation in (sugar) mills
- Precision ag
- Data analytics
- Drone mapping

Fisheries and aquaculture:

- Connectivity on the water/in hard and remote conditions
- Data integration
- Automating repetitive supply chain tasks
- Precision fishing

Other:

Artificial Intelligence (AI) and firefighting robots

Next steps

The roundtables were designed as a first step which would enable **nbn** to seek relevant information from the RDCs, selected Cooperative Research Centres, the CSIRO and other key research stakeholders in the sector about their agtech needs, desires and challenges. It was agreed that the discussion should continue if it can add value to each organisation and bring benefits to the ag sector and to regional, rural and remote Australia more broadly. A follow-up virtual roundtable in January 2021 was agreed.

nbn expressed an interest in developing digital agriculture dialogues with each of the organisations present, and there was interest and willingness from most if not all attendees to continue the discussion in a more industry-specific way.

Action: nbn to reach out to each attendee individually to continue the discussion on how it can support agtech on an industry basis.

There was a sense following the roundtables that there is a myth-busting job to be done around connectivity. There is still a strong belief that connectivity is the main barrier to agtech adoption, and **nbn** has an opportunity to champion a narrative to refute this belief.

Action: nbn to consider strategic approach for myth busting around connectivity.

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