ACCELERATING TECHNOLOGY ADOPTION IN AUSTRALIAN AGRICULTURE



- The 'digitization' of agriculture to enhance productivity (and climate adaption)
- The benefits and limitations of digital agriculture
- Fostering digital agriculture development and adoption



• **Digital agriculture** is agriculture which relies on detailed digital information about a wide range of production variables which are utilised to guide production decisions.

• **Big Data** is data whose scale, diversity, and complexity require new architecture, techniques, algorithms, and analytics to manage it and extract value and hidden knowledge from it.

The evolution of farming



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Digital agriculture evolution ?





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Cropping area of Australia mapped by resellers using SST software platform in Australia in 2014



The digitisation of crop production

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Gains achieved in the USA

The "Innovators" indicate that using the best available Digital Technology in combination with high quality data it is possible to achieve a yield gain of 5-10 bushels of corn per acre.

- At \$3.50/bushel: Potential of \$18-\$35 per acre gross
- Nitrogen Efficiency: Potential of \$25-30/acre per beta testers.
- Yield + input savings: Potential of \$43-\$65 per acre.
- Less \$3-10 per acre for ATP services:
- Potential gain with current Digital Technology: \$33-\$62 per acre
- These gains are in addition to savings from use of precision planting and application equipment.

Source: University of Illinois

Limitations of data management and analysis







Data ownership and security

- Most US vendors adhere to Data Gateway/OADA standards and encourage application software developers.
- Most guarantee data confidentiality; eg
 - JD retains rights to machine data, allows farmers to set access rights to production data
 - Monsanto/CC ensure data remains secure and is not provided to third parties.
- Data is generally accessible under subpoena.



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Key elements

- Comprehensive public data on climate, soil types.
- Comprehensive telecommunications access and GPS services
- Open-access public-sector research data without IP constraints
- Integrated public/private data systems;
 - Climate and rainfall data
 - Satellite imagery and analytical services
 - Livestock ID systems, genetic information, slaughter and meat processing data
- Competitive agri-tech sector closely focused on user interfaces and interoperability



- Public sector R&D outcomes will be a key part of the 'engine' of decisionsupport tools based on digital information
- The private sector will be key to utilising the algorithms arising from public and/or private sector research and incorporating these in user-friendly software applications for use by farmers.
- Resolving uncertainty over data ownership and use is critical to the development of a competitive agritech sector.
- The resulting improved management precision will enhance the potential for Australian agriculture to thrive and grow under changing climatic and market conditions.



DIGITAL DISRUPTION IN AGRICULTURE CONFERENCE

Digital technologies have the potential to revolutionise Australian agriculture and make possible the next big leap in productivity. Across all agricultural commodities, digital technologies and applications are emerging that are disrupting production systems and supply chains, creating radically different business models, and enabling farmers and agribusiness to manage with levels of precision and insight that were previously unimaginable. The **Digital Disruption in Agriculture** conference convened by the Australian Farm Institute will provide the opportunity for a very detailed look at the possibilities that are being provided by digital technologies and pose questions about how to ensure that those possibilities can be realised.

The conference will be held in Sydney on Thursday 2 June and Friday 3 June, 2016 - bringing together a range of international and Australian speakers. It will provide valuable insights into the developments that are occurring, and what they will mean for Australian farmers, agribusiness and policy-makers.

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