AgTech
Growing your future

What is AgTech?

AgTech is any innovation used across the value chain to improve efficiency, profitability and/or sustainability. It includes hardware and software, business models, new technologies and new applications.

The new frontiers of AgTech are in the digital space, using data, tools and decision-support to assist agribusinesses to meet emerging consumer demands or enter new markets.

What's driving AgTech?

AgTech development and adoption is key to the profitability and responsiveness of Queensland's agriculture supply chain. Primary producers are among the most efficient in the world, with a long history of innovating to feed, clothe and protect our growing world population. To keep pace in the changing natural, social, and economic environment, transformational approaches are needed for the agriculture sector to remain productive and competitive.

What are some of the current hot technologies?

INTERNET OF THINGS (IoT)

IoT refers to all the physical devices around the world—including computing, digital and mechanical tools—that are collecting and sharing data over networks. For example, weather stations and livestock tracking.

VIRTUAL REALITY (VR)

An interactive computer-generated experience within a stimulated environment often incorporating visual and auditory feedback. In many cases users wear goggles in a three-dimensional, computer-generated environment.

AUGMENTED REALITY (AR)

This technology superimposes a computer-generated image on a user's view of the real world in real time. Opportunities for AR in agriculture include monitoring, decision support, and training.

CLOUD COMPUTING

Accessing the combined power of shared storage across the internet through connected servers, software, databases and other services. For example, email, business financial software.

INTELLIGENT APPS

Applications that learn from user inputs to improve the user's experience.

BIG DATA

Very large data sets that are too complex for traditional data analysis and processing. An example of using big data would be weather predictive models and tools such as Queensland Government's Long Paddock or the Bureau of Meteorology.

ROBOTICS

Technologies that can substitute for human actions. For example, automated robotic harvesters that seek out and pick harvestable fruit and vegetables.

ROBOTS

Robots are self-contained electronic, electric, or mechanical devices programmed to perform discreet tasks, often automatically and intelligently. For example, a palletising robot stacks cartons.

AUTONOMY

This is technology that can function without being told what to do. For example, driverless tractors, cultivators, sprayers and harvesters.

ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence is an umbrella term for a range of technologies that allow machines to perform tasks which normally require human intelligence. This can include robotics, machine learning, speech recognition and other technologies like remote monitoring of crops.

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SENSORS

A device that measures or detects changes in its environment to present data for decision making. This information can deliver benefits through improved crop and livestock yields; reduced wastage and livestock mortality; automation of farm operations; and maintenance or labour cost savings. Sensors may measure soil moisture/nutrition, weather data and water storage levels.

BLOCKCHAIN

A distributed secure database, and digital ledger that provides a way for value to be permanently recorded. This continuously growing list of chronologically ordered records is accepted by a method of consensus and secured via cryptography.

This 'value' is not limited to monetary transactions—it also applies to assets, property titles, the rights to a song, a vote, and even a person's identity—its application extends far beyond the realm of financial services. For example, an agricultural commodity blockchain, where the whole supply chain is transparent and interacts. Blocks store unique information on transactions in the supply chain to improve efficiencies and build confidence.

5G TECHNOLOGY

Fifth generation mobile, builds on the current 4G network but with increased connection speeds and shorter time delays. Allows more people to use higher speeds at the same time.

GLOBAL POSITIONING SYSTEMS (GPS)

This is a satellite-based navigation system that uses orbiting satellites to reference your position on earth. Used in precision agriculture for automated steering in tractors.

GEOGRAHPICAL INFORMATION SYSTEMS (GIS)

A computer system that captures, stores, checks and displays data in relation to positions on earth's surface. It creates a visual representation of data and performs spatial analysis in order to make informed decision making. For example, GIS can be used to automate the application of fertilisers and seed in precision agriculture.

How do you know if the technology is for you and your business?

A business should carefully evaluate the technology to make sure it is fit for purpose. Below is a list of things to consider when deciding if the technology is right for you.

- What's really the problem that you are trying to solve?
- What's the motive for the purchase? Is it to make a task easier? Automate an activity? Reduce a business cost?
- Does the technology do what is supposed to do?
- How compatible is the technology with existing systems? Can the technology interface with your existing equipment/programs?
- Can you take it for a test drive? Or are there some good case studies/testimonials to validate it?
- How reliant is the technology on your connectivity and speed?
- Is it value for money? How does it compare with similar products and services?
- How reliable is it? What is the warranty and what's the back-up service like?
- Who owns any data that is generated?
- Is it a one-off purchase, or are there ongoing subscriptions involved?
- What other considerations do you need to make before you purchase it?