connexxion

TECHNOLOGY FOR BUSINESS

Submission: House of Representatives Standing Committee on Agriculture and Industry inquiry into Agricultural Innovation

March 2016

Agritrace
A VIRTUAL WAREHOUSE SOLUTION

1. BACKGROUND

Connexxion is an ACT based small enterprise with offices in Canberra, Melbourne, Sydney and Brisbane. Established in the mid-1980s, Connexxion has been developing consultancy, software and project solutions to support public and private sector organisations for more than 30 years.

In 2012 Connexxion was engaged by a partner to commence the 'Sudan Project' under a Proof of Concept (POC). The objectives of the POC were the development of a software solution to increase efficiencies in grain handling and transportation, tracking and quality management. The POC was to provide grain importers and aggregators in the Republic of Sudan with a comprehensive platform to trace the origins of imported grain from Port Sudan, Capital of the State of Red Sea, all the way to the aggregation site, four hours into the Sudanese desert, where it was aggregated and prepared for sale and distribution. The Sudan Project did not proceed beyond POC, however, Connexxion recognised the potential of this software solution to improve the productivity and profitability of the Australian agricultural industry and made the decision to continue development and commercialisation in Australia.

2. SUMMARY

Connexxion welcomes this opportunity to provide a submission to the House of Representatives Standing Committee on Agriculture and Industry and their inquiry into Agricultural Innovation. We also thank the committee secretariat for agreeing to provide an extension for submissions.

Prior to the development and release of the Australian Government's Agricultural Competitiveness White Paper in 2015 (the White Paper), Connexxion had already commenced the development and commercialisation in Australia of the Virtual Warehouse suite of programs and, in particular, the agricultural track and trace system, called AgriTrace.

Connexxion has prepared this submission to the committee's inquiry to outline the potential of existing Australian innovation such as AgriTrace in improving the efficiency of the Australian agricultural industry, securing food supplies for future generations, and supporting smarter farming. This submission has been drafted to address all of the inquiry's terms of reference including:

- improvements in the efficiency of agricultural practices due to new technology, and the scope for further improvements;
- emerging technology relevant to the agricultural sector, in areas including but not limited to telecommunications, remote monitoring and drones, plant genomics, and agricultural chemicals; and
- barriers to the adoption of emerging technology.

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3. AUSTRALIAN TECHNOLOGICAL INNOVATION

Australian innovation is world class. Support for business investment in Australia takes many forms and the continuation of private sector investment is essential for the development of future innovation in every industry, including agriculture.

Food security is at risk and global food losses reported by organisations such as the Food and Agriculture Organisation of the United Nations are staggeringly high[1]. At an estimated 1.3 billion tonnes of food per year, approximately one third of all food produced for human consumption is lost before it can be eaten. While post-harvest food losses are not as extensive in Australia as they are in some nations, our neighbours and trading partners' farmers lose in some cases up to 75% of their total yield for some crops.

The Australian Farm Institute refers to Australian food producers as 'price-takers' in the global market[2]. Australia's size and geographic position in relation to other markets (particularly for inland and Tasmanian producers) makes transport and export costs exorbitant and these considerations are among those that force primary producers from a range of agricultural pursuits in Australia to exit their respective markets.

One of the causes of primary producer price-taking is a lack of exposure to a broader market place; this limits their ability to present produce to market and increases the effects of inefficiencies in the food supply chain. For example, aggregators rely on brokers to 'ring around' immediately after the harvest has been completed to ascertain the level of available grain in the Australian market. This increases their exposure to the risk of a shortfall making them unable to fulfil contracts or, at the other end of the scale, leaves producers in danger of a surplus for which they do not have a ready market.

A solution that balances and fulfils the needs of primary producers, aggregators and exporters is capable of significantly reducing wastage and food losses around the world. Connexxion has developed one such solution, called AgriTrace, which includes the capacity for track and trace and includes an inbuilt trading module to provide a platform for buyers and sellers to interact and achieve the best possible returns.

4. DEVELOP AND SUPPORT EXPORT MARKETS

Agriculture remains one of Australia's most important export markets. While Australia currently produces enough food for 60 million people, global climate change and an increased population will not only make food production more difficult, it will also increase the amount of food required, placing further strain on already limited resources. Smarter food production, harvesting techniques, storage and market systems are necessary to secure global food supplies.

New and enhanced supply chains are needed to alter the current course of Australian and international food security. Research by the Swedish Institute for Food and Biotechnology (SIK) and the Food and Agriculture Organization of the United Nations (FAO) found that around one third of all food produced for human consumption spoils or is squandered before it is consumed by people. This takes in all loss and wastage within the food supply chain and "may be due to problems in harvesting,

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storage, packing, transport, infrastructure or marketing/ price mechanisms, as well as institutional and legal frameworks." The afore mentioned study found that the quantity of food wasted or lost globally is enough to feed the world's 870 million starving people four times every year.

Developed nations such as Australia tend to lose food primarily in post-market conditions rather than post-harvest. For example, post-market food losses in this context refer to the food that is purchased for human consumption but is allowed to spoil in the home or on the supermarket shelves. However, post-harvest food losses do occur in Australia. These are the losses that occur in the process between harvest and market; they include quantities of food which are allowed to spoil or are lost during transport, as well as quantities of food which spoil in storage.

Often these post-harvest food losses occur as a result of a lack of market mechanisms. Small primary producers, particularly semi-subsistence farmers who produce the majority of their produce to feed themselves and their families, do not have access to as broad a range of selling options as do the larger producers. Along similar lines, many small hold producers simply do not produce a large enough quantity to justify transportation. In some cases, such as semi-subsistence banana production in Fiji, as much as 75% of the crop's yield is lost.

An online global trading platform would allow organisations, small hold farmers and other stakeholders with visibility of incoming yields throughout the supply chain. The introduction of a solution such as Connexxion's AgriTrace software would allow producers with a high-quality boutique product or with a small quantity of produce to tell their products' story, market it independently or as part of a small cooperative, and aggregate with other local producers to achieve a quantity sufficient to justify longer-term storage and transport.

An example of the potential for such a solution to operate would be a small fishing company, trawling the Pacific Ocean for 5 weeks. If this company were to catch a number of very high quality fish in the current market they would need to estimate the tuna's value and determine based on assumptions whether to return to port in an attempt to achieve a high return or risk a reduction in the quality of those fish while they attempt to increase their total yield. If that company had access to a global platform on which to present the high quality fish they would not need to return to port to determine whether or not they could be sold. They could publish the appropriate information to the platform, receive offers from an international range of buyers and make an informed decision as to which course will provide the best possible outcome for their business and its employees.

In this way, Australian employers, producers and workers in the agricultural, horticultural and aquacultural industries can be assured of their yields while simultaneously reducing the potential for food to be lost prior to it coming to the market. This could have the added advantage of providing financial lending institutions with confidence of producers' income for a financial year; one major bank in 2012 estimated that this confidence could increase their lending capacity from 50% to around 85% of the expected harvest value.

By increasing the potential for sale Australia's agricultural industry potential is vastly expanded. Connexxion's experience in Sudan and our partners' successes with alternative storage solutions in India have shown us that the use of a track and trace software solution coupled with smart storage infrastructure could decrease wastage to below 5%.

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5. UPTAKE

The kind of technology that would track the entire lifecycle of a product such as grain would be considered 'disruptive'. A solution like AgriTrace covers the lifecycle of products from paddock to plate in a manner heretofore unseen and provides primary producers with a system to track quality checks, expected yield, the benefits of different harvest and storage processes, and the implementation of agronomist reports.

That is before the benefits of a global marketplace are considered. Traceability solutions like AgriTrace allow producers to present the story of their produce, increasing their credibility in the market. This is particularly useful for boutique and organic produce.

Using an Australian designed and produced software solution also increases the ability of Australian producers to control their own future by providing real time updates on the status of their produce therefore allowing pragmatic decisions to be made. This has the potential to limit the role of some big players in the market by allowing primary producers to understand the true value of their produce and to oversee its distribution in a much more transparent environment; supporting small businesses and primary production has obvious benefits as outlined in the Agricultural Competitiveness White Paper.

Primary producers would no longer be held at the mercy of big buyers and would have the ability to negotiate more effectively a price which covered their input costs and guaranteed a reasonable return on their investment and their commitment to maintaining a role in Australia's agricultural future.

6. RECOMMENDATIONS

Connexxion seeks to offer the following recommendations;

1. Simplify avenues for non-agricultural entities to obtain grants and to generally provide input into agricultural innovation (e.g. technology providers)
2. Provide incentives to Australian businesses to encourage partnerships with local and international not-for-profit organisations whose aim is to support improvements in agricultural efficiency
3. Support the implementation of an Australian managed global marketplace to enhance visibility of the entire agricultural food supply chain

[1] FAO (2011). Global food losses and food waste – Extent, causes and prevention. Rome, Italy. http://www.fao.org/docrep/014/mb060e/mb060e00.pdf

[2] Australian Farm Institute (2014). Optimising Australian agriculture's comparative advantages. Accessed 2/03/2016. http://www.farminstitute.org.au/ag-forum/optimising-australian-agricultures-comparative

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