

National University Network Precision Agricultural Systems (NUNPAS)

Vision: Enabling Technologies and Practices for Sustainable Agricultural Systems

Inaugural Steering Committee Meeting Report

Background

A group of eight Australian Universities with extensive Precision Agriculture (PA) research programs have recognised that a more collaborative approach to research is required to significantly advance the productivity of Australian agriculture. To achieve the necessary collaboration the NUNPAS was formed.

A meeting was held on the 22nd May 2014 in Sydney to discuss the potential to establish collaborative research projects between Universities and opportunities to source funding.

The universities in attendance where the:

- University of New England (UNE);
- Central Queensland University (CQU);
- University of Melbourne (UoM);
- University of Sydney (USYD);
- Queensland University of Technology (QUT);
- University of Southern Queensland (USQ);
- Southern Cross University (SCU); and
- Tasmanian Institute of Agriculture (TIA), a joint venture between the University of Tasmania and the Tasmanian government.

Objectives

The objectives of the inaugural Steering Committee meeting of NUNPAS were to:

1. Begin a formal process for the establishment of relationships between the universities in attendance;
2. Better understand each universities position within the PA research sector;
3. Develop a business model for the operation of NUNPAS;
4. Identify areas where collaboration and sharing could be enhanced; and
5. Identify possible funding opportunities.

Attendance

Name	Group	Institution	Role
Assoc Prof David Miron	Office the Deputy Vice Chancellor	UNE	NUNPAS Steering Committee facilitator/coordinator
Prof David Lamb	School of Science and Technology	UNE	Leader Precision Agriculture Research Group
Dr Mark Trotter	School of Environmental and Rural Science	UNE	Senior Lecturer, Precision Agriculture
Dr Richard Rawnsley	TIA Dairy Centre	TIA	Acting TIA Dairy Centre Leader
Prof David Swain	Office of the Dean Agriculture and Environment Research	UCQ	Deputy Dean of Agriculture and Environment Research
Assoc Prof Ruth Nettle	Rural Innovation Research Group	UoM	Leader Rural Innovation Research Group
Dr Cameron Clarke	Faculty of Veterinary Science	USYD	Senior Research Fellow
Assoc Prof Craige Baillie	National Centre for Engineering in Agriculture	USQ	Director National Centre for Engineering in Agriculture
Prof Tristan Perez	Science and Engineering Faculty	QUT	Professor of Robotics
Assoc Prof Brett Whelan	Dept of Plant and Food Science	USYD	Associate Professor Precision Agriculture

Discussion

The inaugural Steering Committee meeting of the NUNPAS involved two sessions:

Session 1: A morning session that consisted of presentations from each of the attendees.

Session 2: An afternoon session consisting of group discussion followed by feedback.

At completion of the presentations a number of key observations were made: These observations were that:

1. The research interest within the NUNPAS were complimentary with little direct competition terms of market sector and research outputs.
2. The united approach offered by NUNPAS would bring efficiencies through sharing and innovation. These efficiencies will provide more valuable outcomes to the agriculture sector, funding bodies and the NUNPAS members.
3. Research must focus on “enabling products” that improve productivity across the value chain within agricultural and not just the development of products. This duality of “enabling” and “products” must be considered to ensure the successful integration and adoption of a product into an agricultural system.
4. Products should include not only technologies but also the workflows and practices to support the product within the agricultural system.
5. Underpinning a product are sensors and sensor platforms that provide data to an agricultural system.
6. The fusion of data, information and intelligence to enhance decision-making is the science of “informatics”.
7. The coupling of informatics with the decision-making process is called sense-making.

Figure 1 captures the interplay of 'products' and 'enabling' where the 'dark side' is the product and the 'light side' the scientific facets related to enabling a product.

Sensors/sensor platforms in conjunction with algorithms that fuse data with other information and 'system' intelligence may underpin a product. A product must have the facets of enabling at its core and increase the value of the agricultural system. The scientific facets of enabling must have products as a focus and include research areas pertaining to:

- Adoption
- Social
- Ethical
- Education
- Policy
- Economics
- Environment
- Legacy
- Traceability
- Expert opinion
- Integration

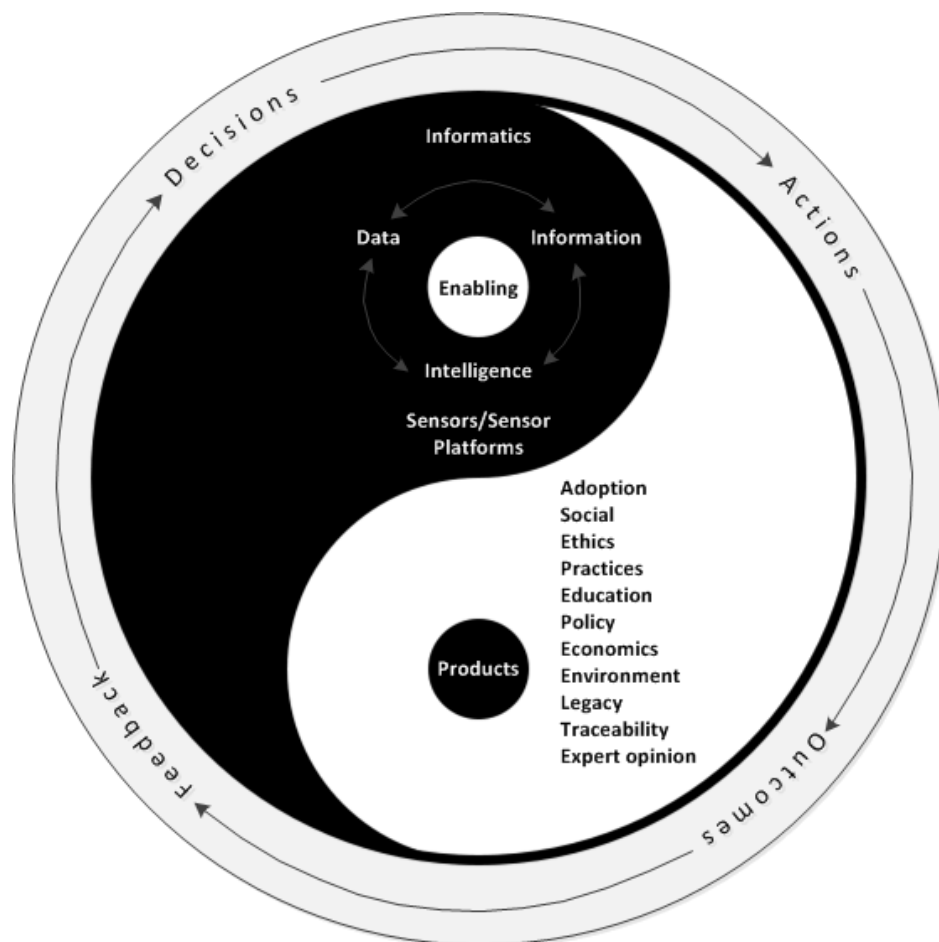


Figure 1: The interplay of products and enabling within an agricultural system.

The afternoon group session was designed to explore:

- Funding opportunities;
- Business models for the NUNPAS;
- Partners; and
- Needs.

Some funding opportunities identified where with:

- Meat and Livestock Australia;
- Dairy Australia;
- Australian Wool Innovation;
- Research & Development Councils;
- Monsanto;
- Australian Pork Limited;
- Australian Meta Processors Corporation; and
- Agriculture machinery/equipment manufacturers.

The outcome from the group discussion on business models resulted in consensus that in the interim NUNPAS:

1. Operate as a loosely coupled university network and consider invitations to participate to:
 - Charles Sturt University;
 - The University of Adelaide;
 - Latrobe University; and
 - University Western Australia.
2. Provide a united front on issues related to PAS research.
3. Develop Memorandums of Understanding for the sharing of:
 - Resources;
 - Courses;
 - Data for educational purposes; and
 - Tenders.
4. Consider the development of a web site for promotional and sharing purposes.
5. Create a PhD program to support identified areas of research across a PAS.
6. Establish a fund to support NUNPAS.

It was concluded that operating in this way would well position NUNPAS for:

- A CRC bid for Round 18 of funding;
- Maximise any other funding opportunities that they may emerge in the near future within PA.

The NUNPAS offers industry a diverse, capable group of researchers that can offer research capability and capacity to a number of areas including the:

- Development of high end agricultural products;
- Minimisation of the environmental impacts of agricultural production;
- Value chain integration;
- Traceability of agricultural products; and
- Enabling technology within the agricultural system.

Next Steps

The network agreed to meet by phone conference at the end of June with purpose of ratifying this document and discussing progress on the opportunities to share.