Cultivating a conversation for land management decision making

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My story
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Images from https://dl.acm.org/citation.cfm?id=1358906 and my PhD dissertation
Digiscape will solve multiple real-life knowledge shortfalls in the land sector *simultaneously*. We are building a common big data infrastructure that will support next generation decision making and transform agricultural industries and environmental action.

Sounds like a complex challenge? You bet it is! Digiscape is frontier research, backed by CSIRO’s expertise in innovative thinking and our drive to meet the needs of industry, community and the environment.

MORE ABOUT DIGISCAPE...

- through harnessing the benefits of the digital revolution, Digiscape will make agriculture more profitable, lower impact and lower risk
- we are working on multiple dimensions of the solution at once to help Australian farmers and land managers innovate faster
- our software platform, ‘Conflux’, will enable us to unlock existing and future data for end users and become the infrastructure needed to drive collaboration.

**Real world use cases**

- **Real time grain yield forecasts for farmers and service providers**
- **More efficient prawn aquaculture through sensing and forecasting of animals and ponds**
- **Farmers enabled to participate profitably in greenhouse gas mitigation**
- **Water footprint of high value irrigated crops reduced through sensor-model-data fusion**
- **Great Barrier Reef protected by enabling upstream sugar producers make better nitrogen decisions**
- **Farmers tailor the management of each paddock through on-farm experimentation**

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**Identify and respond to social conditions and risks**

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**‘Conflux’: trusted data and efficient computations linked to users**

- **Locally- and remotely-sensed, federated data readily available**
- **Outcomes predicted more accurately through:**
  - next generation climate forecasts
  - improved digital soil mapping
- **Forecasts based on predictive models enable better decisions**
- **Uncertainty analysis increases trust and confidence**

Image from https://research.csiro.au/digiscape/
CSIRO Digiscape: GHG Carbon Project

Promote carbon farming methods using a farm-first design mindset

Farm Context → Carbon Project x 25 or 100 years → Carbon Credits (ACCUs) → Paris / Kyoto agreement

Apply scientific and engineering capabilities of GHG mitigation and prediction

Engineer → GHG models → Farm Context
An approach: Human Centred Design

Start with

Variable land use and opportunity

Values & Strategies

Perception of Opportunity
An approach: Human Centred Design

Then, codesign a solution with engineers (based on the farm first needs)
‘LOOC-C’: Landscape options and opportunities for carbon abatement calculator
Next steps

1. Try me!

2. Other methods?

3. Different decisions?
Thank you.

Be part of the product development process

We are currently evaluating the LOOC-C prototype with producers and land managers. If you are interested in participating or know someone who is, please contact our Human Factors researcher Cara Stitzlein at Cara.Stitzlein@data61.csiro.au.

For more information, see https://research.csiro.au/digiscape/