

# Sense-T NICTA Logistics Lab Capability Statement



*The Logistics Lab – using data analytics and sensor technology to provide customised logistics solutions*

The Sense-T NICTA Logistics Lab was officially launched in May 2015 and is jointly funded by the Australian Government, through funds provided to the University of Tasmania for Sense-T from the Tasmanian Jobs and Growth Plan, and National ICT Australia (NICTA). NICTA is Australia's largest organisation dedicated to information communications technology research.

Being part of the University of Tasmania enables access to various funding opportunities for eligible industry partners to leverage their investment, including for example the Research Connections program.

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## Role

The Logistics Lab was created to extend the capabilities of Sense-T into transport and logistics by combining innovative research and technological expertise to achieve improvements in industry performance and State economic growth. More specifically, the role of the Logistics Lab is to create industry solutions by utilising data analytics and sensor technology to achieve efficiencies in logistics, transport, freight, and supply chains in Tasmania. This may include providing an end-to-end analysis of supply chains to identify optimised solutions and cost efficiencies.

## Core competencies

The Logistics Lab brings together a team of transport and logistics experts, software engineers, mathematicians, and software developers that provide a multi-disciplinary approach to developing customised solutions. The Logistics Lab is also supported by the sensor and platform knowledge within Sense-T and the extensive optimisation and machine learning capabilities and resources of NICTA.

A typical approach to developing solutions may be (1) data acquisition from systems and sensors; (2) conceptual design; (3) employing data analytic techniques; (4) testing data outputs through scenarios; and (5) developing visualisation tools for managerial decision-making.

## Capabilities

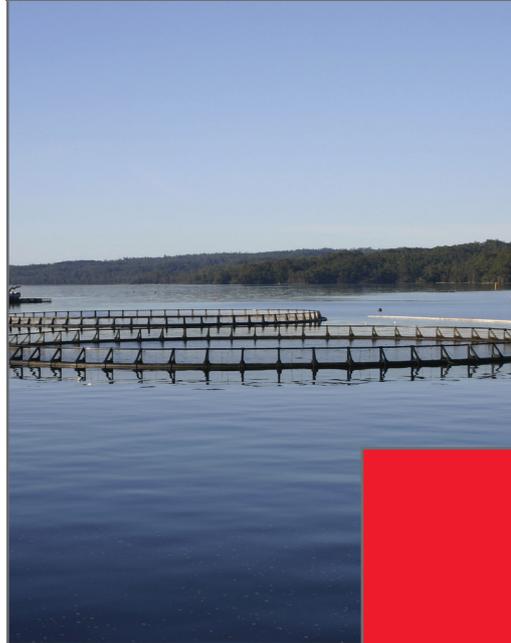
The Logistics Lab provides expertise in relation to:

- integration of historical, real-time, sensor, and GIS data sets;
- enhancing logistics-related decisions based on data analytics;
- advice on implementing sensor technology;
- modelling and simulation, including scenario development and implementation;
- scheduling of routes for freight, people and transport;
- optimisation of transport and logistics costs;
- supply chain assessment;
- freight solutions including cold chain management;
- warehousing and distribution optimisation; and
- creating interactive visualisations for managerial decision-making.



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Based in Tasmania, Sense-T uses sensors, data and research to solve practical problems and help people to make better decisions in industry, government and the community. We collect and analyse data from a range of different public and private sources, and use real-time sensing data to support real-time decision making. The insights and solutions we provide help to improve efficiency, productivity and sustainability across the Tasmanian economy. The lessons learned can be applied around Australia and the world. After initially focusing on agriculture, Sense-T has expanded its work to include research in health, tourism, and infrastructure, freight and logistics. Sense-T was established in mid-2012 as a partnership between the University of Tasmania, CSIRO and the Tasmanian Government, and is also funded by the Australian Government.



## Stage 1 Projects

Sense-T's four Stage 1 Projects were carried out between July 2012 and March 2015. Using sensors and data analysis, researchers from the University of Tasmania and CSIRO joined industry partners to develop solutions and new ways of working in agriculture and aquaculture. Funding was provided by the Australian and Tasmanian governments, the University of Tasmania, CSIRO, and industry partners.

Sense-T consulted widely with farmers, industry and government to identify the problems and challenges they wanted to address. This 'participatory design' approach ensured that the research was relevant and would deliver practical outcomes. The major achievements of Stage 1 include:

- an online pasture growth prediction tool, which tells farmers how much their pasture will grow in the coming weeks;
- helping irrigators in the Ringarooma and South Esk river catchments to better manage their water use, benefitting farmers, regulators and the environment;
- giving regulators and producers real time data about environmental conditions around shellfish farms; and
- developing tools to help vineyards avoid disease and make better management decisions.

## Stage 2 Projects

New Sense-T Stage 2 Projects commenced in April 2015, with work in health, tourism, and infrastructure, freight and logistics added to our ongoing agricultural research. These Industry Research Projects are funded by the Australian Government through the Tasmanian Jobs and Growth Plan and will share funding of \$11 million from Sense-T and its project partners to develop practical solutions to industry challenges across Tasmania.

Stage 2 will also include ongoing work through:

- *Pathways to Market, which is working with Tasmanian producers to improve food distribution and consumer information; and*
- *the Sense-T NICTA Logistics Lab, which is working with industry to identify ways of improving efficiency and productivity in transport logistics and freight.*

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