Advanced Technology Industries Strategy

1. Public Consultation

Provision of any personal information in this survey is voluntary. If you choose to provide your name and email address, the department may contact you to discuss your comments and feedback.

Information provided will be stored securely and accessed only by those personnel authorised to do so. In addition, any personal information will be managed in accordance with the Personal Information Protection Act 2004. The Department may disclose personal information in circumstances allowed for by law. You have the right to access your personal information by request to the Department.

You may request to have your personal information withdrawn at any time. If you withdraw, information you have provided will be deleted from the Department's systems and any hard copies destroyed.

Please note that information provided in response to this survey may be subject to a request for disclosure under the Right to Information Act 2009. However, personal or commercially sensitive information relating to identifiable entities may be eligible for exemption. If the Department receives an application for identifying information from this survey, you will be offered the opportunity to provide your views in relation to any contemplated disclosure.

We invite you to provide feedback on any part of this consultation paper and welcome responses to some or all of the below questions.

If you prefer, you can email your feedback via email to technology@stategrowth.tas.gov.au

Please submit your feedback by 31 January 2025.

1. Name

Maurits van der Vlugt

2. Email address

tassic.chair@nre.tas.gov.au

3. Organisation

Tasmanian Spatial Information Council (TASSIC): https://tassic.org.au/

TASSIC is available to provide independent and trusted advice and consultation on further strategy development.

4. What advanced technologies should be the focus of the strategy?

As TASSIC representing the Tasmanian (geo-) spatial information sector, we observe that most, if not all, the identified use cases are underpinned and enabled by geospatial data and technologies.

Specific advanced (geospatial) technologies that the strategy should focus on include:
Remote Sensing and Earth Observation Technologies: Leveraging advancements in satellite imagery, LiDAR, and UAVs (drones) for precision mapping and environmental monitoring.
Spatial Data Infrastructures (SDI) such as theList (https://www.thelist.tas.gov.au/). Advanced data infrastructure systems for data integration, sharing, interoperability, and real-time geospatial analytics. theLIST and other SDIs routinely drive a wide range of use cases, including Digital Twins (see below)

Positioning, Navigation and Timing (PNT): Satellite-enabled capabilities that underpin high-accuracy positioning applications such as precision agriculture and connected farms.
UTAS is a Partner of the UN Global Geodetic Centre of Excellence, noting their research and other contributions to the Global Geodetic Supply Chain. Tasmania provides essential contributions to the global geodetic network that underpins PNT (e.g. GNSS, VLBI)

(Spatial) Digital Twins. Spatial digital twins are rapidly emerging as a powerful tool for managing complex physical systems in the digital world. With their ability to provide an accurate and up-to-date representation of physical spaces, digital twins are transforming how we design, operate and manage a wide range of systems, from smart cities and transportation networks to manufacturing facilities and building complexes.

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5. What are Tasmania’s strengths and capabilities? How can we build on these?

Tasmania's relevant strengths include:
- Its unique Geographic and Environmental Conditions: Tasmania's proximity to Antarctic and polar regions position it as a global leader in extreme environment research and geospatial applications.
- Its specialised Research Institutions and existing higher education providers at UTas/TAFE: Institutions like the Australian Antarctic Division and CSIRO provide a solid foundation for advanced geospatial research.
- Tasmania's size and scale, and renowned research sector make it a strong environment for experimentation and innovation, as demonstrated by e.g. Virtual Tas (https://www.virtual-tas.com.au/).
- A strong and growing renewable Energy Sector where significant future investment is expected. These investments will require access to advanced and reliable remote sensing and geospatial data needed to optimise and accelerate investments on the way to net zero.

Tasmania can build on these strengths in the strategy by:

- Expanding collaborations between academia, industry, and government.
- Investing in infrastructure for polar and remote sensing research.
- Positioning Tasmania as a testbed for geospatial innovations in extreme environments, precision agriculture and renewable energy.

6. What advanced technology applications will have the highest impact on your organisation/industry?

- Climate Resilience: Advanced geospatial data, infrastructure and tools to monitor and model climate change impacts on Tasmania's environment.
- Disaster Management: Using geospatial and remote sensing data for real-time hazard prediction, emergency response, and recovery planning. (see e.g. tassic.org.au/Documents/case-studies/Earlywarningstoattackremotebushfires.pdf)
- Agriculture: Precision farming technologies enabled by geospatial analytics to optimise productivity and sustainability.
- Urban Planning and Infrastructure Development: Smart city and Digital Twin applications integrating geospatial technologies for efficient resource management and planning. (see e.g. tassic.org.au/Documents/case-studies/GreaterHobartDigitalTwin.pdf)
- Energy Sector: Optimizing renewable energy generation, distribution, and storage through geospatial data and analysis.
- Transport sector: Route planning, optimisation and access control (see e.g. tassic.org.au/Documents/case-studies/HeavyVehicleAccessManagementSystem.pdf)

7. What are the key barriers to advanced technology adoption for your organisation/industry? How can we address these barriers?

Key barriers include:

- High costs: Advanced technologies often require significant upfront investment, which can be difficult to recoup in relatively small markets such as Tasmania.
- Limited awareness: Low understanding of the capabilities, use-cases and potential benefits of geospatial technologies among stakeholders.
- Data silos and interoperability Issues: Challenges in integrating and sharing data from various sources in a consistent and reliable way.
- Workforce skills and brain-drain: Challenges attracting and retaining the skilled workforce, while losing newly trained people to the mainland.General capacity shortfalls.

Addressing these barriers:
- Establish funding programs and incentives for technology adoption and cost-sharing, such as the Tasmanian Imagery Program (TIP: https://nre.tas.gov.au/land-tasmania/aerial-photography/tasmanian-imagery-program)
- Run awareness campaigns and industry workshops to demonstrate geospatial technology capabilities, opportunities and benefits.
- Run major technology showcase events/conferences that attract national and international attendance, noting this may require some subsidies to compete with mainland events. This could take the form of expanding existing geospatial events to attract a broader audience, or bidding for (inter-) national conferences such as Locate (https://geospatialcouncil.org.au/locate/), Tasmanian GCA State of GIS Conference (SoGIS) and the Tasmanian GCA Geospatial Conference and Excellence Awards.
- Further develop a robust (Spatial) Data Infrastructure, including standardised data-sharing protocols and platforms, and expand data content, in collaboration with theLIST.

8. What are the major challenges to advanced technology research, development and commercialisation in Tasmania? How can we address these challenges?

Challenges include:

- Limited Access to Funding and Venture Capital: a relatively small local market for advanced technologies.
- Brain Drain: Difficulty retaining skilled professionals in Tasmania.
- Geographic Isolation: Impacting collaboration and access to global markets.

Addressing these challenges:

- Create dedicated grants and incentives for R&D in advanced, including geospatial, technologies.
- Build stronger ties with national and international geospatial networks.
- Develop incubators and accelerators to support local tech startups, leveraging existing structures, collaborations and programs, rather than developing new ones. Tasmania already has a wealth of these, including:
* InVent (Innovation Ventures) https://www.utas.edu.au/community-and-partners/invent
* The Tasmanian Farm Innovation Hub [https://www.tasfarmhub.com.au/] and Tech Solutions Hub [https://www.utas.edu.au/community-and-partners/tech-solutions-hub]
* Institute for Marine and Antarctic Studies (IMAS) [https://www.utas.edu.au/imas] and Australia's Integrated Marine Observing System (IMOS) [https://imos.org.au/]
* A variety of Australian Research Council Discovery and Linkage Programs (e.g. Australian centre for excellence in antarctic science, ACEAS)
* Australian Maritime College (AMC) [https://www.amc.edu.au/]
* Commonwealth Scientific and Industrial Research Organisation (CSIRO) [https://www.csiro.au/en/]
Australian Antarctic Division (AAD) and the Australian Antarctic Science Program (AASP)

9. What infrastructure is critical to advanced technology development and adoption?

Access to trusted, open and shareable geospatial data is a critical enabler to many advanced technology applications, including precision agriculture, environmental management, remote sensing, transport, planning and emergency management to name a few.

A (geospatial) data infrastructure is therefore critical to advanced technology development and adoption. theLIST (https://www.thelist.tas.gov.au/) is a key component of such a data infrastructure and will need to be nurtured, expanded and linked to other key Tasmanian data assets to form a whole-of-Tasmanian digital infrastructure.

A geospatial data fabric also underpins the Industrial Internet of Things (IIoT) to deliver near-real-time sensing solutions for a connected world. This requires advanced telecommunications infrastructure and industrial time-series data systems coupled with 2D and 3D geospatial data and intelligence. This is fundamental to next-gen digital twinning and the Fifth Industrial Revolution (5IR).

10. What skills and training are most needed to support the development and deployment of advanced technologies?

- Geospatial Data Analysis: Proficiency in GIS, remote sensing, and big data analytics.
- Software Development: Skills in programming, cloud computing, and AI/ML integration.
- STEM Education: Strong foundational skills in science, technology, engineering, and mathematics.
- Cross-Disciplinary Expertise: Combining geospatial knowledge with other sectors such as renewable energy, agriculture, and urban planning.

Additionally, improving 'digital literacy' in the Tasmanian population will drive the adoption of advanced technologies, as well as seed the pipeline for STEM education and specialised technical skills. Possible initiatives to achieve this include:

- Awareness programs, starting at primary level education to bring the "cool" to STEM and geospatial.
- Leverage existing training and education programs (e.g. https://geospatialcouncil.org.au/build-your-career/)
- Social media programs, TEDx, Tech Demonstration popups, interactive exhibitions like Lego do to encourage input, competitions, media coverage
- Mentoring programs, using untapped skill pools such as retirees

11. What are the barriers to training, attracting and retaining skilled technology workers? How can these be addressed?

Barriers:

- Tasmania offers good university-level training opportunities. However, VET VET-level technical training is unavailable at TasTAFE and is not on their radar.
- Housing shortage: making it difficult to attract skilled professionals.
- Convergence of the geospatial sector with the ICT sector requires cross-skilling and collaborative approaches that require a range of new skills. This also requires increased activities for shared events and networking to help break down silos and increase inter-sector collaboration and innovation.
- Limited career progression opportunities: Resulting in talent moving interstate or overseas (brain drain).
- The challenge to competitively remunerate skilled workforce.

Addressing these barriers:
- Partner with universities and TAFEs (particularly interstate) to introduce/share specialised geospatial technology programs.
- Partner with industry-specific career events, such as building and construction, or tourism
- Partner with school career councillors (usually not school staff)
- Leverage Tasmania's attractiveness as a leisure destination
- Provide relocation and housing support for skilled workers.
- Establish mentorship and career development programs to retain local talent.
- Explore State/Federal co-funding models for the remuneration of skilled workers

By addressing these issues, the Advanced Technology Industries Strategy can position Tasmania as a leader in leveraging geospatial technologies for economic, social, and environmental benefits.

12. Any other comments or suggestions

As the key forum for increased collaboration between public, private and community sectors in the collection, maintenance and use of spatial information in Tasmania, TASSIC would be happy to provide independent and trusted advice and consultation on further strategy development.

Feel free to contact us for further information.

Maurits van der Vlugt
Chair, Tasmanian Spatial Information Council (TASSIC)
tassic.chair@nre.tas.gov.au
0400 188 267

2. Thank you

Thank you for taking our survey. Your response is very important to us.