Advanced Technology Industries Strategy

Consultation Paper

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Space, Science and Technology
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Message from the Minister

As Minister for Innovation, Science and the Digital Economy, I am pleased to introduce this consultation paper on Tasmania's Advanced Technology Industries Strategy.

We are living in a time of rapid change and disruption. Emerging technologies like machine learning, autonomous vehicles, synthetic biology, remote sensing and 3D printing will transform our lives, our jobs and our industries.

These transformative technologies bring both opportunities and challenges for Tasmania, and we must be ready to respond.

Advanced technologies are not only important for innovation, productivity and economic growth; they are also crucial for national security, economic resilience, and sustainability.

The Tasmanian Government prioritises innovation and commercialisation, and we seek input from our important stakeholders on how Tasmania can lead in this space.

Tasmania has a unique opportunity to position ourselves in this rapidly changing landscape. Our state already has unique strengths in technology-intensive sectors like advanced manufacturing, maritime, defence, space, Antarctic, ICT and health. These are the building blocks we can use to develop advanced technology capabilities, especially in areas where our geography and expertise provide a unique competitive advantage.

We must also ensure that our core export industries can benefit from these advancements. Sectors like agriculture, food, forestry, mining, and tourism can thrive by adopting new technologies, becoming more efficient, innovative and building resilience for the future.

A critical part of this journey is investing in the right infrastructure and skills. We need robust digital networks, secure subsea fibre connections, and modern research and STEM education facilities to create an environment where technology-driven industries can flourish.

Our aim is to build a stronger, more diverse economy that benefits all Tasmanians. Importantly, this includes recognising and adopting the benefits of science and technology to create a robust digital economy.

To make this vision a reality, we need your input. This consultation paper outlines our proposed objectives, priorities and approach. We are seeking feedback from all corners of the state. Your insights, ideas, and expertise will help shape this strategy and influence the future of our economy.

Madeleine Ogilvie

Hon. Madeleine Ogilvie MP

Minister for Innovation, Science and the Digital Economy

Overview

The Tasmanian Government is developing an Advanced Technology Industries Strategy to accelerate the development and adoption of advanced technologies across key sectors of the Tasmanian economy to drive innovation, productivity, sustainability, jobs and growth.

Advanced technology refers to emerging transformative technologies, such as artificial intelligence, robotics, autonomous vehicles, remote sensing, quantum computing, synthetic biology, 3D printing and many others. The convergence and application of these technologies is giving rise to highly automated, inter-connected, high-precision, intelligent and resource-efficient industrial systems.

Applying advanced technology across Tasmania's key sectors has the potential to address complex challenges, develop unique industrial capabilities, boost productivity, attract investment, create new industries and highly skilled jobs. However, adopting advanced technologies involves the sophisticated integration of digital and physical systems, supported by robust data, computation and digital infrastructure. This can be a complex undertaking, requiring intricate planning, research and major investment in new equipment, software, systems and skills development.

The proposed Advanced Technology Industries Strategy will take a cross-sectoral approach to identify and address these challenges, focusing on technology applications with the highest strategic impact or need. The strategy aims to foster collaboration across industries, encouraging the sharing of resources and expertise, while facilitating investment in critical infrastructure and the development of a fit-for-purpose STEM workforce.

A key element of the proposed strategy is to promote advanced technologies that leverage Tasmania's unique geographic advantages and capabilities. By coordinating activities across Tasmania's knowledge-intensive sectors—including ICT, science-research, Antarctic, advanced manufacturing, maritime, defence, space and energy —the strategy aims to position Tasmania as a hub for advanced technologies relating to polar, remote and extreme environments.

Based on initial industry consultation and feedback, this paper proposes six broad themes to frame the priorities and focus areas of the Advanced Technology Industries Strategy. These include promoting Tasmania's unique advantages, addressing barriers to technology adoption, profile building and investment attraction, new-business creation and research commercialisation, critical infrastructure investment and STEM skills development.

We are seeking your input and feedback to better understand the issues, challenges and opportunities of developing and adopting advanced technology. We aim to develop a strategy that is fit for purpose and meets the needs and expectations of your sector and the broader Tasmanian community.

Advanced Technology

What is advanced technology?

Advanced technology refers to new tools, systems, processes or methodologies that represent the latest advancements in science, engineering and technology. Advanced technologies are at the forefront of innovation and are characterised by novelty, high complexity and transformative impact. Examples include:

- Smart materials
- Advanced robotics
- Autonomous systems and vehicles
- 3D printing
- Artificial Intelligence
- Internet of Things
- Quantum computing
- Immersive reality
- Remote sensing
- Synthetic biology
- Brain computer interfaces
- Advanced renewable energy systems

Advanced technology applications (see examples on page 4) refer to the practical implementation and use of advanced technologies to solve specific problems, improve processes, and create new capabilities across various domains and sectors.

Why focus on advanced technology?

The rapid convergence and application of advanced technology is giving rise to highly automated, inter-connected, high-precision, intelligent and resource-efficient industrial systems. These systems blend physical and digital worlds and are redefining how humans and machines interact.

This has the potential to have far-reaching economic and social impacts driven by productivity and efficiency gains, increased competitiveness, high skilled job growth, new industrial capabilities, improved sustainability, accelerated knowledge creation and scientific discovery. The application of Artificial Intelligence is estimated to add up to $115 billion in productivity gains to the Australian economy by 2030 (a 5% uplift in GDP)[1]. While the economic benefits are substantial, there are also many challenges to consider, such as job disruptions, workforce reskilling, privacy and ethical concerns.

What are the barriers to development and adoption?

Advanced technology requires sophisticated knowledge, tools, and expertise to develop, adopt and operate. It often involves the integration of multiple scientific, technological and engineering disciplines, as well as the complex integration of physical and digital systems, supported by robust data, computation and digital infrastructure.

Adopting advanced technology requires intricate planning, research and major investment in new equipment, software, systems and skills development.

Identifying and addressing these barriers will be a core focus of the strategy.

[1] Productivity Commission, Submission - Senate Select Committee on Adopting Artificial Intelligence, 2024

Examples of advanced technology applications

Sectors	Applications / Use-cases	Artificial Intelligence	Internet of Things	Advanced Robotics	Autonomous vehicles	Remote Sensing	Immersive reality	3D Printing	Synthetic Biology	Smart Materials
Agriculture	Precision agriculture	✓	✓	✓	✓	✓			✓	✓
	Autonomous harvesting	✓	✓	✓	✓	✓		✓		
	Smart irrigation	✓	✓	✓	✓	✓		✓	✓	
	Microbiome engineering	✓					✓	✓	✓	
Mining and Resources	Autonomous extraction and processing	✓	✓	✓	✓	✓				✓
	Remote Operations	✓	✓	✓	✓		✓			
	Predictive Maintenance	✓	✓			✓		✓		
	Ore Sorting and Mineral Analysis	✓	✓			✓			✓	✓
Energy	Decentralised smart grids	✓	✓							
	Advanced energy efficiency and optimisation	✓	✓			✓				✓
	Smart charging networks	✓	✓		✓					
	Extreme environment power systems	✓	✓	✓	✓	✓		✓		✓
Travel and Tourism	Automated customer service	✓		✓			✓			
	Digital immersion tours and guides	✓					✓			
	Contactless and biometric authentication	✓	✓							✓
	Smart tourism infrastructure and analytics	✓	✓	✓	✓	✓				
Health	Remote medicine and monitoring	✓	✓	✓		✓	✓	✓		✓
	Robotic assisted surgery	✓	✓	✓			✓	✓		✓
	Smart diagnostics	✓	✓				✓	✓	✓	✓
	Digital twin treatment simulation	✓					✓		✓	
Manufacturing	Automated production and process optimisation	✓	✓	✓	✓	✓		✓	✓	✓
	Rapid design and prototyping	✓					✓	✓		
	Predictive maintenance and defect detection	✓	✓	✓		✓				✓
	Digital twin production simulation	✓	✓				✓			
Maritime	Autonomous vessels	✓	✓	✓	✓	✓		✓		✓
	Vessel monitoring and predictive maintenance	✓	✓	✓			✓			
	Remote security and environmental monitoring	✓	✓		✓	✓				✓
	Advanced fleet optimisation	✓	✓		✓	✓				
Defence and Space	Trusted autonomous systems	✓	✓	✓	✓	✓		✓		✓
	Advanced simulation and immersive training	✓					✓			
	Automated threat detection and response	✓	✓	✓	✓	✓		✓		✓
	Space object tracking and analysis	✓		✓	✓	✓	✓			
Antarctic and Southern Ocean	Marine remote sensing and monitoring	✓		✓		✓	✓			✓
	Autonomous underwater vessels and sensors	✓	✓	✓	✓	✓		✓		✓
	Remote renewable energy systems	✓	✓	✓	✓	✓			✓	✓
	Remote operations and medicine	✓	✓			✓	✓			✓

Proposed themes, objectives and priorities

The goal of the Advanced Technology Industries Strategy is to accelerate the development and adoption of advanced technologies across key sectors of the Tasmanian economy to drive innovation, productivity, sustainability, jobs and growth.

We have identified the below themes to help frame the proposed objectives, priorities and focus areas of the strategy. We welcome your input, ideas and suggestions.

Amplify Tasmania's strategic southern advantage

Objective:

Position Tasmania as a hub for the research and development of advanced technology applications that address scientific, environmental, energy, medical, logistical, communications and operational challenges in polar, remote and extreme environments.

This will be achieved through the purposeful convergence and coordination of Tasmania's technology driven sectors (maritime, marine, Antarctic, defence, space, advanced manufacturing, energy, health and ICT), and the integration of multidisciplinary research and shared infrastructure that leverages Tasmania's unique technological capabilities and southern geographic advantages.

Priorities:

- Align and coordinate strategic activities and policies across sectors and government portfolios.
- Enhance collaboration between universities, research organisations, businesses and government.
- Develop technology roadmaps for high-value technology applications/fields.
- Accelerate research translation and commercialisation in strategic areas.
- Facilitate investment in research, demonstration and testing facilities/infrastructure.
- Attract national and international industry partnerships and major projects.

Enable cross-sectoral technology adoption

Objective:

Accelerate the adoption of advanced technologies across Tasmania's major export and service industries, including agriculture, food, manufacturing, resources, tourism and logistics to support increased efficiencies, productivity, sustainability, innovation and global competitiveness.

Priorities:

- Coordinate and align technology and innovation activities across government industry policies.
- Identify and prioritise high-priority technology applications/fields for each target sector.
- Foster cross sectoral collaboration and promote local technology industry solutions and expertise.
- Develop sector-focused technology innovation clusters.
- Build awareness of advanced technology adoption opportunities and cyber-risks.

Accelerate new business creation and commercialisation

Objective:

Encourage the development of an advanced technology commercialisation ecosystem that provides resources to validate, test and demonstrate innovations, collaborate with industry, academia and government, attract investment capital and scale-up to global markets.

Priorities:

- Develop advanced technology focused incubation and accelerator programs.
- Support research commercialisation and spin-offs from academic and research organisations.
- Encourage locally developed advanced technology solutions to government challenges.
- Attract and develop a technology-focused angel and venture capital investment community.

Capture national and global attention

Objective:

Elevate Tasmania's profile and brand on a national and international stage by engaging with key policy makers, cultivating intergovernmental and research partnerships, and participating in targeted promotional events and activities, to grow knowledge-based exports, attract investment and new talent to Tasmania.

Priorities:

- Engage, advocate and align with national and international science and technology stakeholders and networks.
- Develop a clear and compelling brand proposition for Tasmania's advanced technology capabilities.
- Promote and support industry participation in targeted trade and investment missions.
- Attract major industry, science and technology events to Tasmania.

Facilitate critical infrastructure investment

Objective:

Secure investment into science and technology infrastructure critical to the functioning of Tasmania's economy and the growth of advanced and digitally transformed industries.

Priorities:

- Address Tasmania's digital subsea cable backhaul connectivity issues.
- Coordinate a whole of government approach to technology infrastructure planning and funding.
- Establish a dedicated digital infrastructure co-investment fund.
- Develop measures to ensure accessibility, reliability, and resilience of critical infrastructure, including redundancy planning and disaster recovery strategies.

Build STEM skills and inspire the next generation

Objective:

Address the evolving Science, Technology, Engineering and Maths skills needed for the growth of advanced technology industries and the broader digital economy, while inspiring and engaging the next generation to pursue science and technology education and careers.

Priorities:

- Monitor and anticipate evolving advanced technology trends and local STEM skills needs.
- Uplift digital and data skills across all sectors.
- Support Tasmanian Industry Skills Compacts in partnership with key sectors.
- Invest in STEM research and educational facilities.
- Develop and support public awareness and outreach campaigns, events and initiatives.

Have your say

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

We may contact you to gain further insight into your responses. Please let us know if you do not wish to be contacted in relation to your feedback.

Key questions:

1. What advanced technologies should be the focus of the strategy?
2. What are Tasmania's strengths and capabilities? How can we build on these?
3. What advanced technology applications will have the highest impact on your organisation/industry?
4. What are the key barriers to advanced technology adoption for your organisation/industry? How can we address these barriers?
5. What are the major challenges to advanced technology research, development and commercialisation in Tasmania? How can we address these challenges?
6. What infrastructure is critical to advanced technology development and adoption?
7. What skills and training are most needed to support the development and deployment of advanced technologies?
8. What are the barriers to training, attracting and retaining skilled technology workers? How can these be addressed?

To provide your input you can:

1. Complete the online survey available at https://www.stategrowth.tas.gov.au/atis
2. Send an email to technology@stategrowth.tas.gov.au

Please submit your feedback by 31 January 2025.

Information Collection and Use Statement

Information provided in response to this consultation paper will be used by the Department of State Growth to develop the Advanced Technology Industries Strategy. If you provide your personal contact information, the department may contact you to discuss your comments and feedback.

Any 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 consultation paper 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.

Tasmanian Government

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