Partnerships with Purpose

INDUSTRY-LED RESEARCH COLLABORATIONS
AT THE UNIVERSITY OF TASMANIA
We invite you to partner with the University of Tasmania and give your organisation a competitive edge. There is a powerhouse of knowledge and ideas at your fingertips.

Incat’s relationship with the University of Tasmania over the past 22 years has been of enormous benefit to our R&D program, with collaborative research projects on a range of seakeeping, powering and structural studies.

Robert Clifford, Incat
PARTNERSHIPS WITH PURPOSE

AMC making waves
University of Tasmania’s global influence

The University of Tasmania’s Australian Maritime College is a global brand leader in marine and maritime research, and training. Its impacts have been transformative.

With world-leading testing facilities and global industry links, the Australian Maritime College is at the heart of an exciting and strategic growth area for the University of Tasmania. Through its international links, AMC researchers have tackled leading-edge goals that include boosting the propulsive efficiency of multi-hull ships and developing new ocean-wave and tidal-energy technologies.

Alongside its research in the civilian maritime sector, AMC has a working relationship with Australia’s defence agencies that spans more than 25 years. In 2014, AMC started a new high-level research initiative in partnership with the Defence Science and Technology Organisation aimed at designing quieter, stealthier submarines.

The $5 million Future Submarine Hydrodynamics Research project will investigate the forces, flow fields and flow-induced noise around submarine hulls, control surfaces, and propellers. The experimental work is subject to partial security restrictions and will be carried out in the AMC’s Cavitation Research Laboratory.

The team, led by Associate Professor Paul Brandner, expects the findings will also have widespread civilian applications, including in the design of quieter and more efficient ships.

The scientific advances made in AMC’s towing tank and other testing facilities have brought enormous benefits to industries from offshore oil and gas to shipping, fishing, renewable energy, and marine safety.

With its strong real-world engagement, AMC embodies the University’s vision for the future in which in which scientific research contributes to prosperity and addresses the critical issues facing our society and environment.

AMC embodies the University’s vision for the future

Industry lifeline

Detective work by aquaculture researchers at the University of Tasmania led to a breakthrough that is saving Australia’s tuna ranching industry more than $20 million a year.

A mystery disease outbreak off the Port Lincoln coast in the mid-2000s was threatening to devastate South Australia’s tuna ranching industry. The outbreak caused a more than six-fold increase in the mortality rate of wild-caught tuna held in offshore pens. In partnership with the Australian Southern Bluefin Tuna Association and interstate colleagues, a University of Tasmania team led by Professor Barbara Nowak identified the cause as respiratory system failure caused by a species of blood fluke. A simple and effective treatment was devised, and a lifeline was thrown to a multimillion-dollar industry employing more than 1500 people.

It is one of countless research breakthroughs that have helped position the University as a global brand leader in marine and aquaculture innovation.
Digging in to find the path to hidden treasures

Researchers at the University of Tasmania are on the hunt for invisible gold

One of the problems with many gold deposits is that the gold is trapped so tightly within other mineral structures – or that the particles are so small – that it cannot be recovered economically. Metallurgists refer to it as refractory gold and these deposits are among the most exciting and promising frontiers in gold-mining research.

In 2013, the Centre of Excellence in Ore Deposits (CODES) at the University of Tasmania partnered with Australia’s largest gold producer, Newcrest Mining, to develop a world-leading mineral-research facility to explore this hidden mineral wealth.

The $3 million lab uses laser ablation technology developed at CODES to analyse mineral samples at the nanoparticle level. With Newcrest’s backing, CODES can now look at a full range of gold deportment in sulphide minerals such as pyrite, looking for ways to unlock this previously hidden or unobtainable gold.

Cracking the refractory gold problem will mean a lot of otherwise uneconomical deposits will suddenly become far more viable – and CODES has one of the best-equipped labs in the world for the task.

The Centre continues to attract major mining industry partners from around the globe including Anglo American, AngloGold Ashanti, Newcrest Mining, Rio Tinto, Teck Resources and Buenaventura. These industry links have been critical in funding the Centre’s research, which in turn has resulted in valuable technology transfer to the mining and exploration industry.

Like all truly successful partnerships, the benefits are mutual and lasting.

In a period when costs in the mining industry are under very close scrutiny, Newcrest is focusing our research investment on institutions that offer leverage and value-adding outcomes. CODES delivers both.

Colin Moorhead, Newcrest’s executive general manager – minerals
Laser Ablation Inductively-Coupled Plasma Mass-Spectrometry (LA-ICP-MS) involves pulsing a powerful, narrow laser onto the surface of a mineral sample to create a bright hot plasma cloud. The aerosol generated by the laser pulse is transported by a stream of helium gas to a mass spectrometer, which is used to atomize, ionize and analyse the ablated material. With relatively little sample preparation, this process can be applied to a vast range of analytical tasks which can, in turn, lead to new breakthroughs in industrial metallurgical processes.

CODES research team making valuable contributions

Many organisations have benefited from tapping into CODES’ team of world-class researchers. As the demand for mineral resources increases and existing deposits become more difficult to extract, the importance of the centre’s research becomes more evident.

In the late 1990s, work by CODES researchers on Tasmania’s west coast led to the discovery of a $350 million ore lens at Rosebery. The discovery helped secure the town’s existing mine, which today employs a workforce of close to 500 and delivered close to $12 million in royalties in 2013. More recently CODES researchers successfully developed new geochemical testing tools to take some of the guess work out of locating high-tonnage, low-grade porphyry deposits. Developed after almost a decade of research, the AMIRA P1060 project today helps mining companies hone in on drilling areas with greater speed and accuracy.

The research was backed by 21 of the world’s largest miners and has the potential to open up vast new copper and gold fields worldwide.
At the forefront of innovation

Some of the University of Tasmania’s finest scientific minds are working with commercial partners to make the world safer.

Sophisticated new bomb-detection technology is set to become commonplace at security checkpoints around the world.

Tasmania is not often thought of as a global leader in the fight against terrorism, but researchers at the University of Tasmania are changing that perception.

The Scantex and CEScan systems were conceived and developed by Dr Michael Breadmore and his team at the Faculty of Science, Engineering and Technology to detect improvised explosives such as those used to unleash terror in London, Madrid, Bali and Boston.

While current detection technologies are mainly tuned to military and commercial explosives such as TNT and C4, these are the first systems able to reliably detect inorganic compounds such as nitrates and peroxides. The devices can detect trace levels of dangerous inorganic materials in less than a minute, with about 1000 times the sensitivity of any other device on the market.

The $3 million project received about a third of its funding from the Federal Government and one third from US Department of Homeland Security. Working with Grey Innovation, the University hopes to see Scantex appearing as standard technology at airports, public events and other security checkpoints within a few years.

Grey Innovation is proud of our partnership with the University. Grey Innovation develops next-generation technology for the global market. Innovative technology starts with groundbreaking research, and the University delivers.

Jefferson Harcourt, Grey Innovations director

Intellectual property that delivers

When looking for a partner to drive the commercialisation of Scantex, the University knew it needed a company with a strong track record.

Grey Innovation is an Australian-based technology commercialisation company with an impressive record of identifying and commercialising breakthrough technologies.

Through the University’s Office of Business Development & Technology Transfer the commercial relationship was matured and, in relatively short order, a licensing deal was inked that saw Grey Innovation secure worldwide rights to the technology in exchange for a royalty stream.

Having worked with Grey Innovation on other hi-tech partnerships, including Sense-T, we saw them as a natural fit. After licensing the technology to Grey Innovation, they now have the significant task of turning Scantex into a robust and reliable commercial product, and taking it to market. It shows how the University’s flexible and straightforward approach to intellectual property – and our appreciation of the risk-reward balance – can deliver mutual returns alongside important social benefits.
The University of Tasmania
Where research meets innovation

Five reasons to partner with the University of Tasmania

1. Access to world-class research
   The University of Tasmania is one of Australia’s leading research universities, with a long and proud history of driving quality research and technological innovation.
   - The 2014 Academic Ranking of World Universities places the University of Tasmania in the top two per cent of universities worldwide.
   - The University has more than 400 industry partners. From multinationals to small-to-medium enterprises, the University of Tasmania creates a pipeline from research to innovation to impact.
   - Through a focus on solution-driven research, the University has received $475 million in industry partnership funding from 2010-2020.
   - The University of Tasmania is Australia’s leading industry-led research university. Since 2012, we have received more than $18 million in government funding to leverage industry funding to drive industrial transformation and research student training in close partnerships with industry.
   - In 2014, the University received more than $3.6 million to drive industrial linkage research with small-to-medium enterprise.
   - The University will receive $13 million from the Federal Government in 2014 to support the cutting-edge data project Sense-T.

2. Solving real-world problems
   The University’s mission is to drive solution-focused research – locally and with global impact. Our researchers work with industry, government, charities, individuals and other institutions to drive our agenda. The resulting collaborations have resulted in thousands of productive partnerships that are delivering real world benefits. With a vibrant patenting and commercial-licensing program, the University has concluded 18 Technology Transfer Agreements in the past year alone.

3. In step with business needs
   In a fast-changing business environment, the University recognises its partners require commercial and intellectual property terms that provide a return on investment and real competitive advantages. The University considers every collaboration, fee-for-service or strategic partnership on its own merits, taking into account the specific situation of partners in relation to intellectual property ownership and management. Researching with the University of Tasmania provides partner organisations direct access to world-class research and development capabilities, and provides avenues to leverage from partnerships and government initiatives to accelerate the outcomes of research and development.

4. Deep engagement, global impact
   Our goal is to ensure that the university’s research breakthroughs deliver transformative public benefits. We ensure that promising new technologies are translated into products and services that benefit the world for the long term.

5. Recruiting opportunities
   Working with the University gives partner organisations the opportunity to develop long-term relationships with students and experts outside the organisation’s own core competencies. This leads to recruitment opportunities that position the University’s partners well for future company growth. We promote industry-sponsored scholarships as essential for building a strong cohort of next-generation researchers with first-hand experience.
Achieve the extraordinary.

Changing the world is not simple. It takes thought, time, persistence and insight. But most of all, it takes something extraordinary. As a recognised leader in industry-led collaborative research, we solve real-world problems with global impact. We make the extraordinary happen.

The University of Tasmania would like to thank our stakeholders and collaborative partners for their ongoing support.

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