Technology Infusion Grand Challenge

Asia 2025

Centre for Technology Infusion

latrobe.edu.au/grandchallenge

LA TROBE UNIVERSITY
AUSTRALIA

About the **Technology Infusion Grand Challenge**

The Technology Infusion Grand Challenge (TIGC) sets out to stimulate students to leverage new technologies and solve todays pressing problems. We are looking for students who have the insight, drive and tech ability to bring their innovations to life.

This competition is a collaboration of La Trobe's Centre for Technology Infusion, La Trobe Innovation and Entrepreneurship Program, School of Computing, Engineering and Mathematical Sciences, & the Business School who will work hand in hand to provide guidance, and – for the winning team – a two week all-expense* paid mentorship stay in Melbourne.

Since 2018, The Technology Infusion Grand Challenge has worked with over 1000 undergraduate students from 300+ teams across 55 institutions across Asia.

Supported by Victorian Government Trade and Investment, State Government of Victoria, Australia

STUDY MELBOURNE

Theme: Smart City Innovation

No region in the world is urbanizing faster than Asia and Asian cities have their own unique challenges, which are different from European cities.

With urban growth also come challenges of economic growth, sustainability, efficiency and liveability.

We are inviting students to use technology to help solve their own city's challenges.

The competition is open to students undertaking their undergraduate studies in an Asian country.

How does the competition work?

Students in their final two years of undergraduate studies in the field of Science, Technology, Engineering, Mathematics (STEM) and/or Business need to form teams of 3 to 5 and submit their high level concept or area of interest to their lecturer and upload it to the Technology Infusion Grand Challenge website and complete the registration form.

During the semester, students work to validate and refine their concept. Online material will be available from La Trobe Innovation and Entrepreneurship program and La Trobe Business School to help guide students.

Top selected teams will be given an investment of up to $1000 AUD to make a final prototype. This does not exclude the other teams from winning the competition in the end!

The second part of the challenge is focused on creating a working prototype, a business case with validation of the problem and refining the solution. The winner will be decided by popular vote and TIGC's panel of judges. At the end of the year, teams will present their working prototype before an international jury at a virtual showcase event.

* Expenses will include travel, accommodation and allowances for drinks and meals, according to La Trobe's Policies. Registration will open 10 November 2024. A full set of the terms and conditions of the competition will be available with the registration form. La Trobe University reserves the right to change the terms and conditions at any time in its sole discretion.

WHAT WE ARE LOOKING FOR?

Participants must:

Demonstrate strategic insight.

Solve a concrete city problem using one or more of core technologies, for example: Wireless Connectivity, Artificial Intelligence, Sensors, Data Analytics and Software.

Demonstrate the ability to build a working prototype.

WHO CAN PARTICIPATE?

Teams must consist of a maximum of 5 students and preferably with gender diversity. Students must:

Be in their final two years of studies (Science, Technology, Engineering, Mathematics and Business).

Have demonstrated technical, entrepreneurial, or leadership qualities in academic and/or extra-curricular activities.

Have approval from their Head of Department to participate in this Challenge.

PRIZE

The winning team will receive an all-expense* paid 2 week mentorship stay in Melbourne.

During their stay, the winners will have a chance to work with academic and business experts at the Centre for Technology Infusion, La Trobe Innovation and Entrepreneurship, School of Computing, Engineering and Mathematical Sciences and La Trobe Business School.

The winning team will gain valuable experience and visibility on a global stage.

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FAQs and **proceedings**

Question	Answer
How can I participate?	Follow the website to register your interest. Form a team of three to five and complete the form, obtain a letter of support from your Head of Department and upload it along with the form.
Can you give me some examples of problems you think can be addressed?	Some Smart City cases studies for inspiration: • The 2022 TIGC winning solution - FiremeX is a smart all-in-one system to detect early fires at a low cost, embedded with smart home automation and CCTV camera footage replacing ordinary digital video recorders and network video recorders. • Sustainable antibacterial and antibiofilm activity of engineered biocatalytic nanocomposites targeting biofilm cells and matrix for water treatment membranes. This innovative solution was developed by the 2020-21 TIGC winners. • A smart navigation glove for motorcyclists embedded with Bluetooth technology connected to mobile phone navigation apps helps reduce road accidents caused by the use of mobile phones by motorcyclists. This innovative solution was developed by the 2019–2020 TIGC winners. • The blood bank in Amsterdam uses smart heat exchange systems to 'store' the cold from their water system in the winter, in order to keep blood cool in summer. • A device that prevents riders from starting a two-wheeled mode of transportation if they are not wearing a helmet and/or are under the influence of alcohol or drugs, developed by the 2023 Grand Challenge winners.
How can I win? **What are the judgement criteria?**	The final judgement criteria will be: Validity of the problem being solved (25%) • How well is the problem defined and supported? • Have the risks and opportunities of the concept been identified and assessed? Originality and impact of the solution (25%) • How unique is the solution? • Impact: Is it an incremental improvement or transformative solution? Engineering/IT excellence of the prototype (25%) • Degree of technical difficulty in building the solution • Its functional excellence for the end-user(s) Commercialisation potential of the solution (25%) • Commercialisation potential demonstrated by clarity of an exit strategy if this was a start-up initiative. Keep in mind, that at the end of the challenge, even though each criteria is weighed equally, a high score on engineering excellence is a prerequisite: a working prototype is a right of passage that cannot be compensated by the other factors.
What are the key dates and deadlines?	• **Sign up:** Registration will open on 10 November 2024 and close on 30 January 2025 • **Phase 1 Pitch YouTube video submission:** April 2025 • **Announcement of top teams receiving funds:** May/June 2025 • **Phase 2 submission of final project:** November/December 2025 • **Final event: to be announced** February/March 2026

For the full terms and conditions, please see:

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Centre for Technology Infusion Transforming **ideas into reality**

Centre for Technology Infusion (CTI) is a one-stop-shop for our local and international partners to research, develop and test next generation technological solutions to solve problems across a wide-range of industries.

Our teams provide multidisciplinary experience and expertise to analyse problems, develop and test working prototypes and deliver a product with a market ready solution.

Industry Engagement and Innovation

CTI gives its private, corporate and government partners access to advanced facilities and teams of multidisciplinary experts to create end-user focused solutions.

Our Centre collaborates with our partners to explore current industry challenges, suggest feasible solutions and develop prototype designs that are rigorously tested to produce high-impact market ready products.

Current and past projects include many industries such as:

- Smart Cities
- Cooperative Intelligent Transport Systems (C-ITS)
- Agriculture
- Medical
- Sustainable Energy
- Security and Logistics

Technology adoption

Every project in our Centre is end-user driven with the goal of understanding the end-user, community, and policies in every challenge we aim to solve.

Our goal is to develop, test and make next generation technologies available to the market and deliver practical solutions to current industry and community problems.

Research and development at CTI focuses on several areas including:

- Custom Micro-chip Design
- Advanced Manufacturing
- Complex Data Analytics
- Artificial Intelligence and Machine Learning
- Wireless Systems and Sensors
- Cyber Security
- Technology Adoption and Public Policy

Digital vehicle identification, Department of Justice/VicRoads
The CTI team testing a variety of technology options for digital car identification.

Low-cost solution to improve milk production in India
CTI collaborated with the Indian Institute of Technology (IIT) Kanpur and Birla Institute of Technology and Science (BITS) Pilani to develop a cost-effective sensor to test milk quality production and improve health safety in India. This project was funded by Veski through the Study Melbourne International Research Partnership program.

App integration with autonomous bus
CTI developed an application that integrates with a driverless bus giving passengers the control of the vehicles journey and opening/closing doors. This project adopts new technologies to improve accessibility for people with disabilities in partnership with iMOVE CRC and the Australian Federation of Disability Organisations (AFDO).

La Trobe **Innovation and Entrepreneurship Programs**

La Trobe Innovation and Entrepreneurship is an award-winning team that delivers programs and initiatives with a strong history of impacting hundreds of individuals, startups, entrepreneurs, and industry partners.

A new approach to cultivating innovation and entrepreneurship

La Trobe Innovation and Entrepreneurship helps students realise their full entrepreneurial potential and enhance their employability skills through programs, workshops, hackathons, 1:1 coaching and mentoring sessions and by connecting students with our industry partners and our business-savvy community.

Our main objective is to create an outstanding student experience by immersing La Trobe students and alumni in a wide array of entrepreneurial ventures from work-based learning through to its Industry Challenges and accelerator programs.

We collaborate with stakeholder partners on unique offerings, events and programs focused on building entrepreneurial mindsets and opportunities for students, alumni, and community across La Trobe's Victorian footprint.

We offer a range of programs to enable and accelerate small businesses and start-ups within Melbourne's North and regional Victoria to foster connections and build networks within the La Trobe entrepreneurial ecosystem locally and globally.

La Trobe **School of Computing, Engineering and Mathematical Sciences**

The School of Computing, Engineering and Mathematical Sciences (SCEMS) provides an integrated network of high-level research expertise across engineering, computing sciences and mathematical sciences.

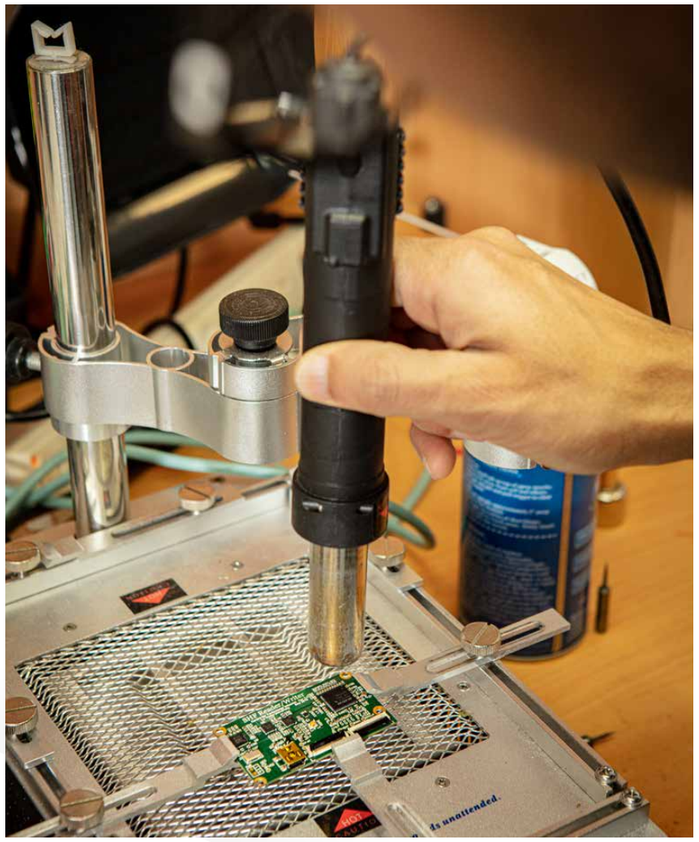
SCEMS contains active research groups in:

- Manufacturing
- Civil and construction
- IOT and sensors
- Electronics, electrical, telecommunication and networks, signal processing
- Artificial intelligence and image processing
- Information systems
- Virtual and augmented reality
- Data science
- Statistics
- Pure and applied mathematics
- Condensed matter physics
- Optical and X-ray physics

In addition to CTI itself, SCEMS also embeds

- The Australian Centre for AI in Medical Innovation
- The Centre for Material Science and Surface Science
- The Cisco La Trobe Centre for Artificial Intelligence and Internet of Things
- The La Trobe Cyber Hub (cybersecurity centre)

The most recent Excellence in Research Assessment exercise conducted by the Australian Research Council, rated eight distinct areas at or above world average: civil engineering (well above); condensed matter physics (well above); optical physics (well above); information systems (above); artificial intelligence and image processing (above); pure mathematics (above); statistics (above) and applied mathematics (world standard).



La Trobe
Business School

The La Trobe Business School is enhancing learning through education and research that is future-focused, applied, innovative and responsible. Our purpose is to:

Develop and mobilise the knowledge and skills of people, organisations, and communities to create positive social impact and sustainable futures.

Our goal is to become one of Australia's pre-eminent business schools as measured by our innovative courses, the success of our graduates, the positive social impact of our research and the strength of our partnerships.

Through our worldwide network of partnerships and collaborations, we are uniquely positioned to deliver innovative solutions, to act on opportunities, to educate the next generation of ethical business leaders and produce impactful research that benefits business and society.

The La Trobe Business School has two departments – the **Department of Accounting, Data Analytics, Economics and Finance** and the **Department of Management and Marketing** – that enable us to offer education programs in:

- Management
- Supply Chain and Logistics Management
- Marketing
- Sport and Tourism Management
- Human Resources Management
- International Business
- Accounting
- Business Analytics
- Economics and Finance

Accreditations

Only five per cent of business schools in the world have earned accreditation from the Association to Advance Collegiate Schools of Business (AACSB), the highest standard of achievement for business schools worldwide.

We're one of them

AACSB accreditation means that we have the resources, credentials and commitment to prepare students to succeed in a range of fields including Accounting, Finance, Business and Commerce. And when they've finished studying, AACSB accreditation means that our students graduate with qualifications that are internationally recognised.
Our programs are also recognised by local and international quality assurance and accreditation agencies including:

- Australian Computer Society
- Australian Human Resources Institute
- Australian Marketing Institute
- Certified Practising Accountants Australia
- Chartered Accountants Australia and New Zealand
- European Foundation for Management Development

United Nations signatory

The La Trobe Business School became a signatory to the United Nations Principles for Responsible Management Education (PRME) in 2008, joining leading business schools committed to implementing their principles: purpose, values, method, research, partnership and dialogue. Our aim as a PRME signatory is to educate our students to become responsible leaders who can balance the demands of business with economic, social and environmental sustainability. We do this by embedding principles of sustainability, ethics and responsibility across our curriculum, research and partnerships.

LA TROBE BUSINESS SCHOOL | AACSB ACCREDITED

PRME Principles for Responsible Management Education
an initiative of UN GLOBAL COMPACT

WE'RE IN THE
TOP 1%
OF 27 000 UNIVERSITIES WORLDWIDE.[1]

WE PRODUCE
CAREER-READY GRADUATES
WITH 87% OF OUR UNDERGRADUATES AND 93% OF OUR POSTGRADUATES FINDING WORK WITHIN FOUR MONTHS.[2]

WE'VE BUILT A
REPUTATION OF EXCELLENCE
WITH 23 FIELDS OF RESEARCH RATED WELL ABOVE WORLD STANDARD.[3]

WE'RE
ONE OF THE BEST 50 UNIVERSITIES
IN THE ASIA-PACIFIC REGION.[4]

LA TROBE IS THE
FIRST UNIVERSITY IN AUSTRALIA
TO RECEIVE A SIX-STAR RATING FOR SUSTAINABLE LARGE-SCALE DEVELOPMENTS.[5]

1. Times Higher Education (THE) - World University Rankings 2022; Ranking Web of Universities 2022
2. Quality Indicators for Learning and Teaching (QILT) 2020-2022, ComparED: Overall undergraduate results for La Trobe University.
3. Australian Research Council, 2019, Excellence in Research for Australia (ERA) Outcomes 2018.
4. The Asia-Pacific University Rankings 2022.
5. Green Star – Communities accreditation, measured against five impact categories: governance, liveability, economic prosperity, environment and innovation.

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