

# Grand Challenge

Asia 2020-21

Centre for Technology Infusion

[latrobe.edu.au/grandchallenge](http://latrobe.edu.au/grandchallenge)



**LA TROBE**  
UNIVERSITY  
AUSTRALIA

# About the Technology Infusion Grand Challenge



The Technology Infusion Grand Challenge sets out to stimulate students to leverage new technologies and solve today's 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 Accelerator Program, School of Engineering and Mathematical Sciences and 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.

## 2020-21 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.

This year 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 from either of Science, Technology, Engineering and Mathematics (STEM) 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 Accelerator program and La Trobe Business School to help guide students. Towards the end of the semester teams upload a video presenting their concept and design. The winner will be decided by popular vote and TIGC's panel of judges.

Up to ten teams will be given a small investment between AUD \$250 and \$1000 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 foremost about making a working prototype, but this part is also about fleshing out the business case; It's about validation of the problem with first hand insight and refining the solution. At the end of the year, teams will present their working concept before an international jury in Mumbai or New Delhi.

\* Expenses will include travel, accommodation and allowances for drinks and meals, according to La Trobe's Policies. Registration will open 30 September 2020. 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 absolute 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.



## PRIZE

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

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

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



## 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 and Mathematics).

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.

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



# FAQs and proceedings

Question	Answer
How can I participate?	Follow the website to register your interest. An application form will then be emailed to you. 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?	<p>Some Smart City cases studies for inspiration:</p> <ul style="list-style-type: none"><li>• A Korean City implemented smart water meters, which today double functions as a social health alert: family of people who haven't used water in two days, are sent an alert</li><li>• When Mexico tested smart pre-clearance for border passing, it not only reduced waiting times – which were caused by stricter border controls – but it also created entirely new service models for transport companies.</li><li>• 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.</li><li>• Melbourne can get hot in summer and its tree health sensors measure the water needs and CO<sub>2</sub> conversion of the trees, helping the city council maintain the foliage that protects the city.</li><li>• A hamburger chain implemented smart gas meters, to warn them when a bottle was about to go empty, but they also found that they hadn't been receiving full gas tanks all the while, generating significant savings.</li></ul>
How can I win? What are the judgement criteria?	<p>The final judgement criteria will be:</p> <p><b>Validity of the problem being solved (25%)</b></p> <ul style="list-style-type: none"><li>• How well is the problem defined and supported?</li><li>• Have the risks and opportunities of the concept been identified and assessed?</li></ul> <p><b>Originality and impact of the solution (25%)</b></p> <ul style="list-style-type: none"><li>• How unique is the solution?</li><li>• Impact: Is it an incremental improvement or transformative solution?</li></ul> <p><b>Engineering/IT excellence of the prototype (25%)</b></p> <ul style="list-style-type: none"><li>• Degree of technical difficulty in building the solution</li><li>• It's functional excellence for the end-user(s)</li></ul> <p><b>Commercialisation potential of the solution (25%)</b></p> <ul style="list-style-type: none"><li>• Commercialisation potential demonstrated by clarity of an exit strategy if this was a start-up initiative.</li></ul> <p>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.</p>
What are the key dates and deadlines?	<ul style="list-style-type: none"><li>• <b>Sign up:</b> Registration will open on 30 September 2020 and close on 15 December 2020</li><li>• <b>End of Semester 1 YouTube submission:</b> February 2021</li><li>• <b>Announcement of top 10 team:</b> February/March 2021</li><li>• <b>Submission of final project:</b> October 2021</li><li>• <b>Final event:</b> To be announced: November 2021</li></ul>

For the full terms and conditions, please see:

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# Centre for Technology Infusion – La Trobe’s top tier R&D Centre



The Centre for Technology Infusion (CTI) is an award winning R&D Centre based in the School of Engineering and Mathematical Sciences. The core of expertise of CTI is in the design and development of Sensor systems, Micro Chips, Wired/Wireless Systems, System Integration and Complex Data Analytics.

Our clients come to us to apply new technologies to solve existing problems, which usually starts with a feasibility verification and can consequently result in prototype development, field trials, market ready development and integration with legacy systems.



**CTI Awards 2017**

From left to right: Scott McKenzie (CEO, SensaData P/L), Hon Philip Dalidakis (Minister for Trade and Investment / Minister for Innovation and the Digital Economy / Minister for Small Business), and Professor Aniruddha Desai (CTI Director, School of Engineering and Mathematical Science, La Trobe University.

**Blue Chip standards**

CTI has established industry standard R&D infrastructure to support research and technology development in these areas, including an eco-system of the world's best delivery partners in Europe, SE Asia and India.

**De-risking investment**

The Centre has a strong track-record of delivering field ready solutions with our Proven Risk Elimination Methodology making us a trusted technology advisor and service provider to Industry and Government clients.

All our projects are in collaboration with industry partners and our teams are predominantly externally funded. In selected cases we even take equity in start-ups.

As an R&D Centre we know that the creation of new products is a journey which can take unexpected turns. Our experienced teams can rapidly adapt to changes and challenges in product innovation cycles – always keeping an outcome oriented mindset.



**Autonobus**

Victoria's first autonomous shuttle bus at La Trobe University.



# La Trobe **Innovation and Entrepreneurship Programs**



## A new approach to cultivating innovation and entrepreneurship

La Trobe Entrepreneurship and Innovation Programs (LTI&E) launched in 2017 when La Trobe University won a \$1mil grant to develop a regional accelerator program (known as the La Trobe Accelerator Program).

During the next 4 years, the program has helped 57 start-ups, over 1,350 small business during COVID-19 crisis, distributed over \$300k grants and hosted over 500 events. The team was successful in winning the Australian Financial Review' Community Engagement award in 2018 due to its commitment to regional engagement. In 2020, LTI&E received a mention in Scott Morrison's Letter to Bendigo for their Bendigo Invention and Innovation Festival (BIIF).

La Trobe Innovation and Entrepreneurship Programs embodies the strengths and cultural qualities of La Trobe University – with a strong regional presence and targeted external partnerships, we create high standard programs that support the development and interest of entrepreneurship in students, staff, alumni and the wider start-up ecosystem.

## La Trobe Innovation and Entrepreneurship Programs has as mission to develop entrepreneurship through three main objectives:

- Access to global markets through the Global Markets Accelerator Program
- Creation of a talent pool by creating opportunities for students to work in small entrepreneur teams and businesses.
- Develop and support entrepreneurs in regional Victoria



# La Trobe **School of Engineering and Mathematical Sciences**

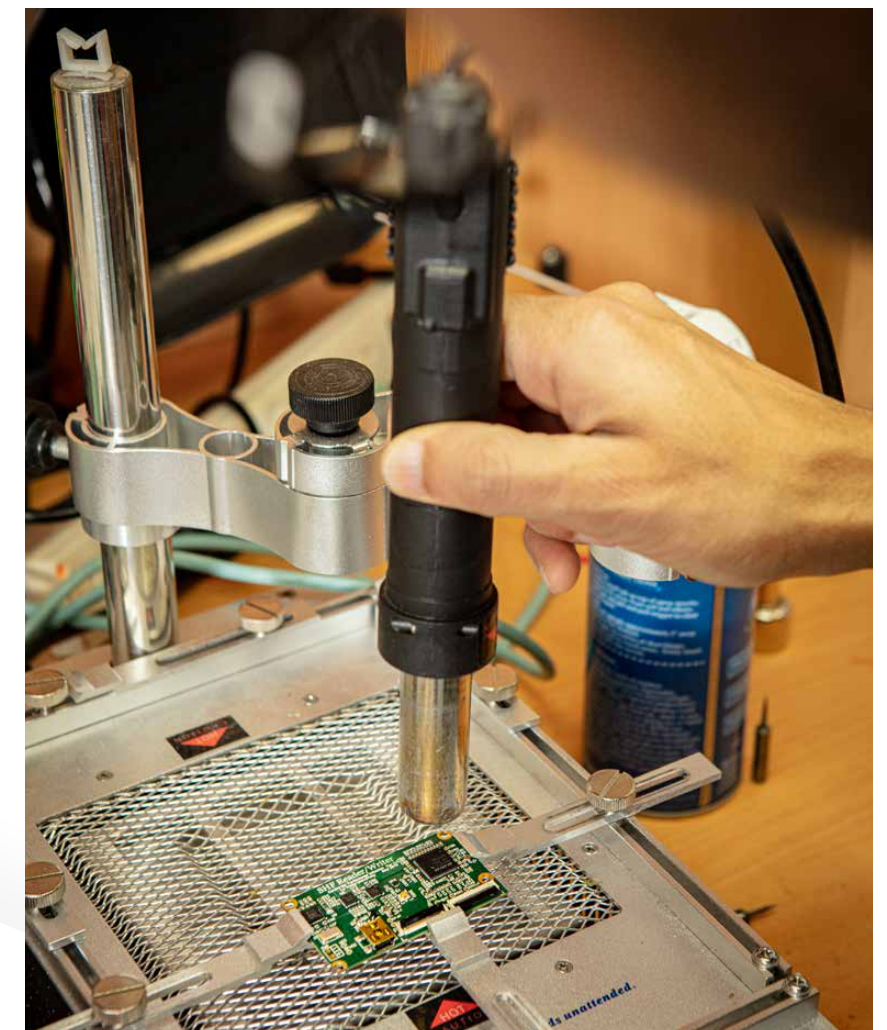


The School of Engineering and Mathematical Sciences (SEMS) provides an integrated network of high-level research expertise across engineering, computing sciences and the mathematical sciences.

## SEMS contains active research groups in:

- manufacturing
- civil, electronic and electrical engineering
- signal processing
- sensors
- internet of things
- artificial intelligence and image processing
- information systems
- virtual and augmented reality
- data science
- statistics
- mathematics

In addition to CTI itself, SEMS also embeds the La Trobe Cyber Hub (cybersecurity centre) and the planned Cisco Centre for Artificial Intelligence and the Internet of Things. The most recent Excellence in Research Assessment exercise conducted by the Australian Research Council, rated six distinct areas at or above world average: civil engineering (well above); information systems (above); artificial intelligence and image processing (above); pure mathematics (above); statistics (above); applied mathematics (world standard).





# La Trobe Business School



La Trobe Business School is an accredited member of AACSB International – the Association to Advance Collegiate Schools of Business - the highest standard of achievement for business schools worldwide.

La Trobe Business School conducts research across a wide range of discipline areas and is recognised as a world leader in several areas by the Australian Government in its recent Excellence in Research Australia assessment. It rates "well above world standard" for Banking, Finance and Investment, while Commerce, Management, Tourism and Services, Accounting, Auditing and Accountability, Business and Management, Tourism, Economics and Applied Economics are all "at world standard" (ERA 2018-2019).

La Trobe Business School is home to a number of cross-disciplinary research centres. These centres are engaged with community, industry and international experts in business and management. The purpose of the centres is to further expert knowledge in their respective fields.

Centre for Data Analytics and Cognition is one such research centre which focuses on the theoretical advancement of AI as well its practical contributions to organizations, the economy and society. This centre offers academic programs including QS ranked Master of Business Analytics Course and the Bachelor of Business Analytics.



#### LBS has research strengths in:

- Corporate social responsibility, governance and business ethics
- Tourism, Hospitality and Event Management
- Financial reporting and taxation
- Critical social and sustainability accounting
- Asset pricing and investment
- Financial market microstructure and information
- Financial econometrics
- Social marketing
- Branding



WE'RE IN THE  
**TOP 1%**  
OF 27 000 UNIVERSITIES  
WORLDWIDE<sup>1</sup>

OUR GRADUATES HAVE AN  
**EMPLOYER  
SATISFACTION  
RATING OF 86.1%**  
PLACING LA TROBE SECOND AMONG  
VICTORIAN UNIVERSITIES<sup>2</sup>

WE'RE  
**TOP RATED  
NATIONALLY**  
AND WELL ABOVE WORLD STANDARD  
IN 19 FIELDS OF RESEARCH<sup>3</sup>

WE OFFER A  
**LEADING CAREER  
READY PROGRAM**  
THAT DEVELOPS PROFESSIONAL SKILLS

LA TROBE IS THE  
**FIRST UNIVERSITY  
IN AUSTRALIA**  
TO RECEIVE A SIX-STAR RATING  
FOR SUSTAINABLE LARGE-SCALE  
DEVELOPMENTS<sup>4</sup>

1. Times Higher Education (THE), 2019, World University Rankings 2020; Consejo Superior de Investigaciones Científicas (CSIC), 2020, Ranking Web of Universities.
2. Employer Satisfaction Survey (ESS) 2019
3. Excellence in Research for Australia Report 2015
4. Green Star – Communities accreditation, measured against five impact categories: governance, liveability, economic prosperity, environment and innovation

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