Our Industry and Policy Engaged Research

Transport@RMIT researchers are engaged with active policy and industry challenges, generating real world solutions for our research partners. The research case studies below provide a small sample of these efforts.

Early delivery of transport options in new suburbs

New suburbs are expected to accommodate an extra half a million new homes over the next 35 years in Melbourne. Residents in outer suburbs can spend 15 or more hours per week commuting. This project is working to produce evidence and tools to assist both the public and private sectors provide more transport options, earlier. The project will build evidence of resident transport experience, and develop tools to overcome legislative, procedural and funding barriers as well as identify financial models and tools. This is a multi-disciplinary project co-designed with partners including state government agencies, local governments, developers and the Planning Institute of Australia.

Multi-sensing, machine learning and predictive journey analytics

The Context Recognition and Urban Intelligence (CRUISE) group has developed apps with multi-sensing and machine learning capabilities for transport mode detection and movement activity recognition, useful for profiling users' travel choices and long-term movement behaviours. In partnership with the City of Melbourne, the CRUISE group has also developed a pedestrian foot traffic forecasting system, enabling the number of pedestrians to be predicted hour by hour at multiple locations in the city up to 16 days ahead of time. This is particularly useful for planning additional services in major train stations and the tram network around the city.

Access to public transport across cities in Australia

The *Creating Liveable Cities in Australia* report is the first baseline measure of liveability in Australia's state and territory capitals. It represents the culmination of five years of research. One of the seven domains examined in the report was public transport, with an evidence-based, policy-relevant indicator for public transport access calculated across all eight state and territory capitals. The national liveability indicator for access to public transport is the proportion of residential addresses within 400 metres walking distance of a frequently serviced public transport stop — one with a scheduled service every 30 minutes from 7am to 7pm on a normal weekday. The indicator was adopted in the first release of the Federal Government's National Cities Performance Framework. Future releases of the framework will feature the access to public transport indicator for all twenty-one of the largest cities in Australia.

Emerging East Asian logistics challenges and opportunities

RMIT's Global Supply Chain and Logistics Research Priority Area is co-leading the Reconfiguring East Asian Logistics Networks under the One Belt, One Road Environment project to understand the likely challenges associated with emerging logistics networks in East Asia. This three-year project is funded by the South Korean Government under the Global Research Network scheme. The aim is to develop logistics strategies to help harness Belt and Road Initiative (BRI) business potential to create new opportunities for trade, investment, technological innovation and movement of labour.

Advancing aviation systems and technologies

In the aviation context, significant improvements in safety, capacity, efficiency and environmental sustainability are being achieved. This evolutionary pathway is seeing the introduction of communication, navigation, surveillance, air traffic management and avionics equipment supporting four-dimensional trajectory-based operations, while simultaneously addressing the safe integration of unmanned aircraft systems in all classes of airspace. RMIT is collaborating with Thales Australia, Northrop Grumman, NASA, Qantas and other key industry partners to advance these and other aviation technologies.

Funded by **Urban Futures** Enabling Capability Program

Transport@RMIT

Multidisciplinary, data-driven, policy and industry engaged transport research

Contact us to partner for a better future

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For more information
https://**rmit.edu.au**/transport

Transport@RMIT

Transport@RMIT brings to bear a broad range of research capacities informing how policy, industry, data and technology can shape transport that improves our cities, economies and lives. Our multidisciplinary expertise focuses on productive, sustainable and inclusive transport systems for growing and complex large cities.

Given rapid urbanisation, population and economic growth, we assist the public and private sectors to transform how transport is planned, built, and governed to achieve healthy and sustainable urban development as well as responding to complex and changing regional and national economies. Transport@RMIT has a significant span of capabilities, from policy and social research to spatial analysis, technology, big data, engineering and design.

Our research is policy and industry relevant, based on conceptually rigorous approaches and data driven analysis. This collaborative research with policy-makers, industry and practitioners, helps to maximise the relevance of our research, but also importantly, disseminate our findings.

Research generated by Transport@RMIT contributes to the strategic understanding of the pressing challenges in our growing cities; informing evidence based policy and industry decision-making; directing us to data and technology to identify issues and understand behaviour; and helping us to exploit opportunities of emerging technology and manage innovation risk.

Challenges: A growing and transitioning transport system

- **Growth:** According to the Victorian Government, by 2050 Melbourne's transport infrastructure is expected to support an additional 10.4 million trips each day and Victoria's freight volume is expected to more than double. Transport growth is likewise occurring in many major cities nationally.
- **Healthy, active & sustainable:** At the same time, despite the recognised benefits, active transport rates in Australia remain low in comparison with many European and Asian countries. Especially concerning is the decline in active transport among children and all-age cycling rates.
- **Technology transition:** Adding to the challenge but also presenting opportunities, our transport sector is on the cusp of a major transition driven by new technologies such as dynamic data systems and driverless vehicles.

The research skills and competencies within Transport@RMIT can be applied to a broad range of problems, policies, partnerships and industries. Our researchers draw on their diverse skills to not only solve problems, but also to articulate the vision and pathways to achieve it.

Transport@RMIT is part of the Urban Futures Enabling Capabilities Platform

RMIT's Urban Futures Enabling Capability Platform (ECP) harnesses expertise from across the university to solve critical urban problems. Its activity enables new research collaborations between RMIT policy makers, industry, practitioners and other city stakeholders. Transport@RMIT is a key part of the ECP and leads multidisciplinary responses to the pressing urban challenges of transport in a complex and growing urban environment.

Key Capabilities

> Policy & social research
> User data & behaviour analytics
> Healthy cities & active transport
> Spatial analysis & modelling
> Big data & emerging technology
> Design & engineering
> Mobile & IoT technology

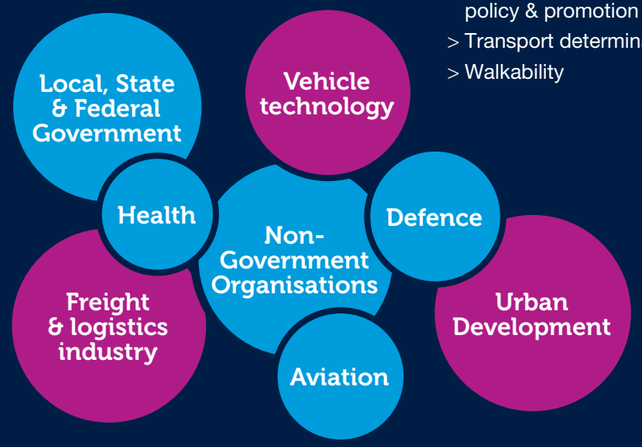
Key application areas:

> Urban transport
> Transport policy & governance
> Transport & land use integration & planning
> Freight & logistics
> Transport, vehicle & infrastructure design
> Urban design
> Aviation
> Defence
> Smart cities
> Infrastructure
> Travel behaviour
> Urban economics
> Health & wellbeing

Research centres & groups include:

> Centre for Urban Research
> Global Supply Chain & Logistics
> Context Recognition, Urban Sensing & Intelligence Research Group (CRUISE)
> Cyber-Physical Systems Group: Aerospace, Transport, Defence
> Spatial Capability Cluster @ RMIT (SCARR)
> Healthy Liveable Cities Group
> Virtual Experiences (VX) Lab
> Exertion Games Lab

Priority Policy & Industry Sectors



Research Themes

Urban transport for large & complex cities

Capability across policy, planning & social research, spatial analysis, data & technology to define problems, identify solutions & assess policy interventions

> Urban transport governance & policy analysis
> Transport & land use integration
> Congestion management
> Travel behaviour & mode shift
> Social, environmental, health & equity outcomes
> Transport systems & productivity
> Infrastructure assessment, option analysis & financing

Freight & logistics for growing economies

Capacity across business, IT, logistics, engineering, science, planning & policy

> Freight flow modelling
> Logistics clusters
> Port logistics
> Cyber-physical systems
> Intelligent automation & trusted autonomous systems
> Intelligent Transport Systems
> Data, technology & supply change management & collaboration, including blockchain
> Environmental impact of freight

Healthy & active transport

Capacity across population health, planning, policy, safety, design & spatial analysis

> Evidence linking transport with health including economic models
> Active transport policy, infrastructure & planning
> Cyclist & pedestrian safety, policy & promotion
> Transport determinants of liveability
> Walkability

Cross-cutting strengths

Spatial analysis & modelling

> Spatial, analytics & mapping
> Behaviour change models
> Social data analysis
> Travel behaviour modelling

Data & Technology

> Emerging technology
> User-centred technology, data & behavioural analysis
> Activity-based modelling
> Smartphone, IoT, Smart card, travel data & analytics
> Personalised mobility & journey planning
> Social media, sentiment & user experience data capture & analysis
> Governance, policy & regulation
> Autonomous vehicles & cyber-physical systems
> Vehicle efficiency
> Remote sensing & machine learning
> Gamification & apps

Design

> Industrial design
> Technology
> Vehicle design including conception, design, visualisation & proof of concept prototyping of cars, trains, aviation, bikes & shared vehicles
> Urban design & safety, including pedestrian safety
> Infrastructure design & urban realm
> User testing

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