Monash Infrastructure

Monash Infrastructure (MI) is a virtual institute that facilitates industry and government engagement with Monash University’s extensive capabilities in infrastructure research. MI coordinates interdisciplinary teams from engineering, information technologies, business, design and social sciences. Our researchers provide the expertise, resources and access to international knowledge networks to solve infrastructure problems, develop new technologies, build industry capacity and inform government policy and planning.

Across the world, population growth and ageing infrastructure are driving strong demand for the creation of new infrastructure and for increased efficiency and productivity from existing infrastructure.

Innovation is key to creating and upgrading infrastructure that is cost effective, environmentally sustainable, reliable and resilient. Research is needed to understand infrastructure requirements, generate new knowledge and develop new technologies and processes.

Monash University is best placed to lead the infrastructure research and innovation agenda.

- We have world-renowned experts, physical assets and an interdisciplinary culture that is needed to deliver innovations in infrastructure.
- We are the largest and most networked university with industry and international organisations in Australia, with locations in Malaysia, South Africa, China, India and Italy.
- We have a strong track record in engaging with industry and delivering cutting-edge solutions that have led to commercial and societal benefits.

The Maintenance Technology Institute has delivered benefits worth hundreds of millions of dollars for mining companies through state-of-the-art technological innovations in capacity improvement and cost-effective maintenance for large equipment and structures.

The Institute of Rail Technology has assisted railways around the world to cut maintenance costs by developing innovations that improve the contact conditions between train wheels and railway tracks.

Monash University’s infrastructure research strengths are:

- Transport
- Water
- Structures
- Information and communications
- Planning and management
- Energy*

Transport

- Public transport
- Railway engineering
- Modelling and optimisation
- Intelligent transport systems
- Safety
- Mobility design

Theme coordinator: Professor Graham Currie

Water

- Water Sensitive Urban Design
- Membrane technologies and wastewater management
- Pathogens in water systems
- Integrated water modelling
- Remote sensing of soil moisture
- Water pipe asset management

Theme coordinator: Associate Professor David McCarthy

*Energy infrastructure initiatives are coordinated by the Monash Energy Materials and Systems Institute
Planning and management

- Data modelling and visualisation of city systems
- Architecture and urban design
- Designing infrastructure for diverse communities
- Environmental and social impacts
- Finance, investment and public-private partnerships
- Logistics and supply chain management
- Workforce development

Theme coordinator: Professor Amrik Sohal

Information and communications

- Data systems and cybersecurity
- Machine learning
- Immersive analytics and visualisation
- Modelling and optimisation
- Telecommunications technologies
- Robotics and drones

Theme coordinator: Professor Mark Wallace

Structures

- Railways, mining equipment, water pipes, bridges and port structures
- Construction materials
- Structural health monitoring
- Corrosion
- Modular construction

Theme coordinator: Associate Professor Wenhui Duan

The award-winning Advanced Condition Assessment and Pipe Failure Prediction Project, led by Monash University, has contributed to savings of millions of dollars in delaying renewals of water mains. This five year project is a collaboration of researchers and water utilities from around the globe. The research outcomes of the project are helping water utilities manage critical water pipe assets effectively and are likely to reduce the rate of burst water mains.