Empowering Governments and Societies to achieve **SDGs**

**Towards Sustainability and Resilience**

*a close collaboration between Academia and Industry*

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Emerging digital surveying, spatial information and services enable us to gain insights from data resulting in cost, efficiency, and decision-making benefits.

- Land and Geospatial Information in support of Sustainability and Resilience and our response to COVID
- New MSc program on Digital Infrastructure Engineering
Key Drivers

- **Current and Emerging Global Markets** in land and spatial industries in the context of COVID, climate change;
- Population Growth & Increasing complexity;
- Increasing Disasters—a *Worldwide Problem*;
- **Digital Economy and Smart Societies**;
- Industry 4.0, and Technological Trends;
- **Connected, automated** and shared services;
- Land Administration Modernisation agenda;
- **3D land and property (3D Cadastre)** to support future planning (*Digital Twin* and BIM);
- Needs and opportunities in the context of **Sustainable Future for All-SDGs**;
- IoT, AI, AR, making sense of smart data, smart utilities, 3D, 4D,…*nD data*…
Future *is Smart, Connected* and Sustainable

Moving from being “Sustainable” to Productivity & “Regenerative”

**Digital Infrastructure is where it gets interesting**

- Digital Twins
- Predictive analytics
- Geospatial + AI
- Optimisation
- Modelling and Simulation
- Quantum computing
- Asset Management
- Smart Cities
- Asset Management
Critical surface and subsurface infrastructure and physical assets such as buildings, roads, bridges, rail lines, tunnels, utilities, processing plants, refineries as well as resource industries form the backbone of countries productivity. Yet, according to the Australian Infrastructure Audit most infrastructure used in 2030 will be in a substandard state of repair.
The Problem

To achieve sustainability, we need to remove barriers to integrating and analysing land data from multiple disciplines and enable access to data that can directly inform decisions. This can reduce costs, increase productivity and help plan climate change mitigation and adaptation.
A primary reason for the limitations in addressing the interdisciplinary challenge of sustainability is the lack of an ecosystem of open, harmonised and interoperable information models and datasets across land, built environment and natural environments.
Interconnected FUTURE For ALL

Smart Infrastructure and Cities

Resilient

Location

SES

3D Land & Property

Digital Twin

BIM/nD

SDGs

Connected

Inclusive
A Process-Based Approach to Achieve SDGs

Identifying Challenges

Collect Spatial Data

Understanding Socio-Economic and Environmental Diversities

Visualise the Data

SES

Take Action

Implementation

Develop Action Plan

Monitoring Progress

Spatial Analysis

Interrelationships Mapping
SDGs
Inter-Relationships
127 Collaborators (Gov, Industry, Academia)
+30 Country Case Studies

UN – GGIM Academic Network
Open Access

COVID-19 Pandemic, Geospatial Information, and Community Resilience
Global Applications and Lessons
edited by Abbas Rajabifard • Daniel Paez • Greg Foliente

Sustainable Development Goals Connectivity Dilemma
Land and Geospatial Information for Urban and Rural Resilience
EDITED BY
Abbas Rajabifard

WWW.CRCPRESS.COM
The Role and Value of Geospatial Information and Technology in a Pandemic

- Critical Role of Location Information
- Impact of COVID-19 on the Sustainable Development Goals (SDGs)
- Digital Innovation During a Pandemic
- Collaboration and Engagement
- Opportunities Emerging from the Pandemic
- Moving Forward from the Pandemic

Global crises such as Climate Change and the COVID-19 pandemic demand community and societal resilience that is built from broad stakeholder cooperation at the local, regional and national levels.
Discussed Areas

- Sustainable Development Goals Connectivity Dilemma
- Enhancing SDGs Connectivity and Disaster Resilience
- Supporting SDGs: Legal, Policies and Institutional Components and Capacity Building
- Enabling Tools and Technical Components
- SDGs Perspectives: Current Practices and Case Studies
Master of Digital Infrastructure Engineering

Launch event: Monday 31 October 3-5pm, Melbourne Connect

Register now to meet academics and industry experts

Non UoM staff members register here
What is digital infrastructure engineering?

- Where Engineering meets Information Technology
- Acquire skills in the areas of sensing, managing, analysing and communicating information about environments, and specialise in land, transport, energy, water, industry, communication infrastructure, AI, business

Acquire core skills in:

- Sensing, managing, analysing and communicating (georeferenced) data
- Monitoring our environments
- Using digital skills and digital technology (ethically) to improve processes of management in a range of industries
- Urban analytics and digital twin system development

Specialise in:

- Artificial intelligence / data analytics
- Information technologies
- Business
- Smart and sustainable cities
- Construction / digital engineering
- Transport, Energy, Water
- Land surveying
Assess the impact of a **windfarm development** on nature and people, and how this is balanced by the benefits at particular locations and with particular designs.

Create a **digital construction** workflow to improve building practices and use of resources.

Help emergency teams as well as evacuees in **disaster management**: monitor events like bushfires and floods using drones and maps.
Digital infrastructure engineering in practice

Manage public transport using data streams of vehicle locations and passenger counts, social media, and infrastructure data.

Use remote sensing, sensor networks, and crowd-sourced data for urban green management in smart cities.

Help autonomous vehicles know where to go with high-definition maps.
THE FUTURE IS BRIGHTER

Thank You
We welcome new partnerships and collaborations.

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