



Strategic Plan 2023-2028





Who we are

AURIN delivers critical data and analytical tools to government and researchers across Australia, supporting innovative research and policy decisions on Australian cities and regions. Established in 2010, AURIN is funded by the National Collaborative Infrastructure Strategy (NCRIS) to provide national research infrastructure. Since its inception AURIN has served over 24,000 users, providing access to over 5,000 datasets focusing on urban systems and regional centres. These figures are expected to grow significantly over the next five-year period, thanks to an ambitious strategy of partnerships with the private sector and government agencies.





Our vision

In the coming decades, Australian cities, towns and regional centres will have to address several key challenges at a scale and pace never seen before—namely: adapting to the impact of climate change, facilitating energy transitions in all sectors, as well as delivering adequate housing and social infrastructure to a population characterised by significant demographic transitions.

AURIN will play a key role in supporting Australia's ability to respond to these challenges. We will identify the information and support tools decision-makers need. We will facilitate and coordinate efforts to generate, and provide access to, systemic and up-to-date data and technology. And we will ensure the data and analytics we provide are modular and compatible with efforts to develop an Urban Digital Twin for Australia.





What we do

AURIN provides crucial data and digital infrastructure to support evidence-based urban and regional research, and policy development. AURIN is the connecting point between academia, government and industry, facilitating access to hard-to-get data and offering digital solutions for hard-to-do analytical workflows. AURIN aims to lower technological barriers, open data access and increase information sharing amongst scientific communities. As a result, AURIN contributes to higher research efficiency, limited redundancies and cost-effective scientific investment.

AURIN's existing digital infrastructure primarily supports research in transport, housing, labour markets, urban and regional planning, impacts of urban environments on population health, liveability and sustainability. Over the next five-year period AURIN aims to lead a national consortium, focused on establishing the foundations for Australia's Urban Digital Twins, to address climate change, energy transition, and changing demographics.









Key Challenges

Over the next five-year period, AURIN will align its objectives with priorities identified for the National Reconstruction Fund to address the challenges set up in the NCRIS Roadmap 2021. In particular, AURIN will provide crucial datasets and critical digital infrastructure to researchers and analysts focusing their work on the following challenges:

Impact of climate change on Australian cities, regional centres and communities.

From the heat island effect to devastating floods and bushfires, climate change will increasingly threaten population wellbeing and safety, infrastructure

resilience and sustainable housing. Effective adaptation will require access to broader more granular datasets, as well as more sophisticated analytical and predictive tools.

Impact of energy transition on Australian cities, regional centres and communities.

Decarbonisation of Australia's energy supply chains and economy-at-large, from transport to food production, will need significant changes to our national infrastructure, economic drivers and social behaviour. Anticipating the consequences of such changes and optimising the roll-out of a zero-emission circular economy will require the coming together

of data owned by public and private sector, in a secure digital environment.

Impact of demographic transformation on Australian cities, regional centres and communities.

Australia faces significant challenges associated with an ageing population, a sustained flow of immigration, a workforce in transition, an inadequate housing market and an unsustainable concentration of population in capital cities. As the nation slowly recovers from the pandemic, policy and law-makers will need better evidence-based information to drive Australia's sustainable growth.

In addition to addressing these key challenges, AURIN will continue to deliver these core objectives:



Deliver high quality data through robust infrastructure



Access and share hard-to-get data



Contribute to hard-to-do digital development



Allow for infrastructure refreshment and scalability



Build data literacy through training and outreach



Coordinate its technological development with other relevant National Research Infrastructure

Our partners and stakeholders

Over the next five-year period, AURIN will establish strategic partnerships with key government agencies and industry players. AURIN will also strengthen its federated organisation by supporting geographical and thematic nodes, located in carefully selected universities and research institutions. Our key stakeholders are:

**Australian Government's
Department of Education**



**Data providers, public
and private sector**





The research community



Government planners
and policy makers



Industry partners



Other National Research
Infrastructures
and national research
agencies





Key strategic areas

Over the next five-year period, AURIN will adapt its current strategy to respond more efficiently to national priorities and challenges. Based on feedback from our stakeholders, AURIN will focus on five Key Strategic Areas (KSAs).

Urban Data-as-a-Service (Urban DaaS)

AURIN will continue to provide relevant, critical and up-to-date datasets. AURIN will develop new partnerships to deliver high value and hard-to-get datasets. AURIN will investigate, evaluate and, where appropriate, generate data assets through data harmonisation and utilising AI technology.

Data ingestion pipelines will include linear infrastructure datasets and near real-time signals from smart sensors, which will dynamically support Urban Digital Twins (UDTs). These data will be delivered through a continuously improved data discovery and access experience to enable research and evidence policy.

- > Objective: unlocking, generating, curating, cataloguing, and sharing high value and hard-to-get data for urban and regional research and planning.

Urban Analytics-as-a-Service (Urban AaaS)

AURIN will significantly enhance its existing analytics capabilities by creating new cloud-first digital infrastructure. This will allow for the creation and distribution of reusable and interoperable urban analytics at scale. The urban modelling made available through this service will be organised and standardised by AURIN experts and partners—making it easier for urban researchers to share their analytics with the decision makers that need them.

Demonstrator applications that are built on the Urban AaaS can be rapidly prototyped. This puts analytics directly in the hands of the stakeholder, with minimal costs in terms of development time, and makes them prime candidates for co-investment. The concepts that form the basis of Urban AaaS—like reusable and containerised urban analytics—have been piloted at the Data and Analytics Facility for National Infrastructure (DAFNI, UK), a close international partner of AURIN.

- > Objective: designing, developing and maintaining a modular, cloud-first digital research infrastructure to support urban and regional analytics and modelling.

Foundations for Australian Urban Digital Twins (UDT Testbed)

The combination of AURIN's Urban DaaS and AaaS infrastructure will provide interoperable, scalable and reusable foundations to Urban Digital Twin (UDT) platforms—a fast-growing technology across industry, government, and academia. The UDT Testbed is where AURIN will maintain a current and in-depth understanding of what's required to power UDTs across Australia. The testbed will be where new capability is prototyped before being integrated into the Urban DaaS, flowing through to UDT efforts across Australia.

The UDT testbed is also where AURIN will utilise outputs and learnings from the many collaborative research infrastructure projects it has been involved in. The UDT testbed will allow AURIN and its partners to review and integrate research efforts in the form of various data workflows and geospatial



analytical tools, into AURIN's standardised collection of national scale services, and do so in an open, safe and scalable environment. The UDT Testbed will abide by FAIR principles and will adopt the Gemini framework.

- > Objective: Understanding the needs of UDTs to inform decisions and positively impact lives. Applying, testing, prototyping and sharing best practice standards, semantics, workflows and cutting-edge technologies for use in UDTs. Translating capability into AURIN's core service offering.

Federated research and training organisation (AURIN Collaborate)

AURIN will coordinate and invest in a federated urban research network, seeking out collaborative partnerships that both extend and enhance AURIN and the National Digital Research Infrastructure (NDRI) network. As noted in the NDRI Strategy Outline Paper (2022), user-centred design needs to be adopted across the NDRI network. This will increase the impact of research outcomes in complex environments like urban systems.

AURIN will make significant investment in collaborative nodes across the country. This will be assisted by AURIN's long-standing relationships with key research entities—among them, City Futures Research Centre (UNSW), Centre for Cities (UoM), Centre for Urban Research (RMIT), Queensland Centre for Population Research (UQ) and Planning and Transport Research Centre (UWA). The AURIN Federation will also aim to attract, nurture and retain staff who have critical skills

in public research infrastructure. This will be done in collaboration with our partners and other NCRIS facilities.

- > Objective: coordinating and investing into strategic relationships with partners across Australia to maintain a high level of engagement with end-users, increase AURIN's critical mass by attracting and retaining highly skilled IT talent.

Transitioning AURIN for greater impact (AURIN Marketplace)

AURIN will aim to secure the long-term sustainability of the organisation through increased partnerships with industry and government. AURIN will work to develop its commercialisation strategy and to attract substantial co-investment from partnering organisations. This includes the implementation of business models, policies, and protocols to respond better to opportunities.

By transitioning to an organisation that can support both academic researchers and commercial partners, AURIN will be more responsive to national priorities and identified research gaps. It will allow AURIN to increase its capacity for innovation and commercialisation and to develop stronger relationships within industry, government and academia. Through the creation of AURIN Marketplace, AURIN aims to become an independent and trusted urban data broker.

- > Objective: securing long-term sustainability by realising AURIN's potential to respond more effectively to demand and enter into more flexible agreements with industry and government partners.

