FRONTIER SI

BUILT ENVIRONMENT AND SMART CITIES

SPATIALLY INFORMED CITIES

In the coming decades, significant population growth and urbanisation across Australia and New Zealand will put unprecedented pressure on our cities. Traditional approaches to urban planning and renewal will not suffice in the face of this challenging reality. We need insightful and sophisticated ways to better understand and accommodate the needs of an expanding and highly urbanised population. Issues such as traffic congestion, infrastructure renewal, public transport availability, affordable housing, provision of green space and impacts on population health all need to be factored into the design of modern cities.

A key requirement is to access, integrate, analyse and exploit the growing deluge of spatial and other linked data to enable better decision-making. Intelligently combining real-time data about individuals and the environment can, for example, inform the design of sustainable housing and the optimal location of public infrastructure.

Considering the spatial element of smart cities brings into focus the question of "where". Where should we build a new hospital? Where are the opportunities to connect transport networks? Where will existing infrastructure fail? Where will crime most likely occur? Where will negative health impacts be felt? FrontierSI's Built Environment and Smart Cities Program will bring the skills and experience needed to answer these vital questions.

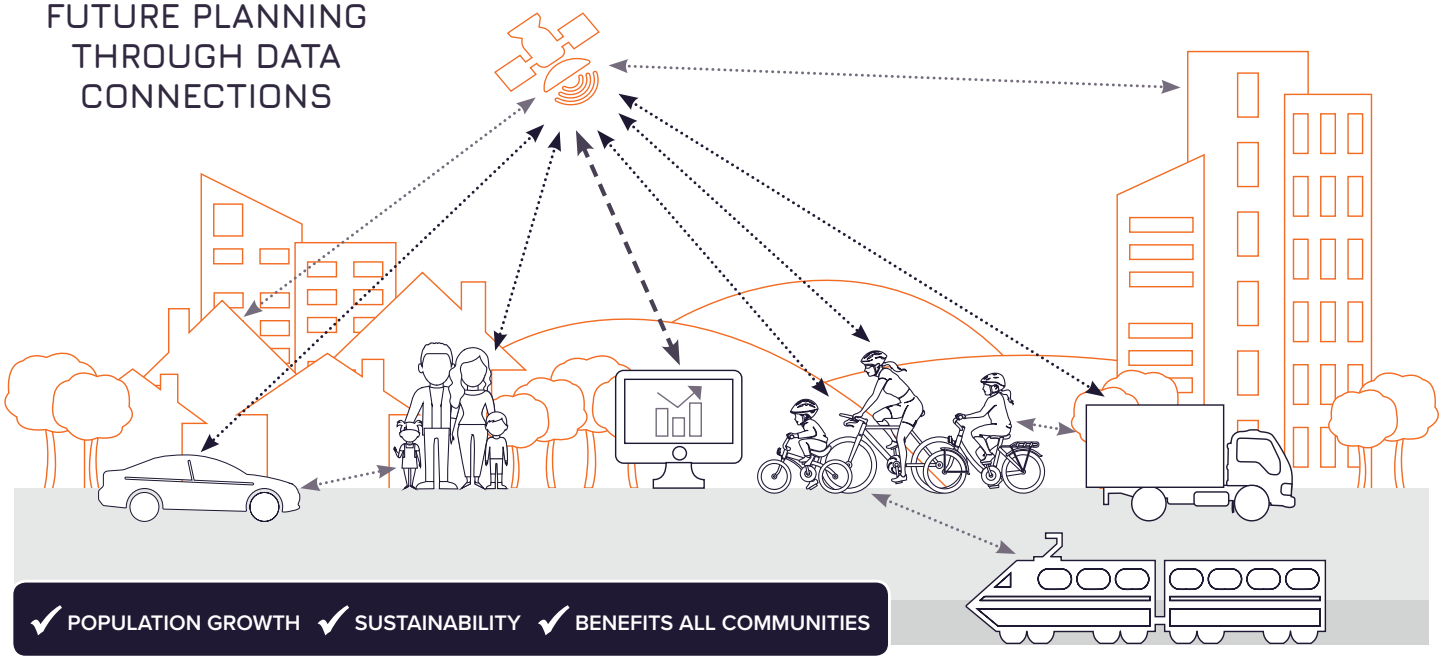
OUR CONTRIBUTION

Planning a built environment that is functional, environmentally sensitive, and focussed on the needs and expectations of the community involves a cross-sectoral and collaborative approach. Our experience has shown that engaging with government at the policy level, developers at the design level and residents to capture and accommodate community needs and interests is the key to good outcomes. Over the past several years, our multi-disciplinary team has built a suite of tools that allow various redevelopment scenarios to be postulated, evaluated and visualised by the full range of stakeholders. These tools don't just show how redevelopment options will change a neighbourhood or a precinct, they allow the impacts of enhancing a train network, hospital, school or road to be comprehensively modelled and objectively evaluated. To date, outputs from our research have been embedded into public policy to optimise community outcomes through redevelopment and infrastructure investments across Australia and New Zealand.

RESEARCH FOCUS

Cities of the future must balance the demands of a growing population, against the issues of serviceability, liveability and environmental sustainability. Achieving this difficult balance won't just happen. Success demands forward-looking, strategic thinking, careful and well-informed design and a vital awareness of what the communities of the 21st century and beyond need to stay happy, healthy and functional. Data will be the key that unlocks this future, allowing us to prepare for the challenges of modern, mega-cities. FrontierSI will play a key role by using its links to government at all levels, the private sector and the research community to bring the vital spatial element to bear on future, smart city planning. Our contribution will be to combine technology, big data, people and new spatial analytics tools to ensure our cities are attractive, environmentally friendly and economically sustainable.

FUTURE PLANNING THROUGH DATA CONNECTIONS



THEMES

- **Knowledge-based tools –** we will expand existing software tools (e.g. Envision, Envision Scenario Planner, RAISE) through the addition of new integrated infrastructure modelling capabilities
- **Quality data inputs –** we will evaluate and integrate existing and emerging (near) real-time data sources to identify and extract the value for future smart city planning decisions
- **City analytics –** we will develop new analytic techniques to discover, interpret, create and communicate fit-for-purpose information for better planning outcomes

AIMS

- Identify and scope major technical barriers to urban renewal
- Work across sectors and with related disciplines to understand data needs
- Unlock diverse data holdings from disparate sources
- Develop new modelling and spatial analytics tools to address identified barriers
- Engage stakeholders to validate, refine and utilise new data and tools

OUTPUTS

- Automated property valuation and value uplift suite
- Transport and public infrastructure analysis capability
- Access to integrated and value-added data sources
- Tools to aid stakeholder engagement and accelerate planning decisions

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We know where.

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