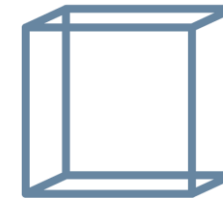
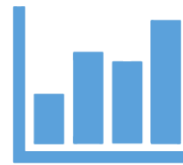
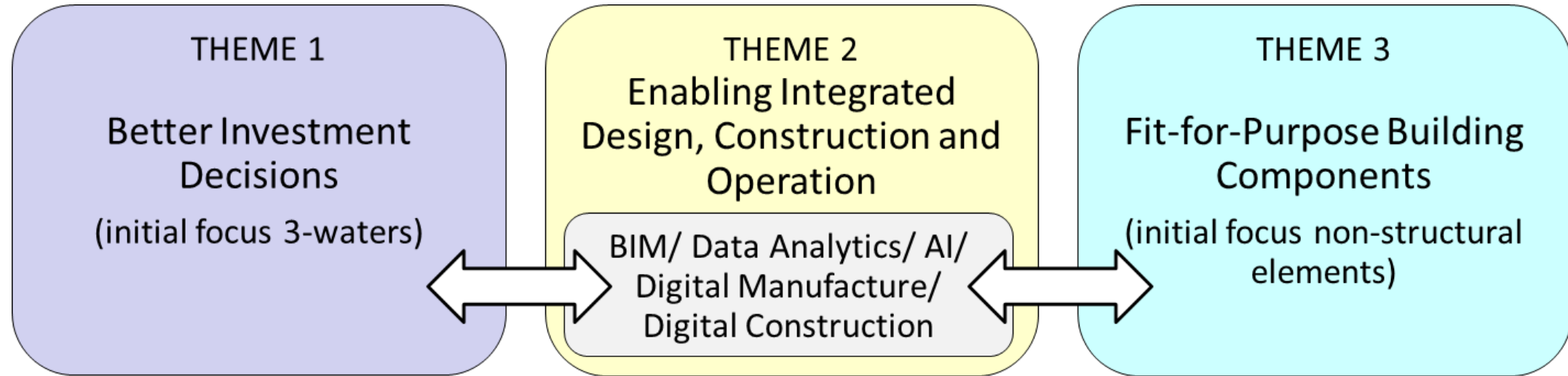


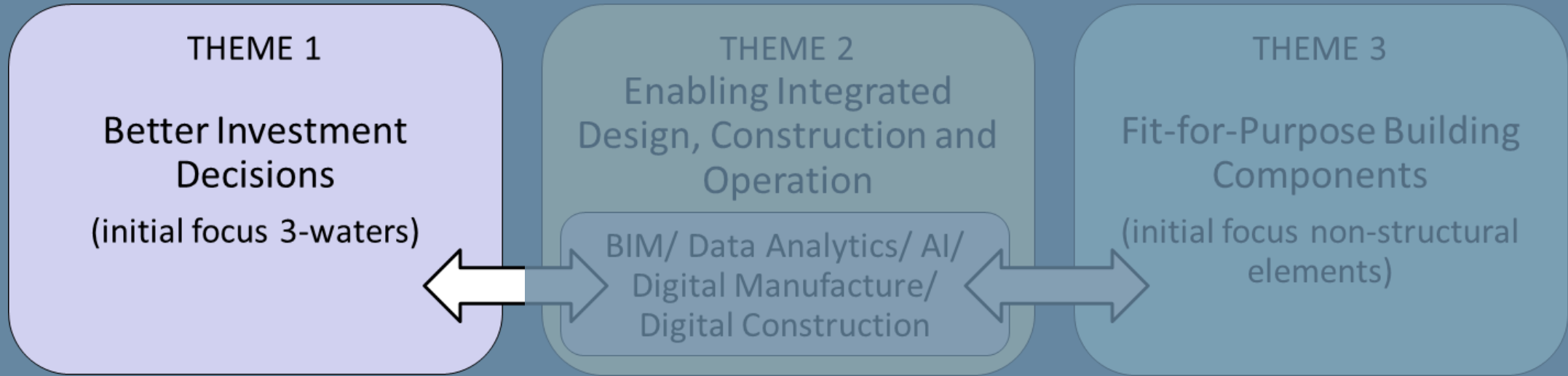
# BUILDING INNOVATION PARTNERSHIP (BIP)



- Industry-led research programme based at Uni. of Canterbury
- \$12.5m (40% funding from MBIE's Partnerships Scheme and 60% from industry)
- 7 years (2018-2025)
- Improve resilience, sustainability and economic performance of infrastructure (horizontal and vertical)
- Programme delivered through 3 interlinked themes
- Led with assistance of industry champions

# BIP IS DELIVERED THROUGH THREE INTERLINKED THEMES





Improved infrastructure planning and investment tools and decision-making



Theme Leader:  
Theuns Henning  
Uni of Auckland

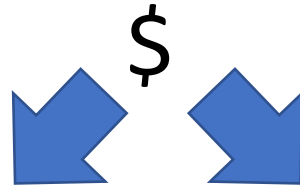


Industry champion:  
John Mackie,  
Golder

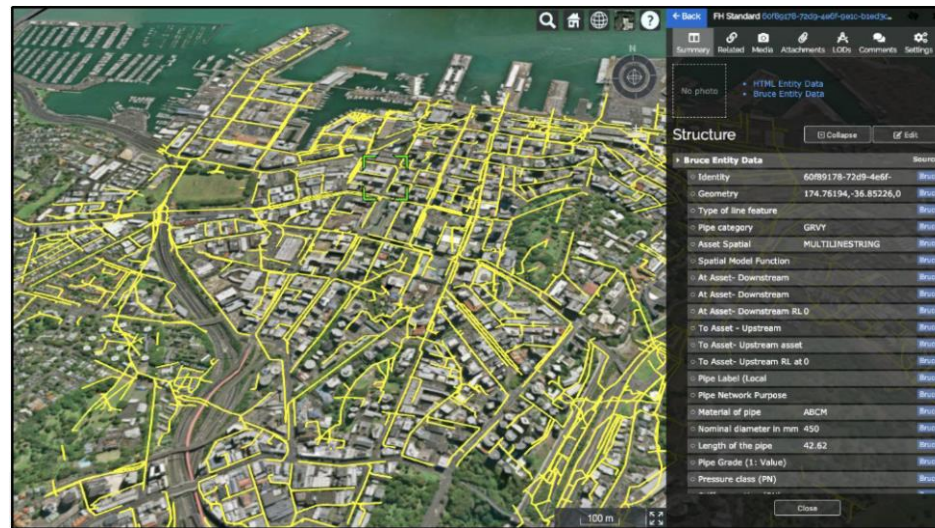


RA: Purvi Pancholy  
PhDs: 1

# THEME 1 CHALLENGES



better able to quantify and 'sell' benefits of infrastructure



better able to 'tap' data to predict and manage infrastructure performance (digital twins)

# THEME 1 PROJECTS (2020)



## PIPE CONDITION TECHNOLOGY ASSESSMENT

Review pipe condition assessment technologies for pressure water pipes

## NATIONAL DIGITAL INFRASTRUCTURE MODEL

Support development of infrastructure data standards and analytics for 3-waters digital twins

## RESIDUAL LIFE OF PIPES

Improve pipe deterioration, residual life and valuation analytics

## INFRASTRUCTURE INVESTMENT DECISION-MAKING

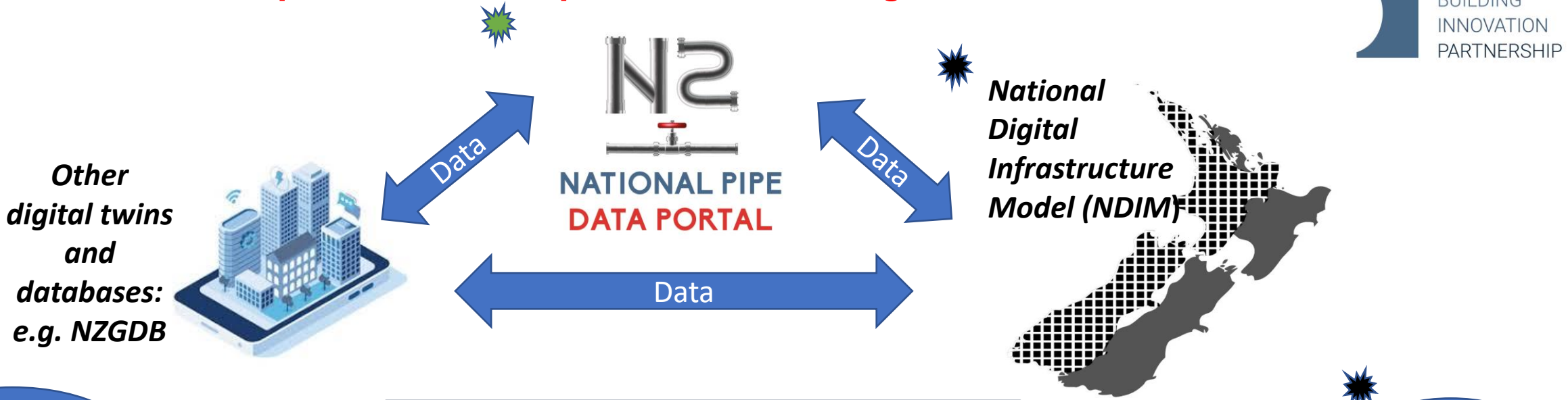
Develop investment decision-making methods that account for wellbeing and holistic benefits

## REVIEW OF INFRASTRUCTURE PROCUREMENT

Identify issues and options for improving procurement practices

# Data for Evidence-based 3 Waters Decision-making

*The National Pipe Data Portal's place in maximising value from our data*

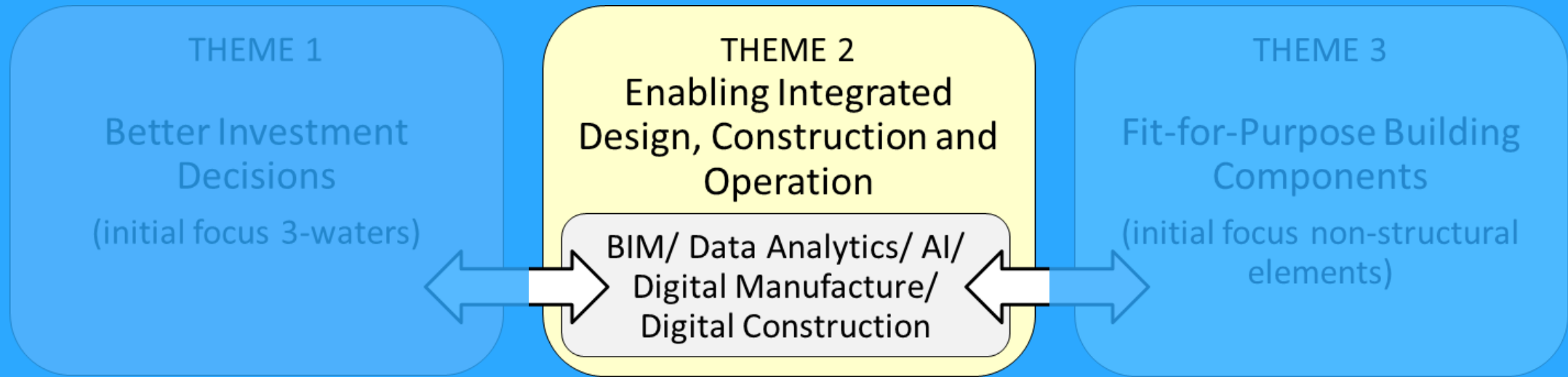


## Indicative use cases

- National surveying design standards
- Integrated planning
- Urban flood digital twin
- Risk of failure assessment
- Valuations
- Data quality and large scale analytics
- Economic life of pipes

## Benefits: Insights and information for better decision-making

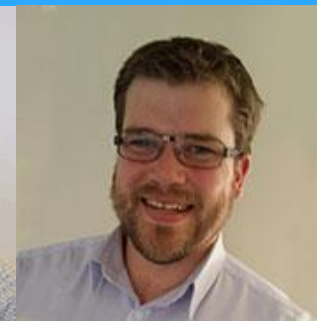
- Cost and time saving
- Performance benchmarking
- Better environmental outcomes
- Improved resilience and risk management
- Appropriate insurance cover
- Forward works and coordination across sectors
- Climate change adaptation and mitigation



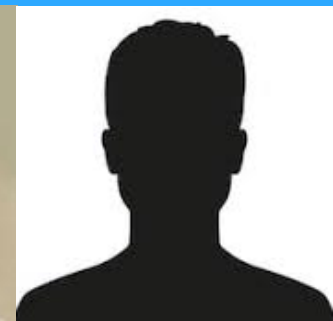
Accelerate digitisation of building industry



Theme Leader:  
Robert Amor,  
Uni of Auckland



Industry champion:  
Ben Broad, Trimble,  
Christchurch



RA: Dan Jones  
Post-doc: TBA  
PhDs: 3

## THEME 2 CHALLENGES



use digital methods/technologies to automate selected processes

use digital methods/technologies to reduce mistakes/improve quality, improve coordination and help manage risk and responsibilities



## THEME 2 PROJECTS (2020)



### REVIEW DIGITISATION OF BUILDING INDUSTRY

Identify issues and options for deployment of digital methods and technologies

### QUALITY ASSURANCE FOR DIGITAL BUILDING CONSENTING

Support the development of digital building consenting

### AI APPROACHES TO CODE COMPLIANCE CHECKING

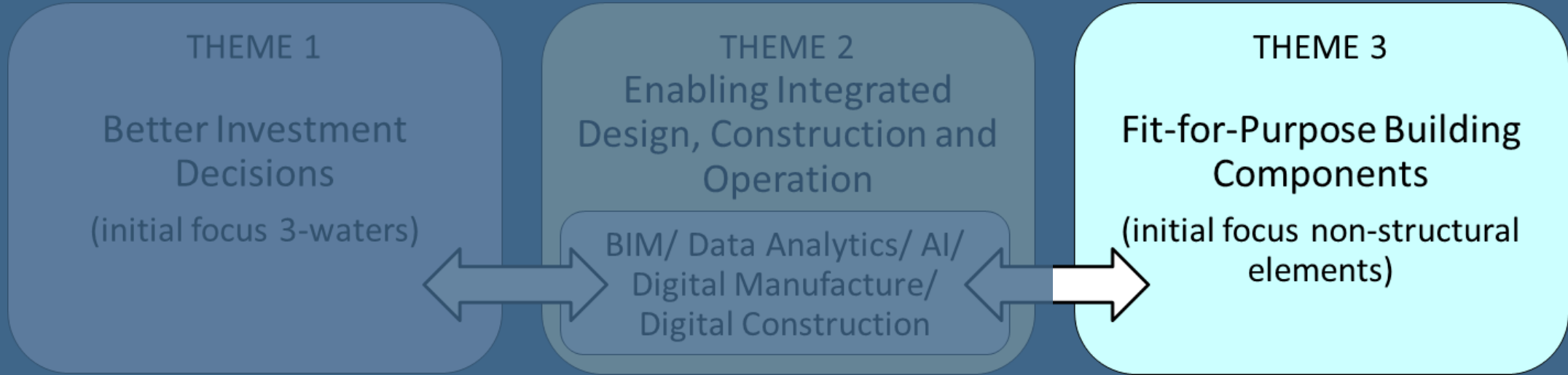
Support the development of digital building consenting

### DIGITAL BUILDING PERFORMANCE METRICS

Develop metrics that indicate the performance and value of digital technologies

### INNOVATIVE DIGITAL BUILDING CASE STUDIES

Develop and pilot innovative digital design, construction and asset management technologies on building projects



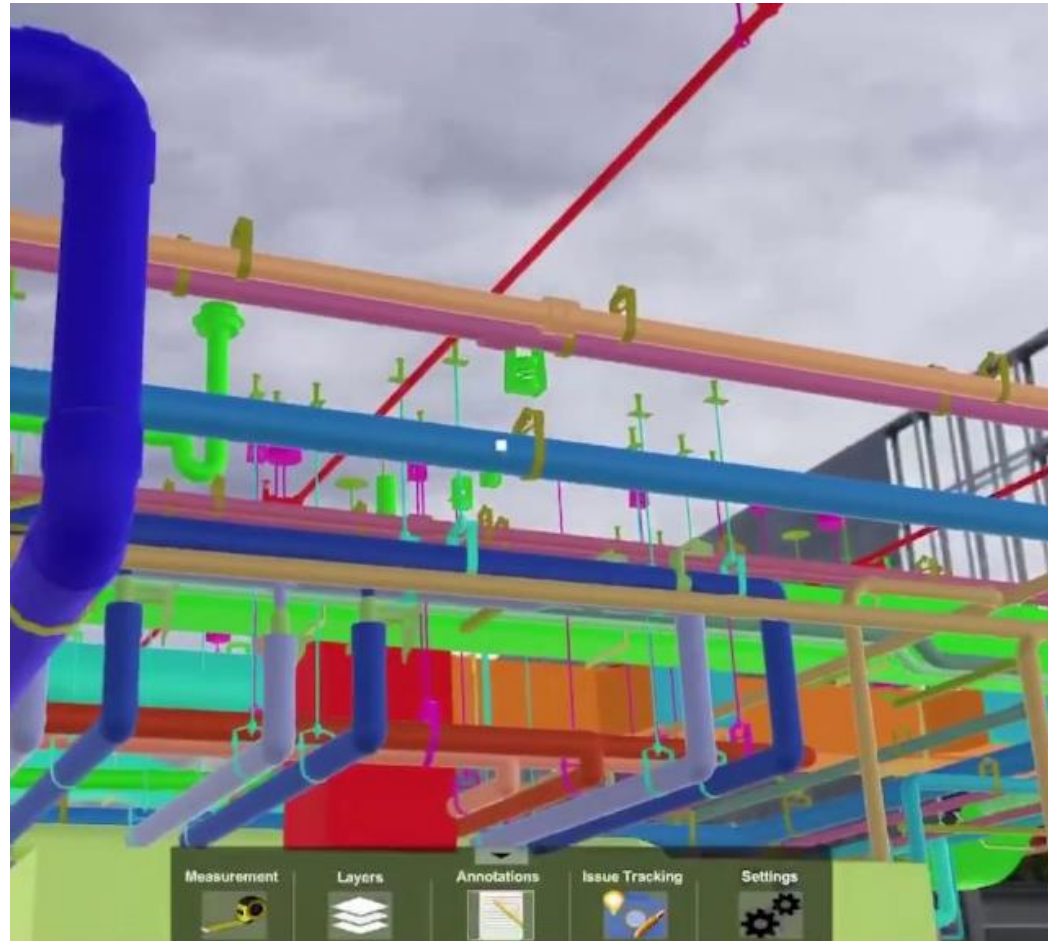
Improved resilience and affordability of buildings



Theme Leaders:  
Rajesh Dhakal and Tim Sullivan

Industry Champion: RA: Miyank Tripathi  
Jan Stanway, WSP  
PhDs: 2

## THEME 3 CHALLENGES



improve design, construction coordination and quality assurance of non-structural elements (address system failure)

## THEME 3 PROJECTS (2020)



### EXPERIMENTAL INVESTIGATION OF TRADITIONAL AND LOW-DAMAGE NON-STRUCTURAL ELEMENTS

Develop and test NSE and improve design methods

### STRATEGIC REVIEW OF DESIGN AND CONSTRUCTION OF NON-STRUCTURAL ELEMENTS

Identify issues and options for improving the design, construction and performance of NSE

### FACILITIES FOR EXPERIMENTAL TESTING OF NON-STRUCTURAL ELEMENTS

Determine NSE testing protocols and facilities needed for NZ

### NON-STRUCTURAL ELEMENTS GUIDANCE

Develop harmonised guidance (or code of practice) for design and construction of NSEs

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