



CALL FOR PROPOSALS FROM FRONTIERSI PARTNERS

PROPOSALS TO SUPPORT THE CREATION AND
USE OF DIGITAL TWINS

GUIDELINES DOCUMENT

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1. Background

Digital Twins are beginning to leverage the rapid proliferation of rich, dynamic, and highly precise 3D spatial data with sophisticated analytics capabilities to provide unprecedented insights to end users. FrontierSI and its partnership network already have deep expertise in spatial data and technologies which underpins the creation and operation of Digital Twins, and it is this expertise which needs to be leveraged to advance the development of Digital Twins. FrontierSI use the definition of digital twin adapted from Gartner (2017)¹ which states, *a digital twin is a dynamic digital representation of a real-world object or system.*

ANZLIC – the Spatial Information Council develops and influences policies and strategies for maximising access to and use of Australian and New Zealand spatial information. ANZLIC identified Digital Twins as one of its four priority areas in its [collaborative framework](#) in November 2018, having identified the development of Digital Twins as a priority area in 2020 and beyond through [wider consultation](#) on the development of its future strategy. ANZLIC has also recently released its [Principles for Spatially Enabled Digital Twins of the Built and Natural Environment in Australia.](#)

State and Territory governments are being challenged to provide access to 3D/4D cadastral data for integration with building models and other property data to form an integrated Digital Twin. In recent times, there has been significant progress in delivering these spatially enabled Digital Twins however, there remains many high-level challenges that need to be addressed to operationalise digital twins of our cities and natural environment.

FrontierSI, through its co-funding of research and innovation, is seeking to invest in projects which significantly advance the creation of digital twin products and services in support of its government partners' priorities. The benefits from the next generation spatially enabled Digital Twins will be maximised if we can collaborate, share our data and make Digital Twins accessible within an ecosystem for the broadest possible range of users. As a not-for-profit organisation FrontierSI is determined to build the spatial capabilities across government, industry and universities to enable an ecosystem of integrated digital twins.

Not only will Digital Twins be important to our cities, they will also have a significant impact on our regional, rural and remote communities. Through this call, FrontierSI is also keen to better respond to the challenges of our changing environment as well as developing tools for more resilient communities. This means proactively investing in innovative approaches to applied data and technologies that will support better decisions, more productive industries and sustainable practices. Place-based digital twins will enable more effective use of data to understand place-based policy and planning issues, test potential interventions, and deliver more sustainable planning and development; thereby improving decision-making efficiency and effectiveness and improving social, economic and environmental outcomes. This is now critically important in the face of emerging challenges such as high population growth and associated housing and infrastructure investment, climate change and sustainable development, and community expectations of improved liveability and equity.

It is expected that projects seeking FrontierSI support will involve a collaborative team comprising government, industry and/or university partners. Roles of partner organisations will vary depending on the nature of the problem and the solution. FrontierSI is seeking to support the renewed prioritisation of Digital Twins from ANZLIC based jurisdictions through this targeted call for co-investment proposals to its partners.

¹ Adapted from Gartner (2017) *Prepare for the Impact of Digital Twins*, <https://www.gartner.com/smarterwithgartner/prepare-for-the-impact-of-digital-twins/>, accessed 15/07/2019

2. Funding amount and period

Funding available

FrontierSI will co-fund up to \$100,000 per project for eligible costs. Co-funding of at least 1:1 is required, however those that have greater than 2:1 funding ratio will be reviewed favourably.

Project period

The maximum project period is 2 years commencing July 1, 2020.

3. Eligibility criteria

To be eligible you must:

- a) Be either a government, industry or university partner of FrontierSI (see FrontierSI website for list). Government partner participation will be considered favourably.
- b) Provide evidence of support and potential use from the intended end-user of your project outcomes
- c) Provide matched funding of at least 1:1 against the funding request, with projects exceeding a 2:1 funding ratio, or leading to larger standalone projects being favourably considered.

4. Eligible expenditure

Expenditure on the following activities is considered eligible:

- a) Translating research and development to assist in the creation and/or use of Digital Twins
- b) Product and service development which build on existing Digital Twin capabilities
- c) Process design and engineering which enable the development of future Digital Twin products and services

You must incur the project expenditure between the project start and end date, as defined in your project agreement, for it to be eligible.

5. Evaluation & Priority areas

Proposals must meet the FrontierSI Investment Criteria outlined in Appendix 1 as well as the Digital Twin Priority areas outlined below.

Priority areas

FrontierSI is seeking proposals from its partners which are focused on the translation of research into services and products for the creation and use of Digital Twins. Proposals should address one or more of the following aspects of digital twins:

- Operational use cases of digital twins within the built environment.
- Development of digital twins to address challenges within the built and natural environments.
- Development of standards and business models which support the deployment of new digital twin products and services.
- Exemplars of operational digital twin governance frameworks, standards and data licencing – enterprise licensing for digital twin data access and use.
- Use of new technologies (eg AI and machine learning automated feature extraction) for digital twin data supply and analytics
- Innovative uses of real-time sourced 3D data and/or 4D data in analytics and decision-making.

FrontierSI will consider additional suggestions for digital twin related projects. These should be discussed with FrontierSI before submission.

6. Preparing and submitting an initial response

Interested parties should submit a Stage 1 FrontierSI Initial Assessment Co-funding Project Proposal using the attached template (Attachment 1), and emailing to the FrontierSI Head of Partner Engagement, Paula Fievez at pfievez@frontiersi.com.au by **5:00 pm (AEDST) Friday March 6, 2020**.

7. Assessment Timeline

The assessment will be a two staged process to ensure projects unlikely to be supported do not invest too much time on a detailed submission. The timing of each stage is outlined below:

Call for submission release	Monday February 17, 2020
Call for proposals Stage 1 submission due	Friday March 6, 2020
Proponents notified and requested to submit stage 2 proposal	Friday March 20, 2020
Stage 2 proposal due	Thursday April 9, 2020
FrontierSI assessment and selection	Friday May 1, 2020
Committee & Board approval	Friday May 22, 2020
Proponents notified	Monday May 25, 2020
Project Agreements formulated	May 25-June 30
Projects commence	July 1, 2020

8. Successful Applications

Project Agreement

Project Partners will be expected to enter a FrontierSI Project Agreement.

Payment of Project Funding

Project payments will be milestone based.

For more information regarding this EOI:

FrontierSI can assist in facilitating proposal development. Please contact:

Paula Fiévez, Head of Partner Engagement

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Graeme Kernich, CEO

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Appendix 1: FrontierSI Investment Criteria

	#	Criteria
Stage 1	1.	Alignment to priorities a) Does the project align with the identified priorities, including a substantive spatial element (fundamental or applied)? b) Does it fit with FrontierSI's strategic objectives? I. High Impact: Broker high impact spatial solutions to complex problems; II. Drive Impact: Drive adoption of spatial outcomes; III. Sustainable Future: Ensure sustainability through a strong partner base through a solid reputation for excellence in delivery; and IV. Collaboration and Innovation: Multi-sectoral problem-solving with a creative and collaborative approach.
	2.	Investment a) Is the external cash investment greater than or equal to the FrontierSI cash request? b) Are intended end-users involved as Project Participants?
	3.	Utilisation or Commercialisation² Does the project include the development of a utilisation plan or have a defined route to utilisation?
	4.	Impact³ a) What is the likely impact for partners? b) What is the likely impact for the spatial industry? c) What is the likely impact on other industry sectors?
	5.	Organisational Benefit Does the project extend or expand existing capability, grow new skills or expertise, or is it likely to generate further activity?
Stage 2	6.	Project Rigour a) Does the project present an exceptional idea worth pursuing? b) Are the outcomes being proposed novel and/or innovative? (as opposed to R&D already published/developed) c) Does the project have a well-developed methodology? d) Is the science sound and defensible? e) Does the project use a high-quality team with strong industry engagement experience? f) Is the project budget well justified? Does it cover all project costs, including those of FrontierSI? g) Will the project deliver well defined and usable outcomes? h) Does the proposal adequately identify and mitigate risk? i) Are there appropriate decision points to ensure the project can be terminated early if necessary?

² Every project is expected to either (1) Design and implement a strategy to achieve broad *utilisation* of project outcomes, or (2) With the support of the FrontierSI commercialisation team, develop a plan to pursue *commercialisation*.

³ Impact can be measured in economic, social and/or environmental terms.