



SPATIAL W

A BENEFITS DRIVEN DIGITAL TWIN APPROACH



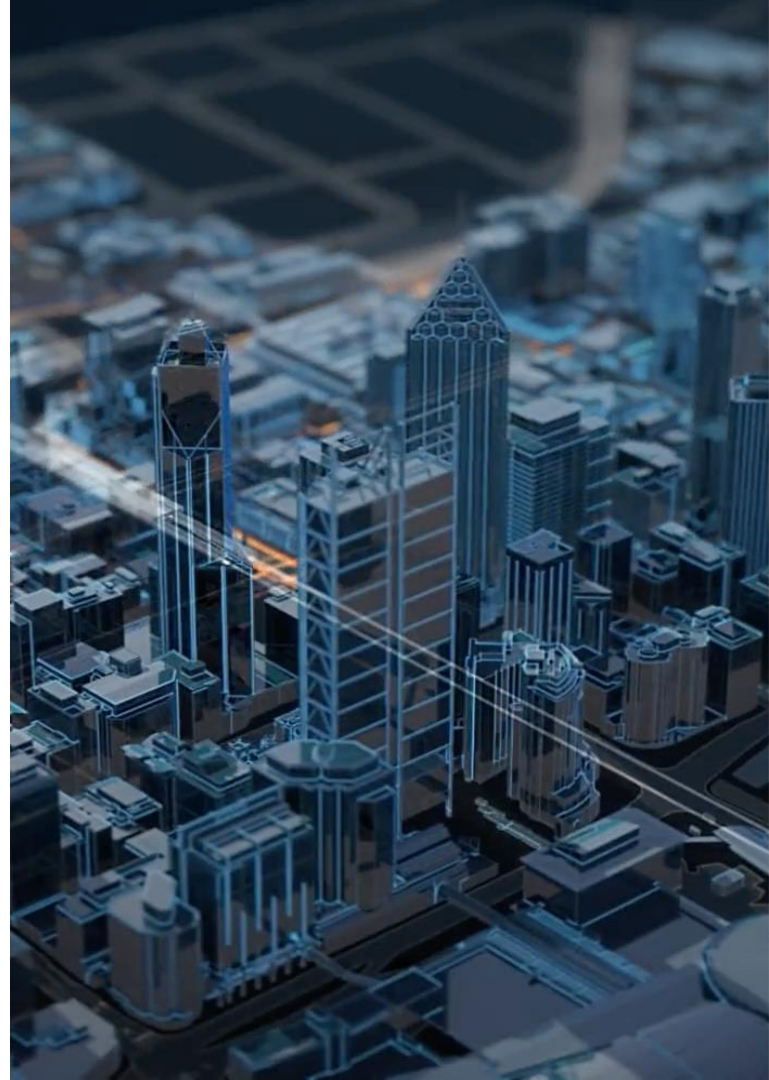
Acknowledgement of Country

I respectfully acknowledge the past and present Traditional Owners of this land on which we are meeting, the Whadjuk Noongar people, and pay my respects to their Elders past, present and emerging, and I extend that respect to other Aboriginal people who are present here today.

Mambakoort depicts the heart of the ocean, the energy of life. Ballardong Elder Trevor Davis painted this piece and describes it as the 'balance of the ocean for all sea creatures through boundless connections to the Mambakoort (heart of the ocean), forming an organic source of life between land and ocean for Noongar people'.

01 WHERE HAVE WE COME FROM?

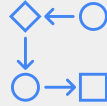
- In 2019, Landgate investigated opportunities to fully realise the value of 'where'
- This investigation validated six common challenges across Government
- As pressure increases, access to the right data at the right time is paramount to inform decisions that impact our land, our assets, and our community
- To tackle these challenges, the Spatial WA program was established



02 THE SIX CHALLENGES



LACK OF COMPREHENSIVE
DATA SHARING BETWEEN
AGENCIES



REQUIREMENT FOR AGENCIES TO
MODIFY SHARED DATA FOR USE



SILOED PLANNING AND
APPROVAL PROCESSES
BETWEEN AGENCIES



MISSED OPPORTUNITY TO
FULLY LEVERAGE 4D, SMART
CITY AND DIGITAL TWIN
TECHNOLOGIES



LIMITS ON IT SYSTEMS TO
MANAGE AND REPRESENT
ASSETS AND OTHER DATA



DUPLICATION OF SPATIAL
SOLUTIONS AND DATA,
INCREASING COST AND
COMPLEXITY



03 WHAT IS SPATIAL WA?

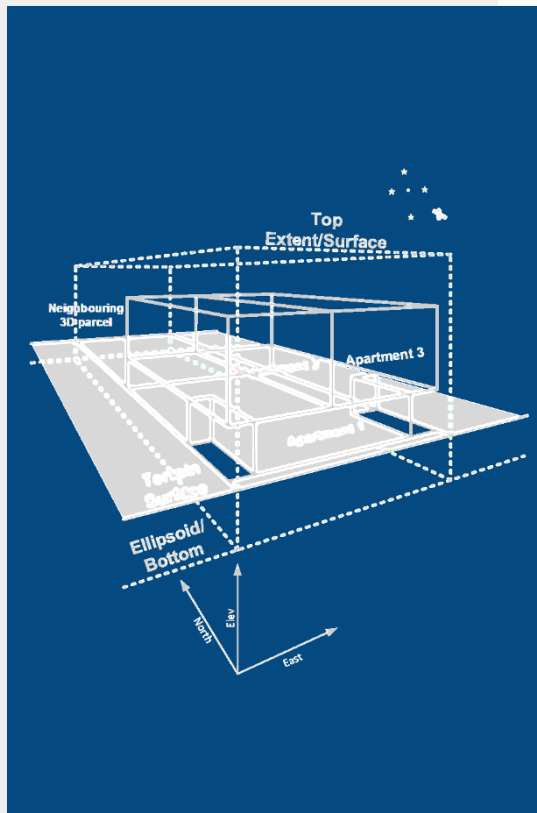
Spatial WA is a program tasked with delivering an Advanced Spatial Digital Twin (ASDT), enabling the WA Government to better plan, design, test, and collaborate using a highly accurate virtual environment.

04 NEXT GENERATION SPATIAL CADASTRE

The NGSC will uplift Western Australia's current spatial cadastre to 3D/4D.

The NGSC will:

- Improve alignment of land and property boundaries
- Accurately visualise where boundaries exist above and below a surface (3D)
- Determine potential impacts relating to land and property
- Collaborate, streamline and automate resource intensive processes to maintain boundary datasets
- Provide a foundational capability underpinning Land Titling and the land development process



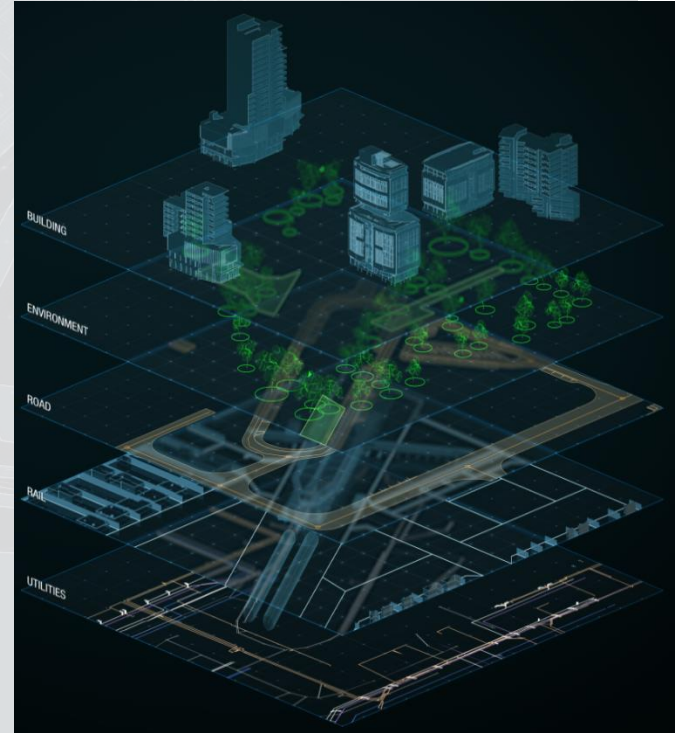
05 SPATIAL DIGITAL TWIN

The SDT platform will provide a digital, spatially accurate representation of the built and natural environment.

The SDT will:

- Serve as a central hub to access the wealth of government datasets
- Provide secure spaces for sharing, collaboration and analysis of data
- Incorporate advanced modelling and workflow capabilities
- Enable discovery, management and place-based analysis of the State's data

The SDT will empower users to collaborate, plan, and simulate scenarios in a highly accurate virtual environment.



06 SPATIAL WA DATA MANAGEMENT FRAMEWORK

Data modernisation

Spatial data management lifecycle

Identify

Ensures data is created and acquired in a way that supports integration and use within the ASDT.

Prepare

Ensures data (including metadata) is prepared in a way that users have confidence in potential use and limitations of the dataset.

Secure

Ensures consideration is given to implementation of open data principles while protecting data privacy and mitigating associated risks.

Supply

Ensures consideration is given to how data will be supplied and integrated for use within the ASDT.

Manage

Ensures data will be properly managed and stored in consideration of agency resourcing and system constraints.

Use

Ensures the availability of data for use within the ASDT is appropriately communicated to users.

Update

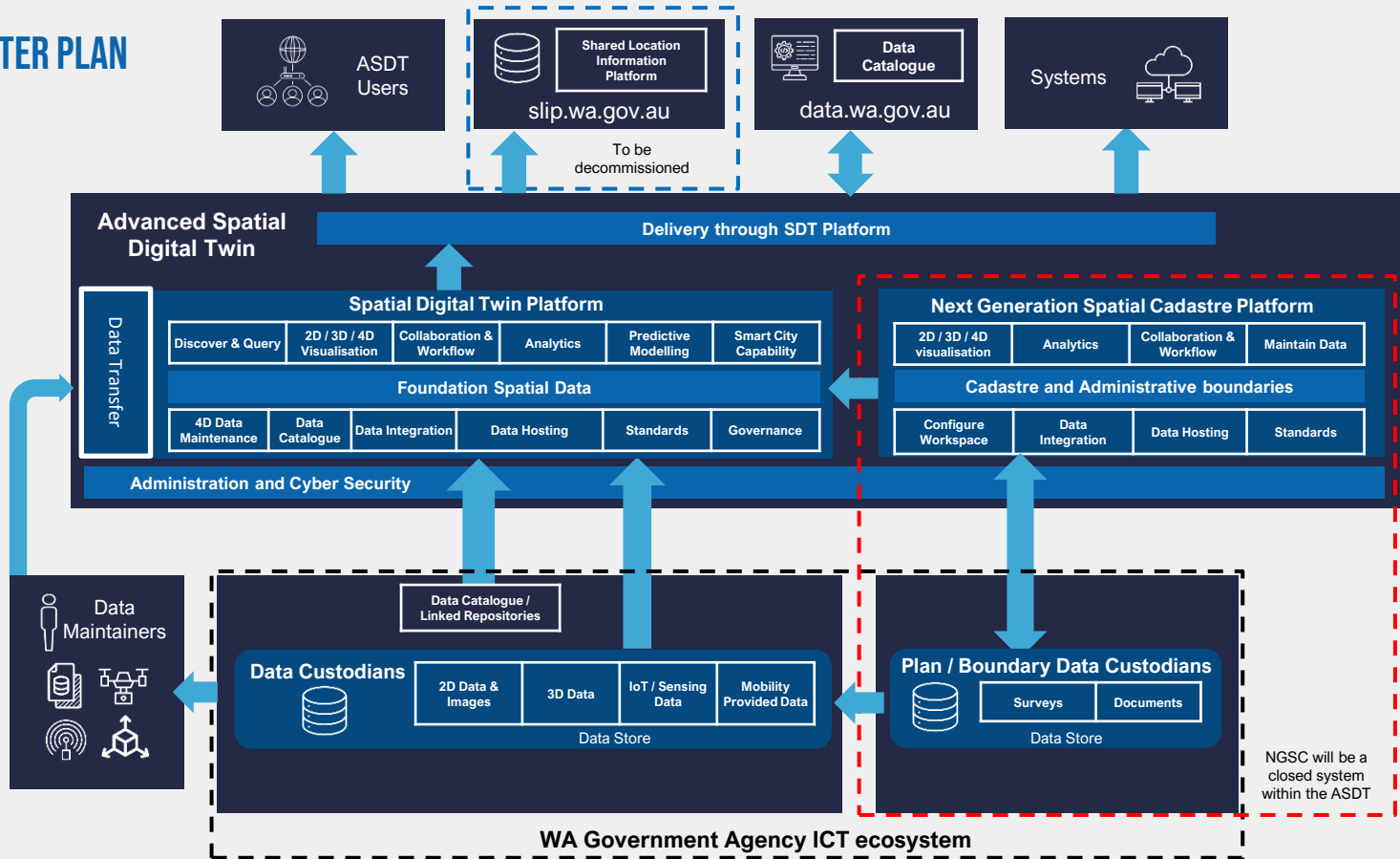
Ensures data is properly updated (maintained) within the ASDT to support efficient use of system resources and maintenance of data quality.

Retire

Ensures disused datasets are retired, records are appropriately managed and archiving processes are implemented.

Platform security controls

07 THE MASTER PLAN



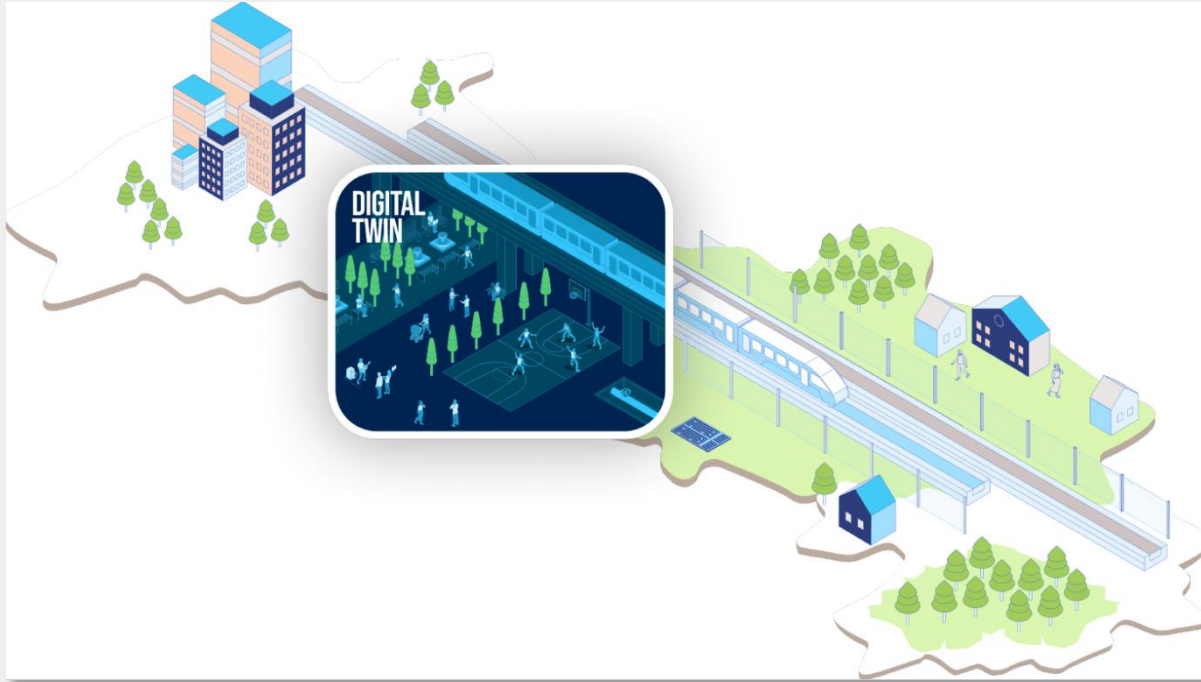
USE CASES

DEFINING WHERE THE BENEFITS WILL BE

SPATIAL WM

08 INFRASTRUCTURE PROJECTS & ASSETS

Planning and delivering new infrastructure is hampered by a lack of data access - increasing costs, delays and poor outcomes.



Objectives

- Support infrastructure projects by providing insights for asset planning, delivery or relocation and ultimately enable a digital record for the asset's ongoing management.
- Support wider precinct planning, delivery and management for the area surrounding the infrastructure project.

09 DIGITAL APPROVAL WORKFLOWS

Land development approvals are constrained by inefficient data collation and lengthy referral processes - increasing costs and delaying development.



Objectives

- Support the delivery of a common framework to accept, manage and visualise digital spatial data to support assessments and referrals relating to the land development process.
- Investigate how spatially aligned 3D Building Information Modelling and other spatial data will streamline approvals as part of the land development process.

10 EXPOSURE MODELLING FOR EMERGENCY MANAGEMENT

Critical data needed for emergency planning is siloed, impacting planning and prevention activities - putting lives at risk.



Objectives

- Develop and implement an exposure modelling capability to support Western Australian emergency management.
- Utilise the exposure modelling capability to improve location information on exposures by providing a platform for data sharing and scenario modelling and enhancing common understanding of exposures and risk.

11 ADMINISTRATIVE BOUNDARIES FOR 4D LAND MANAGEMENT

Navigating complex regulations around land boundaries and disparate datasets limits investment opportunities in WA.



Objectives

- Utilise a 4D cadastre to support alignment of multiple administrative boundary datasets, minimising duplication and providing authoritative and trusted data.
- Better utilise coordinated administrative boundary data to support investment analysis of what rights, restrictions, and responsibilities users have for a location.

SUMMARY

SPATIAL WA

12 THE ADVANCED SPATIAL DIGITAL TWIN



Spatial WA will combine the NGSC and SDT to deliver the Advanced Spatial Digital Twin (ASDT).



A data management framework will be developed to support agencies to uplift their data for use in the ASDT.



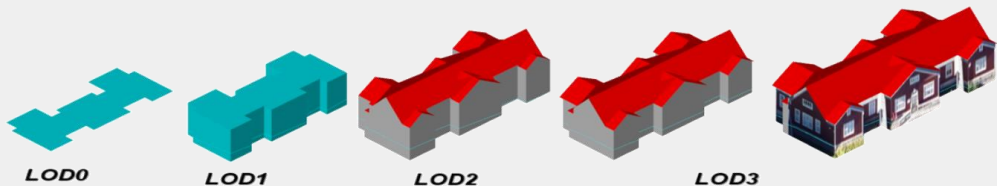
The ASDT will provide confidence to Government, industry, and the public prior to investing in new projects and services impacting communities in Western Australia.



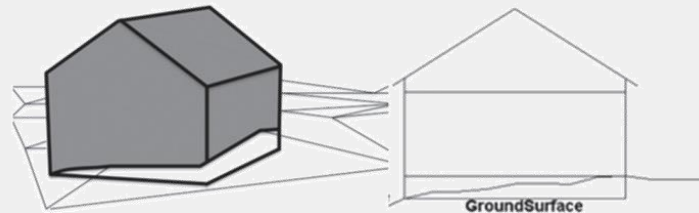
13 CHALLENGES

- Forming a new foundational '3D' buildings dataset and maintaining this.

Lod levels on Buildings



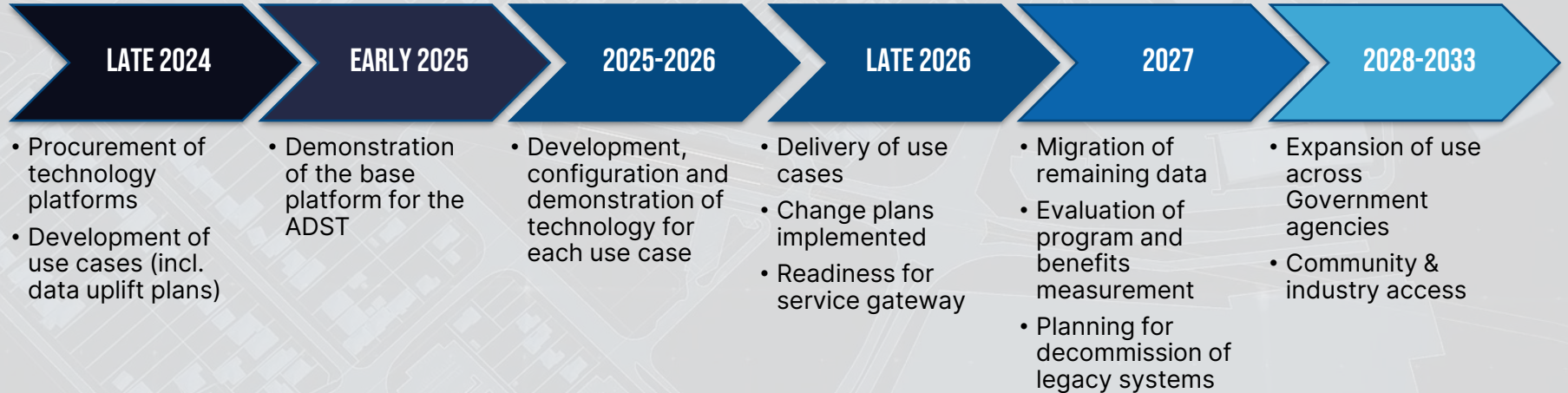
A building rendered at different levels of detail.



- Priorities of other agencies & projects
- Skilled resources
- Fatigue

13 DELIVERY TIMELINE FOR ADVANCED SPATIAL DIGITAL TWIN

Spatial WA will be delivered using a staged approach.



THANKYOU

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SPATIAL WA PROGRAM DIRECTOR

SEE MORE: <http://bit.ly/SpatialWA>

SPATIAL WA

