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Brisbane Airport: embracing geospatial, digital engineering and neurodiversity

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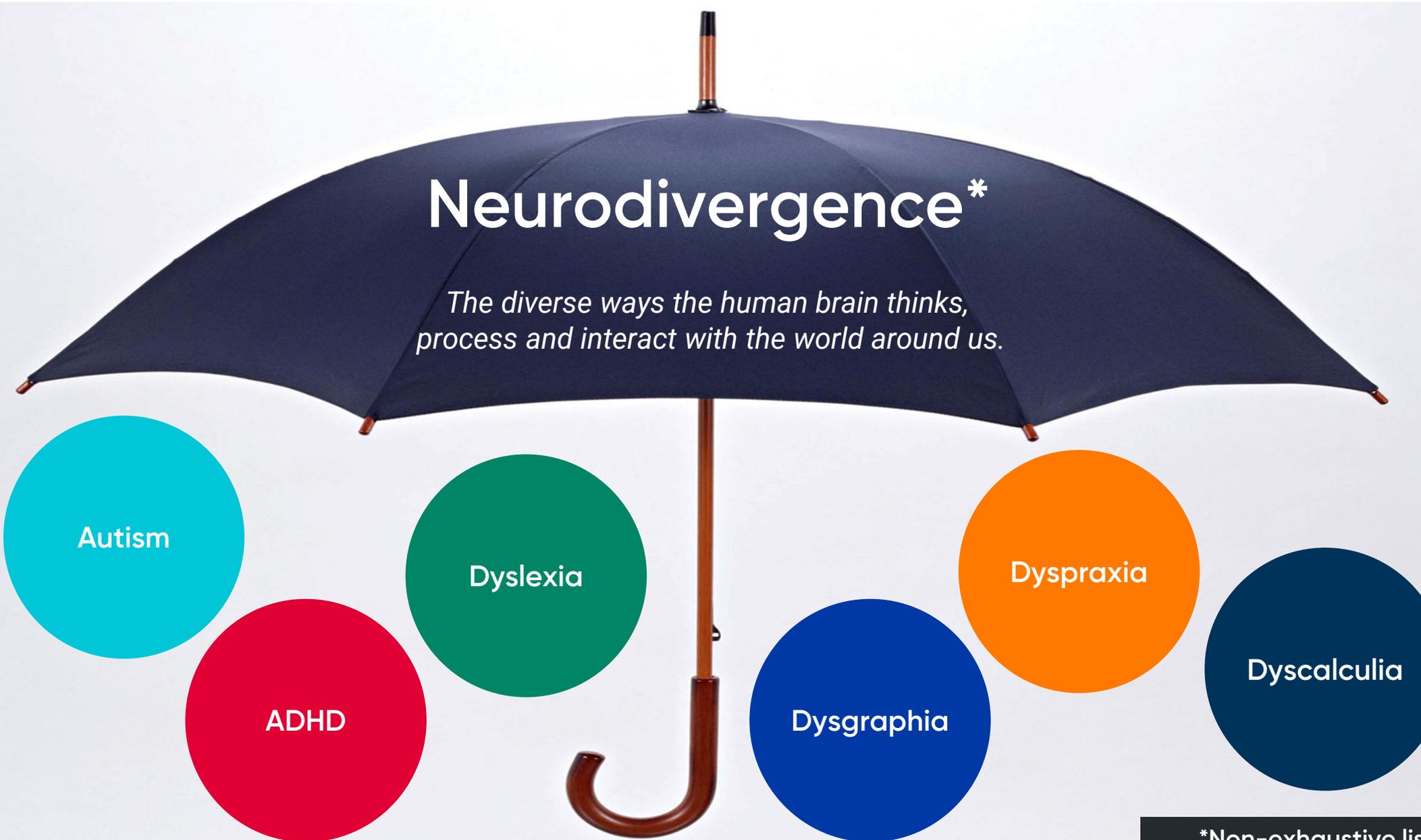
About Australian Spatial Analytics

Providing big data services + careers for young neurodivergent adults

Australian Spatial Analytics

- Founded in 2020, national footprint
- Strengths based Enterprise solving industry challenges with a (neuro)diverse workforce
- Geospatial, Engineering and Asset Management professional services
- 60+ people: 80% neurodivergent (e.g. Autism, ADHD)
- Careers created for over 220 people to date
- FY2024 Impact:
 - 166,000 hours employment
 - \$6.9m wages paid





Neurodivergence*

*The diverse ways the human brain thinks,
process and interact with the world around us.*

Autism

ADHD

Dyslexia

Dysgraphia

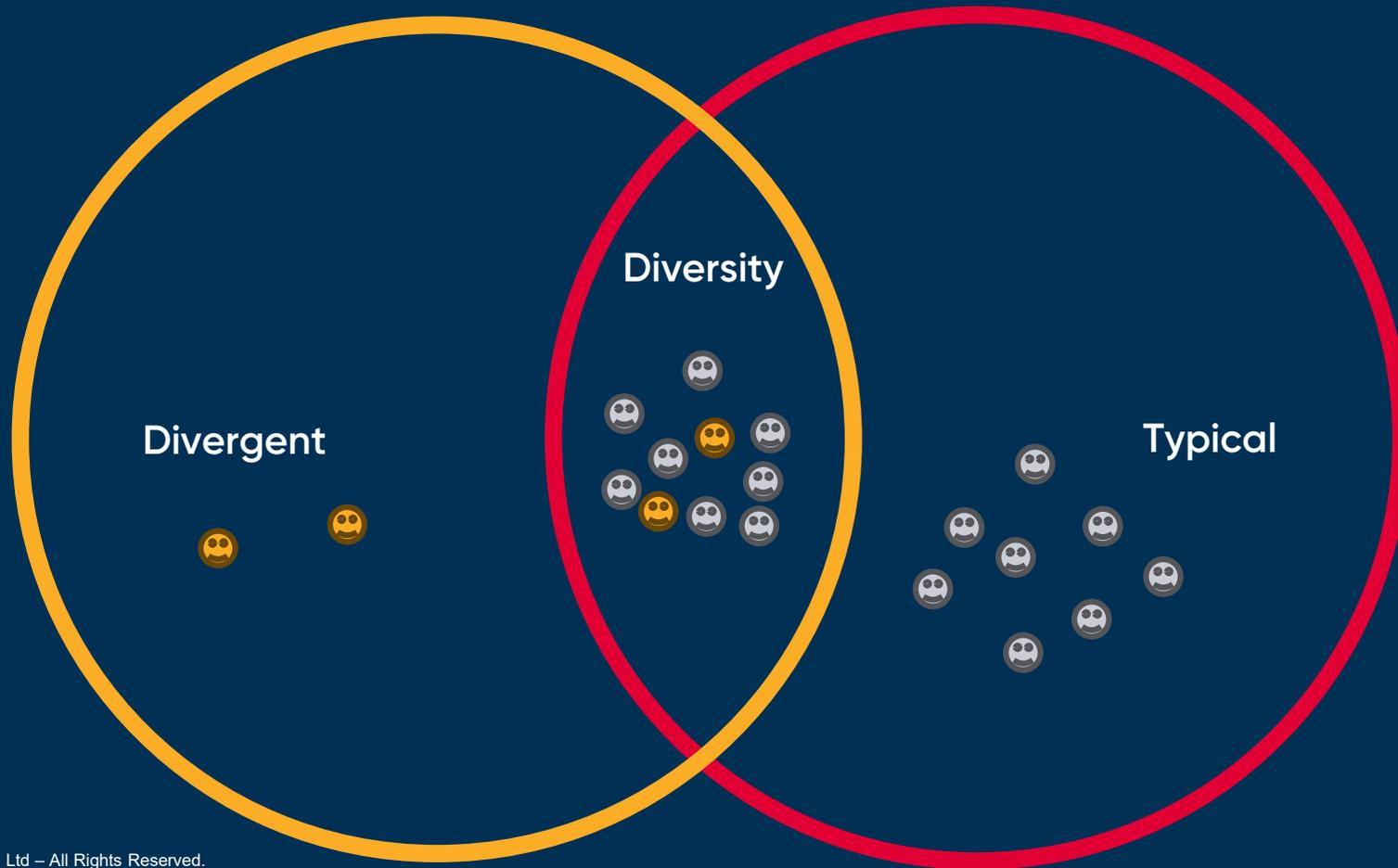
Dyspraxia

Dyscalculia

*Non-exhaustive list...



(NEURO) Diversity...



Neurodivergence in Australia

>375,000 Autistic Australians (1 in 70)

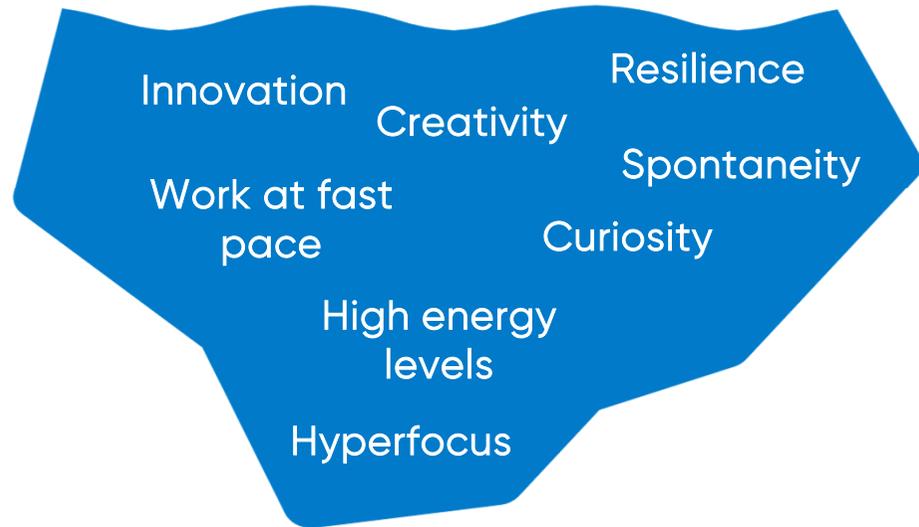
34% Autistic unemployment rate (10X national)

38% Dyslexic people are underemployed

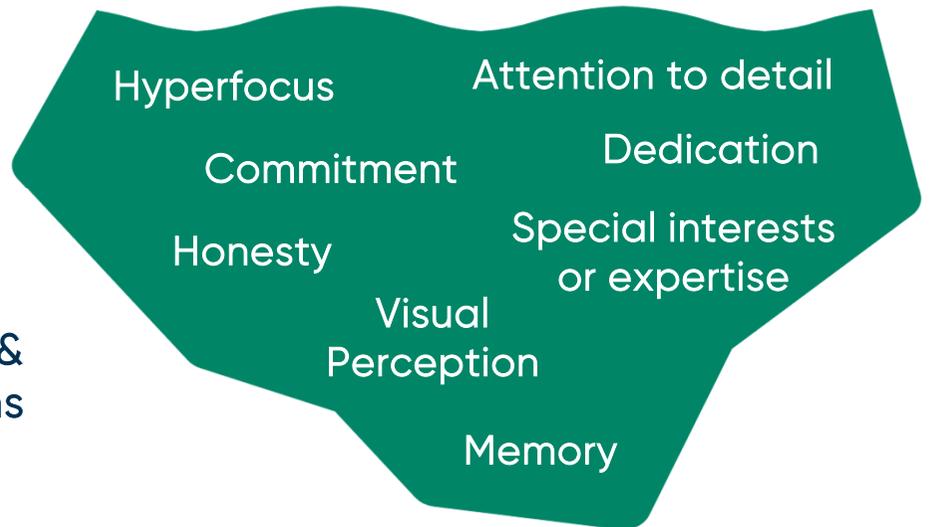
10% Less likely to be employed due to ADHD



Neurodivergent strengths



Talents & strengths



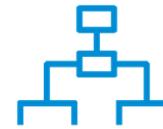
From 'Disability' to Capability

Special interests

- Information and systems
- Sorting, categorising and organising
- Vehicles and transportation
- Construction and LEGO
- Technology and video games



Geospatial



Data Management



Digital Engineering

Geospatial

- Land, Property & Environmental Mapping
- Asset Information Management
- Survey Data Processing & Drafting
- AI/ML Training



Cartography & mapping



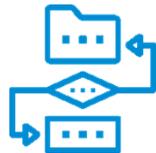
Spatial Analysis



Data classification and labelling



GIS Data Creation



Data digitising & conversion



Data cleansing & QA



Survey Drafting



Point Cloud Processing



Imagery processing

Digital Engineering

- Design and Construction Drafting
- Building Information Modelling



CAD, Design & As-built Drafting



Construction data management



Clash Detection



Data digitising & conversion



Level of Detail Improvement



Asset Information Management



Point Cloud Verification



Scan to BIM



3D Modelling

Industry Skills

Geospatial



ArcGIS Pro



ArcGIS Enterprise



ArcGIS Online

QGIS

precisely

FME
by Safe Software



Smallworld

Bentley
MicroStation



Beam
worX

Label Studio
by HumanSignal



Digital Engineering

A AutoCAD

Bentley
MicroStation

C Civil 3D

ProjectWise

B AUTODESK®
BIM 360™

BLUEBEAM
A NEMETSCHKE COMPANY

R Revit

SOLIBRI

R ReCap Pro

Dynamo

N Navisworks

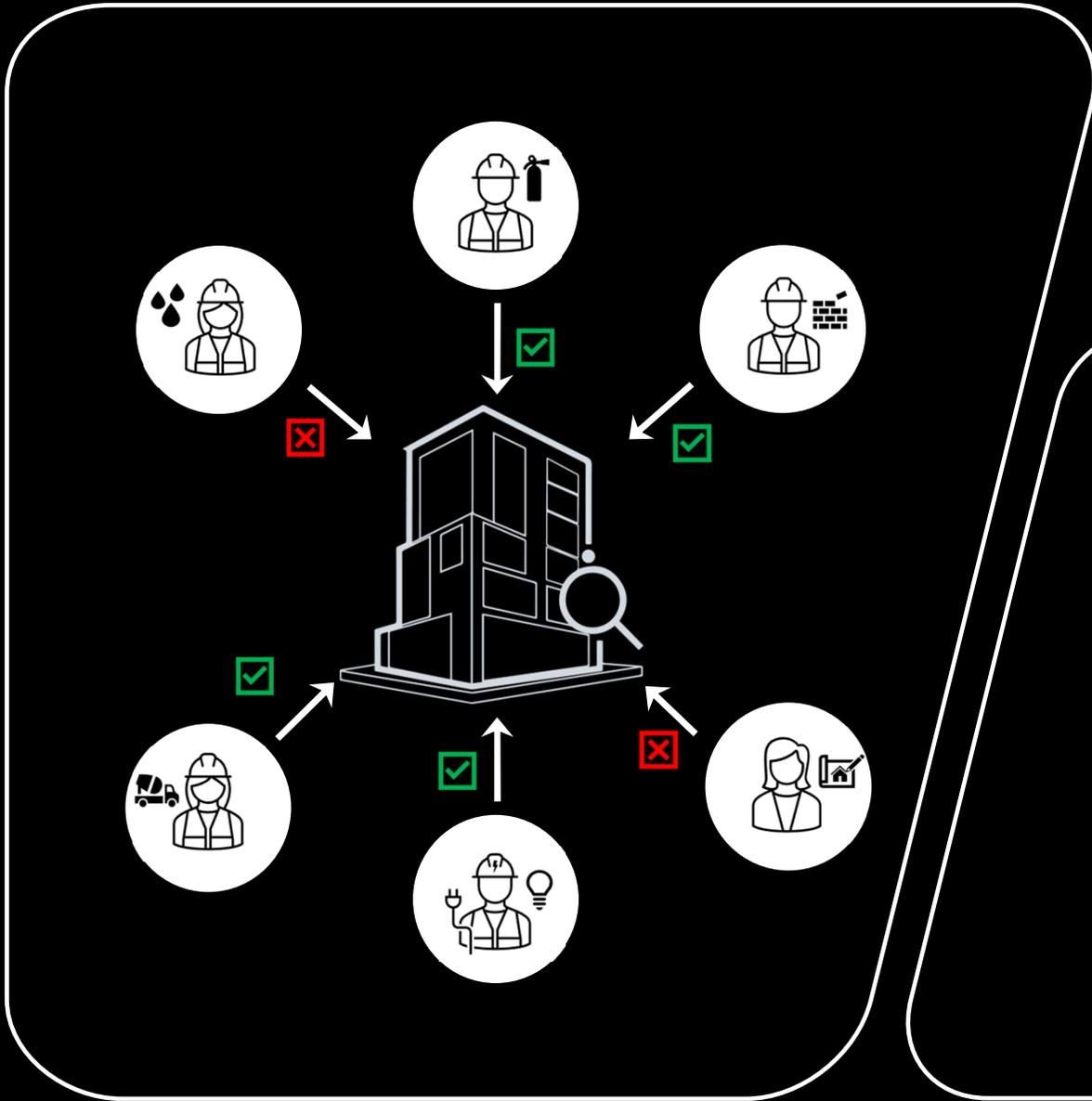
revizto™



WHAT IS DIGITAL ENGINEERING?

- **Combination** of multiple **technologies** with the right **people**
- Connection of systems focused on the **removal of duplication of data**
- Typically, a focus on '**engineering a solution**' rather than using traditional methods in isolation





WHY DIGITAL ENGINEERING?

From a 'single source of truth'
Accessibility for teams across

Verification of data provides
when using it to aid in
processes

CHALLENGES

- Accuracy, availability and format of historical records
- Intent and focus of modelling and documentation teams
- Requirement for an extension of our internal team
- Volume of work



GIS DATA DEVELOPMENT

Task - combine asset network features and attributes in one file format using ArcGIS Pro

Outcome - new user-friendly and accessible data with >30,000 features created

Social impact - 4 analysts trained

Challenge – generation of multiple GIS network datasets to accurately reflect current state assets based on legacy and duplicated CAD data sources



BIM MODELLING

Task - ASA integrated architectural, structural, and hydraulic elements into Asset Information Models. ASA also upgraded Brisbane Airport's lease data model to enable client database integration and management of tenancies

Outcome - ASA's work enhances Brisbane Airport's decision-making and operational efficiency

Social impact - 13 analysts trained, 3000+ hours contributed to date

Challenge - Integrating 30 years of diverse data into accurate BIM models, ensuring all asset information met Brisbane Airport's standards





POINTS OF DIFFERENCE

- **Productivity** – over 10,000 items added to our environment each month
- **Comprehension** – good understanding of our information requirements and ability to work to our standards
- **Enthusiasm** – ability to learn new applications and a genuine in interest and enthusiasm for new experiences

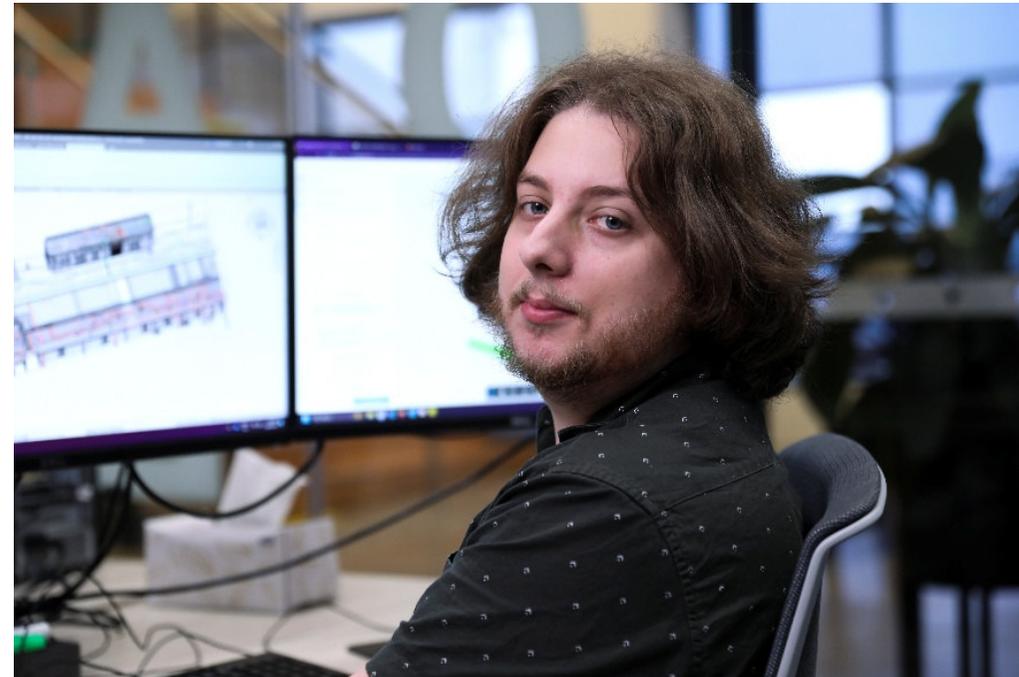
How Brisbane Airport has supported ASA

- Geospatial and Digital Engineering work
- 14 analysts trained
- 3,900+ hours worked
- Opportunity to develop invaluable industry skills
- Creating career pathways



Meet Ryan: Digital Engineering

- **First job:** Ryan's journey into the workforce began here at ASA – stable employment for 18 months
- **Passion for video games:** a creative mind with a love for designing games
- **Remarkable achievement:** singlehandedly updated over 1,500 lease areas in Revit
- **Support:** now able to support and provide for his family through paid employment



Scan for the Digital Engineering case study!





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Thank you