

# Brisbane Airport: embracing geospatial, digital engineering and neurodiversity

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Brisbane  
Airport



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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

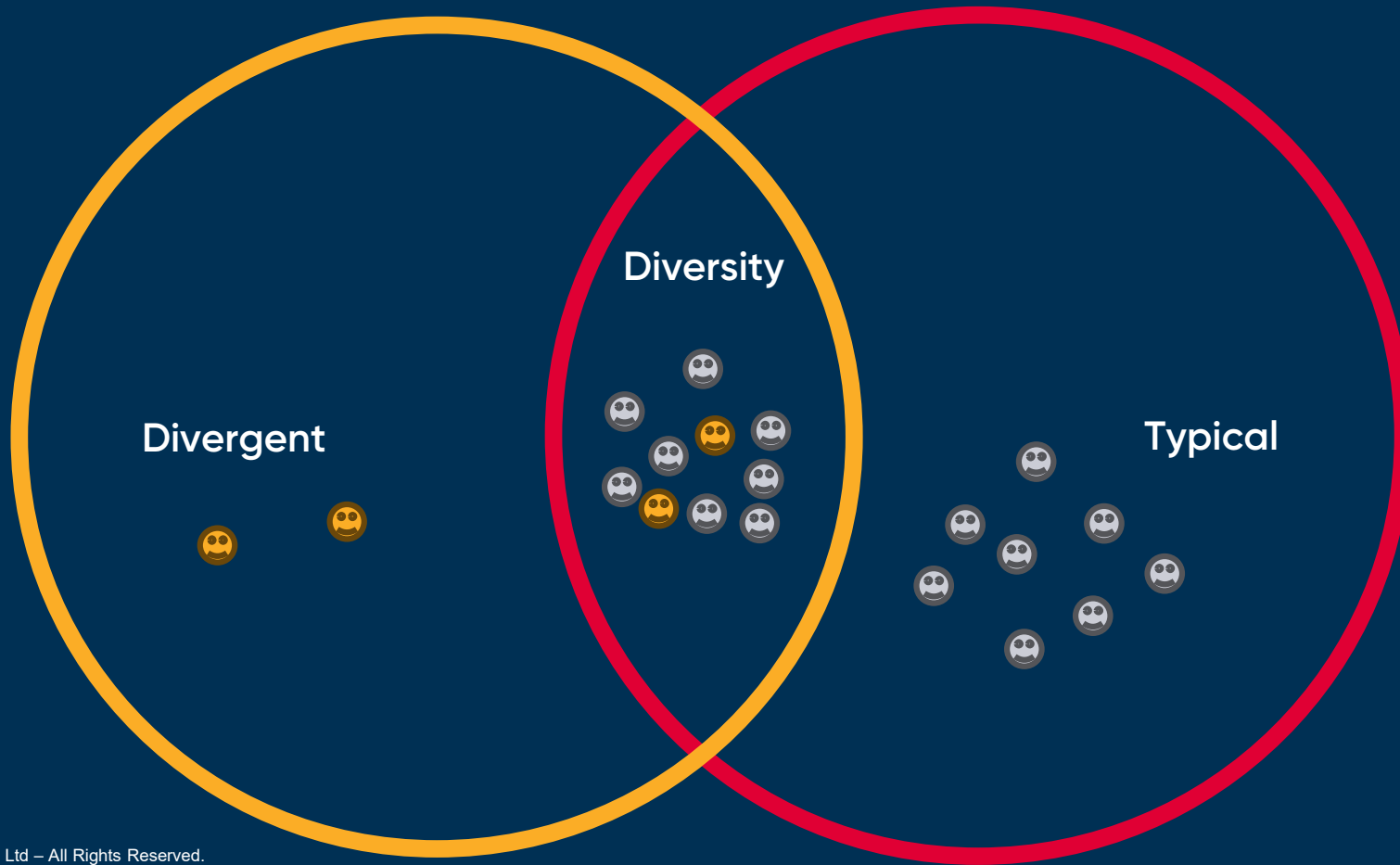
Dyspraxia

Dyscalculia

\*Non-exhaustive list...



# (NEURO) Diversity...

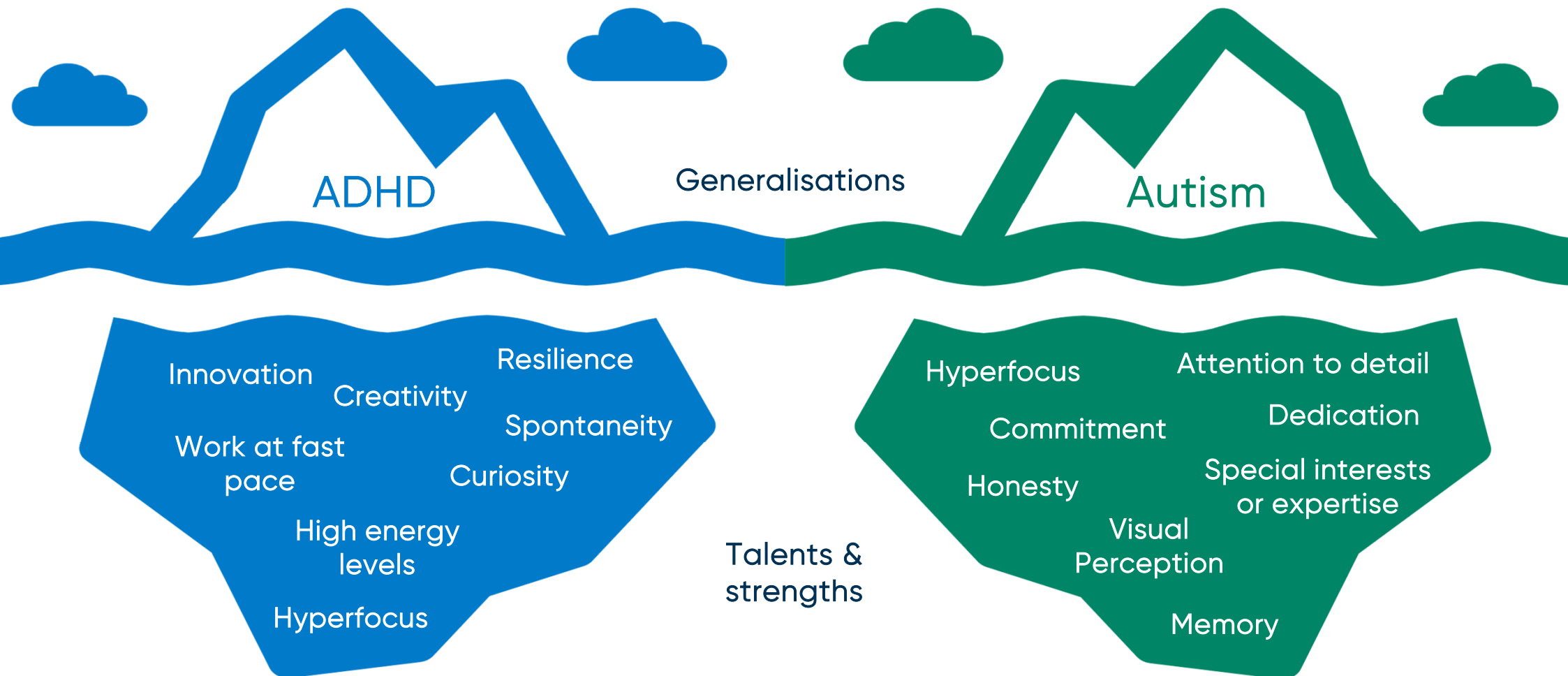


# Neurodivergence in Australia

- >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



# 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



MicroStation



Beam  
worX

Label Studio  
by HumanSignal



## Digital Engineering



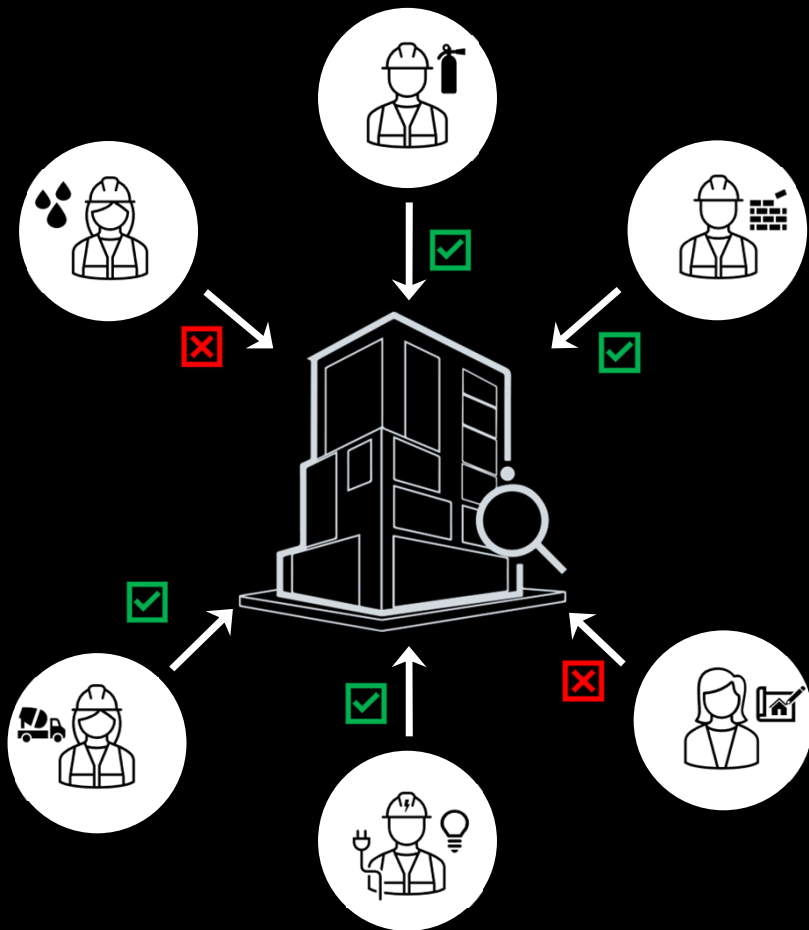


# WHAT IS DIGITAL ENGINEERING?

- **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' to accessibility for teams across

Verification of data provides  
the 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



Images courtesy of Brisbane Airport Corporation

# 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 interest and enthusiasm for new experiences

# How Brisbane Airport has supported ASA

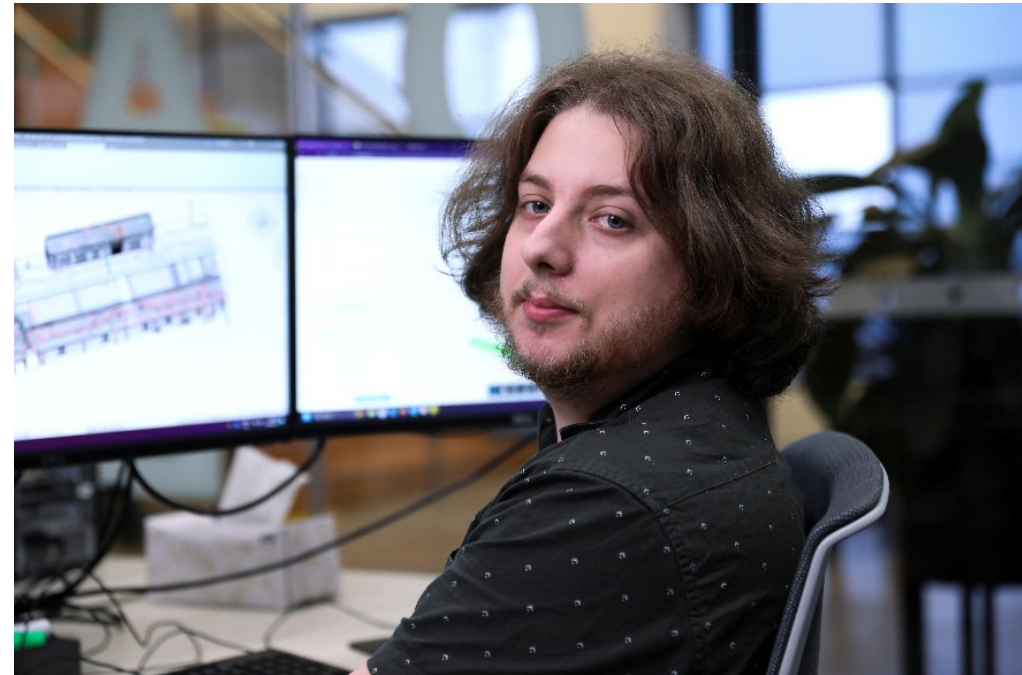
- Geospatial and Digital Engineering work
- 14 analysts trained
- 3,900+ hours worked
- Opportunity to develop invaluable industry skills
- Creating career pathways





# 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