



Collaboration, Innovation and Resilience: Championing a Digital Generation

Brisbane, Australia 6-10 April

Worried about AI Hallucinations? What about Human Hallucinations?

Addressing the data acquisition challenges in the emerging AI paradigm

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Knowledge View Pty Ltd



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Overview

AI Hallucinations

Human biases and errors

What's behind data bias

How do we build trust in our data



AI Hallucinations - The issue of Uncertainty and Trust

“pig”

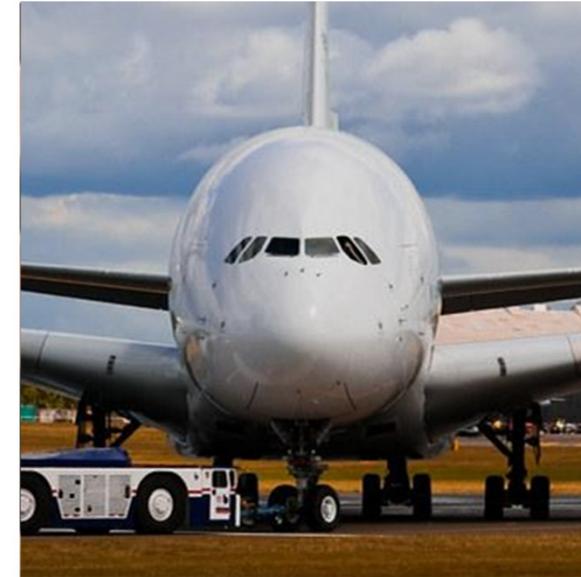


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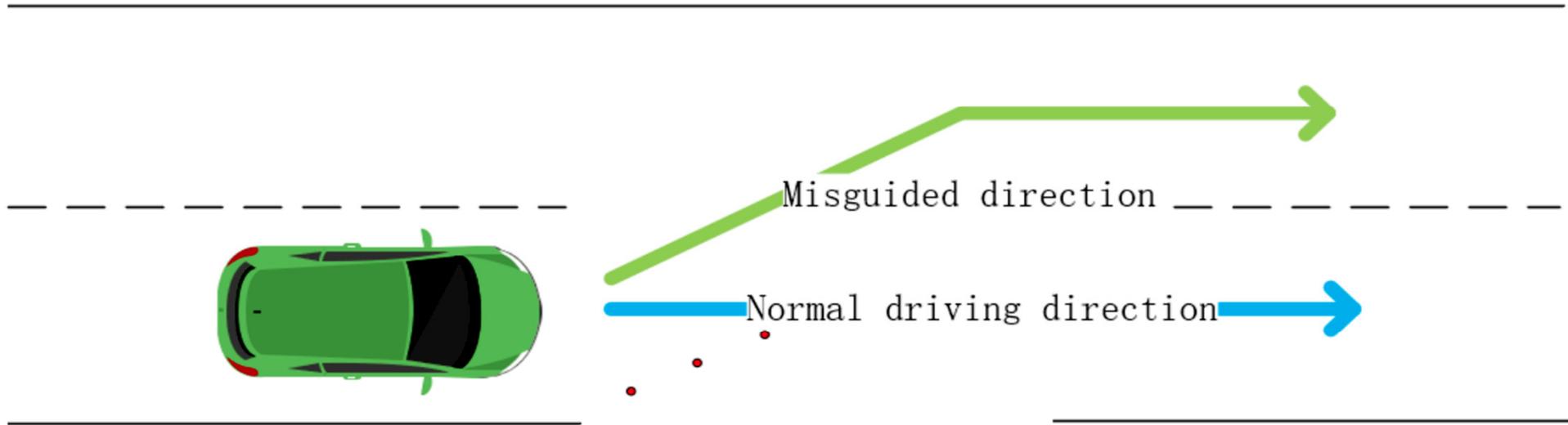
=

“airliner”



[Source: <https://medium.com/attentive-ai/fooling-cnns-via-adversarial-examples-877a9e0ee84e>]

AI Hallucinations - The issue of Uncertainty and Trust



[Source: <https://arstechnica.com/information-technology/2019/04/researchers-trick-tesla-autopilot-into-steering-into-oncoming-traffic/>]



AI Hallucinations - The issue of Uncertainty and Trust



<https://youtu.be/U1MiglJXJx8>

<https://www.youtube.com/@MarkRober>

What about Human Bias and Hallucinations?...

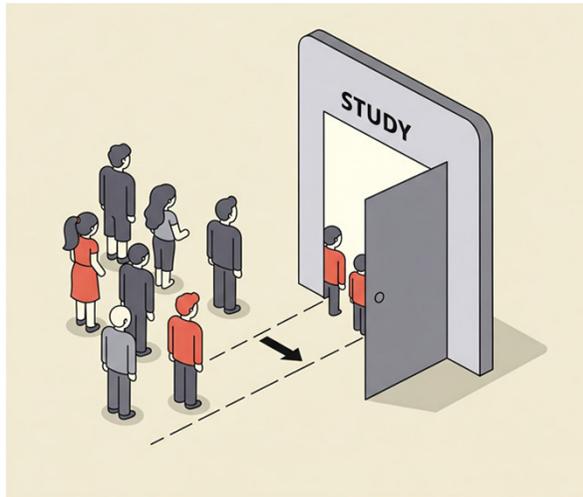
Confirmation bias

Subconsciously, or consciously, Cherry Picking data/results that supports our preconceived arguments.



Selection bias

Looking at samples that are not representative of the population.



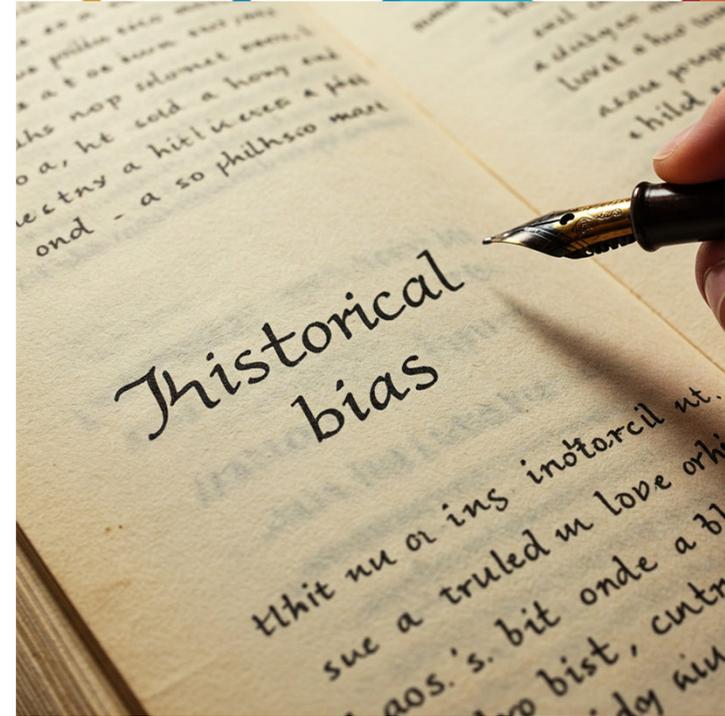
What about Human Bias and Hallucinations?...

Historical Bias

Data from historically-biased sources are used to train machine learning models



Survivor Bias



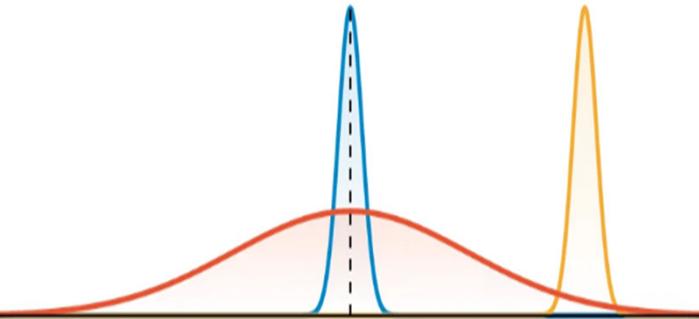
Focus on the winners rather than the runners-up.

What about Human Bias and Hallucinations?...



Availability Bias

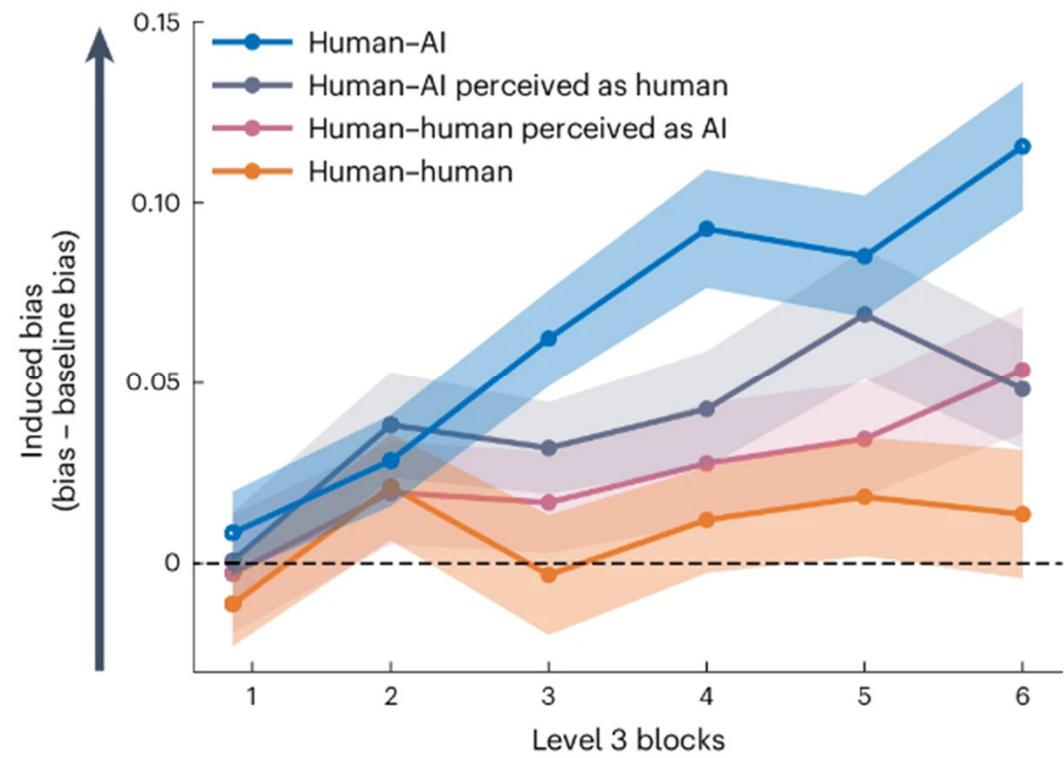
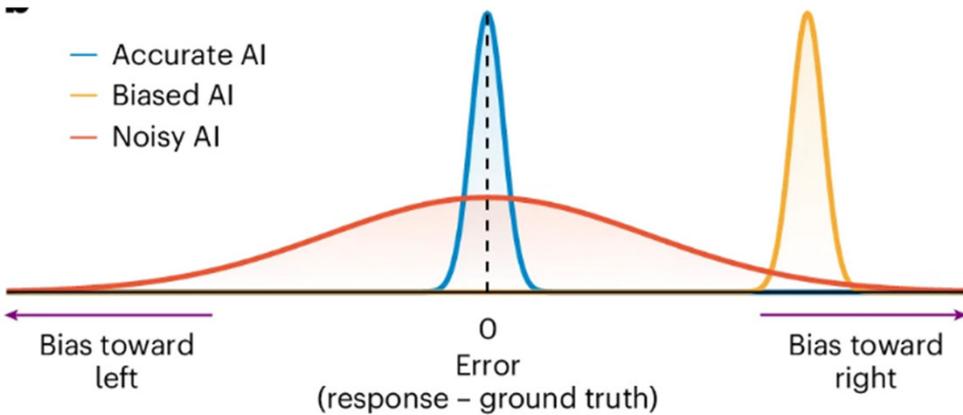
Availability of data has a big influence on how we view the world



Outlier Bias

Blindly averaging data can hide the effect of outliers and anomalies, and can skew our observations.

What about Human Bias and Hallucinations?... Runaway Bias Amplification



Glickman, M., Sharot, T. How human-AI feedback loops alter human perceptual, emotional and social judgements. *Nat Hum Behav* 9, 345-359 (2025). <https://doi.org/10.1038/s41562-024-02077-2>

Human + AI Hallucinations and Bias can lead to Absurd Outcomes



What's really behind the issue of bias in our use of data?



Integrity

how much do we know about uncertainty of our data?



Provenance

do we know the history of our data?

Integrity

how much do we know about uncertainty of our data?



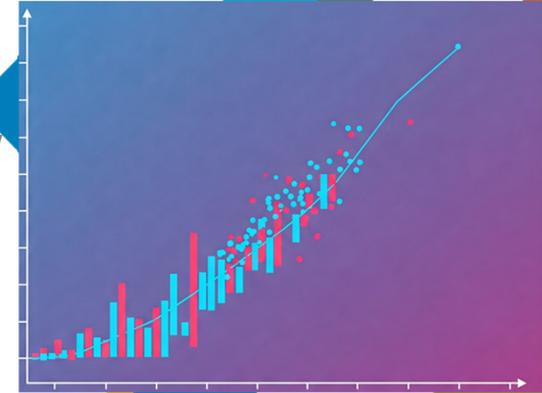
How to Rebuild Trust in our Data - Integrity

Measurement, acknowledgement and reporting of data uncertainty



Multiple views of a problem

Validation and continual improvement of data



How to Rebuild Trust in our Data - Provenance



Tracking data provenance of data for its entire life cycle

Metadata and Provenance Standards



Immutable catalogues

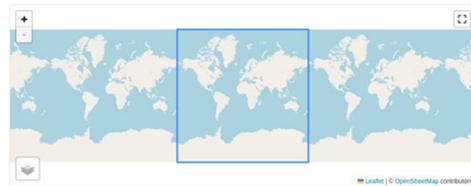
Terra Nexus DGGS Immutable Catalog

in Catalogue

Description

This catalog contains metadata about Terra Nexus DGGS features

License proprietary
Temporal Extent 2025-01-31 0:00:00 UTC until present



API on Source Share Language: English

Items Show Filters

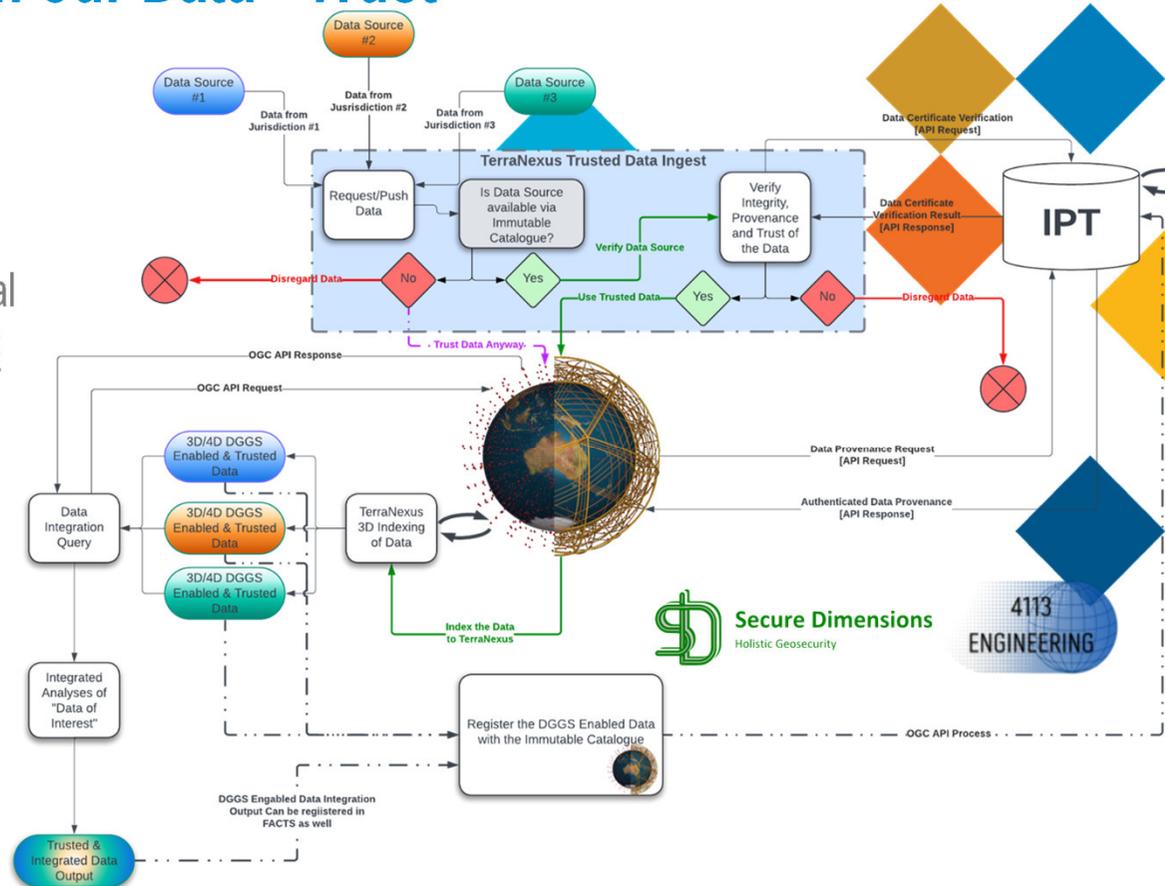
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How to Rebuild Trust in our Data - Trust

How do we establish trust in a “trustless” world?

- Common, but scalable spatial data management => **DGGS**
- Better Provenance and Metadata management
- Blockchain and/or similar “tamper-free” data validation and authentication.



The most relevant SDGs related to the presentation and theme of this session

1st relevant SDG

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

2nd relevant SDG

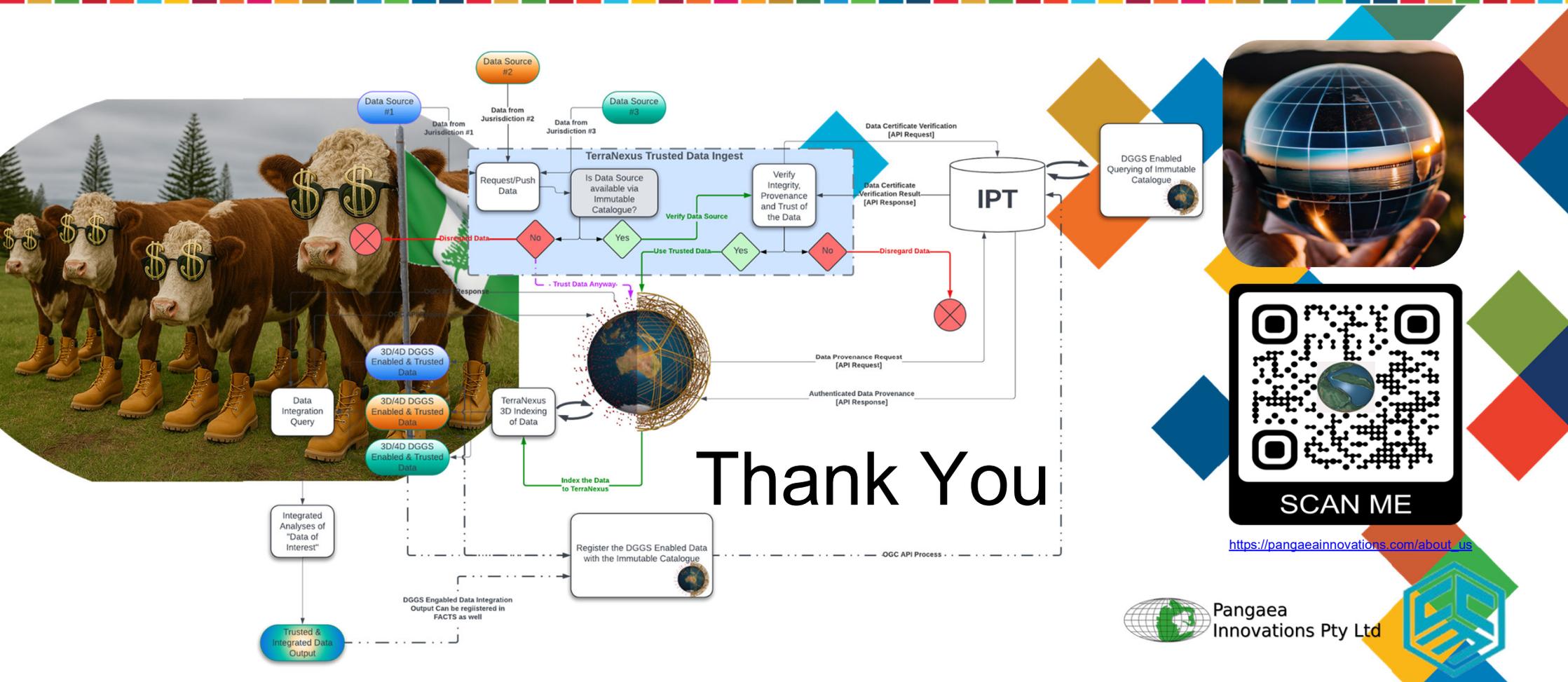
11 SUSTAINABLE CITIES AND COMMUNITIES

3rd relevant SDG

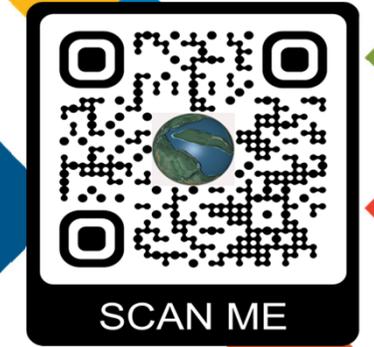
13 CLIMATE ACTION

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals



Thank You



https://pangaeainnovations.com/about_us

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WORKING WEEK 2025

AND

Locate25 THE NATIONAL GEOSPATIAL CONFERENCE

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STEP 1: SELECT HERE THE THREE MOST RELEVANT SDGs
STEP 2: COPY THE SDG INTO PREVIOUS SLIDE

Grid of 17 Sustainable Development Goals (SDGs) with icons and titles: 1 NO POVERTY, 2 ZERO HUNGER, 3 GOOD HEALTH AND WELL-BEING, 4 QUALITY EDUCATION, 5 GENDER EQUALITY, 6 CLEAN WATER AND SANITATION, 7 AFFORDABLE AND CLEAN ENERGY, 8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 10 REDUCED INEQUALITIES, 11 SUSTAINABLE CITIES AND COMMUNITIES, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION, 13 CLIMATE ACTION, 14 LIFE BELOW WATER, 15 LIFE ON LAND, 16 PEACE, JUSTICE AND STRONG INSTITUTIONS, 17 PARTNERSHIPS FOR THE GOALS.

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