Queensland Earth Observation Hub

Transforming Queensland's Disaster Resilience from Space

Co-Design Workshop

Queensland Government
SMARTSAT COOPERATIVE RESEARCH CENTRE
Australian Government Department of Industry, Science and Resources
Cooperative Research Centres Program

QUEENSLAND
EARTH
OBSERVATION
HUB

ACKNOWLEDGEMENT OF COUNTRY

I'd like to begin by acknowledging the Traditional Owners and Custodians of the land on which we meet today, the Jagera and Turrbul of Meanjin, and pay our respects to Elders past and present.

We acknowledge the many Aboriginal and Torres Strait Islander peoples who are the land's first storytellers and have made an important contribution to this land and community and continue to do so.

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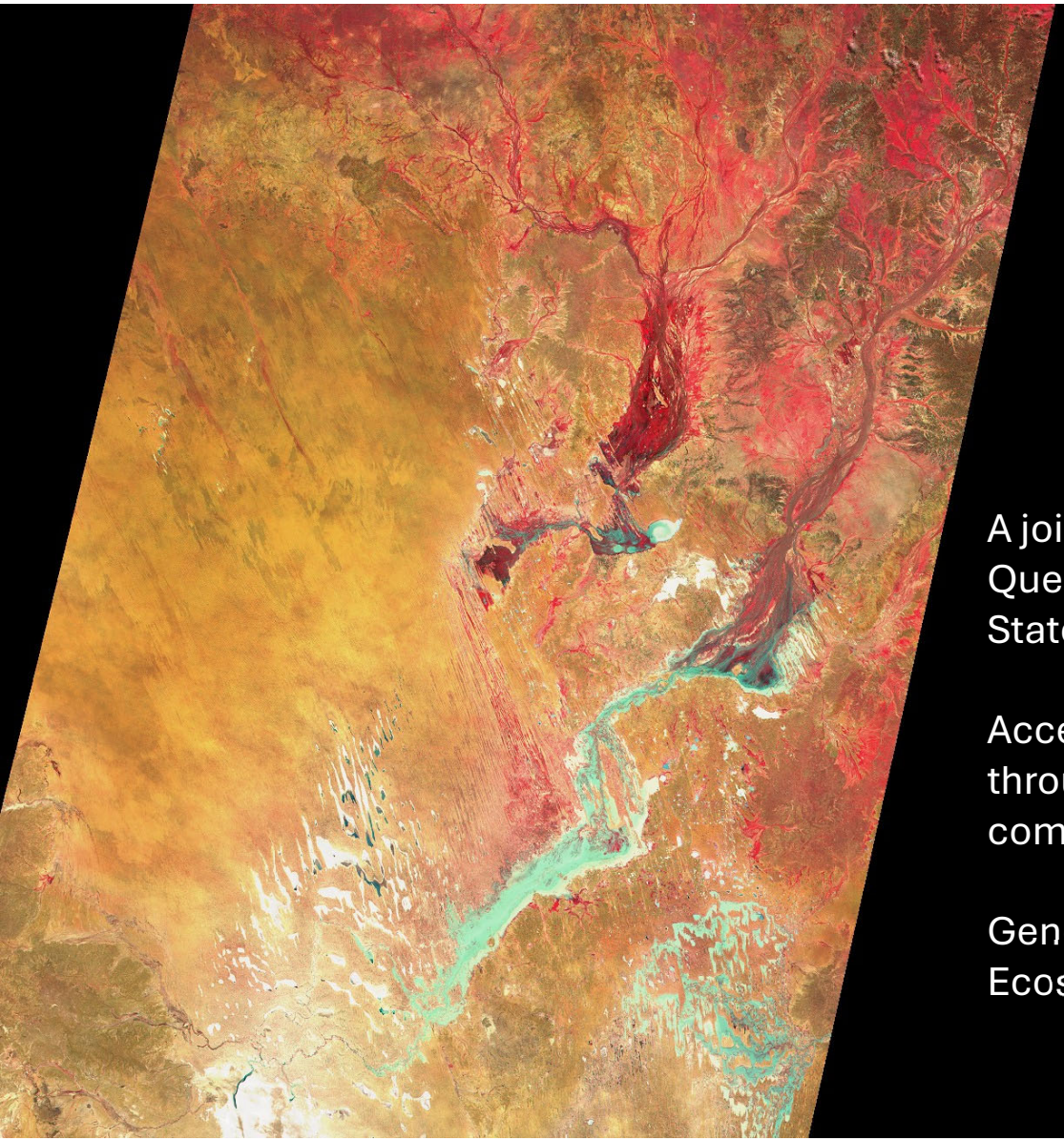
AGENDA

9:00 am	Registration, Coffee / Tea
9:30am	Welcome from Queensland EO Hub – Gavin Kennedy, Queensland EO Hub
9:35am	Welcome from ASII – Andy Koronios, SmartSat/ASII
9:45am	Introduction – EO for Disaster Risk Management, Dr Mahdiyeh Razeghi, University of Southern Queensland
10:00 am	Case Study – EO in Coastal Risk Management – Dr Javier Leon, University of Sunshine Coast
10:15 am	Case Study – Data to manage flood risk in real time – Juliette Murphy, FloodMapp
10:30 am	Short break
10:45 am	Workshop Setup
11:00 am	Round 1 – Steps 1 and 2
12:00 pm	Presentations of Problem Definition
12:15 pm	Lunch break
1:00 pm	Round 2 – Steps 3 and 4
2:00 pm	Presentations from group work – Step 5
2:45 pm	Wrap up and next steps
3:00 pm	End



QUEENSLAND **EARTH OBSERVATION** HUB

A jointly funded initiative of SmartSat and the Queensland Government through the Department of State Development, Infrastructure and Planning.

Accelerate growth of Queensland's EO industry through research/industry collaboration & commercialisation.

Generate opportunities across the Queensland EO Ecosystem.

SMARTSAT
COOPERATIVE RESEARCH CENTRE

Queensland Government

The University Of Queensland
AUSTRALIA

Qld Market Analysis

Priorities for Queensland EO

- Data Accessibility and Open Data Initiatives
- Education and Training
- Sector Awareness and Outreach
- National and International Engagement
- Policy and Regulatory Support
- Showcasing Success Stories
- Investment in Earth Observation Infrastructure

"Partnerships and collaboration are considered to be a critical component of an effective and successful EO market"

FRONTIER SI

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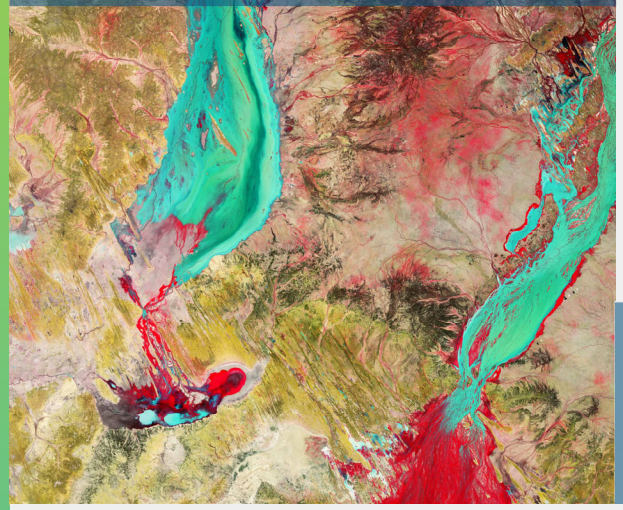
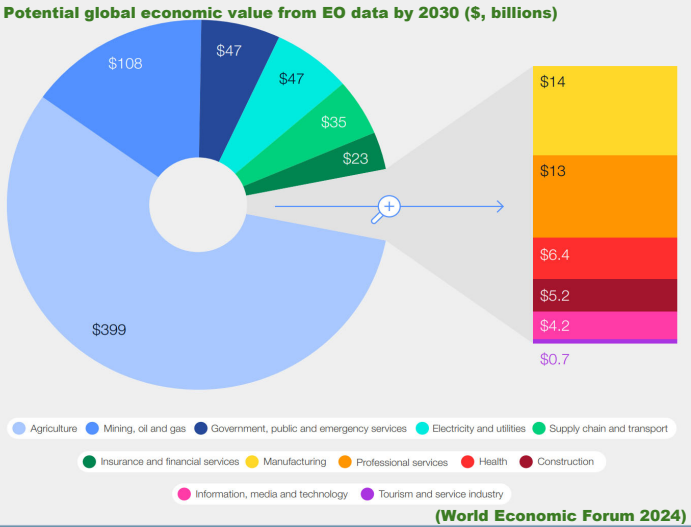
Favourable Operating Environment

In Australia - The value of the economic benefits attributable to EO were of the order of $2.5 billion in 2020 (Deloitte Access Economics, 2021)





EO could add $703 billion to the global economy while eliminating 2 gigatonnes of GHG emissions in 2030 (World Economic Forum 2024).

"maximising its value depends on a dramatic increase in end user adoption. Achieving that calls for resolute strategies and investments to increase awareness of what is possible with EO, encourage innovation, advance core and enabling technologies, ensure equity in access to EO insights and bridge the gap between EO data and end user solutions worldwide." (World Economic Forum 2024)

Growth in Australia relies on increased collaboration and uptake of Australia's EO capabilities (Deloitte, 2019, KPMG 2020), as well as bringing the nation's cutting-edge research capabilities to work closer and more strategically with the EO industry.

Overall Impact

19
Projects Funded

$2.5 Million
Funds Awarded

$8 Million
Direct Activity

2025 Funding

5
Projects Funded

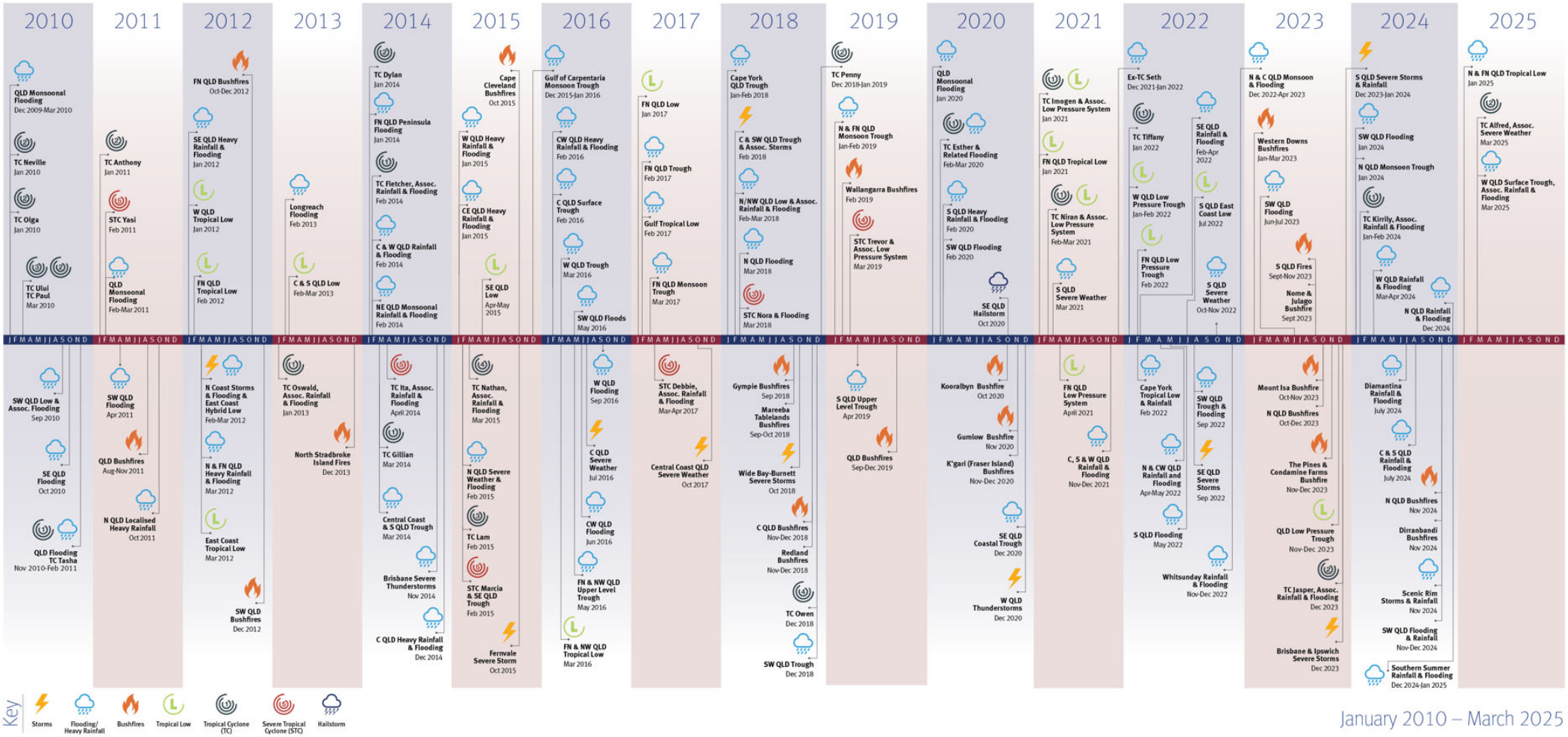
10
EOIs Received

$934,000
Funds Requested

$500,000
Funds Awarded

$1.7 Million
Direct Activity

Natural disaster events in Queensland



January 2010 – March 2025

Image: Disaster events in Queensland
Source: Queensland Reconstruction Authority

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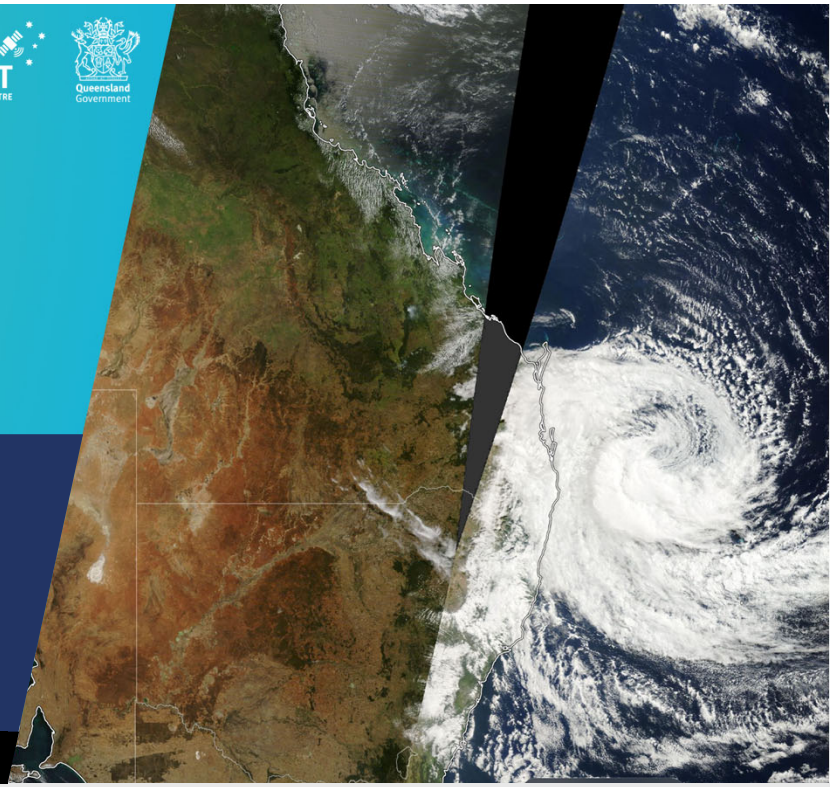
QUEENSLAND EARTH OBSERVATION HUB

TRANSFORMING QUEENSLAND'S DISASTER RESILIENCE FROM SPACE

Tuesday 9 December 2025
9.30am to 3pm

University of Southern Queensland
Brisbane CBD Campus
293 Queen St, Brisbane



We look forward to hosting you for a powerful day of ideas, innovation, collaboration and impact, where satellites meet real-world challenges in disaster management.

This **in-person hands-on** workshop will bring together emergency management professionals, researchers and industry partners to identify and prioritise opportunities for applying EO to disaster risk management in Queensland.

Featured Speakers

Prof. Andy Koronios
CEO Australasian Space Innovation Institute

Juliette Murphy (CPEng, BEng, RPEQ)
CEO & Co-Founder FloodMapp

Workshop Facilitator
Gavin Kennedy
Queensland Earth Observation Hub Coordinator

Dr. Mahdiyeh Razeghi
University of Southern Queensland

Assoc. Professor Javier Leon
University of the Sunshine Coast

FUNDING PATHWAYS

Disaster Ready Fund (DRF) is the Australian Government's flagship initiative for disaster resilience and risk reduction. The Australian Government is providing up to one billion dollars through the DRF. The funding runs over five years from 1 July 2023.

Queensland Reconstruction Authority (QRA) manages and coordinates Queensland's program of recovery and reconstruction funding within disaster-impacted communities, alongside disaster resilience funding programs.

Natural Hazards Research Australia (NHRA) is Australia's national centre for natural hazard resilience and disaster risk reduction. funded for 10 years in July 2021 as a collaborative research organisation, to address major challenges and deliver usable research and knowledge.

Advance Queensland focuses on supporting Queensland innovators, entrepreneurs and researchers to solve tomorrow's problems.

The Regional University Industry Collaboration (RUIC) program connects Queensland-based SMEs with regional universities to solve technical challenges and progress new ideas. Funded by the Queensland Government and delivered by CSIRO,

Australia's Economic Accelerator (AEA) is a $1.6 billion program taking a new approach to commercialising academic research.

Co-Design Workshop

INDUSTRY + R&D TEAMING
BY DESIGN!

Members of the Kanyini Mission team, including engineers from SmartSat CRC, Inovor and Myriota, load Kanyini into the Thermal and Vacuum Space Simulation chamber at the ANU

HOW RESEARCH PROGRAMS USUALLY BUILD SOLUTIONS

DEFINE PROBLEM

DELIVER RESEARCH

SCOPE SOLUTION

BUILD SOLUTION

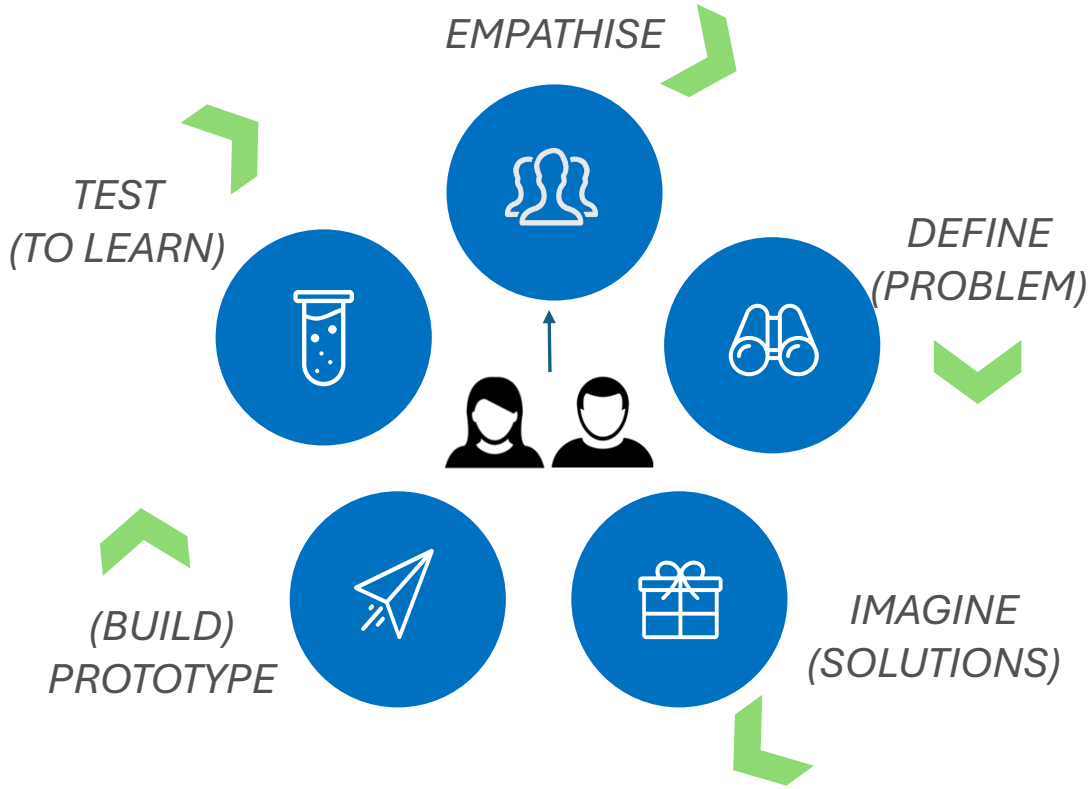
RELEASE SOLUTION

!

?

Image: https://www.qra.qld.gov.au/

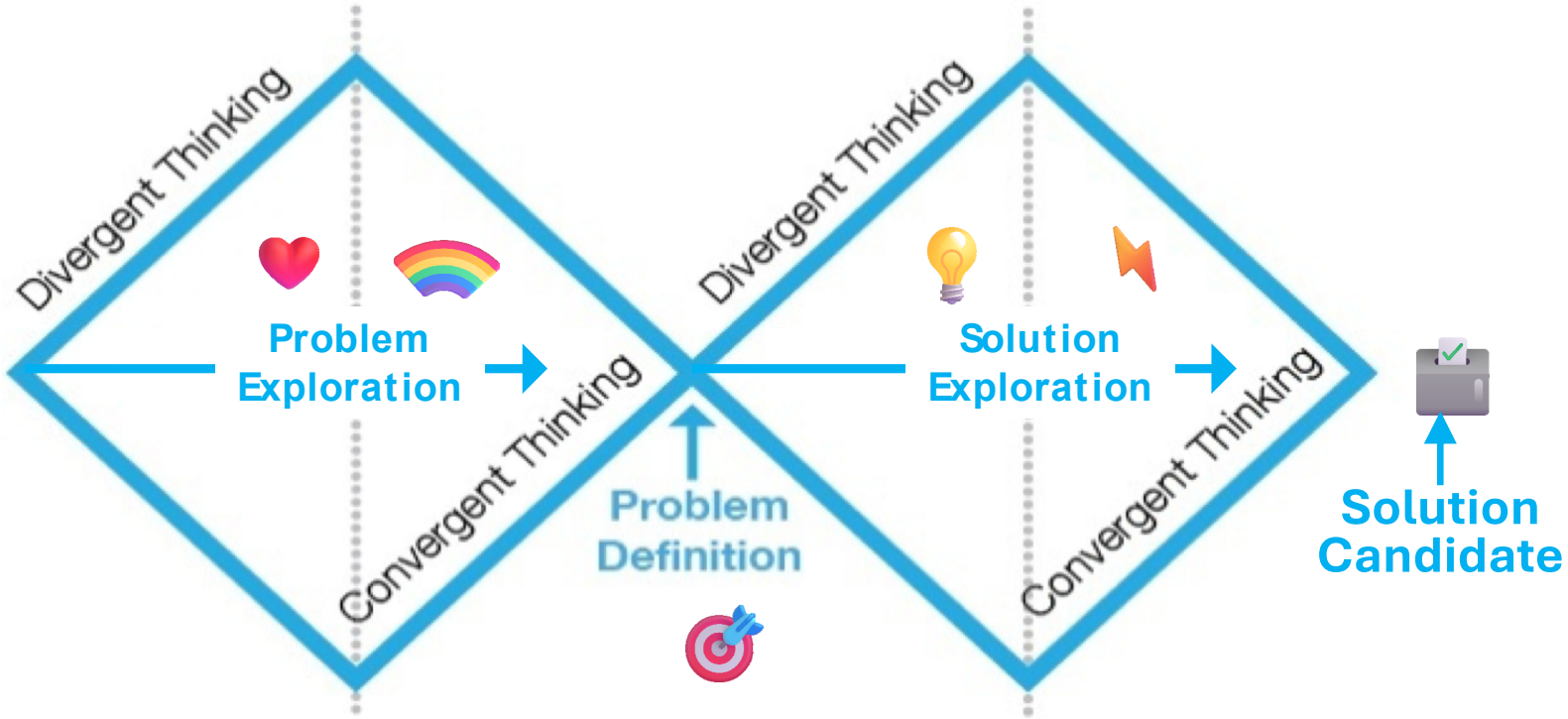
HOW INDUSTRY + RESEARCH CAN DESIGN SOLUTIONS



CORE PRINCIPLE

Walk in the  shoes of  your end-user / end-customer

CORE APPROACH: CONVERGENT + DIVERGENT THINKING



Tabletop Process Tool

Design Thinking Canvas

More Open, Divergent Thinking

2.DEFINE

3.IDEATE

END USER

1. OBSERVE

4. PROTOTYPE

More concrete, Convergent Thinking

Industry User / Customer Interview Tools

INDUSTRY PROBLEM DISCOVERY

WHO? END-USER: In their own words, how do they describe themselves?	WHAT? PROBLEM: What did they say their biggest problems were? How often did they occur?	HOW? RESPONSE: What actions did they take? How often? How badly do they need the problem solved?	WHY? INSIGHTS: What did you hear that you hadn't thought of? What features did you think of that could meet their needs?

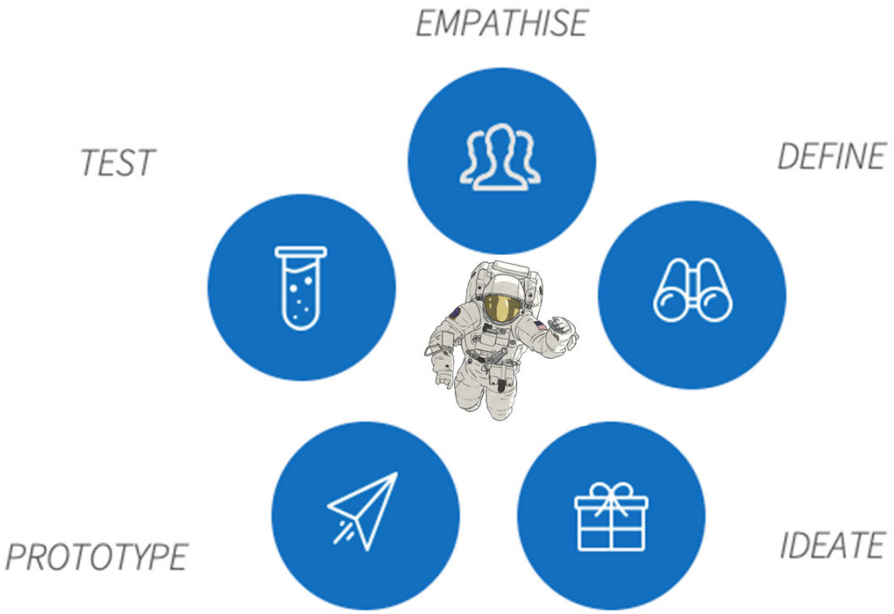
Use this to document the problem

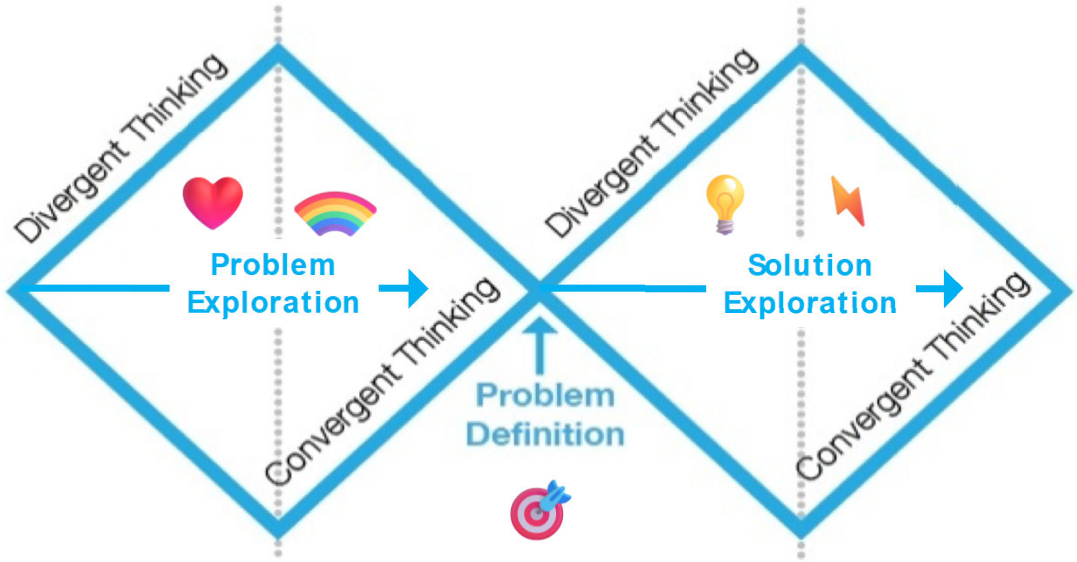
CUSTOMER EXPERIENCE (CX) JOURNEY MAPPING TOOL

STARTING SCENARIO	INCITING INCIDENT	NEXT STEP	NEXT STEP
NEXT STEP	NEXT STEP	NEXT STEP	RESOLUTION

Option for storyboarding the solution

HOW WE DESIGN SOLUTIONS

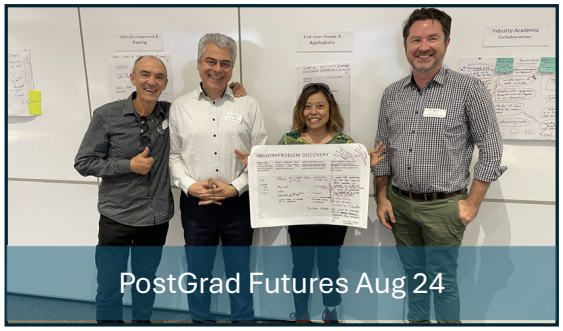




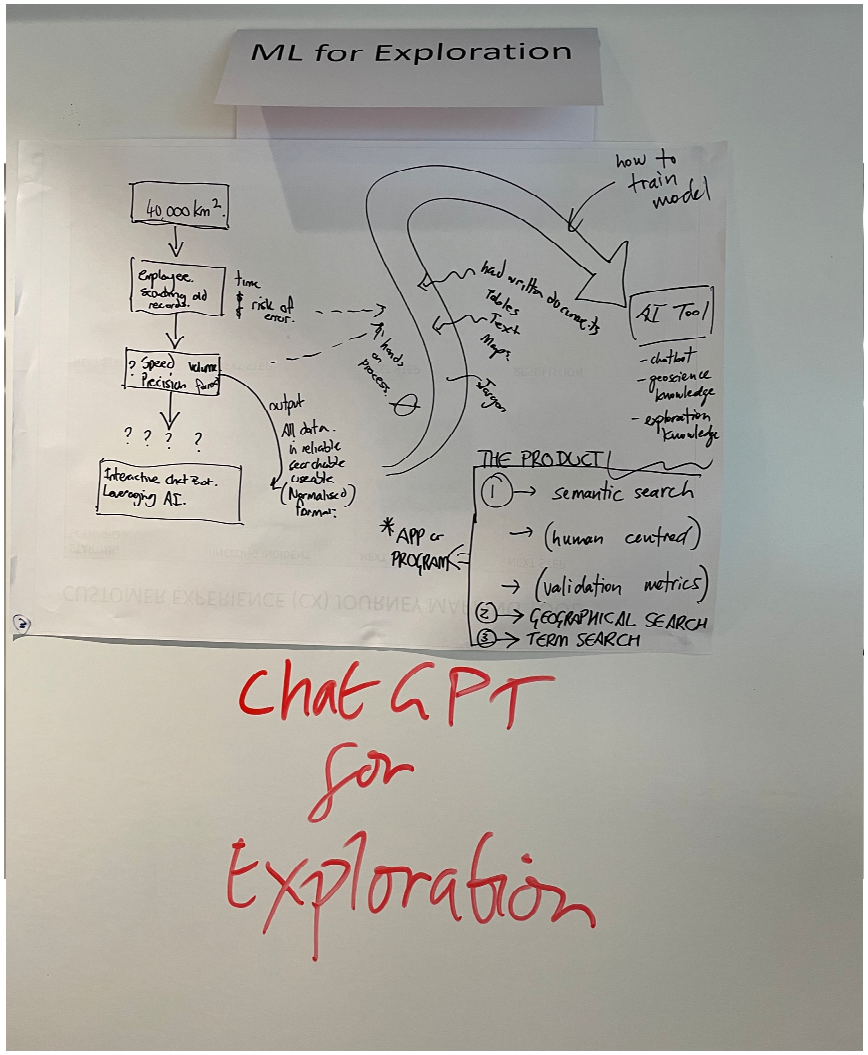
WHAT DOES THIS LOOK LIKE?


Critical Minerals Oct 23


Agriculture Workshop May 24


PostGrad Futures Aug 24


Environment Workshop Dec 24



Disaster Resilience Challenge Co-Design Workshop

R&D +
GOVT+INDUSTRY
TEAMING
BY DESIGN!

Let's do this!

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KEY STAKEHOLDERS

- Research & Innovation – Universities and Institutions
- Integrators/Suppliers – EO, Space and Geospatial Companies
- Government – Funders, policy makers, facilitators and procurers/users.
- Market Sectors – Users and beneficiaries of EO and space technologies

EARTH OBSERVATION STACK

END USER
- User of data & insights
- Monitor, evaluate, decide

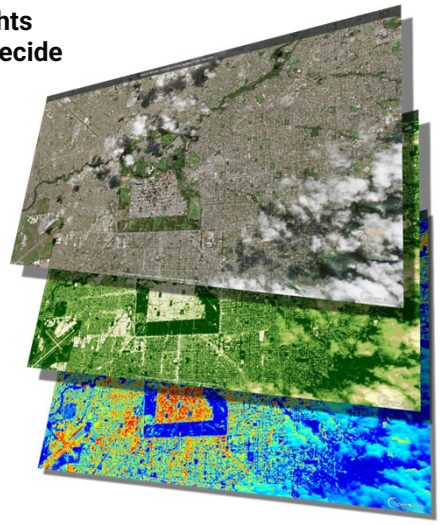
APPLICATION/SOLUTION
- Visualisation
- Platform / Infrastructure
- Decision-support tools
- Dissemination

Intelligence, expertise And interpretation
- Interpretation
- Validation
- Actionable insights

DATA PROCESSING, ANALYSIS AND INTEGRATION
- Data Preprocessing
- Data Integration and fusion
- Data Transformation
- Data Analysis (incl AI/ML)

PLATFORM INFRASTRUCTURE AND SERVICES
- Data aggregation
- Compute and Storage Infrastructure
- Data Access

DATA ACQUISITION
- Design, Build, Launch Sensors
- Collect and Transmit Data

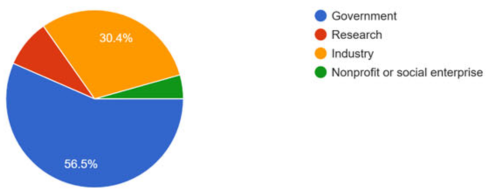


Source: Fabrice Marre, SmartSat CRC

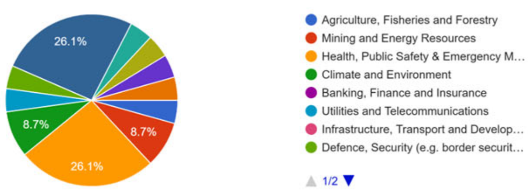
Your Design Challenge

THEMES

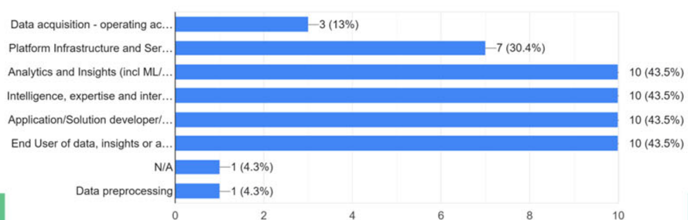
What is your organisation category?
23 responses



Which sector best represents the sector you work within? Note researchers should choose the sector they predominantly research within.
23 responses



If you work with the Earth observation sector, where do you place yourself in the Earth Observation value chain? (Can be multiple places).
23 responses



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Your Design Challenge

THEMES

Data & digital platforms	Data infrastructure, data pipelines, standards, interoperability, dashboards.
Risk & resilience planning	Hazard layers, scenario modelling, exposure analysis, resilience metrics.
Operational situational awareness	Rapid damage mapping, access route visibility, event monitoring, communications.
Early warning	Forecast driven event mapping, predictive modelling, weather tracking, fuel analysis , upstream analysis.
Workforce capacity & capability	Recruitment, training, workflows, integration of EO into operations.
Catchment & Natural Environment Management	Vegetation condition, slope/erosion risk, water quality, land degradation, habitat impacts, environmental recovery monitoring.
Coastal Hazards & Shoreline Change	Coastal change detection, storm surge impacts, shoreline mapping, sediment plumes, mangrove and dune monitoring.
Rural & Regional Economic Resilience	Agriculture & mining risks, data for remote regions, land condition assessment, and early indicators of economic disruption.
Community impact & recovery	Damage assessment, debris mapping, environmental health indicators.
Automation, AI & Advanced Analytics	Machine learning for damage detection, automated hazard mapping, object-based analysis, cloud-native formats & processing.
Infrastructure & asset resilience	Asset exposure mapping, outage detection, lifeline route analysis.

Your Design Challenge

MEET YOUR SECTOR LEADS

Image source: https://www.nema.gov.au/

Your Design Challenge

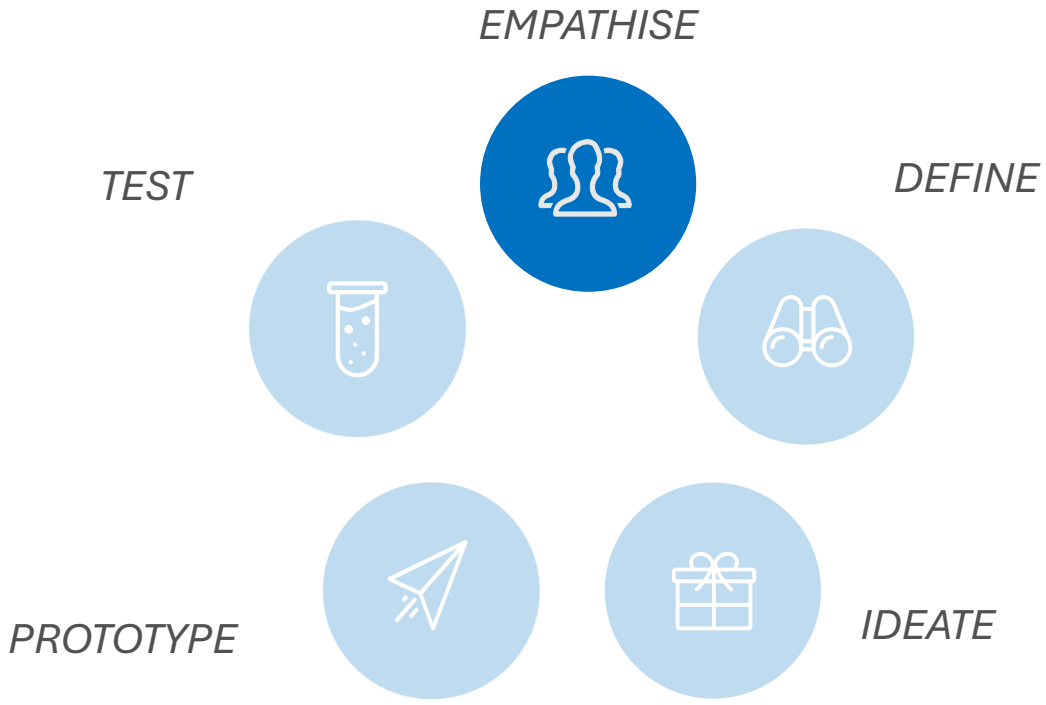
SECTOR LEADS: PICK A THEME!

Image source: https://www.fire.qld.gov.au/

- Early Warning
- Infrastructure & Asset Resilience
- Situational Awareness
- Community Impact & Recovery
- Risk & Resilience Planning
- Data & Digital Platforms
- Rural & Regional Economic Resilience
- Workforce Capacity & Capability
- Coastal Hazards & Shoreline Change
- Automation, AI & Advanced Analytics
- Natural Environment Management

Your design challenge

Step 1: Empathise – Interview your sector lead



Time: **20 mins total**

To-do: 1) As a table, interview your industry partner for 20 mins

2) Ask engaging questions that will help you understand their motivations and problems / opportunities within your selected theme

3) **Use supplied tools to capture insights**, ensure everyone can see & participate!

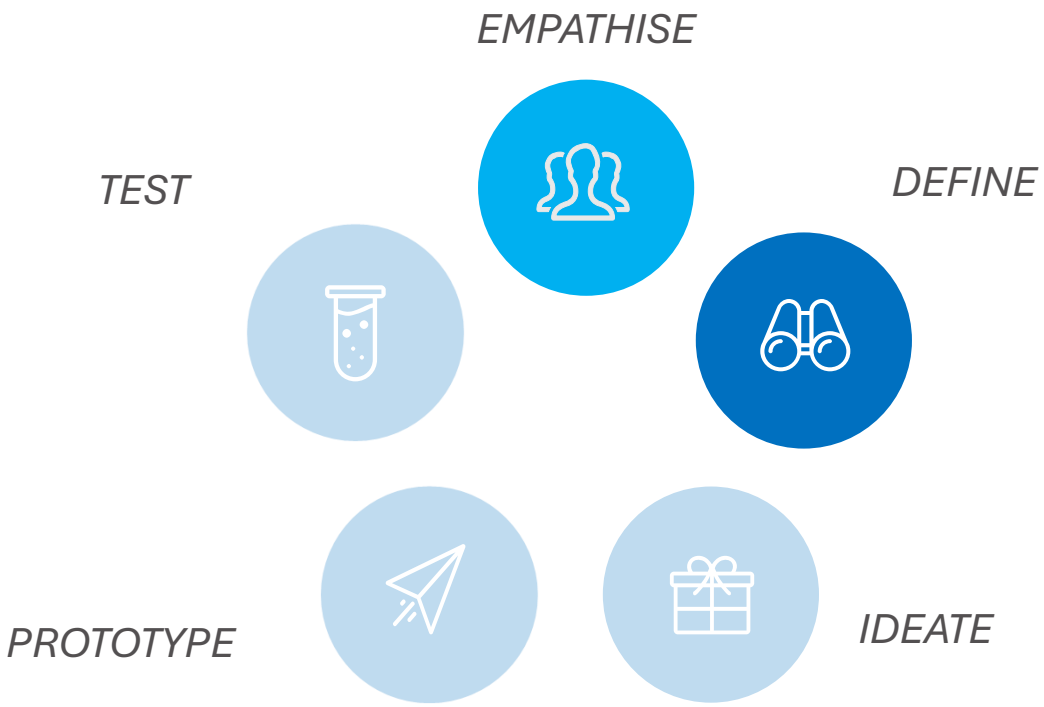
Tips: Ask what they do (not what they want)

Ask open questions and invite stories

Be curious to uncover pains and gains

Your design challenge

Step 2: Define - use observations to define their problem



Time: **20 mins**

To-do: 1) Review your interview notes as a group (5 mins)

2) **Discuss the top 3 observations** (10 mins)

3) Define your customer problem via a problem statement - see below (5 mins)

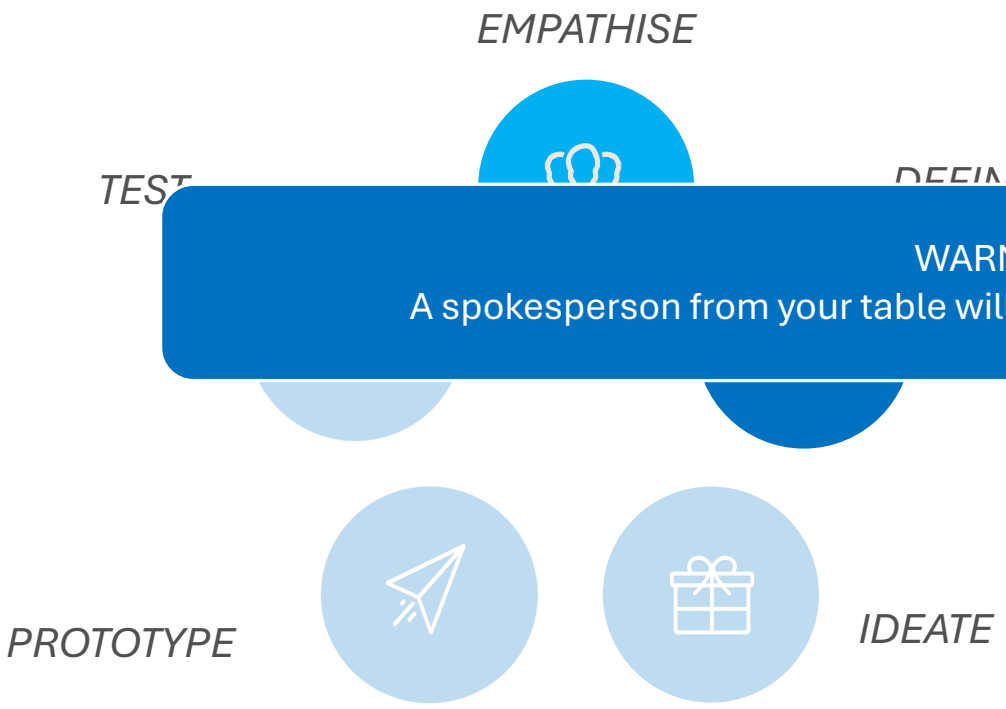
Then : Select a spokesperson, and share the problem statement with the room (1 min)

Tips: Try using first-person "I" phrasing for your industry partners's problem statement.

Eg. "When I go to *perform this task*, I want to *solve a key problem* to *gain a key benefit* or *avoid an annoying pain*."

Your design challenge

Step 2: Define - use observations to define their problem



Time: **20 mins**

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10 mins)

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Then : Select a spokesperson, and share the problem statement with the room (1 min)

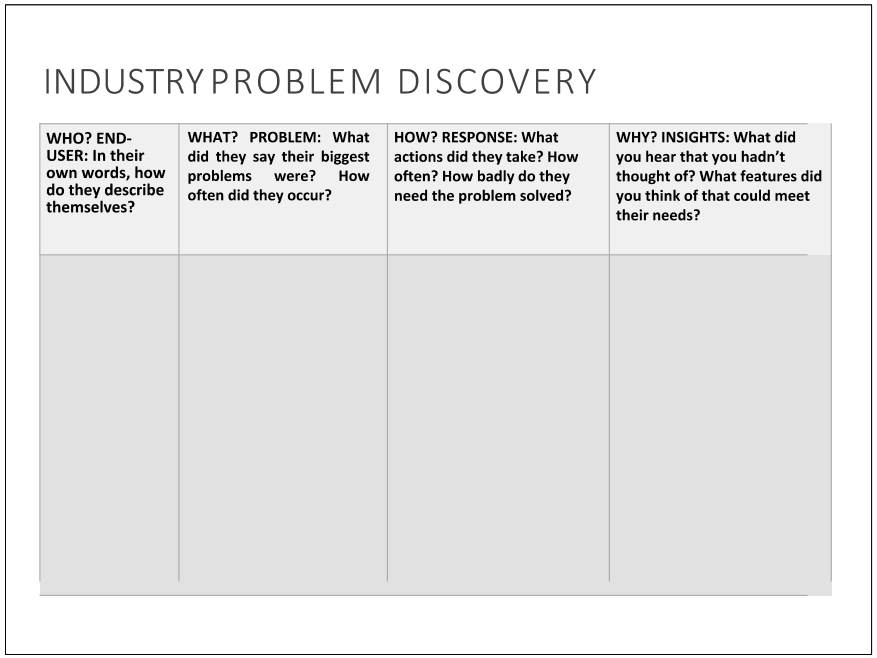
Tips: Try using first-person "I" phrasing for your industry partners's problem statement.

Eg. "When I go to *perform this task*, I want to *solve a key problem* to *gain a key benefit* or *avoid an annoying pain*."

WARNING!
A spokesperson from your table will be sharing the problem statement.

Your design challenge

Present the Problems

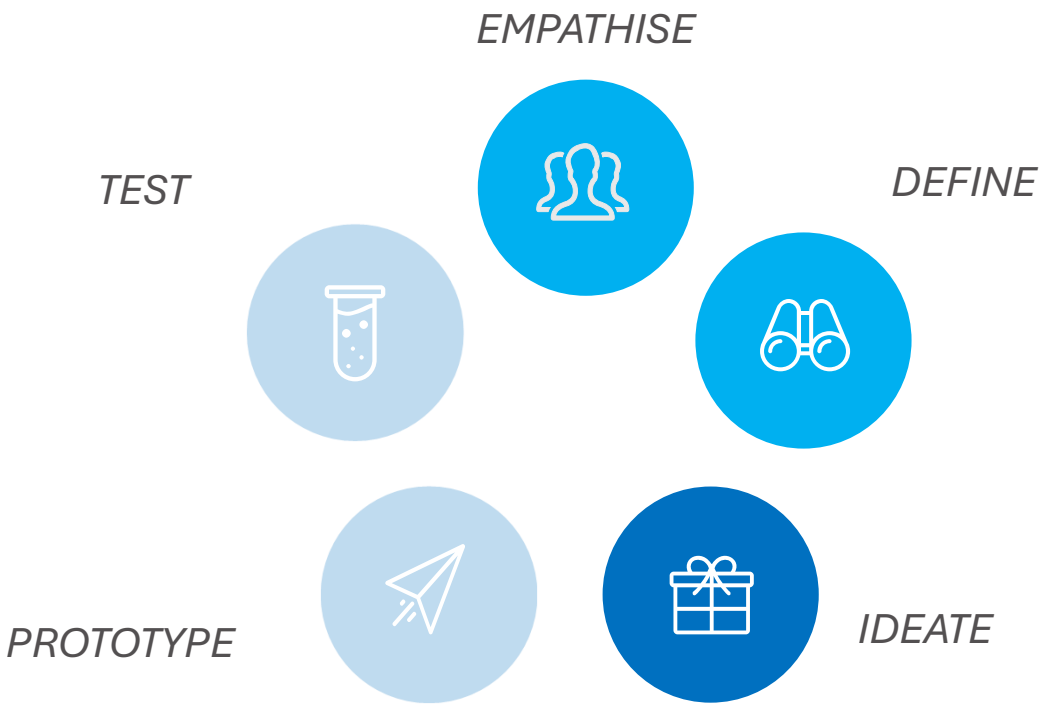


Select a spokesperson, and share the problem statement with the room (1 min each)

Lunch Break

Your design challenge

Step 3: Ideate - imagine lots of different solutions



Time: **20 mins total**

To-do: **1**) Brainstorm solution ideas individually (5 mins)

2) Share each persons ideas with others in your group (5 mins)

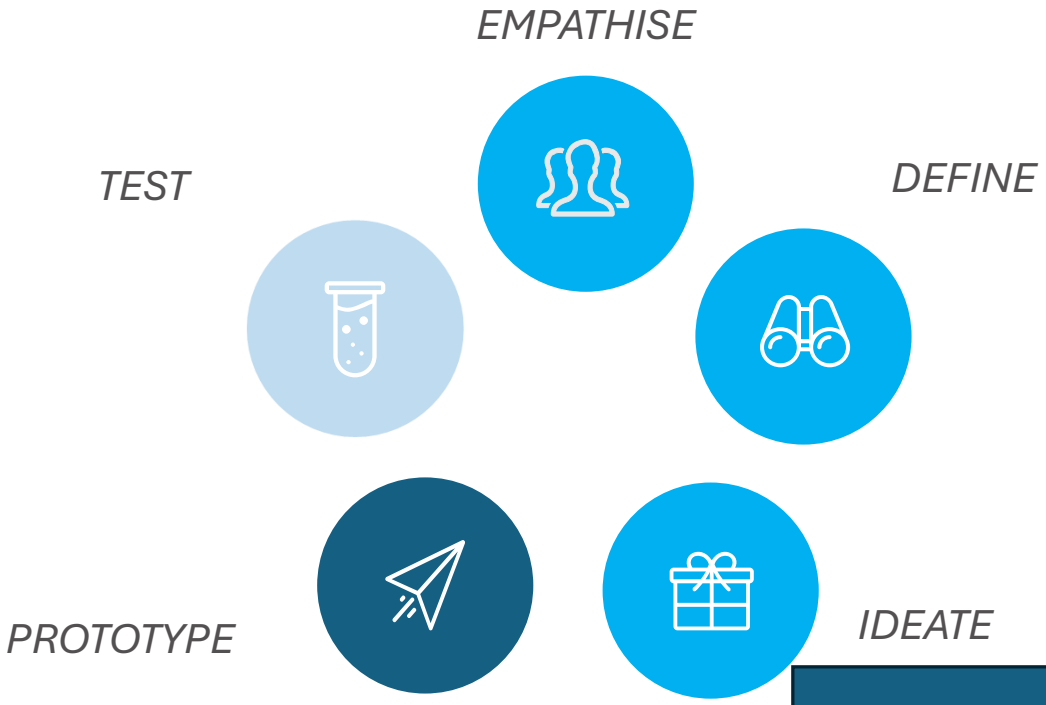
3) Discuss, and vote for the most promising (5 mins)

Tips: Establishing leaders/product owners helps manage the process

Try drawing your solution as a cartoon

Your design challenge

Step 4: Select, and Prototype one idea to make it real



Time: **20 mins total**

To-do: 1) Plan out your storyboard (5 mins)

2) Sketch your idea on 5-6 panels (15 mins)

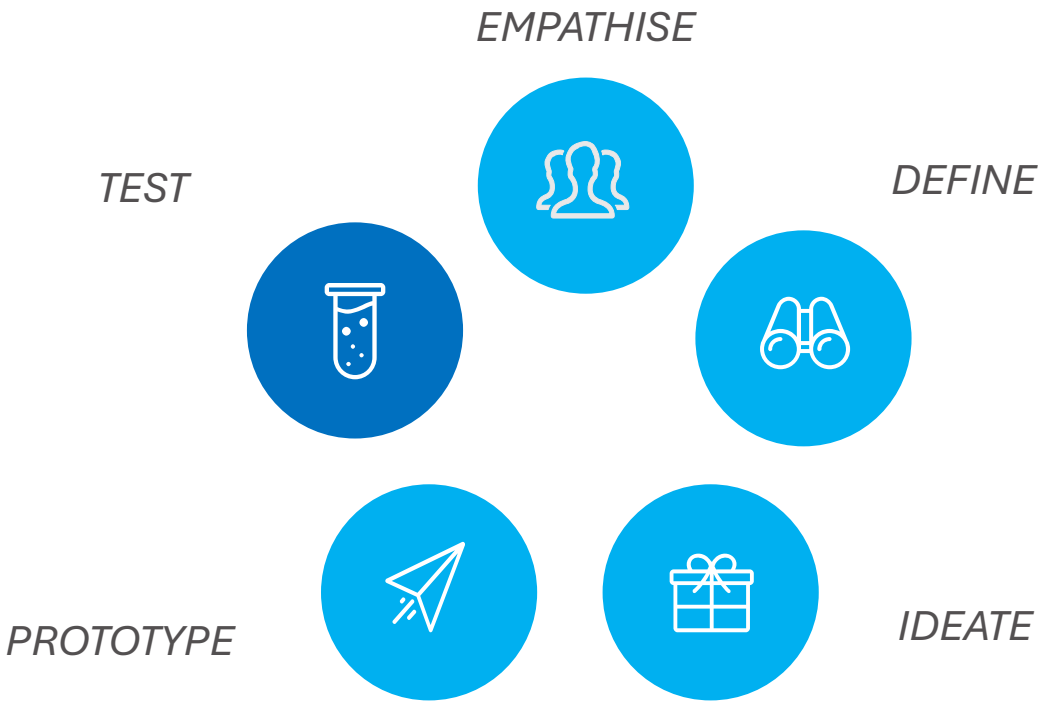
Tips: Design from your *customer's perspective*

Show how your solution's chosen features solve their problem

Name your product!

Your design challenge

Step 5: Test – Pitch your prototype Storyboard



Time: 40 mins total (T+80)

To-do: 1) Each group elects two to present their prototype story board and pitches
- their industry partner and their goal
- their problem statement
- the group's chosen solution

2) All groups then vote (perhaps using stickers? on their favourite solution. Discuss the results!

Tips: Keep energy high!
Put yourself in the customer's shoes
What worked well? What could be better?
What ideas could be built on prototype?

Your design challenge

Reflection

1) How did engaging with customers influence your problem and/or solution?

2) What was it like showing rushed and unfinished work to a stranger?

3) How did pace feel - quick, iterative - relative to how you normally work?

4) Where would you spend more time - empathy, defining, ideating, prototyping or testing?

Reflection

Who have you met?

What are your next steps?

What are our next steps?

Sentinel 2 SWIR image October 5, 2025

Thanks

Join the LinkedIn Community Group

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