National Aeronautics and Space Administration

CAS Mapping – Helping Aviation Find Problems Worth Solving

Exploring the connections between societal needs and trends to maximize the benefits of NASA capabilities

Challenges

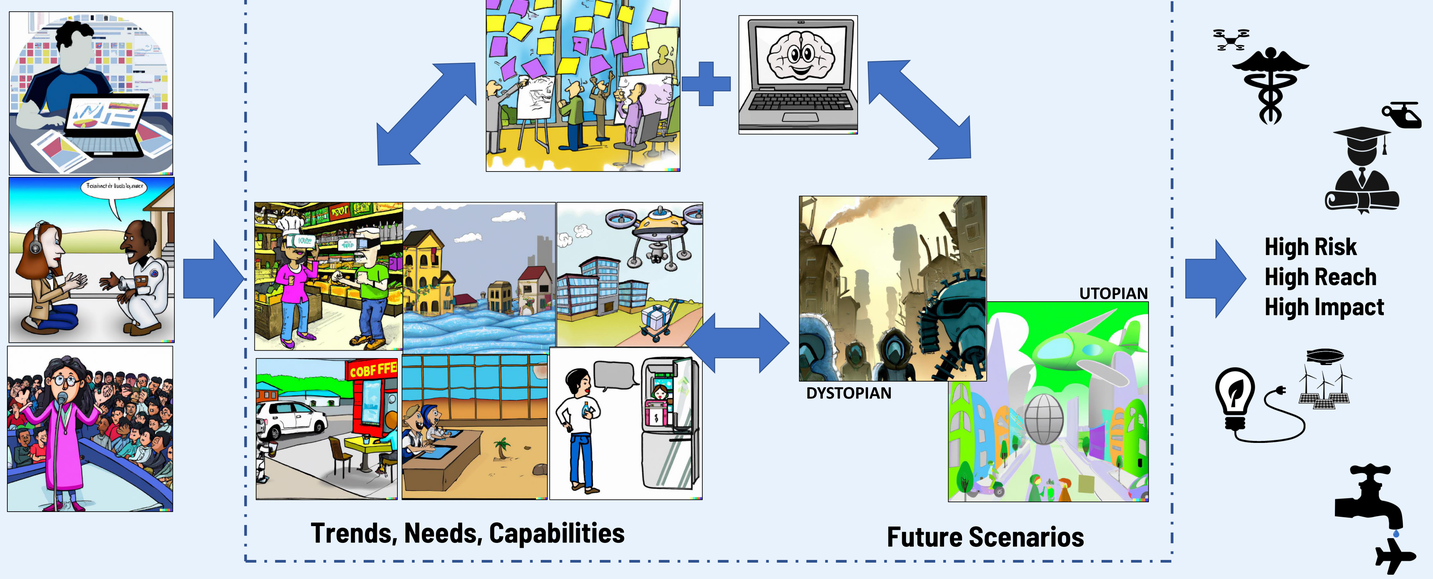
- **Fuzzy theory** – No simple methodology to understand complex problems in NASA context
- **Vast scope** - Filtering information for relevant problems, trends, and capabilities to explore
- **Scale of breadth and depth** – Need to explore a broad range of (non-aviation) domains with sufficient understanding to make relevant connections
- **Knowledge** - Management and communication
- **People** – Finding experts with an exploratory, Wicked mindset

Expected Impacts

- Establish a robust pathfinding methodology to explore complex problems
- Focus NASA's aeronautics mission and impact on broader societal needs
  - Reach more people
  - Make deeper positive impact
- Develop a forward-looking strategy for aviation (problems, workforce, resources)

Solution

- Scoping problem landscapes by integrating human and digital sources (analytics, interviews, ideation sessions)
- Scenario planning and foresight – looking at dystopian and utopian futures to inform aviation threats and opportunities
- Incorporating AI, systems thinking, and modelling
- Embracing psychological safety while exploring policy, economics, social science, technology, ethics, law and the environment



The mapping process discovers trends, needs, and capabilities from interviews with diverse groups of people, data analytics tools, and from publications. These are analyzed in the context of future scenarios to uncover problem areas that have the highest possible impact on the broadest number of people while ensuring that we are prepared for the future.

Partners and/or Participants

- NASA Tournament Lab/TECH7/Shoshin Works - Bringing world class thought leaders to NASA
- PreScouter - Technical scouting, providing us with state of the art in emerging societal and technological trends and capabilities
- NASA CoECI (Center of Excellence for Collaborative Innovation) – Crowdsourcing trends and futures
- NASA Centers – Participation in collaborative ideation sessions

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References

- Watch a video on CAS and learn where Mapping fits in

IMAGINAVIATION