Leveraging Design Thinking to Inform Water Resource Applications and the NASA Plankton, Aerosol, Cloud, Ocean Ecosystem (PACE) Mission

Erin Urquhart, Natasha Sadoff*
#SY35C-0637

Implementing the Design Thinking Process at NASA

Design Thinking (DT): human-centered approach to innovation focused on feasibility, viability, and desirability. Follows the process to the right.

Human-Centered Design (HCD): creative approach to problem solving starting with the end user/audience and ending with purpose-build solutions

For NASA Applications, DT and HCD can lead to better services to the Earth science and water resource community through the development, delivery, and application of actionable, accessible, and usable Earth Observation (EO) data! This includes partnership development, user & stakeholder engagement, data co-production and management, and training, communication, and outreach.

Empathize: Targeting Partners & Understanding the PACE Community

Outreach

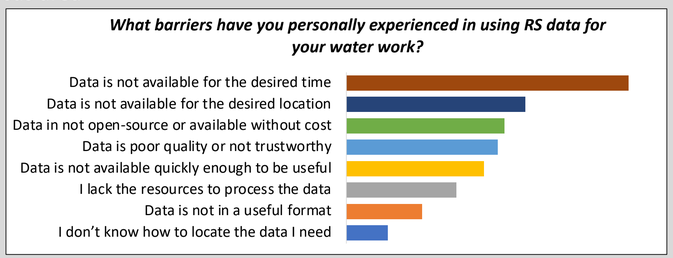
- Connecting with partner organizations, communities, or networks

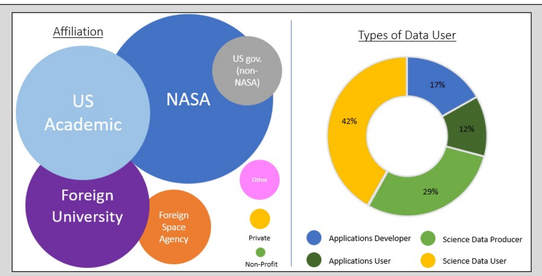
Community Surveys

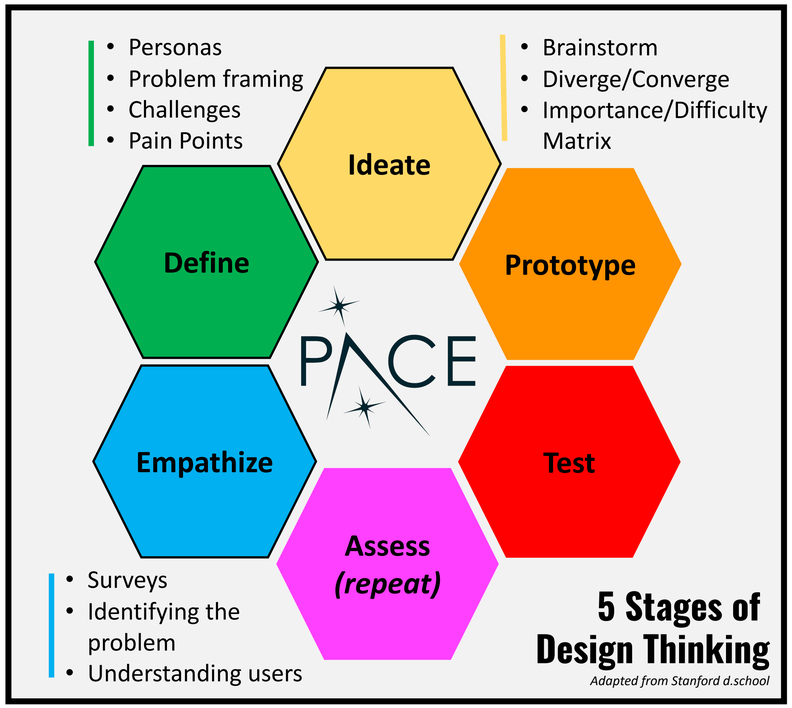
- In addition to demographics, asking questions about applications and current work as well as priorities, challenges/barriers, gaps, and needs

Registration Questions

- Asking questions during registration about sector, geographic location, familiarity with Earth observations, familiarity with PACE, user type, application focus area







Define: Personas to Understand Types of PACE Water Users & What they Want

Personas help the PACE mission understand the goals, concerns, and needs of the diverse water user community. Personas allow for designing products, trainings, communications to satisfy users' needs and goals. Personas were created to represent a range of water industry users from research to government to the private sector. Community users helped identify challenges and pain points, as well as realistic, tailored EO and PACE-specific solutions and opportunities.

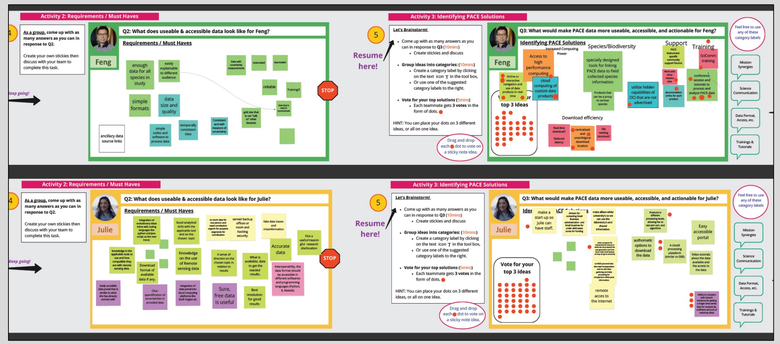
Ideate: Using Co-Production to Target a Shared Vision for PACE

Data Usability… For Whom? (brainstorming)

- Identify what usefulness means or looks like to different water user groups
- Share perspectives and gather feedback on user priorities and what would make PACE data valuable to them

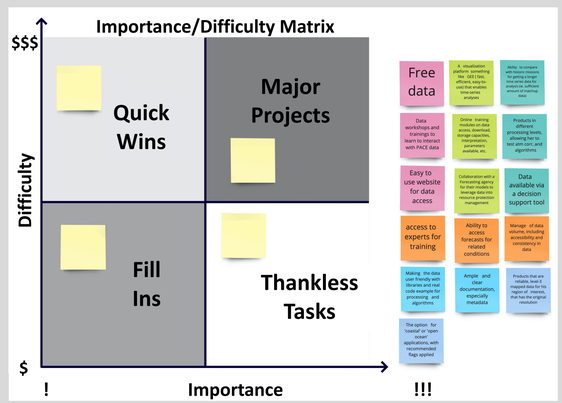
Turning Challenges into Solutions (brainstorming)

- Collect specific examples of how user communities think barriers can be addressed to ensure PACE data are accessible, usable, and actionable



Ideate: Prioritization Matrices to Inform PACE Data Solutions

- Can help prioritize PACE solutions quickly
- Can facilitate deliberation between data users/producers
- Can resolve/ alleviate differing opinions



- Can help PACE develop a plan of action to ensure PACE data are accessible, useable, and actionable

**erin.urquhart.jephson@nasa.gov*