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## INTRODUCTION

A community outreach event was hosted at USC in collaboration with SEDS-USC and NASA Goddard to share the excitement of the mission development of the Habitable Worlds Observatory (HWO). The event aimed to help students understand the engineering and science collaboration needed for NASA projects, serving as a model for informal educational experiences at university level.

### Event Details

**Date:** February 8, 2024, 5:30 to 8:00 pm

**Venue:** University of Southern California, Los Angeles, California

### Collaborators

- University of Southern California (USC)
- Students for the Exploration and Development of Space at USC (SEDS-USC)
- NASA Goddard Space Flight Center

## METHODS

The event gained attention through campus fairs, social media, departmental newsletters, targeted class ads, and industry participation via student and alumni networks.

**Participants:** 25 students from Aerospace Engineering, Astronautical Engineering, Mechanical Engineering, Physics, Astronomy, Computer Science, and other engineering disciplines. Students are from undergraduate, master, and PhD levels.

## ACTIVITIES

### Presentation (1 hour):

**Speaker:** Julie Van Campen

Senior Systems Engineer at NASA Goddard

### Content:

- Concept of the **Habitable Worlds Observatory**
  - Infrared/optical/ultraviolet space telescope
  - search for biosignature on exoplanets
  - direct imaging of exoplanets, general astronomy
- Systems Engineering and Early Concept Process for NASA space missions

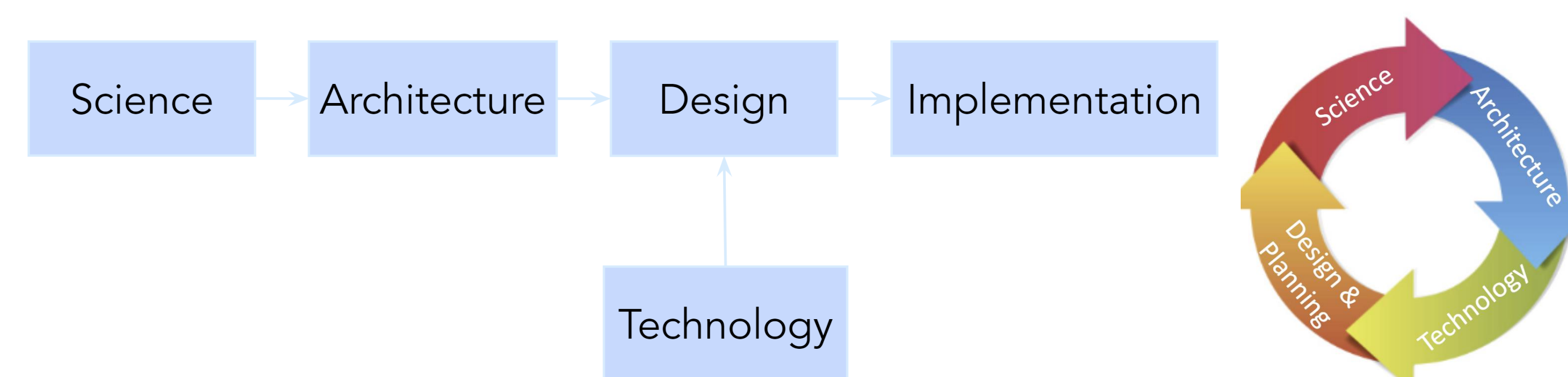


Fig 1. HWO Development Roadmap

- Composed of Science, Technology, Architecture Review Team (START) and Technical Assessment Group (TAG)
- Ways to Get Involved: **HWO Working Groups**

### Workshop (1 hour):

- Exploring and defining early mission trade studies between possible science objectives and engineering capabilities
- Group discussion is composed of one astronomy/physics students and four engineering students

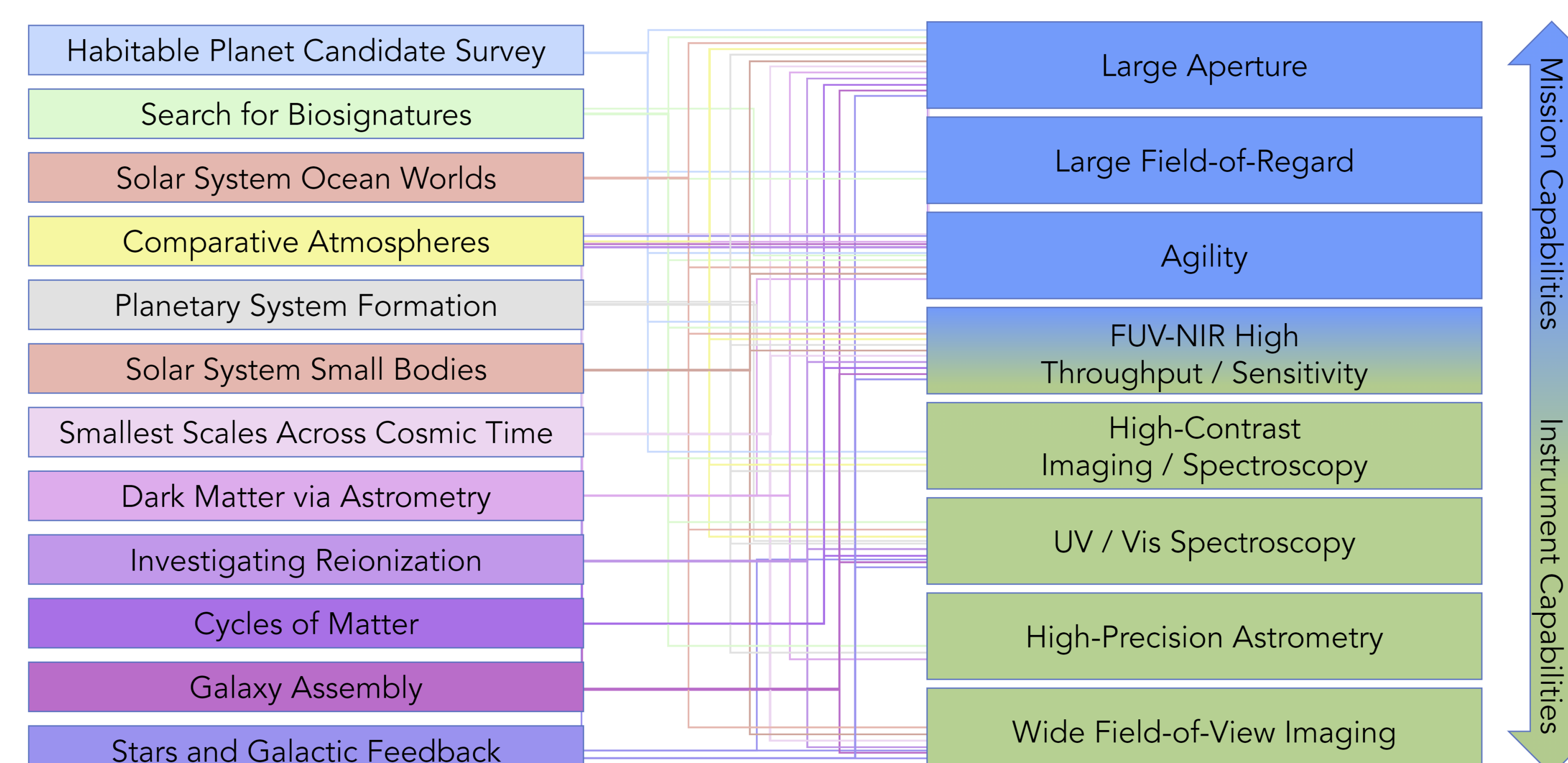


Fig 2. Science goal (left) drives observatory capability (right)

## Outcomes

- Students learned how space telescopes evolved and how their objectives were shaped by the Astronomy Decadal Survey.
- Each group presented a proposals outlining their scientific objective for HWO and the supporting engineering capabilities.
- This exercise enhanced understanding of space mission complexities and the interdisciplinary teamwork needed to achieve scientific goals.

## Impact and Model

- This event demonstrated a cost-effective way to engage students in real-world science and engineering collaboration.
- Increased interest and active participation in space exploration and technology fields.
- Fostered stronger connections between science and engineering students.
- The workshop model can be replicated at other universities to promote similar educational and collaborative experiences.

## Acknowledgments



**USC Viterbi**  
School of Engineering



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