



INSTITUTE FOR DEFENSE ANALYSES

**DATAWorks 2023:  
Framework for Operational Test Design:  
An Example Application of Design Thinking**

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## Executive Summary

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This poster provides an example of how a design thinking framework can facilitate operational test design. Design thinking is a problem-solving approach of interest to many groups including those in the test and evaluation community. Design thinking promotes the principles of human-centeredness, iteration, and diversity, and it can be accomplished via a five-phased approach. Following this approach, designers create innovative product solutions by (1) conducting research to empathize with their users, (2) defining specific user problems, (3) ideating on solutions that address the defined problems, (4) prototyping the product, and (5) testing the prototype.


# Framework for Operational Test Design:


## An Example Application of Design Thinking | Miriam Armstrong, Institute for Defense Analyses


### What is Design Thinking?

- An approach to solving problems using the perspectives and practices of designers
- Applicable to various domains (medicine, education, defense)
- Applicable to products, policies, and procedures
- Approaches vary, but typically adhere to 3 design principles
- Five-step process developed at Hasso Plattner Institute of Design at Stanford

### Design Thinking Principles

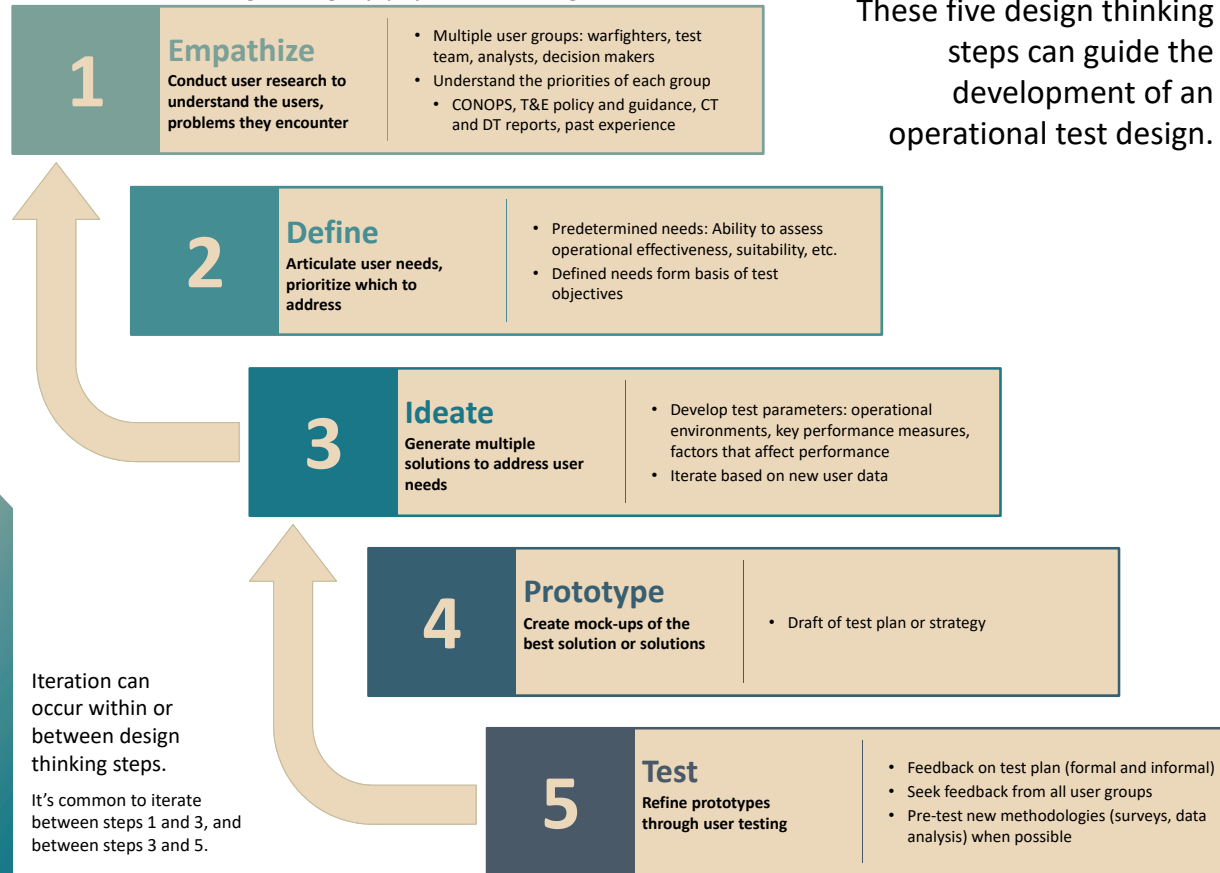
 **Human-Centeredness**  
Designing for human users (rather than technological ability or aesthetics)

 **Iteration**  
Repeating processes based on feedback to refine the design

 **Diversity**  
Including diverse perspectives within design team and when collecting feedback

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### Design Thinking Step | Operational Test Design Considerations



### Advantages of Design Thinking

- Provides structure to test design process
- Can be used for new products or revisions
- Design principles can be applied when five-step process isn't
- Benefits of design principles:
  - User design: increased use or adherence
  - Iteration: arrive at best idea, not first idea
  - Diversity: avoid groupthink, promote innovation

### Limitations of Design Thinking

- Little empirical research, support
- Five-step process not appropriate for all products
  - Too big (e.g., acquisition program): difficult to hold multiple organizations to same steps and principles
  - Too small (e.g., memo): continual testing and iteration may be overkill

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