

Design Thinking to Define Systems in a Constrained Environment

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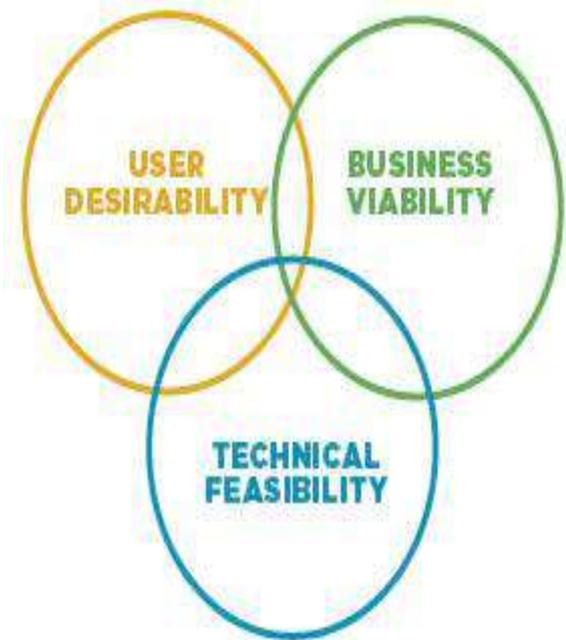
Outline

- Design Thinking, Systems Thinking
 - What is it? Where is it from? Why is it important?
- Case Study: Sky Lift
- A Few Tools

Design Thinking

A discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and business opportunity

- Tim Brown, Founder, IDEO

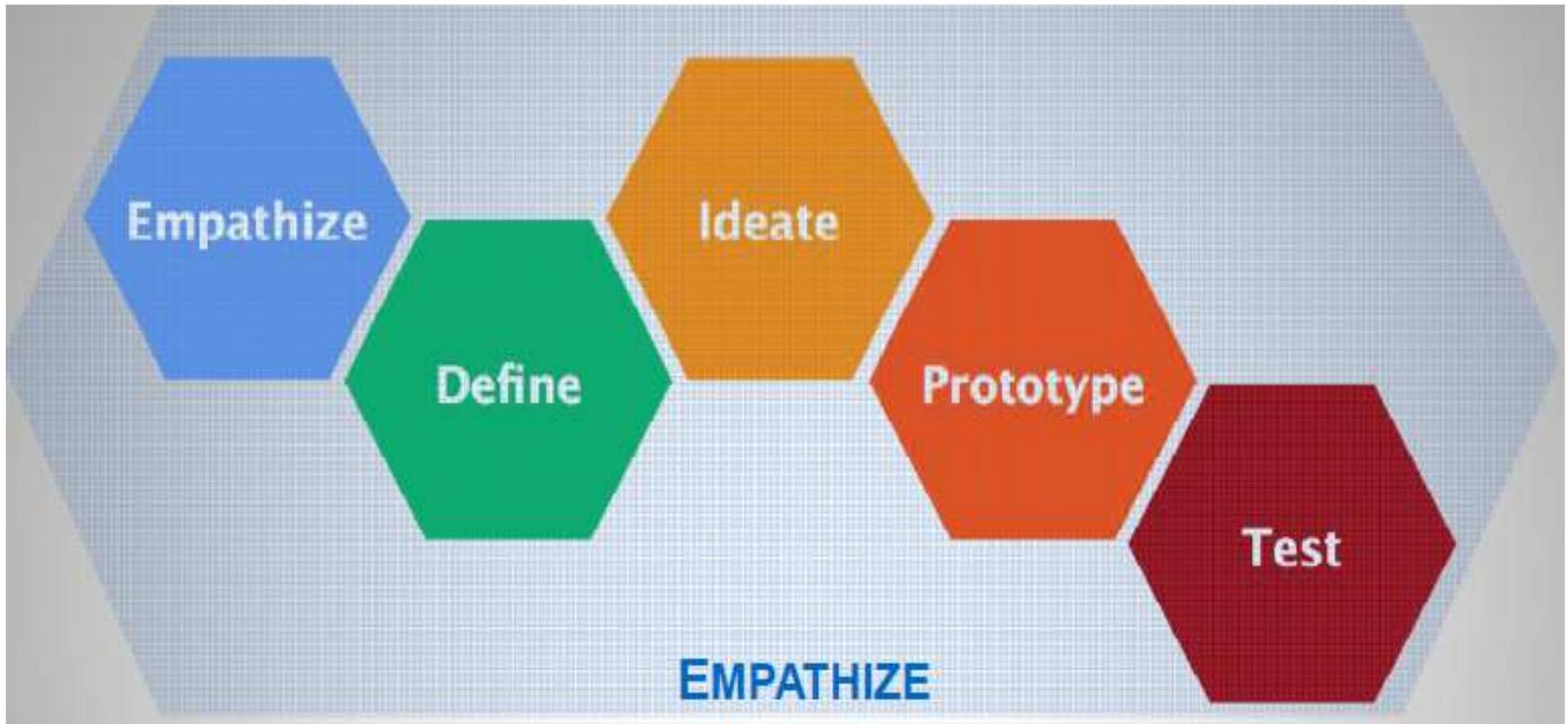


Systems Thinking

“Businesses and human endeavors are systems... we tend to focus on snapshots of isolated parts of the system. And wonder why our deepest problems never get solved.”

- Peter Senge

Design Thinking Systems Routine



How Compare to Systems Engineering “V”?

Pace of Innovation

Design Thinking for Systems Thinking - Constrained Environment

- Renewed and increased focus on Useability
- Reduces total cost of ownership (easier adoption of system)
- Constraints come from market research; some call it design to cost. But, commercial markets don't care about cost....
- **Critical to Understand and Define the "Design Space"**

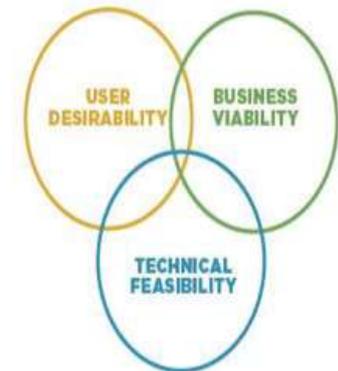
Case Study – The Story of SkyLift

- User Centric
- Market Focused
- Target Price
- Biz Model accounts For O&M
- Why important for DoD?

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Frame of Mind and Tools

- Business Opportunity
 - Price to Target (Design to Cost)
 - Time (too late, will miss window of opportunity)
- Design Interventions
- Business Model Canvas
- Customer Discovery
- Cross Disciplinary Thinking

Challenges as SEs

- The use of experiments and prototypes—we are used to vetting things to death... taking the life out of innovation
- Seeing not getting it right... as a learning experience
- We are so used to thinking we have to know everything... we forget that a lot of great ideas and solutions can come from the People

Why it Works....It's just a process, but an out and about process

- “Puts the user at the top and causes us to find out what matters...what excites...it is heart driven.”
- “Gets us out of how we normally collect data... Out with users and residents.” (user-centered)
- “It allows us to iterate and check in with users...limiting our up front investment... allowing us to get faster roll outs.” (speed to market)
- “It gets us working with other people from different disciplines which enhances creative thinking.” (innovation)
- “Solutions were not always expensive allowing us to promote quick wins.” (cost saving)

Sources

- Design Thinking, by Tim Brown
- Design Thinking Workshop – Chuck Appleby
- Balancing Design Thinking & Systems Thinking – Mars Solution Lab