Changing Boeing Culture with Design Thinking

An Iterative, Empathic, Human-Centered Approach to Innovation

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Ryan Kiggins' Bio

Professional – 18 years at Boeing

- After 3 summers as an intern, hired on "for reals" in May of 2000. Started off in software process improvement (CMM/CMMI)
- Spent 10 years as an application developer in Manufacturing & Quality Systems
- Member of the last Lean+ Rotation Program, supporting 737 and Fabrication
- Design Thinking trainer and facilitator

Personal

- Married for 16 years, raising two girls, 13 & 9, both competitive gymnasts
- Attended San Diego State to play baseball. My first hit as an Aztec was a home run against Jeff Weaver (future MLB Star). It was all downhill from there.

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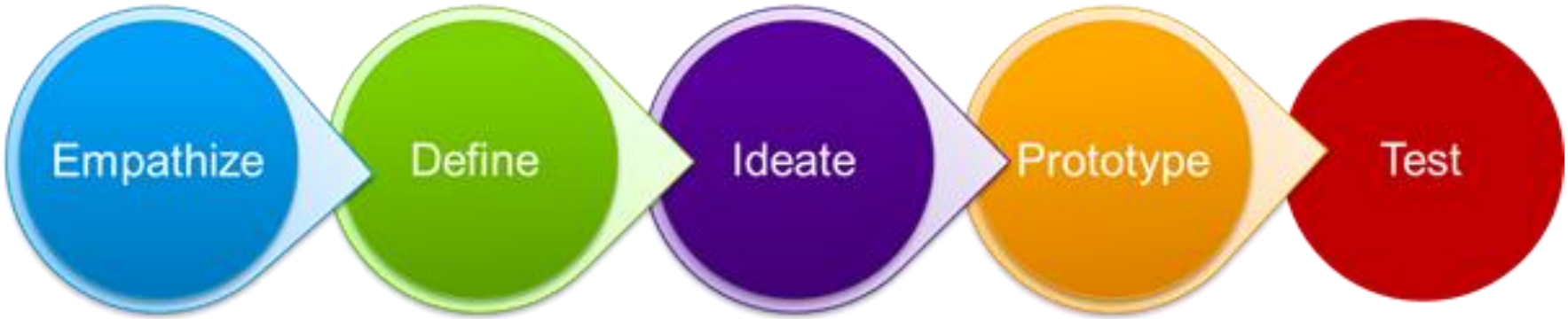
Presentation summary

- **Introduce you to Design Thinking**
- **Culture / mindset shifts**
- **Why it matters**



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Why should the culture change?

First time quality

Must be emotionally resilient

Enhance talent pipeline

Capturing the Value of Quality

We're losing

Be better

Do more with less

Leverage innovation

Maintain and extend our competitive advantage

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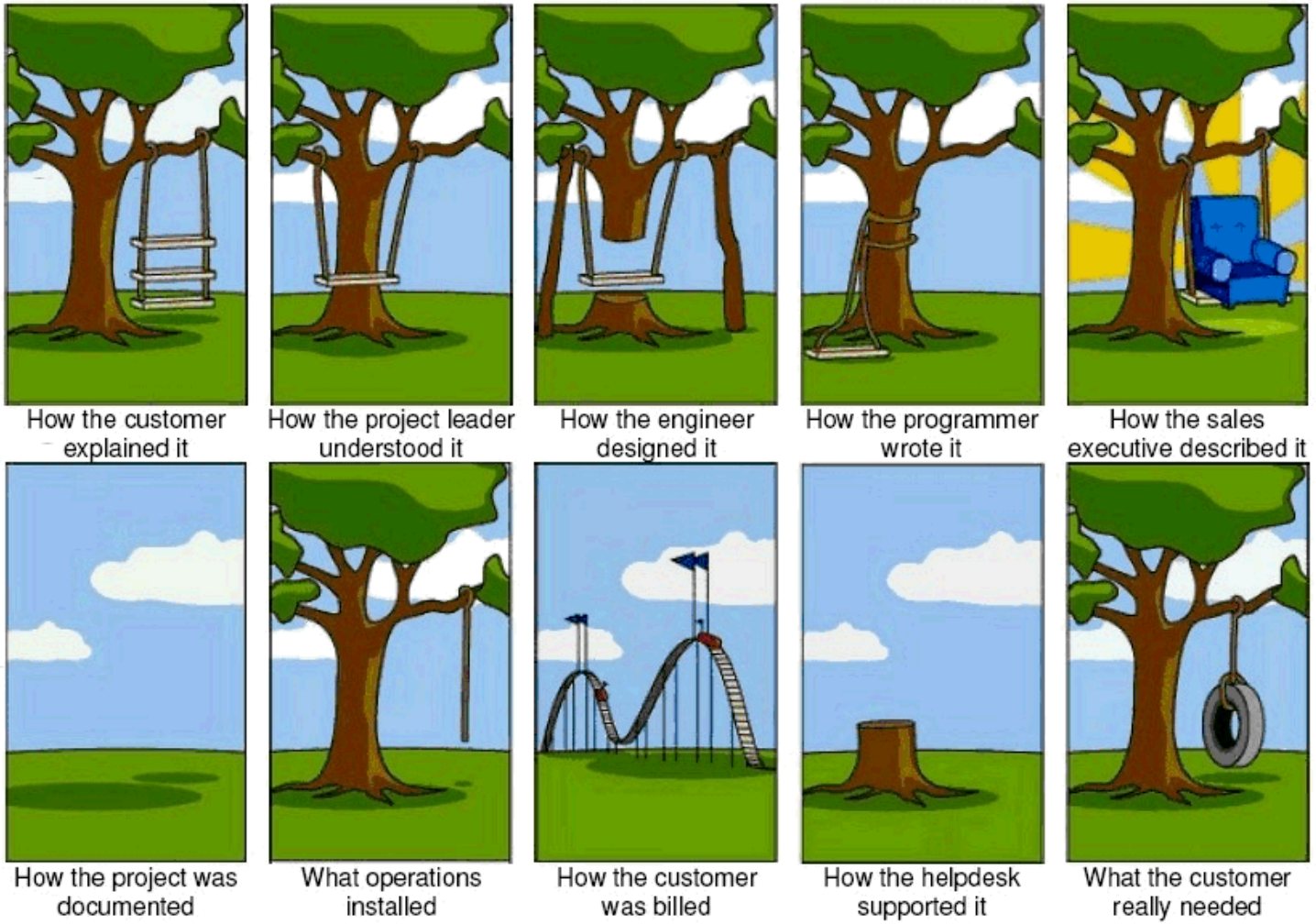
Requirements viewpoints



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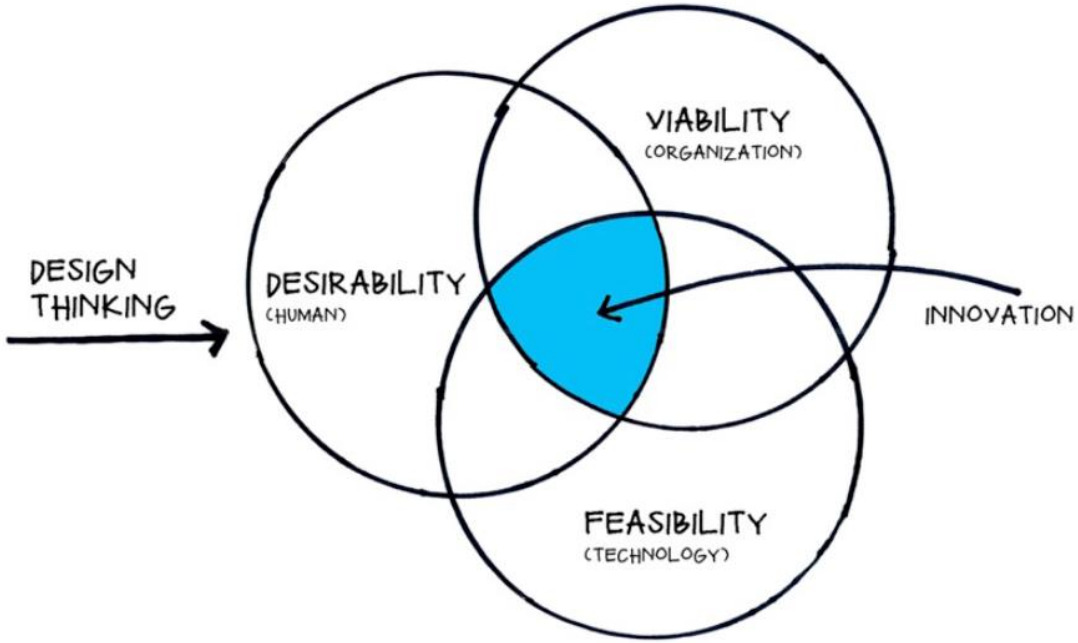
What is Design Thinking?

- **A methodology for innovation.**
- **A human-centered approach to developing products, services, processes, and strategy.**
- **Synthesizes what is desirable with what is technologically feasible and economically viable.**



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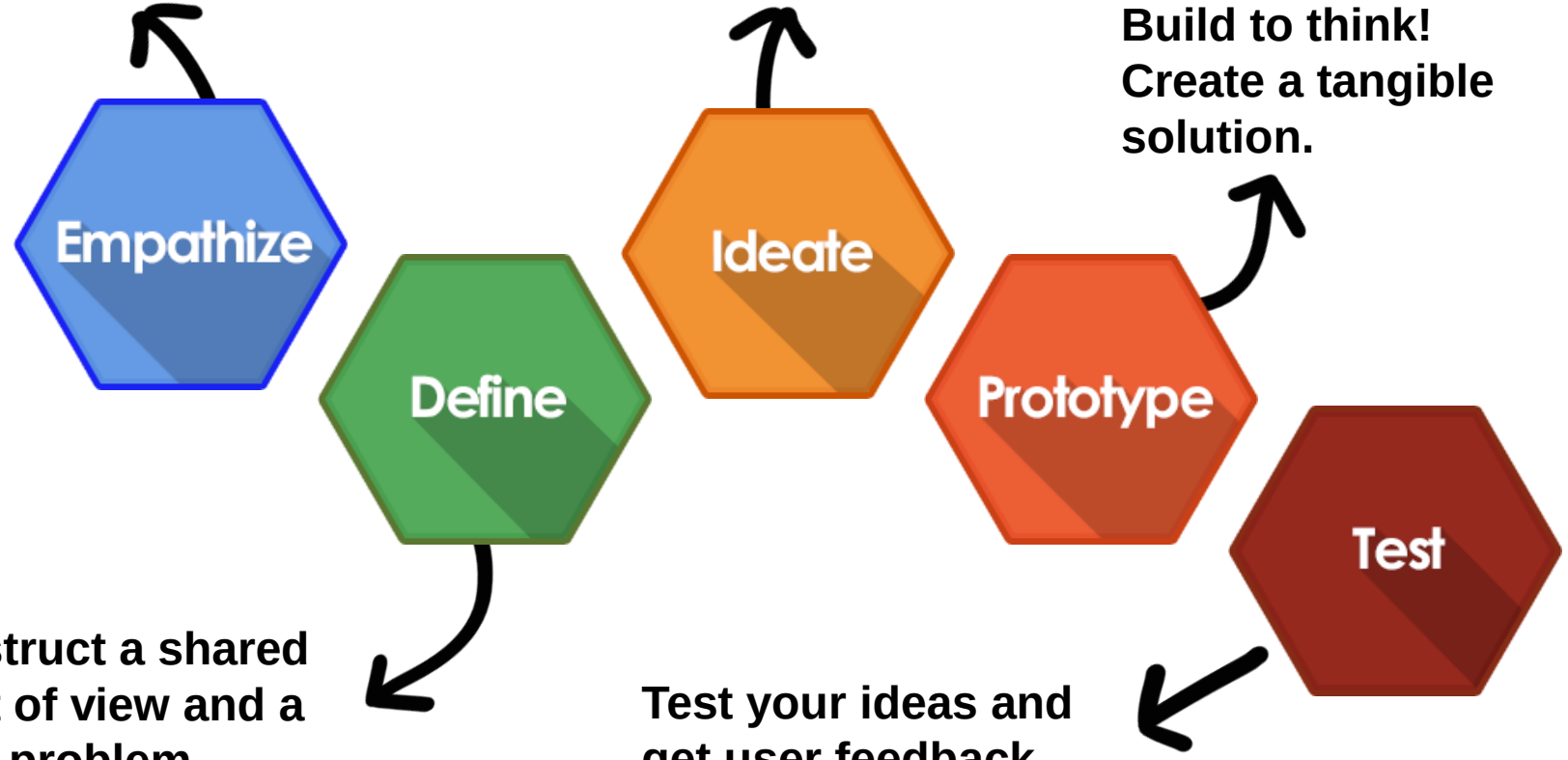
The Design Thinking Process

Experience your end-users in their environment.

Generate ideas in a wide solution space.

Build to think! Create a tangible solution.



Construct a shared point of view and a solid problem statement.

Test your ideas and get user feedback.

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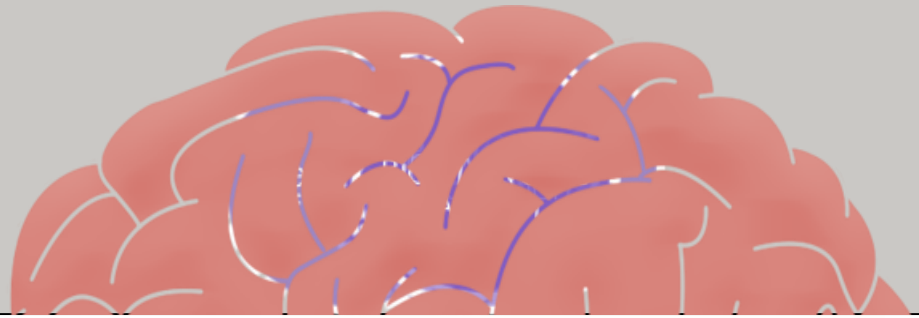
The mindset of a Design Thinker – Building creative confidence



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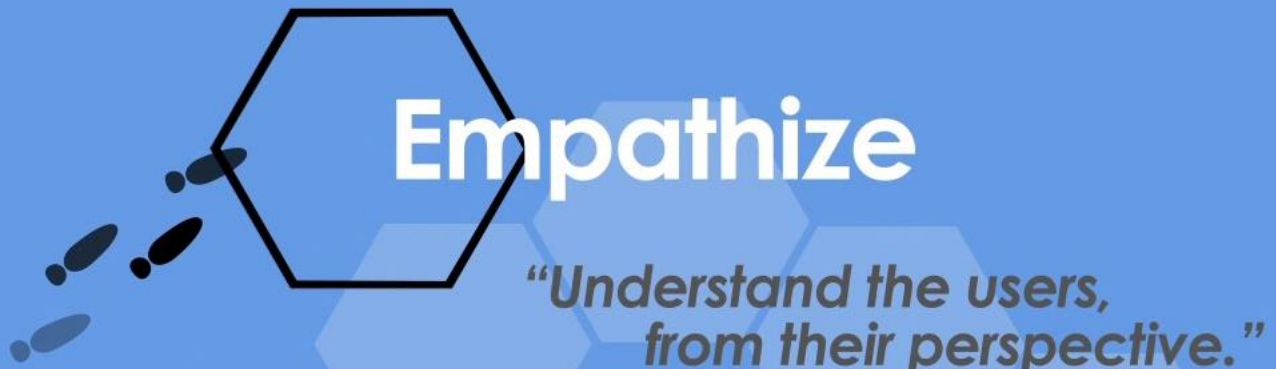
Empathize



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Empathize Basics

Empathy is the foundation of a human-centered design process. You need to understand the people for whom you are designing in order to better understand their situation.

Focus on Human Values

Be Mindful of Process

Key Phase Activities

Observe: View users and their behavior in the context of their lives.

Engage: Interact with and interview users to understand their challenges.

Discover: Gather inspiration from a wide range of experiences.

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Define

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Define Basics

The Define Phase is a time to reflect on what you've learned and bring clarity and focus to the design process. Frame your opportunities and your users' point of view based on your findings in empathize mode to create a solution springboard.

Be Mindful of Process

Craft Clarity

Phase Goals

Identify: Compelling needs and insights.

Themes: Search for meaning and look for patterns.

Scope: A specific and meaningful challenge.

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Ideate

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Ideate Basics

Focus on idea generation, both a large quantity and a diverse range of ideas. Don't eliminate or judge any idea for feasibility until the brainstorming is finished. Once all ideas are on the table, everyone gets a chance to vote on the best.

Radical Collaboration

Embrace Experimentation

Phase Goals

Diversity: Harness the collective perspectives and strengths of your team.

Quantity: Your brainstorming sessions should generate a lot of great ideas.

Turbocharge: Get obvious ideas out of your heads and drive your team beyond them.

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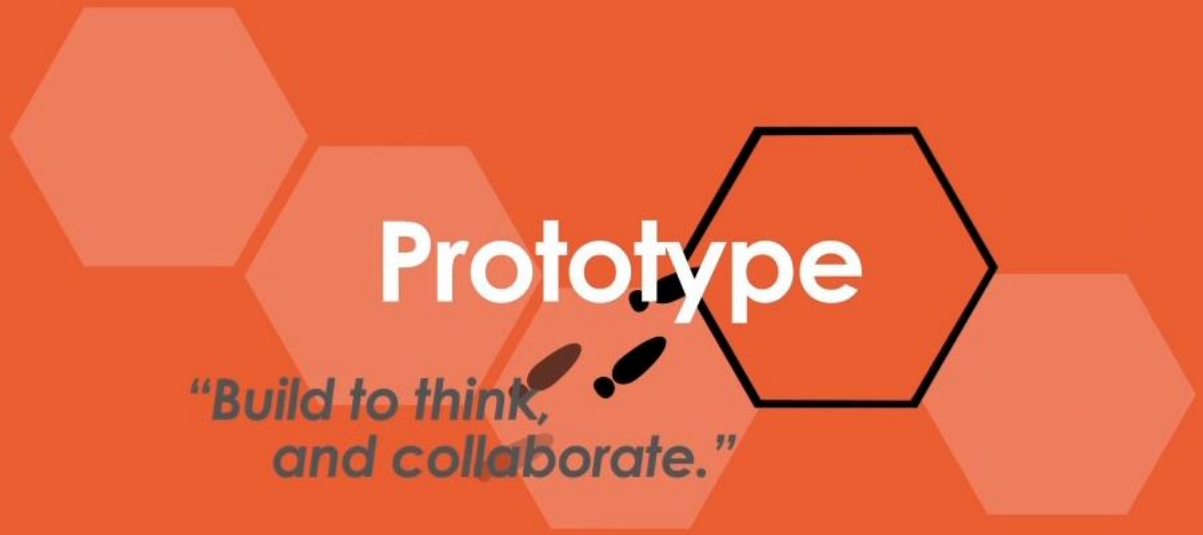
Prototype



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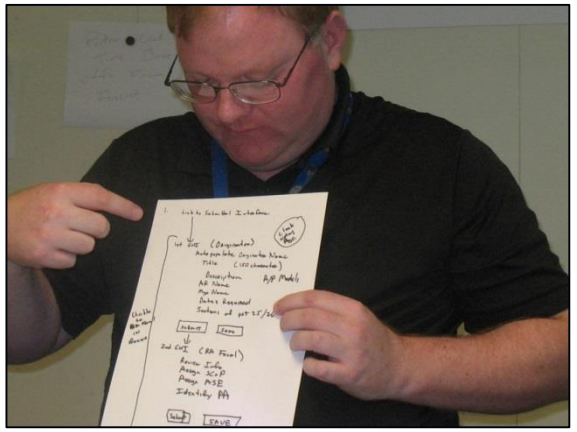
Prototype Basics

If a picture is worth a thousand words, a prototype is worth a thousand pictures. Identifying a variable to explore encourages you to break a large problem down into smaller, iterative, testable chunks.



Radical Collaboration

Bias toward action

Show, don't tell

Phase Goals

Quality: Take your ideas to the next level.

Solve disagreements: Prototyping is a powerful tool that can eliminate ambiguity.

Start a conversation: A prototype can be a great way to have different kind of conversation with users.

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What can be a prototype?

- Handmade constructions
- Sketches
- Diagrams
- Graphics or pictures
- Skits or role-plays
- Video
- Storyboard

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Test

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Test Basics

Don't wait until you have a better user interface before showing it to users. If you wait, it will be too late to translate your usability findings into needed changes. How might we make our solution better right now?

Radical Collaboration

Bias toward action

Show, don't tell

Phase Goals

Iterate: Strive for viability, not perfection.

Move Forward: Do you need to go back to the drawing board, or to implementation?

Business Value: The sooner you have something in your users' hands, the sooner the business realizes the value.

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6 Advantages of Design Thinking

- ✓ Better for people—starts and ends with unmet needs
- ✓ Takes us beyond having to be an expert
- ✓ Builds tangibility—people ‘get it’ with physical prototypes
- ✓ Adds momentum to projects
- ✓ Reduces risk: fail early and often to succeed sooner
- ✓ It’s both a methodology and a mindset

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So what?

First time quality

Must be emotionally resilient

Enhance talent pipeline

Capturing the Value of Quality

We're losing

Be better

Do more with less

Leverage innovation

Maintain and extend our competitive advantage

Don't Care!!

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July & August 2008

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What if you….

- ✓ Felt connected to your customers?
- ✓ Saw the value in the work you do?
- ✓ Felt appreciated by
  - Your users / customers?
  - Your management?
  - Your co-workers?
  - Your company?
- ✓ Had less stress at work?
- ✓ Had fun at work?

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The Happiness Advantage

- Better secure jobs,
- Better keeping jobs,
- Superior productivity,
- More resilient,
- Less burnout,
- Less turnover,
- Greater sales
  - (Lyubomirsky, 2005)

http://www.ted.com/talks?q=the+happy+secret+to+better+work&sort=newest

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Stressful and disengaged workplace

Stress

- More than $500 billion is siphoned off from the U.S. economy because of workplace stress *
- 550 million workdays are lost each year due to stress on the job *
- 60% - 80% of workplace accidents are attributed to stress *
- More than 80% of doctor visits are due to stress **

Disengagement

Disengaged workers have ***	Organizations with low employee engagement scores experience ***
• 37% higher absenteeism • 49% more accidents • 60% more errors and defects	• 18% lower productivity • 16% lower profitability • 37% lower job growth • 65% lower share price over time

* American Psychological Association estimates

** estimate by stress.org

*** Queens School of Business and by the Gallup Organization,

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Pushing Design Thinking further to the left

We Currently we are using Design Thinking around or after /e

Start the Project Right

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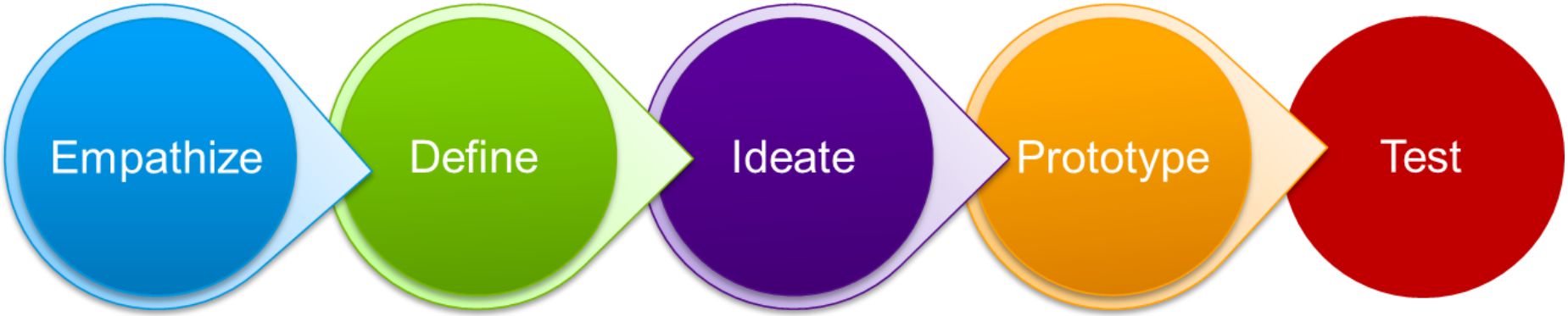
Summary sentence for Design Thinking



Enlightened trial and error succeeds over the planning of the lone genius

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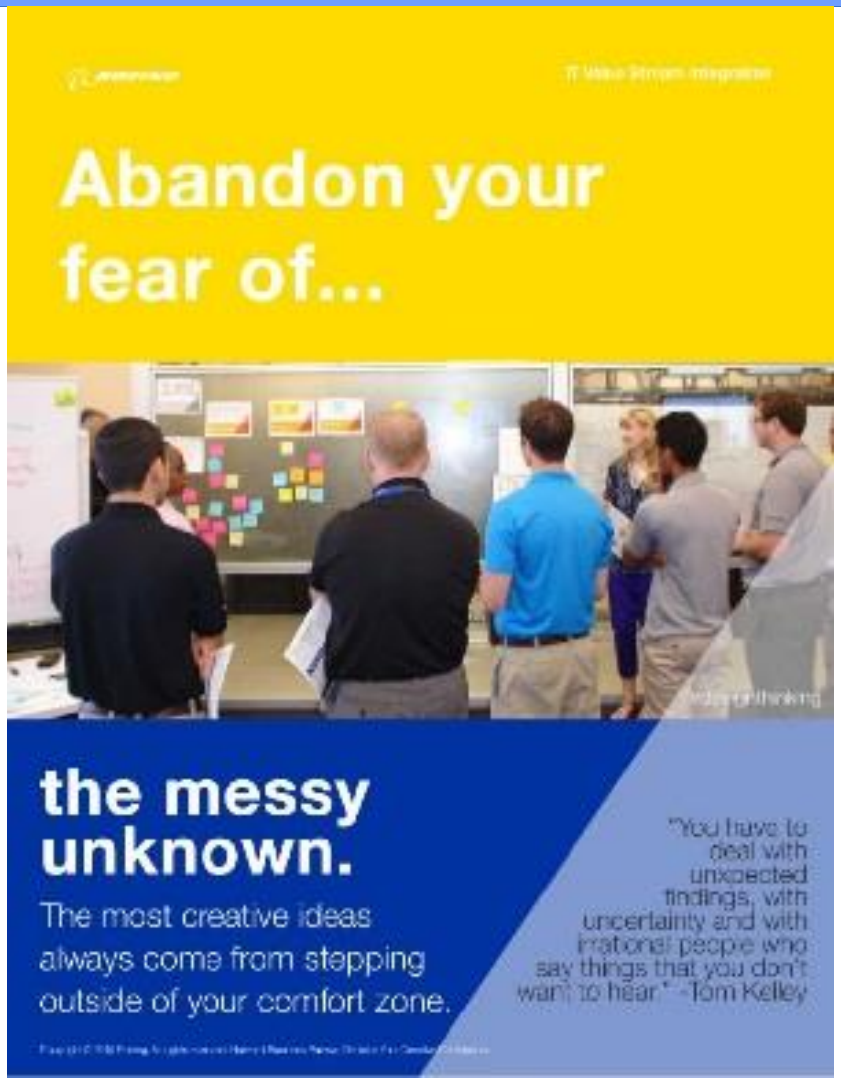
Signage - Abandon your fear of…



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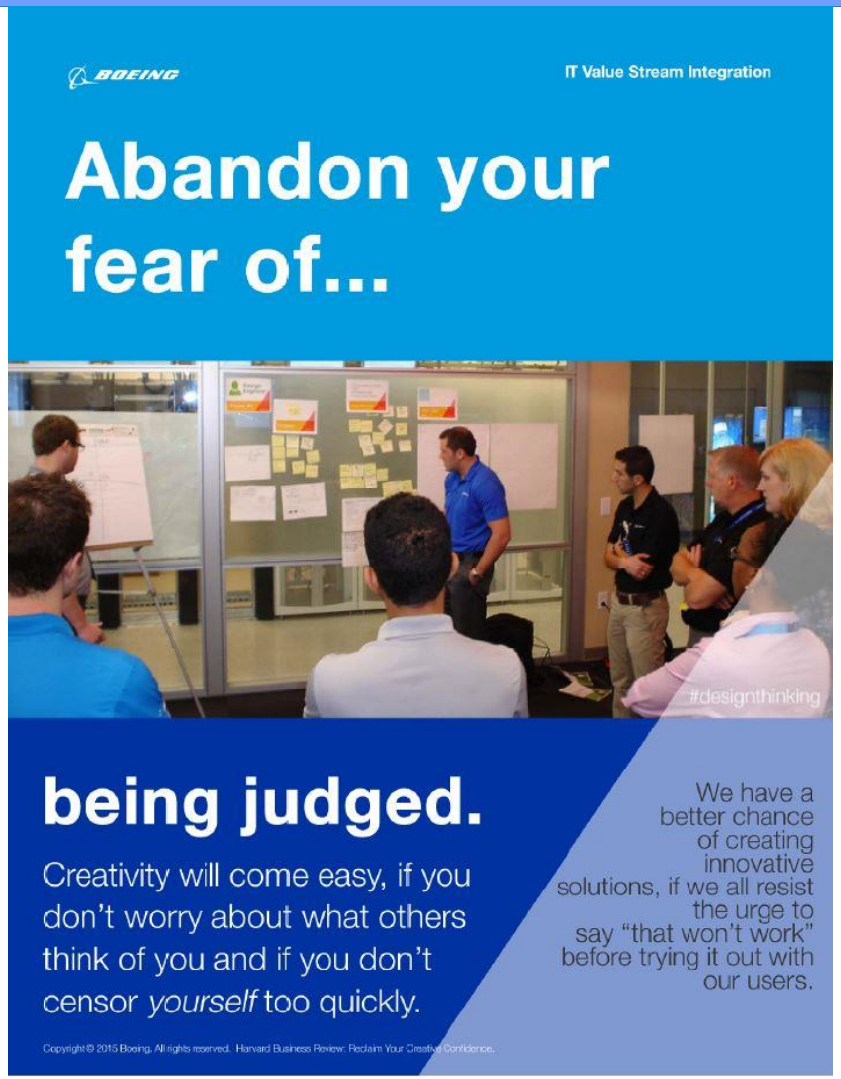

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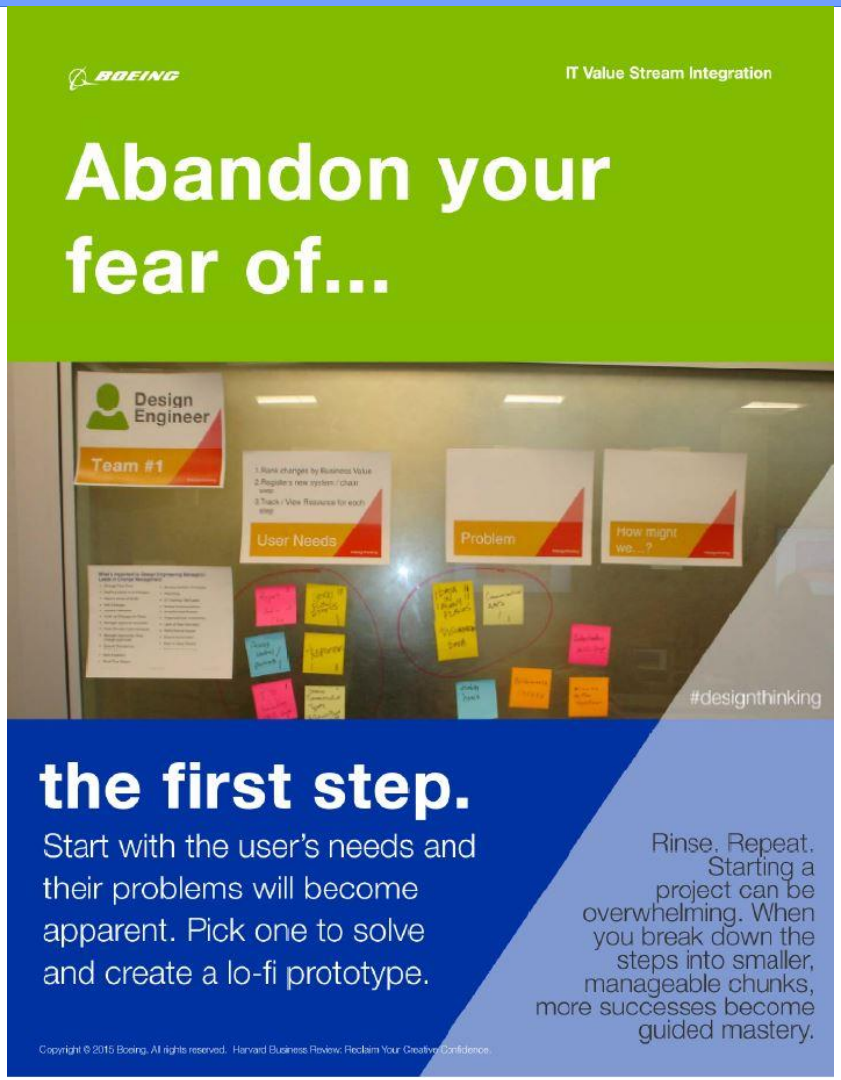

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Signage - Abandon your fear of…

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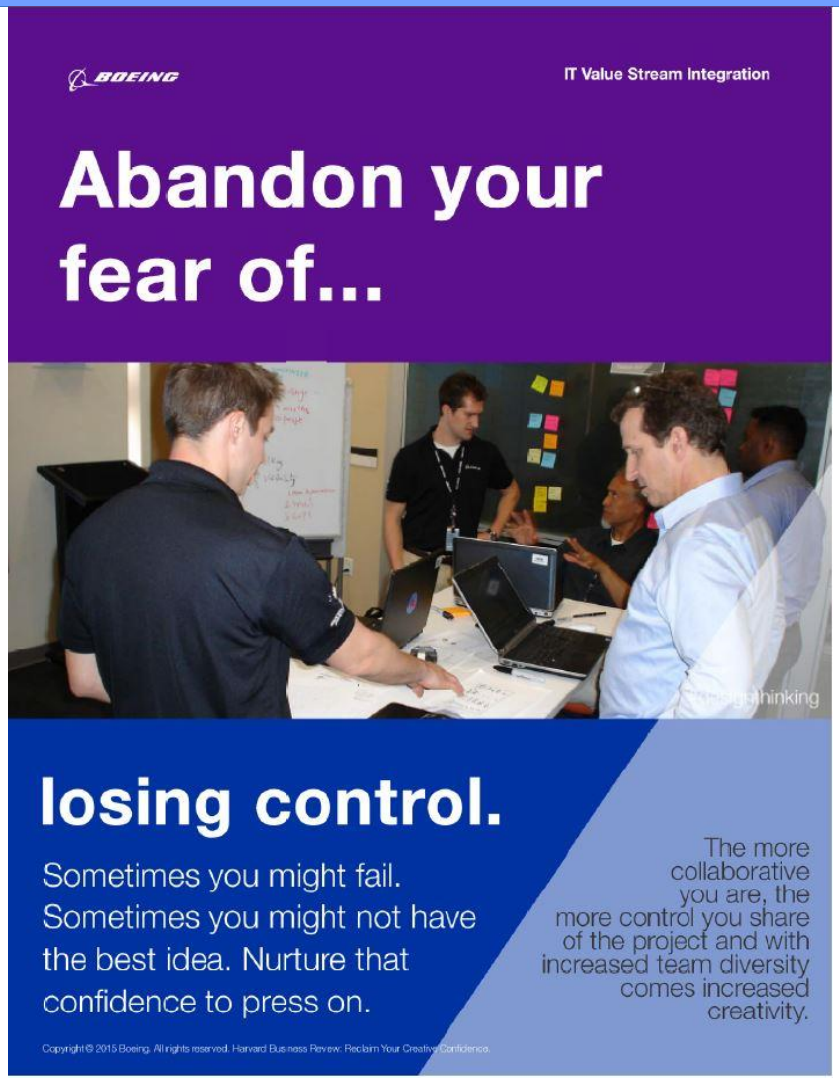

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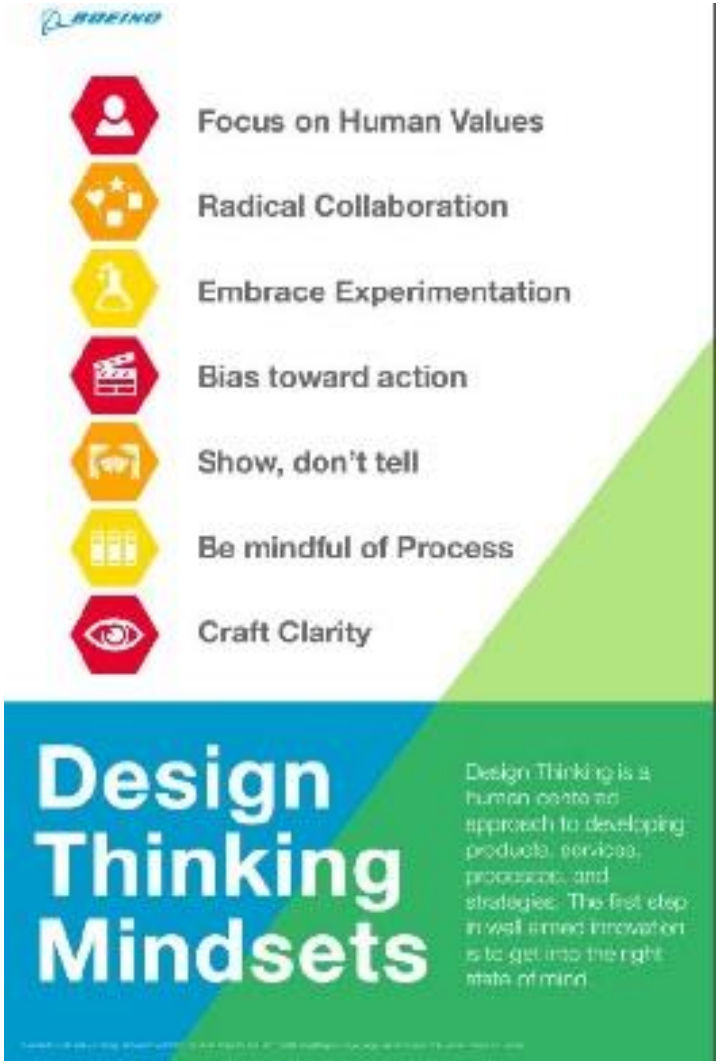
Signage - Mindsets



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Signage – Design Thinking Overview

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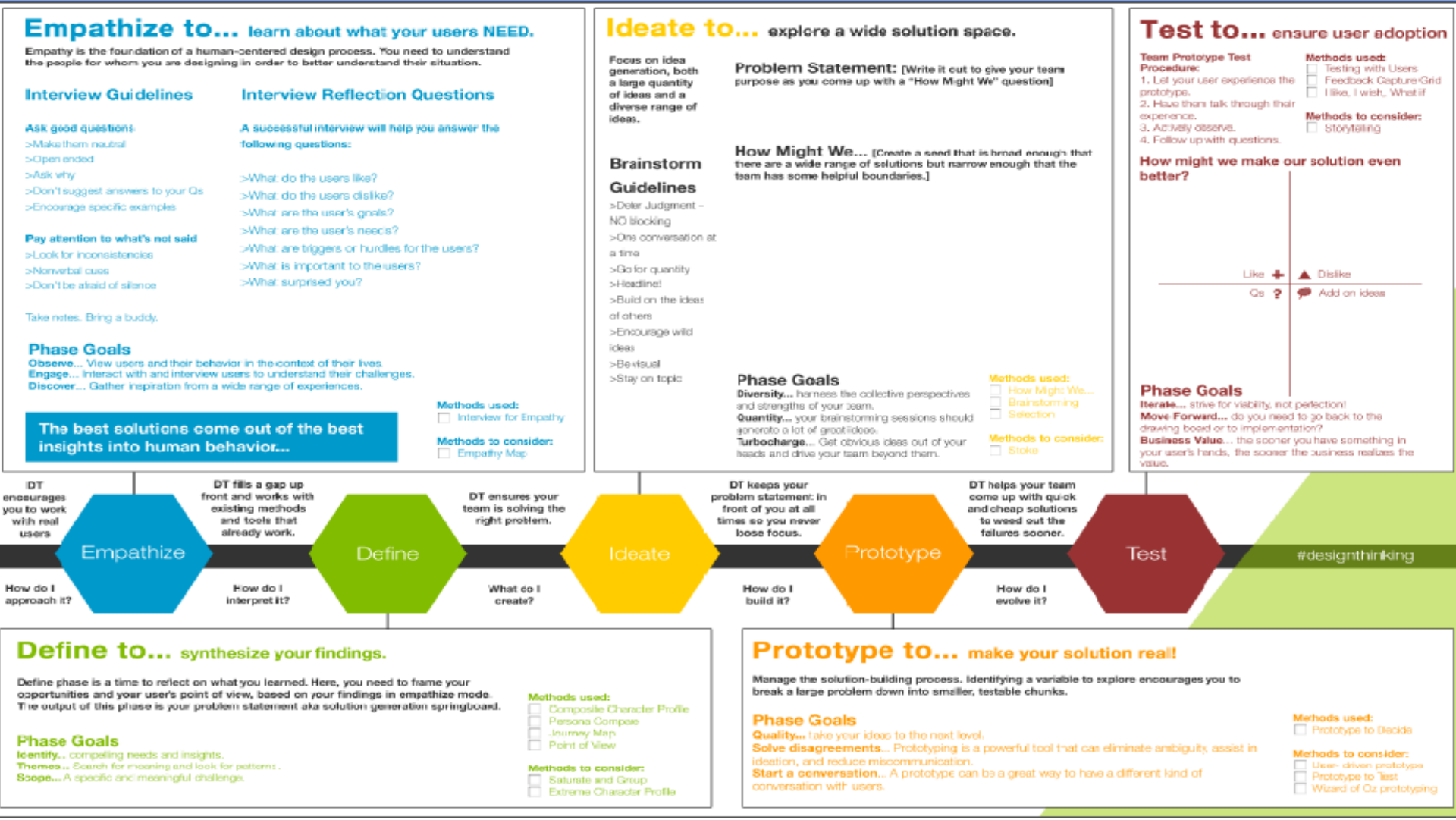

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