Design Thinking

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Module Overview

- What Is Design Thinking?
- Stages of Design Thinking
- How Does Design Thinking Relate to Agile?
- Successful Examples of Design Thinking
- Design Thinking Summary

What Is Design Thinking?

What Is Design Thinking?

Design Thinking is a way of thinking that emphasizes a disciplined and methodical approach for problem-solving combined with creativity and innovation throughout the product lifecycle to develop highly-competitive, leading-edge products

https://en.m.wikipedia.org/wiki/Design_thinking

What Problems Does Design Thinking Solve?

Many people tend to jump too quickly into a technical design solution

- Before thoroughly understanding all aspects of the problem to be solved and
- Before evaluating alternative solutions to determine an optimum design

Design Thinking can be critical for companies to develop a competitive advantage where product leadership is an important factor

It is especially useful for very difficult design problems which are ill-defined or tricky

A Human-Engineering Approach

“Design thinking has a human-centered core. It encourages organizations to focus on the people they're creating for, which leads to better products, services, and internal processes.”

“In employing design thinking, you’re pulling together what’s desirable from a human point of view with what is technologically feasible and economically viable.”

https://www.ideou.com/blogs/inspiration/what-is-design-thinking

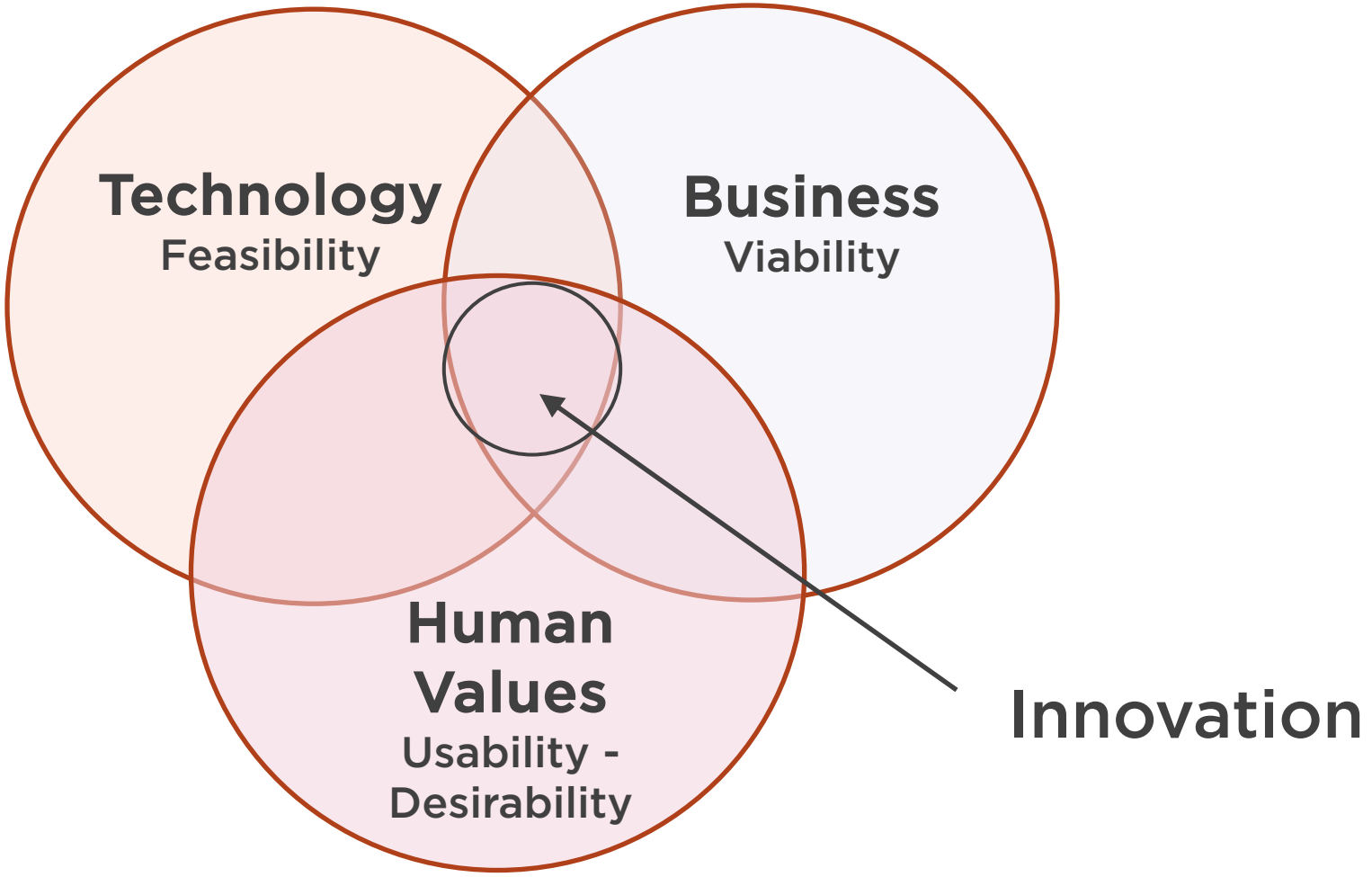
Design Thinking Means Paying Attention to Customers

Pepsico has used Design Thinking to improve many of its products. Sun Chips is an example

- “The original size was one inch by one inch.
- When you’d bite into a chip, it would break into pieces.
- In focus groups consumers told us they went to another product because it was bite-size.
- We had to conclude that SunChips were too damn big. I don’t care if our mold can only cut one inch by one inch.
- We don’t sell products based on the manufacturing we have, but on how our target consumers can fall in love with them”

https://hbr.org/2015/09/how-indra-nooyi-turned-design-thinking-into-strategy

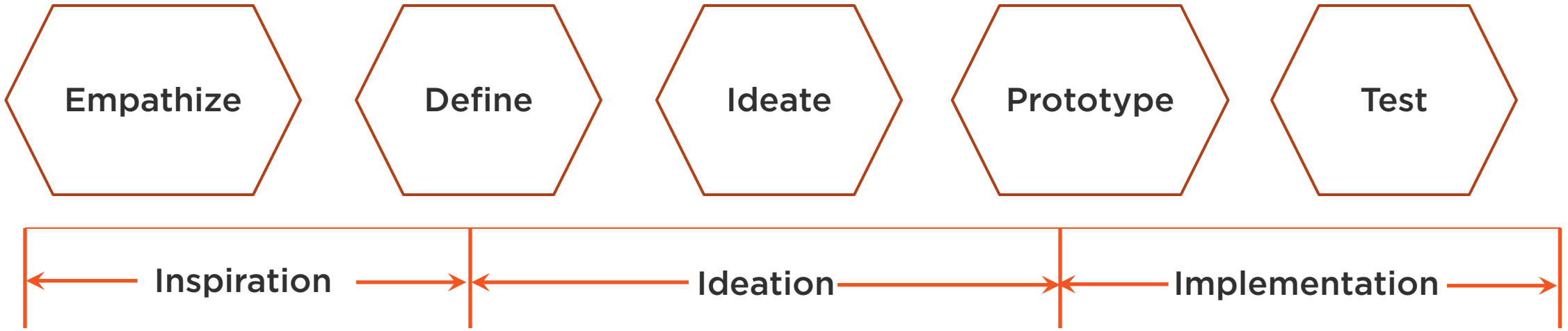
Design Thinking Seeks to Maximize Innovation



https://www.designorate.com/design-thinking-case-study-innovation-at-apple/

Stages of Design Thinking

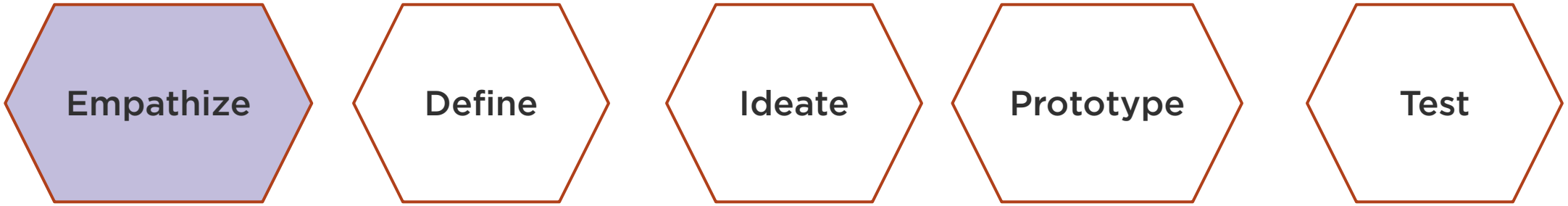
Stages in Design Thinking



https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

This is just a conceptual model and the Design Thinking process is not intended to rigidly follow these stages.

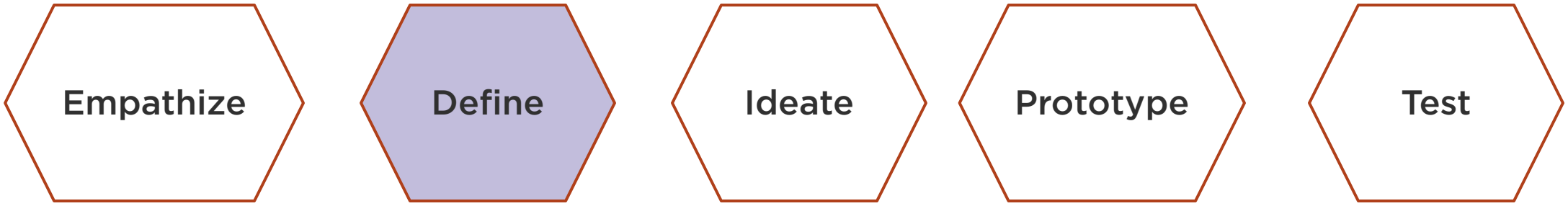
Stages in Design Thinking - Empathize



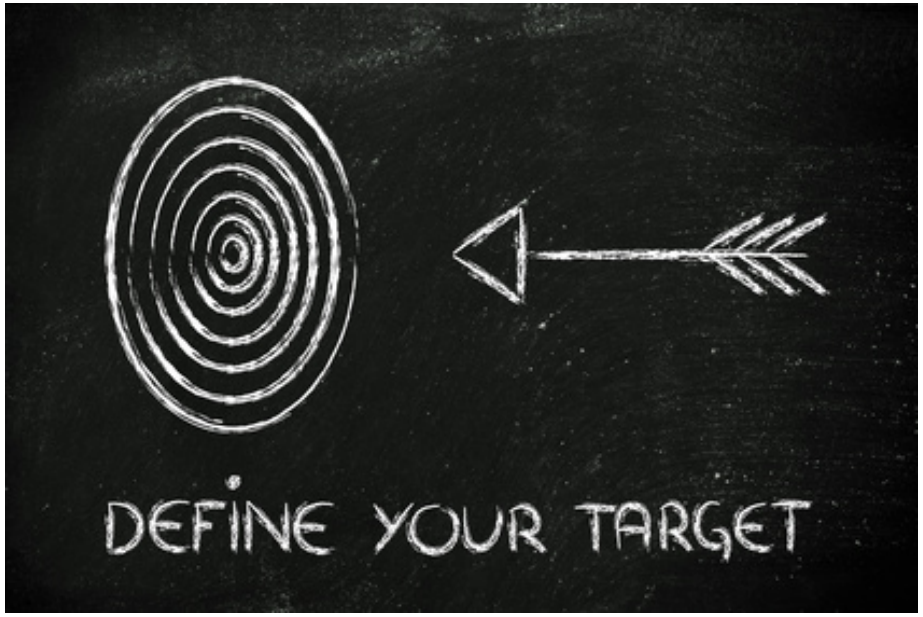
- “The first stage of the Design Thinking process is to gain an empathic understanding of the problem you are trying to solve
- Empathy is crucial to a human-centered design process such as Design Thinking
- Empathy allows design thinkers to set aside their own assumptions about the world in order to gain insight into users and their needs”

https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

Stages in Design Thinking - Define



- The next stage is to synthesize the information created during the empathize stage and develop a concise statement of the problem
- The problem should be defined from the perspective of the user need
- The Define stage will start to progress to the next stage, the Ideate stage. to look for potential solutions



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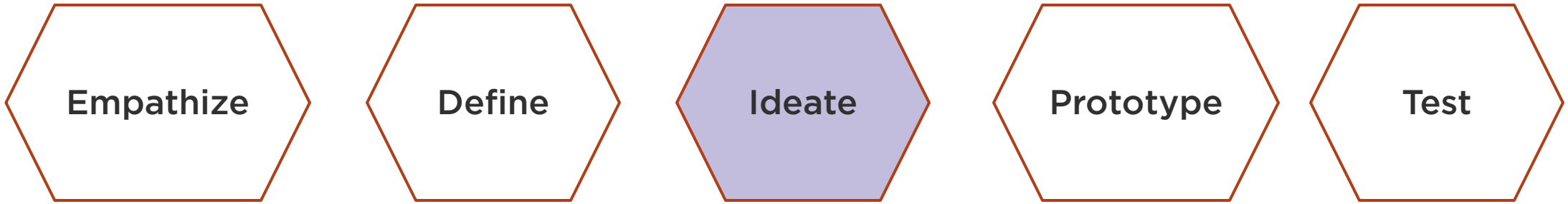
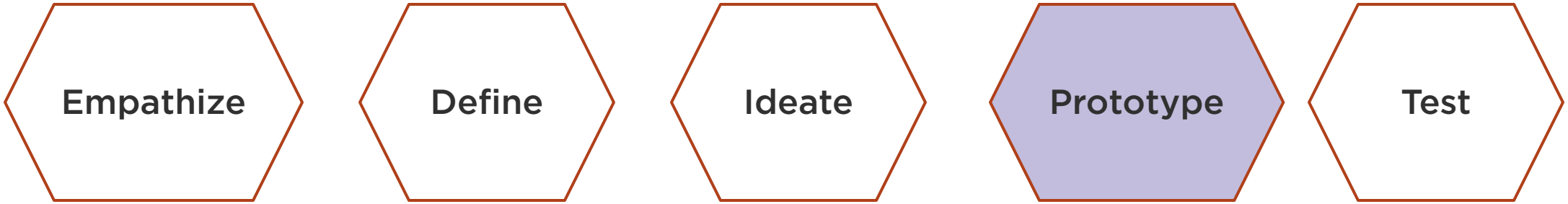
Stages in Design Thinking - Ideate



- During the Ideation stage of the Design Thinking process, designers are ready to start generating ideas
- You've developed an understanding of your users and their needs in the Empathize stage, and
- You've synthesized your observations in the Define stage, and created a human-centered problem statement

https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

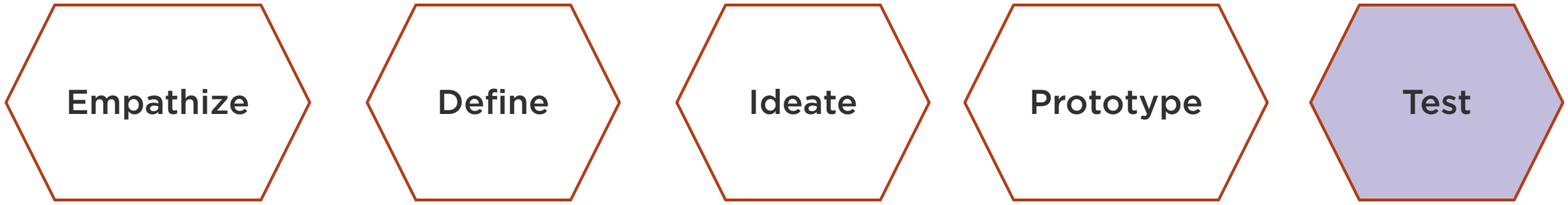
Stages in Design Thinking - Prototype



- During the Prototype stage, the design team will produce some inexpensive prototypes to further investigate the potential solutions
- The goal is to identify the best solution to the problem that satisfies the user need most effectively and most economically

https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

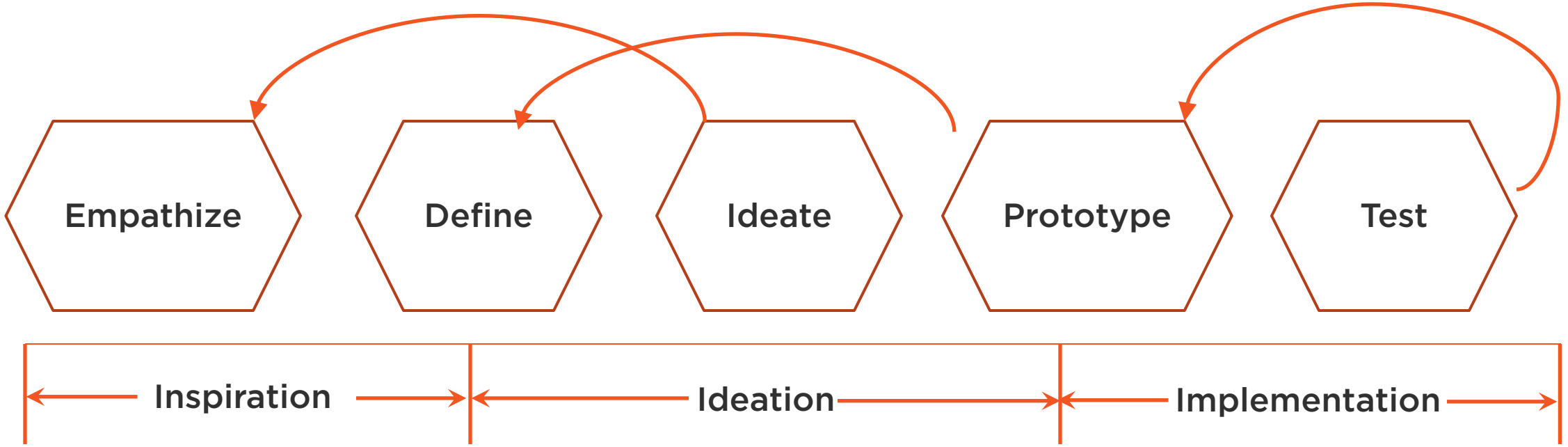
Stages in Design Thinking - Prototype



- During the Test stage, the design team will test the solution and gain user feedback
- The results will often be used in an iterative process to either further define the problem or to better understand user needs

https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

Stages in Design Thinking



These stages don't necessarily take place sequentially and the process may require going through these stages more than once.

https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

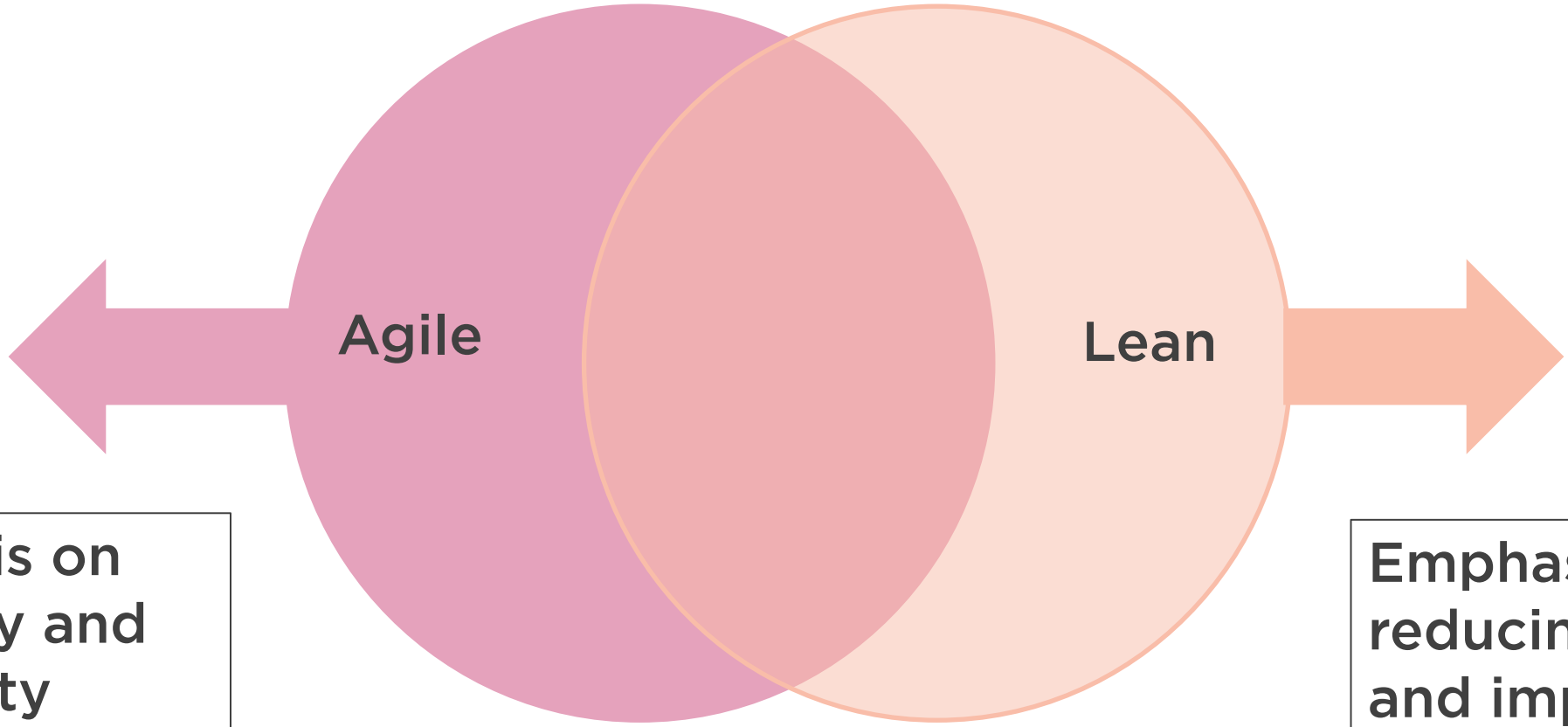
How Does Design Thinking Relate to Agile?

Is Design Thinking In Conflict With Agile?

Design Thinking encourages you to slow down and pay attention to all aspects of the design prior to jumping into a solution

If you tried to do it literally, it might mean following a set of stages sequentially like Waterfall. However, that's not really the intent

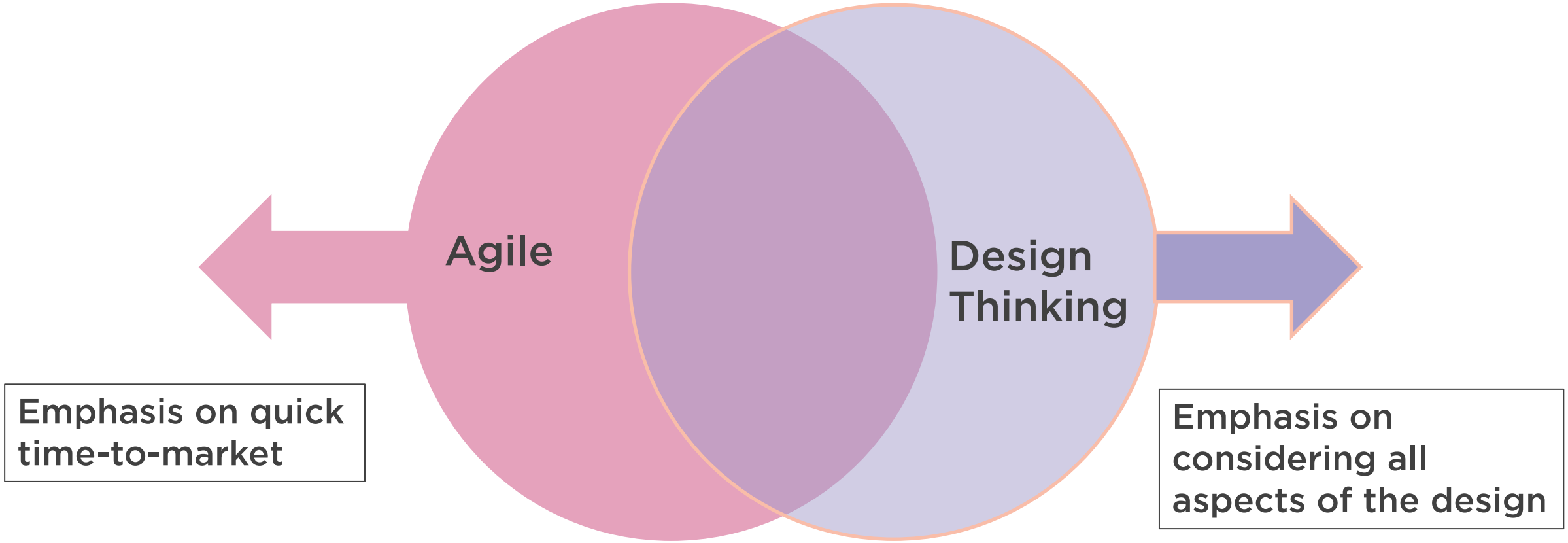
Relationship of Agile and Lean



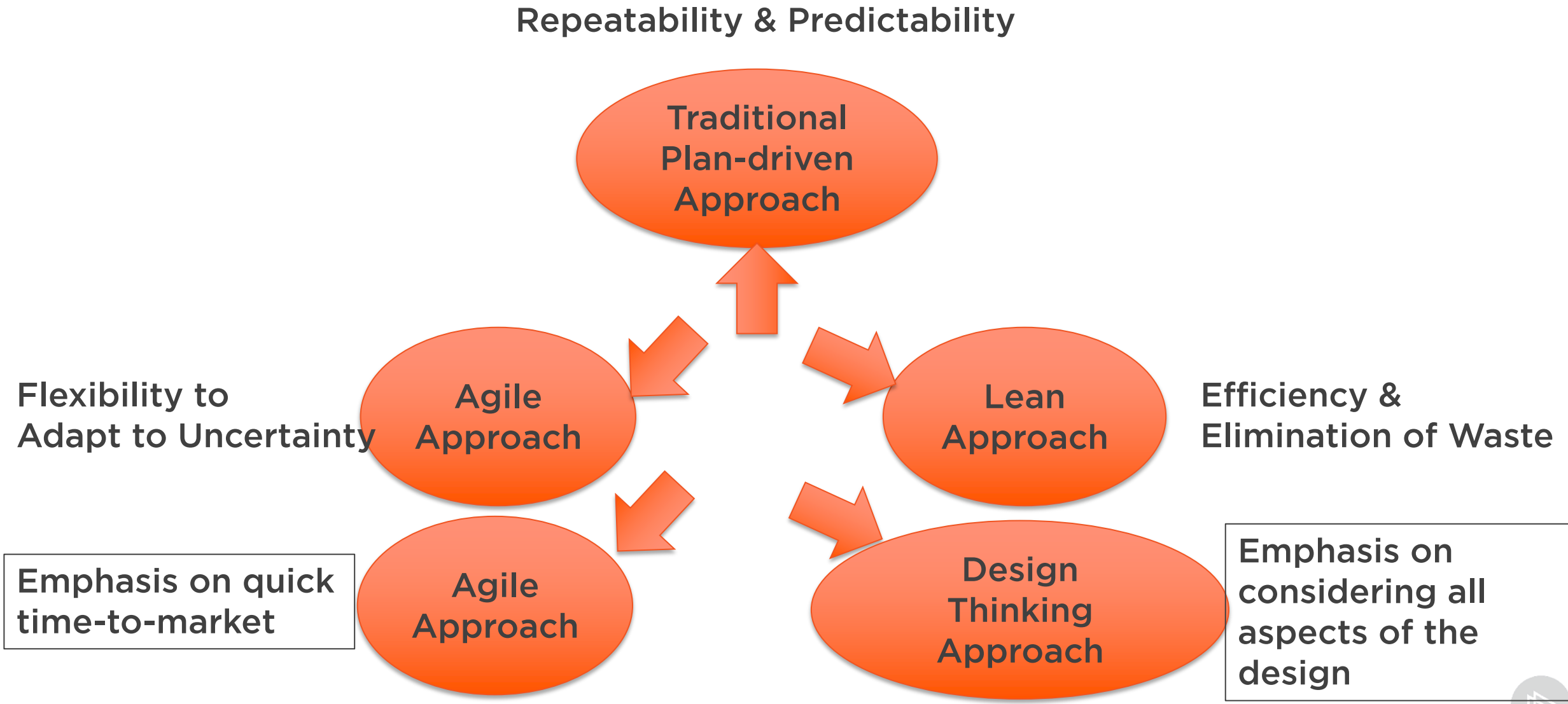
Emphasis on flexibility and adaptivity

Emphasis on reducing waste and improving efficiency

Relationship of Agile and Design Thinking



Choosing the Right Approach



Agile may require balancing conflicting forces

The common focus is on maximizing customer value

How Do You Integrate Design Thinking and Agile?

The overall Agile approach is not entirely inconsistent with Design Thinking:

Agile emphasizes relying heavily on user feedback and inputs to optimize the value of the solution you develop

That aspect of an Agile approach is very consistent with Design Thinking, but doesn't go as far as too emphasize the structured approach that design thinking advocates to understand the human needs behind project requirements

General Recommendations

Design Thinking is a way of thinking like Lean or Agile. It does not invalidate the basic Agile/Scrum methodology

The most important aspect of design thinking is to be sensitive to the human aspect of design:

Don’t just rush into a design from a technical development perspective

Don’t create a technically-elegant design that may or may not be well-designed from a human engineering perspective.

Specific Recommendations

Exactly how you might go about integrating Design Thinking with Agile might vary from one project to the next.

Agile is based on delivering value and **human engineering is only one component of value.**

There are different approaches that might be used depending on the level of value placed on human engineering in the project

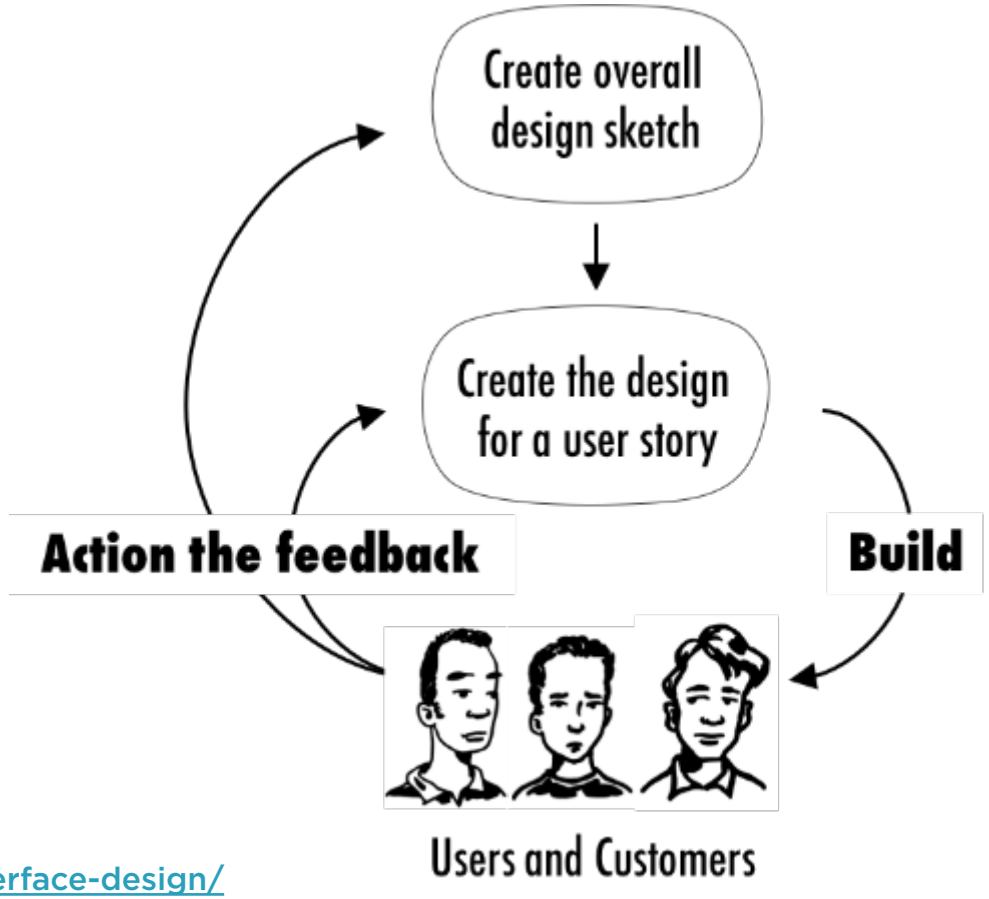
1. Increase the Level of Upfront Design

In some projects, if the focus on human engineering is very critical, it may justify doing more upfront design prior to the start of the project to develop and test the overall design approach

Alternatively, a special sprint (or spike) could be dedicated to finding an optimum design from a human engineering perspective

2. Integrate the Focus Into Each Sprint

It could be done by incorporating that focus directly into the design process for each sprint.



https://www.romanpichler.com/blog/agile-user-interface-design/

3. Make Human Engineering a Constraint

If the focus on human engineering is less critical, another approach would be to just integrate the focus on human engineering into the design as a constraint that has to be met.

It is essentially a risk of not providing an acceptable level of human engineering in the design.

Successful Design Thinking Examples
Apple Computer

Design Thinking Example - Apple Computer

"Apple is one of the leading companies that is renowned for its unique products and brand

There is an emotional relation between consumers and Apple products

Why are Apple products different from their competitors' products?

How does Apple manage to achieve innovation in its product families?"

Apple had a rough history for a while and lost its focus

https://www.designorate.com/design-thinking-case-study-innovation-at-apple/

Apple's Problems 1985 - 1997

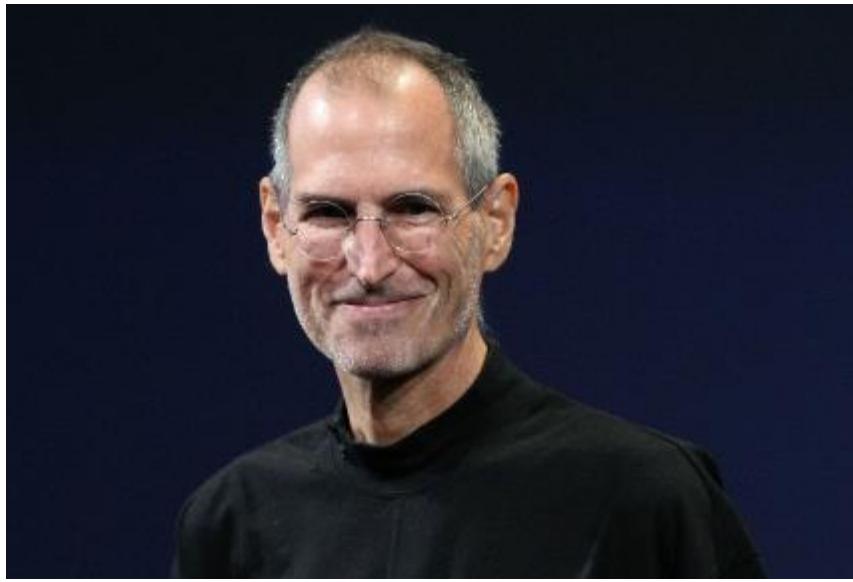
- Unstable strategy due to the change of executive teams
- Unclear vision about Apple's competitive strategy
- Unclear vision about selling OS licenses
- Large number of failed products and few successful ones
- Products not unique in the market
- Confusion and uncertainty among Apple consumers

https://www.designorate.com/design-thinking-case-study-innovation-at-apple/

Steve Jobs Brought Design Thinking Back to Apple

“Most people make the mistake of thinking design is what it looks like. People think it’s this veneer — that the designers are handed this box and told, ‘Make it look good!’

That’s not what we think design is. It’s not just what it looks like and feels like. Design is how it works.” — Steve Jobs



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Apple's Strategy Vision from 1997 - Today

Steve Jobs applied design thinking by focusing on:

"People's needs and desires, rather than only the needs of the business

Building empathy by helping people to love Apple products

The design rather than the engineering work; designers consider both the form and the function of the product

Building simple yet user-friendly products rather than complex hard-to-use products"

https://www.designorate.com/design-thinking-case-study-innovation-at-apple/

Although other competitors focus on the features and product capabilities, Apple focuses on a holistic user experience

What Had To Be Done

Excellence in Execution	• Steve improved the execution process by closing 2 divisions, eliminating 70% of the new products and focusing on the higher potential products
Platform Strategy	• Apple streamlined their product portfolio to a family of products that can be produced much more quickly while keeping the existing design elements
Iterative Customer Involvement	• The consumer experience should be integrated into the design and development stages through participating in usability testing
Beautiful Products	• In addition to the function of the product, the form should beautiful, which can be achieved through continuous innovation and development.

https://www.designorate.com/design-thinking-case-study-innovation-at-apple/

It’s clear to see that this approach could not have been done with a traditional plan-driven approach to project management

An Agile approach was essential

Successful Design Thinking Examples
Other Companies

PepsiCo Bringing Innovation to Commodity Products

Pepsico is one of the world's leading food and beverage companies serving more than 200 countries and territories around the world

https://hbr.org/2015/09/how-indra-nooyi-turned-design-thinking-into-strategy

Other Design Thinking Examples - Pepsico

Just a few years ago, many investors saw Pepsi as a bloated giant whose top brands were losing market share”

“The shelves just seem more and more cluttered, so I thought we had to rethink our innovation process and design experiences for our consumers—from conception to what’s on the shelf.”

“Now our teams are pushing design through the entire system, from product creation, to packaging and labeling, to how a product looks on the shelf, to how consumers interact with it.”

“For me, a well-designed product is one you fall in love with. Or you hate. It may be polarizing, but it has to provoke a real reaction.”

https://hbr.org/2015/09/how-indra-nooyi-turned-design-thinking-into-strategy

Commodity products as mundane as cans of soda pop can benefit a lot from Design Thinking

Design Thinking needs to permeate every aspect of the product including how it is marketed and presented to customers

GE Healthcare – From Terrifying to Terrific

GE Healthcare is known for MRI scanners which can be terrifying experiences for children

http://newsroom.gehealthcare.com/from-terrifying-to-terrific-creative-journey-of-the-adventure-series/

GE Healthcare – From Terrifying to Terrific

“Everything in the room was kind of like, beige” he said, “describing what he calls ‘crime scene’ stickers (which tell patients where to go), and the exclamation mark warning sign on the door.”

“The room itself is kind of dark and has those flickering fluorescent lights” and adds “that machine that I had designed basically looked like a brick with a hole in it.”

http://newsroom.gehealthcare.com/from-terrifying-to-terrific-creative-journey-of-the-adventure-series/

GE Healthcare – From Terrifying to Terrific

The plan was simple: offer an environment that was so welcoming that children would feel like being scanned is an adventure and not a trial.

http://newsroom.gehealthcare.com/from-terrifying-to-terrific-creative-journey-of-the-adventure-series/

Design Thinking for Doctors and Nurses

Several University Hospitals have applied Design Thinking to improve the process associated with emergency room care

https://www.nytimes.com/2017/08/03/well/live/design-thinking-for-doctors-and-nurses.html

Design Thinking for Doctors and Nurses

A trauma room in a major hospital can be a very chaotic place.

“In a typical situation, a huddle of highly stressed emergency room staff members spoke over one another and there were no clear roles. In particular, no one knew who was leading the trauma code. ”

“One very simple innovation made a very big difference - the leader of our trauma team now wears an orange vest. “

“The easy-to-spot garment, called the trauma team leader identification vest, clearly identifies who’s in charge. It’s a simple yet effective innovation created by a nurse after a hectic gunshot trauma simulation”

https://www.nytimes.com/2017/08/03/well/live/design-thinking-for-doctors-and-nurses.html

It’s important to support and utilize innovative and novel ideas from all members of the health care team.

Traditionally, hospitals were designed with input from administrators.

With design thinking, the innovations come from those who actually work there, providing feedback to designers to improve the final product.

Design Thinking Summary

What Is Design Thinking?

Design Thinking is both an ideology and a process, concerned with solving complex problems in a highly user-centric way

https://careerfoundry.com/en/blog/ux-design/what-is-design-thinking-everything-you-need-to-know-to-get-started/

Design Thinking can be critical for companies to develop a competitive advantage where product leadership is an important factor

It is especially useful for very difficult design problems which are ill-defined or tricky

Design Thinking Requires “Out-of-the-Box” Thinking

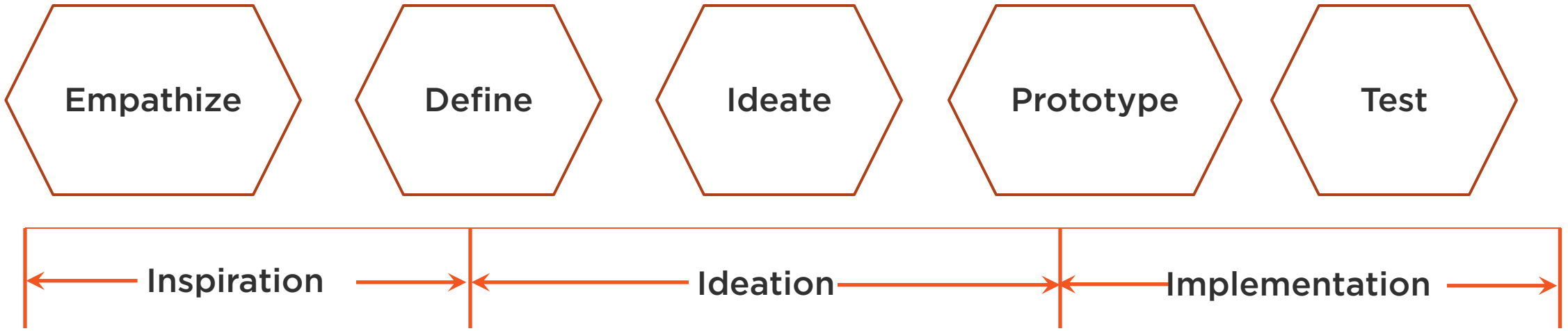
“Humans naturally develop patterns of thinking modeled on repetitive activities and commonly accessed knowledge.

These assist us in quickly applying the same actions and knowledge in similar or familiar situations, but

They also have the potential to prevent us from quickly and easily accessing or developing new ways of seeing, understanding and solving problems.”

https://www.interaction-design.org/literature/article/what-is-design-thinking-and-why-is-it-so-popular

Stages in Design Thinking



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Design Thinking Is Very Complementary to Agile

Agile	Design Thinking
Both an Ideology and a General Framework	
Emphasizes Creativity and Innovation	
Requires an Incremental and Iterative Approach to Find an Optimum Solution	
Focused on Meeting User Needs and Requirements	
May Require an Enterprise-level Transformation	
Requires Empowerment of Employees	

Design Thinking and Agile are very complementary to each other. Both have some of the very same requirements.

In most cases, it is only a difference in emphasis

Up Next:
Managing Flow in Agile Projects