DESIGN THINKING *demands* **CRITICAL THINKING**

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Surabaya, 24 Oktober 2020

Development of the viewpoints on design thinking[1]

Authors	Analysis of design viewpoint on design thinking	Human-centred problem solving viewpoint on design thinking
Stewart (2011)	"Strategies for addressing 'ill-structured' and 'wicked' problems; an identification originally made by thinkers within the Design Methods movement"	"A tool to aid in the navigation of transition (in this case a transition in the self-understanding, as well as in the operative strategies, of disciplines)"
Hassi & Laakso (2011)	"Cognitive styles, methods of thinking and processing information"	"Practices, thinking styles and mentality"
Badke-Schaub et al. (2010)	"The traditional design thinking approach;" "Design thinking as the as sequence of operations and structured pattern of processes"	"The new design thinking movement;" "Design thinking as innovation and transformation process for: • disruptive innovation to gain competitive advantage on the global market • to design systems or dealing with abstract problems such as services • human-/user-centered"
Melles (2010)	"The study of the practices of working designers;" "Abductive, wicked and synthetic"	"The human-centred 'open' problem solving process decision makers use to solve real world 'wicked' problems"
Cross (2010)	"Encompasses many forms of thinking and intelligence;" "Skilled, educated practice of designing"	
Dorst (2010)	"Design thinking is characterized with a kind of abduction process that provide a frame for the connection of 'how' and 'value' in the equation: 'what' plus 'how' leads to 'value', when 'what' and 'how' entities are unknown"	"Providing organizations with frameworks of 'how' leads to 'value' in unknown equitation: 'what' plus 'how' leads to 'value'"

Development of the viewpoints on design thinking[2]

Authors	Analysis of design viewpoint on design thinking	Human-centred problem solving viewpoint on design thinking
Johansson & Woodilla (2010)	"Design discourse;" "The way designers think as they work"	"Management discourse;" "Method for innovation and creating value"
Brown & Wyatt (2010)		"Aimed at consumer insights in depth. Design thinking is inherently optimistic, constructive, and experiential;" "Social challenges require systemic solutions that are grounded in the client's or customer's needs"
Brown (2009)		"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 market opportunity"
Kelley (2006)		"The Design Process specifies procedures which seek creative success through providing a client with innovative and unique design solutions to a defined project, done on rational grounds, through an agreed-upon process"
Dym et al. (2005)	"Design thinking reflects the complex processes of inquiry and learning that designers perform in a systems context, making decisions as they proceed, often working collaboratively on teams in a social process, and "speaking" several languages with each other (and to themselves)"	

Development of the viewpoints on design thinking[3]

Authors	Analysis of design viewpoint on design thinking	Human-centred problem solving viewpoint on design thinking
Lawson (2004)	"'Framing' process is an important and central feature of design thinking;" "'Moving' phase of design thinking;" Memory has role in understanding design thinking	
Taura et al. (2002)	Design activities beyond "framework of problem solving;" problem-solving process includes "Awareness of the problem, Suggestion, Development, Evaluation, and Conclusion"	
Kelley (2001)		"Continuously refined methodology" comprising the steps: "Understand, Observe, Visualize, Evaluate and refine, and Implement"
Oxman (1999)	"Thinking processes employing both visual and conceptual knowledge;" "Fundamental dialectic process of design thinking;" "Emergence of conscious access to knowledge structures;" "The interaction between visual and conceptual content in global strategies of design thinking"	
Buchanan (1992)	"Design thinking is wicked problem approach;" "Design problems are "indeterminate" and "wicked" because design has no special subject matter of its own apart from what a designer conceives it to be. The subject matter of design is potentially universal in scope, because design thinking may be applied to any area of human experience"	

Development of the viewpoints on design thinking[4]

Authors	Analysis of design viewpoint on design thinking	Human-centred problem solving viewpoint on design thinking
Cross (1990)	"Produce novel unexpected solutions, tolerate uncertainty, work with incomplete information, apply imagination and constructive forethought to practical problems and use drawings and other modelling media as a means of problem solving;" "Must be able to resolve ill-defined problems, adopt solution focusing strategies, employ abductive/productive/appositional thinking and use non-verbal, graphic and spatial modeling media"	
Rowe (1987, p. 34)	"Design thinking" is essential method that have specific "style of inquiry" and "nature": • movement back and forth between exploration and evaluation • periodic unfettered speculation • "dialogue" between designer and situation • final less pronounced episodic character	
Schön (1983)	"How professionals think in action;" "Reflective practitioner"; "Reflection in action;" "Reflective conversation with the situation"	
Cross (1982)	"Designerly ways of knowing;" "Design has its own things to know, ways of knowing them, and ways of finding out about them"	
Lawson(1980)	"How designers think;" "The centre of design thinking, for the way in which the designer chooses to shift attention from one part of the problem to another is central to the design strategy"	
Simon (1969)	"Theory of thinking;" "Thinking how it adapts itself, through individual learning and social transmission of knowledge, to the requirements of the task environment;" "Use of representations in thinking"	

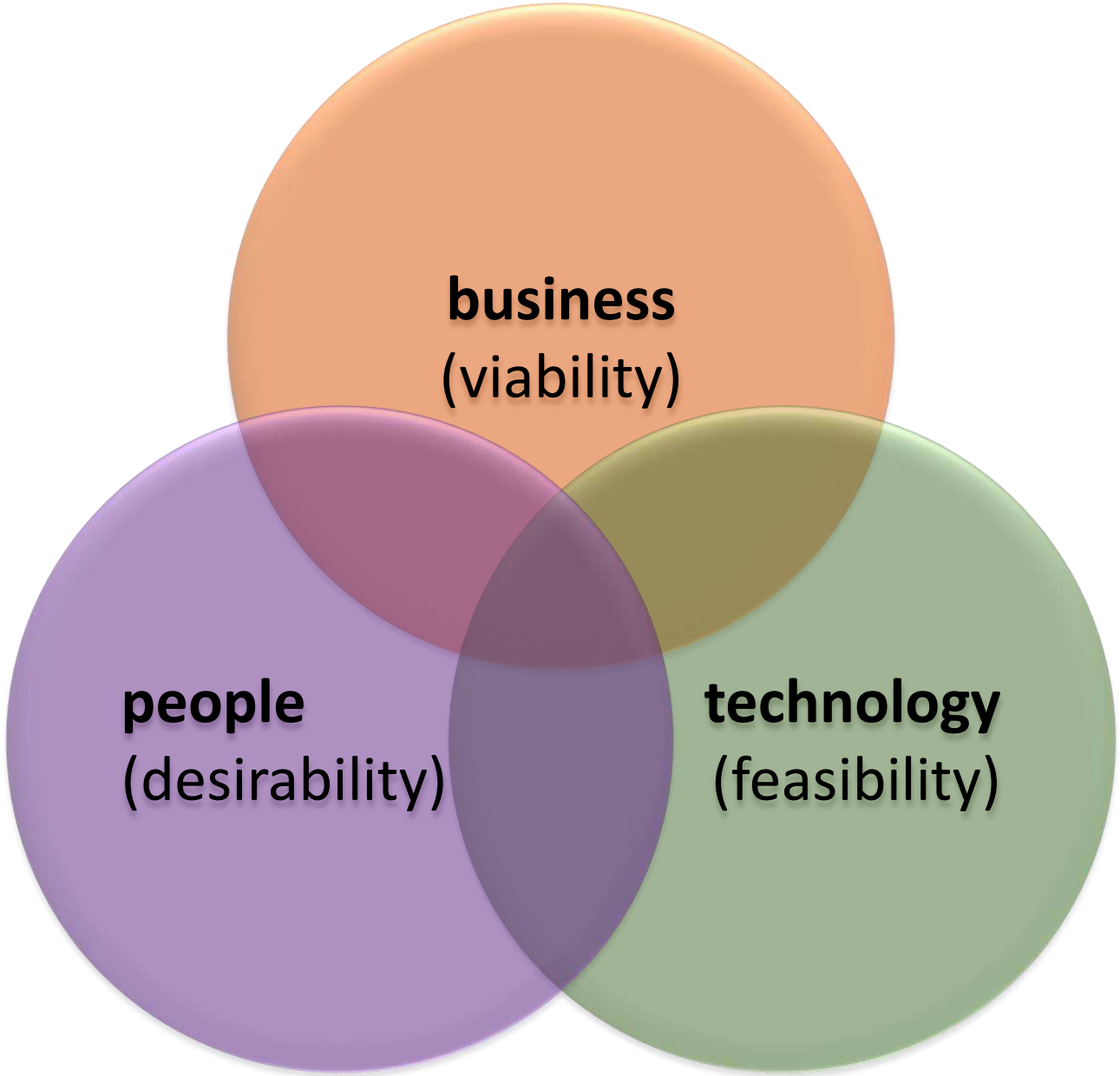
DESIGN THINKING

Feel

Imagine

Do

Share


business
(viability)
people
(desirability)
technology
(feasibility)

DESIGN THINKING

A FRAMEWORK FOR INNOVATION

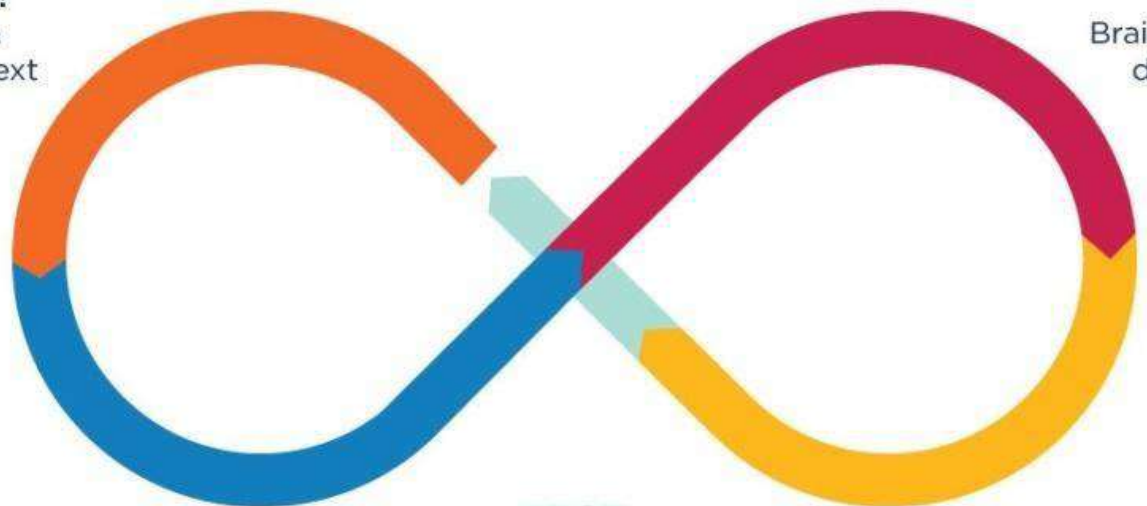
EMPHATHISE

What is the problem?
Define the challenge &
explore the human context

IDEATE

Why is it important?
Brainstorm ideas good & bad,
dont stop at the obvious

CONTEXT



FORM

DEFINE

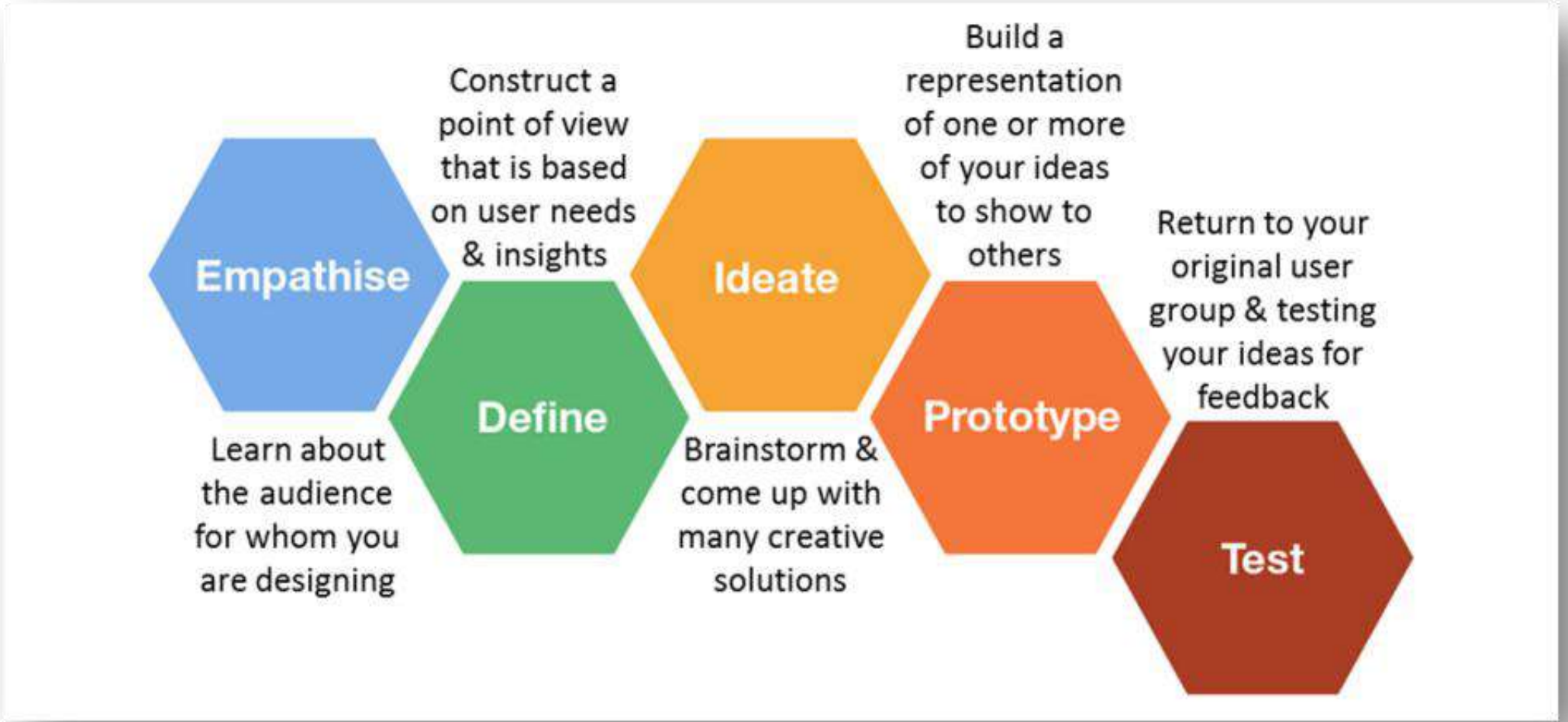
Why is it important?
Research, observe, understand
& create a point of view

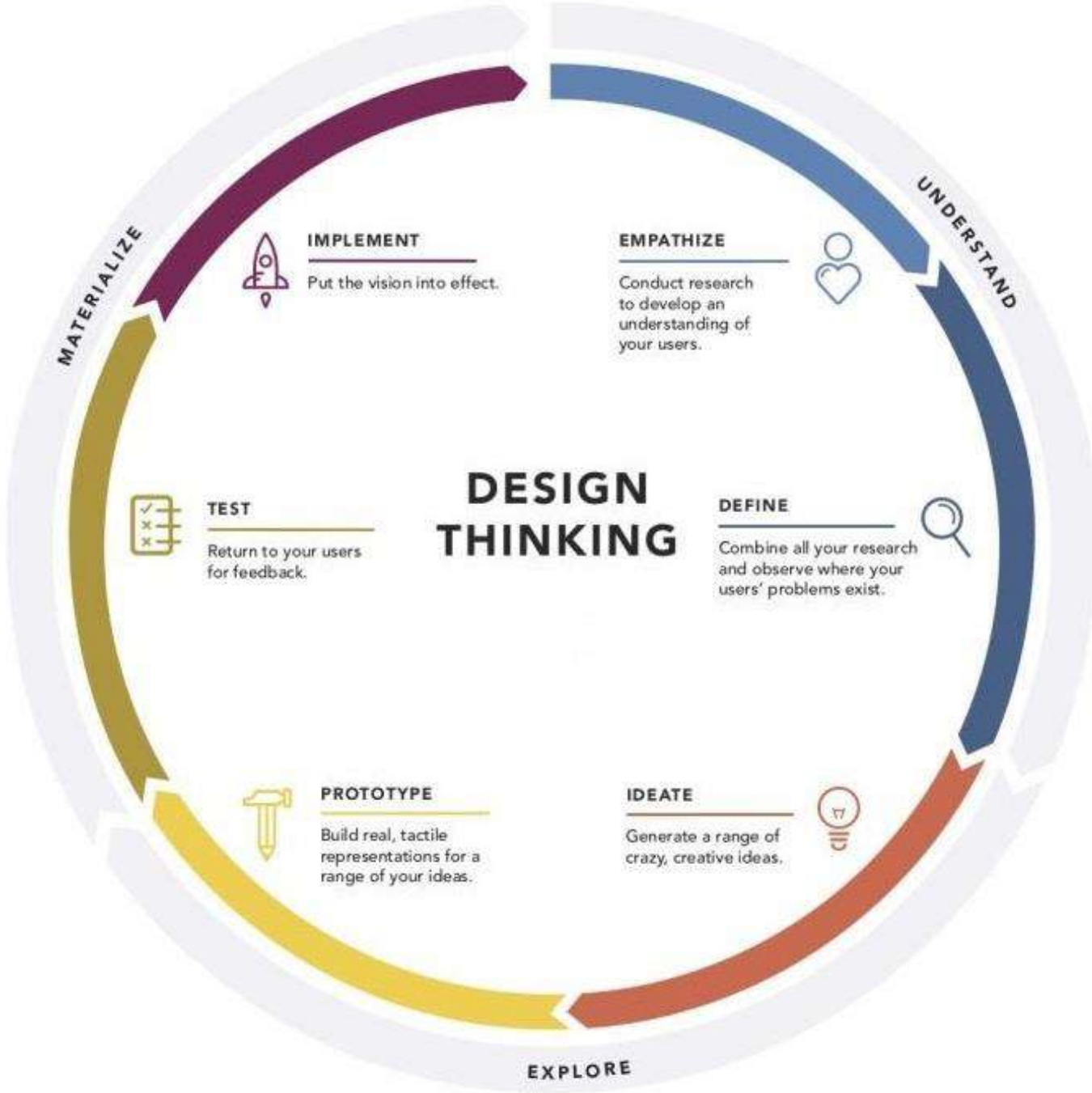
TEST

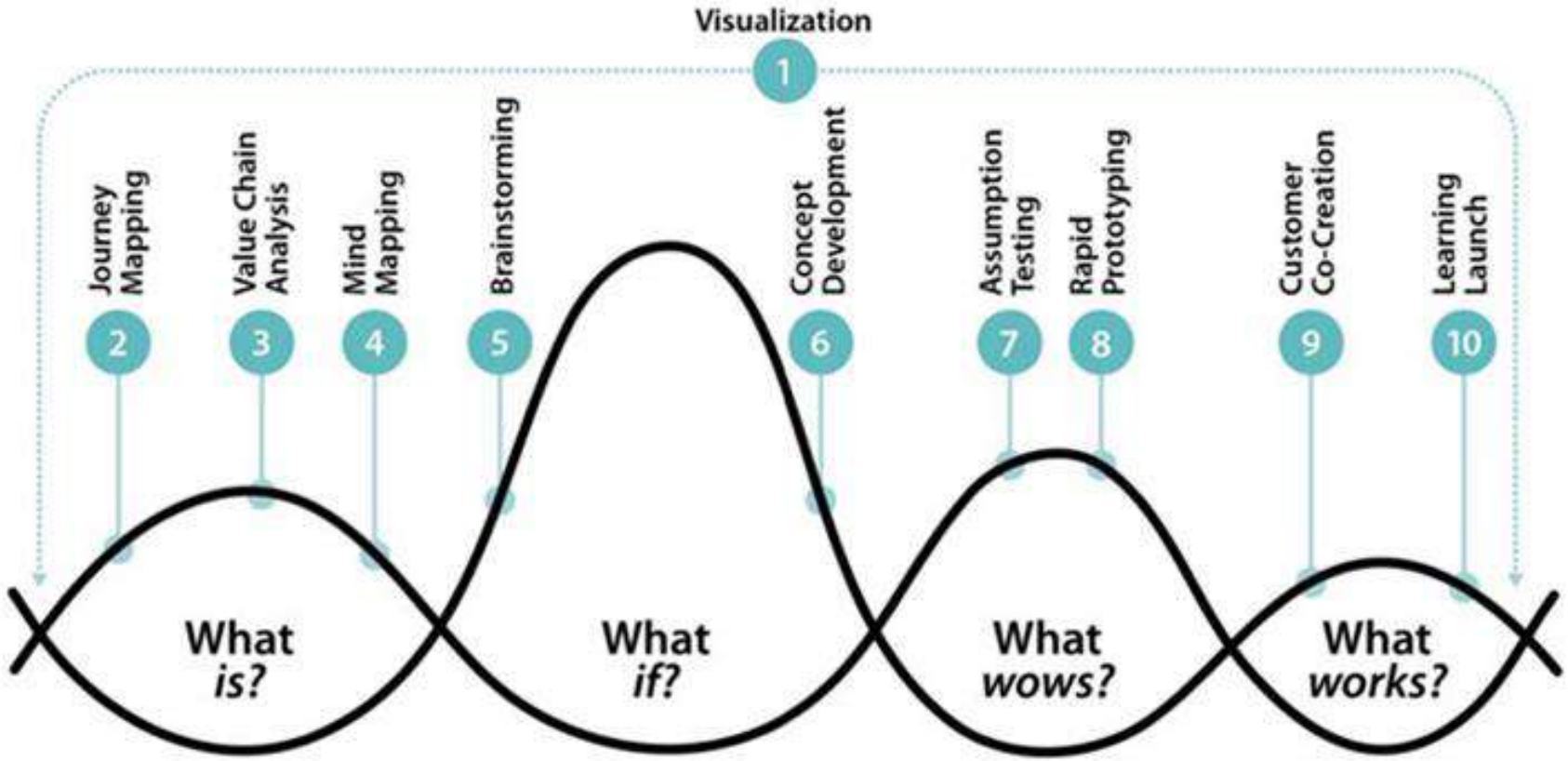
Does it work?
implrement the product, show, &
dont tell, start to refine the product

PROTOTYPE

How do we create it?
Start creating, experiment,
fall cheap, & fast


Empathise
Learn about the audience for whom you are designing
Define
Construct a point of view that is based on user needs & insights
Ideate
Brainstorm & come up with many creative solutions
Prototype
Build a representation of one or more of your ideas to show to others
Test
Return to your original user group & testing your ideas for feedback


DESIGN THINKING
UNDERSTAND
EMPATHIZE
Conduct research to develop an understanding of your users.
DEFINE
Combine all your research and observe where your users' problems exist.
EXPLORE
IDEATE
Generate a range of crazy, creative ideas.
PROTOTYPE
Build real, tactile representations for a range of your ideas.
MATERIALIZE
TEST
Return to your users for feedback.
IMPLEMENT
Put the vision into effect.



What *is?* .....Exploring the current reality
What *if?* .....Envisioning alternative futures
What *wows?* ..... Getting users to help us make some tough choices
What *works?* .....Making it work in-market, and as a business

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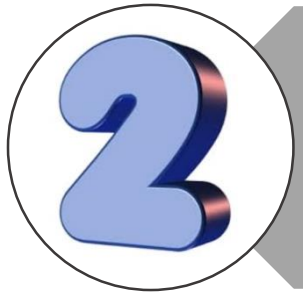
Synchronous design
When we no longer separate design from thinking and become a critical thinker in the design.
KAAN TURNALI

Innovation with design thinking
demands critical thinking.

Here are three reasons why innovation with design thinking demands critical thinking

Critical thinking does not hinder–but rather augments–innovative thinking



Design thinking is the art of mindful restraint

Find invaluable insights hidden in plain sight

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