

Design Thinking

Industry and Innovation

- “There is no other organizational capability with such a gap between importance and performance. In the 2015 BCG survey, 70% of executives replied that innovation was either the company’s top priority or among the top three.
- Other surveys by IESE, KPMG and The Conference Board confirm these numbers.
- Executives consider innovation as the most critical capability for the future success of their companies. But when asked about their satisfaction with the performance of innovation, less than 20% of the executives was happy based on a survey of our clients.”

—London School of Economics and Political Science, 2016

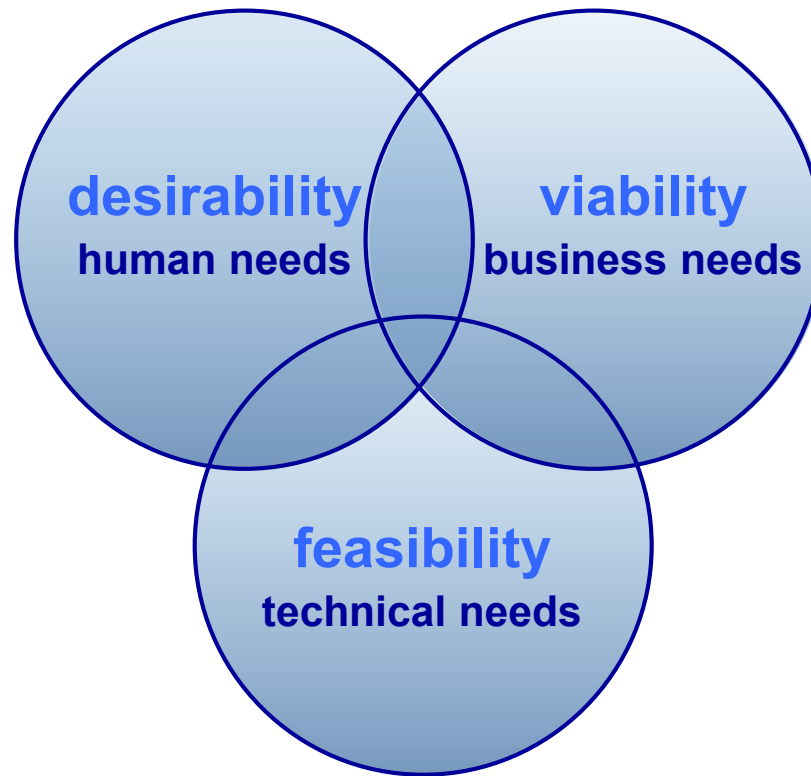
companies are accelerating efforts to change their cultures, foster innovation, and serve customers more effectively.

Innovation or ‘design thinking’ is something truly important and enduring

- Tim Brown of IDEO has written that design thinking is “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.”
- *Thinking like a designer can transform the way you develop products, services, processes—and even strategy.*
- It is 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.
 - DT is a methodology that imbues the full spectrum of innovation activities with a human-centered design ethos.
 - Designing products or services through direct observation, of what people want and need in their lives and what they like or dislike about the way particular products are made, packaged, marketed, sold, and supported

- **Step 1: Explore the problem space through fact finding and then assemble a 360° view.**
- **Step 2: Reduce the solution space through decisions that balance desirability, viability, and feasibility.**

- **Does the solution show empathy for end-users?**
- **Is this the simplest solution that gets the job done?**
- **Is it elegant?**
- **Is it useful?**



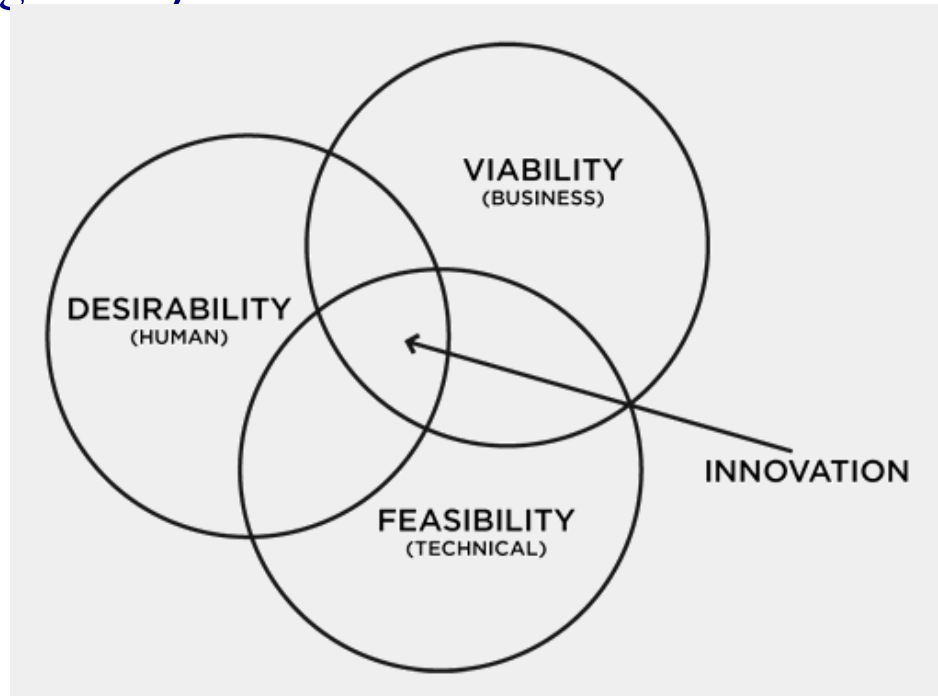
- **Is this affordable?**
- **Does it make us more profitable?**
- **Do we have the skills?**
- **What is my ROI?**

- **How quickly can I configure the solution to suit my needs?**
- **Is the solution easy to maintain?**
- **Is it consistent with my current system landscape?**
- **Can the solution be easily supported?**

Design principle

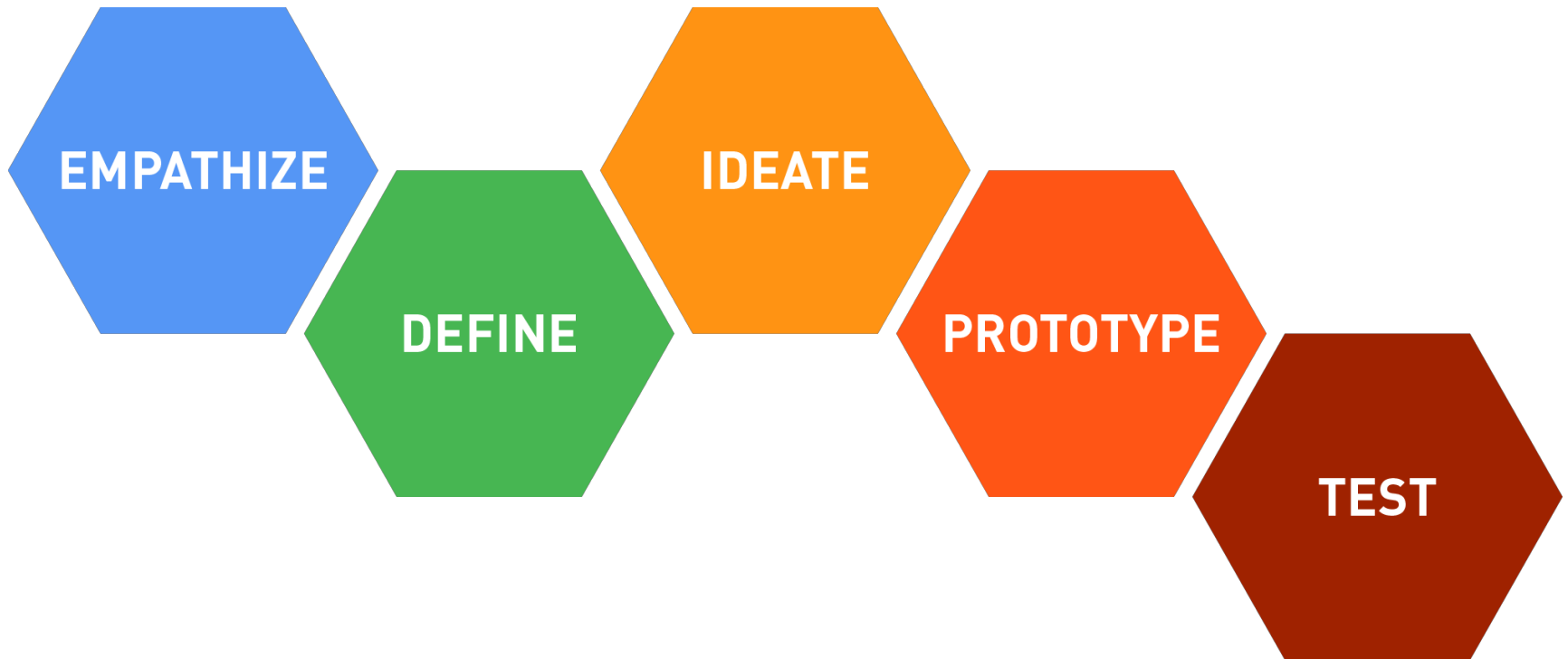
■ Phases:

- 0) Understand/observe
- 1) Visualize/Realize
- 2) Evaluating/Refining
- 3) Implement (detailed engineering)
- 4) Implement (manufacturing liason)

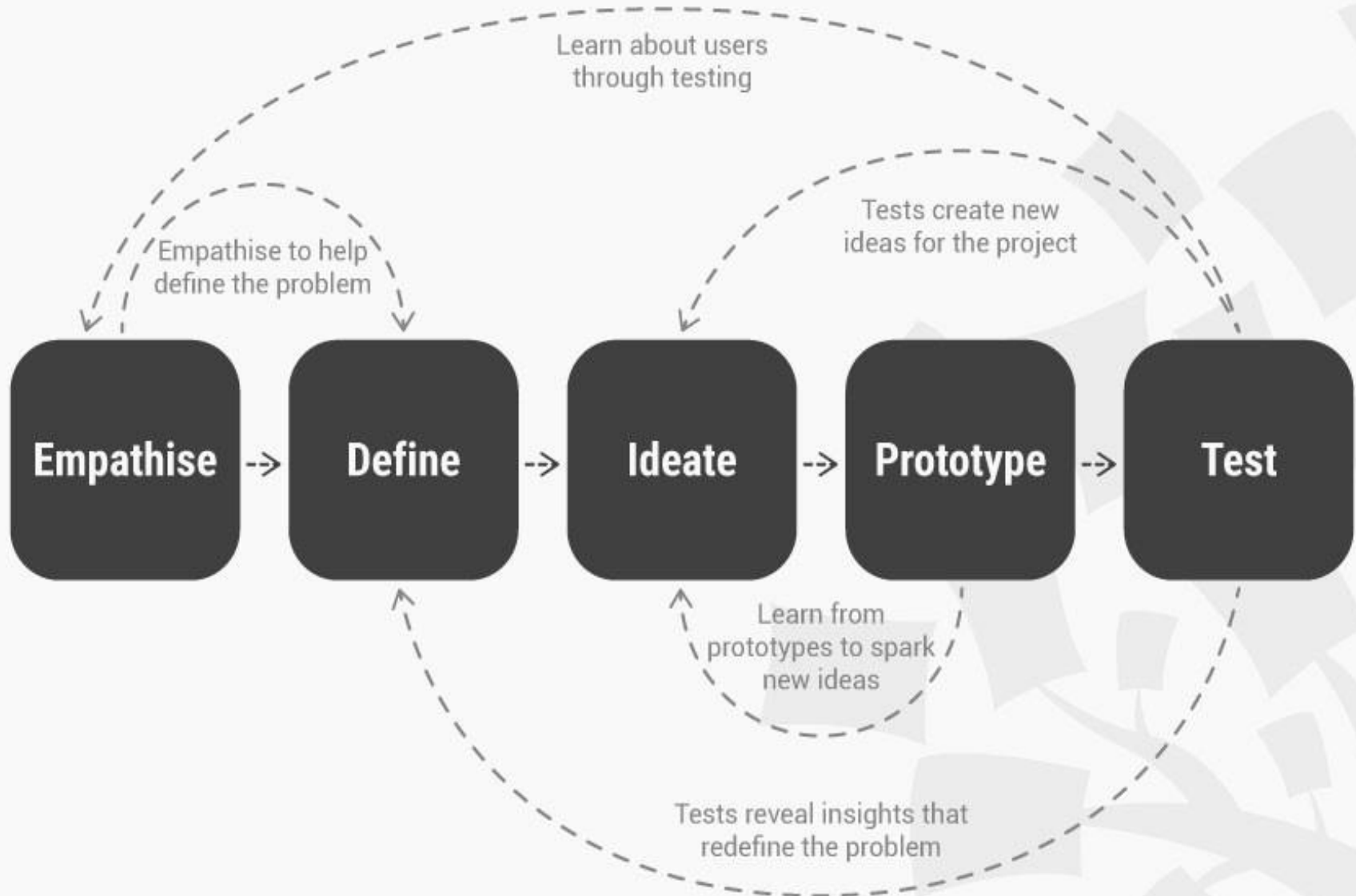


Design Thinking Steps to Innovation

■ The five steps



DESIGN THINKING: A NON-LINEAR PROCESS



Stage 1: Empathize

What is empathizing?

- It is putting aside one's learning, culture, knowledge, opinions, and worldview purposefully in order to understand other people's experiences of things deeply and meaningfully.
- It requires a strong sense of imagination to be able to see through another person's eyes.

Why to empathize? – for absorbing and understanding the raw information.

- Because we are trained — whether consciously in our schools or workplaces, or subconsciously from our prior experiences — to form judgements and opinions about others rather than absorbing and understanding the raw data.

How to be an Empathic Observer?

- **Abandon Ego:** In order to empathize with others deeply one needs to tame and put aside our egos.
- **Adopt Humility:** Through humility one elevates the value of others above oneself, and in turn becomes more empathic.
- **Be a Good Listener:** One has to stop listening to ones inner conflicting voices and allow others voice to resonate. We need to train ourselves to control our natural tendency to formulate our own opinions and voice in order to listen which uncovers deeper meaning and experience.
- **Hone Observation skills:** For close reading of other's behavior, subtle indications, their non-verbal expressions, body language, and environments – to be able to experience the full range of sensations of others within context and we can have a deeper and more meaningful empathic experience. By this we can fill many of the gaps, leading to a deeper understanding of someone else's experience.
- **Care:** One needs to overcome our own needs and wants and seek to understand others. One must build a sense of care, a deep concern and desire to want to help, nurture, and provide assistance.
- **Be Curious:** Curiosity leads ourselves to naturally incline, dig into unexpected areas, uncover new insights, and explore all aspects of people's lives.
- **Be Sincere:** Nothing kills empathy more than a lack of sincerity. When one approaches people with a superficial agenda, superiority complex, or any mindset that may undermine one's sincere intention to understand their experience deeply, one is placing a barrier between oneself and those one seeks to understand.

How to Gain Empathic Understanding of People

Divide your observations into three categories What - How –Why

We can ask questions to ourselves about our observations based on these three types of questions to understand people and derive deeper levels of understanding. Note down details of all your observations in following categories:E.g,

What (note down the details of what is happening)	How (describe how the person is doing what he or she is doing)	Why (try to interpret the scene)
What is the person doing?	Is the person putting in a great deal of effort?	Why is she/he doing what she/he is doing?
What is happening in the background?	Is the person frowning or smiling while doing the task?	Why is she/he behaving so?
What is the person holding?	Does the person use many ad-hoc tools to make the task easier?	Why is she/holding or using a particular tool? What is the driving factor behind it?

Stage 2: Define the Problem by Synthesizing Information

What is ‘Defining’?

- **Collection** of information gathered in the ‘empathy phase’ followed by **analyzing** and **synthesizing** the observation.
- **Analysis:** Breaking down complex concepts and problems into smaller and easy-to-understand elements.
- **Synthesis:** Creatively putting together research output and analysis data to construct whole ideas. Steps followed respectively are organizing, interpreting and making sense of the data gathered to create a problem statement.

Why it is needed?

- In the ‘define phase’, a variety of methods are used to crystalise the essential findings from the ‘empathy phase’.
- To create an innovative and significant result, one should define a specific and captivating problem statement which will lead to a specific desired solution.
- It is essential to define a meaningful and actionable problem statement and to bring clarity and focus into the design space to start ‘ideation’ in the right direction.

Stage 2: Define the Problem by Synthesizing Information

How it is done?



Synthesis

There is a lot of effective methods which helps to analyze and synthesis all the gathered data. Some of those are as follows:

- Telling the most significant and surprising **user stories**
- **Mapping** all the gathered data brought out open to the fellow team members
- Developing **empathy map** and **personas** based on research
- **Immersing** your **personas** in stories and flesh out the **scenarios** in which user find themselves
- **Point of view**, a bold problem statement after understanding the full scope of user's world

Stage 3: Ideate

What is ideation?

This stage brings out the best of ideas for solving a defined problem, through ***Brainstorming*** and ***Worst Possible Idea*** activities.

Creativity and *Innovation* are two driving forces behind developing solutions.

Why ideation?

- To ask the right questions and innovate.
- To step beyond the obvious solutions and therefore increase the innovation potential of your solution.
- To bring together perspectives and strengths of team members.
- To uncover unexpected areas of innovation.
- To create volume and variety in your innovation options.
- To get obvious solutions out of your heads, and drive your team beyond them.

Steps to Ideate

Ideation sessions demand a lot of preparation and team member concentration in order to be fruitful. People need guidance, inspiration and activities, in a physical and cognitive manner, in order to get the process started.

How to ideate? Steps.

1. **Active Facilitation:** Provide an environment that facilitates free, open, and is non-judgmental for involved people.
2. **Idea Generation Techniques:** E.g. Brainstorming, follow certain rules for particular technique:
 - a. Set a time limit
 - b. Start with a problem statement, point of view, possible questions, a plan, or a goal and stay focused on the topic
 - c. Defer judgement or criticism, including non-verbal
 - d. Encourage weird, wacky and wild ideas
 - e. Aim for quantity (number of ideas)
 - f. Build on each others' ideas
 - g. Be visual
 - h. One conversation at a time

Steps to Ideate (This slide is not included in exam)

3. Select the ideas:

Use following methods to select the ideas brainstormed:

- a. Post-it Voting or Dot Voting.
- b. Four Categories Method
- c. Bingo Selection
- d. Idea Affinity Maps
- e. Now Wow How Matrix
- f. Six Thinking Hats
- g. Lean Startup Machine Idea Validation Board
- h. Idea Selection Criteria

Stage 4: Prototype

What is prototype?

An early, inexpensive, and scaled down version of a product.

It offers developers the opportunity to bring their ideas to life, test the practicability of the current design, and to potentially investigate how a sample of users think and feel about a product.

Types of Prototyping

Low-Fidelity Prototyping: It involves the use of basic models or examples of the product being tested. It may be incomplete and uses a few features of the final intended design. It may be made of different material rather than the selected material in design.

Example: Card sorting, Storyboarding etc.

- a. Quick and inexpensive.
- b. Possible to make instant changes and test new iterations.
- c. Disposable/throw-away.
- d. Enables the designer to gain an overall view of the product using minimal time and effort, as opposed to focusing on the finer details over the course of slow, incremental changes.
- e. Encourages and fosters design thinking.
- f. An inherent lack of realism.
- g. Such prototypes often remove control from the user

Stage 4: Prototype

2. *High-Fidelity Prototyping:* A prototypes that look and operate closer to the finished product.

- Engaging: the stakeholders can instantly see their vision realised and will be able to judge how well it meets their expectations, wants and needs.
- Testing will allow the evaluators to gather information with a high level of validity and applicability. By doing so, the confidence the design team will have in how people will respond to, interact with and perceive the design.
- It takes much longer time to develop than to develop a low-fi prototype.
- Testing is more inclined to focus and comment on superficial characteristics.
- Change in design takes longer time.

Guidelines for Prototyping

- Just start building
- Don't spend too much time
- Remember what you're testing for
- Build with the user in mind

Step 3: Create relevant prototypes quickly and iteratively.

PROTOTYPES:

- **Must evoke an emotional response**
 - **Must be technically relevant**
 - **Fail early, fail cheaply**
 - **Communicate the vision**
 - **Become a model for realization**
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- **Prototypes are effective for communicating intent & feedback with everyone.**

Stage 5: Test

What is Testing?

- Testing in design thinking means getting feedbacks from the users about the developed prototype. These feedbacks helps to understand the users more deeply.

Why Testing?

- Getting feedback is crucial in design thinking, with out understanding the needs of the user the iterative process will fail. If the users facing any problem in the present solution then the design team must rethink and develop some alternative solution.

Testing Methodology

How to perform Testing?

- Testing can be undertaken throughout the progress of a Design Thinking project, although normally it is done concurrently with the prototype stage. Get users to be using the prototype as they would in real life, as much as possible.

Improve Your Test Results by:

- a. Testing your prototype not the user.
- b. Recreating the scenario in which they will be using your prototype.
- c. Explaining about your prototype-testing and not the prototype development to the users.
- d. Obtaining the feedback of the prototype such that interaction between the user and the prototype is not hampered.

Guidelines when Planning a Test:

- a. Let your users compare alternatives
- b. Show, don't tell: let your users experience the prototype
- c. Ask users to talk through their experience
- d. Observe
- e. Ask follow up questions