

UNIT – I

INTRODUCTION TO DESIGN THINKING

A Brief Insight to Design Thinking and Innovation:

Design thinking can transform companies, organizations and even lives, but it will fall short if you approach it in a superficial manner or without a solid understanding. The term “design thinking” is almost everywhere, and when a word is repeated so often, it risks becoming a buzzword. However, if you’re familiar with the designer’s mindset, you won’t lose sight of the intended meaning of design thinking and you will be able to fully harness its power.

A designer’s mindset includes qualities such as empathy, imagination, ambiguity, iteration, creativity, and problem-solving. Thinking like a designer involves being willing to fail early and often, learn and start again as many times as it takes. In short, designers need the optimism to try new ideas and the ability to make these ideas tangible. Only then can these potential solutions be evaluated and tested. Design thinking involves a perfect balance between analysis and imagination.

As you will see, design thinking is so much more than a buzzword. In this piece, you’ll find eight essential insights that will help you conquer design thinking and successfully apply it to your work and life.

1. Embrace the Fact that There Is No Single Definition of Design Thinking

Although there is no single definition of design thinking, if you grasp the basics of the designer’s mindset, you will be able to navigate its different interpretations and implementations.

In design thinking, you:

Approach the problem with empathy. The design thinking team puts the users’ needs at the center of the process.

Reframe the problem or challenge at hand. The team redefines the problem or challenge as many times as it takes to reveal the root problem.

Initially employ divergent styles of thinking. Quality is achieved through quantity.

Later employ convergent styles of thinking. After generating many ideas, the team chooses which ones to pursue.

Create and test prototypes. The team develops prototypes to make ideas tangible so they can be tested.

Iterate. The team can repeat all the previous processes in a different order at any time to keep refining the solution.

2. Design Thinking Is Not Only for Designers

Design thinking is not only for designers but also for any organization or individual—within any field—interested in a powerful approach to drive innovation that keeps people at the center of every process. Furthermore, design thinking methods and strategies belong at every level of a business.

3. Everything Starts with the *Right* Problem Statement

At the start of any project, you are usually given a problem to solve in the design brief. The first step for a successful design thinking process is to **challenge the assumptions** you were given to ensure you find the *right* problem to solve.

4. Embrace the Fractal Nature of the Design Thinking Process

Let's consider one of the most popular frameworks of design thinking, as proposed by the Stanford d.school: a non-linear, iterative process that consists of five phases: 1. Empathize, 2. Define, 3. Ideate, 4. Prototype and 5. Test. Seems pretty straightforward, doesn't it? The tricky part is to truly understand—and execute—these stages in a non-linear order and an iterative manner. These two keywords might be the secret sauce for a successful design thinking process.

5. Know When to End the Design Thinking Process

Here is the hard truth: no matter how much time a design team has, results will only seem to appear 24 hours before the deadline. That is the nature of the process. You can never reach perfection, but the more iterations you do, the closer you get. It takes an experienced leader to know when the resulting solution is the best possible, considering budget and time

constraints. To execute the design thinking process correctly, you need to ensure it is *feasible* and *viable*. A solution is no good if it cannot be built with existing resources. Even if it is built, but cannot generate sufficient profits for a business, or is otherwise unsustainable, it will not survive. With practice, you will learn when you can transition from the design thinking process to the product development process. But even after you move on and launch the product or solution, it doesn't mean that the design thinking process ends. You can continue to research and understand how to improve your solutions continuously. The beauty of digital products is that you can continue to deliver incrementally better experiences to your users even after they have the product in their hands.

6. Design Thinking Counteracts Human Biases

Design thinking is a fundamental methodology, but it should be used *wisely*. One of the things that makes design thinking a necessary tool for human-centered innovation is that it counteracts human biases, even implicit or unconscious ones. If you understand this fact, you'll be able to take full advantage of this methodology and be in a great position to deliver outstanding results.

As humans, we learn from our past experiences and form specific patterns of thought, most of which we are not even aware of. As you know, innovation requires out-of-the-box thinking, and the only way to achieve it is to break these preconceived ideas and notions that we have formed. In other words, you need to break prejudices. Design thinking gives you a framework that lets you do precisely that, allowing you to do it in a collaborative environment. **This collaborative dimension is the true power of design thinking and the secret ingredient for human-centered innovation.**

7. Design Thinking Provides a Framework to the Innovation Process

Design thinking has become the common approach to human-centered innovation, "innovation" being the keyword. We live in a world where the only constant is change, and thus innovation is essential to tackle the new challenges we face as a society. Think back to when you were a child; what were your needs back then? Do you have the exact same needs now? Probably not. Luckily, all experiences in your life have helped you learn new tools to overcome new challenges, and your ability to do that successfully may have a lot to do with how self-fulfilled you feel. We can extrapolate this reasoning to a larger scale. As a society, we need to innovate to overcome emerging challenges such as the aging population, climate

change and so on. We need to innovate to survive. Design thinking helps us innovate, and therefore, we need to take it seriously.

8. Design Thinking Takes Time to Master

You can't learn design thinking in a day, and that's OK. You have probably seen many one-day workshops on design thinking. These workshops can be great introductions to the topic, but keep in mind that learning design thinking takes time and effort. For instance, you can do a one-day running training session, but you wouldn't expect to win a marathon right after that, especially without previous experience. The same happens with design thinking. It even takes designers a long time to master this methodology.

PEOPLE CENTERED DESIGN & EVOKING THE RIGHT PROBLEM:

People-centered design is a practice where designers focus on specific people's needs, taking the time to learn from particular populations. "People-centered" is a human-centered design principle. Designers can co-create proper solutions when they live among their target groups, tap their insights and find real issues.

The Peoples of the World Need Solutions That They Help Customize

Cognitive science and usability engineering expert Don Norman saw the need to evolve away from user-centered design to give designers a more humanized view of their responsibilities to the people they design for. Human-centered design represents the shift towards that, on the road to humanity-centered design, which is the ultimate challenge for us as designers in helping the people we design for improve their lives. People-centered design is a refined term for human-centered design, comprising of four principles: People-centered, Solve the right problem, Everything is a system and Small & simple interventions.

People-centeredness is a way to design for people in unfamiliar settings. The traditional approach to designing for "foreign" groups is a Western-centric one. Indeed, the West has access to the most advanced technologies and possesses vast economic resources to deliver intricately grand solutions. However, with that comes a problem. Western-based (or -oriented) designers tend not to understand the people they want to help, since they rarely spend longer than several weeks with them in their location. And because design teams tend

to rush to a solution with only a Western perspective on problems, they run into difficulties by failing to do one or more of the following:

- Appreciate that the people in the areas they have entered often *already* have a solid understanding of what they need.
- Understand what these people *really* need and strive for, and what their environment *lets* them do.
- See past the illusion of big fixes that “should work” on paper (but fail when implemented). Large-scale interventions can prove disastrous because:
 - The people and their governing entities get frustrated at not having effective results fast enough, and politics get in the way.
 - The sheer expense of large-scale projects causes problems, particularly through the waste from a failed solution.
 - The local populations can’t understand or maintain the solution. For example, there’s no point in installing sophisticated infrastructures if the local people don’t have the resources to repair them.
 - The time a large-scale intervention takes means that the problem itself can change, or newer problems arise.

It’s easy to overlook the fact that local populations very often know the nature of their issues. The old way of sending anthropologists to “understand” local people often blinds designers to this fact. While people who are experiencing problems may not be able to dig their way out on their own, very often this is *not* due to a lack of knowledge or even ideas about good solutions.



How to Apply People-Centered Design

Here's how to work your way towards real solutions for real people around the world:

- **Spend years in the location.** It's the only way to discover the true nature of the problems in an area and gather invaluable insights.
- **Collaborate closely with the local populations.** Earn their trust, learn their language and closely study what they show you about the world through their eyes. Many are creative and imaginative, and understand their problems as well as their own capabilities and limitations.
- **See everything as a system.** Even the most simple-looking problems are usually intricately intertwined. So, aim past the symptoms (although symptoms still need treatment) to get at the root causes in the "big picture."
- **Co-design with your population.** Where the community drives things, you're more likely to do things that the local people accept, and achieve real change. Get these people on board; let them contribute to the research, ideation, prototyping and production processes the solution involves. If they're invested in the solution like this, they'll feel ownership and be able to step in to fix things if the solution breaks or fails; or even improve it. Also, small and simple interventions work far better than grandiose, expensive big fixes (which often fail disastrously).
- **Keep an open eye on the solutions the population has attempted themselves.** Understand what the people intended to do. If these were abandoned, learn why they failed. For example, was it the wrong technology? Did a natural disaster render them useless?
- **Remember that "foreign" can mean within your own country, province/state or even city.** Regional disparity can mean huge differences in quality of life over just a matter of a few miles.

Overall, an approach to helping other populations achieve better lives and self-sustainability means involving them as co-creators and respecting their dignity and what they have to offer.

Using Design Thinking to Solve the Right Problem Well

DevOps and Agile are allowing technology teams to quickly find good solutions. However, it is also becoming all-too-easy to quickly find good solutions to the wrong problem.

We've all experienced great solutions to the wrong problem: Google Glass and banana slicers (below) both solve problems, but they are not necessarily solving ones that are meaningful for the intended customer.

The Challenge: Effectiveness vs. Efficiency

When coming up with good solutions, bear in mind the distinction between being efficient and being effective.

Efficiency is about doing things well, whereas effectiveness is about doing the *right thing* well.

Being effective is a non-negotiable aspect of coming up with a good solution. Paraphrasing Peter F. Drucker: there is nothing worse than delivering the wrong product to our customers well, as it will be entirely useless.

Being efficient is nice-to-have, once we know we are being effective!

"If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and five minutes thinking about solutions" -- Albert Einstein

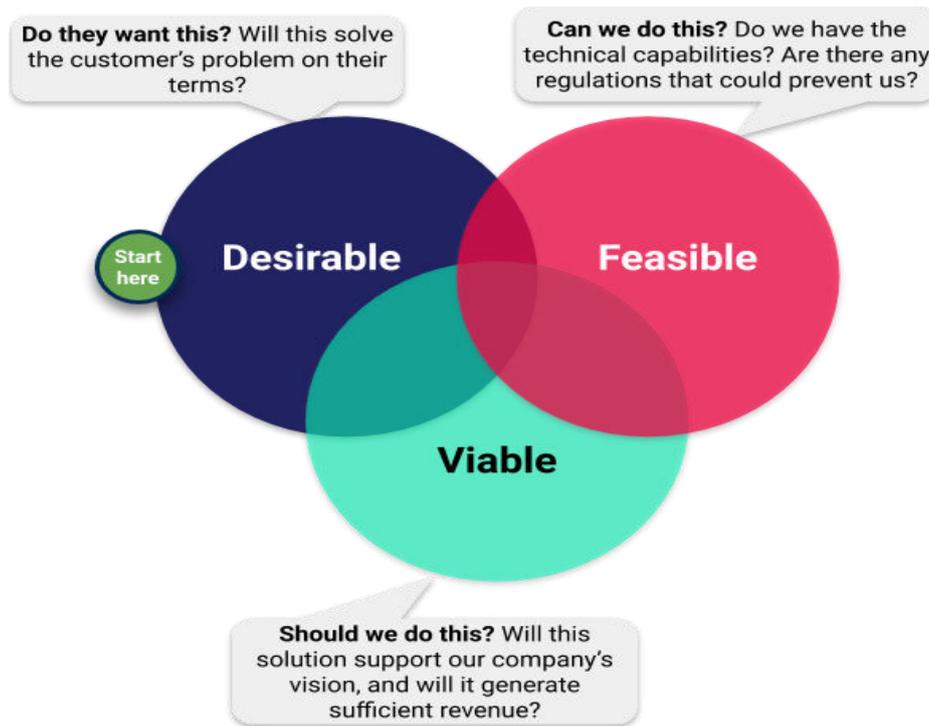
Being effective requires a deeper understanding of the problem we're attempting to solve. This is referred to as understanding the "problem space", and stands in contrast to the "solution space" where we design and implement solutions to solve the problem. The problem space is where Einstein would spend 55 of his precious minutes, with only 5 minutes in the solution space.

Understanding the Problem

As Steve Blank reminds us, to be effective we must Get Out Of the Building (GOOB) and develop a *real understanding* of our customers' problem, without operating on what we *think* their problem is. A true understanding of our customer's problem exists only outside the organisation and in our customers' minds. This is where Design Thinking - more specifically User Experience (UX) Design - can help us.

Our Approach to the Solution

There are three dimensions of a 'good' solution: it must be desirable, viable and feasible.



The Design Thinking (and related) tools we often deploy include:

- **Objectives and Key Results (OKRs):** a set of measurable goals that define direction without dictating how a problem is solved, e.g.: reduce current account customer attrition by 10%
- **Customer Personas:** a canvas that captures our shared understanding of our customer and their unmet needs
- **Outcome-based Roadmap:** a high-level plan indicating the order in which we will tackle the problem, and the outcomes (success measures) we expect to see
- **Lean Canvas:** a method to ensure the solution is compatible with wider business needs

PURPOSE OF DESIGN THINKING:

1. Helps in Enhancing Collaborations: Creating a good design is a collaborative effort, requiring inspiration from different sources and involves the participation of the whole team. With a design thinking strategy, you can propose the same kind of an idea in an approach to all the challenges of a business.

If the business is struggling with customer retention, the design strategy can encourage people to think outside of the generic sales strategies and develop new innovative techniques to make improvements.

2. Helps in Brainstorming: Design thinking involves designing new products and services while re-thinking aspects that can be improved in real time. Continuous testing of ideas and concepts can help organizations to get big breakthroughs and implement better ways of doing things.

It also prevents companies from investing both time and money into solutions that won't work, enabling them to increase their efficiency.

3. Helps in Tackling Creative Challenges: Design thinking helps you to analyze creative challenges from a different perspective. By using brainstorming, it lets your designers create fresh ideas that can expand the learners' knowledge.

It also lets your designers work on the feedback, collaborate, and deliver enhanced experiences to your customers.

4. User-Focused: One of the primary benefits of design thinking is that it is aimed at the end-user. Whether you're developing a new technology or creating a new project management solution, understanding your target user is pivotal to it.

5. Helps to Meet Client Requirements Effectively: Design thinking incorporates prototyping and experimentation of products at the MVP stage. With multiple rounds of testing and working on customer feedback, you can deliver tailor-made products to your clients. Thus, allowing you to meet their expectations by directly involving them in the design process.

6. Helps in Improving Your Knowledge: The design thinking process involves multiple evaluations and analyses. Besides, the process is continuous and doesn't stop even after the deliverable is complete.

Business organizations measure the results based on the feedback received and ensure that the end client is getting the best experience using the product.

This helps design thinkers to constantly improve their understanding of the customers and enhance their productivity by closing gaps in the subsequent deliverables.

Over the last decade, the lines between product/services and user environments are fading. By bringing out an integrated customer experience, companies can open up new opportunities for growth and development.

Design thinking is the process that won't fade away anytime soon. It has gained a lot of traction with various big-name companies adopting it to improve their efficiency.

By adopting this approach, your business can improve its market position relative to your competitors, increase customer loyalty, and build a strong identity.

DESIGN THINKING FRAMEWORK:

1. The 5-Stage Design Thinking Process—d.school

First, let's look at the 5-stage model that we will be following in this course.

The Stanford Design School (d.school), now known as the Hasso Plattner Institute of Design, initially taught design thinking via a simple but powerful 3-step process: *Understand, Improve, Apply*.

They have since built upon this, to formulate and openly share a famous 5-stage process which is widely used around the world, including here at the Interaction Design Foundation.

The process they outlined is as follows:

- Empathize
- Define
- Ideate
- Prototype
- Test

The d.school also represents this 5-stage process through their hexagonal design thinking visualization. This ensures the stages are seen more as enablers or modes of thinking, rather than concrete linear steps.

2. The Early Traditional Design Process—Herbert Simon

The earliest versions of the design thinking process still reflected the traditional design process. As design *thinking* evolved, however, **deeper empathy, more collaboration and a multidisciplinary approach** were thrown into the mix.

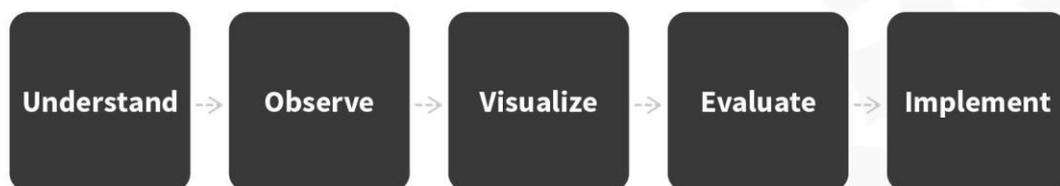
3. Head, Heart and Hand—AIGA

The American Institution of Graphic Arts (AIGA) states the value of modern design practice comes from **designers' unique blend of head, heart and hand**. For example, design thinking participants wear many hats during the process and rely on their heads to solve complex problems. In the early stages, they also use their hearts to empathize and understand human needs and emotions. The particular gift of designers, however, is their ability to dive into practical creation by hand. The three combined create a holistic process which utilizes input from all of our faculties to be successful.

4. DeepDive™ Methodology—IDEO

The DeepDive™ technique was developed by IDEO as a way to rapidly immerse a group into a situation where they can effectively problem-solve and generate ideas. They expressed this variant of the design thinking process live on ABC Nightline back in the late '90s.

IDEO: DeepDive™ Methodology



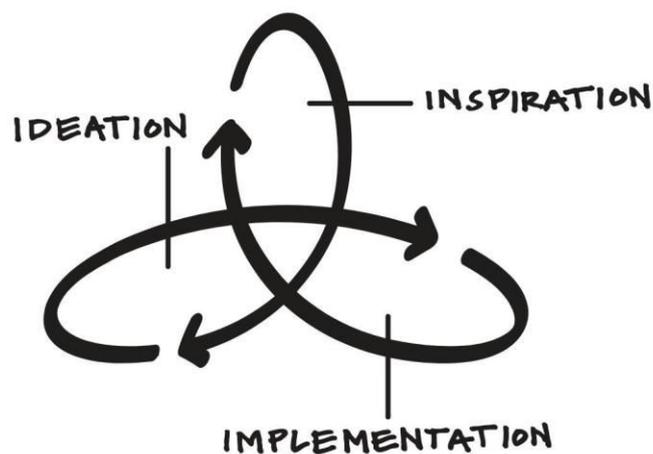
IDEO's DeepDive™ comprised the following steps:

- Understand
- Observe
- Visualize
- Evaluate
- Implement

The DeepDive™ methodology was further documented and enhanced by Andy Boynton and Bill Fischer of the International Institute for Management Development (IMD) business school, and Deloitte Consulting then acquired the rights in 2006.

5. The 3-Stage Design Thinking Process—IDEO

IDEO uses a different process and, while it only has three stages, it covers pretty much the same ground as the other processes in this compilation.



The 3 core activities of design thinking

IDEO

The three stages are:

Inspire: The problem or opportunity inspires and motivates the search for a solution.

Ideate: A process of synthesis distills insights which can lead to solutions or opportunities for change.

Implement: The best ideas are turned into a concrete, fully conceived action plan.

IDEO also released a deck of IDEO Method Cards which cover the modes **Learn, Look, Ask** and **Try**—each with their own collection of methods for an entire innovation cycle.