INTRODUCTION

Design Thinking enormously facilitates getting genuinely innovative answers. It typically identifies new opportunities. Naturally, it produces answers that are, therefore, inventive that they exceed expectations, solving problems we did not know were there. Different thinking styles are embedded in it, which enhances its beauty.

Nowadays, the main target of innovation has shifted from being engineering-driven to design-driven, from product-centric to customer-centric, and marketing-focused to user-experience-focused.

Yes, **21st-century skills** are changing. Now, it is not just about having "hard skills." Skills like problem-solving, communication, collaboration, creativity, and innovation are essential in the 21st-century. Moreover, these skills are baked into design thinking. Learning DT will give us all we need to thrive in any job right now.

We all tend to grasp one truth regarding these days: we will never have each day precisely like this one before. Each is entirely different, presenting its challenges. That is no huge surprise; the planet itself is a dynamic space, and the issues are gaining complexity, which is why we need Design thinking.

WHAT IS DESIGN THINKING?

Stanford prof **David Kelley** developed design thinking. He is the founding father of the design agency IDEO. Professors Terry Winograd and Larry Leifer conjointly influenced his work at the d.school at Stanford. Sadly there is no single, unifying, standard definition of Design Thinking.

The following is a concise definition for Design Thinking:
"Design Thinking is a human-centric, iterative, solution-based, problem-solving framework."

It helps us understand and define a problem, challenge any solutions, and formulate a way that will help us develop solutions capable of solving the issue. We then prototype them and test them in the context of the problem being solved. Because of Design Thinking's iterative nature, we will be able to re-shape and optimize these approaches till the best solution is identified. We use the results and feedback from the different stages to review, question, and improve any initial assumptions, understandings. Its Human-centered nature helps us understand evolving behaviors, preferences, and pain points and focus efforts in the right places in the right ways.

DESIGN THINKING PROCESS

The most common process is the five hexagons, the **Five Stages of Design Thinking** projected by the **Hasso-Plattner Institute** of design at **Stanford (d.school)**.

- Empathize
- Define
- Ideate
- Prototype
- Test

"**Design thinking is not limited to a process. It is an endlessly expanding investigation.**" —Sandy Speicher.

It is said so because, though we explain the steps in Design thinking in a linear fashion, the process is not always linear. Some of these steps can happen several times, and we can jump back and forth between them. Taking a journey through the phases of design thinking can take us from a blank slate to a new, innovative solution.

Empathize

Empathy is the **core feature** of a **human-centered** design process. Reasonable solutions can be built by understanding the beliefs and values of people. We need to understand our users and care about their lives to create meaningful innovations. Here we try to understand the people within the context of the design challenge. We work to understand the means they are doing things and why, their physical and emotional requirements, what is meaningful to them, and how they look at the world. To Empathise, we observe, engage, watch and listen.

Define

Define mode is about "**sense-making.**" It is essential to define the problem we are dealing with based on our knowledge about the user and the context from the Empathise phase. We have to frame the right problem to create the right solution. The result of this mode is our point-of-view (POV). It is a statement for the problem that we are trying to solve. A good point-of-view is one that:

- Provides focus and frames the problem
- Inspires the team
- Informs criteria for evaluating competing ideas
- Empowers team to make decisions independently and in parallel
- Imprison the hearts and minds of people we meet

Ideate

Ideate is all about **generating the broadest range of possibilities**, not about coming up with the 'right' idea. Here we adopt divergent thinking ("going wide") in terms of ideas and outcomes. In the initial stage of the ideation process, we concentrate on generating as many ideas as possible. The more ideas, the better will be the solution we arrive at. Finding a single best solution is done in later stages through user testing and feedback.

Prototype

Prototyping is an **experimental phase**. Prototyping aims to pick out the best possible solution for each problem identified during the first three stages. The solutions developed in the Ideation phase are implemented within the prototypes. One by one, the solutions are investigated and either accepted, improved, or re-examined or rejected based on the users' experiences. The design team will better understand the constraints inherent to the product and the present problems and will get a clearer view of how real users would behave, think, and feel when they interact with the end product by the end of prototyping.

Test

We build to think and **test to learn**. In the testing phase, we collect feedback from the users about the prototypes. We do not concentrate more on whether users like our

solution or not. We will continue to ask WHY? and focus on that else, we can learn about the person and the problem. Always prototype as if we know we are right, but test as if we know we are wrong—testing is the chance to refine our solutions and make them better. Testing helps in refining our prototypes, solutions, POV, and learning more about the users.

MYTHS

MYTH 1 : Design thinking is a linear / single step / sequential process.

We can indeed say that the statement is false.

One must be familiar with the various steps in the linear problem-solving process such as the traditional process. Also, in our most well-known Design Thinking process, we have five stages. When we take a close look at these five stages, we may find the process similar to the classic process.

Most of the time, we explain through these phases one after the another. We assume these steps come one after the another like B follows A; Empathy always leads to design.

But in reality. A does not always lead to B. Design Thinking is not as exact as conventional problem-solving. It is more human-centric and **non-linear**. Design thinking is a **very flexible** process. According to the context that we are dealing with, we **can include as many cycles as required**.

For example, iteration may happen during the prototyping stage. We may find the idea chosen does not work. So we go to the ideation stage to pick up a new idea. Some insights may be revealed during the new testing, which will require redefining the problem.

When we concentrate on **the key concepts** that are included in the design thinking, we can find the following:

- Inspiration
- Human-centric
- Divergent thinking
- Iterative
- Experimentation

We can see that there is **no right/wrong model** for design thinking. The critical point is that all the above concepts have to be appropriately applied to the given context. As proof of this, we can see many Design Thinking processes created and modified by different organizations based on the requirements of the specific industries and nature of work.

Ex: Design thinking framework of IBM.

MYTH 2 : Design thinking is helpful for product innovation.

Most people assume that we apply design thinking to a problem where the final solution is a product and this assumption is very wrong. Then we will have a question "Is Design thinking not good for product design?". Let us explain this way; **Design Thinking is undoubtedly beneficial for product design. Nevertheless, it is not a limitation.**
Problems are the challenges everyone deals with everyday which are very different from person to person. The types of solutions to those are also different. During the process of solving the problem, the type of solution will be identified. As we are applying Design Thinking to find the solution to a problem, the final solution need not be a physical product or vice versa.

We all know that Design Thinking is an approach towards innovation. We will never get any boundaries for innovation in any domain, which tells us that innovation is not only for the product. It always helps us in achieving a better way of thinking.

To use this in real-time; we can look at an excellent example of the "**Keep the change**" program by Bank of America.

MYTH 3 : Design thinking is another name for something we always do.

Design Thinking is identified as a process that helps to find out solutions. There are many other standard processes like Agile, Traditional process, Lean, Management process etc, which are also used in finding better solutions. Unfortunately, many understand Design Thinking as another methodology or process to achieve innovation.

In reality, Design Thinking has its uniqueness among the other processes. We can agree that there are many similarities among them, but each process focuses on different areas, making them differentiable.

One uniqueness of Design Thinking is that it adapts **solution-based thinking**. Design Thinking focuses on identifying solutions, always tries to find something to tackle a problem effectively. Some processes adapt problem-based thinking, which focuses on fixating on obstacles and limitations.

One significant difference between classic **Traditional Thinking** and **Design Thinking** is that the former follows a **linear approach**, and the latter is an **iterative process**. Feedback from the customers is constantly collected during the prototyping and testing phases of Design Thinking, whereas in the Traditional process, not much importance is given.

Design Thinking is about how we approach and explore a problem. Being **human-centric**, understanding and observing customers and their behaviors is a focused area; it helps us deal with ambiguous problems. Furthermore, we are trying to identify a very new solution.

Agile helps us in effectively dealing with **changing conditions with software**. Mostly we will have a problem already identified and also the type of solution we have to build. Its incremental nature helps in rapid development, product enhancement and also ensures the quality is maintained.
Lean focuses on improving the product or service by **eliminating waste** that does not add value to the final product. It is not applied to the product; it works with any business or production process.

We can now see that all the processes are not the same, and each has its main area of focus. These processes work better together. They **compliment** each other. Combining the above processes increases the quality of the ideas and success rate.

MYTH 4 : Design thinking is only for designers. Designing a solution/idea is purely a designer's job.

It is no surprise that people picturized Design Thinking in this way. They mostly do it by looking at the word "**Design"**.
When we talk about Design, most of us think it is about "**How it looks**." Like "Making a product look beautiful." We feel that it is the responsibility of the designers who have creative brains. Of course, designers are naturally indeed creative. The word Design is a bit tricky due to the catch of its correct meaning. Let us try to understand it.

The word Design thinking was coined by **TIM BROWN**. The Design Thinking process was taken from his desire to have a simplified process that will integrate ambiguous creative processes and mindsets into a step-by-step process.

One way Tim Brown explains Design Thinking is, **"**Design thinking is a human-centered approach to innovation that draws from the

designer's toolkit to integrate the needs of the people, the possibilities of technology & the requirement of business success**”**.

Term **Toolkit** used here explains Design Thinking way better. Being "Creative" helps us to come up with solutions. However, it is not the only skill to have innovative solutions. There are multiple tools and techniques such as empathy maps, brainstorming, sketching, divergent thinking, prototyping, ideation walk, and a storyboard that anyone can use to be creative in solving problems, he need not necessarily be a designer. All these are included in the design thinking process.

Earlier, we did not have one predictable process that one can follow to be creative. Now we have Design Thinking. Saying Design Thinking is only for designers will be like saying education is only for intelligents.

MYTH 5 : Design thinking is the solution to every problem.

Design thinking is not a miracle process that solves all the problems. Design thinking is not another name for processes like agile, lean, or DevOps. These processes are distinguishable, and they complement each other.
For a given problem, an organization or company uses multiple methods like design thinking, lean and agile to identify the solution. Design Thinking can be used for identifying, defining, and understanding problems. Once we have a well-defined problem, a product or service can be developed following the agile process. Then Lean approach can be used to improve the product or service by eliminating waste and improving the customer value.

Whenever we are in the process of solving a problem, we use various tools and frameworks. Similarly, Design Thinking also holds its place in the process of solving a problem. It is not an elixir.

If we have a problem that focuses on reducing the waste in an existing process, Lean is the more suitable approach to be applied than Design Thinking.

There are many **factors to success** that are considered in a project. When we try to use Design Thinking in every project, the other factors of success may be lost, like deadlines, when we have a project that has a strict and fast deadline and is very dense and tough. It also involves specific constraints on the technologies to be used. In this case, Design Thinking shall not do the magic, we shall require more time for it, and it may cross the deadline.

We cannot say that Design Thinking solves everything anytime. It relies upon various factors like the type of the problem, deadlines, constraints. Using only HTML, CSS, JS, we cannot expect an eCommerce website like Amazon to be produced.

MYTH 6 : Design thinking can only assist complex processes / problems.

Design Thinking is well thought of as an approach to solve complex problems. There is no wonder it helps to fathom and work out any complex problem. We know Design Thinking could solve many well-noted problems from major corporate businesses, the environment, health, education, and government.

With Design Thinking, we can resolve complex problems as stated above and the wicked problems of real life. Yes, we can avail ourselves of Design Thinking to design a **beautiful better future**. Design Thinking can be applied in our day-to-day life, not just to substantial complex problems but also in our day-to-day life. It can also assist in smaller businesses and find solutions to less complex problems, like reaching the office without getting exhausted by the traffic.

Let us examine some of them. Every single new year is a new chance to design and develop a new us. We get an opportunity to decide what we want to do, where to be, progress in our career, and all about how we are going to spend the upcoming 12 months. All of us make our new year resolutions. However, it is observed that only **8%** of the population accomplish the goals.

We majorly try to set up goals and do things following the passion we have. It is researched that only **20%** of the population has a singular passion. The remaining 80% have multiple passions or none. Consider these two scenarios: these are wicked problems that everyone faces in real life. Design Thinking can assist these real-life everyday problems.

Let us take the scenario of facing a problem with **finding a singular passion**.
Start with **Empathise**: all about understanding our needs. We can practice writing a journal where we log each activity we do in a day with time. Check when we feel energized and when we feel bored or dull or exhausted. When we are trying to understand our interest in doing things, make sure we include professional and personal things, our relationship, any instrument we want to learn, places we wish to visit, everything we want to make a part of our life.

With this, we will be able to **Define** our problem by asking how and what. How do we have to redo our day so that we keep ourselves positive throughout the day? Ask ourselves and define our problem. Now we **Ideate**: We know the destination; we have to find a path to it. Brainstorming helps in generating ideas. Choose the good one, proceed to **Prototype** and **Test**. If it does not work, go to Ideation and start again. The end of the process makes a positive difference to our whole life.

Design Thinking can be practiced in our day-to-day life, not just complex problems. All of us want to **make our lives easier**. Design Thinking helps us in attaining it. We can do Design Thinking all the time, making it **our way of dealing with problems**.

MYTH 7 : Ideation is a big task in Design Thinking.

"If you cannot explain it simply, you do not understand it well enough" - Albert Einstein.

We feel that Ideation is a complex task as we do not understand or know how to approach it. Some barricades have to be recognized and understood to have a fruitful ideation session. Not following the principles or adopting the tactics required in the Ideation phase makes it a difficult task.

An **electrifying stage** in DT is Ideation. We aim to generate countless ideas during the Ideation phase. Let us go through the actions that make Ideation look like a big task and actions to be followed to understand that it never was or is a complex task.

Ideation is a big task.

- We are not very mindful of the guidelines in the Empathize and Define phases; without sufficient knowledge and goal, we jump into Ideation.
- We directly get into generating ideas without any ideation warmup.
- Not being concerned about other's ideas, thinking one's own is the best of all
- Ending the ideation session as soon as we feel we have some good ideas and do not want to waste time on generating more ideas

- Allowing negativity - yes BUT; it is not possible; it is difficult; not creative; be realistic.
- Censuring ideas, passing judgment on the ideas, evaluating the ideas.
- Not capturing all the ideas, neglecting that we can do it tomorrow.

All the above are NOT TO DO actions and are never listed in the rules and guidelines of the ideation phase.

Ideation is a simple task.

- Apart from being an iterative process, the first two stages of DT have to be taken seriously before ideating. Empathy helps in becoming an expert on the subject. Using the outcome from Empathy, we will have an actionable problem statement from the end of the Define Phase, the **point of view**(POV). This point of view will be our guiding statement in the ideation process.
- To avoid nervousness, it is always better to start with **warming up** exercises like Brainwalking, the Worst possible ideas.
- We should always be open-minded and welcome ideas from others as we do ours.
- In Ideation, **quantity is more important than quality**. We can always find a difference between picking the best idea from 100 ideas and picking one from 30 ideas.
- No room should be given for negativity. No idea killers are encouraged.
- There is **no good idea, bad idea** while generating ideas. No judgment or evaluation has to be done.
- In a heartbeat, we might miss the most fantastic ideas. Every idea must be recorded.
- Group idea generation is encouraged. **Group exercises** lead to more and better ideas.
- Try to be **more visual**. It is hard to miscommunicate with pictures.

Unfortunately, all the actions are expected to be included and followed in the ideation phase, which we miss or overlook. This explanation shows that Ideation is not a complex task.

MYTH 8 : Collaboration is a big task in Design Thinking.

Ideation is at the heart of design thinking. During ideation sessions, it is suggested to go for group exercises to build upon each other's ideas by taking advantage of a diverse mix of perspectives that each person possesses.

Collaboration is vital among the participants in the group exercises. We find this problematic as we do not follow the guidelines as the process correctly, which reduces the benefit of the group thought.

For example, when we start Ideation with a group task, the most active voices in the session will set a determined path. It makes some not think in another direction, and some creative ones get irritated, thus reducing the number of ideas. Primarily, everyone in the room has to set their own way of solving the problem; then, we move to group exercises. Always **individual Ideation first, then group ideation.**

Similarly, there are several guidelines to be considered when conducting an ideation workshop.

Start with **ice breaker exercises** like rock, paper, scissors; grandma tiger ninja; YES BUT vs. YES AND; 1000 users. Ice breakers will do more than half of the work for achieving collaboration. They help get people in the group out of their comfort zone, meet and know new people, build trust and friendship, encourage new ideas, improve collaboration, and think outside the box.

The output of some of these exercises is very fruitful. It helps in preparing the mindset required for group ideation. YES BUT, YES AND will make us see the difference between an open mindset and a closed mindset, which is very important to know before we start group sessions. It improves collaboration in a team. Remember closed mindset is always a problem to collaboration.

Include exercises that help in suspending judgment. No space should be provided for the devil's advocate in the room. Everyone should be able to express their ideas at ease.

In Ideation, we should adopt **unconventional thinking**. Whenever we do group sessions, more care has to be taken in achieving it as people will have a natural tendency to address problems using their specializations. This tendency disturbs collaboration as others in a team might not build upon the idea as they are not from the same background and reduce innovation.

To introduce the new stimuli, we have to run the ideation workshop in a **new space**. Also, make sure that participants feel comfortable.

When a person shares an idea, the others should jump in and develop on it.

All the above are the things that have to be taken care of to develop a healthy collaboration. Please make sure we include fun team-building exercises, and then collaboration is always a simple task.

MYTH 9 : Understanding user needs is a difficult task.

If we observe, the storyline is the same for the previous two myths, and the same applies to the current one. We do not understand and know the details or the process/guidelines to be followed, making the task look more extensive and complex.

First, we have to understand that the five hexagons in the Design Thinking process help us get started. For each of these five phases, there are a set of tools to experiment on the other side. We have to understand, incorporate and try them on. Not doing them makes the process complex.

Primarily, get aware of why we are trying to understand the users. When we understand people's actual needs, their experience, what they feel, what they see, their motivations, it is not only the **birthplace for innovation**; we also get inspired.

We find understanding users difficult because we might not be empathizing correctly. For

example, We might be asking the wrong questions.

A pharma company wanted to design an app to teach eating and exercise habits. After the fieldwork, it is noticed that people know that whatever they are doing is unhealthy, but they are not so interested in changing it.

If the question here were about the app's design, we would have developed the best education app. It will not solve the problem. The question here should be if we have to focus on educating people or try changing the behavior. If the organization wants to use it to prevent diabetics, it will have to adopt the strategy of **behavior change.** It is very important to **ask the right questions**.

There are many **empathic research methods** available that will help us systematically understand someone else's point of view. Based on the type of problem, the complexity, the type of information we are looking for, we will be selecting the research methods. Storyboarding the experience, interview with empathy, contextual interview, what/how/why method(The golden circle), five whys, creating journey maps are some methods.

We do not have to be afraid; anyone can master empathy. **Inherently we humans are empathetic**. Empathic research methods help us suppress our natural tendency to make our own opinions (or) assumptions. They help us put our assumptions about the world aside to gain deeper insights into the users and their needs.

MYTH 10 : Prototyping consumes more time and is expensive.

We pick up an idea that we feel would work. We will see if the idea can be built, then we check how it will work, then think of the best size, shape, and look for it. The former is a general perception that the majority of people have about prototyping.

The question here is, are we 100% sure that the idea that we picked, in which we poured a lot of our effort and time, will be successful? In reality, **80% of the ideas fail** even when they are entirely executed. Google Graveyard is one of the examples.

The approach mentioned above is traditional prototyping. Apart from investing more time and money, this approach allows us to try only a few ideas, the failures will be observed slowly, and the success rate will also be below.

Whereas the prototyping in Design Thinking focuses on making sure - **we are building the "right it" before we build it right**. Primarily it is the validation we perform if an idea we selected is worth pursuing or building in the first place. We validate it by learning quickly and cheaply. We do not have to do the complete implementation of the idea. This approach of validating the premise is referred to as **pretotyping**, which helps us implement the right idea.

When we adopt this approach in the prototyping phase, we can try as many ideas as possible, we will experience fast failures from which we learn quickly, and it also saves us our precious time and money. More importantly, we will see a **higher rate of success**.

A prototype can be anything the user can interact with – it can be a wall of post-it notes, a paper sketching, a gadget, a role-playing activity, or even a storyboard. Build using materials like caps, sticks, charts.. Ideally, we bias toward something a user can experience. We do not have to choose the authentic world material, as at this point, we do not know the idea we are prototyping for will become a success.

First, do the prototyping, fail, learn and taste success. Then prototype using the cheapest material. Check what worked, what new ideas can be included, what changes to make, get the feedback, and collect answers to the new questions. Refine and improve the solution based on it. Then during testing, transform from the table size to life-sized. Thus, prototyping in design thinking is **rapid experimentation** and is **inexpensive**.