RAJEEV GANDHI MEMORIALE
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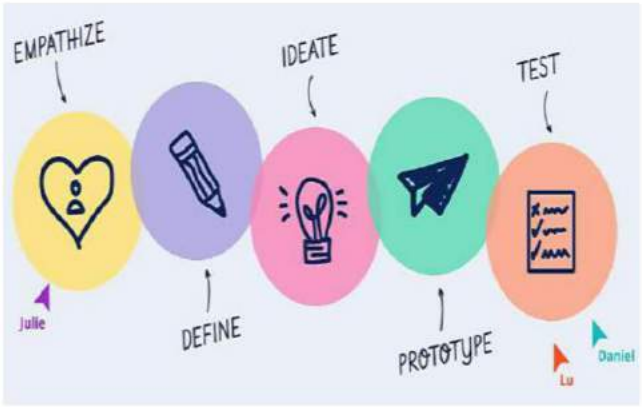
DESIGN THINGKING

II YEAR I SEM
(R_{20} SYLLABUS)



by

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Unit – I

Introduction of Design Thinking

Syllabus:

Introduction, what is design thinking, the traditional model of innovation, The model of design thinking, Design thinking is not old, Design thinking is to innovation, The sweet spot of design thinking.

Why design thinking now? Products & Services, Multifaceted problems, fast becoming B2C, wide spread digitization, Customer knowledgeable, Clash of business models, Challenging markets.

What is Design Thinking?

Design thinking is a process for solving problems by prioritizing the consumer's needs above all else. (or)

Design Thinking approaches problems from a human perspective, with the objective of designing innovative and desirable products, services or experiences that reflect all three aspects.

Design Thinking is not an exclusive property of designers - all great innovators in literature, art, music, science, engineering, and business have practiced it. So, why call it Design Thinking? What's special about Design Thinking is that designers' work processes can help us systematically extract, teach, learn and apply these human-centered techniques to solve problems in a creative and innovative way – in our designs, in our businesses, in our countries, in our lives.

Some of the world's leading brands, such as Apple, Google, Samsung and GE, have rapidly adopted the Design Thinking approach, and Design Thinking is being taught at leading universities around the world, including d. school, Stanford, Harvard and MIT. But do you know what Design Thinking is? And why it's so popular? Here, we'll cut to the chase and tell you what it is and why it's so in demand.

The Five Stages of Design Thinking

Stage 1:

Empathize = Research Your User's Needs.

Stage 2:

Define = State Your User's Needs and Problems.

Stage 3:

Ideate = Challenge Assumptions and Create Ideas.

Stage 4:

Prototype = Start to Create Solutions.

Stage 5:

Test = Try Your Solutions Out.

1. Empathize

The first stage of the Design Thinking process is to gain an empathic understanding of the problem you are trying to solve. This involves consulting experts to find out more about the area of concern through observing, engaging and empathizing with people to understand their experiences and motivations, as well as immersing yourself in the physical environment so you can gain a deeper personal understanding of the issues involved. Empathy is crucial to a human-centered design process such as Design Thinking, and empathy allows design thinkers to set aside their own assumptions about the world in order to gain insight into users and their needs.

2. Define (the Problem)

During the Define stage, you put together the information you have created and gathered during the Empathize stage. This is where you will analyze your observations and synthesize them in order to define the core problems that you and your team have identified up to this point. You should seek to define the problem as a problem statement in a human-centred manner.

3. Ideate

During the third stage of the Design Thinking process, designers are ready to start generating ideas. You've grown to understand your users and their needs in the Empathize stage, and you've analyzed and synthesized your observations in the Define stage, and ended up with a human-centered problem statement. With this solid background, you and your team members can start to "think outside the box" to identify new solutions to the problem statement you've created, and you can start to look for alternative ways of viewing the problem.

4. Prototype

The design team will now produce a number of inexpensive, scaled down versions of the product or specific features found within the product, so they can investigate the problem solutions generated in the previous stage. Prototypes may be shared and tested within the team itself, in other departments, or on a small group of people outside the design team. This is an experimental phase, and the aim is to identify the best possible solution for each of the problems identified during the first three stages. The solutions are implemented within the prototypes, and, one by one, they are investigated and either accepted, improved and re-examined, or rejected on the basis of the users' experiences. By the end of this stage, the design team will have a better idea of the constraints inherent to the product and the problems that are present, and have a clearer view of how real users would behave, think, and feel when interacting with the end product.

5. Test

Designers or evaluators rigorously test the complete product using the best solutions identified during the prototyping phase. This is the final stage of the 5 stage-model, but in an iterative process, the results generated during the testing phase are often used to redefine one or more problems and inform the understanding of the users, the conditions of use, how people think, behave, and feel, and to empathize. Even during this phase, alterations and refinements are made in order to rule out problem solutions and derive as deep an understanding of the product and its users as possible.

The Traditional Model of Innovation

The traditional approach of thinking works on two basic principles. These two basic principles are Viability and Feasibility.

Traditional thinking maps out how thinkable (viability) a task is in a practical manner (feasibility). It evaluates these two factors to assist problem-solving and is highly used by business executives. Traditional thinking as compared to design thinking works towards avoiding failure, thinking, planning, creating a passive experience, and giving the right answers. The traditional approach is also focused on solutions and aims to get the perfect outcome on the very first try.

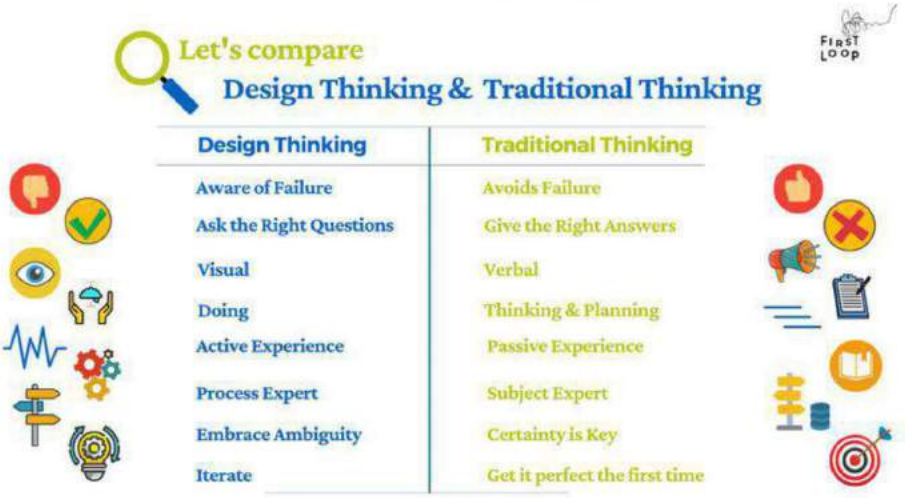

Figure 1: Comparison of Design Thinking & Traditional Thinking

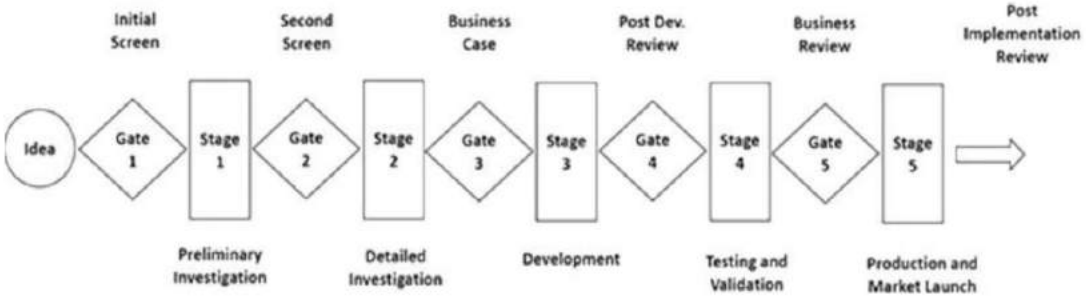

Figure 2: Stage Gate process of problem-solving or new product development

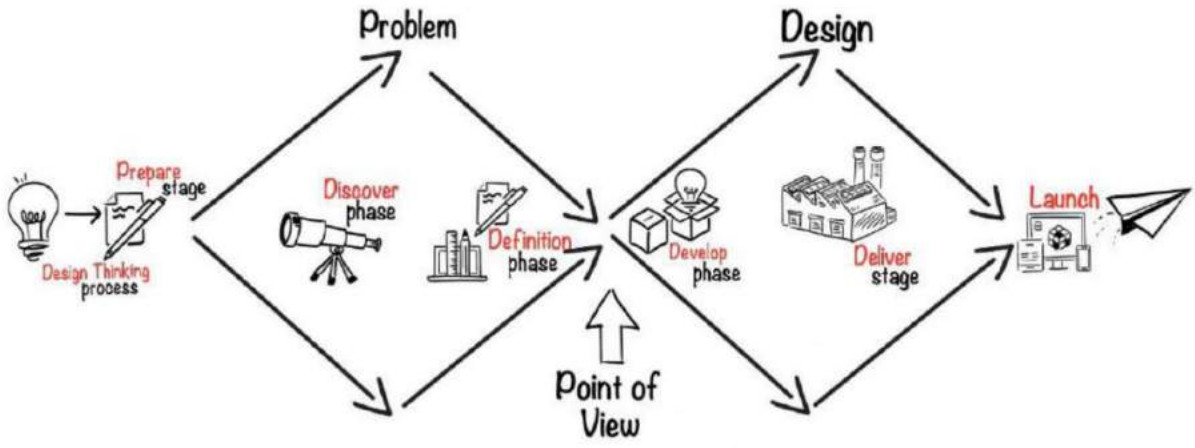

Figure 3: Example of Stage Gate process of problem

The stage-gate process, or its variants, suffer from the following key challenges.

Firstly, it all starts with an idea, and there lies the seed of trouble. An idea for what? For whom? What problem does it address? Starting with an idea, and not a problem, is the without fundamental most entrepreneurs are guilty of and, resultantly, their enterprises fall victim to the not-so-surprising high mortality rates. Idea cannot be a starting point; it should rather be a problem or an opportunity. In fact, for a problem which is fully understood, ideas can come from anywhere, including from partners and customers.

Secondly, the concept testing and validation happens late in the journey of a product, process or problem and by then a lot of investment has already been made. Such a delayed validation does no good because, at this point, the stakes are already high and there is an escalation of engagement.

The third major concern with the stage-gate logic is that it necessitates a business case well ahead of even a rudimentary investment and market validation. Think of it, if the opportunity is so new and the problem so ill-defined, how valid would your numbers be? It is all GIGO (garbage in, garbage out), and yet corporates swear by such dense, often rigorously evaluated, presentations. What if an idea does not clear the funding threshold of the company on the day of the presentation? It has got no chance.

The model of design thinking

Design thinking is a systematic, human-centric approach of problem-solving. With its origins in industrial design, product design and architecture design has been closely associated with the tangible.

In design thinking, the emphasis is on thinking and doing, and not just on designing. The outcome may be a product, or a process, or a service, but more significantly, an experience. The two most popular models of design thinking are from "IDEO and the Stanford d. school".

The six-stage design thinking process as practiced and preached by **IDEO**.

1. Frame a question: Identify an anchor question that motivates the team.
2. Gather inspiration: Get to the field to generate fresh insights.
3. Generate ideas: Go for a high number of ingenious ideas.
4. Make ideas tangible: Build crude prototypes to see your ideas in action.
5. Test to learn: Put your prototypes to test with a real audience.
6. Share the story: Inspire others through emotional narratives.

The five-stage design thinking process, as adopted by the **STANFORD D. SCHOOL**.

1. Empathize: Learn about and from your audience about their real concerns.
2. Define: Sharpen your focus on the most important problems to be solved.
3. Ideate: Generate a high volume of ideas around your problem.
4. Prototype: Convert your ideas into quick and dirty mockups.
5. Test: Subject your prototypes to real-world validation.

In the two models of design thinking as discussed above, the problem-solving journey starts with the users (through empathy) and culminates with the users (through validation).

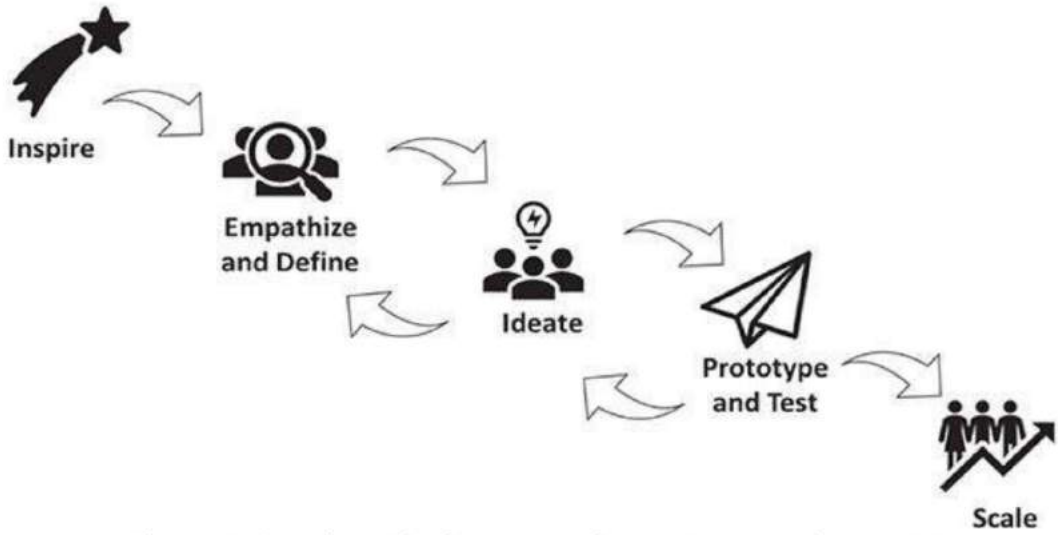

Figure 4: A design-thinking or creative problem-solving model

Design thinking is not old: For example, Juice in a New Bottle.

Is design thinking new, or is it just a rehash of some old concepts of problem-solving?' There are some elements that the approach of design thinking borrows from the extant practices of problem solving.

To answer the question of what is new in design thinking, let us look at a two-by-two matrix as shown in figure: 5. On one axis you have the problem, the extent to which it is known or unknown; and the other axis is the solution, which could be known or unknown. We do not typically understand the problem as much as we think we do, for what we usually get to see are the symptoms of the underlying problems, and getting to the root cause is significant. Similarly, whether the solution is known or unknown is determined by the degree of novelty and utility of the idea, and not by its presence or absence.

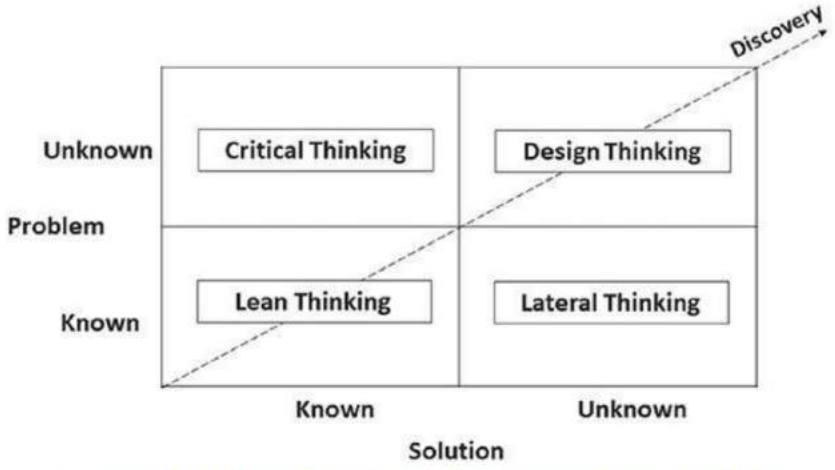

Figure 5: A design-thinking, problems of model solving

Lean Thinking: (Think like a Small)

Lean thinking is a term used to describe the process of making business decisions in a Lean way.

Lateral Thinking: (Think like Quickly)

Lateral thinking is the ability to use your imagination to look at a problem in a fresh way and come up with a new solution.

Critical Thinking: (Think like Clearly and Rationally)

Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating.

Design Thinking: (Think like Perspective/ Creative)

Design thinking is a process for creative problem solving. Design thinking has a human-centered core.

Design thinking is to innovation (what Six Sigma is to Quality)

Imagine you are in the 1960s, in any part of the world, and you are talking about product quality. For one, it's not a good conversation starter, and secondly, the quality was associated with the person who makes the product and not the company, let alone the processes.

The essence of Six Sigma, non-statistically speaking, is the DMAIC process, which stands for Define, Measure, Analyze, Improve and Control. This iterative process relies on systematically shaving off waste from the system, resulting in a leaner process, with hopefully a better outcome.

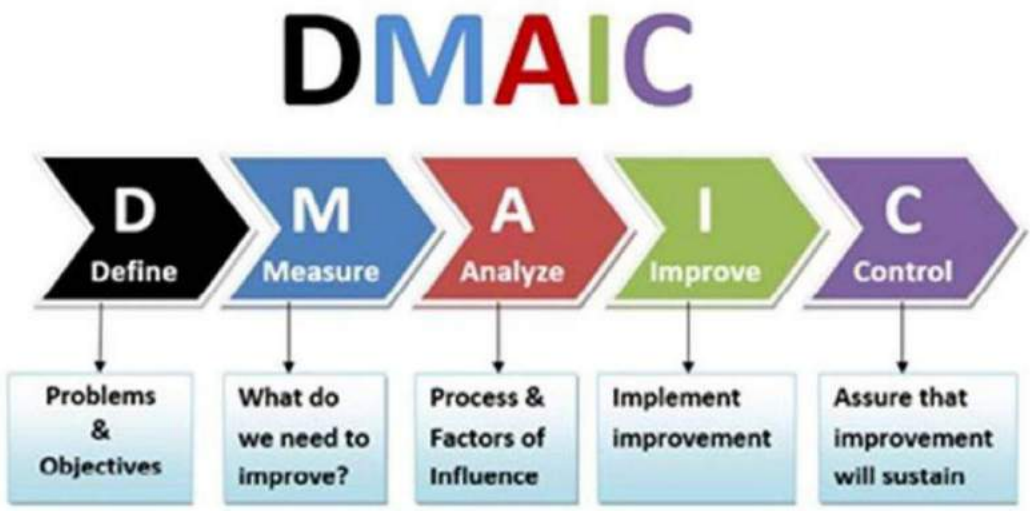

Figure 6: The process of DMAIC

The sweet spot of design thinking (Two Kinds of Thinking)

There are three aspects which make product, service or solution design successful: desirability, feasibility, and viability. In design thinking, we balance them properly to find the sweet spot of innovation their intersection.

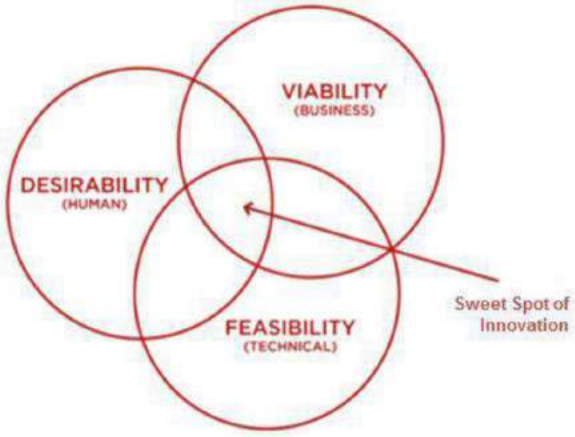

Figure 7: The Sweet Spot of Innovation

1. First, a solution, service, or product must be desirable. It has to fill customer's needs and to fit in their lives. The customers need to want it.
2. Second, to be successful, it is not enough that the product or service is wanted. We must also be able to realize the service resp. the product. The feasibility of our solution is about whether or not we are able to implement it in an effective manner.
3. Third, the commercial viability of our product or service is the crucial test of whether or not our innovation viable now and in the future. Viability focuses on the value chain of our solution.

In other words, design thinking brings the designer's view and engineering perspective together by balancing desirability, feasibility, and viability.

- **Feasible:** Feasibility of the solution is about whether or not you are able to implement your solution in an effective manner. It is a solution which is building on the strengths of your current operational capabilities. Feasibility tests whether your innovation strengthens your business.
- **Desirable:** It's not just about designing something; it's about designing something that matters and has an impact. A desirable solution, one that your customer really needs. Desirability tests whether your innovation is solving the right customer problem.
- **Viable:** It is a profitable solution for the company, with a sustainable business model. Viability tests your value chain for long-term sustainability

A value-centered design approach can help identify and prioritize (feasibility) some of the users' needs (desirability) when matched against the company's goals (viability), if you missing any one of these, implementing the idea becomes costlier and riskier.

Why design thinking now?

The design thinking brings everyone, beyond the designers and developers into to the product of design process.

This in turn helps entire organizations scale their design processes to create better, human-centered user experiences and disruptive products. It also helps "instill a bias toward action," as told by Eli Woolery in the Design Better.

Why is design thinking?

Design thinking enables organizations to create lasting value for consumers. The process is useful in any complex system (not just design systems) because it:

1. Aims to solve a concrete human need

Using an observational, human-centric approach, teams can uncover pain points from the consumer that they hadn't previously thought of, ones that the consumer may not even be aware of. Design thinking can provide solutions to those pain points once they're identified.

2. Tackle's problems that are ambiguous or difficult to define

Consumers often don't know what problem they have that needs solving or they can't verbalize it. But upon careful observation, one can identify problems based on what they see from real consumer behavior rather than simply working off of their ideas of the consumer. This helps define ambiguous problems and in turn makes it easier to surface solutions.

3. Leads to more innovative solutions

Humans are not capable of imagining things that are not believed to be possible, which makes it impossible for them to ask for things that do not yet exist. Design thinking can help surface some of these unknown pain points that would otherwise have never been known. Using an iterative approach to tackle those problems often lead to non-obvious, innovative solutions.

4. Makes organizations run faster and more efficiently

Rather than researching a problem for a long time without devising an outcome, design thinking favors creating prototypes and then testing to see how effective they are.

Products and services have blurred into experiences

Whether you are buying a product or hiring a service, at the end of the day you are consuming an experience, and in this experience economy, a lot more of your senses are involved. Traditional products have become more similar services and services have become experiences.

Now a days in market, customers are moving from indirect consumption to direct participation. Memorable experiences are not programmed by leaders or marketing departments, but are delivered at the moment of truth by the customer in front high-ranking executives.

Products	Services
1. Products are objects or systems made available for consumer.	1. Services are transaction, where no physical goods are transferred from the seller to the buyer.
2. Products are Tangible.	2. Services are Intangible
3. Products are manufactured, stored and transported. Example: Electronic Devices, Furniture, Food Items and Vehicles.	3. Services are not manufactured, stored and transported. Example: Cleaning, Car, Repair, Medical Checkups, Haircuts etc.,
4. Products can be returned or replaced.	4. Services cannot be returned or replaced.
5. Products sold can be identical.	5. Each delivery of a particular service is never exactly same.

Problems are becoming multifaceted

The companies are realizing their problems are becoming more and more multidimensional, so it should the thinking of problem solvers. Products, services and experiences have become part of a complex system where there is a simultaneous search for differentiation a front-end and standardization on the back-end. It is out fair to think that any problem is purely a restriction? science or technology, which was, incidentally, the fundamental premise of Russian problem solving TRIZ technique.

Each problem would have an element of usability, and not just functionality or aesthetics. Much in line with what Steve Jobs professed: "Design is not" how it looks and feels. Design is "how it works". When you focus on how humans interact with a solution, be it Whether it's a product or a service, design thinking takes on importance. While the design was primarily focused on solving specific problems, Design thinking elevates the discussion to the systems level, where you have to understand how the different problems, they interact with each other to shape experiences.

All companies are fast becoming B2C

- B2B is "business-to-business" company provides services or products to other businesses.
- B2C is "business-to-consumer," company sells directly to individual customers.

They're two separate business models that serve different types of customers, one being businesses and the other direct to customer. A company cannot communicate with a company. It is always a person who communicates with another person. Therefore, contact is always "Human to Human (H2H). Rather than focusing solely on the categories B2B vs. B2C, it is more important to have a certain target group in mind to market to.

Widespread digitization of human engagements

Digital engagement is the process of interacting with potential and existing customers through various digital channels to build your relationship with them. These channels include email, messaging, social media, and many more.

Take Paytm, for example. When was the last time that called a Paytm call center and spoke to an employee or agent? Perhaps never, or rarely, if it does. However, you are convenient money transaction on your mobile in almost usual way. Not just you, a lot of people including shoemakers, street vendors, and vegetable vendors little shopkeepers: they seem comfortable hugging each other online transactions without any human intervention.

Customer knowledgeable (Customers are growing knowledgeable and restless)

When problems and opportunities become multifaceted, bargaining power shifts more to customers, as the case of the Indian market for two-wheelers or low-cost airlines demonstrates. The proliferation of low-cost end-user affordable computing, communications, data and devices has ensured that information can no longer be dominated. While this reduced information asymmetry is desirable from a customer perspective, it often spells a sense of loss for manufacturers or producer. As a producer, you must realize that the user is no longer waiting for your genius solution; she's already doing a job, with or without you, and you'd better learn to work with her rather than for her.

Clash of business models

Steve Blank defines a business model as how your company creates, delivers and captures value. It is no longer the case that a superior product wins in the market; instead, a superior business model goes on to make profit, and it could well be wrapped around an lower product.

The first movers can be dislodged by the late entrants, provided the latter spin a new business model, as shown by Netflix over Blockbuster, or Ola Cabs over Meru Cabs.

Example:

Let's look at the movie industry. There are several competing business models and each with an array of companies. You can watch a movie in a multiplex, at a no-frills theatre, on television with ads, on Netflix, buy it on YouTube, buy a DVD, rent a DVD or watch a film on Amazon Prime Video or any other content streaming application. The product is the same - the movie - but the way it is rendered is entirely different. With such a wide range of choices, the players must now elevate the discussion from what (is offered) to how (it is consumed), for now there is truly little to differentiate beyond experience management.

Challenging markets

Markets are throwing new surprises at you, let us look at some of the interesting developments in the Indian consumer market over the past few years. The coronavirus pandemic has impacted businesses across the globe. Most office workers have been working from home for the last several weeks. Some have been furloughed. Others have lost their jobs.

As the government considers how we go back to some degree of normality, and eases lockdown restrictions, plenty of questions remain around the state of the economy.

There is hope that once things begin to reopen, the economy will bounce back. We're all hoping for this, of course, but we should also be planning for the worst.

Many companies have already endured a difficult few months. Plenty have put a hold on hiring or have cut jobs, as they prepare for more challenging times ahead still. Like many recruitment businesses then, our work has dried up.

Questions to be Revised

1. Give the introduction of design thinking and explain the step-by-step process.
2. What is the traditional model of innovation? Compare with Design Thinking.
3. What are the different models of design thinking?
4. Explain that the design thinking is new or old. Mention your assumed example.
5. What is six sigma qualities in design thinking. Give one example "Still the product needs to innovate something new".
6. What is the sweet spot of design thinking?
7. How the Products & Services were act as design thinking.
8. What are the Multifaceted problems?
9. Define B2B, B2C, H2H and explain it briefly.
10. Explain in brief wide spread digitization, Customer knowledgeable, Clash of business models.

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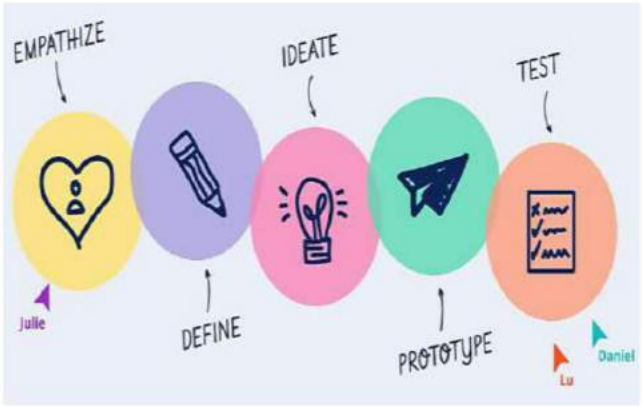

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Unit – II

Key tenets of Design thinking

Syllabus:

Key tenets of Design thinking, Human centric, Focus on subject not object, Problem solving with the customer not for the customer, Thinking beyond products, Striking balance, Think Broad, Solution Generation, validation, root causes, What else, visualize your thinking, Fail often.

Inspire: Create a stretch, Get the design brief right, Adopt the power of metaphors, Widen the aperture, Bring on diversity, The learning personas, the organizing personas, the building personas.

Key tenets of Design thinking

The ultimate aim of the design thinking methodology is to intercept problems and develop the best solution for each of them. With this approach the context is observed and studied, problems are intercepted and possible solutions are drawn. The key principles of design thinking are **3 E's** i.e., **Empathize, Expansive Thinking, Experimentation** and **3 P's i.e., People, Philosophy, Processes.**

There are certain principles that are pivotal to design thinking. These are reflected in the design thinking methodology, which we'll explore in detail a little later on. There are five of design thinking's most important principles below.

The following the main principle of the design thinking as we know that **EDIPT**.

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Test = Try Your Solutions Out.

Human centric (Bring the human to the centre of your work. Centric means bring to a center)

Human-centered design is a problem-solving method that requires you to put your customer's needs first when undertaking an issue. To use human-centered design for your creative process.

- You must know your customer deeply.
- Empathize with a real problem they face and come up with solutions they embrace.

Human-centered design means creating products to solve your customer's struggles and help them live better, easier lives.

Example: Take HelloFresh, company which was founded in 2011 by Dominik Richter, Thomas Griesel, and Jessica Nilsson. The company delivers a box of fresh food to your door, with easy recipes included. The founder's recognized people have trouble finding time to shop for groceries, and they also struggle to create healthy, affordable meals. They came up with a solution to both problems.

Unlike your boss in the first example, the HelloFresh founders didn't come up with an idea unrelated to real consumer's actual needs. Instead, they recognized a struggle someone was facing, and then worked to invent a solution. In this way, it's arguable human-centered design is a safer and more trustworthy approach to problem-solving.

Focus on subject not object

The movement away from the object (the stuff) to the subject (the user) requires a significant smart shift. However, in design thinking, the starting point is always the subject, while the object remains largely in the background.

Example: Let us take an example of adding value to a pen.

- In the traditional approach, you would start with the pen and try improving it with more features, less waste, broader variety, more functionality or whatever else a creative approach suggests.
- Whereas in design thinking you would start with the question: 'Why does the user need the pen?' The answers could be well beyond the obvious one: for writing.

Someone might need a pen for adornment, or just for signing purposes, or, perhaps, as a matter of habit.

Problem solving with the customer not for the customer

The traditional division of labour in the product market has been that the customer has a problem which, hopefully, is well articulated and is to be solved by some experts who, in turn, would get paid for the solution. The expertise was supposed to be concentrated with the seller, while the consumer just had the choice of purchase or payment. That is no longer true, especially with the democratization

of ideas and talent. You need to create a conversation with your customer to understand the problem and then solve it jointly. As IDEO's Tim Brown puts it, 'Design thinking is about creating a multipolar experience in which everyone has the opportunity to participate in the conversation.'

Why solve the problem with the customer? There are at least two explanations.

- Firstly, a problem may not always be apparent or known; and
- Secondly, the customer may already have a working solution.

So, instead of outguessing the customer about the problem and then trying to foist your pet solution on her, why not create the solution with the customer? If the suitable tools, insights, avenues and confidence are given to the customer, she might surprise you with a genuine creation.

Thinking beyond products

One of the biggest misconceptions about design thinking is that it is primarily about designing new products. The design thinking is a powerful approach to new product development, there is a wider array of contexts which benefit from adopting this structured approach of problem solving, one that keeps customers at the centre of attention.

A company that has captured an enviable market position without necessarily having a winning product is Maruti Suzuki. Though Maruti Suzuki, over the years, has delivered blockbuster products, such as Maruti 800, Alto, Wagon R, Swift and Dzire, the above 50 per cent market share that the company enjoys could well be attributed to its activities beyond the realm of new product development. Maruti Suzuki exemplifies the idea that it takes more than a winning product to win in the market.

Striking Balance

Strike a balance between desirability, feasibility and viability.

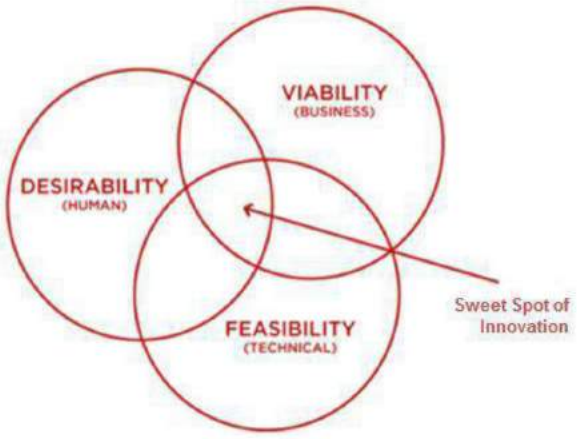

Figure 2.1: Balance between Human, Business, Practical.

- To make or strive to make something equally proportioned midway between two or more conflicting or contrasting things.
- We are here to strike a balance between claimants and defendants to achieve an acceptable resolution for everyone involved.
- The game strikes a great balance between accessibility for younger players and a rewarding challenge for veterans of the genre.
- Young families looking to buy their first home in this city have to consider the size they need for their children as well as a price they can afford, and it is becoming increasingly difficult to strike that balance.

Think Broad (Think broad before you go narrow)

Design thinking relies on the divergence of thought process, before convergence sets in. In other words, you need to create choices in order to make effective and non-obvious choices; otherwise, there is no creation.

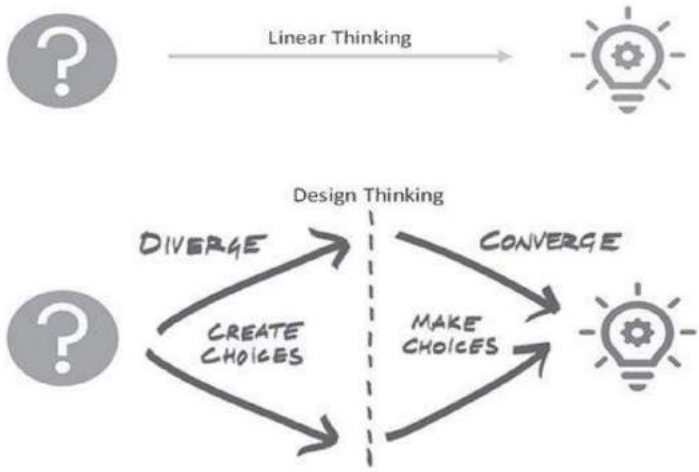

Figure 2.2: Learn to think broad before thinking narrow

- Go Broad to Go Narrow To get to one good idea, you must create lots of ideas.
- Choose what's most delightful, not was easiest or cheapest.
- Rapid Experiments with Customers Watch what they do more than listen to what they say.

Learn to compartmentalize your thinking

Creative problem-solving requires discipline more than anything else. A good practice is to think in compartments, separated by time and intent. Think of creative problem-solving as a three-stage process: 1) problem exploration; 2) solution generation; and 3) solution validation.

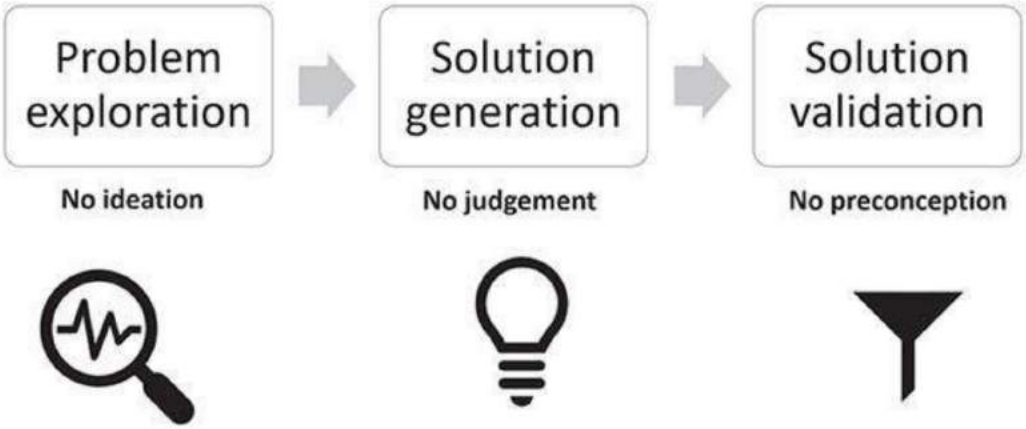

Figure 2.2: Three compartments of thinking systematically

- **Problem Exploration**

To understand a problem like never before you need to develop the curiosity and the eye of a child, and the ability to postpone your judgement, coupled with the courage to ask some apparently dumb questions and to not be satisfied with the most obvious explanations. A useful reminder is that a problem fully understood is half-solved.

- **Solution Generation**

Generating solutions is about discovering ways of bridging the current state to the future, improved state. There are many different ways to problem solve. Techniques are most successful when the process is inclusive, inquisitive and creative.

- **Solution Validation**

Solution validation is the activities of explaining the solution's appropriateness to stakeholders and sponsor. This often involves explaining technical concepts to lay-people. Often a business analyst will be required to get a document approved by one or many people.

From symptoms to problems to the root causes

A symptom is a sign or indication of a root cause, but it is not, by itself, a cause. Most often, symptoms lack specificity and are difficult to categorize. It is very difficult to develop solutions to directly address a symptom.

How to conduct Root Cause Analysis?

There are various tools available for conducting Root Cause Analysis process; we will talk about it in detail later in this article. Root Cause Analysis steps are

1. Define the problem
    - Ensure you identify the problem and align with a customer need.
    - If not existing, anticipate the problem from a customer perspective.
    - What are the specific issues you observe?
    - What happens if you do not tackle the problem now – what is the business impact
2. Collect data relating to the problem
    - Is there data to support the specific problem.
    - Speak to customers or employees, if possible, seek their voice.
    - Is it a recurring problem, how frequent in the past?
3. What is the measurable impact of the problem on Key Customer Outcomes?
    - Identify what is causing the problem.
    - Identify the underlying cause.
    - What is the factor or combination thereof leading to this?
    - Identify as many causes as possible, do not think of solutions at this stage.
    - Involve your teams and relevant stakeholders.
    - Use 5Y or Fishbone analysis, more about it later
4. Prioritise the causes
    - Do not tackle all at once, prioritise.
    - PICK matrix is a good tool to achieve this
    - Bear in mind the impact and effort when you prioritise
    - Technology might be a key differentiator at this stage
5. Identify solutions to the underlying problem and implement the change
    - Focus is on eliminating the problem so it does not recur.
    - Who will implement the change and by when?
    - Who is responsible to monitor and control the new process?
    - What is the method and frequency of reporting performance
6. Monitor and sustain
    - Defining a solution is not enough, execution is the key.
    - Embed the new process within the existing business processes.
    - Ensure the impact of the improvements are monitored and sustained.

The process above defines at a simplistic level how Root Cause problem solving blends into the operational excellence culture. The application may differ depending on the criticality of the problem.

It is about 'what less' and not 'what else'

Compare that with the Amazon Fire TV Stick remote, which does even more with just about the bare essential buttons. That is the approach of 'what less' instead of 'what else'. The 'one-click checkout', pioneered by Amazon, and now a commonly available feature in online transactions, was conceived to reduce the customer's efforts to the minimum and let her focus on the shopping. The idea clicked for its simplicity. The company continues to ride the minimalism wave, avoiding the fatal trap of 'feature creep' or 'category creep'. So, learn to press the delete button often.

Visualize your thinking

The ability to visualize a problem and its solutions goes way beyond what words can capture and convey. Drawing mind maps, flow charts, box diagrams, stick figures, freehand sketches, journey maps, scenarios, storyboards and other means of expressions makes the discussion lively. The ability to think visually brings out the functional characteristics as well as the emotional content of a problem or an idea, and is an immensely powerful way of both learning and exercising empathy. To paraphrase the Oscar-winning filmmaker and graphic designer Saul Bass: Design is thinking made visual.

Leonardo da Vinci was an expert in practising visual thinking. He would endlessly draw sketches, often to exactness, of things around him, and keep bridging the boundaries between art and science. His ability to observe minute details could only be matched by his ability to capture those minute details in his sketches.

Fail often to succeed sooner

Failure is an integral part of innovation, and design thinking teaches us how to manage failure systematically and systemically. By containing failure, the odds and speed of success can be greatly increased. A useful failure is one which happens early and offers lessons for further course of action. A prototyping mentality pushes you towards a good amount of learning in the shortest possible time and on minimal budget.

Elon Musk, one of the foremost innovators of the present generation, fondly says, 'Failure is an option here. If things are not failing, you are not innovating enough. The same sentiment is echoed by another legend, Jeff Bezos, who notes, 'If you want to be inventive, you have to be willing to fail, and yet failure does not come easy to most.

Inspire

The inspiration phase is about framing the problem and its scope, gathering meaningful data from customers and their pains, and then synthesizing and interpreting the collected data for actionable steps in the 'Ideation phase'

Create a stretch

A design-thinking workshop is a befitting occasion to do some bold, audacious thinking. It would be such a tragedy if you get your best and brightest for an offsite and still discuss operational issues. You need to look at new products, new customers, new markets, new business models, brand-new solutions for long-standing problems and bring in a fresh perspective. You need to set stretch goals for your design-thinking expedition. There are five things you can do to set stretch goals:

1. Get Out of Your Head.
2. Focus on a Couple Areas at a Time.
3. Set Aside Time Each Year to Focus on Goal-Setting.
4. Use the S.M.A.R.T.
5. Break the Goal up into Small, Digestible Parts.

Example of story:

One of the role models of setting up and delivering on stretch goals is Flipkart, India's first and largest unicorn. Within a decade since its start, Flipkart went from a valuation of just about a million dollars to over $20 billion, and the company has done well in the face of intense competition from Amazon India and players like Reliance and Future Group. The following statement captures the magnitude of Flipkart co-founder Sachin Bansal's strategic stretch: 'We believe India can produce a $100 billion company in the next five years, and we want to be that.

- Just to cite an example, between 2011 and 2014 Flipkart grew in sales terms by a factor of 100 times, from a humble $10 million to over $1 billion. One of the enablers of this jump was the exclusive tie-up for the sale of Motorola and, later, Xioami phones in India.
- In February 2014, when Flipkart launched Moto G, over 10,000 units were sold within five minutes, and within twenty minutes of the sale opening, the site crashed! In July that year, the Xiaomi 'flash sale' was another crowd-puller, setting a trend of scarcity-driven brand creation in the Indian mobile market.
- To get Motorola and Xiaomi to agree to sell exclusively on Flipkart needed courage and persistence, but more vitally, a push towards the outrageous. Who would have thought that the

likes of Motorola and Xiaomi would settle for an exclusive deal with an upstart like Flipkart? But it happened, ushering in a new trend in the Indian e-commerce space.

Get the design brief right now

A design brief is the starting point of a productive design thinking workshop. Tim Brown, of IDEO, qualifies a good brief as, 'A set of mental constraints that gives the project team a framework from which to begin, benchmarks by which they can measure progress, and a set of objectives to be realized.'

Start with an overview of the business. When preparing your design brief, start things off by laying out key information about the business.

- Cover the scope.
- Define the audience.
- Understand the competition.
- Set specific goals.
- Take inventory of what you already have.
- Set the schedule.
- Determine the budget.

Example of story:

(IPL) was shifted to South Africa as India was hosting its general election. The story of how Lalit Modi, the former commissioner of IPL, pulled off the cricketing feast in South Africa is remarkably interesting. However, what suggests to is another sensation that was born that cricketing season: Vodafone's Zoo Zoos.

The brief from the Vodafone India team to their ad agency, Ogilvy, was: 'To come up with a new ad for every single day of the tournament'. The tournament would last for over forty days, with two matches being played per day, and the brief was that viewers must not be shown the same ad repeatedly—that there must be fresh content every day. But how do you create so many ads in such a short span of time and that too under a limited budget? The teams from Vodafone, Ogilvy and Nirvana Films, Bangalore, ruled out animation or even the traditional approach of shooting TV commercials. Instead, they came up with the radical idea of featuring in their ad's humans wearing white bodysuits, with various expressions pasted on their faces. The rest, as they say, is history. It has been more than a decade since the ads first aired, but Zoo Zoos are still among the most recognizable characters in Indian advertising.

Adopt the power of metaphors (To innovate better, adopt the power of metaphors)

Metaphor means, a thing regarded as representative or symbolic of something else

(or)

A metaphor is a figure of speech that describes an object or action in a way that isn't literally true, but helps explain an idea or make a comparison.

Example:

Back in India, one successful new product that came out of an intense market research and the adoption of the powerful metaphor 'cheetah', is the Mahindra XUV 500. Against the backdrop of Mahindra's hugely successful Scorpio, in 2006, the leaders at the company mooted an idea of 'making a world-class SUV for the value-conscious Indians'. Instead of looking at the customers of today, the team sought the desires of the customers of the future. On the importance of going 'future-back', Anand Mahindra, chairman of the $20 billion Mahindra Group, shared, 'The development of a car is, in a sense, managing the future. You have to get yourself in a time machine and figure out what young people want.

The team adopted the metaphor of cheetah, the world's fastest animal, to connote speed, agility, aggression and muscle. The car's signature monocoque design was inspired by the cheetah, and so were the elements of its bodylines, the muscular wheel arches, the jaw-like front grills and pawlike door handles. Further, to get them to feel the power of a cheetah at first hand, the design team was sent to Masai Mara, Kenya, where they encountered the beast in the wilderness and learnt how its bearing changes over the course of a day. This led them to envision a car that would transform from day to night: from being one you would take to your office during the day to becoming the beast you would take partying at night.

Widen the aperture

For genuine ideas to flow freely, it is important to broaden the aperture for yourself and your team. It would be naïve (innocence) to enter a design-thinking session with a limited worldview and expect a eureka (anxiety/excitement) moment to happen. Having set a stretch goal, you need to broaden the perspective to let in new insights, ideas, temperaments, disagreements and enable some creative abrasion.

Effective innovators follow several ways of broadening perspectives, both at a personal level as well as for their teams and projects. One remarkable Indian leader who has incessantly broadened his thinking and practice is Kishore Biyani, the founder of Future Group. In Biyani's view, 'We need

more anthropologists, ethnographers, social scientists and most importantly, more women to be part of every team within the organization.

Story of Example:

As an industry first, in 2011, Biyani appointed the mythologist Devdutt Pattanaik as Future Group's chief belief officer. Pattanaik, who till then had been pursuing mythology as a hobby, said about his new role, 'Nobody is willing to accept the fact that there is an alternative way of doing business than what is being taught in management schools in America and Europe. At the Future Group we are now asking employees to think of new options and not believe that there is one way of doing business. This meant looking at the "customised" needs of every individual, rather than settling for the "standardised".

How many organizations, globally, have identified such roles? How many leaders deliberately surround themselves with such a diverse set of skills? Very few, for this requires foresight and tolerance.

Bring on diversity

Diversity is defined as the condition of having many different elements. An example of diversity is a classroom full of children of different backgrounds.

There is a saying at IDEO: 'All of us are smarter than any of us.' Emerging straight from the imperative of divergent thinking is the necessity for embracing diversity, especially while solving complex, multifaceted problems. Unlike productivity, where variance is detested, creativity embraces variance. It is only through variation, both at the input and the process levels, that thorny problems can be solved elegantly. For this very reason IDEO regularly hires design researchers with social science backgrounds and advanced degrees in fields like cognitive psychology, anthropology and linguistics, to generate nuggets of insights from observations and customer interviews.

The learning personas

- The Anthropologist: Brings fresh insights from the field and helps reframe the problems.
- The experimenter: Helps validate insights and ideas through quick and dirty prototypes.
- The cross-pollinator: Draws associations between seemingly disconnected domains.

The organizing personas

- The Hurdler: Enables problem-solving in a reliable manner by mobilizing resources.
- The collaborator: Fosters internal and external collaborations effortlessly.
- The director: Maintains the overall big picture and the pace of the project.

The building personas

- The Experience Architect: Devises genuine and remarkable experiences for all.
- The set designer: Designs an energetic, creative and meaningful working environment.
- The storyteller: Narrates stories to build internal morale and external awareness.
- The caregiver: Offers personalized and empathetic care to all involved.

QUESTIONS TO BE REVISED

1. Elaborate the key tenets of design thinking. Explain with your example.
2. Define Human Centric and discuss with one example.
3. Illustrate that how the subject is focused on the object.
4. How the problems can be solved with the customers and explain with example.
5. Distinguish between the broad thinking and beyond thinking on the products.
6. Explain the striking balance of sweet spot of design thinking with example.
7. How the problem was explored then solution validated and explain it by step-by-step process.
8. Define root cause. How to conduct the root cause problem.
9. Explain about
   a) What less not What else.
   b) Visualize Thinking.
   c) To succeed soon before failure.
10. Define Inspire. Explain one example to create the stretch of a company.
11. Explain the process to get brief design on the product or company.
12. Define metaphors. Explain the power of metaphors was adopted on company with example.
13. Discuss the widen of aperture.
14. Discuss about the bring on diversity.
15. Define and explain the terms
    a) The Learning Personas
    b) The Organizing Personas
    c) The Building Personas.

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DESIGN THINGKING

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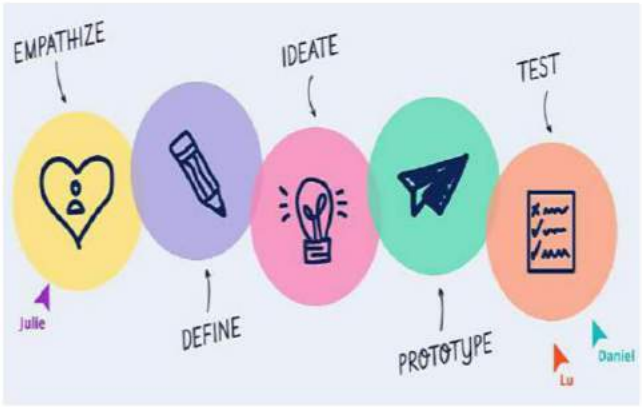

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Unit – III

Empathize and Define

Syllabus:

Empathize and Define: The traditional market research is broken, Create new channels to listen to customers, Be the customer you wish to serve, Leverage technology, Get to the customers, Do not limit empathy to customers, Engineering empathy, Mind mapping, Stake holder map, Customer journey map, Empathy map, Picking problem worth solving, Framing problem sharply, Innovating in absence of customer.

Generally, empathy is ability to understand and share the feeling of something. Empathy is at the core of design thinking and of a humancentric approach to problem-solving. For example, Microsoft's CEO, Satya Nadella, identifies himself as someone who is 'excited by ideas but grounded by empathy'. A deep sense of empathy can help you to appreciate

- Why people do,
- What they do and
- How they would act in the future.

You need to almost live the life of a customer, to get in her shoes and not on her shoes, to make an effort to understand the pain she feels and then think of possible solutions. One needs to go into the real world and observe real people performing their acts: to observe what they do, and not what they are supposed to do. Rarely would people be able to tell you what exactly they do, let alone why they do it oddly.

The traditional market research is broken

Traditional Marketing Research is a wide concept which is incorporates advertisement and marketing. It involves various tools and techniques to gather required data and information. It focuses more on taking an assessment of the overall market for a product or service.

Traditional marketing research focuses on identifying factors that influence the buying decisions of consumers. Data is collected through focus groups, surveys, one on one interviews, observational research, and intercept surveys. Through this, sports marketers are able to find out the consumers likes and dislikes.

More traditional research methods involve either face-to-face or verbal conversations in real-time such as: Qualitative focus groups or group discussions; enable topic discussion, exploration and idea generation, sharing, building and challenging.

Example of Sony's Walkman Story:

When it comes to the limitations of market research in genuinely innovative efforts, Sony's co-founder Akio Morita has an important insight to offer. As the creator of the Walkman, one of the world's first global consumer products, Morita contends, 'I do not believe that any amount of market research could have told us that the Sony Walkman would be successful, not to say a sensational hit that would spawn many imitators. And yet this small item has literally changed the music-listening habits of millions of people all around the world. The statement has an uncanny resemblance to the one made by Steve Jobs about market research.

Create new channels to listen to customers

Now that we understand that conventional means of gathering market intelligence, like excessive reliance on experts, are not good for gaining genuine insights, it is vital to devise new means to listen to your customers.

Your customers have high expectations of the companies they choose to utilize. And, as it turns out, only one instance of missed expectations can make customers change providers for what they perceive to be a better opportunity. In fact, according to a recent study, 82% of customers said they would switch products or service providers after a bad experience with the company's customer service department.

- Listening to Customers:

Listening to customers isn't just hearing about their problems. It's not picking up the phone or answering the ringing bell at your service desk. Listening to customers is about connecting with them. It involves paying close attention to their needs and understanding how you can help them achieve their goals.

Be the customer you wish to serve

Mahatma Gandhi used to say, 'Be the change you wish to see.' Acc to design thinking, a useful maxim is, 'Be the customer you wish to serve.' The world's very first wildly successful consumer product, the Sony Walkman, epitomizes this maxim. In the words of Sony's co-founder Akio Morita, 'Our plan is to lead the public with new products rather than ask them what kind of products they want.

Example:

- When Steve Jobs famously quipped, 'Our job is to figure out what they're going to want before they do. People do not know what they want until you show it to them,' many perceived him as arrogant. The general sentiment was, only Jobs can get away with dismissing customers.

But if you study Jobs's life and work, you will realize that he was arguably the most discerning consumer of his own products. Ken Kocienda, who worked with Jobs on the iPhone and iPad projects, offers some perspective on how Jobs was the perfect customer for his innovations: 'Even though he was a high-tech CEO, Steve could put himself in the shoes of customers, people who cared nothing for the ins and outs of the software industry.

- Before becoming the CEO of PayPal, Daniel Schulman worked with Virgin Mobile. As the CEO of Virgin Mobile, he once spent twenty-four hours on the streets of New York City, without any money or mobile phone or even a place to stay.

This was a time when Virgin was supporting a charity for homeless youth and the company decided that the best way to empathize with the homeless was to live like them, at least for a day. Of his experience, Schulman recollects, 'We panhandled, and I was not particularly good at it took me six hours to solicit enough money to buy a little food. Most people looked right past me, as if I were invisible. We spent a lot of time trying to find a safe place to sleep we kept getting kicked out of places, and eventually we ended up in a skateboard park.'

Leverage technology (Leverage technology to glean actionable insights)

Leveraging technology in business is all about using technology for the growth of the business. Technology has become an essential factor for modern-day businesses. From the customer's point of view, technology helps in enhancing the customer experience, which eventually helps the business.

Example:

Talking of the customer analytics competencies Netflix had in 1998, Marc Randolph, Netflix's co-founder and first CEO, notes, 'Every customer. Every order. Every shipment of a DVD. Our data warehouse knows where every customer lives, how and when they joined, how many times they've rented from us, and how long, on average, they kept their discs. It knows exactly what time someone visited the site, where they came from, and what they did once they got there. It knows which movies they looked at and which ones they chose to put in their cart. It knows whether they completed checkout and if they didn't, it knows where they gave up. It knows who was visiting us for the first time and who is a repeat customer.

Get to the customer's 'Jobs to be done'

A way to describe the Jobs to Be Done when a person is brushing their teeth that could lead to more innovative product design is: "Keep my teeth healthy." This is a better example of a Job to Be Done statement because it's detached from a solution and moves toward the person's true motivation.

The researchers suggest, 'A deep understanding of a job allows you to innovate without guessing what trade-offs your customers are willing to make. It is a kind of job spec.' Take, for instance, the two-wheeler market in India. There are three strategy groups:

- One, the 100–150 cc bikes, dominated by the likes of Hero Splendor,
- Two, the unisex scooters, such as Honda Activa,
- Three, the 350-plus cc category, led by Royal Enfield.

The value propositions for the three categories are mileage, convenience and machismo, respectively. Which of them is more successful? Difficult to say, for each has identified a unique 'job to be done' for its customer segment. Both on functional and emotional dimensions, the jobs are reasonably well-defined, and the companies have largely been disciplined about addressing those jobs.

Example:

- "Get my floor as clean as possible when I vacuum." vs. "Maintain a clean-living space."
- "Edit my photos and provide a variety of professional filters I can easily use." vs. "Share beautiful pictures."
- "Help me maximize my deductions and get as much back from my taxes as possible." vs. "File my taxes with confidence."
- "Let me add tags, labels, and folders to my email program so that I can sort things according to my system." vs. "Find emails and files quickly."

Do not limit empathy to customers

Empathy: The ability to understand and share the feelings of another.

In short, empathy builds a relationship between the customer and the employee that can enhance customer service, increase customer satisfaction, and build loyalty. Thus, empathy is important for creating a good customer experience. Especially after they have gone through something negative.

One of the common misunderstandings about design thinking is that it is all about customer-centricity. Though the customer is a very vital element in business, a narrow focus on the customer may take the attention away from other people involved in the overall experience management, especially the customer-facing employees. Design thinking urges you to adopt a human-centric view and not just focus on the customer or the end user.

Example 1:

As Howard Schultz, the long-time CEO of Starbucks, states, 'Starbucks has three primary constituencies: partners, customers, and shareholders, in that order, which is not to say that investors are third in order of importance. But to achieve long-term value for shareholders, a company must, in my view, first create value for its employees as well its customers.' Starbucks is one of the very few companies globally that offer full healthcare benefits and equity in the form of stock options to every employee, including part-time workers who work for at least twenty hours a week. A proof of the company's employee-centricity.

Example 2:

The most enduring way to achieve customer-centricity is through employee- and partner-centricity. When you take care of your employees, they take care of your customers, and for generations to come. To appreciate this relationship, you ought to go no further than the 26/11 terrorist attack at the Taj Mahal Palace hotel in Mumbai, where fifteen Taj employees died while helping as many as 1,500 guests to safety.

Engineering empathy

Empathy can be applied to lots of different aspects of engineering, from code reviews to meeting practices, and in choosing features to build in your product. Engineers may not normally associate empathy as key to our career success, but given proper time to reflect, it's evident that it's involved in many daily practices: providing feedback to others in code reviews, engaging with team members in meetings, and deliberating with Product on what features to build.

We can apply empathy to any situation where we're interacting with someone else or deciding what features to prioritize. Below, I focus on how we can specifically apply more empathy to code reviews, but it is easy to recognize how a lot of the concepts can be applied to many other aspects of engineering as well.

Problem exploration using (mind mapping, stake holder mapping, customer journey map, empathy map**)**

Mind mapping

Mind mapping is an immensely powerful tool to quickly get to a holistic and collaborative understanding of the problem space. It not only helps capture the problem but also directs you to explore the non-obvious, leading you to new insights about the issue at hand.

Mind mapping is best done in a group and right at the outset of your problem-solving expedition.

Figure 3.1: Problem exploring through Mind Mapping.

Stake holder map

Since innovation or creative problem-solving involves various stakeholders, it is important to identify the key constituencies and map their motivations and concerns. The exercise not only helps in understanding the problem from different stakeholder perspectives but also assists in implementing the solutions.

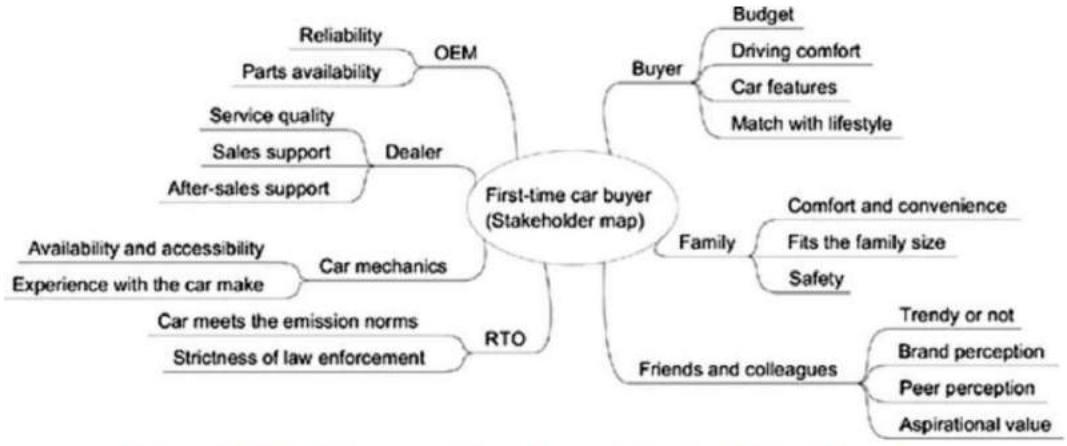

Figure 3.2: Problem exploring through Stake Holder Mapping.

Customer journey map

In the customer-journey map depicted, each major milestone in the purchase journey is identified, along with key customer concerns. To sellers, this map offers insights into the purchasing process and possible avenues to ease customer anxiety.

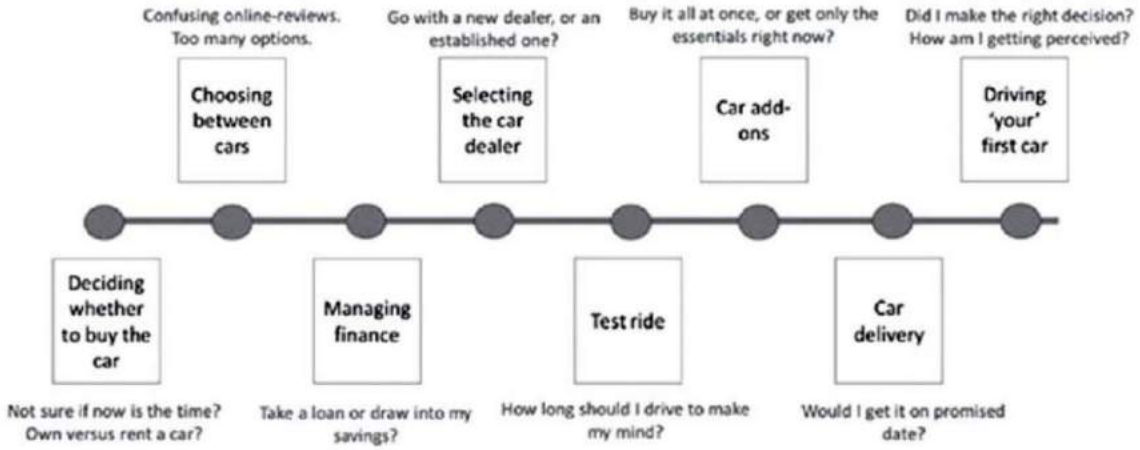

Figure 3.3: Problem exploring through Customer Journey Mapping.

Empathy map

One way of making sense of the whole customer is through the empathy map. This visual tool helps capture what the customer says, does, feels and thinks about an issue or an existing solution. Figure: presents an empathy map in the context of the first-time car buyer.

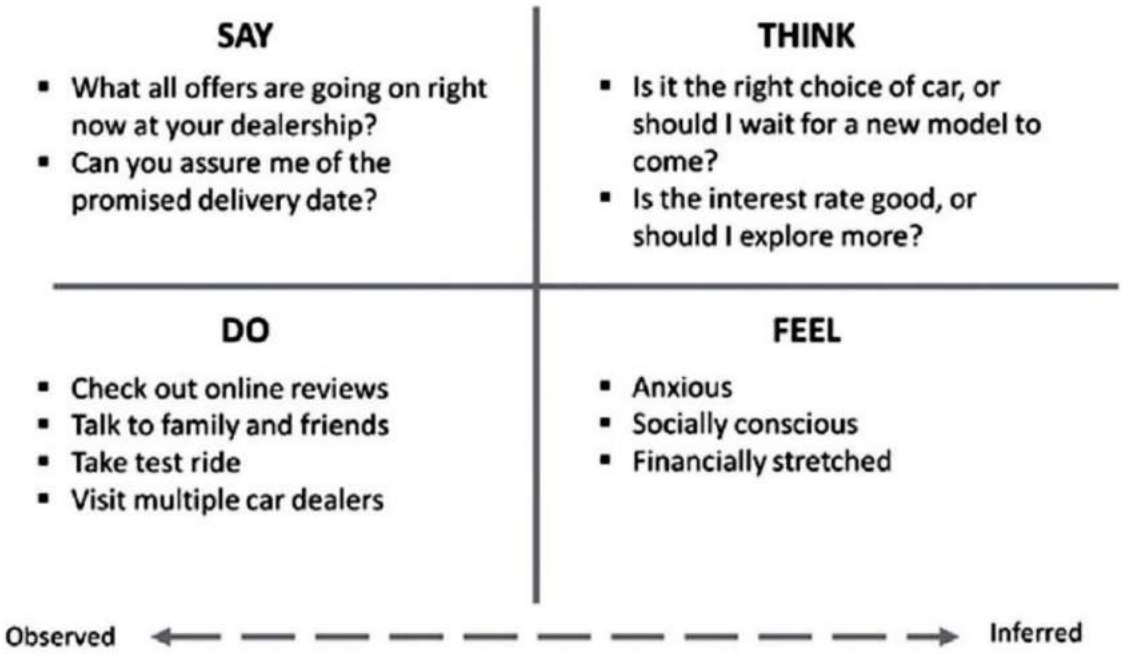

Figure 3.4: Problem exploring through Empathy Mapping.

Picking problem worth solving

Design thinking is about focusing on a very few problems which, if solved, would have maximum impact. These problems would stem from a deep dive into the customer's mindset and milieu, and would, along the journey, get validated by the customer. No marks for solving a problem which is not important, however genius your solutions may be. This is where you move from deliberate divergence to intense convergence.

The three rules useful in prioritizing problems are as follows:

1) not every problem is worth solving;

2) not every problem is solvable; and

3) a problem fully understood is half-solved.

Going after a problem where you can make the greatest impact is as useful in design thinking as in life. Let us understand each maxim in detail.

Framing problem sharply

Framing a problem is an art, and it can be learnt and improved with practice. Consider the following two problem statements:

A. 'How might we lower the employee attrition rate by 5 per cent?';
B. 'How might we lower the employee attrition rate by 5 per cent, without increasing the cost of operations by more than 2 per cent?'

Which of the two problem statements would yield better ideas? Probably, statement B. Why? The second framing has a constraint in it, which makes the problem more real, and, hence, would result in high-yield ideas, as compared to the first framing.

A good selection and framing criteria must be both brief and explicit, so that you do not suffer from either type-1 (failed idea) or type-2 (missed idea) errors. There are three criteria for a robust problem framing: 1) impact, 2) equifinality and 3) constraint

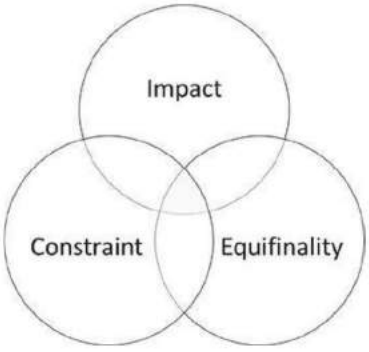

Figure 3.5: Problems Frame Sharply.

Innovating in absence of customer

Without customers, you would not be in business. Innovators are able to see market changes coming from a distance so they can provide solutions for customers' problems before they even know they need them. You cannot meet the needs of customers long-term unless you recognize the importance of innovation and act on it.

So far, we have discussed the importance of attending to market trends and customer behaviors. But what if there is no apparent customer need? Do you still risk an innovation? In the absence of paying customers and markets, there is hardly any reliable data. But that should not preclude you from having insights about the possibilities. You can still ask some intelligent questions pertaining to what can and cannot happen.

Questions to be Revised

1. How the traditional market research is broken and explain it.
2. Describe about Create a new channel to listen to customers.
3. Discuss that "Be the customer, you wish to serve" with clear example.
4. Define Leverage Technology. How it supports to the entrepreneur to get to the customers.
5. Is empathy is related to customers only! If not, justify your views.
6. Define engineering empathy and explain it.
7. How the problem may explore through the mapping stages.
8. Justify the problem is worth for solving with example.
9. Write about "Framing the problem sharply".
10. How do you approach the problem in the absence of customers?

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DESIGN THINGKING

II YEAR I SEM
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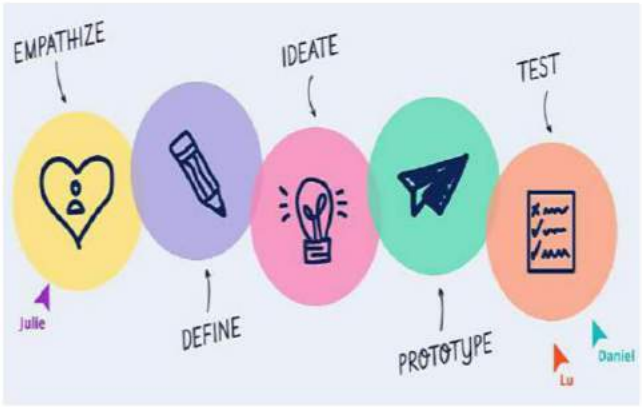

by

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Unit – IV

Ideate, Prototype and Test

Syllabus:

Ideate: Ideas are like Lego blocks, Hybrid brain storming, Intersection of disciplines, Imitate with grace, Braking the pattern, Challenging assumptions, Value chain, Looking beyond current users, Designing for extreme, Analogous design, Triggering ideation.

Prototype and Test: The high cost of just doing it, seeking clarity, Be quick and dirty, Manageable hypotheses, Doing last experiment first, Visualize through storyboarding and scenarios, Engaging through stories, Is dogfooding enough?, Solicit feedback, Inventory prototypes.

Let us now understand the means of generating high quality ideas to address the most critical problems.

Ideating: Creating many ideas in ideation sessions.

Prototyping: Adopting a hands-on approach in prototyping.

Testing: Developing a testable prototype/solution to the problem.

Example of Ideology of a company:

Another idea that led to a boost in the sale of Tanishq jewellery was the 'Impure to Pure' scheme. Launched in 2002, the scheme encouraged customers to exchange their 19-plus-carat jewellery with a 22-carat Tanishq piece after paying only the manufacturing charges. The company was happy to bear the cost of gold. This led to a huge jump in brand popularity, and several stores clocked over Rs 1 crore of sales in a day, owing to the scheme.

More recently, the idea that has picked up pace with company's new and existing customers is the Gold Exchange scheme. Under this scheme, a customer comes to exchange gold, Tanishq melts the gold and arrives at a value and deducts 2 per cent as commission. The customer either gets the cash or gets to buy a new piece of jewellery for the money.

Ideas are like Lego blocks

One of the biggest misconceptions about creativity is that, it takes a brilliant idea to solve a complex problem. Generally, Lego blocks or Lego bricks and other construction toys may enhance STEM skills (Problem Solving, Analytical Thinking, and the Ability to Work Independently), especially when kids follow models or blueprints. It presents the kids with exciting opportunities to tinker and create, and this play is beneficial for development. In a way, ideas are like Lego blocks the more components you have, the greater the potential outcomes you could develop.

Fig 4.1: Lego Blocks for Ideology

Example:

In 2008, as Flipkart started selling books and CDs, its founders realized that, owing to scant credit-card penetration in India, their sales were relatively flat. Even as of 2010, just about 10 million Indians had a credit card, and fewer still would use one. To overcome this limitation, Flipkart launched its cash-on-delivery (COD) feature in April 2010 and saw an instant jump in orders, especially from tier-2 and tier-3 parts of India. Though companies like India plaza and Rediff had cash-on-delivery options before Flipkart, the scale and popularity of Flipkart's offer turned the tide in its favour. But with the COD feature came other problems, such as a spike in the number of order returns, leakage in cash collection and dipping customer satisfaction.

As a response, in late 2010, Flipkart created its own logistics arm, Ekart. The unit offered much-needed predictability and robustness to the company's inventory-based delivery model. Within months, there was a steep hike in customer satisfaction levels, and this helped Flipkart expand into selling music, movies, games, electronics, mobiles, large appliances, personal-care products and stationery.

Hybrid brain storming

- Def 1: Brainstorming is a group creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its members.
- Def 2: Hybrid brainstorming is a combo of team and individual members, it increases both the quantity and the quality of the ideas.

One of the most widely adopted techniques of ideation is brainstorming. It is a structured way of breaking away from the structure. Alex Osborn, an American marketing executive, introduced the concept of brainstorming in the 1930s. Since then, almost all organizations worldwide have come up with their own approaches to idea generation using brainstorming and have experienced different

levels of success. On the power of brainstorming in setting an innovation culture, IDEO's Tom Kelly notes, 'Regular brainstorming is as critical to an organization as regular exercise is to your health.' The rules of brainstorming make the exercise productive, or else it is chaos. Some of the effective brainstorming rules adopted by IDEO are listed below.

1. Sharpen the focus: Start with a problem statement that is broad enough but not fuzzy.
2. Mind the playground rules: Build on the ideas of others; stay focused on the topic; defer judgement; encourage wild ideas; have one conversation at a time; be visual; and go for quantity (and not quality).
3. Number your ideas: It helps keep pace and motivates the team to reach certain milestones.
4. Jump and build: When ideation reaches a plateau, take a small deviation, or go back to a previous idea to infuse new thoughts.
5. Remember to use the space: Share your ideas in a visual medium that everyone can see and contribute towards.
6. Stretch your mental muscles: Do a little warm-up or give participants some pre-work before they turn up for the session.
7. Get physical: Frequently convert ideas into prototypes, preferably in three dimensions.

Intersection of disciplines

Ideas are born when disparate knowledge domains collide, and the more mutually remote such disciplines, the better the quality of resulting ideas, at least in terms of novelty. Creative individuals and innovative organizations almost always engineer interdisciplinary intersections at their office spaces and work environments, in their task-allocation and problem-solving routines, hiring exercises and workflow designs. They deliberately expose themselves to the uncertain, the unpredictable, so that they always return to base with a remarkably different level of knowledge.

For Example:

An organization that literally lives at the intersection of disciplines is Marvel Studios, creator of films like Avengers, Iron Man, Captain America and Thor among other hits. The franchise, now owned by Disney, has raked in over $17 billion from its last twenty-two movies—the highest for any franchise ever. What is the recipe? According to Kevin Feige, Marvel Studio's president, the key is 'expanding the definition of what a Marvel Studios movie could be. We try to keep audiences coming back in greater numbers by doing the unexpected and not simply following a pattern or a mold or a formula.'

- Firstly, for its movies, Marvel Studios looks for directors and actors from different and unrelated genres, such as horror, espionage, comedy, etc., and not necessarily for those with experience in superhero films. It allows incoming directors and actors freedom to experiment with a bigger budget and on a grander, tech-intensive canvas.
- Secondly, MCU balances the novelty of ideas, styles and voices with a constant core that moves from movie to movie and offers predictability; this stable core acts as gravitational pull for new talent.
- Thirdly, the franchise keeps experimenting with its success formula in terms of dramatic, visual and narrative elements. Their movies can range from ones that appeal just to the youth to ones that are very realistic and offer an intense social commentary.

Finally, MCU has a knack for cultivating customer curiosity through its plots, sub-plots and characters. For example, their famous post credit scenes offer a preview of what is coming next.

Imitate with grace (Applying the other's IDEA in our Products)

One of the most overlooked facts about innovation is that all innovations start with imitation. There are no original ideas; there are only original configurations of existing ideas. When you create something, you are not an author as much as an editor.

The American organizational theorist Karl Weick defines originality: 'Putting old things in new combination and new things in old combination.'

Human beings have always been creative, but only recently have we started giving creativity an elevated status. Imitative strategy is the strategy adopted by companies to imitate or copy an existing model of a company and implement its services, business ideas, revenue model etc. Imitative strategy helps a company save money on research and development, new product development etc, and just introduce a similar product with a different brand name, marketing strategy etc. Imitation is following someone or implementing model of someone else.

If company is following innovation strategy a lot of money is spent on research and development for producing a new product altogether. Innovation strategy has also lot of risk involved in it as product developed may become a failure in market since its inception leading to huge loses to company following it.

Breaking the pattern, systematically

Creativity, especially in a corporate setting, does not come effortlessly. The link between intelligence and creativity is little understood. It is often assumed that the more intelligent one is, the higher one's creativity; and then there are others who believe that the two are inversely related. Neither of these

views is entirely true, as intelligence and creativity are linked through a host of other factors, a critical one being latent inhibition.

Prominent psychologists Jacob Getzels and Philip Jackson showed that most creative students tend to have lower IQs than the least creative ones. Teachers often do not like their students demonstrating creative talent, as these are the students who rock the boat and ask difficult questions in class. Hence, teachers tend to give preferential treatment to the less creative students who perform as expected. Sounds familiar?

Challenging assumptions

Challenging assumptions is a critical thinking activity that also contributes to creative thinking by opening up more creative directions in problem solving. Assumptions are the hidden and often unconscious ideas, beliefs, and convictions about how things are or should be working. The quickest way to break the pattern is to question the practices that have been taken for granted. Every industry has a set of unwritten, unsaid rules that shape the thinking of its insiders and even of outsiders. Real breakthroughs start with someone contesting some very core assumptions.

Value chain (Look across the value chain)

Value Chain Analysis is a useful way of thinking through the ways in which you deliver value to your customers, and reviewing all of the things you can do to maximize that value. A value chain is a business model that describes the full range of activities needed to create a product or service.

For companies that produce goods, a value chain comprises the steps that involve bringing a product from conception to distribution, and everything in between such as procuring raw materials, manufacturing functions, and marketing activities.

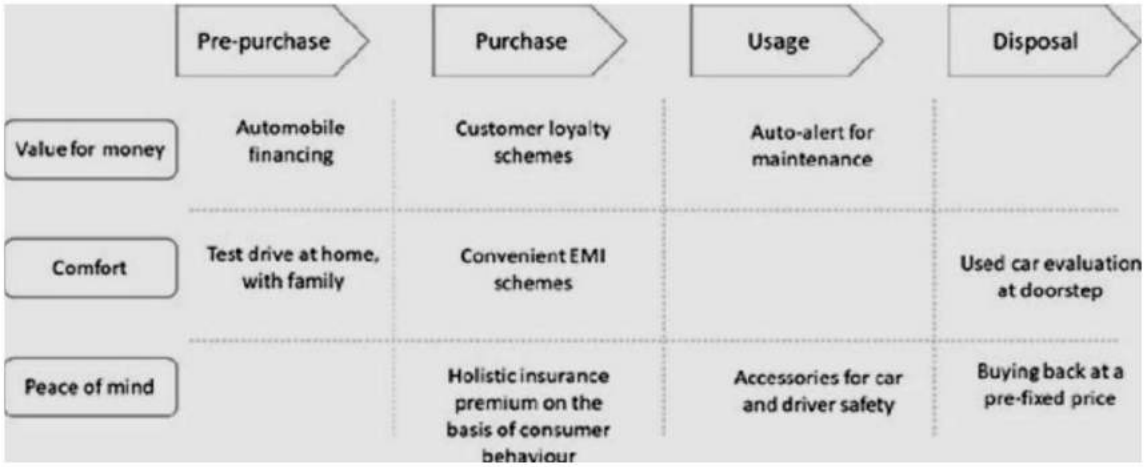

Fig:4.2 Value Chain

A company conducts a value-chain analysis by evaluating the detailed procedures involved in each step of its business. The purpose of a value-chain analysis is to increase production efficiency so that a company can deliver maximum value for the least possible cost.

Here, you look at the entire buyer journey and identify possible value additions at its specific stages. We already have a journey map from our empathizing exercise and now it is time to identify the objectives you would like to achieve for your customers. Some of the maximizers could be value for money, comfort and peace of mind. By applying a specific objective to a stage, you can think of novel means of adding value to your products or services, or alleviating customer pains.

Looking beyond current users

Another useful technique that comes from Blue Ocean Strategy is the 'Three Tiers of Non-customers' framework, which would help you pay attention to the relatively large pool of your non-users. The technique of looking beyond your current users pushes you to think of the issues with the dissatisfied users (they are unhappy and would soon leave you), the refusing users (they just do not want to do business with you), and the unexplored users (those whom you never saw as your potential users).

Fig:4.3 Looking beyond current users

The technique of looking beyond your current users pushes you to think of the issues with the dissatisfied users (they are unhappy and would soon leave you), the refusing users (they just do not want to do business with you), and the unexplored users (those whom you never saw as your potential users). You then ask who they are, why they are not your users and how to entice them.

In this approach, users can be replaced with employees or partners, and the same analysis could be adopted to address issues around employee morale or vendor loyalty.

Designing for extreme (Design of product for Extra Condition)

Another approach of breaking out of a fixed mindset is to take your thinking to an extreme and then devise possible responses to the challenges you would face. Building on the philosophy of lead-user research, the method of designing for the extreme helps you in considering ideas on the margins, which never get much attention in the usual circumstances.

For instance, the introduction of subtitles in movies, a solution initially aimed at viewers with hearing disabilities, has led to an overall increase in viewership of films in foreign languages. Similarly, tactile feedback on mobile phones, which was originally meant for visually impaired users, has become immensely useful for all.

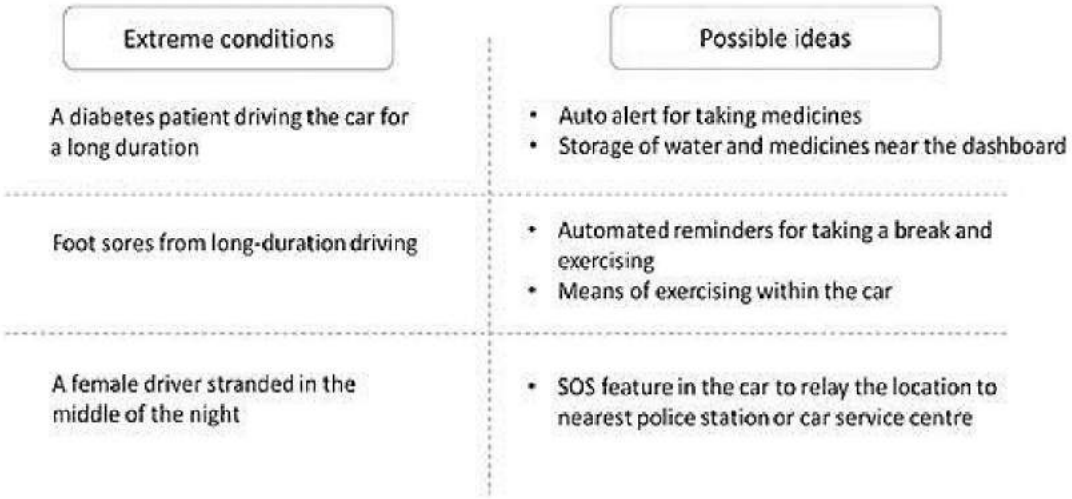

Fig:4.4 Design for Extreme

Thinking of extreme conditions for a user, product or problem could help you in arriving at unique ideas while also increasing your competitive differentiator.

Analogous Design

A lot more ideas emerge when you explore the intersections of disciplines. Some of the problems that you deem insurmountable in your context might be solved routinely in another context, in another industry. It is easy to get overwhelmed by one's situation, but if you only take a pause, look around yourself, the answer might well be within your reach. For example, look at how air traffic controllers talk to pilots, or how military personnel on the field communicate with each other with minimal words and minimal chances of error. Or, how training on emotional intelligence could help improve communication under stressful situations.

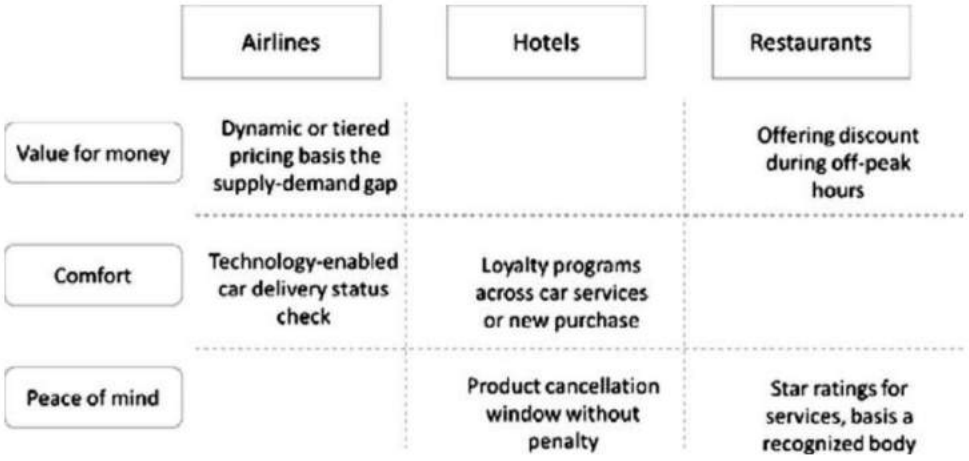

Fig:4.5 Analogous Design

Analogous design pushes you to look truly beyond your domain to seek fresh inspiration for solving your apparently tricky problems. Returning to the case of the automobile dealer, think of what all you can learn from the best hotels, airline companies, star-rated restaurants or even hospitals and apply that to serving the

Triggering ideation

Finally, let us invoke the time-tested lateral-thinking triggers to address the problem. Lateral thinking, if used in a disciplined manner, can help break patterns in surprising ways. Edward de Bono, in his book Lateral Thinking, offers a host of methods for creative problem-solving. Inside the Box, a book by Drew Boyd and Jacob Goldenberg, is another useful guide for problem-solving in newer, simpler ways. Building on these two books, here is a simple method comprising four ideation triggers: Eliminate, Divide, Combine and Automate.

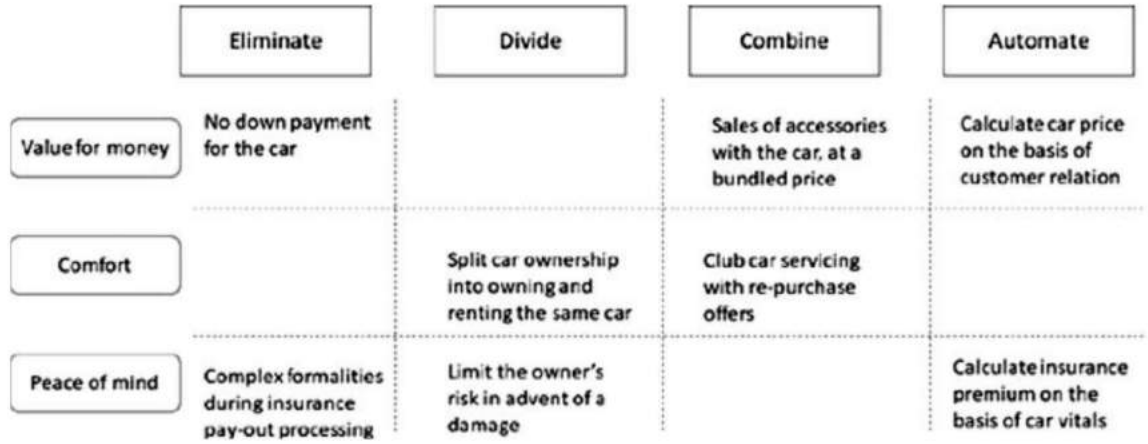

Fig:4.6 Concepts on Triggering ideation

Prototype and Test

Design thinking is a series of divergent and convergent stages. You apply divergent thinking while empathizing and convergent thinking while defining the problem; and once again divergent thinking when ideating and convergent thinking to pick the most promising ideas.

There is a saying at IDEO: 'If a picture is worth a thousand words, a prototype is worth a thousand meetings.' If the openness to experimentation is the lifeblood of any creative organization, then prototyping, which is the willingness to go ahead and try something by building it, is the best evidence of experimentation.

The high cost of just doing it

A bad advice often given to entrepreneurs and business people is, 'Just do it.' Many companies have fallen by the wayside 'just doing it' than is commonly acknowledged, and that is where a prototyping mentality plays a critical role.

Example:

The very Flipkart that had won the hearts of online shoppers in India, with several firsts like cash on delivery, Ekart, and thirty-day replacement policy, ended up hurting itself at the launch of its first Big Billion Day sale. Without any prototype or pilot in place, the company went about the sale, offering deep discounts on most products. Launched on 6 October 2014, India's biggest online sale clocked a gross merchandizing value of $100 million within just ten hours, but what happened next was a disaster.

The online traffic that the Flipkart site drew in an hour dwarfed the number of hits recorded on the Indian Railways website over several days. As a result, less than 10 percent of the customers who came to the Flipkart site could make a purchase. A massive surge in demand rendered the website Dysfunctional customers were unable to place orders, payments could not go through and several other technical and human glitches ground the shopping portal to a halt. The excitement around clocking record sales soon turned into a doomsday scenario, with the co-founders eventually issuing a public apology. Hundreds of customers took to social media to vent their anger, and a nascent brand was at risk of suddenly becoming irrelevant, crushed under the weight of its own ambitions.

Seeking clarity (Prototype of a model to get clarity on product from customers)

A prototype is a facade and not the real product, and it should be treated so. It should help you get closer to something that would really click with customers and be different from what was offered to them before, or even be better than what others have produced. These are like minimum viable products or minimum viable processes that help the team move forward. You could have a prototype

that looks like the desired outcome, and another one that works like it. A sense of directional clarity and speed of correction are more important than accuracy.

Demos are at the heart of product development and innovation to the product. Prototypes are not just meant for products and services but also for new process models and business models. Here is an example of a prototype for a new process.

Example:

Tanishq is one of India's largest jewellery manufacturers and as a part of their jewellery - making process they melt large amounts of gold in containers. After a few months of use, a typical container would be rendered ineffective. However, the company had a problem of recovering gold from the used silicon carbide containers lying in its Hosur factory. The management had no means of extracting gold from these containers. Globally, there were no techniques available for scrapping precious trapped gold from such crucibles, and, as a result, the gold had to be written off. But not for Rajsekhar, one of the operators at the factory.

Being close to the problem and away from stares of the senior leadership, Rajsekhar came up with a radical idea of a prototype: 'Why not crush these crucibles?' Instead of proposing steep investments in crushing facilities, which may or may not work, Rajsekhar decided to have a go at crushing the crucibles himself. He brought his friend's road roller to the factory and, to everyone's surprise, demonstrated that crushing actually helps recover gold. Through this rusty prototype, four-and-a-half kilos of gold were recovered, worth lakhs of rupees. Cost of prototyping? Almost zero. Lesson learnt? Significant. The story also demonstrates one of the maxims of innovation: better to ask for forgiveness than seek permission.

Be quick and dirty (don't create the product quickly, it failure)

A popular maxim at innovative organizations is, fail often to succeed sooner. The trick is to answer most of the difficult questions as early and as cheaply as possible, so that there are fewer surprises later. The faster your ideas are made tangible, the sooner you can evaluate and refine them and reach the best solution.

Example:

Talking of experimentation, one person who has lived by the virtues of being quick and dirty is Sir Richard Branson. The founder of Virgin Group has started over 300 different companies. Not all have been successful, but a lot of them have managed to disrupt industries, and, interestingly, none of his 300-plus companies has ever gone bankrupt. The billionaire entrepreneur knows how to keep his experiments well in check, draw insights from failures and move on to the next experiment. As

Branson likes to put it, 'I never get into a venture with an idea of making a profit. If you can create the best in its field, you will eventually be able to pay your bills and make a profit.'

Manageable hypotheses (Break prototypes into manageable hypotheses)

What do you do when you have a large idea to be put to test? You break it down into smaller, manageable hypotheses, where each could be tested independently. This would also help you prioritize which one to test first and decide when to stop validating your ideas before rejecting those entirely or going back to the drawing board.

To paraphrase Thomas Edison, one of the greatest design thinkers of all time: the real measure of success is the number of experiments that can be crowded into twenty-four hours. Edison packed his day, and that of his small team, with experiments essentially ways of proving or disproving his hypotheses and pushed them towards achieving 'a minor invention every ten days and a big thing every six months or so'. Instead of getting intimidated by the size of the problem, you must break it down into manageable experiments, where each failed or successful test takes you closer to the result, while offering you greater clarity.

Doing last experiment first

What to prototype and what all to prototype? While anything can be prototyped, not everything needs to be. As David Kelley says, you only need to prototype the most unbelievable part of the solution, the leap of faith, and not the entire solution. There are some components that are routine and believable, and then you have the real risky ones that could make or break the deal in the context of your project. You just need to work on the latter.

To ensure that you are not overdoing the prototype, spending too much time and resources on it, and checking the obvious, it is advisable to perform the last experiment first. If the most critical final frontier does not work, there is no point in reaching there and later wondering why. It could lead to escalation of commitment. A clarity on the end-state and the ability to test it out could well mean the difference between a false start and an early finish.

Visualize through storyboarding and scenarios

Prototyping of physical objects is relatively straightforward because there is a lot more tangibility to an idea that can be touched, seen and improved. How do you prototype a service or an experience? Services have far fewer tangible components, and there is a lot more involvement of the dimension of time, so you must think in terms of sequence of activities, emotional engagements and 'moments of truth'.

Incidentally, the movie-making industry regularly prototypes emotions and experiences through techniques like storyboarding and scenarios. Storyboards use visual means to map out the entire script of what a movie would look like, so that the director and the team don't miss out on vital elements. Before hard commitments are made, such storyboards can offer flexibility on how the exact experience would be rendered. In a creativity workshop, storyboards could be comic-book-like frames showing actions and dialogues, and with stick figures and sticky notes you can really play around with multiple flows without much of a cost. An effective storyboard is both functionally relevant and emotionally resonant with the solver and the seeker.

Engaging through stories (the messages of metaphors, stories, myths, the arts.)

A design thinker must be a master storyteller. She must be able to craft and narrate stories which are compelling, consistent, emotional and believable for people to open their deepest feelings and take a leap of faith in a new direction. A well-accomplished storyteller himself, Tom Kelley, maintains that stories persuade in a way that facts, reports and market trends seldom do, because stories make an emotional connect, they make heroes out of real people.

Chip Heath, from Stanford University, and his brother Dan Heath, from Duke University, offer a succinct checklist of what makes a message stick. In their book Made to Stick, the Heath brothers offer the 'SUCCESs principle' of effective storytelling.

- The first element is Simplicity, with which you talk about the core of your idea.
- The second is Unexpectedness, by which you violate people's expectations.
- The third attribute is Concreteness, which involves providing your audience with sensory information.
- The fourth is Credibility, so that people find it difficult to refute your idea.
- The fifth is Emotions, whereby you get your audience to feel for you and your idea.

Finally, Stories is how you engage them. That is the SUCCESs principle of narrating a 'Simple, Unexpected, Concrete, Credentialed, Emotional Story'.

Is dogfooding enough?

Dogfooding is when you use the product you are working on to see how it works, to test it. It doesn't imply that you are forbidden to use the products of a different company or a different department. Examples of dogfooding? There are plenty of them:

- The Microsoft staff using Microsoft products;
- Apple employees carrying their MacBooks around;
- Zoom staff using Zoom for meetings;
- Oracle developers use Oracle Linux to develop Oracle (it sounds weird, doesn't it?);
- Gmail was dogfood.
- Facebook React feature is also a result of dogfooding;

Whenever a company turns their employees into their clients - it is dogfooding.

Need of Dogfooding:

Dogfooding is needed, at least in software development. During product development, dogfooding performs the function of testing (to some extent) and helps to detect errors, inconsistencies, and bugs before the product is released. After the release, dogfooding serves to show the company's confidence in the product they have created.

Solicit feedback (Solicit feedback, non-judgmentally)

One of the key principles of design thinking is to seek timely and honest feedback from the people who matter. A delayed or skewed feedback does not help the progress of your problem-solving or innovation sprint and, resultantly, the mistakes become far too costly to correct. Seeking unbiased feedback necessitates having a few rules and structures in place, so that people can reach out without the fear of being reprimanded for a crazy idea.

To solicit feedback in a non-judgmental manner and to bring a sense of openness in the organization, Pixar has created Braintrust, a team comprising writers, directors, heads of story and other functions who are entrusted with the responsibility of giving critical feedback without killing genuinely divergent thinking. Braintrust started with the production of Toy Story, in 1993, when five men of unbounded enthusiasm and pragmatism - John Lasseter, Andrew Stanton, Pete Doctor, Lee Unkrich and Joe Ranft - came together. Braintrust remains Pixar's primary means of seeking honest feedback on projects.

Inventory prototypes

What if you made a prototype painstakingly and it does not get through? What do you do with that prototype? You should not junk it at least. Rather, keep it and, better still, display it for others to draw inspiration from and for you to resort to it when you stumble on your next problem. IDEO has a place for such experimental products, failed prototypes and weird artefacts: the Tech Box. Conceived by Dennis Boyle, one of IDEO's oldest employees, the Tech Box has come to represent the company's library of innovation elements and serves as a starting point to look for ideas for unsolved and even unidentified problems. These are part tools and part toys. As Boyle likes to put it, 'This is more about serendipity. Making a lateral connection between slightly odd things that might give us a different perspective.'.

Questions to be revised

1. Define Ideate. Give one example to generate ideas with LEGO Blocks.
2. Explain about the Hybrid Brainstorming.
3. How the ideas explored through "Intersection of Disciplines".
4. Explain about
   - i.) Imitate with Grace
   - ii.) Braking the pattern
   - iii.) Challenging Assumptions
5. Explain the value chain analysis from product to the customer.
6. Describe about the "Looking beyond current users".
7. Give the examples of the product for extreme conditions.
8. Explain about
   - i.) Analogous Design
   - ii.) Triggering Ideation
9. Give one example of "The high cost of just doing it".
10. How to get clarity on product. Is prototype is trail process or not.
11. Discuss about
    - i.) Be quick and dirty
    - ii.) Manageable Hypothesis
    - iii.) Doing last experiment first. With examples
12. What is visualize through storyboarding and scenarios?
13. Discuss the concept of "Engaging through Stories" with example.
14. What is dogfooding in business? Explain one example.
15. What is Solicit Feedback and Inventory Prototypes.

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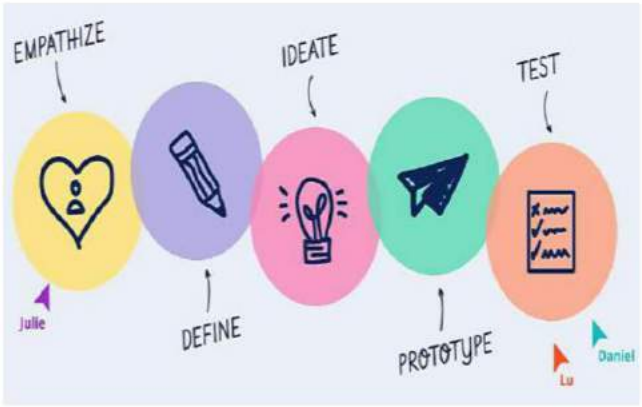

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Unit – V

Scale & Design Thinking in action

Syllabus:

Scale: Keep the main thing as the main thing, cut some slack, Leaders must show up, Provide 'air cover', cultivate innovation evangelists, Measure for impact, Don't confuse empathy with good business sense.

Design Thinking in action: A two-day Design thinking workshop, session objectives, Ground rules, workshop flow, mentoring programme, build your own version of design thinking programme, offer avenues to practice design thinking, think beyond, Jugaad, pay attention to the physical space, trust the process.

Scaling is about ensuring that product is durable enough to survive and then thrive in that market.

How good is an idea that does not scale? As the author Walter Isaacson shares, 'Innovation requires having at least three things:

- A Great Idea,
- The Engineering Talent to Execute It, and
- The business savvy (plus deal-making moxie) to turn it into a successful product.'

It would not be wrong to say that scale is the real proof of innovation, for that's how the idea realizes an impact. In this chapter, we talk about how to turn validated ideas into the ultimate impact.

On the scale imperative, Peter Thiel opines, 'You should focus relentlessly on something you're good at doing, but before that you must think hard about whether it will be valuable in the future.' For future-proofing your ideas, Thiel offers the following checklist:

1. Can you create breakthrough technology instead of incremental improvements?
2. Is now the right time to start your particular business?
3. Are you starting with a big share of a small market?
4. Do you have the right team?
5. Do you have a way to not just create but deliver your product?
6. Will your market position be defensible ten and twenty years into the future? and
7. Have you identified a unique opportunity that others don't, see?

Keep the main thing as the main thing:

Bill Gates's father once asked the young Bill and his close friend, Warren Buffett, to write down a single word to describe their successes. And they both wrote: focus. Gates attributes his success to his ability to remain focused on specific objectives for extended periods of time. Reflecting on his unwavering focus on computer programming, Gates shares, 'An innovator is probably a fanatic, somebody who loves what they do, works day and night, may ignore normal things to some degree and therefore be viewed a bit imbalanced. Certainly in my teens and 20s, I fit that model.' Gates doesn't even shy away from complimenting one of his arch-rivals, stating, 'Steve Jobs' ability to focus in on a few things that count, get people who get user interface right, and market things as revolutionary are amazing things.'

When Jobs returned to Apple in 1997, after an exile of over a decade, he saw a team low on morale and chasing as many as fifteen product platforms. With finite talent, it was impossible to deliver on so many fronts. So Jobs choose to focus on just about four platforms. The team found a new confidence, focusing only on desktops and laptops, and creating meaningful, differentiated products, which could be scaled. Even today, Apple, despite the company's size, has the narrowest range of products, even though the company operates in multiple industries computing, music, mobile phones, retail, etc.

Cut some slack:

Question: If You Cut Employees Some Slack, Will They Innovate?

Statement: Giving people time and resources to pursue innovation projects can produce extraordinary outcomes but only if you match your "slack strategy" to employee type.

Slack is a team collaboration and project management tool. The platform can be used in-browser or as its own native app on desktop and mobile. Slack has managed to become the fastest growing B2B startup. Slack grew by obsessively listening to customers, quickly testing, constantly iterating, and always putting their learning to use.

Example:

In the nineteenth edition of the 'IBM Global C-suite Study', in which 2,148 CEOs were interviewed, two characteristics were cited as the most instrumental in organizational success: encouraging employees to try out new ideas, and having clear rewards for fast failures and successful innovations. The leaders hinted at the importance of cultivating autonomy and learning to experiment in cross functional teams, which helps lower the risk of failures and enables employees to anticipate customer needs faster. In short, innovation happens when you encourage employees to try out new things, offer them critical resources and time, and tolerate failure. As Google's Eric Schmidt and

Jonathan Rosenberg note, 'The ethos is always to build the prototype as cheaply as possible, and to worry about scaling only after the prototype fails to fail [italics mine].' By running numerous experiments across the length and breadth of the company and giving employees the safety net to occasionally fail, Google ensures that they have more promising ideas to pursue and put money behind. Design thinking necessitates a prototyping mentality, which is nowhere close to the efficiency mentality that most senior executives hone by default. If the ethos of quality is right the first time, that of innovation is wrong the first time. Being wrong the first time is not easy, as it often comes at the cost of personal reputation, and, as a result, most would happily lowball instead of aiming high. A prototyping mentality also necessitates investments in terms of hard resources, talent and time. Unless the leadership appropriates resources for such efforts, most employees will not venture into even mildly risky bets. The need to cut some slack does not come naturally to efficiency-minded managers, and yet it is the oxygen of creative problem solving.

Leaders must show up:

Nothing is more critical than the leader being physically and cerebrally involved in a problem-solving exercise. A leader's presence in the room has three remarkable impacts. First, it sends a strong signal that what everyone is here for is not trivial, and my presence signifies that; I am here with you through the journey, just as another participant. Second, it keeps the participants and the trainer/coach oriented towards the true north, or the stated objective of the session; whether it is about new product development, process improvement challenge or cutting down the cost, the leader keeps the endeavor honest. Third, the leader demonstrates the importance of being a continuous learner, which is both humbling and inspiring.

Another episode happened more recently when I was invited by Professor Vivekanand Khanapuri to my alma mater NITIE, Mumbai, to engage with a batch of students on design thinking. Prof. Khanapuri taught me in 2003–05, when I was studying industrial engineering at the institute. And after all these years, he had reached out to me for delivering a primer on design thinking for a batch of about twenty-five students. After briefly introducing me to those present and setting the context, Prof. Khanapuri sat on the very first bench of the class, with his notebook open, pen at the ready and phone switched off! Most other teachers would have conveniently walked out of the class after handing me the floor, but not Prof. Khanapuri. What was the signal sent to the students? That there is no age, qualification, designation or pedigree that should stop you from learning. It was an extremely humbling experience, and I hope more teachers make a note of that.

Provide 'air cover': (Air Cover means Protection)

As failure is an integral part of innovation, it is imperative that employees are encouraged to experiment and their careers protected from the undesirable fallouts of failed experiments. Effective leaders shape a culture where you are better off asking for forgiveness afterwards than asking for permission beforehand. They do not necessarily innovate; rather, they protect those who innovate. They do so by offering psychological safety, allowing for resource leverage and guiding on the basis of their wisdom. Leaders must inculcate a spirit of experimentation in their organizational culture, and back it up with personal behavior.

Example:

As Jeff Bezos likes to put it, 'If you want to have more inventions, you need to do more experiments per week, per month, per year, per decade.' He further underscores the importance of hiring those who like to invent and cautions that often these people can be rebels, mavericks and annoying. Encouraging dissent is the hallmark of creative leaders and innovative organizations. If employees are not encouraged to challenge assumptions, think about radical concepts, put those to rigorous test and made to feel they can afford to fail, a climate of design thinking would be elusive.

Leaders must explicitly seek employees exhibiting nonconformity and be more tolerant of them, as long as they operate within the broad ambit of organizational values and priorities. Original thinkers flourish under such settings, and it is a leader's personal responsibility to encourage variance of thought, aptitude, attitude and worldview.

Cultivate innovation evangelists: (Evangelists means Gospeller)

In the context of design thinking and creative problem solving, an innovation evangelist (gospeller) helps people build their creative confidence, so that they can generate meaningful ideas and take those ideas forward. Such evangelists not only have to be deeply knowledgeable on the subject of innovation but also well-connected, with an ability to move people.

Equating ideas or new products to epidemics, Malcolm Gladwell explains how sometimes small changes could have a large and lasting impact, and he calls such change agents mavens, connectors and salesmen. Mavens are the knowledge banks; connectors are like social glue and salesmen are selfless persuaders. Together they can, in an appropriate context, take a seemingly ordinary concept and make it successful. If, as a leader, you wish to scale your ideas and the overall adoption of design thinking, do not try doing it all by yourself; rather, identify, motivate and unleash the innovation evangelists. Some of the evangelists would be the expert mavens, others would be highly effective connectors and the rest would be compelling salesmen or saleswomen. Some would be knowledge specialists, while others would be people specialists.

Evangelism is not self-promotion,' says Guy Kawasaki. 'It's a responsibility and an opportunity that falls to everyone, from HR to IT, finance to operations, the C-suite to the shop floor. In the social age, evangelism is everyone's job.' Kawasaki offers three means of evangelism:

1. Through schmoozing, which is to build a meaningful professional network;
2. Through public speaking, especially by narrating informative and compelling stories; and
3. Through social media, by being interesting, offering value and keeping it brief

Measure for impact:

To paraphrase Peter Drucker, you cannot manage what you cannot measure. To ensure enduring success of a design thinking project, you must put some hard measures in place. Such matrices need not always be about the product, processes or experiences but about ensuring that the overall approach of systematic problem-solving is working and employees are getting disciplined at it. In-process measures are often more important than the outcome measures.

OKR (objectives and key results) is a time-tested way to measure and manage progress. The objectives are defined as 'what is to be achieved', as measured by the key results, which are 'benchmarks and monitors on how to get to the objective'.

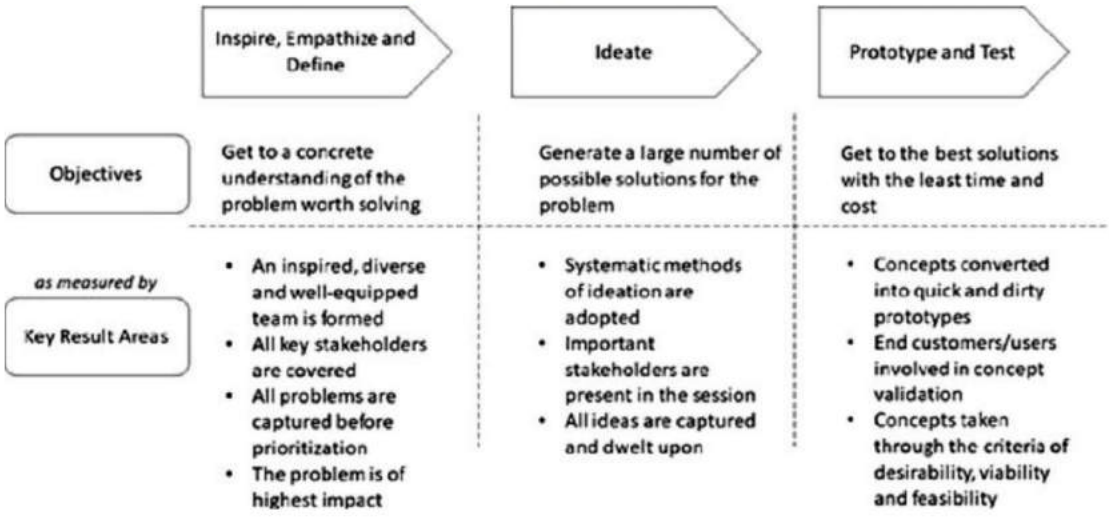

FIG: 5.1 Sample OKR for a Design-Thinking Program

Don't confuse empathy with good business sense:

Empathy is an important ability to have for career success, because it improves your capacity to communicate with others, to be part of a team, and to better your leadership skills. Building one's ability to empathize is quickly becoming one of the most important tasks of the twenty-first century.

Example 1:

For good business sense, we can look towards one of India's oldest and well-established companies, Aditya Birla Group. The Birla family has been in business for well over seven generations now, starting with Shobharam Birla in the early 1800s. One of the accounting practices followed at this typical Marwari business is the parta (team) system, which is a daily account of the cash inflows and outflows in any business entity. The system was followed very diligently by Kumar Mangalam Birla's grandfather, Ghanshyam Das Birla, and is one of Kumar's chief means of keeping a pulse on the business at the Aditya Birla Group, which is now worth $45 billion.

Instead of focusing on the balance sheet or profit-and-loss statements, which typical organizations monitor periodically, leaders at the Aditya Birla Group insist that they be presented with a daily parta (team), so that by the end of workday Kumar Mangalam Birla has an account of the entire group's cash flow on his table. Some might consider this micromanagement. But Kumar Mangalam Birla is clear about the method's usefulness: 'It is a timeless concept and can be applied even 20 years from now [Managing the environment] is not an area of strength for us. It may mean sacrificing growth, but we are quite happy to do that. It is important that you sleep well at night.'

Example 2:

DMart's large-format stores (30,000–35,000 sq ft) are typically located in residential areas, as against malls, offering daily-need products and commodities at deep discounts. As for keeping the vendors loyal, the company has a policy of clearing their dues latest by the eleventh day after the purchase, as against the industry practice of around three weeks. The decision of going slow has also allowed DMart to choose its locations and formats wisely and ensure profitability from the very start of a new store. As for the merchandize, the company has chosen to go for fewer varieties, largely limited to food and groceries, but at a high volume, which allows better margins at scale. Also, the retailer avoids private labels as much as possible. Most food and grocery products would be sold at prices 6–12 per cent cheaper than elsewhere, and in some cases even 10 per cent lower than the MRP.

The following statement summarizes DMart's business ethos: 'Start with low-cost products that consumers need daily and that you can sell for slightly below MRP. This allows you to rack up a great inventory turnover ratio.

Design Thinking in action

Design thinking exercises are best done in a workshop format, because learning must be hands-on for it to sustain and translate to real work.

In this chapter, we look at some of the best practices of hosting or participating in a design thinking problem-solving workshop. This would be applicable to any setting, whether you are doing it for your internal teams or for clients.

Example:

Jake Knapp and his colleagues from Google Ventures recommend a five-day design sprint, with a day dedicated to each of the five stages of design thinking, namely, map, sketch, decide, prototype and test.

Day 1:

On Monday, the team sets out to learn everything about the issue and the context to map out the problem and agree on the initial target.

Day 2:

On Tuesday is dedicated to structured ideation sessions, where participants generate potential solutions and add details by sketching or through other means of visualizing ideas.

Day 3:

Come Wednesday, and the team selects the most promising ideas to proceed with, often through a voting process and some quick discussions, instead of resorting to long-winded meetings or presentations. Each shortlisted solution is detailed into a testable hypothesis before being taken to the anvil.

Day 4:

Thursday is spent in giving shape to the selected ideas in the form of working prototypes that highlight different concepts.

Day 5:

Finally, on Friday, the prototypes are put up for scrutiny before the target customers, so that the team can get valuable insights for their next sprint. And then the process starts all over again, this time taking them closer to the desired outcome.

A two-day Design thinking workshop: (Session objectives, Ground rules, Workshop flow, Mentoring Programme)

I typically facilitate two-day workshops for problem-solving using design thinking. Anything less than two days is often experienced as rushed, and a duration beyond two days makes the participants restless. So here are the objectives, ground rules and an outline of a typical two-day programme, along with the specific methods employed and a proposed mentoring programme.

1. Session objectives:

The key takeaways from the workshop are as follows:

- Learn about the skill sets, toolsets and mindsets of a systematic approach to problem-solving.
- Develop means to understand the unmet and unarticulated needs of the customers (a customer is anyone whose problem you wish to solve).
- Pick up methods of prioritizing, scoping and framing problems worth solving Generate high-impact ideas methodically.
- Find ways of validating the ideas and demonstrating those to key stakeholders.

2. Ground rules:

Some of the means of instilling discipline in the proceedings are:

- A session with 25–30 participants.
- Workshop anchored around a few strategic themes or organizational priorities.
- Each team of 5–6 participants working on a specific problem area or theme.
- No mobile phones or laptops allowed during the workshop.
- Eight hours of commitment per day, preferably in an offsite setting.
- Handouts provided to each participant, detailing the session flow, tools and techniques of design thinking

3. Workshop flow:

The workshop flow means runtime of conducting workshop and figured the time sessions or periods. To understand the Workshop flow, then follow the below two figures with tables.

Theme	Topics covered	Duration
On problem-solving	1. Why a problem fully understood is half-solved? 2. Why not traditional models of problem-solving? 3. A disciplined approach to creativity	1 hour
A primer on design thinking (DT)	1. What is DT and why DT now? 2. The process model of DT 3. Key tenets of DT	1 hour
Inspire	1. Design brief (impact, constraints and equifinality) 2. Team formation and project scoping	1 hour
Empathize	1. Importance of deep listening and empathy 2. Going from symptoms to problems to root causes 3. Probing techniques (problem exploration, stakeholder map, empathy map, customer journey maps, user personas)	3 hours
Define	1. 80/20 rule and MECE 2. Problem canvas	1 hour

Fig 1: Outline of Day 1 of a design-thinking workshop

Theme	Topics covered	Duration
Ideate	1. Principles of ideation 2. Ideation techniques (challenging assumptions, across value chain; beyond current users; design for the extreme; analogous design; ideation triggers)	3 hours
Prototype and test	1. Idea shortlisting methods (desirability, feasibility, viability) 2. On quick and dirty prototyping 3. Storytelling, scenarios and storyboarding 4. Customer feedback review	1 hour
Scale	1. Business model canvas 2. Objectives and key results	2 hours
Reflection and closure	1. Summary of key takeaways 2. Personal reflections	1 hour

Fig 2: Outline of Day 1 of a design-thinking workshop

4. Mentoring Programme:

As a trainer and coach, I strongly believe that real learning happens on the job. It is relatively easy to excite an audience with examples and narratives on how design thinking works, but the 'moment of truth' occurs only when they get back to their workplaces, where if they revert to their old ways of problem-solving the entire purpose is defeated. So, in most of my programmes, I insist on follow up mentoring engagements, where we see to it that the learning, about problem-solving using design thinking, is applied in real contexts. This is one step towards fostering innovation culture. Here are a few practices that can be followed at mentoring programmes:

- Have well-defined, well-scoped projects where some preliminary results can be shown in about a quarter's time;
- Have participants work in teams, which don't have to be the same as the ones for their business-as-usual tasks;
- Have an internal mentor/supervisor from the business who keeps a pulse on the project's progress;
- Link the project's success to the participants' fate in the organization, through incentives or performance appraisal; and
- Showcase the results to the senior management to generate visibility for the team's efforts and bring to notice the importance of design thinking.

You would realize that a mentoring programme would help broaden the application of design thinking in a more enduring manner.

Build your own version of design thinking Programme:

Every company is unique in its own way different in terms of aspiration levels of its leaders and employees, risk tolerance, comfort with ambiguity, ability of being disciplined and open to external changes. The discipline that a design-thinking programme can bring to the discourse and practice of creative problem-solving, you must aim at customizing the approach that suits your organizational temperament. Some of the more successful innovators have created a grounds-up model of problem solving, on the basis of the principles and practices of IDEO's design-thinking approach.

Example:

The financial software company Intuit has its own version of design thinking called Design for Delight (D4D). Launched in 2007, the D4D model is based on three tenets: deep customer empathy; go broad to go narrow; and rapid experiments with customers. The D4D programmes are run across the organization by dedicated innovation capabilities teams. The team used to report to the chief of

staff in the office of the former CEO, Brad Smith, and this speaks volume about Intuit's seriousness towards design thinking.

The company has created the position of 'innovation catalyst' to identify and run design-thinking projects and evangelize their benefits, in order to make this approach integral to their business. By 2017, over 1,500 innovation catalysts were trained and taken through three, five or fourteen days of design-thinking and leadership-training programmes.

Offer avenues to practice design thinking:

What happens when your excited, trained and primed employees do not get an opportunity to even try out design thinking in a real-world context? Most programmes on design thinking, or any other approach on creative problem solving, fail because the leaders do not provide avenues for their employees to practise some of these concepts and methods. As a result, it remains business as usual, and soon, disillusionment towards design thinking sets in. If this continues, employees become cynical. Sincere employees always want to actively participate in problem-solving, instead of being passive observers, and as a leader it is your responsibility to make that transition happen. Here is a case on how avenues for practising design thinking can becreated and progress can be measured.

Think beyond Jugaad:

In the technology domain, jugaads are also referred to as 'hacks' or makeshift solution using scarce resources. Indians instinctively gravitate towards improvisation. People in both rural and urban dwellings, with varying levels of resources, do not shy away from creating and applying quick fixes. Often referred to as jugaad, these good enough, affordable solutions are everywhere in our daily lives, often in unknown ways.

A missed-call based reminder, a Tata Ace doubling up as a portable kitchen or even a school van, inventive ways of squeezing paste out of a tube or creatively preserving and reusing food, are all examples of ingenuity applied amid constraints. These are cases of addressing symptoms without bothering about the underlying problem, without taking pains to get to the root cause and trying to solve the problem permanently. In many cases, getting to the problem is not justified, for the problem may be a one-time event. But not always. Improvisation has a place in problem-solving, but making it a default is problematic.

Pay attention to the physical space:

Do you wonder why Google spends so much money in making its offices so amazing? The company's headquarters, the Googleplex, located in Mountain View, California, boasts nap pods for overworked employees, massage rooms, slides connecting different floors, three free gourmet meals a day for the staff, complimentary campus bikes, Android bots, organic gardens for the veggies and herbs used in

the cafeteria, meditation spots, plenty of electric car charging stations, large playgrounds and recreational areas, and a lot more which you only get to experience as an employee. As Eric Schmidt puts it, 'We invest in our offices because we expect people to work there, not from home. A serendipitous encounter (with a colleague) would never happen when you are working from home.'

Google is among the top ten in the ranks of the world's highest R&D spenders, of companies with the highest number of US patents granted and of the world's most innovative companies. Many universities and company campuses have imitated Google's workplace design to encourage a free flow of ideas, a spirit of collaboration, a balance of personal and open spaces, and other frills to foster innovation.

Trust the process:

Finally, it comes down to discipline. Most people find it difficult to believe that creativity and discipline can coexist. For them, creativity is possible only if there are few constraints, fewer rules, more resources and a lot more liberty. This notion is nothing more than an excuse for not being disciplined. True creativity comes through a process, where a few well-laid-out rules are followed and a meticulous approach is taken, as exemplified by ace sports people and innovators alike. On the benefits of discipline, Google's co-founder Larry Page says, 'As much as I hate process, good ideas with great execution is how you make magic.'

You need not look any further than the US Navy SEALs to understand how discipline enables creativity and the way real constraints push ordinary people towards achieving extraordinary results. As Jocko Willink, the famous Navy SEAL officer who led various missions to Iraq, notes, discipline equals freedom. In the book Extreme Ownership, Willink and Leif Babin talk about various missions in Ramadi city where they had to devise and communicate standard operating procedures (SOPs) for activities ranging from search and rescue to carrying out surgical strikes. These SOPs not only saved precious time but also saved lives and helped the team gather more actionable intelligence from the field.

Questions to be Revised

1. What are main qualities to keep main thing as main thing in product.
2. How to cut slack on some (employer), to innovate the product in design thinking.
3. What are all the benefits for the business by involving leader physically in the design thinking process and how businessman should secure lives of employees?
4. Describe advantages by cultivating evangelists?
5. How scaling helps in measurement of impact of a product?
6. Is the business is confused with empathy sense, what will be happen.
7. Explain the terms and process to conduct the "Two-Day design thinking workshop".
8. How to build own version of design thinker program.
9. How the person is well design thinker, which offers will he get to practice the product.
10. Explain about
    - i.) Think beyond Jugaad
    - ii.) Pay attention to the physical space
    - iii.) Trust the process.

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DESIGN THINGKING

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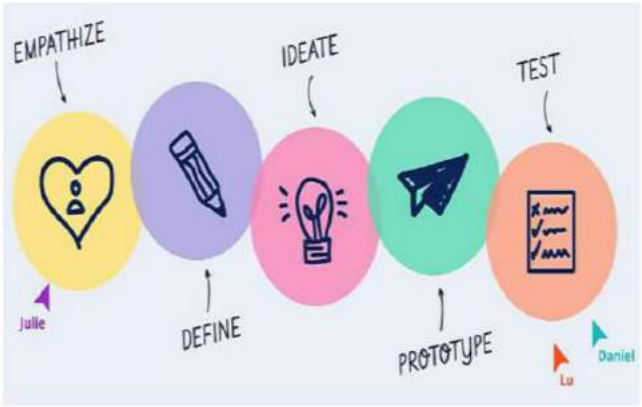

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Unit – VI

How to be a Design Thinker &

Case studies of Design thinking

Syllabus:

How to be a Design Thinker: Live curious, Listen with intent, observe with purpose, Defer your judgement, Hone multiple affiliations, Be a T-shaped person, develop failure tolerance.

Case studies of Design thinking: like Chota Cool, Indian post box, Big Bazar, Reliance, royal Enfield etc. (Any other case studies may also be considered).

Go for a walk; cultivate hunches; write everything down, but keep your folders messy; embrace serendipity; make generative mistakes; take on multiple hobbies; frequent coffeehouses and other liquid networks; follow the links; let others build on your ideas; borrow, recycle, reinvent.'

Live curious:

'Live curious' is the tag line of National Geographic. Their website says, 'Where knowledge ends, curiosity begins.' This is so true in the realm of creativity. Thanks to Google, there is not as much value in knowing stuff anymore as in applying what's known, exploring the unknown and creating new knowledge in the process the knowledge that can help solve complex problems faster than the rate at which new problems get created. On the importance of living curious, Christopher Nolan, one of the finest minds today in movie-making, observes, 'You're never going to learn something as profoundly as when it's purely out of curiosity.'

Francesca Gino of the Harvard Business School suggests that a curious mind is a more creative mind. Her empirical work shows that curiosity in adults helps them overcome confirmation biases, generating alternatives to problems, lowering group conflicts, encouraging more open communication and leading to visible gains in overall performance, on both creative and routine tasks.

Example:

IBM's former CEO Ginni Rometty identifies curiosity as one of the most important traits the company seeks in a new hire. In an interview with Fortune magazine, Rometty says, 'We receive 7,000 job applications a day, and our managers and HR teams are geared to look for people who are curious and committed to constantly advancing what they know.' As for her personal strength, she is quick to note, 'A constant thirst to learn has served me well my entire career, especially in the tech industry.' The prerequisite for being a good design thinker is to seek inspiration in the ordinary. It is to not wait for a problem to surface but seek an opportunity when none exists in plain sight. The case

of Bangalore-based iD Fresh Food demonstrates just how opportunities can be created and backed with a disciplined approach to build a market from scratch.

Listen with intent:

When David Rubenstein asked Sir Richard Branson about the most important attribute of a good leader, the latter responded with, 'Listening, and then choosing the words carefully. Though good listening is one of the twenty-first century's most significant skills, it is not just a skill; it is also a matter of attitude. While you listen with intent, you must also cultivate the humility to be genuinely surprised. A sense of surprise can only emerge from deliberate listening, which is called listening with intent or empathic listening.

Example:

John Chambers, the former CEO of Cisco and one of the longest-serving leaders in the fast-paced technology industry, credits Cisco's stellar performance to the listening skills of its leaders. Having served at IBM and Wang Corporation, Chambers is quick to note that the technology industry is punishing if you do not listen to your customers in advance and are ready to have your thinking disrupted. Several of the successful acquisitions that Cisco made over the years were triggered by its customers. As Chambers says, 'Customers helped us spot a market shift and pointed us toward a new technology that would be useful in making the leap. That's one reason I spend so much time listening to CIOs, CTOs, and CEOs during sales calls.' If a busy CEO can take time out to listen, what stops you?

But unfortunately, we are all becoming poor listeners. As author Stephen Covey quipped, 'Most people do not listen with the intent to understand; they listen with the intent to reply.' So how do we develop listening skills? Remember, just like any other skill, listening with intent can be cultivated.

Observe with purpose:

Acute observations can yield remarkably different insights that mere listening will not. You could listen to what is stated, but a lot remains non-verbal, which can only be observed and experienced. The Japanese are masters of good observational skills, and that is why continuous improvement and waste reduction are like second nature to them.

Example:

Honda, one of the world's most innovative automobile companies, owes its success to the well-honed practice of sangen shugi, which means seeing it with your own eyes by going to the spot before making a decision. Sangen shugi comprises three realities: Gen-ba (the real spot), Gen-butsu (the real part) and Gen-jitsu (the real facts). Honda trains its employees in the art and science of making first-hand observations and gaining knowledge by being close to the problem, in its real context. As the author Jeffrey Rothfeder notes, 'No decision is made at Honda without firsthand information, and no Honda manager or employee would dare try to offer a point of view, make a recommendation, or challenge an existing process or system unless he or she had "gone to the gen-ba," a term that is heard at Honda factories and offices everywhere in the world, no matter what language is spoken locally.'

Defer your judgement:

Genuine empathy comes from looking at the world as how it is and not how it is supposed to be, and to do so you need to defer your judgement. The very expertise that makes you capable of addressing a problem often comes in the way of understanding the problem empathetically.

If you want empathy to seep in, intuition to take shape and new ideas to emerge, learn to suspend analysis. Jeff Bezos admits that his best decisions, in business and life, have been made with heart, intuition, taste and guts, and not with analysis and remember, Bezos runs a company which is one of the largest creators of general-purpose AI.

Hone multiple affiliations:

Several years back, I met this amazing person named Douglas Solomon, who also happens to be the former chief technology officer of IDEO. I had the privilege of Interviewing him during one of his trips to India. One of my questions was: What do you look for in a new hire at IDEO?' In response, Douglas took out a small piece of paper from his pocket and drew the following:

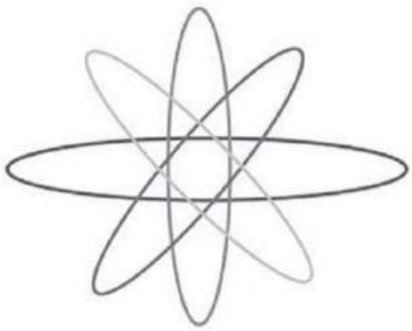


Fig 6.1: Honing multiple affiliations

Looking at above figure 6.1. At first, I thought he was referring to nuclear physics, but he soon clarified that the drawing was suggesting something different: multiple affiliations.

Example:

IDEO and scores of other innovative companies look for individuals with multiple skills, multiple hobbies and not those who focus only on the activity they get paid for, their day job. If you are only XYZ at the ABC organization, even the CEO of a Fortune 500 company, the big question is: Who else are you? What else makes up your life? If you define yourself narrowly in terms of your professional affiliations, it would severely limit your learning. And if that one key affiliation goes down for some reason, you are left with nothing. So it is critical that you broaden your horizons by doing various other things, such as taking music lessons, teaching kids how to code, playing badminton over the weekends, writing short stories, learning to cook some new dishes on your own, and then also making time for your day job. That's the approach of a creative person.

The easiest way to hone multiple affiliations is to pick up new hobbies. Don't think that hobby classes are meant only for kids, and don't worry if you aren't able to make something great out of that hobby. If the idea of picking up a hobby sounds too much at first, try picking up a side project, one where you are not judged even if you fail but which nonetheless keeps you stimulated.

Be a T-shaped person:

Your multiple affiliations in life directly translate to your becoming a T-shaped personality in the work sphere. A T-shaped person is one who has a significant depth of understanding in a subject along with an ability to relate to several other domains. The stem of the 'T' represents expertise, while the bar indicates empathy.

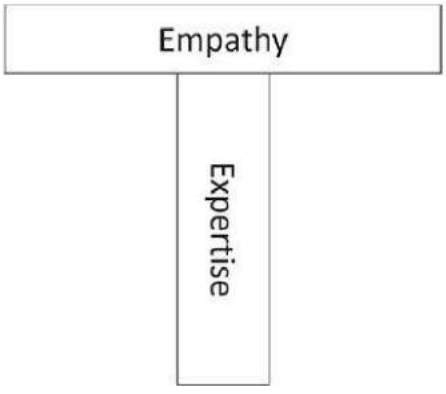


Fig 6.2: Being a T-shaped personality is key to creativity.

Bain & Company seek expert-generalists, those who work at the intersections of multiple disciplines while being specialists in only a few areas. Explaining the logic of expert-generalists, Orit Gadiesh, Bain's chairperson, shares, 'To me the modern Renaissance man is curious, interested in different things. You have to be willing to "waste time" on things that are not directly relevant to your

work because you are curious. But then you are able to, sometimes unconsciously, integrate them back into your work.' On promoting T-shaped consultants, Gadiesh notes, 'We make people switch areas and fields. It is fundamental at Bain, a core reason for our success. You become better at your area of expertise when you actually take a chance and do something else.'

Why is a T-shaped person essential to creative problem solving?

Important ideas are born at the intersections of disciplines, as they must exhibit both utility (typically grounded in the depth of one discipline) and novelty (which often comes from the breadth across disciplines).

Develop failure tolerance:

Innovation is inevitably a surprise, and for you to create something innovative it is important that you believe in your idea at a time when many others are not willing to. There is a very thin line between becoming a hero and getting fired, but it is only through relentless prototyping and testing, often at a personal expense, that ideas become realities.

Tolerating failure, error and occasional ridicule is essential to creativity. Ken Robinson, one of the biggest proponents of creativity in early education, says, 'If you're not prepared to be wrong, you'll never come up with anything original.' If you are too worried about what others are going to think of your idea, you would seldom conceive anything radical, let alone take the effort to pursue it.

Having multiple affiliations, developing a T-shaped personality and cultivating a tolerant attitude towards failure would allow you to connect more dots some will make beautiful patterns out of those, while others would not, but the experience in both cases would be highly instructive. What might be seemingly irrelevant in one context could be surprisingly useful in another, and if you are not too critical about such apparently irrelevant information, you significantly up your chances of making novel connections between the familiar.

Questions to be Revised

1. Explain "what are the factors to need a good Design Thinker" in business market.
2. Explain about
   i. Live curious
   ii. Listen with intent
   iii. Observe with purpose
   iv. Defer your judgement
3. Describe about "Hone Multiple Affliations".
4. What is need of a T-shaped person for creating a solution in innovative manner.
5. What is develop failure tolerance.
6. Explain about case studies of business companies.

Apollo origin :-

Apollo, byname Phoebus, in GrecoRoman mythology, a deity of manifold function and meaning, one of the most widely revered and influential of all the ancient Greek and Roman gods. Though his original nature is obscure, from the time of Homer onward he was the god of dividine a distance, who sent or threatened from afar; the god who made men aware of their own guilt and purified them of it, who presided over religious law and the constitutions of cities. Zeus (Roman: Jupiter). Even the gods feared him, and only his father and his mother, Leto.

In Italy Apollo was introduced at an early date and was primarily concerned, as in Greece, with healing and a prophecy; he was highly revered by the emperor Augustus because the Battle of Actium (31 BCE) was fought near one of his temples. marble relief, Portion of the east.

Key People :- Nicander.

Related Topics :- oracle.

Related Places :- Turkey. ancient Greece.
Ancient Rome. Anatolia. Ionia.
Ancient Site, Greece.

Apollo History :-

The Apollo Program, also known as Project Apollo, was the build the third united states human spaceflight Program carried out by the National Aeronautics and Space Administration (NASA), which succeeded in Preparing and landing the first humans on the moon from 1968 to 1972. It was first conceived during Dwight D. Eisenhower's administration as a three-person space craft to follow the one-person Project Mercury, which put the first Americans in space. Apollo was later dedicated to President John F. Kennedy's national goal for the 1960s of "landing a man on the moon and returning him safely to the Earth".

Country :- United states

organisation :- NASA

Purpose :- Crewed lunar landing

status :- Completed.

Successes :- 32

Failures :- 2 (Apollo 1 and 13)

Partial failures :- 1 (Apollo 6)

launch site(s) :- Cape Kennedy space center white sands.

Duration :- 1961-1972

Cost :- $ 25.4 billion (1973)[1]

$ 156 billion (2019)[2]

Apollo ran form 1961 to 1972, with the first crewed a first flight in 1968. It encountered a major setback in 1967 when an Apollo 1 cabin fire killed the entire crew during a prelaunch test.

After the first successful landing, sufficient flight hard ware setback in geological and astrophysical exploration.

Budget cuts forced the cancellation.

Apollo 13 landing was prevented by an oxygen tank explosion in transit to the Moon, which destroyed the service module capability to provide electrical power, crippling the CM's to propulsion and life support systems.

Saturn family of rockets as launch vehicles, which were also used for an Apollo Applications Program, which consisted of Skylab, a space station that supported three crewed missions 1973-1974, and the Apollo-Soyuz Test.

Apollo set several major human space flight milestones. It stands alone in sending crewed missions beyond low earth orbit. Apollo 8 was the first crewed spacecraft to orbit another celestial body.

overall the apollo program returned 842 Pounds (382 Kg) of lunar rocks and soil to earth.

Apollo methods implemented on schemes:-

The Apollo Applications Program (AAP) was created as early as 1966 by NASA headquarters to develop science-based human space flight missions using hardware developed for the Apollo Program. AAP was the ultimate development of a number of official and unofficial Apollo follow-on projects studied as various NASA labs. However, the AAP's ambitious initial plans became an early caualty when the Johnson Administration declined to support it adequately, partly in order to implement its Great society set of domestic programs.

Thus, Fiscal Year 1967 ultimately allocated $180 million to the AAP, compared to NASA's preliminary estimates of $450 million necessary to fund a full-scale AAP.

The AAP eventually led to skylab, which absorbed a much of what had been developed under Apollo Applications. Great society set of domestic programs while remaining a $100 billion budget.

Thus, Fiscal Year 1967 ultimately allocated $80 million to the AAP, compared to NASA's preliminary estimates of $450 million necessary to fund a full-scale. AAP program for that year, with over $1 billion.

Eventually led to skylab.

Apollo Successful and failure:-

Apollo 13 (April 11-17, 1970) was the seventh crewed mission in the Apollo space program. and the third meant to land to the moon. The craft was Launched from Kennedy space center on April 11, 1970, but the lunar, landing was aborted after an oxygen tank in the services module.

The crew instead looped around the moon and returned safely failed two days into the mission.

The crew instead looped around the moon.

Aril 17. The mission was commanded by Jim Lovell, with Jack Swigert as command module (CM) pilot.

Although the LM was designed to support two men a on the lunar surface for two days, Mission control in an Houston improvised new procedures so it could support a three men for four days. The crew experienced great hardship, caused by limited power, a chilly and wet cabin in the crew and mission controllers successfull.

why is Apollo 13 a successful failure? The Apollo 13 crew was going to die but they survived and return home.

Apollo 13 was called a successful failure because it was a going to die but they survived and return home.

a successfull failure.

Apollo Present status:-

Pilot (Discussion servers)

- Running in Pre-Prod since July 14th
- over 50% useful
- Previously undetected server anomaly detected,
- Highlights abnormal behaviour during outages.
- Lessons learned.
  - Duplicate notifications
  - Server Groupings
- Unable to tell if system would have prevented any outages.

Characterization completed and control limits calculated.

- Lead Generation (Leadserver, website).
- classroom Delivery (Portal, classroom, materials).
- classroom support (183 A, 183 E, 183 F, 83).

* constant exposure to dynamic hospital situations in a broad range of healthcare models.

* Access to latest developments in healthcare and association with leading hospitals around the world.

* Access to a Pool of trained medical, nursing, Paramedical and healthcare Professionals.

* Apollo hospitals etc.

1. Write about Haldiram's company?

Haldiram's is an Indian sweets, snacks and restaurent company headquarted in Nagpur, Maharastra. The company was manufacturing plants in a wide variety of locations such as Nagpur, New Delhi, Gurgaon, Rudrapur and Noida. Haldiram's has its own retail chain stores and a range of restaurents in Pune, Nagpur, Kolkata, Noida, Delhi.

Haldiram's is a private type of company. This company was founded in 1941 at Bikaner, Rajasthan, India. The founder of this company Ganga Bishan Agarwal (Haldiram ji). The Revenue of this company was about 7130 crore as per the year 2019. In order to drive expansion, the company's first manufacturing plant was started by founder in Kolkata. In 1970, a larger manufacturing was established in Jaipur. Another manufacturing plant was established in New Delhi, The capital of India In 2003, the company began the process of developing convinience foods to be marketed to consumers. In 2014, Haldiram's was ranked among the India 55th most trusted brands accroding to Brand. Trust Report; a study

conducted by Trust Research Advisory. The company has grown at tremendous pace over the years and in 2017 it was crowned at a tremendous pace over the years in 2017 it was crowned as the country's largest snack company, surpassing all other domestic and international competitors. Haldiram's products are available in more than 80 countries.

Haldiram's has over 400 products. its product range includes traditional namkeens, western snacks, Indian sweets, cookies, sherbets and Pickles such as gulab jamun and Bhikaneri bhujia and papadum. The company also produces ready-to-eat foods was the 1990s, the production of potato based foods was enabled by the importation of machinery for United states designed of these products (or) purposes.

Haldiram's products are marketed at various retail locations such as bakeries and confectionary stores, among others, and also on various commercial websites. The pricing of the company products is inexpensive compared to similar products made by other companies. Prior and upto August 2003 in United states market, the company's products were limited to potato chips. The company's products are

carried by some Indian supermarkets in U.S., Haldiram's products are popular with the Indian diaspora.

Haldiram's is very traditional in terms of advertising and promotions and however, to be in sync with current times, Haldiram's tied up with 2015 Bollywood film Prem Ratan Dhan Payo and more than 1.5 crore Haldiram's snack packets were printed with the logo of the film. The chain is actively expanding its franchises.

Achievements:

1. Economic times article about Haldiram's on 13 June 2020.
2. Haldiram's to expand in northern region. One India 2 July 2006.
3. Bhujia to billions : Ganga Bishen's Haldiram has now become $3 bn biz empire.
4. Kolkata's Haldiram's Bhujiawala stripped of its trademark on 8 may 2020
5. Haldiram's lines up ready to eat items for western market on 2 September 2014
6. India's Most trusted Brands 2014

7. Haldiram's launches New line of frozen product on 2 september 2014

8. Haldiram's topples pepsico; regains topspot as country's largest snack company 21 December 2017

Unknown facts:

Agarwal, owner of Haldiram's company, is serving time in Alipore central jail, after he was sentenced to life imprisonment by a sessions court in 2005 attempt to murder case and his life convict and he will be no exception.

One of the richest buisinessman, owner of Haldiram's company has been identied as "non-skilled" labour by jail authorities and alloted garden work, for which he will get daily wage of Rs. 18.

Amul Case Study

Amul impelled India's White Revolution, which made the country the world's largest producer of milk and dairy products. The white revolution was led by Tribhuvandas Patel under the guidance of Sardar Patel. Amul has ventured into markets overseas.

Origin :- The word "Amul" is derived from sanskrit word 'Amulya" which means "Priceless" or "Precious".

Owner :- Gujarat Cooperative Milk Marketing Federation, Ministry of cooperation.

Divisions :- Bams Dairy, Dudh sagar Dairy.

Head Quarters :- Anand, Gujrat, India

Type :- State Government cooperative

Founded :- in 1946

Key member :- Rupender Singh Sodhi (C.E.O)

Revenue :- Rs. 39248 crore 7B USD

History :- Amul enlisted on 14 December 1946 as a reaction to the abuse of minimal milk producers by brokers or operators of the main existing dairy, the Polson dairy, in the small city preparations to convey milk frequently turned sour in summer, to Polson. In 1973, Amul celebrated its 25th Anniversary under the leadership of Tribhuvandas Patel, Morarji Desai, Maniben patel and Verghese Kurien. Dalaya's development of making skim milk powder from buffalo milk and making it on a buiness scale led to the first modern dairy of the cooperative at Anand. Amul was awarded as the - Best of all - Rajiv Gandhi National Quality Award.

Technological improvements at Amul have spread to different parts of India. In the course of the last five and a half decades, dairy cooperatives in Gujarat have made a financial system that connects more than 3.1 million dairy products with a great many purchasers in India. On September 30, 2018

Prime Minister Narendra Modi inaugurated Amul's chocolate plant in Mogar, Gujarat.

Advertising

Amul hired Sylvester da cunha, to design a campaign as a series of hoardings with topical ads, relating to day-to-day issues for Amul Butter, in 1966. It encounters several political pressure, including, commenting on the Naxalite uprising in west Bengal, the Indian Airline employees strike, and depicting the Amul girl wearing a Gandhi cap.

Products:-

Amul markets a wide scope of items including milk, ghee, chocolate, Shrikhand, Gulab Jamun, desert, cream and others making it the biggest sustenance brand in India with a yearly turnover in abundance of US $1 billion (2006-07).

Growth

The gujarat Cooperative Milk Marketing Federation Ltd. which makes Amul milk and dairy items, detailed a 13% expansion in turnover to Rs 33,150 crore on March 31, 2019.

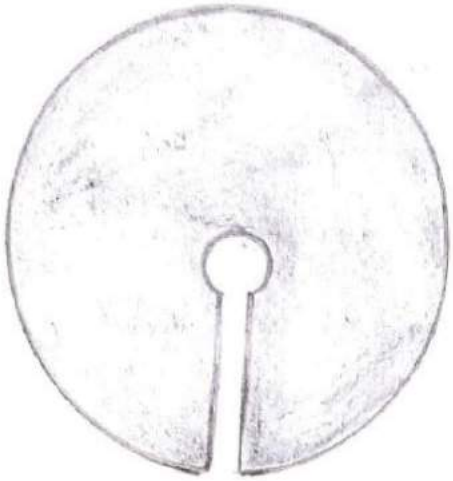
Key Points and Main strategies or ideas

1) The Amul company collects only 15% of income for collecting, processing and delivery. The Amul company makes the all other expenses in 5% of whole daily income

2) Amul company is the one of the company who gives the 80% of income only to formers who are selling milk to Amul.

3) Amul company brings all types of dairy products under one this is known as Umbrella.

SBI Logo



State Bank of India

* Started as Bank of calcutto in calcutta (in calcutta) on 2 June 1806
* Re-designed as the Bank of Bengal on 2 January 1809.
* Later Bank of Bengal, bank of madras and Bank of Bomboy were amalgameted to form imperial Bank of India on 27 January 1921
* It was rationalized on 1955 and was renamed as state Bank of India

Introduction :-

⇒ State Bank of India (SBI), with a 200 years history is the largest commercial bank in India.

=) In terms of as sets, deposits, profits, branches, customers and employees SBI is largest bank

=) the Government of India is the single largest share holder of this fortune 500 entity with 61.58% ownership

=) SBI is ranked 60th in the list of top 1000 Banks in the world by "The Banker" in July 2012.

Vision :-

* Attain high standards of efficiency and professionalism and core institutional values comparable to the best in the field.

* To be a committed, caring and responsible corporate citizen

* To provide a satisfying work environment with opportunities for learning self-development and self-actualization

Mission :-

* Develop into a top rate, nimble footed banking institution committed to excellence

in services to its customers, and) enhancing stackholders value though care and competence.

functions of SBI :-

=) State Bank of India acts as an agent of Reverse Bank of India And also performs the following functions

=) Bank borrow the money from public by accepting deposits

=) It lends money to merchants and manufactures for short period.

=) Bank acts as Bankers bank. Bank provides loans to the commercial Bank when required

=) Bank also act as the clearing house of commercial

=) SBI bank also act as Reverse Bank of India Because the bank maintain the treasuries of the state Government

=) It also purchases and sells of securities on behalf of its customers.

Formation of SBI And SBI Associates :-

On 27th January 1921 all presidency bank were amalagamated and got new name as the "Imperial bank of India".

The Tata group was founded as a private trading firm in 1868 by entrepreneur and philanthropist Jamsetji Nusserwanji Tata. In 1902 the group incorporated the Indian Hotels company to commission the Taj mahal place and Tower, the first luxury hotel in India, which opened the following year. After Jamsetji's death in 1904, his son sir Dorab Tata took over as chair of the Tata Group. Under Dorab's leadership the group quickly diversified, venturing into a wide array of new industries, including steel (1907), electricity (1910), education (1911), consumer goods (1917), education (1911). consumer goods (1917), and aviation (1932)

Following Dorab's death in 1932, sir Nowrosi Saklatwala become the group's chair. Six year later Jehangir Ratanji Dadaboy Tata (J.R.D) took over the position. His continued expansion of the company into new sectors - such as chemicals (1939), technology (1945), consmetics (1952), marketing, engineering, and manufacturing (1954), tea (1962), and software services (1968) - earned Tata Group established the

Tata Group established the Tata Engineering and Locomo company (TELCO) to manufacture engineering Tata motors in 2003. In 1991 JRD's nephew, Indian business mogul Ratan Tata, company to manufacture engineering and locomotive products; it was renamed Tata motors in 2003. In 1991 JRD's newphew,

Indian busines mogul Ratan Tata, succeeded him as chairman of the Tata Group. Upon assuming leadership of the conglomerate, Ratan aggressively sought to expand it, and increasingly he focused on globalizing its businesses. In 2000 the group acquired London-based Tetley Tea, and in 2004 it purchased the truck manufacturing operations of South korea's Daewoo motors. In 2001 Tata Group partnered with American International Group Inc. (AIG) to create the insurance company Tata-AIG.

In 2007 Tata Steel completed the biggest corporate takeover by an Indian company when it acquired the giant Anglo-Dutch steel manufacturer Corus Group. The following year the company made headlines world wide when it ventured into the automotive industry. On January 10, 2008, Tata motors officially launched the Nano, a tiny, rear-engine, pod-shaped vehicle that eventually sold at a base price (excluding options) tax, and transportation fees) equivalent to $1,500 to $3,000. Although only slightly more than 3 metres (10 feet) long and about 1.5 metres (5 feet) wide, the highly touted "people's car"

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people car could seat up to five adults and, in Tata's words, would provide a "safe, affordable, all weather from d transpart" for millions of middle-and lower-income consumers both in India and abroad. The first Nano hit the road in Indian in July 2009. Tata makers purchased the elite British brands Jaguar and Land Rover from the Ford motor company in 2008. Four years later Ratan Tata retired and was succeded by Cyrus mistry. Mistry was abruptly dismissed as chairman in October 2016 - reportedly over disagreements with members of the Tata family regarding business strategy - and Ratan returned to the position on an interim basis. Ratan's second stint as chairman ended in January 2017 when Natarajan chandrasekharan was appointed to the position.

In September 2017 the Tata group announced plans to merge its European steelmaking operations with those of the German steel maker Thyssenkrupp. The deal was finalized in June 2018, creating Europe's second largest steel company after Arcelor mittal.

Topic : Royal Enfield

Royal Enfield was a brand name under which The Enfield Cycle Company Limited of Redditch, Worcestershire sold motorcycles, bicycles, lawnmowers & Stationary engines which they had manufactured Enfield Cycle Company also used the brand name "Enfield" without the "Royal".

The Enfield Cycle Company Limited

Type	Public Listed Company
Industry	Motorcycles, Guns, Bicycles
Founded	1901
Founder	Albert Eadie & Robert Walker Smith
Defunct	1971
Fate	Defunct
Headquarters	Redditch, Worcestershire, UK
Products	Royal Enfield Clipper, Crusader, Bullet, Interceptor, WD/RE, Super Meteor
Weight	195 kg Classic 350
price	₹1,10,000 to ₹5,00,000
Head office in India	~~Chinna~~ Chennai, ~~TN~~ Tamilnadu, India

The first Royal Enfield motor cycle was built in 1901. The Enfield Cycle Company is reponsible for the design & original production of the Royal Enfield Bullet, the longest-lived motor cycle design in history.

Royal Enfield's spare parts operation was sold to Velocette in 1967, which benefitted from the arrangement for three year untill their closure in early 1971. Enfield's remaining motorcycle business became part of Norton Villers in 1967 with the business eventually closing in 1978. Enfield of India now produce motorcycles under the Royal Enfield name. Royal Enfield Complete 120 year and still manufacting bullet.

DT Assignment

INDIAN POST BOX

REG NO - 2109SA0102
K. Akhila

Introduction :-

The first post office in india was established by british east Indian Company in Bombay in 1764.

Headquarters is situated in new Delhi.

No. of employees are 520191

Vision and Mission :-

India post's products and services will be the customer's first choice

Mission :-

To sustain its position as the largest postal network in the world touching to lives of every citizen in the country.

To provide mail parcel, money transfer, banking, insurance and retail services with speed and realibility

About post office :-

Fo morethan 150 years has been the backbone of the Country.

Communication has played a crucial role in the Country's socio - economic development.

It touches the lives of Indian citizens in many ways delivering mails, Accepting deposits under small saving schemes providing life insurance cover under (PLI) and (RPLI) and providing reatail services like bill collection, sale of forms etc.

Kaveri Banerjee is the director, General and Secretary.

Slogan :-

Dak Seva jan Seva

The Government Savings bank Act 1873 passed by the legisture 28 jan 1873, was enacted in 1881

On 1 April 1882, post office Savings banks opened throughout India.

postal life Insurance began on 1 Feb 1884.

Types of Services

1. Speed post
2. Business post
3. Express post
4. Media post
5. Greeting post

Postage stamps

The first stamp of Independent India released on 21 Nov 1947.

Meant for foreign Coresponderce

Weakness

1. No Advertizers
2. Not provide loan to Consumers
3. Uncharged woking culture
4. Lower rate of Interests on deposits.

Conclusion

The Indian postal system needs

* Technological
* Social and economic
* Changes.