Design thinking: Learn how to solve problems like a designer

Good design is really about solving problems.

Consider this. You work for an organization in East Africa. The organization sells treadle pumps (used for farmland irrigation) to the local farmers. After years of operation you notice that in some regions the treadle pumps sell extremely well, while in other regions they don't sell at all. You've been tasked with generating sales of the pumps in those weak-performing regions.

What do you do?

Design Thinking is a problem solving framework. The concept has been around for decades, but in the past five to ten years, <u>IDEO</u>, a design consultancy, has championed the process as an alternative to a purely analytical approach to problem-solving.

Tim Brown, IDEO's president and CEO, defines design thinking like this: *"The mission of design thinking is to translate observation into insights and insights into products and services that will improve lives."*

The goal of improving lives is an important endpoint to the process of design thinking. In fact, it's what design thinking is all about: finding fresh, creative solutions to problems, but in a way that puts people and their needs first.

Design thinking came to the rescue for the organization selling treadle pumps in East Africa. They were able to identify why their product wasn't selling in some regions and they found a solution. Of course, you'll have to keep reading to find out what the solution was...

So, what exactly is design thinking and how can you use and apply it to solve any problem?

Traditional Problem Solving vs. Design Thinking

"Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success."

– Tim Brown

"Traditional" problem-solving often takes a methodical, almost scientific form. Pinpoint a problem, define the steps to take and tools to use to reach a solution, then stick to the plan and hope for the desired result.

It's straightforward, but not always flexible, innovative or effective. What if the issue identified isn't the real source of the problem? What if the steps don't lead to the *right* solution?

Instead of starting with a problem, design thinking starts with observation. It's informed by an understanding of the culture and the context of a problem (what people need), rather than the problem.

For the company selling treadle pumps in East Africa, the solution didn't surface after an analysis of the problem itself — low sales. It wasn't found after an 8-hour corporate brainstorm in a New York high-rise, with people in suits debating over charts and economic forecasts. The solution was born from a deep level of observation of the people who weren't buying the pumps, and the cultures they were a part of.

The 5 Principles of Design Thinking

This section is based on "<u>An Introduction to Design Thinking: Process Guide</u>" from Stanford's d.school.

David Kelley, who founded both IDEO and Stanford University's Institute of Design (a.k.a. "d.school"), has split the design thinking process into the following elements:

1) Empathize

2) Define

3) Ideate

4) Prototype

5) Test

01. Empathize: Understand Your Audience

Lifehacker

Every problem has a unique context, one that's defined by people. In design thinking, empathizing involves understanding the beliefs, values, and needs that make your audience tick. It involves *observation* — watching, listening to, and understanding your audience — and *engagement* — interacting with your audience, users, or customers.

For our company in East Africa, the empathizing stage revealed that the cultural norms in the regions where pump sales were high were different to the norms in the regions where pump sales were low.

02. Define: Establish a Point of View

It's time to process what you've learned from your audience; compile it into insights, connections, and patterns; define the challenge you're facing; and move toward solutions. What does all the information you've collected have in common, and what does it say about your audience and what they need?

In design thinking, this process is described as establishing a point of view (POV): a statement that sums up the insights you've learned about your audience and clarifies their needs. The solution(s) you eventually come up with will be informed by this POV.

For our company in East Africa, the insight process revealed that in the regions where sales of the treadle pumps were low, there were cultural norms that made it inappropriate for women to sway their hips in public (a key feature of the operation of the treadle pumps).

03. Ideate: Focus on Possible Solutions

The Ideate stage is a brain dump of ideas, and nothing is off limits. The point isn't to separate the good ideas from the bad or even find one "perfect" solution, but to come up with as many possibilities as you can.

One of the main qualities of the Ideate stage is that it's collaborative and participatory. The underlying point here is that everyone is creative in their own way — the brainstorming process can only benefit from having as many minds and perspectives as possible united in tackling the same problem.

For our company in East Africa, the ideation process was likely focussed on designing and building a pump whose human operation didn't rely on the swaying of the user's hips.

04. Prototype: Try Out Multiple Solutions

Ideally, the Ideate stage should produce multiple solutions. At the Prototype stage, the goal is to put the best ones to the test. Stanford's d.school suggests that the prototype might be anything from a wall of post-it notes or a storyboard to a physical/digital item or an interactive activity.

The process of building a prototype will likely help clarify the problem even more and offer new insights or new solutions that you hadn't thought of before. In preparing for the final testing stage, it's helpful if prototypes can be looked at or experienced by your audience or user for the purpose of requesting feedback.

05. Test: Find the Best Solution for Your Audience

Testing helps you learn more about your possible solutions and more about your audience. Depending on how the testing pans out, it may lead back to any of the four previous stages: you may discover that you didn't define the problem correctly or failed to understand your audience and need to go all the way back to square one. Or you might just need to refine the prototype a little. Most likely, testing will help you develop improved and/or advanced prototypes.

Like during the Empathize stage, observing and/or listening to your audience is key here. Instead of explaining the prototype up front, let users experience it on their own. Observing this interaction will help reveal important insights about what aspects of the prototype are or are not working. Then, encourage them to ask questions and give their feedback about the experience. Offering multiple prototypes for users to compare is another useful technique.

As mentioned earlier, any stage of the design thinking process can be repeated or returned to as needed, or taken out of order. It's not meant to be a linear, strictly defined process, but to adapt to the unique requirements of individual environments and projects.

For our company in East Africa, the testing process eventually resulted in a treadle pump whose human operation didn't depend on the swaying of the user's hips and sales of the units soared.

Design Thinking: 5 Case Studies

Companies large and small have turned to the design thinking process to create a more innovative, customer-focused culture. In the following case studies, you'll see how some familiar businesses and organizations have tapped into design thinking to achieve big things.

01. PepsiCo

In 2012, PepsiCo hired its first chief design officer and CEO Indra Nooyi said in an <u>interview</u> that "now 'design' has a voice in nearly every important decision that the company makes."

How did the corporate giant use design thinking as part of a strategy to turn around its declining market position and drive growth? According to Nooyi, it marked a shift in the company focus, from product design to consumer experience design. They started to pay attention to how consumers interacted with the brand and to the overall user experience, a phrase Nooyi said "wasn't part of our lexicon."

Now, design and the user experience are an integral part of PepsiCo's strategy, and it's all attributed to design thinking. Take the company's new approach to marketing its products to women. In days gone by, Nooyi is sure the company would have adopted the "shrink it or pink it" approach to female-centered product design and marketing. "We'd put Doritos, say, in a pink Susan G.

Komen bag and say it's for women. That's fine, but there's more to how women like to snack."

Nooyi goes on to describe how women like to snack — "they worry about how much the product may stain—they won't rub it on a chair, which a lot of guys do." Nooyi's comments demonstrate an insight-based decision making process based on empathetic thinking.

And the thinking has transferred into action. To improve the female user experience with its products, PepsiCo released a new line of Doritos in China that come stacked in a tray and packaged in a cannister, rather than in a snack bag. Now, Nooyi says, "when a woman wants to snack, she can open her drawer and eat from the tray. When she's done, she can push it back in. The chip is also less noisy to eat: Women don't want people to hear them crunching away."

PepsiCo's new approach was <u>summed up</u> by the company's Chief Design Officer, Mauro Porcini:

"Design is more than the aesthetics and artifacts associated with products; it's a strategic function that focuses on what people want and need and dream of, then crafts experiences across the full brand ecosystem that are meaningful and relevant for customers."

02. Ericsson's Innova System

Ericsson is a global telecommunications company whose networks handle an estimated 40% of mobile traffic worldwide. It's a large business with a lot of employees, but it's managed to harness the problem-solving brainpower of the entire organisation with its design thinking platform, Innova.

Innova was setup to foster innovation amongst Ericsson's employees. It's an internal program that acts like a startup incubator for ideas. In an <u>interview</u> with Erik Chang, Innova's head of strategy and operational development for

northeast Asia, Innova has 6,000 users who have submitted 4,000 ideas for new products. Nearly 500 ideas have received funding, and five have been developed into actual products.

Because the ideas are coming from some many different sources, Innova's application of design thinking skips the Empathize stage, and the Ideate stage is spread out on an individual level. So while it's not a "classic" application of the design thinking process, the Innova system emphasizes employees' creative potential and focuses on a collaborative process to build profitable new ideas.

03. The Gates Foundation

You know that story we interweaved throughout this article about the organization selling treadle pumps in East Africa? Well, it's in fact a real organization, and a grantee of the Gates Foundation, the nonprofit founded by Bill and Melinda Gates. In <u>this article</u>, Melinda Gates explains why the Foundation takes design thinking so seriously, and how it's helped them achieve so much.

Gates says the most useful and effective designs aren't often designed in "shiny labs," but are born from a process of discovering what people need and what will help to improve lives — design thinking in action.

TICs y Formacion

04. U.S. Department of Veterans Affairs

The Veterans Affairs Center of Innovation (VACI) uses aspects of design thinking to better understand the veterans it serves. In 2014, the VACI conducted a research pilot to determine the effectiveness of human-centered design as a method for understanding how veterans interact with the department and how that interaction can be improved. The research process drew heavily from design thinking, interpreting several of its stages in ways that made sense for the VA, including:

- seeking out veterans to learn about their perspectives and experiences through in-person interviews (empathizing through observation and engagement);
- compiling insights to determine veterans' points of view as they interact with the VA (defining the problem); and,
- •observing veterans interacting with online services (testing solutions).

The conclusion? According to a VA <u>report</u> on the pilot program: "While there is no single solution for ensuring Veteran satisfaction, our pilot indicates that Human-Centered Design can help the VA operate with a deep understanding of the wants, motivations, and needs of our customers".

05. Samsung

Before it became a design-focused brand, Samsung primarily manufactured inexpensive and imitation electronics for other companies. Products were made by engineers in accordance with price and performance indicators and designers only came on board at the end of the manufacturing lifecycle to make the products look consumer-friendly.

In 1996, Lee Kun-Hee, the chairman of Samsung Group, decided that if the company wanted to be known for its innovation, it needed to make design a priority and bring it forward in the lifecycle. Now, not even a decade later, Samsung is one of the biggest technology brands in the world, employing more than 1,600 designers who have helped the company win a number of design awards.

Based in South Korea, Samsung's design team noticed that businesspeople in Korea and Japan had a habit of jotting down notes or schedules in pocket-sized notebooks. The observation led to an insight about consumer behaviour, which led to an idea — a "smart diary" complete with with a pen: larger than Samsung's existing smartphone, smaller than its tablet, and perfect for writing. Prototyping and testing followed, and the results eventually led to the highly successful Galaxy Note series... and it all started with the process of design thinking.

An <u>article</u> co-authored by Kyungmook Kim, one of Samsung's principal designers, describes design in 2015 as "so much a part of its [Samsung's] corporate DNA that top leaders rely on designers to help visualize the future of the entire company."

Getting started with design thinking...

If you're interested in delving into design thinking, Stanford's d.school has put together a <u>free, 90-minute video course</u> to walk you through a quick design challenge that cycles through all of the five stages of the design thinking process. Just grab a partner (or group) and get ready to exercise your creativity (no design experience required!).