

Design Thinking

Driving Transformation

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Creating a Culture of Innovation and Transformation through Human-Centric, Solution-Based Critical Thinking



Design Thinking has broad business application throughout any organization to effectively solve diverse business challenges and elevate innovation for service offerings and product development. The Design thinking process answers critical business questions through the design, prototyping, and testing of ideas and focuses on solutions and not the problem. Design Thinking is a creative and critical thinking rubric that allows ideas and information to be gathered and organized, decisions to be made quickly, solutions to be improved rapidly with continuous feedback gathered and acted on immediately.

As more organizations have begun to adopt design thinking, its uses have expanded beyond its origins in product design. Design thinking is capable of solving a range of challenges that organizations face including shifts in markets and consumer behaviors, re-invention of business models, entrepreneurial innovations, education advancements, social issues impacting diverse groups of people and redefining value propositions.

Design Thinking is particularly useful for tackling the thorniest problems – to get to the root cause of the issue – and then apply critical thinking to develop the most effective solution. Design Thinking is effective at ferreting out the actual problems causing pain versus the assumed “obvious” problem. Organizations become aware of a problem and often jump right to what they believe the solution is based on where they think problem lies informed by their unique experiences and specialized expertise. We generally group problems into siloed disciplines with subject matter experts with ready-made solutions – hammers looking for nails - who don’t always consider that there may be another solution.

If there’s an information or digital problem, then it must be a software or technology issue. If there’s a discovery problem, it *must* be a UX issue. If there’s an efficiency problem, *of course* it can be solved with process. When those easy, obvious answers don’t hold true, organizations don’t get the results they anticipated. Sometimes, the problems are more complex than originally thought or are symptoms of a different problem.

Design Thinking is perfectly suited to the increasing speed and disruption inherent in today’s micro and macro markets, institutions and customer segments that businesses must be equipped to address. It is perfectly aligned with developing Minimum Viable Products (MVPs) to ideate, test, innovate and get products and service offerings to market quickly.

All organizations deal with a diverse range of complex issues on a daily basis. No matter the organization or the issue, there are two essential things to consider. First, a full understanding of the issue. Second, an optimal framework to address the issue.

Design Thinking accomplishes and yields better solutions because it simplifies and humanizes the problems that organizations face.

Human needs - understanding how people interact with products and developing solutions around those interactions -- being “human-centric” -- is at the core of design thinking. By focusing on basic human needs, behaviors, technologies, community and data, design thinkers immerse themselves in the problem they are solving for and focus on integrating technology and other tools to innovate solutions with the human user paramount.

This is a collaborative non-linear process, completely human-centric, that allows for the exploration of multiple solutions to a single problem, quickly and effectively. It empowers an entire workforce -- not just designers -- to question approaches and ideate on a wide range of possible solutions.

Effective design thinking transforms how organizations create and develop strategies, processes, services and, of course, their products. It is a human-centered approach to innovation that enables a more effective approach to problem-solving.

A little history

While it has become more mainstream in the last decade, design thinking began to take shape in the 1960s with “wicked problems.” Horst Rittel, design theorist and professor of design methodology at the Ulm School of Design in Germany, coined the term “wicked problems” to describe complex and multi-dimensional problems. Education and healthcare are two examples of “wicked problems”.

According to Rittel, these problems were often changing and difficult to define, and to solve these problems one had to have a deep understanding of the stakeholders involved and an innovative approach. Design thinking provided this deep understanding approach.

Through the 1980s, design ‘thinking’ was embraced by various fields including cognitive science, architecture, industrial design and engineers, each field exploring different methods and processes to approach problems or tasks with inquiry.

Engineers such as Stanford professor John Arnold inspired the creation of a design thinking process by art professor Matt Kahn and engineering professor Bob McKim. This became the foundation for Stanford’s d.school and a framework for design-driven companies such as IDEO, widely accepted as one of the companies that brought design thinking to mainstream status. IDEO developed their own customer-

friendly approach that made it easy for others without a design methodology background to quickly understand the process.

Design thinking has been a major factor in how we interact with computers physically, influencing the design of products including the mouse and first computer style notebook. Phillips, Capital One, 3M, Apple and Nike have all adopted design thinking as a way to approach product, education, healthcare, banking and social issues.

Today organizations view design thinking and its empathetic stance as fundamental to business success and many are investing in and acquiring design thinking agencies. IBM has created their own framework around a multidisciplinary team, solely focused around the needs to users. The [Enterprise Design Thinking](#) framework enables them to “move faster and deliver differentiated outcomes over and over again.” Acquisitions such as Fjord by Accenture suggest that design is becoming table stakes for high-value corporate consulting. McKinsey & Company acquired design companies LUNAR and Veryday, Deloitte Digital acquired Heat, and PwC incorporated user experience design consults Optimal Experience. These acquisitions highlight that CEOs are recognizing the value and impact of design thinking and design methodologies.

What is design thinking?

According to Tim Brown, IDEO, 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.”

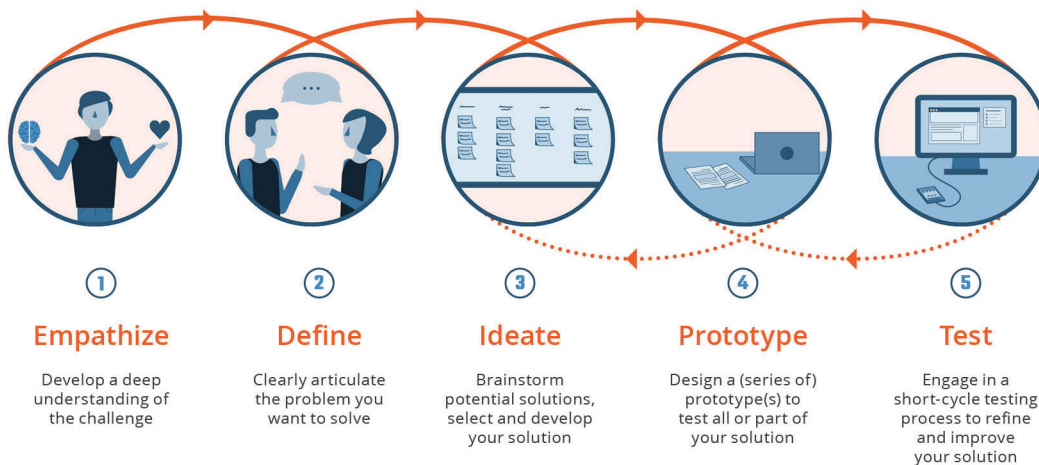
The methodology is helpful in taking on complex business problems that are often poorly defined or even unknown. By understanding the needs of consumers and stakeholders, this methodology reframes problems in a human-centric manner, generates multiple ideas through collaboration and brainstorming sessions, and gathers feedback quickly through rapid-prototyping and direct feedback through testing.

Design thinking generally consists for 5 key stages based on the model proposed by the Hasso-Plattner Institute of Design at Stanford (d.school). The five stages are Empathize, Define (the problem), Ideate, Prototype, and Test.

As organizations have adopted design thinking, some have renamed or adjusted the phases to fit their organization. For example, Blade Kotelly’s (senior lecturer at MIT and co-instructor of the MIT Professional Education course “Mastering Innovation

& Design Thinking”) suggests a 10 step approach to design thinking, but the framework of the 5 stages still exist. The first 6 steps are essentially the Empathize, Define and Ideate stages, while steps 7 through 10 comprise of the Prototype and Testing phases. Kotelly’s approach helps to outline the need for a collaborative cross-functional team that understands the internal and external people, as well as technical and business functions.

For understanding design thinking, let’s focus on the d.school model.



The **Empathize** stage is really the cornerstone stage of design thinking. In this stage, design thinkers work to understand people and their needs within the context of the problem that design thinkers are trying to solve. In this stage the focus is to understand why people do things, why they do them a specific way, their views, their physical and emotional needs and what matters to them.

As design thinkers move through the Empathize stage, they then begin to unpack all that they heard and saw in order to understand the larger picture. They gather everything -- interviews, quotes, empathy maps, journey maps, experience maps, personas -- that captures their impressions and information about people to begin to focus on the problem.

The **Define** stage is a critical stage because it determines the point of view going forward. This stage is about bringing clarity and focus to determine a meaningful and action-oriented problem statement. Interestingly, this stage is where you may discover that the problem you need to solve is not the one you started out thinking you needed to solve. This is the result of synthesizing the information and discovering connections and patterns. At the core is a well defined point of view (POV). According to the d.school, a good POV has the following:

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

Saves you from the impossible task of developing concepts that are all things to all people (ie your problem statement should be discrete, not broad).

A well-scoped, well defined POV makes it easy to transition to the Ideation phase in a very natural way. Brainstorming in the form of “How Might We ...” help design thinkers determine possible subsets of the entire problem, which in turn allows them to focus on different aspects of the challenge they are facing.

Ideation is where design thinkers start to transition from identifying the problems to creating possible solutions. The team is encouraged to start pushing the boundaries of possible ideas and solutions. Ideation is not about finding the one single best solution, but a wide range of solutions that can be developed further. It is about creating ideas from all the perspectives of the team, finding unexpected areas of exploration and going beyond the obvious solutions to innovate new solutions.

As the team works through Ideation it will focus on two or three possible solutions that they can carry forward into Prototyping. Moving forward with multiple solutions allows the team to quickly create and test possible solutions, without losing momentum.

The **Prototyping** stage is where ideas start to come to life. A prototype can be anything that a user will interact with. When developing the early palm reader device, product developers walked around with wood blocks wrapped in paper in their pockets to experience the design. A prototype can be a gadget, clickable prototype or a storyboard, anything that gives the user an actual experience.

Why is prototyping so important? From a business perspective, prototyping and testing are key to ensuring reductions in costs and time to develop and introduce a product. It starts a conversation with users, and gives you the opportunity to test possibilities and break down a larger problem into smaller more testable pieces. This stage is key to developing a MVP that can be used to market test and go to market sooner to preempt the competition.

The final phase is the **Testing** stage where prototypes are made available to solicit feedback from users. This provides the opportunity to understand users further and see how they will use and interact with a product in real life. A great rule from the

d.school is “always prototype as if you know you are right, but test as if you know you’re wrong -- testing is a chance to refine your solutions and make them better.”

Quickly receiving initial feedback encourages the team to refine the prototype, refine the POV and learn more about your users. Even if the prototype doesn’t succeed with users, it doesn’t mean the concept was a failure. The opportunity to quickly learn from users and adapt the product moves the team closer to the final product that will meet and exceed the need of users.

It is important to not only understand what design thinking is, but also what it is not.

Myths and misconceptions of design

Design thinking is only for designers. Design thinking is about all areas of business, technology and design working together to solve complex problems. Great designers do not have a rare radical genius approach that they come up with solely on their own. Great designers have a process that questions everything. They work through problems with others in a collaborative environment.

The combination of multiple viewpoints from sales, marketing, IT, data and other experts working together with designers often leads to unique and innovative outcomes. These solutions don’t fall from the sky, but come from adhering to a process and a systematic approach to solving problems.


Design thinking is a linear step by step process. The model of design thinking follows a 5-stage process — Empathy, Define, Ideate, Prototype, Test — which looks linear and like a process, but really isn’t.

When starting the design thinking process, ideas, pain points, issues, and concerns are laid out and organized. Design thinking allows organizations to see the scope of all possible issues to address. From there, design thinking becomes flexible and stages repeat themselves. Various stages can be repeated several times in order to better define the best solution.

It is not just following steps 1 through 5 and then you are done. Because it is an iterative process, the sequence is more likely to be something like:

Empathize/Define/Ideate, discover a spin off to new project for later,
Prototype/Define/Test/Empathize/Test, discover a spin to a new project for later,
Test/Prototype/Test/Define/Empathize/Prototype/Test.

This process repeats over and over, creating multiple interactions that meet or exceed the expectations of consumers, and continues beyond that as well.



Because design thinking is not sequential, it becomes a much more free-flowing collaborative method to solving complex business challenges. Organizations are able to openly share ideas, speak the same language in discussions, and have everyone on the same page when it comes to the challenges. The collaboration and clarity that the process brings and speed at which these challenges can be tested and resolved has a positive impact on organizations.

Research is done, before, during and after and the knowledge acquired at every stage becomes feedback to earlier stages. This creates a loop where design thinkers constantly gain insights that enable them to develop more innovative solutions because they have a better understanding of the consumer and problems.

It's just a phase in the process. Let's be honest, no idea is the be-all-end-all right out of the gate. If so, telephones would still be rotary style and nailed to walls.

The most successful organizations continue to be invested in the design thinking methodology. The feedback cycle never stops. Iteration never stops. This is, in part, because people's needs are changing faster than ever. More often than not, until something is a tangible object that people can interact with, no one can know how they will use it or what more it could be used for.

Great companies stay ahead of their competitors by constantly listening and iterating long after that first stage. Companies that constantly innovate get ahead and most importantly, stay ahead.

It is a set of guidelines. We live in a world where process is king. There is a defined workflow with prescribed steps and an outlined information pathway. Follow the guidelines and the process will do the rest.

Not so in design thinking.

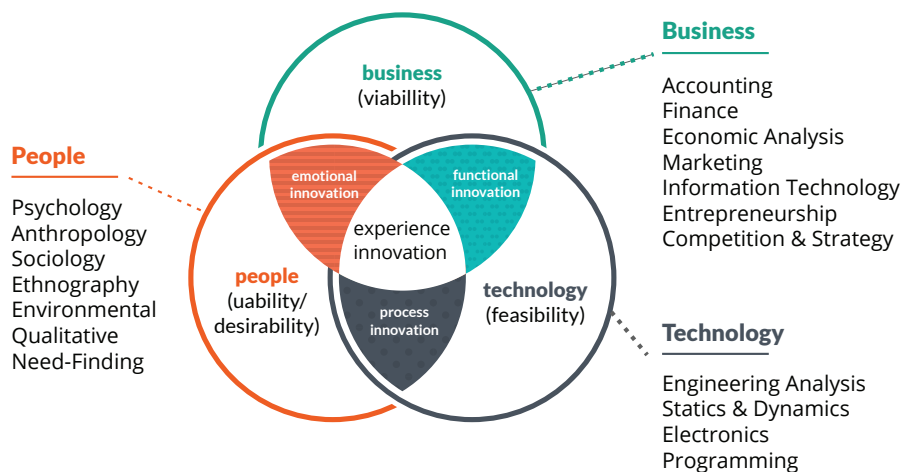
In all of my experience with design thinking, as a participant and as a facilitator, the problem solving process has never been the same. Any organization that offers design thinking as a service — if they have strong experiences that result in positive outcomes — adapt how they lead and utilize design thinking with their clients.

Forcing a particular set of steps out of a workbook or guidebook will seldom produce the desired results. This is true for the client goals and the organization goals. The process will be more painful, cost more and take longer and still not yield the result that best serves anyone.

The value of design thinking

Design thinking is an approach to creative problem solving. It has been called a methodology, a culture, and a philosophy. Ultimately it recognizes that design shouldn't just be about beauty in design, but should achieve functional purpose to meet business goals.

IDEO founder Tom Kelley's well-known Venn diagram looks at three key perspectives of design innovation. Kelley notes that innovation happens through viability (business), feasibility (technology) and desirability (people). The business perspective considers the internal and external business and industry dynamics. The technology perspective addresses technological or medical advancements ranging from scientific discovery to new applications. The people perspective focuses on the needs of the customer or end-user.



The framework of the design thinking process allows organizations to achieve a large number of benefits. For all organization types, design thinking can help refine strategies by identifying and investigating the most impactful user problems or needs to reduce business risks and therefore improve the results. Through the process, many organizations uncover redundant or wasteful processes and are able to streamline efficiency across multiple areas. They reduce costs, improve speed to market on new products as well as redefining existing products. This creates an energized environment for employees to the delight of customers.

Investing in Design Thinking

Even though design methodologies are more cost effective and faster than the traditional design/build model, they still cause concerns or worries for some organizations. How do you plan or estimate for creativity? How do you plan for the unknown release? As an organization and leader, you have to be prepared to discover hidden elements and ambiguities of ideas and trust the process.

Become comfortable with the unknown

This may be one of the hardest parts of the design thinking process for non-designers to get on board with. Decision makers in large organization, nonprofits and government typically are programmed to find a solution and determine a single path to move forward and execute on. Design thinking is not that. It is easy to understand why a process that allows for multiple solutions, learning, being wrong and iterating can be something that many are uncomfortable with. It just isn't something the current business culture is familiar with.


Design thinkers are different. They look for the "what is possible?" They are trained to be comfortable with not having the solutions right away. They know that through the process they will have constant learning and they plan to recover or pivot quickly based on new information. It is part of the process and they welcome it.

In today's competitive market it is vital for organizations to solve problems through ideation. This makes many uncomfortable. But the benefits are worth it and the process can also be quite exciting.

One of my favorite parts of the design thinking process is discovering that often what was originally identified as the problem turns out to not really be the core problem at all. Design thinking enables teams to discover this early on, thus avoiding expensive delays and delivering a strong customer experience.

In 2016, I was working with a large university. Their housing and residential life program wanted to create a better community for their students. One of the specific problems they identified was that retention rates decreased after the first semester on campus and in the housing program. The initial solutions that were proposed were to encourage engagement among residents through social gatherings, have the resident assistants be more available to students and so forth.

We got out of the office and spent time on campus talking with students from diverse backgrounds, housing employees, resident assistants and previous residents. We spent time in the residence halls and on campus observing and listening to people.



We were able to gather much more qualitative data and a deeper understanding of the needs to the residents.

Through the design thinking process, we discovered that a large part of the problem with retention did not occur after the students had been living in the residence halls, but actually in the month and year leading up to their first year. No one had thought to look at the period before students were in the residence halls as a source of the retention problems.

We were able to identify several pain points along the customer journey. We could therefore create a strategic plan to assess and prioritize these areas and then solve for each of them.

Once issues were prioritized and roadmapped, design thinking was used to iteratively solve each problem. With this strategy in place, the university was able look at each problem through a focused lens. Because the design thinking process is always forward moving, the feedback loop created as the team focused on each pain point informed future work for other pain points, thus increasing the information available and enabling the team to understand how everything was connected.

Developing strategies

In most organizations, design thinking is typically applied to innovation groups or at the project level. Like innovation and project teams, business teams need to be just as innovative and forward looking to stay ahead in their fields and find new business models.

Philip's Director of Data Enabled Design and Design Strategy, Eva Deckers, shared that design thinking can be used to better articulate a business strategy. "Design methodologies are particularly strong in bringing about unique value propositions, and thus potentially giving clear pointers to shaping a strategy." Philip's uses a methodology called Business Value Proposition (BVP) which applies design thinking at the business level.

Similar to the design thinking process, the BVP process at Philips explores the new business realities (Empathize), pinpoints the business positions (Define) and then makes it happen.

"In the first phase, the business team explores the new business reality in light of changing economic paradigms, explores the business ecosystem they are part of and reframe their position in it. The second phase focuses on pinpointing the position in a set of core values and benefit horizons, build based on six perspectives. In the last part, the team works on understanding how the benefit horizons translate to their daily business reality: how to make things happen."

Measuring the ROI of Design Thinking

Like any part of business, measuring the return on investment for design thinking and other design methodologies is important, and sometimes difficult. Do you use execution-oriented metrics or ones that reward novel thinking with creativity-oriented metrics?

Bernard Roth and Adam Royalty, also from the d.school, focused on creativity-oriented metrics such as empathy, novel thinking and iterativity. They stated that execution-oriented metrics did not help encourage design thinking because it focused on execution over novelties.

Both approaches are great tools for consideration for organizations having advance conversations about how to measure the ROI of design thinking according to Elina Zheleva. However, an organization that is contemplating how to increase the value of design thinking, Zheleva outlines a three step process that will help organizations.

1. Identify the individuals and teams working with design thinking. Train and track those working on your design thinking projects, especially in large organizations. Knowing these people have worked on projects, organizations can collect stories of how design thinking is applied to help contextualize ROI metrics.
2. Understand the delta. Understand what each team is doing differently and why. Learn from them what works and what doesn't work from their point of view. Learn where design thinking gets applied and where it fits the best. Both of these help you understand the impact on the culture and bottom line.
3. Prototype your ROI metrics plan. Use mock-up reports to test the usefulness and usability of future reports or use blueprints to test the ease of implementation. Just like prototypes of design thinking, keep your prototypes low fidelity.

For IBM, design thinking generated revenue, improved customer relations, and internally bridged gaps across product and design teams to dramatically improve profits from IBM's product portfolio for a total ROI of 301%. The results outlined in the Forrester Total Economic Impact Study highlighted key takeaways.

- Project teams doubled design and execution speed. Profits from faster released combines with reduced design, developers, and maintenance costs to deliver for \$20.6 million in total value.
- Organizations slashed the time required for initial design and alignment by 75% — cost saving between \$196K-\$872K depending on project size.

- Project teams leveraged better design and user understanding to reduce development and testing time by 33%
- Cut design defects in half by being more successful in meeting user needs and reducing subsequent work.
- Faster time to market enable increased profits from net-new customers and the higher present value of expected profits.
- Human centered design improved products outcomes, reduced risk of costly failures and increased portfolio profitability. The refined strategic prioritization enabled investments to be isolated that were less likely to fail.
- Cross-functional teams collaborated to share problems and find solutions reducing costs by \$9.2 million in streamlined processes.
- Unquantified benefits included encouraged and empowered, engaged and happy workforces; enhanced KPIs such as User Interface, Customer Experience, Net Promoter Score and brand energy. Perfected internal processes for HR, Sales and others.

Using Design Thinking to mitigate execution risks and cost

The consequences and costs of a typical digital transformation redesign as a project advances from start to completion increase exponentially. Using Design thinking early in the process to designing a solution that is customer centric reduces the risk of material changes in the future. There will always be some hiccups, but planning for this from the beginning allows the framework to be flexible and costs to be contained.

In the standard digital design/build practice, costs accrue and increase through the four stages: Design, Build, Test, Post-Release. The first phase, Design, generally takes the least amount of time and cost to complete. Designers, working alone, are given a project with some background, some client feedback and told what type of product to create. Some designers may consider the technical needs, but generally they simply design what they think is best. There is no development required, it is simply ideas “on paper.”

The Build and Test Phases can typically take much longer depending on the size of the project, increasing the costs and man-hours. Because of the time elapsed and increasing investment the ability to pivot smoothly or make adjustments in these later stages dwindles.

Even with the Test feedback, finding the time and budget to make updates, to change once problems have been identified can take months or years. The project may be too far to “fail”, with too much political and real capital invested, so the deficiencies are swept under the rug and never addressed. To make the necessary changes, organizations often need to start the process over again – resulting in higher cost and missed market opportunities.

The Consequences Of Redesign As Project Phases Elapse				
IMPACT	DESIGN	BUILD	TEST	AFTER RELEASE
Costs incurred by redesign	\$	\$\$	\$\$\$	\$\$\$\$+
<i>Fail fast, fail cheap</i>				
Time required to redesign	Hours to days	Days to weeks	Weeks to months	Months, years, or never
<i>Beware competitors beating you to market</i>				
Agility to pivot project strategy, design, and requirements	› Easily and quickly gather ideas, mock up solutions, test what resonates, and define strategy.	› Changes can be accommodated with low to medium costs, though resistance begins to surface.	› Very difficult to socialize and get approval for major changes.	› Pivoting is now an entirely new project requiring new contracts, budgeting, prioritization, and approval.
<i>Resistance to change grows quickly</i>				
Impact on team morale	› Energizing design process excites and inspires employees to be creative.	› Excited employees retain creativity as they begin to work through and solve problems.	› Employees become frustrated by rework and lose motivation. › Employees begin to lose faith in leaders.	› Pessimism abounds as employees oppose redoing entire projects. › Employees may have lost faith in leadership.
<i>Employees start energized, but become frustrated and inflexible</i>				
Impact on users and the bottom line	› Discover new opportunities. › Prioritize the most important projects. › Ensure projects meet user needs. › Maximize profits versus costs. › Deliver great UX/CX. › Cancel projects early to avoid wasted costs.	› Limited risk of project cancellation. › Limited expense for major changes. › Change course early in development to meet timelines.	› High risk of project cancellation. › Expensive to make major changes. › Users must wait much longer for project completion.	› Possibility the project is 'dead on arrival,' failing to generate revenue. › Underperforming sales, revenue, and profits. › Negative impacts on retention and acquisition. › Damaged brand image, UX, CX. › High maintenance and customer support costs.
<i>Prioritize and solve key problems to grow the business</i>				

FORRESTER

When you consider that the Design phase of the design/build practice is the least costly and least time consuming, it is easy to see why design thinking focuses there. Design thinking allows organizations to collaborate in the most flexible phase. Incorporating more areas of disciplines into the design phase encourages collaboration and ideation. Concepts are viewed more holistically, teams can assess the cost impact on time and resources and plan a product that is built for iteration throughout its entire lifespan.

It is creating design that matters.

So where to begin?

Empathy is at the center of everything.

Let's start with this ... if you don't deeply know and understand your customers, you will never be able to meet their needs. Pretty simple.

There are many technologies that assist with learning more about your consumers to improve the overall customer experience (CX). Qualtrics Vocalize (VOC), for example, uses machine learning with natural language through open text to discover trends from your customers by measuring how a customer feels about a services experience. Chatbots and feedback loops are can easily gathering information for analysis. However, these tools only help understand the customer when they are already engaged with the organization.

You can't sit behind a desk if you want to understand your customers. Interacting with and observing your customers gives you insights and a better understanding of what is driving the data and metrics that a tool is gathering.

“To gather customer insights you need to go outside of the building and to come up with good design you need to ideate, prototype and create artefacts.”


- HassLabs

The core of design thinking or human-centered design is always about Empathy, not just for user, but for other stakeholders as well. So, let's define Empathy in this context.

Empathy is understanding what others are feeling because you have experienced it yourself or can put yourself in their shoes.

Empathy should not be confused with sympathy - which is acknowledgement of another person's emotional hardship to provide comfort and assurance. You can sympathize with a neighbor who lost their home in a fire, but unless you've suffered the same fate, you can't empathize.

Design thinkers focus on empathy. The design thinking process considers people's ethnographic background, behavior, thinking, motivations, habits, and needs. Design thinkers consider a person in their everyday life and all of their interactions with a variety of products and services throughout their day.



The Empathize phase uses a variety of tools to help design thinkers understand the users.

Interviews

User interviews are at the core of design thinking, UX design and customer experiences. Get out and have a conversation. Interviews are one of the best ways to give insights into your customer's journey. You gather information about their feelings, motivations and daily routines, how they use and what they expect out of your service or product.

Unlike surveys, interviews give you the opportunity to view people in their environment, read their body language, hear those small details that potentially highlight that hidden need or problem.

Airbnb has a well documented case of how interviews with their clients changed the course of their business. They launched their initial website that they thought was perfectly engineered based on their business plan, but weren't getting the results they anticipated. They stopped engineering their website and went to speak with a handful of customers.

Informed by actual users, the founders found that the website was full of flaws and simple tasks like picking dates on a calendar was confusing and hard for customers. Soon after fixing the issues one-by-one, their revenue doubled. They continued to conduct interviews and make improvements and became one of the first unicorns in Silicon Valley.

The founders stated "There's this gap between the vision and the customer. To make the two fit, you have to talk to people."

Empathy for internal stakeholders is just as important to design thinking and good CX. It enables an organization to face their own pain points in UX and customer service. When these pain points are discovered and are solved with new processes or technology, it allows employees to focus on key details of their role and servicing the needs of the customer.

Personas

Obviously, every organization is trying to solve problems and satisfy a diverse group of consumers. Each customer is different, each has a different need, each may face a different problem, however, they all share commonalities. Design thinkers often group individuals into personas to encapsulate these commonalities and differences.

“Personas are representations of a cluster of users with similar behaviors, goals, and motivations. As such, personas are fictional, yet still realistic because they embody the characteristics and behaviors of actual people.”

- Nelson Norman Group

Personas give a face and name to define whom we are solving a problem for. It is easy to get lost behind numbers and analytics, feedback that is faceless. Personas aide organizations in understanding each consumer and helping them connect with the concerns of that individual.

For example, colleges and universities are often trying to balance communications with a variety of audiences from diverse backgrounds, all of whom are in pursuit of a degree, but have different priorities. Colleges and universities are made of up all kinds of students: Traditional, Graduate, Non-traditional, International, Transfers and First Generation. These students are people, not “Second year undergraduate student: Journalism Major” or “Graduate student: MBA program”. Different personas interact and engage differently with products, services and companies.

Assigning a name and a story to each persona ensures focus on designing a solution tailored for them. Instead of assuming a “Traditional” student will want information on applications, athletics, scholarships, job prospects and campus life, personas can help target communications to their specific needs.

Sample Persona: “Sue” is a 17-year-old high school student from San Diego, who is actively engaged in volunteering activities such as planning her community’s annual blood drive. She is interested in medical school and wants to attend an undergraduate institution with a robust pre-med program.

A design thinker analyzes this persona and sees an opportunity to create a product, perhaps a newsletter, that targets Traditional students using personalization. The college can create content packages around volunteer opportunities or specific programs without overwhelming “Sue” with information about athletics.

Empathy Maps

Where a persona is descriptive, empathy maps collect a variety of observations of a person’s experience. An empathy map is a summary of learning from engagements with people interviewed. The map provides four major areas which provide an

organized overview of a person's experience in more detail:

What does Sue **THINK** and **FEEL**? - What really matters to her? Her major preoccupations? Her worries & aspirations?

What does Sue **SEE**? - What is her environment? What do other schools offer? Her friends are doing what?

What does Sue **SAY** or **DO**? - What are her attitudes in public? Her appearance? Her behaviors towards others?

What does Sue **HEAR**? - What do her friends say? What do her parent(s) says? What do influencers say?

The power in an empathy map, or a collection of empathy maps, is that you can start to observe patterns and opportunities that help prioritize problem solving areas.

For example, if you are a news organization or association and all of your empathy maps have the following general statements:

- "I don't feel I have enough time in the mornings to read every newsletter I get"
- "I worry if I run into my boss and don't know the latest news about our business he will think I'm unprepared"
- "Every morning I drive to work."

These comments may not seem to matter, because they aren't dealing with when consumers are using your product. But notice that multiple personas all say the same thing. Design thinkers would view this as an opportunity to create a service to enhance an existing product. Working with content creators and their IT departments, they create a podcast version of the newsletter that the consumer can listen to on the way to work.

They do simple audio recordings at little or no cost and test with customers. If customers react positively, they can work with the tech team to better incorporate the audio into the actual newsletter. If customers don't engage with the podcast as anticipated, the team can seek feedback to determine if the idea is worth pursuing further or not.

Without empathy, it is impossible to create a long-lasting solution. It doesn't matter if your organization is solving social issues, logistic systems, internal organization structure, hospitals, software or creating a strategy. Design thinking and human-centered design are always about empathy.

The benefits of rapid-prototyping and Design Sprints

Design-led companies aren't trying to solve everything all at once. They can focus on smaller goals with a wide range of people, which can unlock all kinds of ideas and intuition from different perspectives. When we build an environment where many different people are looking at possible solutions, we can increase the rate at which ideas are generated and introduce them to the market faster.

These ideas don't have to be perfect right out of the gate, and mostly likely won't be. A design thinker referred to putting ideas out quickly, in beta, as "enlightened trial and error." Getting an idea in front of users to get feedback quickly means we are not wasting time for feedback during a postmortem, when it may be too late.

A tangible prototype encourages real-time, real-life feedback, but a fully functional product is not needed to test an idea. End-users are asked to participate in feedback sessions for new ideas. Customers like to feel that they have a voice in the creation or reinvention of a service because they feel it will better fit their specific needs.


Until customers can interact with a prototype, most feedback is wishes and ideas. Prototypes make ideas reality. Prototypes allow organizations to let consumers interact with "something." Not all prototypes are objects that can be held in your hand, a new tagline for a marketing campaign, designed and presented to a customer, can be a prototype.

Enter the Design Sprint

A design sprint is a time-condensed, highly focused five-day process that quickly consolidates all phases of design thinking into a condensed process. Insights on users are quickly gathered, ideas are expanded on, prototyped and tested all within a five-day period. The goal of design sprints are to focus on solving one specific problem.

Design sprints have been most notably used for consumer software products. The process and techniques can be effectively applied to other services, products and communications such as visions statements (it is a lot harder to develop a vision statement than you think). This tool is beneficial when a project needs to quickly pivot or as a check-in at each stage of a project.

Like design thinking, design sprints gather team members across all areas of an organization. This small rapid-prototyping process is fast, but involves a full five



days of each member's time, without distractions. That can be a hard investment for companies, but the benefits of a design sprint outweigh the cost.

Less Risk, More Speed. Design sprints have a track record of saving teams months of back and forth emails, design, engineering and development costs. A design sprint can take an idea and test it quickly without the price tag of a failure. Sprints allow you to quickly work through multiple hypotheses to see if they are valid or if a pivot is needed, all without a high cost.

Focus. When a team is highly focused without distraction, the amount of work that can be done is amazing. My experience in design sprints is that every individual is more productive under the structure of a design sprint. Without all of the daily distractions and interruptions it is easy to see where a five-day sprint can produce the same outcome as a 6-week project.

Feedback before you build. The goal of a sprint is to build something that people will actually use. Within five days the team ideates, prototypes and get immediate feedback from users. In less than 40 hours, you have concrete evidence if you are on the right track and meeting the needs of the users, or if you need to pivot. You can make more informed decisions about how you move forward.

Collaboration of diverse skill sets. Some of the best design sprints I have ever participated in or facilitated have involved individuals from a wide range of roles in an organization. They are all experts in their own areas, but seldom have access to the same data points that others view. On day one, these siloes come down and the team starts to see all the information. Each brings a unique point of view to the problem and everyone starts to align more clearly to the same goal.

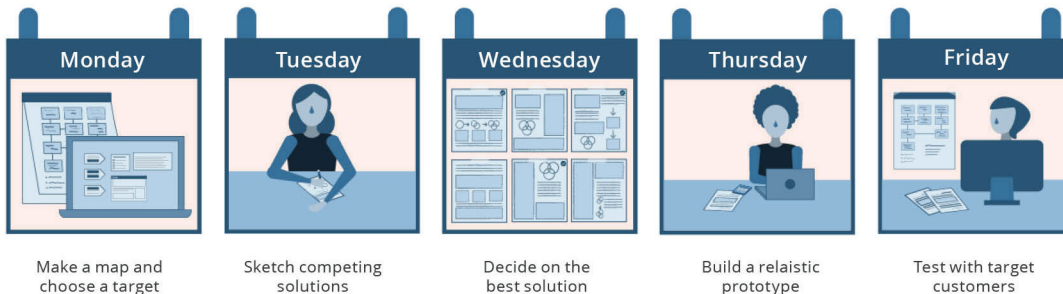
An added bonus ... at the end of a design sprint, people from across the organization feel they have been a part of something unique, are less siloed and more invested in the project's success.

What is involved in a design sprint?

The Google Ventures (GV) framework of a design sprint is the most common. They have conducted more than 150 design sprints around the world for a wide range of organizations such as Slack, Flatiron Health, Blue Bottle Coffee and tackled a

range of issues from government online tax platforms to domestic abuse in Russia. Its methodology combines business strategy, innovation, behavior science, design thinking and more into a structured process.

The first step is determining whether to do a design sprint to address a specific problem. Sprints should be used when there is not enough time, when the stakes are high or when you are just stuck. You want to be judicious with your time and the time of your colleagues.



A great example of a situation that can be all three scenarios is a website navigation menu. Most organizations determine their navigation menu based on how they organize their content, and where they feel it should be. Add in the internal political complications of what has priority and what “has to be there” that can go on for weeks or months and a navigation menu can become more of a service for the internals of the navigation than the users. Whether through a reorganization of content or a redesign, the best outcomes for a navigation menu have come out of design sprints.

A navigation menu design sprint removes what the internal opinions of what a navigation menu should be and focuses on “how might we” make the content important to the consumer easier to navigate to from the navigation menu. The focus is now on what content is important to the customer, which is defined by the customer, not the business. The sprint defines the navigation menu and can be prototyped and tested with actual user feedback in five days.

The second part of a design sprint is gathering the right combination of individuals in a room. In my experience, keeping the participants to about 7 or 8 works best because it brings in a range of viewpoints, but is small enough to manage. Other than the facilitator, sprint teams should include people from your organization that know your customers and know your systems. This includes sales, designers, developers, content marketers, system architects, mid-level and senior level personnel.

Generally, I would stop short of the C-suite, but it depends on the organization and how the C-suite views the design sprint process. In a few cases, I have seen C-suite

participants drive the sprint towards what they feel the result should be, viewing the team solely as a means to a quick solution. I have facilitated design sprints where the C-suite participants are encouraged and inspired by the work and fully support the team as experts working to find the best solution no matter where the solution comes from.

Day 1: Understand the problem.

Five days doesn't seem like a lot of time. It is easy to want to rush ahead, but the first step is to clearly outline the problem, share all the important information and prioritize. A sprint can end up being a waste of time. This means starting at the end.

As a team, you must make sure you know and understand the long term goal (beyond the sprint) and all of the questions that you must answer. The team needs to understand why they are taking on this project and what this project should evolve to be in the short term, mid-term and long term. In the end, it is important for the entire team to understand, have clarity and be in agreement of the long term goal of the project.


This is also the time to be optimistic, even if the design sprint is to re-evaluate a project that has not been successful the last several months. Day 1 is an opportunity to elevate assumptions that can potentially be dangerous to the process and reframe them as questions and determine the answers. Turning potential problems into questions makes it easier to approach and track, and therefore easier to sketch, prototype and test.

Understand how your users get to the goal is equally important, understanding the steps and mapping it all out. This isn't the path that your end result will ultimately take, but it helps to simplify and understand the journey.

In the 2000's, Flatiron Health wanted to make clinical trials more accessible to cancer patients. Their long term goal was "More patients enrolled in trials". They asked; "How can they match people with trials fast enough?" and "Will clinics change their workflow?". Through discussion in the design sprint they ended with a very simple map.



Source: Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days



Even though the mapping was simple, there were a lot of complex issues behind the steps which needed to be considered. It set a simple framework and enabled the sprint team to see a goal and stay focused on solving the problem in a human-centric manner.

One of my favorite parts of Day 1 is when you bring in subject matter experts in the functional areas that you are trying to develop solutions for. When experts from different areas of an organization engage with artifacts like the map, they start to point out things that the team may not be aware of, because they all have unique points of views and different interactions with customers.

Subject matter experts give direction on a lot of information that needs to be gathered. Enter the “How Might We ...” framework.

“How Might We” is a technique for turning notes into questions. Its format and wording is very specific for a reason.

- **How** – Implies it’s possible. It suggests that we don’t have answer yet, it helps us set aside prescriptive briefs and explore a variety of options.
- **Might** – We may or may not do “it.” “It” is a possible solution, not the only solution and allows us to look at multiple solutions and not fall into thinking the first one is the right one.
- **We** – This is collaborative and we do it together. The idea for the solution will come from a collective team effort.

“How Might We” questions reframe problems as opportunities. It is easier to embrace opportunities than to focus on the negative feeling of a problem. Gathering and organizing your “How Might We” notes into clusters allows you to see common areas and trends and then pick an area to focus on for the rest of the sprint.

Day 2: Finding Solutions

Everyday we use things that we like, or see things that we find interesting. Often these don’t have anything to do with a problem you face within your organization, but that doesn’t mean it can’t inspire a solution. Ideas exist everywhere and just because you use them for inspiration doesn’t take away from your solutions.

Day 2 is one of those days that starts to make people uncomfortable as they are pushed outside of their comfort zones. “I’m not a designer.” “I’m not a sketcher.” “I don’t know where to get ideas.” Everyone is a customer of something and can contribute to solutions.

Day 2 is about focusing on the possible solutions.

It allows the team to focus on how they interpret the problem as an individual after hearing from the experts. Instead of a brainstorming session where people sit back and let others lead, each person is putting their concepts and ideas on paper. This prevents everyone from grabbing on to one idea and not exploring variations or options of that another idea.

Imagine a brainstorming session where one person is just promoting their idea and their solution to the problem. Through just listening to other talk, your mind can wander off and you may not think of an alternative, or if you do, you don't want to speak up. The end result is everyone has been convinced that the first solution is the one that has to move forward. The person pitching the solution may not have the opportunity to think of small tweaks or details that would make the solution better.

Day 2 allows each individual to think through a variety of solutions on their own. They can recirculate an old idea from a past project or an idea they never ventured to share before. In the end there are multiple concepts from a wide point of view.

Day 3: Decisions to Testable Ideas

Day 3 is where the big decisions start to get made. There are now a stack of ideas. You can't build all of them.

With so many ideas put forward, there will be good ones and bad ones, there will be ones that on their own won't solve the problem, but may do so if combined with another idea. Each idea presented is an idea that someone thought could work. Rather than everyone taking more time to advocate for their solution, the Design Sprint process uses a voting system in silence and also "supervotes" from deciders. This process simplifies making decisions and keeps the process moving forward.

The process looks like this:

- **Art Museum:** All the sketches are placed on a wall like an art museum.
- **Heat Map:** Participants look at all the solutions in silence and use dot stickers (vote) to mark parts that they find interesting.
- **Speed critique:** Quickly discuss the highlights of each solution and captures notes.
- **Straw Poll:** Everyone gets to vote one more time and to quickly express why.
- **Supervote:** The decider makes the final decision.

With the decisions made and concepts discussed, the team is able to focus on what idea will be prototyped, but it is essential to remember that other ideas on concepts still exist. These may be beneficial for another iteration after feedback or help solve

another problem for another project.

To determine what to prototype, the team creates a pretty rough and messy storyboard (not long-form movie storyboards). The storyboard helps to imagine what the finished prototype will look like and gives everyone the opportunity to discuss points of confusion or any problem areas before prototyping starts.

This day is the hardest part of the sprint. Looking back, the decisions have been made and the prototype is planned out. It may not seem like a lot, but it is difficult.

Day 4: Prototype

Some organizations hand off the prototyping to a different team than the ideation team based on the time commitment or expertise. It can work very well either way - it depends on the organization and the skills of the team members.


In the traditional GV Sprint, the same team does the prototyping stage. It isn't about creating a full working project, but rather the illusion of a working prototype. For prototyping websites there are several online tools such as Invision, Sketch and UXPin which allow online interactions that can be tested. Keynote is a great prototyping tool with easy to use layout tools for websites and printed reports and brochures. A script acted out can serve as a prototype for customer service interactions. Anything can be prototyped.

The key thing to remember is that you aren't looking for perfection. You are looking for 'good-enough' to test what you are trying to solve for. GV calls this the "prototype mindset" with four simple principles:

- **You can Prototype Anything:** There is always a way to test your product or service. Be open minded.
- **Prototypes are Disposable:** Don't spend days or weeks. Your solution may not work and you don't want to have diminishing returns.
- **Build just enough to learn; not more:** Prototypes should answer your questions. They don't need to be fully functioning.
- **The prototype must appear real:** To get trustworthy feedback you can't ask your audience to "imagine", so show them something realistic.

Day 5: Instant Feedback

Testing and getting immediate feedback is what makes the entire sprint worth all the work. Getting instant feedback from actual users through interviews and observing them with your prototype lets you know how far you need to go, if you need to pivot



and what you need to do next. Observing users interacting with a prototype and getting instant feedback to let you know if you are on the right track saves weeks and months of time and money.

SPRINT states that it is very tempting to allow the team to disband during the feedback interviews, but in reality it is helpful for all of them to be a part of the interview. As each team member hears and watches the interviews, they will interpret things differently than their counterparts. Just as it is the beneficial to have ideas generated from different points of view, it is equally important to take notes from varying points of view. Patterns begin to emerge and the team can gather quickly to determine the next steps.

Design Sprints create energy and excitement for organizations, especially after they may have been bogged down in long processes for long periods of time. A sprint helps team look at the problem as a whole and not jump to conclusions. They allow each person to have a voice by working independently and they can end a long debate cycle and endless meetings by putting a decision in place that reflects the work and priorities of the team.


How Design Thinking Can Fail

Design thinking is a great process. It is collaborative, it yields insights, it is problem solving and building and testing, all human-centered and focused on the customer.

While design thinking has become very mainstream, it has also become just another tool for some organizations. While it is encouraging that so many want to be involved in the design thinking process, it also has its downsides if not done correctly.

Large groups of stakeholders in every part of the organization often want to be deeply involved in the process, becoming immersed in every step of the design and development process. Individuals and groups want to promote their agendas and protect their turf. Design thinkers can spend an inordinate amount of time explaining and justifying every decision and rationale to stakeholders instead of focusing the actual design or development work.

Critical problem-solving and design are often limited to being 'good-enough' because of tight deadlines and project timelines. When deadlines drive the process more than fully understanding the problem, creative skills and innovation erodes. The focus becomes the functional product and deliverable, instead of the problem-solving and outcomes. This is often because the tangible elements of the functional work are easier to understand and act on.



The biggest problem is forgetting that design thinking is an iterative process. It never stops, it is always moving forward. Uninitiated design thinkers often focus all of their time on the discovery and ideation phases. They think they have struck gold when they find something previously unknown. They rush through the create and design phases and move straight into development without letting the project mature. Then they leave and move on to the next challenge. Organizations often have to go back to the drawing board down the road, because the process was short changed and the solution did not successfully address the original challenge.

Creating great solutions takes time and a dedicated team who can constantly push each other. The team has to have a deep and understood flow to the process throughout. This is how ideas mature into great innovations. Design thinking works best with a team of experts across a variety of fields who can focus and iterate throughout the entire lifecycle of a project.

More than a process


Design thinking goes beyond a process and a department. It involves a wide variety of individuals and backgrounds who focus on having a deep understanding of the problem and customer needs through design, development and testing. It fosters a culture of innovation in the same vein as bootcamps, sprints and hackathons. A design thinking culture has more to do with leadership than process – leadership’s ability to create an environment where innovation, creativity and risk-taking have the opportunity to succeed.

This doesn’t happen with intermittent workshops or only when problems arise. Those are great starts and sometimes needed to show the power of design thinking, but doesn’t result in sustainable change through a constant conversation of innovation and creativity in all areas of an organization.

Many believe that a design thinking culture means to encourage failure as long as failure is fast and can be turned around. In truth, a design thinking culture has more of an iterative nature, understanding that it is very rare to get things right the first time. It is a culture that plans for iteration as a part of the overall process. Design thinking doesn’t encourage failure, but it does support it.

Jeff Bezos, founder of Amazon, emphasized that being tolerant of failure is part of the culture and success of his businesses. Bezos said in a letter to his stakeholders, “Failure comes part and parcel with invention. It’s not optional. We understand that and believe in failing early and iterating until we get it right.”

This is not a new concept to many, especially entrepreneurs. When you look at successful people and organizations, these are common traits. Successful people



continue to try, even if it means failing. Failure isn't the opposite of succeeding, but rather a necessary component to drive innovation and success.

A design thinking or creative culture means knowing how to apply tools such as design thinking to inspire, understand circumstances and know all of the various roles needed for innovation. It empowers employees at all levels to participate and contribute to the process, to feel comfortable pushing boundaries and asking questions without fear of stepping out of their lane, because the lanes no longer exist.

This type of culture transforms a company's talent into strategic thinkers who value the organization's mission and vision for the future. They encourage innovation with people who are driven to expand their imaginations, explore diverse possibilities, and use logic and exploration to solve internal or external problems.

Conclusion

Organizations across the world have found that design thinking helps them succeed and grow by taking complex problems and simplifying them into easy to understand issues. By focusing on the people they are creating for and keeping those people at the center of their focus, they are better able to understand their services and how those services are perceived, used and received.

Integrating design thinking allows organizations to shatter expectations and show everyone for a new aspirational standard for what to expect from others.

Through the design thinking process we often discover that the real issue is something much different than originally thought. While technology and automation can point us in the right direction, until we interact personally with customers, until we empathize with them, we can't fully understand where the core problem resides. The deep discovery process of design thinking helps organizations define what and where the real problems lie.

Without a doubt there are challenges with design thinking. Leaders have to accept ambiguity and that design doesn't conform to estimates. Leadership needs to embrace risk and create a culture that allows people to explore more, even without a complete logical understanding of a problem. This means creating a culture that doesn't encourage failure, but understands that failure is part of the process and path to success.

Design thinking can't solve all of an organization's problems. Design thinking works

well for imagining the future for innovation and helps people and organizations cut through the complexity of problem-solving. It is effective at addressing numerous issues, but it is not the tool for every business challenge.

Design thinking can help facilitate culture change by changing behaviors and laying the foundation for sustainable change. It can be stressful for those unfamiliar with design thinking and unwilling to embrace change. It isn't easy.

Design thinking enables organizations to create unique opportunities to humanize technology and create products and services that emotionally connect with the people they are created for. For those within the organization, design thinking can discover problem areas previously unknown and streamline processes to make the employees more efficient in their roles and ultimately more effective.

Design thinking allows organizations to create an exciting culture of innovation and empowers employees to thinking outside the box. Because design thinking is empathetic, it drives a more human approach to business. It can create a workplace where people want to be and products and services people want to use.

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