

By Nelson Soken

**Groupthink. Egocentrism. Information bias. These are some of the pitfalls that hold us back from the business innovations we hope to achieve. Recognizing them is half the battle.**

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# Creating Design Value Through Understanding Human Cognition and Behavior

**D**ESIGN THINKING HAS GARNERED a lot of attention and buzz in the popular press and has been adopted by many companies. Applying design-thinking principles to solve problems and address the needs of end users can yield significant results for organizations. However, for many, design thinking can be a mysterious and even mystical concept. My goal is to demystify what design thinking is and show how it can be a valuable asset for individuals and organizations.

Let's start by defining design thinking. Here are a few attempts at an explanation:

"Design thinking can be described as a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity."<sup>1</sup>

"The design-thinking process first defines the problem and then implements the solutions, always with the needs of the user demographic at the core of concept development. This process focuses on need finding, understanding, creating, thinking, and doing. At the core of this process is a bias toward action and creation; by creating and testing something, you can continue to learn and improve upon your initial ideas."<sup>2</sup>

A core tenet of the design-thinking approach is a focus on the end user at the center of all thoughts and activities. Design-led companies also try to align their innovation strategies as closely as possible with their business strategies.

**Notes**

1. Tim Brown, "Design Thinking," *Harvard Business Review*, June 2008, p. 49.
2. "The Design Thinking Process," from "ReDesigning Theater," Stanford d.school web page.
3. Ayse Birsel, *Design the Life You Love: A Step-by-Step Guide to Building a Meaningful Future* (New York: Ten Speed Press, 2015), p. 10.
4. Jeneanne Rae, "The Design Value Index," *Design Management Review*, vol. 26 (2015), no. 1.

Sound good? Here's another definition that expands our view of design thinking beyond a business to a personal perspective.

"Design is about identifying and working within given constraints to arrive at new and better solutions. Life, just like a design problem, is full of constraints—time, money, age, location, circumstances, and so forth. You cannot have everything. If you want more, you have to be creative about how to make what you need and what you want coexist. This requires design thinking."<sup>3</sup>

The point I want to emphasize is that design thinking is a psychological mindset rather than a tool or process that if used or followed like a recipe will give you the desired result. Given that it is a psychological mindset, it takes personal fortitude, conscious effort, deliberate reflection, and a dose of humility to shift one's generally self- and task-oriented perspective of the world.

But before investing time in shifting one's perspective, what's the evidence to support the value of design thinking?

According to the Design Management Institute (DMI) Design Value Index—a market capitalization-weighted index comprised of design-driven companies—firms that incorporate a design-oriented corporate strategy demonstrate a 219 percent return-on-investment (ROI) advantage over the S&P500 index over a 10-year period (2004-2014).<sup>4</sup>

Achieving these results requires overcoming the natural human tendency at both the individual and the group level to resist change. Indeed, abundant evidence demonstrates that people generally defend the status quo, avoiding chaos and disruption—especially when there has been a well-established status quo. Individuals and organizations must feel comfortable moving away from default ways of thinking that have led to past success, and that isn't easy.





### Overcoming cognitive biases

Humans have mental structures (schemas) that are built on their experiences and form the expectations and assumptions that guide the way they think, act, and interpret what is going on in the world. Barriers to individual and organizational change are often the result of human thinking and behavior—a specific type of thinking called cognitive bias.

A general definition of human cognitive bias is a *systematic error in thinking that affects the decisions and judgments that people make*. Many cognitive biases and general human mental tendencies have been identified that demonstrate humans are not as logical and rational as believed. Below are some common ones that have a major impact on creating value through design thinking:

- **Concrete operational thinking** (Make it tangible and not abstract.)—Tendency to apply logic and view the world in terms of physical objects rather than thinking or viewing the world abstractly or hypothetically.
- **Egocentrism** (It's all about me.)—Tendency to judge everything from one's own perspective because of an inability to see another person's point of view.
- **Information bias** (More information will help me make a better decision.)—Tendency to believe that more information to make a decision will improve the decision, even if that extra information is irrelevant.
- **Confirmation bias** (Fit what I believe with the data.)—Tendency for people to fit information into their current belief system even if they have to reinterpret, ignore, or dismiss that information.
- **Functional fixedness** (If the only tool you have is a hammer, you treat everything as if it were a nail.)—Tendency for people to limit how they use (or view) something only to the way it has traditionally been used or viewed.

- **Salience** (The loudest or most important wins, or The last event or person has priority.)—Tendency to focus on what *stands out* rather than on what is most important.
- **Loss aversion** (I'd rather hang on to what I have than risk it for something new.)—Tendency for people to strongly prefer avoiding losses to acquiring gains.
- **Groupthink** (Conformity/consensus is more important than active debate about best option.)—Tendency of the members of a group to yield to the desire for consensus or unanimity at the expense of considering alternative courses of action.

The point? Success with design thinking requires self-awareness and mindfulness of the impact human cognition and behavior has on the design process and, ultimately, on the solutions that arise. But how do you overcome these barriers to change? You can start by inviting some cognitive flexibility into your thinking.

### Cognitive flexibility

Cognitive flexibility is a mindset of openness, curiosity, creativity, and a willingness to admit that you don't know everything and that you may even be wrong in some situations. A cognitively flexible mindset exposes, challenges, and tests assumptions about the present and the future. It looks into the mirror and reflects on what the weaknesses might be in its current state.

Assumption is defined as *something that is accepted as true or as certain to happen, even without proof*. So often, we accept things in our world as fact and truth when in actuality they are just assumptions. For example, Lisa Bodell, author of *Kill the Company*, recommends trying an exercise in which an organization conducts an honest assessment of itself from the perspective of an outsider—such as a competitor that wants to destroy it.

In my design consultancy and as chief innovation strategist at Barnes & Conti

Associates, Inc., I work with a variety of organizations to build the mindsets and skill sets for individual and organizational competency through immersive, experiential, blended learning workshops and user research.

Here are a few examples of core mindsets and skill sets that are critical to apply a design mindset to real-world problems.

### EMPATHY

Walking in the shoes of someone else; seeing the world with the eyes of another; listening with the ears of another; feeling with the heart of another: Whatever metaphor you use, empathy is about stepping out of your view of the world and seeing it through someone else's perspective. To transform the world around us, we have to truly know what it is like for them.

Here's an example. During one engagement, I had a healthcare business team experience what it was like to be a patient with incontinence. Over the course of a weekend, they were asked to go through a patient journey. This involved purchasing adult diapers, wearing them and, if they were comfortable doing so, using the product as a patient would in real life. Through this immersive experience, they were able to truly understand what incontinent patients go through on a daily basis. The team saw the world from a less technical viewpoint and a much more socio-emotional position. It affected the way they saw potential patient products and solutions. It was very powerful.

### OBSERVATION

If asked, people will explain "how they do things." However, what people say they do is often not what they actually do. In addition, when people talk about their pain points, they are usually viewing the world as it is and thinking in terms of specific details they would like to improve. This kind of viewpoint often leads to incremental improvements when, in many cases, there are

## When developing a new product, companies too often focus on technological performance, functionality, and manufacturing constraints, without paying enough attention to how the product will actually perform in the customer's hands.

more transformational solutions possible. As Henry Ford stated, “If I had asked people what they wanted, they would have said faster horses.” Similarly, Steve Jobs once said, “You can’t just ask customers what they want and then try to give that to them. By the time you get it built, they’ll want something new.”

In another healthcare engagement, I worked with a team that was exploring a potential new market. We spent numerous hours shadowing and observing clinical staff and patients. Through this research, we were able to identify the workflow, the information required to complete tasks, the forms and other artifacts used to document activity, and the various roles to be accomplished by the care team or the patient or caregiver. We were also able to pinpoint the socio-cultural relationships among various stakeholders in the care ecosystem, and help align some misaligned expectations among them. These are good examples of breaking out of functional fixedness by seeing the unseen and unspoken opportunities that may exist if you can get away from doing things the way you’ve always done them, by not focusing on the loudest voice (that is, salience), and by forcing yourself to fight the confirmation bias of validating only that which you already believe.

### A COMPELLING AND CLEARLY DEFINED VISION

Often the problem is that not everyone is aligned around the real problem. In addition, we often define the problem in ways that lead to restrictive, incremental solutions (for example, How do we lower the cost of X?), rather than reframing the problem to open up possibilities for breakthrough solutions that address the real need and do not simply pre-suppose a current solution to the need. Defining the right problem—and gaining insights—can lead to major progress on tough and seemingly intractable challenges. Furthermore, defining the challenge in a compelling way engages everyone involved and focuses everyone’s energy down the same path. Transformation requires harnessing the collective power of everyone—including their intellects and, just as important, their hearts. (For more on this, check

out *Switch* by Chip and Dan Heath, and *Heart of Change* by John Kotter.)

At a recent Barnes & Conti strategic thinking session with a pharmaceutical client, one participant was able to reframe his problem in a compelling way that would change the trajectory of a project that was on the verge of losing funding—just by spending time with a diverse group of colleagues (thus fighting information bias). In this way, we avoid the status quo and get everyone on the same page to face the *real* problem. We stretch thinking beyond our own egocentric, self-centered view of the world and fight the urge to focus only on the solutions that currently exist (that is, loss aversion).

### COLLABORATION

Use the power of diversity of thought when creating teams to solve problems. Gerard Kleisterlee, former CEO of Philips Electronics, noted in a 2004 industry speech: “Overall, I think we need to employ more anthropologists and fewer technologists.” When developing a new product, companies too often focus on technological performance, functionality, and manufacturing constraints, without paying enough attention to how the product will actually perform in the customer’s hands. Regardless of your industry or the nature of your offering (whether product, service, or technical in nature), mix it up and create diverse groups of smart people who are able to think beyond the status quo.

Steven Johnson, in his book *Where Good Ideas Come From*, calls this the *liquid network*, in which one’s hunches can connect and reconnect with hunches in other minds (avoiding egocentrism, confirmation bias, and groupthink). Eric Weiner, in his book *The Geography of Genius*, discusses how great periods of creativity have always been associated with a mash-up of diversity, as well as a forum in which to incubate the ideas through lively conversation and critique (for instance, coffee houses, clubs, salons, or agorae).

### CONSTRUCTIVE DEBATE

Along with diversity of thought, it is critical to

create an environment where constructive debate is expected and where ideas are continually critiqued and built upon. In *Creativity, Inc.*, author Ed Catmull describes how Pixar uses a technique called plussing, in which ideas are pitched and reviewed with the caveat that any criticism needs to be followed by how the idea can be improved. They believe that this process creates new and better ideas faster and prevents an idea from becoming too personalized and aligned with the idea generator (avoiding egocentrism and groupthink and going beyond the status quo). The last thing Pixar wants is a bad idea being polished to perfection for too long of a period of time.

During a strategic innovation workshop I facilitated, teams worked on a challenge posed by an executive sponsor. After multiple rounds of iterative feedback and prototyping, one team pitched a prototype solution and preliminary business case; the executive sponsor consequently funded the team to move forward on a solution. A core success factor was the fact that this team collected substantial feedback that it leveraged (instead of dismissed), and used that feedback to move the idea and prototype solution forward. This team figured out how to break down silos, avoided confirmation bias, and eliminated groupthink through constructive debate and critique from cross-functional stakeholders.

### PROTOTYPING

People have difficulty envisioning something that does not exist. In Pagan Kennedy's book *Inventology*, Martin Cooper (inventor of the cell phone) discusses his experience when Motorola tested pagers at Mount Sinai Hospital. Initially, hospital staff did not know what to do with the pagers, but as they discovered uses for them, they fell in love with the technology.

The tricky part is that before a new experience exists, few people understand it (that is, they use concrete operational thinking rather than try to imagine the hypothetical or abstract). They may even hate the idea. So you have to put the *machine* in their hands (whether that machine is an actual object or a prototype experience) in order

to awaken a new desire and explore potential possibilities. Cooper states, "They [doctors and nurses] now could not conduct the business of the hospital without pagers." In order to test out new ideas, it is critical that participants understand the new reality that is being proposed in concrete terms. As the saying goes, "People don't know what they don't know!" Prototyping is a fast and inexpensive way to create a future state so that potential users can envision what's to come and provide feedback that validates an idea *before* a company expends significant resources.

In one engagement with a healthcare company, I was on a team that explored whether technology could be used to increase patient engagement regarding chronic diseases in emerging markets. We used social media and web-based technologies to track patient behavior, from awareness to calls to action. The solution we put together was in a prototype form that mimicked the real experience for end users but was low-cost and non-scalable. Our goal was to learn from the feedback we received, knowing that the prototype was a throwaway. Prototyping is a powerful way to try out different approaches in an experimental fashion, collecting robust data by painting a concrete picture for users, and not spending significant resources. It's about testing your assumptions without risking a lot, which will hopefully reduce the likelihood of loss aversion.

### Bottom line: Going beyond cognitive biases to create value

So how do we overcome cognitive biases and human foibles to improve our ability to deliver significantly more value through incorporating design thinking in our work?

In my experience, I have found that asking the following questions have been useful in helping team members—and me—to avoid cognitive biases and cognitive challenges.

- Are we asking the right questions? Have we defined the challenge appropriately so as not to limit the potential solution space?
- Can we focus on what-if (future and potential) versus what-is (current state and incremental)?



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Soken Consulting, he assists client companies in developing their innovation and design thinking strategies and competencies through direct hands-on project consultancy, innovation and strategy development, organizational development

programs, and inspirational presentations. He has conducted innovation and strategic thinking training across the United States, Europe, and Canada for Fortune 500 companies in a variety of industries. He has more than 20 years of corporate experience in

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- What needs to be true? How can we capture individual and group assumptions to identify the ones that cause misalignment? How can we use them to generate hypotheses that need to be validated through experimentation?
- Who and for what are we optimizing? How can we ensure that everyone stays focused on the end users and the solution they need so that we don't build the solution that sounds good to all but meets no one's needs?
- What would X do? How can we ask whether other people have solved the same problem so we can leverage diversity of thought?
- What is good enough? How can we avoid focusing on perfection and be willing to deliver a solution that is sufficient to serve customer needs, rather than delay delivery?
- So what? Who cares? How can we avoid analysis paralysis—where you continually collect information that doesn't matter to make you feel more justified, when in fact that information will not change your decision?

Incorporating a design thinking mindset for you personally and in your organization can yield significant results. However, it takes deliberate and conscious awareness of cognitive biases and other

human tendencies; one must move beyond those barriers through reflection and cognitive flexibility. Using this newfound mindset will allow you to apply the process and tools of design thinking to your challenges. This will lead to innovative and creative solutions that benefit you, your organization, and most important, your end users. ■

**Suggested Reading**

Bodell, Lisa. *Kill the Company: End the Status Quo, Start an Innovation Revolution* (Brookline, MA: Bibliomotion, Inc., 2012).

Catmull, Ed. *Creativity, Inc.* (New York: Random House, 2014).

Heath, Chip, and Heath, Dan. *Switch: How to Change Things When Change Is Hard* (New York: Crown Publishing, 2010).

Johnson, Steven, *Where Good Ideas Come From* (New York: Penguin USA, 2010).

Kennedy, Pagan. *Inventology: How We Dream Up Things That Change the World* (New York: Houghton Mifflin, 2016).

Kotter, John. *The Heart of Change: Real-Life Stories of How People Change Their Organizations* (Boston: Harvard Business Review Press, 2012).

Weiner, Eric. *The Geography of Genius: A Search for the World's Most Creative Places, From Ancient Athens to Silicon Valley* (New York: Simon & Schuster, 2016).