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Design Thinking

Why Design Thinking Works

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Summary. While we know a lot about practices that stimulate new ideas, innovation teams often struggle to apply them. Why? Because people's biases and entrenched behaviors get in the way. In this article a Darden professor explains how design thinking helps... **more**

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Occasionally, a new way of organizing work leads to extraordinary

improvements. Total quality management did that in manufacturing in the 1980s by combining a set of tools—kanban cards, quality circles, and so on—with the insight that people on the shop floor could do much higher level work than they usually were asked to. That blend of tools and insight, applied to a work process, can be thought of as a *social technology*.

In a recent seven-year study in which I looked in depth at 50 projects from a range of sectors, including business, health care, and social services, I have seen that another social technology, design thinking, has the potential to do for innovation exactly what TQM did for manufacturing: unleash people's full creative energies, win their commitment, and radically improve processes. By now most executives have at least heard about design thinking's tools—ethnographic research, an emphasis on reframing problems and experimentation, the use of diverse teams, and so on—if not tried them. But what people may not understand is the subtler way that design thinking gets around the human biases (for example, rootedness in the status quo) or attachments to specific behavioral norms ("That's how we do things here") that time and again block the exercise of imagination.

In this article I'll explore a variety of human tendencies that get in the way of innovation and describe how design thinking's tools and clear process steps help teams break free of them. Let's begin by looking at what organizations need from innovation—and at why their efforts to obtain it often fall short.

The Challenges of Innovation

To be successful, an innovation process must deliver three things: superior solutions, lower risks and costs of change, and employee buy-in. Over the years businesspeople have developed useful tactics for achieving those outcomes. But when trying to apply them, organizations frequently encounter new obstacles and trade-offs.

Superior solutions. Defining problems in obvious, conventional ways, not surprisingly, often leads to obvious, conventional solutions. *Asking a more interesting question* can help teams discover more-original ideas. The risk is that some teams may get indefinitely hung up exploring a problem, while action-oriented managers may be too impatient to take the time to figure out what question they should be asking.

It's also widely accepted that solutions are much better when they incorporate *user-driven criteria*. Market research can help companies understand those criteria, but the hurdle here is that it's hard for customers to know they want something that doesn't yet exist.

Finally, bringing *diverse voices* into the process is also known to improve solutions. This can be difficult to manage, however, if conversations among people with opposing views deteriorate into divisive debates.

Lower risks and costs. Uncertainty is unavoidable in innovation. That's why innovators often build a *portfolio of options*. The trade-off is that too many ideas dilute focus and resources. To manage this tension, innovators must be willing to let go of bad ideas—to

"call the baby ugly," as a manager in one of my studies described it. Unfortunately, people often find it easier to kill the creative (and arguably riskier) ideas than to kill the incremental ones.

Employee buy-in. An innovation won't succeed unless a company's employees get behind it. The surest route to winning their support is to involve them in the process of generating ideas. The danger is that the involvement of many people with different perspectives will create chaos and incoherence.

Underlying the trade-offs associated with achieving these outcomes is a more fundamental tension. In a stable environment, efficiency is achieved by driving variation out of the organization. But in an unstable world, variation becomes the organization's friend, because it opens new paths to success. However, who can blame leaders who must meet quarterly targets for doubling down on efficiency, rationality, and centralized control?

To manage all the trade-offs, organizations need a social technology that addresses these behavioral obstacles as well as the counterproductive biases of human beings. And as I'll explain next, design thinking fits that bill.

The Beauty of Structure

Experienced designers often complain that design thinking is too structured and linear. And for them, that's certainly true. But managers on innovation teams generally are not designers and also aren't used to doing face-to-face research with customers, getting deeply immersed in their perspectives, cocreating with

stakeholders, and designing and executing experiments. Structure and linearity help managers try to adjust to these new behaviors.

As Kaaren Hanson, formerly the head of design innovation at Intuit and now Facebook's design product director, has explained: "Anytime you're trying to change people's behavior, you need to start them off with a lot of structure, so they don't have to think. A lot of what we do is habit, and it's hard to change those habits, but having very clear guardrails can help us."

Organized processes keep people on track and curb the tendency to spend too long exploring a problem or to impatiently skip ahead. They also instill confidence. Most humans are driven by a fear of mistakes, so they focus more on preventing errors than on seizing opportunities. They opt for inaction rather than action when a choice risks failure. But there is no innovation without action—so psychological safety is essential. The physical props and highly formatted tools of design thinking deliver that sense of security, helping would-be innovators move more assuredly through the discovery of customer needs, idea generation, and idea testing.

In most organizations the application of design thinking involves seven activities. Each generates a clear output that the next activity converts to another output until the organization arrives at an implementable innovation. But at a deeper level, something else is happening—something that executives generally are not aware of. Though ostensibly geared to understanding and molding the experiences of customers, each design-thinking

activity also reshapes the experiences of the *innovators themselves* in profound ways.

Customer Discovery

Many of the best-known methods of the design-thinking discovery process relate to identifying the "job to be done." Adapted from the fields of ethnography and sociology, these methods concentrate on examining what makes for a meaningful customer journey rather than on the collection and analysis of data. This exploration entails three sets of activities:

Immersion. Traditionally, customer research has been an impersonal exercise. An expert, who may well have preexisting theories about customer preferences, reviews feedback from focus groups, surveys, and, if available, data on current behavior and draws inferences about needs. The better the data, the better the inferences. The trouble is, this grounds people in the already articulated needs that the data reflects. They see the data through the lens of their own biases. And they don't recognize needs people have *not* expressed.

Shaping the Innovator's Journey

What makes design thinking a social technology is its ability to counteract the biases of innovators and change the way they engage in the innovation process.

Problem
Innovators are trapped in their own expertise and experience.
Design thinking

Design thinking **provides immersion** in the user's experience, shifting an innovator's mindset toward...

Improved outcome

...a better understanding of those being designed for.

Problem

Innovators are overwhelmed by the volume and messiness of qualitative data.

Design thinking

Design thinking **makes sense** of data by organizing it into themes and patterns, pointing the innovator toward...

Improved outcome

...new insights and possibilities.

Problem

Innovators are divided by differences in team members' perspectives.

Design thinking

Design thinking **builds alignment** as insights are translated into design criteria, moving an innovation team toward...

Improved outcome

...convergence around what really matters to users.

Problem

Innovators are confronted

Innovators are confronted by too many disparate but familiar ideas.

Design thinking

Design thinking **encourages the emergence** of fresh ideas through a focused inquiry, shifting team members toward...

Improved outcome

...a limited but diverse set of potential new solutions.

Problem

Innovators are constrained by existing biases about what does or doesn't work.

Design thinking

Design thinking **fosters articulation** of the conditions necessary to each idea's success and transitions a team toward...

Improved outcome

...clarity on make-or-break assumptions that enables the design of meaningful experiments.

Problem

Innovators are lacking a shared understanding of new ideas and often unable to get good feedback from users.

Design thinking

Design thinking **offers pre-experiences** to users

through very rough prototypes that help innovators get...	
Improved outcome	
...accurate feedback at low cost and an understanding of potential solutions' true value.	
Problem	
Innovators are afraid of change and ambiguity surrounding the new future.	
Design thinking	
Design thinking **delivers learning in action** as experiments engage staff and users, helping them build...	
Improved outcome	
...a shared commitment and confidence in the new product or strategy.	

Design thinking takes a different approach: Identify hidden needs by having the innovator live the customer's experience. Consider what happened at the Kingwood Trust, a UK charity helping adults with autism and Asperger's syndrome. One design team member, Katie Gaudion, got to know Pete, a nonverbal adult with autism. The first time she observed him at his home, she saw him engaged in seemingly damaging acts—like picking at a leather sofa and rubbing indents in a wall. She started by documenting Pete's behavior and defined the problem as how to prevent such

destructiveness.

But on her second visit to Pete's home, she asked herself: What if Pete's actions were motivated by something other than a destructive impulse? Putting her personal perspective aside, she mirrored his behavior and discovered how satisfying his activities actually felt. "Instead of a ruined sofa, I now perceived Pete's sofa as an object wrapped in fabric that is fun to pick," she explained. "Pressing my ear against the wall and feeling the vibrations of the music above, I felt a slight tickle in my ear whilst rubbing the smooth and beautiful indentation...So instead of a damaged wall, I perceived it as a pleasant and relaxing audio-tactile experience."

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Katie's immersion in Pete's world not only produced a deeper understanding of his challenges but called into question an unexamined bias about the residents, who had been perceived as disability sufferers that needed to be kept safe. Her experience caused her to ask herself another new question: Instead of designing just for residents' disabilities and safety, how could the innovation team design for their strengths and pleasures? That led to the creation of living spaces, gardens, and new activities aimed at enabling people with autism to live fuller and more pleasurable lives.

Sense making. Immersion in user experiences provides raw material for deeper insights. But finding patterns and making

sense of the mass of qualitative data collected is a daunting challenge. Time and again, I have seen initial enthusiasm about the results of ethnographic tools fade as nondesigners become overwhelmed by the volume of information and the messiness of searching for deeper insights. It is here that the structure of design thinking really comes into its own.

One of the most effective ways to make sense of the knowledge generated by immersion is a design-thinking exercise called the Gallery Walk. In it the core innovation team selects the most important data gathered during the discovery process and writes it down on large posters. Often these posters showcase individuals who have been interviewed, complete with their photos and quotations capturing their perspectives. The posters are hung around a room, and key stakeholders are invited to tour this gallery and write down on Post-it notes the bits of data they consider essential to new designs. The stakeholders then form small teams, and in a carefully orchestrated process, their Post-it observations are shared, combined, and sorted by theme into clusters that the group mines for insights. This process overcomes the danger that innovators will be unduly influenced by their own biases and see only what they want to see, because it makes the people who were interviewed feel vivid and real to those browsing the gallery. It creates a common database and facilitates collaborators' ability to interact, reach shared insights together, and challenge one another's individual takeaways—another critical guard against biased interpretations.

Alignment. The final stage in the discovery process is a series of workshops and seminar discussions that ask in some form the

question, If anything were possible, what job would the design do well? The focus on possibilities, rather than on the constraints imposed by the status quo, helps diverse teams have more-collaborative and creative discussions about the design criteria, or the set of key features that an ideal innovation should have. Establishing a spirit of inquiry deepens dissatisfaction with the status quo and makes it easier for teams to reach consensus throughout the innovation process. And down the road, when the portfolio of ideas is winnowed, agreement on the design criteria will give novel ideas a fighting chance against safer incremental ones.

Consider what happened at Monash Health, an integrated hospital and health care system in Melbourne, Australia. Mental health clinicians there had long been concerned about the frequency of patient relapses—usually in the form of drug overdoses and suicide attempts—but consensus on how to address this problem eluded them. In an effort to get to the bottom of it, clinicians traced the experiences of specific patients through the treatment process. One patient, Tom, emerged as emblematic in their study. His experience included three face-to-face visits with different clinicians, 70 touchpoints, 13 different case managers, and 18 handoffs during the interval between his initial visit and his relapse.

The team members held a series of workshops in which they asked clinicians this question: Did Tom's current care exemplify why they had entered health care? As people discussed their motivations for becoming doctors and nurses, they came to realize that improving Tom's outcome might depend as much on

their sense of duty to Tom himself as it did on their clinical activity. Everyone bought into this conclusion, which made designing a new treatment process—centered on the patient's needs rather than perceived best practices—proceed smoothly and successfully. After its implementation, patient-relapse rates fell by 60%.

Idea Generation

Once they understand customers' needs, innovators move on to identify and winnow down specific solutions that conform to the criteria they've identified.

Emergence. The first step here is to set up a dialogue about potential solutions, carefully planning who will participate, what challenge they will be given, and how the conversation will be structured. After using the design criteria to do some individual brainstorming, participants gather to share ideas and build on them creatively—as opposed to simply negotiating compromises when differences arise.

When Children's Health System of Texas, the sixth-largest pediatric medical center in the United States, identified the need for a new strategy, the organization, led by the vice president of population health, Peter Roberts, applied design thinking to reimagine its business model. During the discovery process, clinicians set aside their bias that what mattered most was medical intervention. They came to understand that intervention alone wouldn't work if the local population in Dallas didn't have the time or ability to seek out medical knowledge and didn't have strong support networks—something few families in the area

enjoyed. The clinicians also realized that the medical center couldn't successfully address problems on its own; the community would need to be central to any solution. So Children's Health invited its community partners to codesign a new wellness ecosystem whose boundaries (and resources) would stretch far beyond the medical center. Deciding to start small and tackle a single condition, the team gathered to create a new model for managing asthma.

The session brought together hospital administrators, physicians, nurses, social workers, parents of patients, and staff from Dallas's school districts, housing authority, YMCA, and faith-based organizations. First, the core innovation team shared learning from the discovery process. Next, each attendee thought independently about the capabilities that his or her institution might contribute toward addressing the children's problems, jotting down ideas on sticky notes. Then each attendee was invited to join a small group at one of five tables, where the participants shared individual ideas, grouped them into common themes, and envisioned what an ideal experience would look like for the young patients and their families.

Champions of change usually emerge from these kinds of conversations, which greatly improves the chances of successful implementation. (All too often, good ideas die on the vine in the absence of people with a personal commitment to making them happen.) At Children's Health, the partners invited into the project galvanized the community to act and forged and maintained the relationships in their institutions required to realize the new vision. Housing authority representatives drove

changes in housing codes, charging inspectors with incorporating children's health issues (like the presence of mold) into their assessments. Local pediatricians adopted a set of standard asthma protocols, and parents of children with asthma took on a significant role as peer counselors providing intensive education to other families through home visits.

Articulation. Typically, emergence activities generate a number of competing ideas, more or less attractive and more or less feasible. In the next step, articulation, innovators surface and question their implicit assumptions. Managers are often bad at this, because of many behavioral biases, such as overoptimism, confirmation bias, and fixation on first solutions. When assumptions aren't challenged, discussions around what will or won't work become deadlocked, with each person advocating from his or her own understanding of how the world works.

In contrast, design thinking frames the discussion as an inquiry into what would have to be true about the world for an idea to be feasible. (See "Management Is Much More Than a Science," by Roger L. Martin and Tony Golsby-Smith, HBR, September–October 2017.) An example of this comes from the Ignite Accelerator program of the U.S. Department of Health and Human Services. At the Whiteriver Indian reservation hospital in Arizona, a team led by Marliza Rivera, a young quality control officer, sought to reduce wait times in the hospital's emergency room, which were sometimes as long as six hours.

The team's initial concept, borrowed from Johns Hopkins Hospital in Baltimore, was to install an electronic kiosk for check-

in. As team members began to apply design thinking, however, they were asked to surface their assumptions about why the idea would work. It was only then that they realized that their patients, many of whom were elderly Apache speakers, were unlikely to be comfortable with computer technology. Approaches that worked in urban Baltimore would not work in Whiteriver, so this idea could be safely set aside.

At the end of the idea-generation process, innovators will have a portfolio of well-thought-through, though possibly quite different, ideas. The assumptions underlying them will have been carefully vetted, and the conditions necessary for their success will be achievable. The ideas will also have the support of committed teams, who will be prepared to take on the responsibility of bringing them to market.

The Testing Experience

Companies often regard prototyping as a process of fine-tuning a product or service that has already largely been developed. But in design thinking, prototyping is carried out on far-from-finished products. It's about users' iterative experiences with a work in progress. This means that quite radical changes—including complete redesigns—can occur along the way.

Pre-experience. Neuroscience research indicates that helping people "pre-experience" something novel—or to put it another way, *imagine* it incredibly vividly—results in more-accurate assessments of the novelty's value. That's why design thinking calls for the creation of basic, low-cost artifacts that will capture

the essential features of the proposed user experience. These are not literal prototypes—and they are often much rougher than the "minimum viable products" that lean start-ups test with customers. But what these artifacts lose in fidelity, they gain in flexibility, because they can easily be altered in response to what's learned by exposing users to them. And their incompleteness invites interaction.

Such artifacts can take many forms. The layout of a new medical office building at Kaiser Permanente, for example, was tested by hanging bedsheets from the ceiling to mark future walls. Nurses and physicians were invited to interact with staffers who were playing the role of patients and to suggest how spaces could be adjusted to better facilitate treatment. At Monash Health, a program called Monash Watch—aimed at using telemedicine to keep vulnerable populations healthy at home and reduce their hospitalization rates—used detailed storyboards to help hospital administrators and government policy makers envision this new approach in practice, without building a digital prototype.

Learning in action. Real-world experiments are an essential way to assess new ideas and identify the changes needed to make them workable. But such tests offer another, less-obvious kind of value: They help reduce employees' and customers' quite normal fear of change.

Consider an idea proposed by Don Campbell, a professor of medicine, and Keith Stockman, a manager of operations research at Monash Health. As part of Monash Watch, they suggested hiring laypeople to be "telecare" guides who would act as "professional neighbors," keeping in frequent telephone contact

with patients at high risk of multiple hospital admissions. Campbell and Stockman hypothesized that lower-wage laypeople who were carefully selected, trained in health literacy and empathy skills, and backed by a decision support system and professional coaches they could involve as needed could help keep the at-risk patients healthy at home.

Their proposal was met with skepticism. Many of their colleagues held a strong bias against letting anyone besides a health professional perform such a service for patients with complex issues, but using health professionals in the role would have been unaffordable. Rather than debating this point, however, the innovation team members acknowledged the concerns and engaged their colleagues in the codesign of an experiment testing that assumption. Three hundred patients later, the results were in: Overwhelmingly positive patient feedback and a demonstrated reduction in bed use and emergency room visits, corroborated by independent consultants, quelled the fears of the skeptics.

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As we have seen, the structure of design thinking creates a natural flow from research to rollout. Immersion in the customer experience produces data, which is transformed into insights, which help teams agree on design criteria they use to brainstorm solutions. Assumptions about what's critical to the success of those solutions are examined and then tested with rough prototypes that help teams further develop innovations and prepare them for real-world experiments.

Along the way, design-thinking processes counteract human biases that thwart creativity while addressing the challenges typically faced in reaching superior solutions, lowered costs and risks, and employee buy-in. Recognizing organizations as collections of human beings who are motivated by varying perspectives and emotions, design thinking emphasizes engagement, dialogue, and learning. By involving customers and other stakeholders in the definition of the problem and the development of solutions, design thinking garners a broad commitment to change. And by supplying a structure to the innovation process, design thinking helps innovators collaborate and agree on what is essential to the outcome at every phase. It does this not only by overcoming workplace politics but by shaping the experiences of the innovators, and of their key stakeholders and implementers, at every step. *That* is social technology at work.

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