RADICAL INNOVATION
Through Design Thinking
3 THINGS TO KNOW

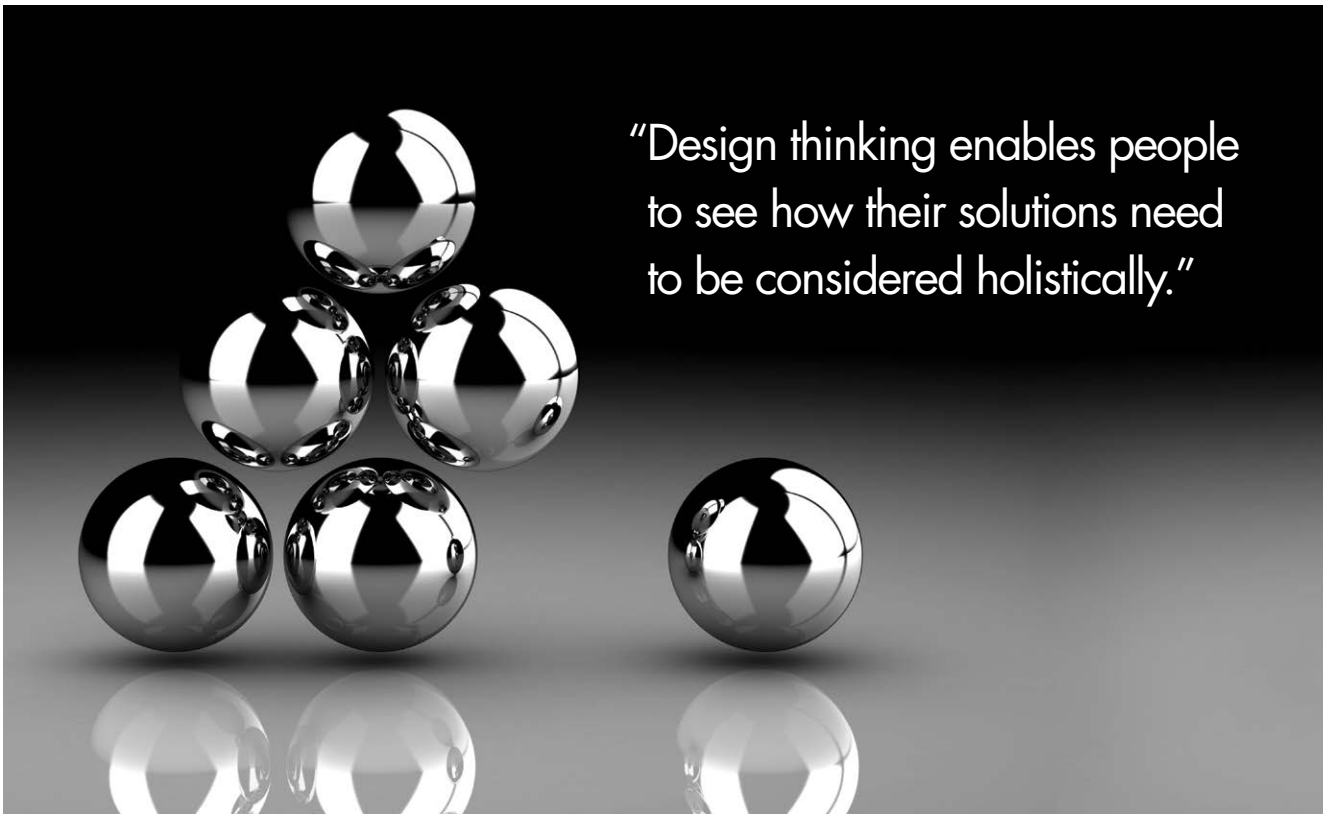
BY BLADE KOTELLY

If your organization is like most, you're probably under more pressure to have higher output and generate more value for the department or company, with less staff than you need and fewer resources than you used to have.

You have a few choices: convince people you need to hire more, purchase new technologies to help you become a little more efficient, or innovate radically. Personally, I like to put my effort into the last option—it's a lot more fun and yields much stronger results.

Innovative organizations can do more with less, adapt to worsening situations, and harness the creative talent and knowledge that's often locked inside their employees. You can innovate in every area of the business: how you sell, how you market, how you run HR, how you design new products, how you handle customer care, and countless other areas. And the more you practice techniques that lead to innovative solutions, the better you become at the *skill* of innovation. That skill is embodied in the discipline of design thinking.

Design thinking is a process, mindset, and set of techniques that you can learn to be more creative, analyze situations more clearly, and rapidly create solutions that go way beyond what others think is possible. Of course, there are some people who have a mastery of the activities of design thinking, but the basics can be learned and used correctly by anyone.



I teach a class on design thinking to undergraduates at the Massachusetts Institute of Technology (MIT). These very bright young students are extremely scientifically minded, and many go into impressive engineering professions. However, these same bright people aren't skilled in the art of design thinking any more than anyone else. In fact, it's often the case that incredibly technical people suffer from the inability to innovate when they have the constraints of a real business situation. I teach within the MIT Gordon Engineering Leadership Program, and our benefactor Bernie Gordon has said that he would often rather hire a student from a less prestigious school because they can generally get things done on time, whereas the MIT student might have a brilliant answer that's either not feasible given some set of constraints or isn't completed when it's needed.

Design thinking enables people to see how their solutions need to be considered holistically and enforces the value of understanding all the various stakeholders that are affected (positively or, perhaps, negatively) by a solution. The process shows people how to keep the user in mind as they create a solution, and how to test new concepts quickly to understand if a solution is valuable or not. The students who take my class and combine design thinking skills with their other area of study go on to have rewarding and successful careers with a big impact at organizations that include Apple, Adobe, the U.S. Air Force, SpaceX, and others. All of these students cite design thinking as a core to their success.

THE ESSENTIAL FACTORS OF DESIGN THINKING

So what makes design thinking different from other problem-solving skills? Here are the three important points you need to know about design thinking:

1 Design thinking is about having a user-centered mindset. Everything we make is meant to be used by someone. This doesn't just apply to people designing iPhone apps or airport kiosks. Parts of a space station may need to be replaced by an astronaut in zero gravity, and therefore must be designed to be able to be replaced correctly and successfully. If you can see the world from the perspective of the person you're designing for, you'll make sure that creating the right experience for them leads the rest of the work.

Think about a time when you used a product and it just worked the way you expected it to, even though you had never used it before. If you've had that experience, you've seen the work of design thinking in action. The people who made that experience for you considered many things about how you would encounter the product, and they probably worked very hard to make sure that each step you took made sense at the moment it needed to.

I'm sure you've also been frustrated by a product—something that was so bad you complained out loud that some person made a terrible mistake and it was causing you frustration. That's a situation in which the people making the product didn't use the principles of design thinking.

They didn't consider what it would feel like to be a user in the situation you were in.

At one job I had, the expense reporting system was terrible. It was complicated not only because of the company's accounting rules (which could have been changed to make expense reporting easier without causing an accounting problem) but also the user interface. On one screen, you could attach a receipt for an expense, but I couldn't find the button to save the receipt once I had attached it. In fact, I didn't think I needed to save the receipt (since I had just pressed the "Attach Receipt" button on the previous screen). I only discovered this terrible design when I clicked to the next expense to find that the previous expense had a red exclamation point on it (meaning it was missing the receipt). So I selected the expense again, selected receipt again, reattached it, and then looked all over for a button to officially save the expense with the attached receipt. This whole time, everything I needed to fill out was located on the top part of the window, but the button I needed was all the way on the bottom of the page, and it was extremely small and hard to see. On the big screen I was using, it was literally 13 inches away from where I was looking. What a frustration! Why didn't the designer of that application simply put the button next to the rest of the buttons I was clicking on? Of course, I forgot about this the first several times I filled out expenses and was frustrated every time.

Now, I'm particularly sensitive to these issues, so my tolerance is low when I encounter a problem. But if you want to have a user-centric mindset, you need to feel the user's frustrations as your own and work to eliminate them. In fact, you'll want to try to delight your users.

2 You can use design thinking to solve *any* problem. There is no magic to design thinking, and you don't need to be an artist or work in a creative field to be successful at it. Design thinking is simply a process that ensures you don't skip any steps that might prevent you from creating a great solution. For example, when you're creating a new product, you'll want to think through problems that could occur for a user and how to prevent the user from having those problems—even before you design it.

If you're making a home-banking app, you'll want to allow users to transfer funds from one account to another. When you create this solution, you need to consider all the things that can go wrong so you can ensure they *don't* when people use the app. One example would be a situation in which a user has several accounts with approximately the same amount in each one. Users may not be able to identify the accounts by their amounts, and they may not know which account numbers correspond to how the accounts are used, which means they could run the risk of transferring funds out of the account their mortgage is paid from, instead of into it. When you see this potential problem, you then consider all the ways to prevent it from happening and decide on the best one to use. One solution might be to allow the user to easily see the transaction history of the accounts while they transfer funds. Another solution might be to give the accounts nicknames.

3 The most important step when starting any problem is to challenge the underlying assumptions. When we're presented with a problem, we often take it at face value that solving the problem is the right thing to do. (And to be honest, it's often a good idea to solve a problem you're presented with.) However, if you take the time to challenge the assumptions baked into the problem, you may find that you have more alternative solutions than you first realized.

Consider this issue: Your company has an app in the App Store, and after the latest release the rating fell from a 4.4 to a 2.3—a big drop! Your boss is upset and wants you to fix all the things that users are complaining about. One course of action is to do just that. If you have the time and budget, it may be the right thing to do. Another is to analyze the feedback and determine if there was a change that loyal users didn't expect but that you know from your research they will prefer when they get used to it. If that's the case, you wouldn't want to change the way the app works and may simply need to add an alert that lets users know what the change is and how to use it effectively—a change that might take only a day to make and will satisfy the users.

Most of the time in school, we aren't taught to challenge the underlying assumptions of what we're being taught. You aren't trained to ask your math teacher "Why are we learning this?" In school, you assume (often correctly) that there's a reason behind the teacher's lesson. But at the office, there is no single correct solution to a problem. There are many correct solutions—some of which only reveal themselves if we challenge problems every time we encounter one. When someone gives you a problem, answer the question "Why is it a problem?" You might find that you learn a lot more about the problem that helps you solve it with more impact.

WHERE'S YOUR STARTING POINT?

You can start by using design thinking skills to innovate and address lots of small problems in your organization. Some good starting points are when you have an opportunity to refine something you've done before, such as when you're organizing an annual event and want to see if you can make it more valuable the next time, or when you have a process you've used several times and want to test a variation to see if you can improve it. Each of these situations enables you to implement a new idea and learn from the experience. And be prepared to fail—in fact, you should expect and encourage failure. I don't mean catastrophic failure. I mean that it's just as valuable *not* to hit your intended mark if you learn from it so that you can refine your skills.

When you're ready to take on a big challenge, it's time to combine design thinking with basic leadership skills so

that you can more effectively take your brilliant ideas and have them adopted by your larger organization. Leadership characteristics go hand-in-hand with design thinking because executing a big idea (almost always) requires the involvement of other people who see your vision and help refine it and bring it to life. The leadership I'm talking about isn't autocratic, or charismatic, or any other popular management style; it's about having the skills to share your ideas in a way that others value, to see your solutions and innovations in a broader context, and to recognize a paradox and solve problems that appear to be unsolvable.

So how can we think about the interplay between design thinking, innovation, and leadership? Here's a mnemonic in the form of an equation:

$$\text{Innovation Impact} = \frac{\text{Design Thinking} \bullet \text{Domain Knowledge} \bullet \text{Magnitude of the Problem}}{\text{Cultural Resistance of an Organization to Change } \hat{}2}$$

Consider that the bigger the problem you're tackling, the more impact an innovation in that area can have on the organization. If you and your team know a lot about that area/domain, you probably can figure out more ways to get every bit of value from a new innovation in ways that others cannot. Combine that domain knowledge with design thinking skills, and the quality of any innovation will be increased because you'll be able to create higher-impact solutions.

In this equation, we see that the *innovation impact* equals the sum of knowing a lot about an area (the *domain knowledge*), multiplied by a *design thinking* process, multiplied by how big the problem is that you're addressing (the *magnitude of the problem*). However, there's one catch here: The more resistant the organization is to change, the weaker your ability is to capture value from your innovation and the more work it will be to make change. This is why leadership skills are valuable. They help overcome an organization's natural resistance to change. AQ

Blade Kotelly is an innovation and user-experience expert and a senior lecturer at MIT on Design Thinking and Innovation (www.bladekotelly.com). Kotelly's consulting services help top brands to innovate radically on their product and services, and teach corporate teams how to create solutions that customers love.

Want to learn more about design thinking? Take the AMA class #2034, Design Thinking: A Customer-Centric Process for Rapid Innovation.

Want to learn more about leadership? Take the AMA class #2130, The Voice of Leadership: How Leaders Inspire, Influence and Achieve Results.