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Thought Leader: Tim Brown
by Art Kleiner

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The Thought Leader Interview: Tim Brown

The CEO of Silicon Valley–based design firm IDEO contends that elegant, customer-centric design stems from a simple set of thinking practices.

The screensaver on Tim Brown's office computer is a selection of photographs of classic automobiles. Some of the pictures came from colleagues at IDEO, including a few of the cars in company cofounder David Kelley's collection. As one might expect, fascination with objects is a common trait at this 550-person design firm headquartered in Palo Alto, Calif. "We all grew up," says Brown, "making or working with beautiful things."

Another common trait at IDEO is a fascination with systems — especially those involving such complex, interconnected issues as reconceiving marketing campaigns, rethinking the materials in packaging, and redesigning health-care delivery and early childhood education. IDEO is perhaps the earliest and best-known design firm to promote what Brown calls "design thinking": a holistic approach to innovation, including in-depth customer insight and rapid prototyping, aimed at getting beyond the assumptions that block effective solutions. This means addressing the look and feel of the product being designed, as designers conventionally do. But it also means re-

Art Kleiner
(kleiner_art@strategy-business.com) is editor-in-chief of *strategy+business* and the author of *The Age of Heretics* (2nd ed., Jossey-Bass, 2008).

considering the way it meets consumers' unspoken needs, as well as reworking the infrastructure that enables the product and the supply chain that delivers it.

Among the examples of this approach described in Brown's new book, *Change by Design: How Design Thinking Can Transform Organizations and Inspire Innovation* (HarperBusiness, 2009), are the Nintendo Wii, which ignored the industry fixation on improved graphics and focused instead on gestural controls; HBO, which sought to stop relying on cable TV distribution and began to offer its programs for new platforms such as mobile phones; United Airlines, which set up "premium service" featuring larger seats, finer food, and expanded in-flight entertainment options between selected cities in the U.S.; and the Aravind Eye Institute in India, which cures cataracts for as little as US$65 by emulating a no-frills assembly line. (See "India's Demographic Moment," by Nandan Nilekani, *s+b*, Autumn 2009.)

IDEO (pronounced "EYE-dee-oh") is known for its role in developing (among other things) the sleek aluminum-clad Palm V, the stand-up tube for Procter & Gamble's

Crest toothpaste, the Steelcase Leap chair, and Bank of America's Keep the Change savings program. The firm was founded in 1991 through the merger of three firms — David Kelley Design (designer of the first Apple computer mouse), ID Two (founded by Bill Moggridge, the designer of the first laptop computer), and Matrix Product Design (founded by Mike Nuttall, designer of Microsoft's first ergonomic mouse). All three founders are still involved with IDEO. David Kelley (who remains the firm's chairman, and is also a professor at Stanford University) was replaced as CEO by Tim Brown in 2001, just in time for the dot-com bubble to burst.

Brown, who was born in the U.K., had joined Moggridge's firm in 1987. He came with Moggridge to IDEO and rapidly became involved in the design of services, interactions, experiences, and even organizations. After successful engagements with the U.S. furniture company Steelcase, which later bought a majority stake in IDEO, and the Korean consumer products company Samsung, the design firm was asked to teach its innovation approach to other companies. That experience became the starting

point for *Change by Design,* which is devoted to the rigorous principles underlying highly creative processes. To Brown and his colleagues at IDEO, the type of thinking that leads to a stand-up toothpaste tube can also make all the difference to an emergency room or a city's transportation grid. He expanded on this idea in a conversation in April at his office in IDEO's headquarters, a few blocks from Stanford University.

S+B: What is the essence of "design thinking"? How does it lead to better innovation?

BROWN: It's a process for creating new choices. Managers are taught sophisticated methods for making choices, and they're often very good at it, but making choices out of a prevailing set of options is a very limiting thing to do. You might read in a business magazine or on a Web site about a new way of using resources more wisely, or moving forms of production around the world. And you can execute it rapidly — but your competitors can do the same thing the next day, because they all have access to that same insight.

So how do we do a better job of creating new choices? Classically, most organizations, when they think of innovation, tend to think fairly narrowly in terms of technological R&D. But if you go back to Peter Drucker and his book *Innovation and Entrepreneurship* (Harper & Row, 1985), he described seven sources of innovative opportunity, and only one is technology. [The

others are the unexpected, incongruities, process need, changes in industry structure, demographics, and changes in perception.] Most corporate R&D teams don't have particularly good mechanisms for drawing on these other sources and creating new choices on a continuous and sustainable basis. But designers — through happy accident, not through intent — have gradually discovered a set of approaches that work reliably.

S+B: How can you tell when an organization is practicing design thinking?

BROWN: Its offerings meet the unexpressed needs of the people it's trying to serve. At its best, the design profession creates relationships between people and technologies — either classic forms of technology like iPods and automobiles; or the technology of our built environment, such as a city's rapid transit system; or the technology inherent in methods of communication, like those of an organization. By better understanding the needs of those you're trying to serve and expressing those needs in the form of insights that you develop and prototype, you end up with new and interesting choices.

S+B: Does this take a particular talent, or can you get there through processes and practices?

BROWN: I fall on the "process" side in the "genius or process" debate about innovation and creativity. We were all really good at this stuff in kindergarten. We can all make things, even if we're not experts in a shop; we can act things out; we can tell stories; we can look at the world and draw insights. These are basic human capabilities. Most kids are comfortable using building blocks to figure out, say, how high the stack will get before it falls over. They draw pictures to visualize their ideas. They design constantly.

Of course, many people get the creativity beaten out of them in the conventional school experience. Professional education systems have invested enormous amounts — appropriately — in educating people to be great analytical thinkers. But they haven't invested much in educating creative thinkers. An awful lot of designers didn't do particularly well in conventional schools, and went off to art school or elsewhere.

S+B: Say more about the nature of a design thinking process.

BROWN: All the methods that improve thinking, whether the scientific method or any analytic approach, are processes. You don't have to be analytically gifted to use them. Design thinking is another such method. It can be used relatively reliably by people who aren't necessarily thought of as being creative.

But unlike more analytical methods, design thinking taps into intuition as well as rational thought. You can't put your process into boxes and check everything off, and that is one of the challenges of any creative methodology.

In fact, the same challenge exists within the scientific method. How do you get to your hypothesis? Often through a creative leap. The best scientists use intuition to form their hypotheses and then prove or disprove them through experimentation and analysis.

In the past, some people have tried to define design methods as either purely creative — as if just "getting out of the box" were enough — or purely analytical. In the 1960s, the design movement got so dry that it wrung every last bit of intuition out of the process. Generally, when you get to either extreme, it leads to less-effective solutions.

A Design Thinking Pathway

S+B: A method, by definition, is a set of steps taken in sequence. Can you describe some of the landmarks one might expect to see along the path of design thinking?

BROWN: First is the design brief: What question will you address? In recent years, that question has often been asked in a broader and more strategic way. When I first started in design I would often be asked to take a device or a computer software package and wrap an interface around it: "something that people are going to like." Now, at IDEO, clients tend to ask us how to reinvent a particular market.

A second landmark is observing the world in new ways. There's a myth that creative people have wonderful ideas in their heads; it's just a matter of getting them out. No

"In an innovation culture, senior management looks at rough prototypes regularly to see how the ideas are evolving."

one I know is like that. The wonderful ideas come from noticing things and exposing yourself to the world in different ways. At IDEO, we often use ethnographic techniques: We watch people in relevant situations or spend time with them and talk about their worlds — whether it's a retail store, a hospital emergency room, or a recreational area. The more you observe, the more interesting your questions become, so that you can iterate between developing your design brief and observing. For instance, when we were hired by Amtrak to explore the customer experience for their high-speed Acela trains, we started by asking, "What steps do customers take, from beginning to end?" It turned out that the majority of the interaction took place before they ever got on the train: getting to the station, buying the tickets, finding the platform. All of this is very important to passengers, but you might not realize it unless you are prepared to observe them closely.

That insight was challenging for railway engineers. Amtrak does not own a lot of the assets that make up that part of the passenger experience. They don't own the stations or the cab companies. It's the same with

airlines. Airport facilities, security, meal providers, and ground transportation are all managed by other organizations. It's a complicated set of stakeholders that are theoretically supposed to pass customers along elegantly and beautifully. It's tremendously difficult to design an interface for all this. When it's done successfully, there is usually one group willing to say, "OK, I know that I'm not actually responsible for all these parts, but I'm going to take responsibility for the whole."

Richard Branson does this with Virgin Airways. As far as I'm aware, Virgin is still the only international airline where you can get dropped off by a branded car at a special place in an airport, and go through the whole process as a Virgin experience. The British Airports Authority is responsible for much of the infrastructure, but I gather that Branson paid a lot of money to control the entire flying experience and deliver it to his customers.

S+B: How would design thinking apply to a self-contained product?
BROWN: No product is that self-contained. In 2004, Shimano looked at designing bicycles for adults. When they observed poten-

tial riders, they found that many customers were put off by the high-tech, insider feel of the retail store. They were also afraid of riding in traffic. The company had to think not just about the bicycle designs, but about retail ambiance and community safety. Shimano doesn't even release bikes in some markets unless local governments commit to safe-cycling campaigns for the initial launch.

Similarly, with a new shampoo, the complexity comes not from the visible package but from the manufacturing and distribution systems that the consumer never sees. A designer might be involved in sustainability, conducting life-cycle analyses of the various materials going into the product, and finding ways to influence the various providers in the value chain to reduce weight or use new materials.

That brings up a third landmark: finding a systematic process for developing your insights. The first round of thinking tends to be relatively incremental and obvious. One of IDEO's designers, Kristian Simsarian, took on the redesign of a hospital emergency room. Kristian checked in as a patient, videotaping every experience — and one of the

first things we noticed, watching the tape, was the sheer amount of time he spent lying on his back, waiting on the rolling cot, staring at the acoustic ceiling tiles. The tiles became a symbol of the overall ambiance: a mix of boredom and anxiety from feeling lost, uninformed, and out of control. We could have responded by saying, "Let's make the ceiling tiles more colorful" or — as many hospitals do — "Let's put televisions everywhere to distract people." Instead, we started a series of deliberate discussions about the findings, and those led us to talk about improving the overall approach to ER logistics, so patients were treated less like objects to be positioned and allocated, and more like people in stress and pain.

Prototyping, a fourth landmark, is the visualization of your ideas. I write a lot about prototyping in *Change by Design,* because it's so critical. The alternative is to do all your thinking in advance, choose your approach, and implement it rapidly at scale. This is an inherently limiting idea, because you can't afford to get anything wrong. Therefore, you are tempted to choose approaches that are incremental and relatively free of risk. I've heard stories about companies where no one would show a half-finished prototype to the CEO, because they didn't want to expose themselves to criticism. That's not a great culture to support innovation.

All of my design heroes — Thomas Edison, Akio Morita, Steve Jobs, and many others — were often building things that had never been built before. So they always made prototypes, tried them out, saw where they had gone wrong, and redesigned them to make them better. We need to get much more comfortable with building to learn, that is, making things to figure out what they should be, rather than to show how good they are. For me, one indicator of an innovation culture is when senior management looks at rough prototypes regularly to see how the ideas are evolving.

A Prototype-friendly Culture

S+B: IDEO is now a global company, at a scale that Edison probably never imagined. How do you keep that kind of culture going at a large scale?
BROWN: We're not that big, and we traditionally move people around our offices [located in Chicago, Boston, New York, London, Munich, Shanghai, and the San Francisco Bay area]. More importantly, we realized a couple of years ago that most of our best thinking was emerging from within the firm, not from the senior executives. So we built what we called the Tube: a distinctive knowledge-sharing platform. It's built around collaborating.

At the core is a Web site where every individual at IDEO has his or her own page. On my page, for example, you'll see all the projects I've ever worked on, the experience I have, what I'm going to be doing for the next three months, and my blog. For every project and client, we post stories: how we tackled a question, what we've learned from it, who worked on it. Then, in wikis, people who are interested in certain topics share ideas and prototype them together. Our internal discussion group on the social impact of design has tens of thousands of pages.

We experiment to get people working on new things in new ways. Last year, we did a project for Product (RED), the organization

that raises money to reduce AIDS in Africa. We helped design and launch a proprietary new music service that would generate sustained revenues and build the (RED) brand independent of its corporate partners. To tap into the media expertise around our own company, we ran the project simultaneously in every office, but with very little time to complete it. People connected virtually and aggregated their ideas, and then one design team took all the elements and turned them into the final concept. The product, (RED)Wire, was launched in December 2008. (See www.redwire.com.)

In another experiment in collaboration, we set up a series of global Rube Goldberg–type machines — virtual exercises in which each action had to trigger some other movement far away. In Palo Alto, a Tickle Me Elmo doll might nose-dive into a mouse, which would click on a print server in Shanghai, which would print out a piece of paper that knocked a ball off the printer, which would trigger a cell-phone signal in London. People had to work together across long distances to get these things to work.

S+B: How do these prototypes in collaboration pay off for you?
BROWN: We explicitly work in collaborative teams, across disciplines, and where possible across geographies, and it has paid off throughout our history. One common myth about design is that it's the province of individually talented superstars who dream up wonderful ideas, and I don't think that's the case. I think it takes very talented teams to tackle complex ideas.

That doesn't mean there's no role for individual designers. I think designs for beautiful chairs or lovely wristwatches can often be conceived by an individual. The execution will still take an army of people. And to be honest, the vast majority of the design questions being asked today are very complex, and it takes a team to innovate, right from the moment of conception.

S+B: Especially when the end result is supposed to be simple.
BROWN: We absolutely believe in simplicity when it comes to the user experience. People can deal with only so much complexity, and even when they use relatively complex devices, they have to be introduced to those devices in clever and simple ways. The Macintosh in the 1980s and the Palm Pilot in the 1990s both started with a relatively limited functionality that grew over time, and the customers grew with them.

One of the reasons I love the Nintendo Wii is that conventional video games are incredibly intimidating. The amount of learning involved is beyond me. A devoted kid might be happy to go on that journey, but I'm not. The Wii reintroduced simplicity into gaming; for me and for many other people who wouldn't have otherwise been interested, it's been an accessible on-ramp into the field.

Simplicity in design comes from searching for places where people need an understandable relationship with the technology. Not every design solution has to be inherently simple. But the points of interaction often have to be simple to allow us to engage. The Sony PlayStation 3 is far more technologically advanced than the Wii, but it's also too complex for many people.

The Future of Design Thinking

S+B: Is industrial society evolving toward better design?
BROWN: Absolutely. For example, automobiles perform much better than they did 20 years ago. But at the same time, humanity is churning out an awful lot of poorly designed and unnecessary stuff. Clearly, we're going to see a period of massive growth in consumerism in places like China and India in the next 40 years. That will be great for those economies; people will have a better standard of living, they'll be healthier, and they'll communicate better. But managing that from a resource and emissions standpoint is another thing altogether; design will inevitably be a part of the solution, but very few people have begun to

create the necessary products, services, and infrastructure.

As designers, we also continue to see a shift in focus from products to services and intangibles. But whereas manufacturers invest enormously in product design and the experiences that people have with products, most service industries don't have much of an R&D or innovation tradition. Their R&D efforts go into infrastructure support services like telephone exchanges or financial algorithms, not into the customer experience. This situation will change, and that's something to look forward to.

S+B: How does design thinking apply to larger systems, like organizations and societies?

BROWN: A social design consists of rules, tools, and norms, and these three elements need to be in sync. Bank of America's Keep the Change financial service was a nice example of using all three together. The product offers customers a chance to easily deposit the change they receive from a purchase with their debit card into a savings account. The bank provided the tool and the rules that governed it. But it also required an attitude shift to a

norm built around increasing savings every day.

For designers, it's easy to focus on the tools and forget about the role of rules and norms. But design thinking can play a big role in better rule making. Last year, after the committee that oversees Formula One racing changed some of the rules [governing, for example, tire specifications and aerodynamics], three teams found an interpretation that gave them a huge performance advantage, and they have won every race so far in the 2009 season. All the other teams are complaining and trying to get the rules changed again. In the end, all this back-and-forth is healthy for the sport; it's a prototyping environment, trying out the new rules.

S+B: Where do you see design thinking going next?

BROWN: One of the most interesting design tensions today is between cost constraints — especially given the economic crisis — and sustainability constraints, or the impact on the natural environment. Some of the most attractive design solutions are driven by both constraints. They're less expensive because they're more sustainable, and vice

versa. This is often because they're more elegantly designed.

For example, the Tata Nano sells for under $3,000, and it's apparently more environmentally sustainable than the motorbikes that families ride in India. Another example is the Aravind hospital. It doesn't provide hospital beds for its patients, but for some people coming in from rural India, a rush mat on a concrete floor compares favorably with what they might have at home. Its staffers don't think of themselves as designers, but they continually prototype and experiment with their processes, trying to learn more about their customers' needs, just as a good designer would.

S+B: In other words, you think designers will focus on making objects more meaningful.

BROWN: Yes, one of the things I find very exciting right now about design is the questions that are being raised about what kinds of objects and services are meaningful. In *Objectified,* a documentary film by Gary Hustwit about industrial design, people are asked to imagine an approaching hurricane. "You have 20 minutes to grab the objects

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in your house that are most important to you. What do you reach for first?" And then he shows images of answers to the question, and they are not products, even valuable ones. They're photographs or other cherished and meaningful objects. They represent meaning, social relationships, and memories.

Meanwhile, here we are, as innovators and marketers, investing all of this energy in making, creating, and selling things that ultimately people don't care that much about. What happens if we start to think about it all differently?

S+B: How does this translate into a corporate leader's decision making?
BROWN: First, it changes the way you manage the company. If all you have to offer is a bigger paycheck, you're missing a lot of opportunity for your employees. Many of IDEO's people could go elsewhere at higher salaries, and they choose to stay because they love being here: The economic benefit is combined with meaning, experience, and connections. I think a lot of organizations that do a good job of retaining talent or customers would say something similar. They're able to charge more for what they do,

retain employees, or capture a bigger market, because they have a better reputation.

And then it changes the way you think about the people who buy your products and services. There are essentially two economic models for a company today. The first is a conventional consumerist approach, offering goods and services with no engagement other than producing and marketing. This consumerist model has encouraged a passive relationship with consumers; people expect products and services to be delivered, purely in exchange for money, with no effort or engagement on the individual's part.

But the most attractive products and services require active engagement. For example, you can't join a social networking Web site without actually engaging with other people in that network. I call the second model the "participation economy" in my book — it's an economy based on people engaging, seeking influence, and taking part far more assertively in their consumption. Companies need to provide platforms that support this — by letting people more actively participate in the outcomes that they're looking for, which are a

healthy and productive society and reasonably healthy and long lives.

We see lots of opportunities for this approach in health care. For example, if I were a consumer with a platform of electronic medical records available that gave me better information about myself and the ability to connect services together, I could build a team of people who supported my health and who could see one another's messages to me. That could serve as a participation platform. Tax policies could encourage this sort of health-care platform. And it would move resources away from fixing problems to preventing them.

It's relatively easy to imagine this sort of platform in health care. (See "A Better Model for Health Care," by Gary D. Ahlquist, Minoo Javanmardian, and Sanjay B. Saxena, *s+b*, Autumn 2009.) And similar platforms could exist for customers in a variety of industries, including transportation and food. In each case, when it's easier to see their options, people will tend to make better decisions. Getting there is not just a matter of economics or policy; it takes better design. ✚

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