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by Youngjin Yoo and Kyungmook Kim

SPOTLIGHT

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(Genevieve Hoffman), *Punch Card Music Box*

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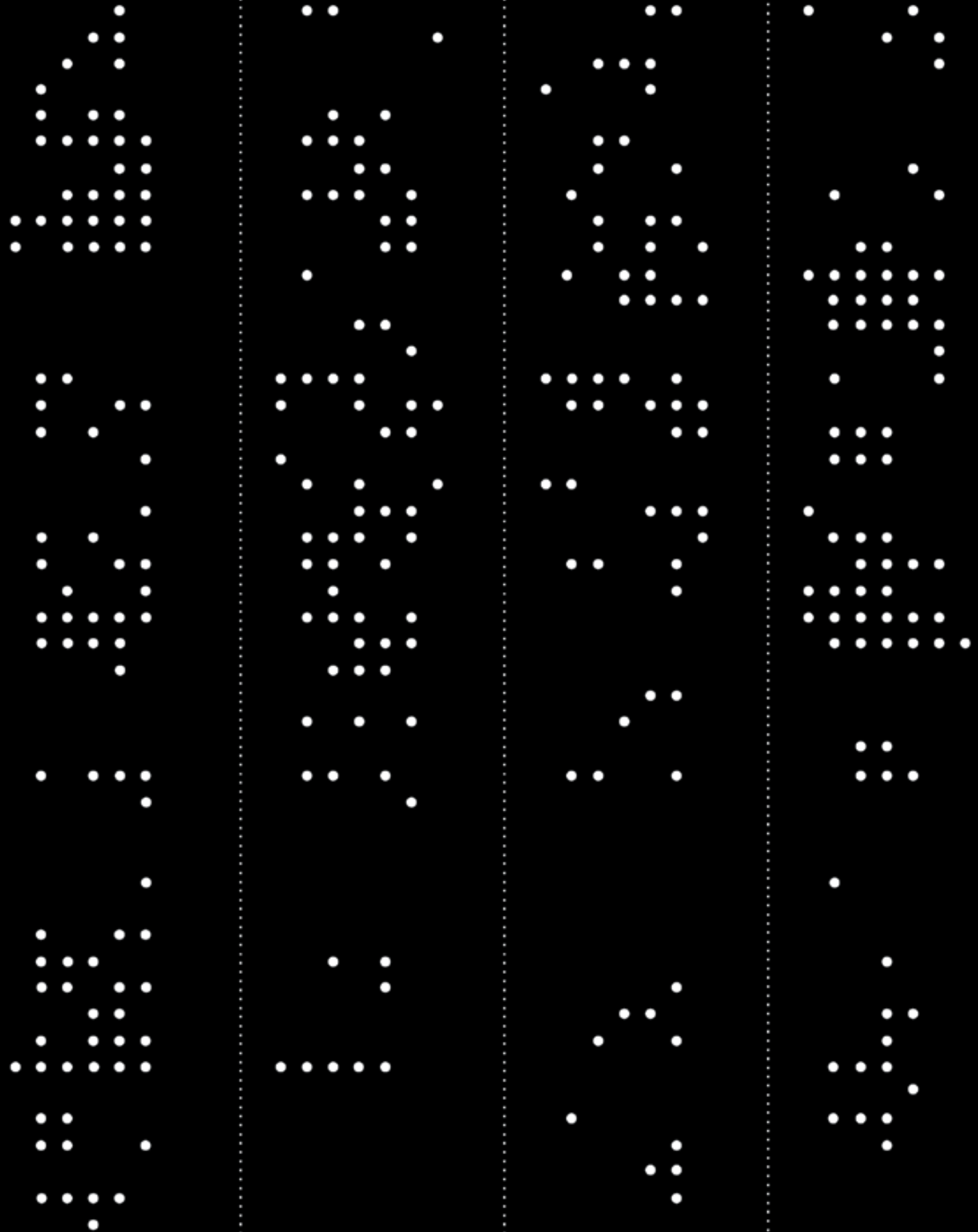
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Until 20 years ago,

South Korea's Samsung Electronics manufactured inexpensive, imitative electronics for other companies. Its leaders valued speed, scale, and reliability above all. Its marketers set prices and introduced features according to what original-equipment manufacturers wanted. Its engineers built products to meet prescribed price and performance requirements. At the end of the process designers would "skin" the product—make it look nice. The few designers working for the company were dispersed in engineering and new-product units, and individual designers followed the methods they preferred. In a company that emphasized efficiency and engineering rigor, the designers had little status or influence.

Then, in 1996, Lee Kun-Hee, the chairman of Samsung Group, grew frustrated by the company's lack of innovation and concluded that in order to become a top brand, Samsung needed expertise in design, which he believed would become "the ultimate battleground for global competition in the 21st century." He set out to create a design-focused culture that would support world-class innovation.

By any measure, his goal was achieved. Samsung now has more than 1,600 designers. Its innovation process begins with research conducted by multidisciplinary teams of designers, engineers, marketers, ethnographers, musicians, and writers who search for users' unmet needs and identify cultural, technological, and economic trends. The company has built an impressive record on design, garnering more awards than any other company in

recent years. The bold designs of its televisions often defy conventional style. With its Galaxy Note series, Samsung introduced a new category of smartphone—the phablet—which has been widely copied by competitors. Design is now so much a part of its corporate DNA that top leaders rely on designers to help visualize the future of the entire company.

It has been a bumpy journey. Despite strong support from top management, the company's designers continue to face constant challenges stemming from its efficiency-focused management practices, which are deep-rooted. Shifting to an innovation-focused culture without losing an engineering edge is not a simple matter. It involves managing a number of very real tensions. Engineers and designers sometimes don't see eye-to-eye. Suppliers must be brought on board. Managers invested in the status quo must be persuaded to buy in to idealized visions of the future. A risk-averse culture must learn to accommodate experimentation and occasional failure.

Samsung's success in making this shift can be traced back to a single early decision—to build design competency in-house rather than import it. As we'll describe, Samsung chose to create a committed, resourceful corps of designers who figured out that they could manage the tensions and overcome internal resistance by deploying the same tools that they use in pursuing innovation—*empathy, visualization,* and *experimentation* in the marketplace. The corps has helped institute policies and structures that embed design thinking in all corporate functions and provide a framework for reevaluating products in the face of dramatic technological change.

Building an In-House Competency

One of the world's biggest technology companies and the leading subsidiary of Samsung Group, Samsung Electronics has been much in the news ever since it branched into consumer electronics and decided to go head-to-head with Apple (whose patent-infringement lawsuits against the company are ongoing). Competition from Apple and others has been intense; in the third quarter of 2014 the company's profits dropped 60% from the same quarter of the previous year. By the first quarter of 2015 profits were recovering but were still below prior-year levels. Nevertheless, the big picture is one of impressive innovation and marketplace success. Samsung's mobile division is the sole survivor of the radical market revolution led by the iPhone

A DESIGN REVIEW MEETING
at Samsung's Corporate Design Center

BORDEAUX TV
Ethnographic research in 2003 revealed that TVs are off far more than they're on in most homes, so Samsung improved the visual appeal of its TVs starting with this model. It was a huge hit.

COURTESY OF SAMSUNG

Idea in Brief

THE CHALLENGE
Samsung Electronics knew that in order to become a top brand, it needed a design-focused culture that would support world-class innovation.

THE PROBLEM
Designers faced constant challenges stemming from the company's efficiency-focused management practices, which were deep-rooted. Managers who were invested in the status quo had to be persuaded to buy in to idealized visions of the future.

THE SOLUTION
The company built a corps of designers with a capacity for strategic thinking and the tenacity that enabled them to overcome resistance by deploying the same tools—empathy, visualization, and market experimentation—that they use in pursuing innovation.

(the mobile divisions of former competitors such as Nokia, Motorola, and Ericsson no longer exist), and smartphone sales drove record earnings for the company in 2013. Moreover, Samsung has been the leader in the global TV market since 2006, generating a series of hit models such as Bordeaux, Touch of Color, One Design, and Curved Smart.

These design leaps all began with Lee's 1996 resolve—triggered in part by a consultant's report on Samsung's innovation deficiencies—to instigate a design "revolution" in the company. (This wasn't the first major leap for Samsung. In 1993 Lee had launched an initiative to integrate Western practices on strategy, HR, merit pay, and design into the conglomerate, but he had been unsatisfied with subsequent progress.) To fuel its design revolution, the company could have sought first-rate expertise from outside. That certainly would have been the fastest approach, and a number of senior managers pushed to have an internationally known Korean designer take over the design function. But other executives persuaded Lee to nurture internal designers who would focus on the company's long-term interests rather than just their own projects.

As part of its investment in developing an organization-wide design capability, Samsung brought in faculty members from a well-known art college and created three training programs. One program trained in-house designers, taking them away from their jobs for as long as two years. (The other two were a college and graduate-level school and an internship program.) Lee made the programs a personal priority, which prevented them from being derailed by the objections of business and design executives who were furious about losing their designers for so long.

Numerous Samsung executives now agree that dependence on outside expertise would have done long-term damage. Developing in-house expertise, while laborious, created a group of designers who take a holistic view. An Yong-Il, the vice president of design strategy, puts it this way: "When we had our own place in the organization, we started caring about the future of the company." The designers also developed a capacity for strategic thinking and a tenacity that enabled them to overcome resistance over the long term. It seems doubtful that any group of outside designers, no matter how brilliant, would have been able to do that—even with support from the chairman.

Empathizing with the Whole Organization

In large companies, the process of innovation is long and tortuous. Even if a design team's new-product concept wins raves and garners executive support, it still must survive numerous downstream decisions—by engineers, programmers, user-experience experts, team leaders, managers, and even, in some cases, suppliers. Each of those decisions creates an opportunity for an idea to be hijacked by other functions' priorities and the strong tendency to steer the process toward the safety of incremental change rather than the risky territory of radical innovation. Kang Yun-Je, a senior vice president and the creative director of Samsung TV, says that nondesign functions typically think they can make good profits simply by using existing technology to make existing products a bit better and a bit faster.

Even in a company that embraces design principles, the reality is that designers must take steps to ensure that their ideas prevail as originally conceived. To do this they need to consistently empathize with decision makers from other functions throughout the process.

Consider, for example, the attempt by Lee Min-Hyouk, Samsung Mobile's creative director, to "sell" what was eventually nicknamed the "Benz phone" after a Norwegian newspaper likened it to the Mercedes-Benz. It was the first flip-cover mobile phone to have no external antenna. Lee, then a junior designer, knew that in order to persuade the engineers to eliminate the antenna, he'd need a better reason than to make a phone look good. To bring them on board, he reached well beyond the usual design role and took on an engineer's mindset, coming up with a new hinge design that created an internal space for a larger and more effective antenna. He also studied different types of paints that would enhance signal reception. "I had to imagine a new design for engineers as well as users," he says. The engineers were won over, and the phone ultimately sold 10 million units.

Design must also win the support of suppliers. If parts makers are unwilling to collaborate, no new design, no matter how compelling it may be, can survive. For example, when Samsung was working on its One Design flat-panel television, it faced strong resistance from its LCD panel supplier, which was accustomed to providing panels with inner covers to protect the components. TV manufacturers would add an external cover, which typically resulted in a thick profile for the final product. Because Samsung's designers envisioned a thin, metal-encased TV, the company wanted the supplier to omit the inner covers.

But "they didn't listen to us," Jung Hyun-Jun, the vice president of engineering for Samsung TV, says of the supplier. "They were selling standardized LCD panels as a complete set to many other TV manufacturers, and they did not see any reason why they should do something different for just one model of one client."

So Samsung's designers, working with its engineers, invented a supply-chain model for LCD panel systems that would radically reduce the shipping cost, because without the covers about 10 times as many LCD cells could be packed into the same space. The cost saving was shared with the supplier, and Samsung got its coverless panels.

Visualizing the Future, Reframing the Problem

Managers are trained to draw on the past and the present to project the future—that's what budget planning is all about. Designers, by contrast, are trained to break from the past. But if they want to persuade decision makers to take a chance on their radical visions of the future, they need to adopt a managerial mindset. Visualization is a powerful tool for bridging the two ways of thinking and getting skeptics to support new ideas.

The development of the Galaxy Note provides a case in point. Soon after Samsung Electronics introduced its Galaxy S smartphone and Galaxy Tab tablet, some members of its design team noticed an unmet need in the market: In Korea and Japan many knowledge workers had a habit of jotting down notes and keep their schedules in wallet-size pocket diaries, for which neither the four-inch phone nor the nine-inch tablet provided a good substitute. Realizing that a whole new platform was needed, the design group developed the concept of a smart diary that featured a pen interface and a five-and-a-half-inch screen.

When the designers introduced the concept to management, fierce debate about the screen size ensued. At the time, the marketers firmly believed that no mobile phone should be larger than five inches. Even after the designers produced mock-ups, managers worried that users would not accept such a large smartphone.

"Although everyone is for innovation, no one wants to change when we start talking about details," says Lee Min-Hyouk, of Samsung Mobile. "People told us, 'It won't sell.' 'You cannot hold it in your hand.' 'How can you put that thing next to your face?' 'The only reason to buy this is to make your face look small.'"

It was clear that the new size would require people's beliefs about smartphones to undergo a fundamental shift. The team was able to prevail by reframing the conversation: It prepared a mock-up of the product demonstrating what eventually became the widely imitated "smart cover," which connects with the user-experience software to display an interactive screen when the cover is closed. The mock-up looked more like a pocket diary, and those present at the design review realized that when it was thought of in that way, the new phone did not look so big. This shift in perception allowed Samsung to create the phablet category, which led to the highly successful Galaxy Note series. The company now uses the smart-cover concept for the smaller Galaxy S series as well.

GALAXY NOTE
Designed in 2011 to address an unmet need for a smartphone that could handle note taking

DESIGN FOR THE NEAR AND DISTANT FUTURE

Separate design teams at Samsung focus on different definitions of the "future," from near-term to far-term, so that the flow of ideas will be sustainable indefinitely.

DESIGNERS IN BUSINESS UNITS	COMBINATION BUSINESS UNIT & CORPORATE DESIGNERS		CORPORATE DESIGN CENTER
LINE-UP DESIGN	**ARCHETYPE DESIGN**	**NEXT-GENERATION DESIGN**	**FUTURE DESIGN**
12 MONTHS OUT	**18–24 MONTHS OUT**	**2–5 YEARS OUT**	**5–10 YEARS OUT**
Designers in business units shape the company's offerings by	Designers in business units, with the help of the Corporate Design Center, create product and platform archetypes by	Designers in the CDC, in collaboration with business-unit designers, help senior executives shape the company's near-term future by	Designers in the CDC help the C-suite visualize the company's distant future by
• Developing new products and user interfaces • Conducting a competitive analysis of new and existing products	• Planning for specific new products • Designing new products and user interfaces • Investigating details such as colors and materials	• Developing a new business investment plan • Creating a next-generation platform road map • Investigating new enabling technologies	• Developing new business concepts • Creating a technology road map • Investigating technology and user megatrends

Experimenting in the Marketplace

Empathy and visualization aren't always enough to generate the internal support necessary for radical change. In some cases Samsung designers experiment and refine their ideas in the marketplace and use the market data to build support.

Around 2003, Samsung's designers wanted to improve the aesthetics of the company's TVs. This grew out of an initiative to question the very definition of a television. Ethnographic research revealed that in most homes, TVs are off far more hours than they're on. In other words, much of the time they are pieces of furniture. As such, the designers felt, sets should be visually stunning. They proposed removing the speakers from their usual location, on either side of the screen, and hiding them. This radical design alteration would require a trade-off on audio quality, but the designers believed that a fundamental change had occurred in consumers' thinking about TV sound. Because so many people were connecting their sets to home-theater systems, their thinking went, audio quality was no longer a priority and could safely be compromised. Accordingly, they hid the speakers below the screen, creating downward-facing speaker holes that would direct sound to the unit's graceful, chevron-shaped bottom edge, where it would be reflected toward the viewer.

Many Samsung managers were skeptical. They still believed the conventional wisdom about TV design: that, in descending order, the priorities were visual quality, audio quality, usability, and physical shape. The CEO was concerned about the idea of putting speakers below the screen, says Kim Young-Jun, a design SVP. To build consensus, the design group urged the company to experiment with the idea in the European market. The model was a big hit, and the CEO and the entire TV development team, including marketers and engineers, backed the concept. Bolstered by the experiment's success, the design group chose an even more daring design for what became the Bordeaux model, with a glossy white border and a red chevron-shaped lower edge. When the full line of products finally came out, Samsung sold a million units in six months.

Samsung has also learned to use marketplace experimentation to support forward-looking design research. After one team's folding-screen concept generated a rapid share increase in the PC-monitor market, the team found it easier to secure funding for other long-term design initiatives. It was able to develop and launch a series of highly successful products in the TV market. All Samsung's recent hit models have their origins in such a process.

With commercial successes like these to the designers' credit, the value of advance design is now widely appreciated within the company, and Samsung has made substantial investments in deep-future thinking. In fact, four distinct time horizons now exist simultaneously for design within Samsung. (See the exhibit "Design for the Near and Distant Future.")

Creating a Sustainable— and Flexible—Design Organization

Internal resistance has been a fact of life at Samsung ever since the company started on the road to

"I had to imagine a new design for engineers as well as users."

—a design executive who made an aesthetic change to a mobile phone

design excellence, 20 years ago. In the late 1990s An Yong-Il, the design strategy VP, met strong opposition from Samsung managers when, after studying the design organizations of companies such as IBM, Sony, Mitsubishi, Panasonic, and Phillips, he recommended adoption of a companywide design philosophy described as "Inspired by humans, creating the future." Executives made it very clear that meeting short-term profit targets by selling cheap imitations of competitors' products was more important to them than establishing a design philosophy. Even designers gave An's philosophy a lukewarm reception. He says, "About 20% agreed with what I said but did not want to do it. About 50% said, 'Why bother? We just draw pretty pictures as told by others.' It was only about 30% of designers, mostly young, who were interested."

So it's perhaps not surprising that during the Asian financial crisis of 1997, the company cut back on its design initiatives. Discouraged, An considered leaving the company. His boss urged him to enter a PhD program instead, to study management and organizational design and to reflect on what would ensure a strong future for design thinking at Samsung.

His studies brought An to the conclusion that design philosophy and design principles must be visualized through clear organizational structures and processes and a new personnel policy. The design group should include people who understood social science, ethnography, engineering, and management. In 2000, when Samsung emerged from the financial crisis, An's boss worked with the company's corporate strategy office to conduct a strategic review of the design organization. The review found that Samsung needed to establish a strategic design group, later dubbed the Corporate Design Center, that would plan for the company's future and lead the way in perpetuating its emphasis on design thinking. Today the CDC is organized around twice-yearly strategic design review meetings that involve all the company's senior executives. The most crucial element of those meetings is visualizing Samsung's future.

The importance of design is felt everywhere. In the TV division, for example, engineers will tell you that their primary job is to help designers realize their vision. When sales of the Galaxy S series declined recently, it was design that received the most scrutiny from corporate leaders.

Nevertheless, Samsung faces enormous challenges going forward. Its approach to design is still largely based on the development of hardware products, even though most of that hardware runs on software. As digital technology changes the business landscape—and as Samsung continues to develop its own operating system and various service platforms in transportation, health, and payments—the company will have to radically alter its design process. Designers are already experimenting with agile development for software-based user-interface designs that require frequent rapid iterations and shorter design cycles. They are trying various forms of cross-functional coordination as they deal with increasingly convergent products. Recently Samsung conducted the first companywide design-management capability review, which is being used to inform a corporate restructuring. The company's design revolution is far from complete.

As the technological landscape continues to shift, executives of all corporations that seek an advantage through design thinking will need to constantly review their design processes, cultures, decision making, communications, and strategy. Recognizing that Lee Min-Hyouk's comment "Although everyone is for innovation, no one wants to change when we start talking about details" applies even to design groups, companies must push the usual bounds of design thinking and create an ever more radical vision for the future. ▽   **HBR Reprint** R1509E

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