

15

MUST-READS FROM 2012

a collection of frog's most
thought-provoking essays, timely interviews,
and recognized projects of the year

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frog works with the world's leading companies, helping them to design, engineer, and bring to market meaningful products and services. With an interdisciplinary team of more than 1,000 designers, strategists, and software engineers, frog delivers connected experiences that span multiple technologies, platforms, and media. frog works across a broad spectrum of industries, including consumer electronics, telecommunications, healthcare, energy, automotive, media, entertainment, education, finance, retail, and fashion. Clients include Disney, GE, HP, Intel, Microsoft, MTV, Qualcomm, Siemens, and many other Fortune 500 brands. Founded in 1969, frog is headquartered in San Francisco, with locations in Amsterdam, Austin, Boston, Bangalore, Johannesburg, Kiev, Milan, Munich, New York, Seattle, Shanghai, and Vinnytsya. frog is a company of the Aricent Group, a global innovation and technology services firm.

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Creative conviction,
smarter cities,
inventive ideas,
global impact.

Across sectors, from communications technology to retail to emergency response and education, frog has explored, analyzed, and brought to market concepts with the goal of improving how we experience and share our worlds as human beings. Here, we’ve curated some of the most daring, and widely recognized, thoughts from frog in 2012.

By **Doreen Lorenzo**

1 WHY CONVICTION DRIVES INNOVATION MORE THAN CREATIVITY



Doreen Lorenzo is president of frog.

This essay first appeared on Fortune.com.

In business circles, “creativity” has become a buzzword to describe a desired trait among employees. It’s widely believed that having creative thinkers on staff will boost overall team levels of innovation. Yes, creativity can lead to a surplus of original ideas. But when it comes time to sell those concepts internally, and then later take those ideas to market, creativity is not enough. More important is conviction.

Look at the most-admired business leaders today. They tend to resist compromises, even when faced with widespread skepticism or even complaints from customers. Mark Zuckerberg, Facebook’s young founder, is known for the exactness of his vision, which drives each design or software tweak of the social networking software that he created, despite the now-requisite uproar each change incites among Facebook’s 1 billion-plus users (whose own convictions, it should be noted, help drive subsequent iterations and privacy policies of Facebook).

Consider how Amazon founder Jeff Bezos asked the graduating class at Princeton University during his 2010 commencement speech there, “Will you wilt under criticism, or will you follow your convictions?” A powerful alternative to reading a corny list of tips for success to an eager crowd hoping to follow in his footsteps, his tough question offered a glimpse into his own style of innovation, and what drove him to build Amazon from a start-up online bookseller to a retail juggernaut to a serious challenger to Apple’s top-selling iPad hardware and its iTunes service.

But it’s not just company founders and CEOs or Ivy League grads that can benefit from having a strong sense of conviction. New data suggest that when employees pursue work that they feel strongly about, and can move their ideas forward within their organization, they are more enthusiastic and productive. Harvard Business School professor Teresa Amabile and her colleague Steven Kramer collected 12,000 electronic diary entries from 238 executives in seven different organizations. They analyzed what motivated these everyday individuals, who described their daily psychological well-being at work. Amabile and Kramer saw a trend emerge: “simply making progress in *meaningful work*” [italics mine] was key for these workers to feel engaged, Amabile and Kramer wrote in a *New York Times* opinion essay in September. What Amabile’s research shows is that conviction is important. Work that appeals to employees’ firmly held beliefs, which has personal meaning to workers, is what drives them.

Conviction is the powerful force that Google channels with its 20% policy, which

requires Googlers to devote one-fifth of their time in the office pursuing a project that they are personally interested in and therefore passionate about. This policy has famously resulted in products such as Gmail and Google Earth’s flight simulator software. But beyond the hype surrounding Google’s management style and how it leads to inventive thinking, it’s helpful to see how individual Googlers themselves think of this concept, as evident on their blogs and in their own words. Dave Burke, an engineering director who works on Google’s Android phone operating system, described the policy in a Google blog post earlier this year as “my license to innovate.” Just working at a place like Google, with its free food, vast resources, ambitious managers, and talented co-workers might not be enough to spark innovation. A culture where personal passions matter enough to fuel a corporate policy, more than the policy itself, is the management strategy to emulate.

Organizations of all sizes can encourage everyone, from C-level leaders to junior hires, to pursue their convictions. And they don’t have to be of the cheerleading variety.

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In fact, it can be helpful on many levels for managers to pay attention to employees’ passionate responses to projects, products, or services that are not working. At frog, for example, a lot of people were complaining about an internal tool we used for performance reviews—how cumbersome the software was, how time-consuming the process was to enter text. (Sound familiar?) So, managers paid attention to this heated chatter and embraced it. Clearly, if so many people had such strong opinions about this tool, perhaps something was wrong with it. That’s when I suggested that if our employees felt that it wasn’t the right tool for us, why not propose an improvement? One designer stepped up to the challenge, and created an alternative to the performance review software in question.

The exercise showed our teams that we are the kind of company that listens to employees, pays attention to the intensity of their interests, and is not afraid to take risks by channeling that intensity. So what we've learned at frog is that an employee-first management policy is about creating a culture that offers the opportunity for everyone to voice their opinions all the way to senior executives, at town-hall-style meetings in person, or on company-wide quarterly calls. This way we can also identify employees who have something to say, who might be able to offer fresh ways to improve how we do business, and whose opinions are so formed that they are not afraid to share them in a company-wide arena.

Conviction-driven thinkers on all levels of an organization, from the C-suite to executive assistants, want to share their specific visions more than they seek fame or power. They don't just think they have a good idea, but they believe passionately that their concept is worth making real. The beauty of these types of thinkers (and doers) is that they can explain why they want to develop the products they're developing, and why they want to launch initiatives that they're launching—both internally and to the world. Even when their ideas might not be the most original (remember, the Kindle was not the first e-reader; the iPod was not the first MP3 player; Google was not the first search engine; Facebook was not the first social network), their passion and their vision on how to improve the world or even the everyday quality of life in your company's workspace are likely focused. They are likely engaged. As a result, they can be very persuasive. Such a mixture of focus, engagement, and persuasion, more than creativity alone, is what brings ideas to market, and also to the right audiences at the right time.



The takeaway

A KEY QUALITY THAT THE MOST SUCCESSFUL INNOVATION LEADERS HAVE IS CONVICTION, BECAUSE IT SIGNIFIES THE COMBINATION OF PASSION AND PERSISTENCE NEEDED TO BRING ADVENTUROUS IDEAS TO MARKET.

By **Fabio Sergio**

2 10 WAYS THAT MOBILE LEARNING WILL REVOLUTIONIZE EDUCATION



Fabio Sergio is an executive creative director at frog.

This essay first appeared on *Co.Design* (published by *Fast Company*).

Smartphones and tablet computers are radically transforming how we access our shared knowledge sources by keeping us constantly connected to near-infinite volumes of raw data and information. We enjoy unprecedented instant access to expertise, from informal cooking lessons on YouTube to online university courses. Every day people around the globe are absorbed in exciting new forms of learning, and yet traditional schools and university systems are still struggling to leverage the many opportunities for innovation in this area.

Recently frog has been researching how learning models are evolving—and how they can be improved—via the influence of mobile technologies. We've found that the education industry needs new models and fresh frameworks to avoid losing touch with the radically evolving needs of its many current and potential new constituencies. These range from a generation of toddlers just as comfortable with touchscreens as they are with books, to college-aged men and women questioning the value of physical campuses, to middle-aged and elderly professionals hoping to earn new skills in their spare time to secure a new job in turbulent economic times.

We have been focusing on the concept of mLearning—where “m” usually stands for “mobile” but also just as easily for “me.” The near-ubiquity of handheld devices and their constantly lowering costs will enable the idea of “education that you can hold in your hand,” so it becomes a widespread reality in so-called developed markets and resource-challenged parts of the globe alike. Thanks to findings from a frogMob—an open research tool that allows people to upload and contribute their own observations from around the globe—along with additional research and other insights contributed by our partners at the World Economic Forum, we have arrived at 10 key themes that are likely to drive the development of mLearning initiatives in innovative directions. Here they are.

1. Continuous learning

Up until now, most people relegated “education” to a finite time in their lives: entering school at around five years old and attending school institutions all the way to university. Education had an expiration date, then working life began. This model, which has its roots in the industrial era, is quickly becoming less relevant or applicable to the way we live our lives in the connected age.

Education is getting increasingly interspersed with our daily activities. On our phones, tablets, and PCs, we download and digest life or work-related articles with instructions on how to fix our appliances or how to use a new professional software program. Many people across age groups decide to take formal online courses in their spare time, including complex subjects such as artificial intelligence, computer science, and game theory—all real examples of free courses offered by Stanford University and taken by everyday people, including 11-year-old kids and retirees.

Continuous learning will simply be a given for the generations of today's youngsters who are often literally born within reach of a connected personal device.

2. Educational leapfrogging

Continuous learning isn't just happening in the developed world. With low-priced computers, tablets, and cell phones in the hands of children in resource-challenged communities, many kids who are engaging in technological leapfrogging will have the opportunity to skip past outdated formal school systems, too. This is especially relevant in the case of children living in poverty, who may be denied an opportunity to improve their condition through education because they start working very early to help sustain their families or do not live near schools.

The ability to interstitially access educational content during pauses throughout their daily routine, or at night, or even as a running “soundtrack” that accompanies them during their tasks are all novel opportunities offered by a classroom that can follow you wherever you go.

3. A new crop of older, lifelong learners (and educators)

A by-product of the continuous learning phenomenon is the fact that the grandparents of children growing up with a touchscreen in their hands—people in their 60s today—are being pulled into mLearning more than ever, motivated to adoption by the need to stay in touch with their grandkids.

The availability of tablets and other touch-enabled devices has radically reduced the perceived complexity of computers, helping older users to more easily communicate with their middle-aged children and grandkids via email, Facebook, Twitter, and Skype.

This is a demographic group that often has the time availability to take online courses for fun, but at the same time, this ability also offers another untapped opportunity: Retirees represent a huge potential talent pool of educators who could address the scarcity of qualified teachers in many areas of the world—especially if they teach remotely, via mLearning.

4. Breaking gender boundaries, reducing physical burdens

In parts of the globe where, because of centuries of cultural practices, young women may still not be allowed to access a formal education, mLearning promises to be able

to put girls and women of all ages in contact with high-quality education privately and on their own time. Along similar lines, mLearning also helps bring educational material within the reach of people with extreme disabilities, who may not be physically able to get to a classroom or campus on a regular basis. In both of these cases, new freedoms can be exposed. As a result, these groups can take control of their educational and professional destinies.

5. A new literacy emerges: software literacy

mLearning could usher in a boom of interest in learning software programming languages, which could very well become a new lingua franca. This is already happening: Numerous startup web-based businesses today such as Codecademy teach people via interactive lessons how to understand and write software programs. Not even a year old, Codacademy has more than a million “students” and has raised about \$3 million in venture-capital funds.

This scenario is particularly relevant in emerging economies, where gaining software development expertise can introduce new opportunities for economic growth, or give communities what they need to address unmet local needs. Consider the boom of

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homegrown startups in Kenya that has been shaping mHealth solutions to solve some of the many health care issues affecting the country, or the success of an organization like Ushahidi, which has been financing a social high-tech accelerator called iHUB in Nairobi precisely to promote software literacy and local entrepreneurship.

6. Education’s long tail

mLearning solutions are poised to tap into the vast amount of existing educational materials that could be made accessible via mobile channels. This is especially true with YouTube, Vimeo, and other video-sharing services already providing a critical mass of tips, tutorials, and full-fledged lessons that can be re-aggregated by theme

and packaged as educational material. The recent TED-Ed initiative attests to the opportunity offered by the clever repurposing of existing quality lessons.

Others have leveraged the video-sharing social platforms to distribute educational materials created in an ad hoc way. It’s a model made famous by Salman Khan, an MIT graduate who, with his eponymous academy, “flips” the traditional education model by having pupils absorb lessons at home, and practice and discuss what they’ve learned at school instead.

The range of mLearning materials does not need to be limited to higher education but can easily encompass valuable, practical know-how, from grandmothers showing how to prepare traditional recipes to companies demonstrating how to install solar panels on mud huts.

The nature and complexity of educational materials can also vary greatly and not necessarily require a video-capable smartphone: Humanitarian organizations like MAMA have put to good use simple text messages to help mothers in developing economies learn about pregnancy, childbirth, and caring for their infants. These examples illustrate how the power of mLearning lies in its ability to offer solutions for numerous niche audiences.

7. Teachers and pupils trade roles

The same handheld-connected tools that enable children and adults to access existing educational solutions also provide the opportunity for them to capture and share knowledge in return. In other words, imagine kids who are raised with programming and video-production knowledge from very early ages creating educational materials for their peers, or even to teach adults, exposing them to very young people’s points of view of the world. Imagine a 12-year-old boy explaining how to effectively communicate health information to him as a tutorial for nurses, physicians, and parents.

8. Synergies with mobile banking and mobile health initiatives

Developers of emerging mLearning ecosystems can learn a lot from their predecessors in mBanking and mHealth and such services as mobile money transfers or mobile health monitoring. Beyond adapting some ideas—including using text messaging to deliver short lessons, teacher feedback, and grades—mLearning, mHealth, and mFinance can also be synergistically combined. After all, better education can easily improve people’s financial condition and in turn positively influence their health. These three factors can be combined in different orders without changing the result, which will always be more than the sum of the individual components. Applied on a micro or macro scale, this virtuous cycle has the potential to become a very effective way to improve personal, regional, and even national economies.

9. New opportunities for traditional educational institutions

The mLearning phenomenon will not necessarily compete with well-established schools

but actually complement and extend their current offerings. An intriguing new model was offered when Harvard and MIT announced that they have teamed up to offer free online courses via a joint nonprofit organization, edX. Both universities will observe how students respond to the courses to better understand distance learning.

After a few missed opportunities in the early 2000s, established universities seem to be looking beyond turning a profit and are turning to mLearning as a means to find new promising students or research how people learn. Traditional institutions could also help mLearning solutions scale quickly by leveraging their vast and established networks of students, faculty, and alumni. The business potential could also be big; a report published in February by Global Industry Analysts projects the global market for online and other electronic distance learning to reach \$107 billion by 2015.

10. A revolution leading to customized education

The key for successfully channeling the mLearning revolution will not simply be about digitizing current educational systems. The real appeal will be allowing people to choose their own paths, leverage their talents, and follow their passions and callings. MLearning has much business potential, but the most exciting and rewarding aspect of these solutions is that students of any age or background might have the chance to pursue knowledge that is meaningful, relevant, and realistic to achieve in their own lives.



The takeaway

THE PROMISE OF "M-LEARNING" LIES IN THE DEVELOPMENT OF VIABLE NEW BUSINESS MODELS AND DESIGN OPPORTUNITIES THAT ALLOW COMPANIES TO CREATE PERSONALIZED TEACHING SERVICES FOR ALL AGES, INSPIRED BY MHEALTH AND MBANKING. DEVELOPERS NEED TO LOOK BEYOND MERELY DIGITIZING CURRENT MODES OF LEARNING FOR USE ON MOBILE PHONES.

3 2012 AWARDS

Strategy, sustainability, storytelling, simplicity

Throughout the year, design-industry juries around the world awarded frog for its accomplishments in these key areas of innovation.

UNICEF Project Mwana

IDSA International Design Excellence Awards
Gold Winner, Social Impact
Silver Winner, Design Strategy

Core77 Design Awards
Professional Notable, Strategy & Research
Professional Notable, Social Impact

Continuing its engagement with social innovation, frog partnered with UNICEF's Innovation Group on Project Mwana, an initiative that leverages mobile technologies in fresh ways to strengthen health services for mothers and infants around the world. Project Mwana is a mobile service that delivers HIV lab results in real time to rural clinics in Zambia and Malawi, and also serves as a messaging platform between clinics and community health workers to ensure that results are communicated directly with mothers. Part of frog's larger Mobile Mandate focusing on technology and social ventures, Project Mwana has demonstrated the value of using real-time data to address health priorities and improve decision-making. It is a model for how to design effective, sustainable and scalable solutions for frog's strategic partner UNICEF.



GE User Experience Strategy

IDSA International Design Excellence Awards
Gold Winner, Design Strategy

Core77 Design Awards
Professional Winner, Strategy & Research

frog collaborated with General Electric to develop a dynamic User Experience (UX) strategy to visualize, analyze, interpret, and utilize the massive amount of data being generated by GE's smart industrial machines. In this latest phase of a long term partnership with GE, frog is integrating and improving the overall quality of UX design; creating a comprehensive framework for a user-centered approach to GE's software applications; and establishing a community of UX users within GE to better communicate and share knowledge, resources, and best practices across all business sectors, from transportation to aviation, energy and healthcare.



Revolver Personal Wind Turbine

BraunPrize Sustainability Award
Professional Winner

The Revolver Personal Wind Turbine, a consumer-grade wind turbine capable of generating 35 watts from a breeze, is a high performance solution to the growing demand for mobile “personal power” and true freedom from the grid. Developed first as part of an internal frog competition, Revolver harnesses wind power at an accessible scale and is easy to assemble, use and transport. As a personal source of off-the-grid power for a mobile lifestyle, Revolver provides enough energy to light a lantern, power a radio or recharge phones, cameras, and other small electronic devices.



Bloomberg LP's Corporate Website

Business Marketing Association's ACE Award
Winner, Best Corporate Website

frog designed Bloomberg's first, one-page global corporate website around the concept that nothing communicates data like data itself. The page's live-streaming tapestry gives equal footing to all of Bloomberg's businesses and visualizes every quantifiable aspect of the company's sprawling business and financial market news operations. This data tells Bloomberg's story in real time to many audiences, including the media, job seekers, and general business users, while also highlighting the company's prominent position in supplying up-to-the minute information, news, and analytics across many diverse industries.



frogMob

Core77 Design Awards
Professional Runner Up, Strategy & Research

frogMob is an experimental guerrilla research concept that encourages everyone—designers, students, enthusiasts—to challenge their inner design researcher by looking for inspiration from everyday life. As a crowd-sourced design research tool, the voluntary frogMob community has captured stories, insights, and images from across the world, bringing local knowledge to frog’s clients and projects while challenging stereotypes. frogMob opens up the design research process and takes the pulse of emerging trends that inform the design process in the early, formative stages and leads to products and services that improve people’s lives.



Feel UX for Sharp AQUOS

**Japan Institute of Design Promotion's
Good Design Award
Winner**

frog designers and technologists collaborated with Japanese handset manufacturer Sharp on Feel UX, a new mobile user-experience model that makes Android devices stand out in a crowded field. The uncluttered look of Feel UX offers a visually stunning and highly interactive experience that breaks out of the conventional Android model. Instead of adding layers to an existing platform, the frog team carefully curated that experience to create a sleek new line of smartphones that are straightforward and easy to organize and use for beginner Android users, yet have the flexibility in customization that advanced users seek.



A stack of several black smartphones, likely iPhones, stacked vertically. The phones are shown from the back, with their metallic frames and camera lenses visible. The stack is positioned on the right side of the page, with a white background on the left.

Interview with **Mark Rolston** (by **Thomas Ricker**)

4 A FUTURE DOMINATED BY VOICE, NOT INDISTINCT BLACK SLABS



Mark Rolston is chief creative officer at frog.

This interview first appeared on *The Verge*.

Design is something we see every day thanks to the democratization of the art form. How can a consumer differentiate between design and decoration? Good design is defined by a product's ability to address people's wants and needs. As long as we're focused on that as designers, we're good. I don't believe people consciously discern between whether a product's quality comes from "true" design or mere decoration. How we label things doesn't really matter. It's academic. What matters is "did we solve the problem?"

Will the recent Samsung v. Apple decision help force a resurgence in creative innovation or contribute to stifling it? I expect that it will help, at least in the world of Android handsets. In terms of hardware design, that industry is stuck in a rut. Check out a retail store display of those things. It's a wall of indistinct black slabs with rounded edges. Consumer patience with this would likely have run out eventually, even if the courts had forced the issue later than they did. People want variety in life. As far as the software side of things, even without the court decision, each OEM is finding itself needing more competitive leverage in the Android market. They can't compete on price and technical innovations alone. As the Android OS matures, OEMs are learning to create their own variations without breaking the core compatibility. This is something the press rarely gets right: Customizing a device's OS is not a monolithic notion anymore. The platforms are getting sophisticated enough that we can customize key aspects such as the core apps, the desktop, and the unlock screen without breaking the underlying OS or app compatibility. It's a layered story.

With regard to mobile computing, what will replace the dominant "black slab" touchscreen

uniformity of smartphones and tablets? Certainly if you look back at the history of feature phones, you can trace a similar path from simple, black/grey hardware to more colorful, decorative, jewel-like designs. That's likely to happen again. However, this time around, there's something very different going on. The hardware is no longer really the story. The hardware is really just a minimalist frame for that touchscreen. It's where the action is and we're finding what really works is to get the hardware out of the way. That tends to drive a lot of similar designs, in terms of very simple and very similar devices. The focus is simply shifting away from the physical object. But I still believe we're going to see a lot of variation.

The bigger story is that we're going to eventually start to see devices, essentially computers, in new shapes. Some designed for our bodies, and others designed to be part of the rooms we live in. I'm looking forward to this future. I think we all love what computing does for us, but we don't like computers. We're babysitting them way too much.

When will we see the first Mark Rolston Kickstarter project, unencumbered by the "let's play it safe" compromise that clients often seek? Actually a good number of our clients are doing anything but "playing it safe." Many of them are asking for really amazing things. So I'm not exactly longing for a bigger challenge. We're in a very privileged position to be able to share in such a variety of challenges. So any outside project would have to be one hell of a moonshot. But don't count me out.

It's hard to imagine using a smartphone or tablet that lacks gesture support. However, the arm-extending gestures used to control home theater apps on TVs are a novelty at best, while many people cringe at the idea of reaching out to

a touchscreen monitor to control Windows 8. Is it too soon to draw a conclusion on what that means for the computer interaction model famously depicted in the film *Minority Report*? (sigh...) I hate that model. On one hand, it's been great for a user interface to have become so recognizable by the general public. But really, it's a terrible idea. Few people are going to stand up and wave their arms around like that to operate a computer. In the movie, Tom Cruise is doing a lot of object selection, sorting, and editing. Those things work best with small hand movements. We require more motor control for that kind of work. But there is an emerging field of computing that does take advantage of more "phatic" interactions. Doing simple things like turning lights on, opening doors, and signaling yes/no can be done very effectively at the kind of full body level that we saw in *Minority Report*. Actually, we've been experimenting with this ourselves. We created a prototype called RoomE, where we can control basic events with our bodies and our voice. It's really cool.

The touchscreen existed for 20 years before it went mainstream. What technologies do you see around us now that could be mainstream if only a company had the courage to embrace it? Voice control. I believe it's going to be big. So much of our interaction with computers has been with boxes. At first they were big, and now they are small, but we still have to tap-tap-tap in one way or another to get these boxes to do things for us. But we're getting to a point where those boxes are smart enough that we can try putting them away and just using voice to control them for many situations. If you look at the full range of experiences you have with computers throughout your day, you'll find that many of those interactions are very small discreet tasks that might be replaced by voice, gesture, or other new models. Of course, our workstation activities, email, spreadsheets, web browsing aren't going away. We just need a wider range of ways to interact with machines.

We've been discussing a so-called "internet of things" for decades, where everything is connected and we're inside of the machine. What's most important in driving that forward, and what are we still lacking to get there? Well, as

William Gibson said, "the future is already here, it's just not very evenly distributed." In that sense, a lot of what the internet of things promises is happening around us right now. Our phones make us persistent nodes on the network. So many of our homes now have tens of computers, but most of them are small, single purpose devices. Wearable computing was once a fanciful concept. But today people wear wristbands and watches that track their body metrics and movement. All of this has become ordinary.

What's really exciting is that the data-side to the equation is really starting to step up. For example, the infrastructures of cities are becoming a source for massive amounts of useful information—social, commercial, traffic, security...There's enough information about people, places, and

We all love what computing does for us, but we don't like computers. We're babysitting them way too much.

things now available on the internet that we can start to do really interesting things with all of our computing horsepower.

What's still lacking is the interface. We have more information than we have skills to turn it into useful knowledge. It's a human problem, not for lack of the technology. We are still using computers that require a ton of babysitting and human guidance to get much done with them. We need more background, policy-driven computing. The real goal of the vision is a deep extension of our senses—more knowledge and more control of our world. We want to know more about people, more about the places we're in and where we are going, and more about the things we have and might acquire.

What will frog be focusing on in ten years? In 2050? Ten years is nothing. We've been around more than 40 years. If I look back ten years, we were pursuing primitive forms of some of the same problems. What then was merely a concept, today is a real development project. Ten years ago we were working with Motorola, Nextel, and others to create cellphones that had value beyond making phone calls. It was a struggle to do much of anything. Today a project like our Feel UX for Sharp is easily possible. So I can imagine that in ten more years some of our latest concepts will become real. Concepts such as RoomE might actually be in the market. I can hope so.

As for 2050, if you buy into the vision that computing is destined to disappear into the woodwork, then we'll likely be adopting new skills such as body choreography, voice dialog design, and more artificial intelligence-oriented design.

We're already doing these things. The skills just aren't formalized yet. We're making it up as we go. But we've been here before. WIMP apps, websites, touchscreen software—we were there in the beginning for each of these.

Another trend that will play out in the next 40 years is in hardware design. We've seen the evolution of many forms of hardware, from direct expressions of function to just being window-frames for software. It might seem as if the importance of hardware is fading, but ironically, hardware design is becoming more valuable to us. Industrial design is hot again. It turns out that as things become more software-driven, more ephemeral, our need to connect with the visceral, touchable stuff increases.

If you think about it, 2050 is closer to today than when we started frog in 1969. So we've already seen what this kind of change looks like. We thrive on it.



The takeaway

SMART COMPANIES WILL RECOGNIZE THAT THE FUTURE OF COMPUTING IS MOVING AWAY FROM THE COMPUTER ITSELF. SIMPLE GESTURE, VOICE, AND OTHER EFFORTLESS COMMANDS, PAIRED WITH MORE BEAUTIFUL, LESS-BOX-LIKE DEVICES, WILL BE THE WAVE OF THE FUTURE.

By **Robert Fabricant**

5 MIND THE GAPS: THE CHALLENGES OF USING DESIGN TO SCALE SOLUTIONS TO WICKED PROBLEMS



Robert Fabricant is vice president of Creative at frog.

This piece first appeared in *Rotman* magazine.

While problems of all shapes and sizes can benefit from creativity, it has become an article of faith that “wicked problems,” in particular, require highly creative solutions that span boundaries and organizations. And as more of the critical issues facing our society—from sustainability to chronic disease—are being classified as wicked (or at least extremely stubborn), the prominence of design thinking continues to grow in the public sphere, expanding into areas heretofore unexplored by designers.

I have watched this unfold first-hand in my work at frog, where we have seen a rapid expansion of interest from organizations such as the United States Agency for International Development and the State Department, both of which have embarked on initiatives to integrate design thinking into their programming. As a result of such partnerships, “social innovation” has moved into the lexicon, with programs popping up simultaneously at business and design schools around the world, as well as collaborative projects such as Design for America.

Paul Polak—a pioneer of low cost irrigation technologies in Bangladesh and other developing countries—first exposed me to the link between design methods and social innovation in 2006. Paul has concluded that products that meet user needs are a significant, underappreciated market for customers living on less than \$1 a day. His organization, International Development Enterprises (IDE), has created products from treadle pumps to low-cost drip irrigation systems by using design methods, including direct observation of user needs and then engaging in rapid cycles of iteration and prototyping in the field.

The success and visibility of organizations like IDE has led to a belief not only in the power of human-centered, participatory approaches, but also a belief that these efforts will generate an expanding portfolio of solutions from which the best can be identified and scaled to solve a host of wicked problems. Treadle pumps and micro-finance programs have become the design icons of social innovation, positively impacting millions of lives. As Judith Rodin, president of the Rockefeller Foundation, has pointed out, “solutions to many of the world’s most difficult social problems don’t need to be invented, they need only to be found, funded and scaled.”

Unfortunately, very few social innovations have achieved comparable scale. Why? As McKinsey’s Steve Davis writes (in the online journal *What Matters*):

“Unlike in the private sector, where successful product innovations have a clear process for gaining market share, the best social innovations are not necessarily widely

adopted. The ‘iPods’ of poverty alleviation and literacy have likely been invented and put to use by small organizations in some corner of the globe, but there is no market for identifying these breakthrough ideas and ensuring widespread adoption.”

Imagine a world where wicked problems were more easily tamed, allowing us to pull solutions off the shelf to meet the needs of under-resourced populations around the world. The good news is that, through a myriad of business model competitions and fellowship programs, social venture capitalists have become adept at identifying disruptive innovations with the potential to achieve scale—in theory. Yet due to some significant “design gaps,” very few have been able to achieve scale in practice.

Gaps to Achieving Scale

Over the last six years, under an initiative called Mobile Mandate, my colleagues and I have committed significant time and resources to collaborations that leverage the social impact of design, and along the way, we have gained a healthy respect for the value and limitations of design in this space. One thing we have noted is that it is easy for designers to underestimate the gaps that exist between prototype and implementation, and in the case of wicked problems, these gaps are particularly daunting. What if there is something in the very nature of wicked problems that makes solutions harder to normalize and replicate? And what if design thinking only makes matters worse?

This seems like a good moment for reflection, two years after Rotman’s first publication devoted to wicked problems. The following are four obstacles that often come between creative approaches and large-scale implementations in our experience. While my examples come primarily from our work in the social sector, the observations and recommendations that follow are broadly applicable to wicked problems in any field.

1. The Systems Gap

Six years ago, Pop!Tech (an innovation accelerator) gathered a group of collaborators at frog to tackle one of the most severe and intractable health issues in the world: HIV in South Africa. A combination of cultural barriers and political neglect had created an epidemic of massive proportions in KwaZulu Natal, with infection rates estimated to be 40 per cent and co-infection with TB and multi-drug resistant TB widespread. Often, by the time people reached the healthcare system, it was too late in the disease cycle for effective care.

We had some great ideas to start with and a shared belief that we could change the dynamics of the situation at scale. Together, we incubated an initiative called Project Masiluleke, which focused on solutions that sit largely outside the traditional healthcare infrastructure. Our first step was to sketch out a new model for reaching people at every stage—from awareness to treatment and follow-up. Our discussion was guided by the sort of design frameworks that we use for commercial clients like Disney and GE. Within a few hours we had mapped out a systematic strategy and agreed upon the problem space by hypothesizing potential solutions.

In the context of finding solutions to wicked problems, awareness and adoption can not be taken for granted; they are integral to scale.

The first result was a mobile-messaging system that alerted people to get tested and follow up with treatment. Simple solutions like these are crucial to build the necessary credibility to catalyze system-wide change. Today, the Project Masiluleke messaging service touches between one and two million South Africans a day. It has encouraged more than three million people to reach out for help in the last three years. Without this simple, concrete result, we might not have remained so committed to the initiative. The mobile messaging service has already traveled far, and is now implemented in other African countries by our partner, Praekelt Foundation.

In today's world, designers and investors often feel that the more systematic the approach, the more likely the solution is to succeed and scale. We often operate under the assumption that the *system* is the transportable part—but what we learned from this experience is that it is usually the discrete pieces that travel more easily and are crucial in building support in new communities on the path to scale.

We are seeing the same thing in our work with UNICEF's innovation team on Project Mwana. This initiative focuses on early infant diagnosis of HIV and has pioneered a system to return lab results to clinics via text messaging. This concept came out of several days of workshops that UNICEF's innovation team lead in Zambia with key stakeholders. The creative process played a key role in the early inception as well as the design and prototyping of the pilot solution. This simple solution is now going to scale in Zambia and will likely be exported by UNICEF to other countries.

Summary of Contributing Factors

- **Designers love systems. Systems thinking can be a great tool for alignment and shared understanding in the space of wicked problems.**
- **Systems are contextual and conditional; they are not as scalable or transportable as we would like to think.**
- **The potential for impact is often greatest in the parts, not the sum. The discrete parts are easiest to measure and are most replicable.**
- **Simple solutions are crucial to build the necessary credibility to catalyze system-wide change.**
- **Systematic solutions often take too long to realize, bogging down smaller-scale innovators and entrepreneurs in a single market or community and preventing more discrete solutions from traveling to other locations.**

Recommendation #1 Decompose large systems into their component parts to look for the individual pieces that are the most effective and efficient. Create a smaller set of discrete innovations that can be re-combined to suit the needs of different contexts at small scale to deliver widespread change.

2. The Discipline Gap

This fall I was invited to a strategy planning session for the mHealth Alliance, an initiative hosted by the UN Foundation. The session brought together a number of major funders who were investing in innovative approaches to public health with leading mobile tech entrepre-

neurs. Such approaches have proliferated over the last few years, making it the ideal ground to test Steve Davis' hypothesis. That is, funders should be in a great position to pull the best mHealth innovations off the shelf and bring them to market at scale around the world. The good news is that many of these organizations are funding similar, even redundant, efforts in areas like HIV and maternal and child health. The challenge is that they are often unaware of what each other is doing, and lack a fundamental language for describing and comparing different solutions and implementations to figure out what really works.

There is clearly a role for design here. Designers are particularly adept at drawing connections between different efforts and visualizing patterns. But finding solutions to wicked problems is not as simple as merely mapping them out. Even with people who share the same cultural reference points, it takes time to unpack different initiatives to identify both the common and unique components of even a simple solution like our mobile messaging service. Most projects involve a much more diverse community of participants with different cultural perspectives and local knowledge.

The great strength of creative solutions is the willingness to prototype and iterate. But for these very same reasons, it can be hard to retrace your steps, and the very skills that make creative thinking so effective can initially hold you back. Creative partners like to continually iterate, particularly in the space of wicked problems, making stable solutions hard to identify and document. Designers are not likely to take the time to capture and describe the components of a solution adequately so that others can follow along and “steal” the best parts; and imaginative solutions are hard to describe and normalize when many contextual variables are at play. Plus, the social knowledge and shared understanding that drives creative approaches is hard to capture for new stakeholders who didn't participate directly in the process.

Compounding the situation is the fact that funders often look for validation and measurement before they will invest in documenting and scaling a solution, creating a catch-22. Failures as well as successes need to be captured and disseminated, but

often they are not, preventing the best hybrid solutions from propagating, as Steve Davis rightly points out.

Summary of Contributing Factors

- Creative solutions are hard to describe and normalize, with many contextual variables.
- The social knowledge and shared understanding that drives creative approaches is hard to capture for new stakeholders who didn't personally participate in the process.
- Creative partners like to continually iterate, particularly in the space of wicked problems, making stable solutions hard to identify and document.
- Failures are not often documented. It is equally important to document failures as it is to document successes.

Recommendation #2 Too much learning is being lost as we tackle wicked problems. Invest equally in the definition and documentation stage so that solutions can be normalized and compared, even if the solution is a failure. This is another reason why it pays to focus on smaller, more discrete solutions, as they are easier to describe and compare (see Recommendation #1).

3. The Evidence Gap

One of the key achievements of design in the social sector has been to increase appreciation for the value of direct engagement with end users to better understand needs and collaboratively shape solutions. Many design collaborations begin with just that, working on a small scale with local partners and social entrepreneurs to rapidly develop and test new approaches. But all too often, funders and policy makers in fields like public health discount this sort of 'qualitative' and participatory research.

In 2009, I was participating on a panel at Harvard Business School's Social Entrepreneurship Conference, when a skeptical audience member raised the topic of measurement. The only designer on the panel, I was armed with some fairly detailed stats on our work in South Africa. Our Project Masiluleke data showed a tripling of volume into the National Aids Helpline that can be directly correlated and attributed to our service.

Information technologies that are central to many social innovation initiatives in areas like mobile health are a natural place to gather quantitative evidence around feedback and engagement, building credibility with funders to invest in scale efforts. But while they are compelling, these stats generally reflect engagement and feedback—they have not been connected to any specific health outcomes, which can take years of study in an area like public health. While valuable, they do not fully address the 'evidence gap' raised by funders and policy makers.

The Evidence Gap cuts two ways: many interventions that have demonstrated measurable impact through traditional measurement and evaluation (M&E) studies, like mosquito nets, have hit barriers to scale due to lack of engagement and adoption. Large scale NGOs like UNICEF generally classify this under the category of "demand

generation," often seen as an afterthought in their programming—like a commercial company looking to "market" its products once development is complete. In the space of wicked problems engagement, awareness and adoption are not something you can afford to take for granted; they are integral to scale. Given the dynamic nature of these problems and the complex social and behavioural dimensions to any solution, qualitative feedback must be a continual part of the design process.

Summary of Contributing Factors

- Design methods are good at gathering early feedback in problem definition and solution development.
- Qualitative research methods can provide critical markers to build credibility before impact can be directly proven and correlated; but designers continue to iterate on the solution, making measurement and evaluation difficult, particularly when facing wicked problems that may not have an obvious control group.
- Information technologies that are core to many social innovation initiatives in areas like mobile health are a natural place to gather quantitative data around feedback and engagement building credibility with funders to invest in scale efforts.
- Scale is not just about the delivery model, it is about the demand model. Demand generation is a great weakness of many efforts, making qualitative research is essential throughout the process.

Recommendation #3 Develop a more agile model of M&E that takes better advantage of qualitative feedback as well as real-time measurements of engagement, awareness, and adoption through integration of information technologies. Look at these additional forms of qualitative feedback not just as precursors to more formal M&E, but also as critical components to the continued iteration and optimization of solutions to wicked problems in the social sector. And look for opportunities to better correlate qualitative feedback with impact measures to better understand how the two interrelate.

4. The Solution Gap

In the realm of wicked problems, we cannot and should not expect shrink-wrapped solutions, even if the solutions emerge from a highly creative, collaborative, and iterative process. This can be difficult for organizations, which make high profile investments in creative collaborations with designers, and for senior stakeholders, with too much faith in the power of design thinking, to accept. One "failure," and they will often scrap the whole endeavor.

The fact is, organizational engagement takes time. In working with organizations like iTeach, our front-line partner in Project Masiluleke, we have witnessed an amazing willingness to apply a creative approach to many different challenges. We have seen first hand, for example, the ability of an organization with strong community outreach skills to adapt those skills very successfully to design activities such as observation and concept testing. iTeach has set up an entire video-based usability lab in its limited facility to foster the design process, and we are now investigating whether we can achieve similar results in a much larger organization like UNICEF.

Ultimately, scale itself may be the wrong goal, particularly when it is used as an excuse not to engage locally and understand specific cultural needs. In the end, it might not be a product or solution that will scale the best, but the process of engagement itself with different participants in the ecosystem.

Summary of Contributing Factors

- Don't assume that a solution can be imposed from the outside. Instead, involve and empower the community in shaping solutions to meet their needs.
- The design process remains mysterious to many and hence, can be intimidating. The fact is, much of design is common sense. Look to leverage existing capabilities such as community outreach that can be expanded to support design activities.
- Choosing the wrong partner. Take the time to pick the design partner that is best in tune with your organizational culture. Make sure you have partner within the organization who is involved throughout the end-to-end process.
- Set the right expectations with internal stakeholders and champions so that they do not expect immediate success and are willing to see failures and mistakes as integral to the process.
- Insist that stakeholders participate directly in design activities to increase their level of commitment and appreciation for the messy aspects of the design process.
- Understand / assess barriers to openness early in the process.

Recommendation #4 Focus on building a sustainable network of partners within the communities you seek to serve. Understand that the design process, even if it leads to ideas that might not immediately prove to be “successful,” can help to strengthen connections between various stakeholders and increase their buy-in on an ongoing basis.

In Closing

Design can play a critical role in opening up new ways of approaching wicked problems. But as we look at problems of scale, we must acknowledge that it is but one ingredient in an overall strategy. Organizations looking to integrate design into this solution space would do well to mind the gaps that exist between pilot and implementation, particularly in the social sector. Embracing the recommendations outlined here can serve to guide collaborations moving forward and increase the chances of achieving large-scale impact.



The takeaway

DESIGN WORKS WELL AS ONE TYPE OF HUMANITARIAN SOLUTION FOR THE WORLD'S GREATEST CHALLENGES, BUT DESIGN SOLUTIONS CAN BE DIFFICULT TO SCALE. BREAKING PROBLEMS DOWN INTO SMALLER HURDLES TO TACKLE; DOCUMENTING ALL DESIGN WORK; PAYING ATTENTION TO QUALITATIVE FEEDBACK; AND FINDING STRONG PARTNERS ARE ALL STEPS THAT DESIGNERS AND COLLABORATORS CAN TAKE TO IMPROVE HOW THEY APPROACH SOLVING WICKED PROBLEMS.

By **Ravi Chhatpar**

6 IN SEARCH OF THE MEANING OF AFRICAN INNOVATION





Ravi Chhatpar is an executive strategy director at frog.

This essay first appeared in *African Innovator* magazine.

When you ask most people in the world about what comes to mind when the word “innovation” is mentioned, a rare few will have anything to say that has anything to do with Africa.

The Western response is predictable—Apple is the easy answer. Google, Facebook, Microsoft, Intel, GE, P&G round out the list. Others will point to any number of hot start-ups coming out of Silicon Valley just this very week. More nuanced answers may point to the contributions of fundamental R&D-heavy industries like pharmaceuticals and chemicals. A deeper probing may get to stories about the Western education system, its entrepreneurial and funding culture, or how innovations spread through social messaging and communication.

I’ve spent much of the last 8.5 years in Asia, mainly in China, spending a lot of time thinking about the Asian innovation story. It’s easy to get caught in relativist positions—Japan mobile and automotive brands used to be globally dominant through their cutting-edge innovations, but have since dropped off; the big Korean consumer technology brands like Samsung and LG are fast-followers behind the true US innovators like Apple; and what about China? It’s the manufacturing center of the world, with true sophistication in the factory and in product development, but traditionally viewed condescendingly as a source of derivations, not innovations. Made in China, but not designed, invented, or innovated in China.

What’s fascinating to me is that in recent years, this Chinese “innovation” story has started to change—through both the deliberate and unconscious efforts and strategies of domestic companies, multinationals, media, and governments. And what is beginning to emerge is not a rationalization of why Chinese innovation is behind Western innovation, or what has to change to make Chinese innovation more appreciated by the West, but a realization that Chinese innovation is something that is fundamentally different. So different, in fact, that it may represent an alternate model of innovation altogether. And savvy parties are trying to take advantage of this posture.

And what is this posture exactly? It’s hard to describe it succinctly, but it involves a few things. It posits that smarter localization of an innovation can be as important, if not more important, than the innovation itself, requiring a truly sophisticated understanding of unmet needs and a truly inspired manifestation of a solution. It holds that highly accelerated product development—meaning orders of magnitude faster hardware and software development than in the west (weeks vs years)—can be a more

important source of competitive advantage than the product itself. It claims devaluation of IP is not intrinsically bad, as it makes you a more forward-thinking, agile player if you learn how to plan 6 steps ahead. And in its ultimate form, it claims that reverse innovation is not incidental or opportunistic, but must be the way global companies think about innovation in all of their categories, as inspiration not from foreign and distant, but archetypal and analogous markets is just better inspiration.

The provocation here is that Chinese innovation is a fundamental counterpoint to Western innovation. It sharpens it, refines it, scales it, and accelerates it, and is therefore essential.

What’s fascinating about Africa is that, compared to many places in the world, connectivity seems to work in extremes and in contradictions.

What about African innovation? What is it, what does it mean for Africa, what does it mean for the world? What is Africa’s innovation posture?

As a relative newcomer to Africa, I will not claim to know the answer, if there even is one. But I will attempt to offer some insights based on the experience of the company I work for—frog, a global innovation consultancy.

At frog, our job is to uncover opportunities for innovation for our clients, and turn these opportunities into meaningful products, services, and businesses. Discovering the innovation opportunities is the first step in our process. Sometimes we have a pretty good sense of where the opportunities are, and the real challenge is to come up with ideas to take advantage of the opportunity. More often, we may have some initial hypotheses, but it takes deep research into consumer needs and motivations, market dynamics, and technology trends to frame the right opportunities.

Although the diversity of our work makes it hard to generalize, there does seem to be one major determinant of how rich and provocative the innovation opportunities may be. This determinant is connectivity—not just connectivity in the popular sense of internet access, but in its broadest possible sense: the connectivity between people,

brands, institutions, activities, and events, enabled by a variety of technologies the bring these players together, from roads to mobile phones to social media.

The reason this connectivity—indeed, hyper-connectivity in many ways—is so important is that new meaning is created as connectivity increases. Think about the meaning that is created by a new road between two cities or a phone conversation between two parties who have never interacted. These new pockets of meaning are the foundations for new relationships and new behaviors. And this is what innovation is ultimately trying to achieve: the creation of fundamentally new relationships and behaviors.

So what does this have to do with African innovation? A lot. Africa's most notable innovations—those that have had the greatest impact on the lives of people and that have also been the most recognized globally—have emerged spectacularly from unique connectivity conditions.

M-Pesa is the obvious example. The original concept solved a very constrained connectivity problem—a burning need to send money home quickly and securely. It scaled due to particular connectivity enablers—a regulatory environment enabling commercial bank backing and a broad distribution network.

African mHealth innovations like mPedigree are impressive for similar reasons. In this case, the relationship between drug brands and consumers was not trusted due to the prevalence of counterfeit drugs. This is another extreme connectivity problem, solved through mPedigree's innovative verification system.

What's fascinating about Africa is that, compared to many places in the world, connectivity seems to work in extremes and in contradictions. Physical infrastructure may be poor, but mobile connectivity is high. Relationships with brands may be tenuous, but real-world social networks are meticulously groomed. Trust in formal institutions may be decreasing, but trust in operators and the cloud and other technology abstractions is increasing.

These connectivity conditions are both provocations and constraints, which are often the best springboards for meaningful innovation. And I believe this represents the real posture for African innovation. A unique set of connectivity considerations that can create high impact, highly meaningful, game-changing innovations.



The takeaway

THE INFRASTRUCTURE CHALLENGES AND OTHER RESOURCE CONSTRAINTS THAT MAKE "INVENTION" DIFFICULT IN AFRICA ARE THE KEY FACTORS THAT INSPIRE THE TECHNOLOGICAL AND SOCIAL-NETWORKING INNOVATION THAT ARISES ACROSS THE CONTINENT.

By **Ben McAllister**

7 ADDICTED TO DATA: HOW AN OBSESSION WITH MEASURING CAN HURT BUSINESSES



Ben McAllister is a creative director at frog.

This essay first appeared on TheAtlantic.com

Here's one thing I love about plumbers: whenever I hire one, they stick to the plumbing. Not once has a plumber fixed my kitchen sink, only to follow up with a credit card offer. No teaser rates, no plumber points, no "convenience checks." Not even a customer satisfaction survey. They simply do their job and collect their fee. It makes me wish dealing with larger companies were that simple.

Take for example the pre-authorized credit card offers that incessantly arrive in the mail. Every weekend, I spend a few minutes opening, shredding, and recycling the week's accumulated offers. This routine is especially galling because many of the offers come from companies I have a relationship with. As with the plumber, I hire these companies to do a job for me (one that has nothing to do with credit cards). But unlike the plumber, these companies don't seem to understand their role in my life.

Most of us call these unsolicited offers "junk mail." The industry prefers the euphemism "direct mail." Within marketing circles, this kind of tactic is known for being highly measurable. Outside of marketing, it is known for being highly annoying. (I'd suggest that these two attributes are not mutually exclusive.)

Complaining about junk mail is hardly novel. But "Junk Mail Thinking" is not limited to credit card offers. Junk mail thinking is metric-oriented thinking, and it pervades the business world, stemming from an almost religious devotion to measurement. An entire generation of managers has been brought up in the Church of Measurement, whose catechism is: "If you can't measure it, you can't manage it." It seems like an innocent enough idea. But as uncontroversial as it sounds, a dogmatic devotion to measurement can create problems. Those problems begin with a few simple truths:

Some things are easier to measure than others

It is easy to measure how many people respond to a credit card offer. It is much harder to measure the cumulative frustration that these tactics inspire among the thousands who don't respond. But the fact that something is hard to measure doesn't mean that it isn't real. Unfortunately, we tend to fall back on things that are easy to measure over taking on an initiative that might bring real value to users. And since nothing is easier to measure than income, it's no wonder that customers of measurement-centric companies end up feeling "nickel and dimed." But financial focus isn't the only flaw in the measurement mindset.

Measurement can impose a hidden cost on the customer

In Physics, there's a phenomenon called the Observer Effect. Often confused with the Heisenberg Uncertainty Principle, it refers to the idea that observing a phenomenon can change the phenomenon itself. This is also the case with market research. Consider the call to a customer service department that ends with the question: "Are you willing you take a brief survey?" As with junk mail, these questions add friction to the experience, imposing a cost (in this case, time) on the customer. I always wish that these phone surveys ended with a question like "On a scale of 1 to 5, how irritating do you find this survey?" As satisfying as it might be to answer that question, there is a much more significant, systemic issues lurking inside the Church of Measurement.

**The fact that
something is hard to
measure doesn't mean
that it isn't real.**

Measurement culture tends to trade long-term value for short-term gains

The online magazine *Salon* recently found itself in a situation I call the Measurement Trap. Amid the recession, it began moving away from original reporting, relying instead on news aggregation to generate traffic. Traffic is of course, the lifeblood of an online magazine. But, as is often the case in the Church of Measurement, the short-term metric (traffic) ended up taking a toll on a harder-to-measure, but more important idea: brand value. As *Salon* editor-in-chief Kerry Lauerma recently told the Nieman Journalism Lab:

"I remember we had aggregated a Charlie Sheen story, and I saw it tweeted a lot. It wasn't a really interesting essay, just the latest news breaking. I was watching all of our peers—either before or after us—tweet the exact same story. I thought, 'This is how it ends. This is grim. We're all just sort of regurgitating the same thing over and over again.'"

How did *Salon* escape the Measurement Trap? Tellingly, writes Lauerma, it happened when founder David Talbot, returned to the magazine as CEO, giving the staff free reign to "work longer on stories for greater impact, and publish fewer quick-takes that we know you can consume elsewhere."

It often takes a charismatic leader to shepherd companies out of the Measurement Trap—or to prevent them from ending up there in the first place. By definition, those of us who question the Church of Measurement often lack the cold, hard facts to back up our case (they're hard to measure.) Instead, we must rely on hypotheses and anecdotal

evidence. Luckily, these hypotheses are often hard to argue with, to the point of sounding banal. “Happy customers will be repeat customers” is one I’m fond of advocating. And while I may not always have the data to prove it, I think it explains why my plumber has never offered me a credit card.



The takeaway

WHILE TODAY’S BUSINESS CULTURE RELIES ON METRICS TO ANALYZE THE SUCCESS OF PRODUCTS AND SERVICES, TRUE CUSTOMER SATISFACTION IS HARD TO MEASURE—AND MAY BE TAINTED BY THE ACT OF MEASUREMENT ITSELF.

By **Jared Ficklin**

8 TEDTALK: FIRE

“...sound
moves in all
directions, and
so do ideas.”



Jared Ficklin is a frog fellow, design technology.

In February, Jared Ficklin stepped onto the stage at the TED Conference in Long Beach, California. He gave a show-stopping talk on new ways of experiencing music, via color and flames instead of sound. The goal: to analyze how we respond to aural experiences in fresh and highly visual ways, and how these experiences might offer new insight on the creative process. Jared was the first TED presenter to light actual fire on the TED stage.

TED posted the video of Jared's TEDTalk in July, and nearly 250,000 people had watched it by the end of 2012.

“...eyes can hear, and this is interesting to me because technology allows us to present sound to the eyes in ways that accentuate the strength of the eyes for seeing sound, such as the removal of time.”



Excerpts from Jared Ficklin's TEDTalk

“So here, I'm using a rendering algorithm to paint the frequencies of the song 'Smells Like Teen Spirit' in a way that the eyes can take them in as a single visual impression, and the technique will also show the strengths of the visual cortex for pattern recognition.”

“Even on the first view, your eyes will successfully pick out patterns, but on repeated views, your brain actually gets better at turning these patterns into information. You can get the tone and the timbre and the pace of the speech, things that you can't get out of closed captioning.”

“That famous scene in horror movies where someone is walking up from behind is something you can see, and I believe this information would be something that is useful at times when the audio is turned off or not heard at all, and I speculate that deaf audiences might actually even be better at seeing sound than hearing audiences...It’s a theory right now. Actually, it’s all just an idea...sound moves in all directions, and so do ideas.”

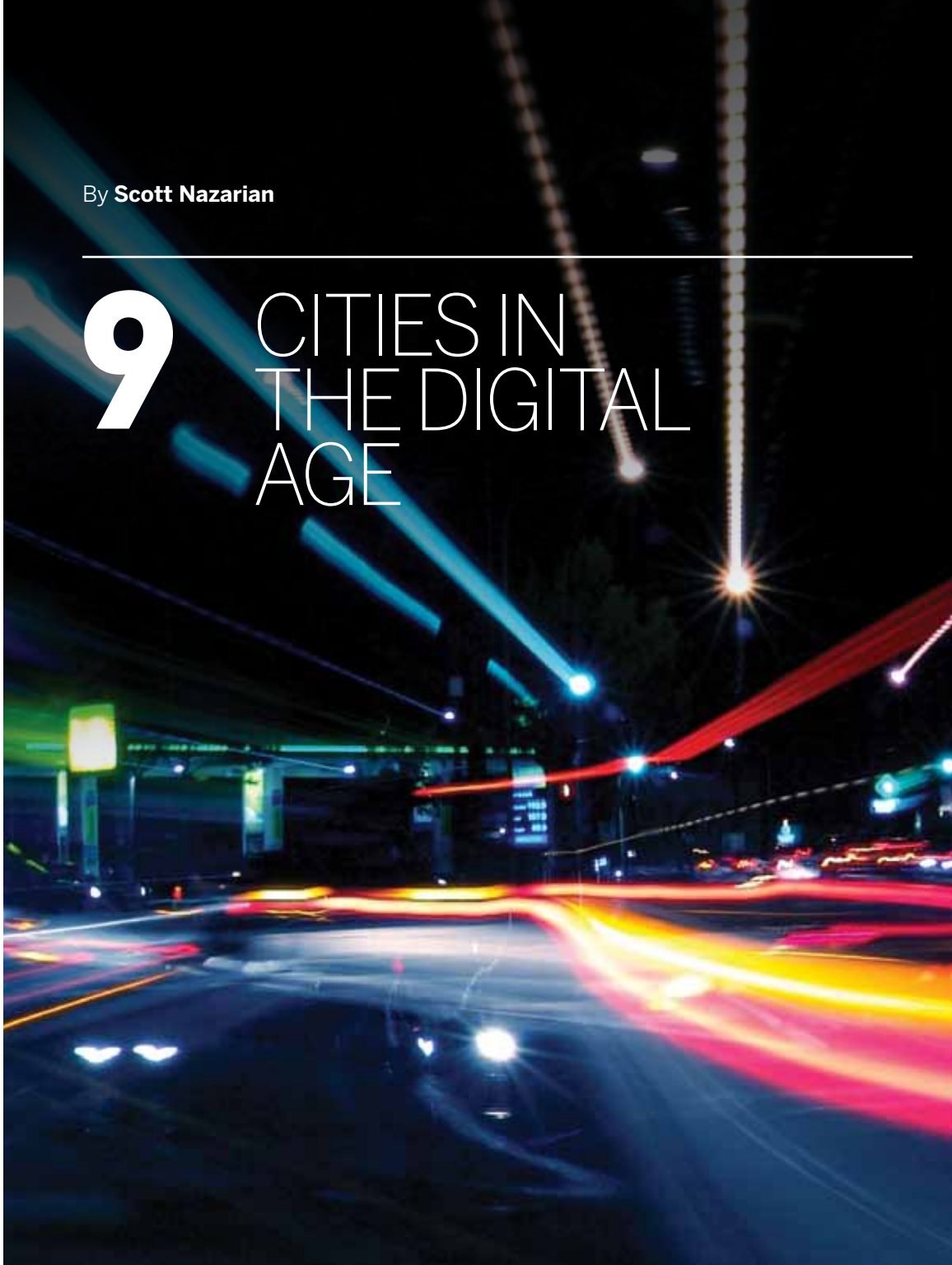
**From Disaster Response
to Losing Control of Your Brand:
Two Other Popular TEDTalks**

In May, TED posted the video of a TEDTalk given by frog Principal Designer Michael McDaniel at TEDxAustin, in which he presented his Exo Reaction Housing System—a design for inexpensive, ecologically friendly disaster-relief shelter. The video has been watched nearly 170,000 times by the end of 2012. And frog’s Chief Marketing Officer Tim Leberecht gave a TED University talk at TEDGlobal in Edinburgh, Scotland, advising executives on three ways to usefully lose control of their company’s brand. TED posted the video of this TEDTalk online in October, and by the end of 2012, nearly 270,000 people had viewed it.



By **Scott Nazarian**

9 CITIES IN THE DIGITAL AGE





Scott Nazarian is a creative director at frog.

This essay first appeared on *Urban Times*.

For many people, the draw of cities is their pulse and flow, the veer and crush of humans, our shared machines, the vertical, the symmetrical, the seemingly impossible. We connect, go forward, are thrust. We revel in the contrasts of urban materials—steel, stone, leaf, blade, glass, branch, Plexiglas, vinyl, flesh. The sheer matrix of it, the complexity of relationships and their potential outcomes, is almost a will unto itself, compelling us to be shaped, inviting us to form and move with it.

This type of interconnected environment has evolved into an interface to computation that is nowhere near as *conversational* as it might be, as philosopher-scientist Paul Dourish has noted. I'd argue that this makes interaction design evermore crucial in the world, as we work to support people and the technologies upon which they've come to rely within the built environment.

Whether social or self-defining, physical and digital interaction requires a certain vocabulary that frames perception and action at every turn. To employ a linguistic metaphor, the "tense" can be either reflective or progressively situational (i.e., move forward over time). The following terms suggest how human perception and interaction might be formulated:

Performative

For the design of messaging and display contexts, how can architectural surfaces reflect interior intent? How are spaces designed to promote or mask human mobility or emotive objectives? Not too long ago, the act of talking on a mobile phone in public was performance-centric. And to the extent that it still is, what affordances have accrued in the interim? Networks? Graphics? Policy?

Pervasive

For the design of visceral or digital immersions, how can the combination of multiple sensors and cooperative networks render holistically in space? Can there be continuums of non-adjacent, location-based data? Must devices operate discretely, or might they share their resources within meshed computing topologies? The more integrated the sensate environment, the more interactive the infrastructure becomes.

Emergent

Designing for emergence is designing toward, or even with, nature and randomness.

How do we account for novelty? Or the unexpected combination of elements? Or even basic preference? The depth and duration of ambiguity is prevalent here: a spectrum of mob behavior versus simple criteria for way-finding. A key sentiment for this frame might be, "If they can, they will."

Phatic

Mastering the subtlety of gesture and body language is an overall exponent to greater or lesser degrees of expression. What are the "modifier keys" to primary environmental or digital interactions? How do voice and gesture contribute to the amplification of other actions? Can whole environments communicate intent through the slightest of ambient cues? The vocabulary and choreography in this area will continue to emerge in step with all other areas of spatial/temporal consideration.

**Cities challenge us
to manage their many
networks, all of which
must be managed or
facilitated by both people
and automated systems.**

To what end does this language move us? When we talk about a vocabulary for the built environment, the intent is to map its temporal and visceral, or behavioral, character. In so doing, we can identify opportunities for interaction design to play a role in the transformation of the space. These terms allow for a more fluid co-existence with technology, where comprehending human needs and desires is paramount. A formal application of such behavioral frameworks has only just begun to emerge, and the space to explore new forms of physical-digital interplay and interface is wide open. By applying their understanding of broader interaction frameworks to the built environment, interaction designers can elegantly weave engineering and experience, masking or exposing technology in the most relevant, meaningful ways.

Cities challenge us to manage their many networks, all of which must be managed or facilitated by both people and automated systems. Each of these systems has a certain timing, or a set of recurring and predictable flows that can enhance or disrupt people's experiences. Therefore, designers need to thoughtfully and deliberately

consider each system's components and composition. In particular, we must overcome the challenge of ascribing physical experiences to virtual agents. What if we thought of software in terms of atoms and people as made up of bits? This could lead to not only innovative systems, but new cultural paradigms.

The goal, then, of a rational and coherent digital interaction scheme is an efficient, interconnected flow of resources. In the technologically enabled environment, synchronicity between the urban and natural ecology becomes possible. When infrastructure becomes "inter-actable," a measure of agency over the built environments becomes available. Change is possible. Over time, it unlocks the design potential in humans and system behaviors.

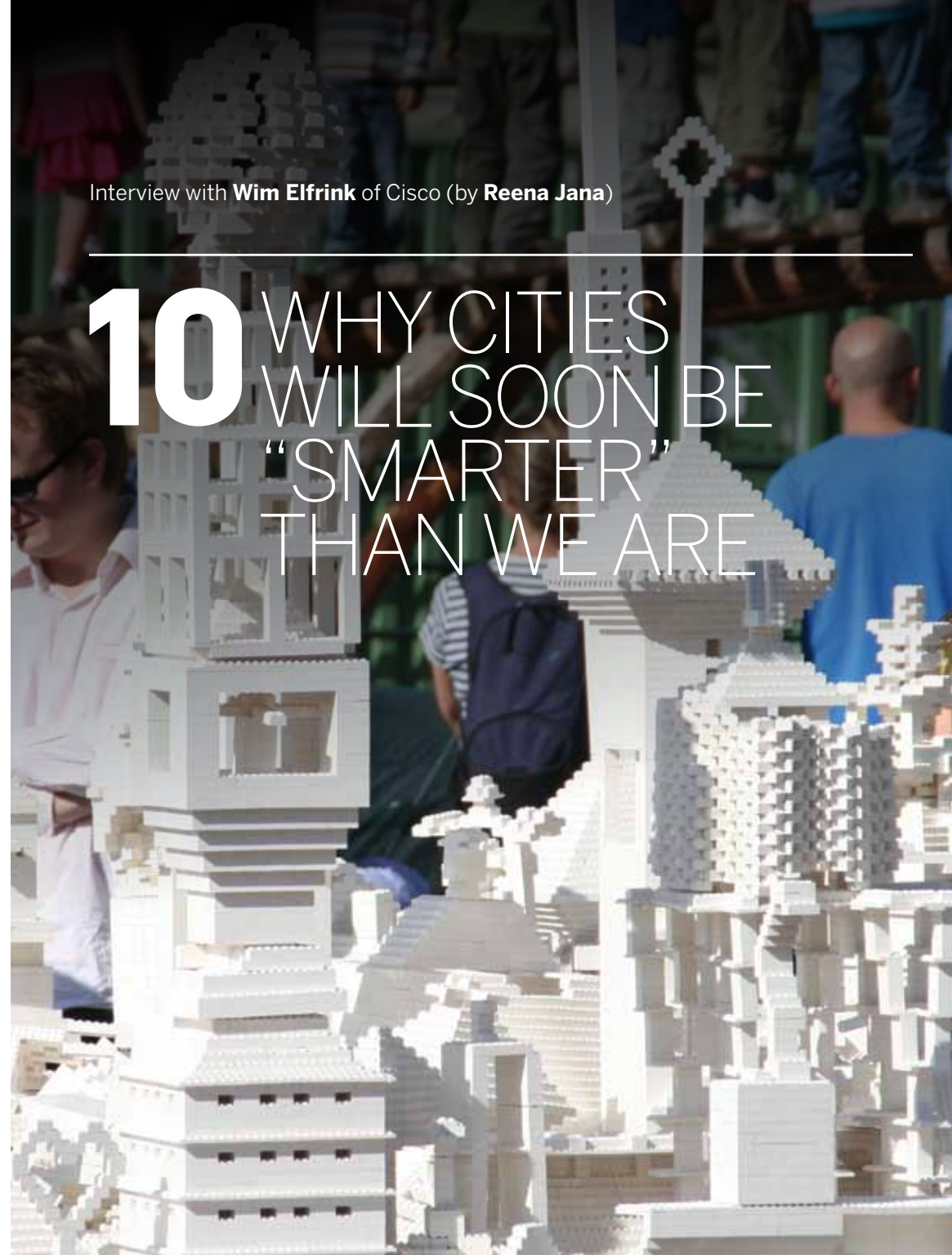


The takeaway

CREATING A NEW VOCABULARY FOR THE BUILT ENVIRONMENT THAT EXPRESSES CONTEMPORARY URBAN EXPERIENCES CAN HELP IDENTIFY SPECIFIC OPPORTUNITIES FOR INTERACTION DESIGN TO PLAY A VITAL ROLE IN IMPROVING OUR CITIES.

Interview with **Wim Elfrink** of Cisco (by **Reena Jana**)

10 WHY CITIES WILL SOON BE "SMARTER" THAN WE ARE





Reena Jana is executive editor at frog.

This interview first appeared on PSFK.com.

Speaking one-on-one with Wim Elfrink, the first Chief Globalisation Officer to be appointed at software giant Cisco, is always a delight. I must confess that I've only had conversations with him via Cisco's high-end telepresence system at the corporation's One Penn Plaza offices in Manhattan, when it's been morning in New York and evening in Bangalore, where Elfrink often works. As he said the last time we spoke, "sometimes it's hard to remember if I meet people in person or on telepresence," and this is true about our own meetings. Our chats have been so vibrant, so warm, and so engaging that we may as well have been talking at a dinner party. This is testament to Cisco's telepresence equipment, of course, but also more exemplary of Elfrink's dynamic mind and lively, affable personality. It shines through, no matter what the forum.

Recently, we talked about the future of cities: how they can best leverage exciting new technology possibilities in terms of becoming "smarter," via connecting people more quickly online or via mobile devices, and processing real-time data from sensors and other equipment. In other words, we explored how urban communities can better use social networking, sensors, Big Data, and sophisticated information technology infrastructures to evolve and prosper. Here's our edited conversation.

Why are cities such a focal point for anyone interested in inspired innovation today? Cities have always attracted people by offering three things: security, prosperity, and quality of life. Because of those three things, innovation takes place in cities. There has long been a misconception that cities aren't safe, that they are filled with poor people, that it is hard to live in cities.

But today, security is not about brick and

mortar safety, it is not about walls. Surveillance has changed that.

Cities offer more opportunities for people to improve their lives than in smaller towns, so even if they attract people who are challenged by a lack of resources, they have better chances of becoming more prosperous.

Telepresence will also help the poor have access to cities, perhaps bring them the education, work, and even healthcare possibilities that they didn't have before, and in a way, make them part of cities.

Also, we must remember that great cities have souls. Think of what they are known for: Paris, for art. New Orleans, for music. San Francisco, for high tech. What is so promising about social networking is that in the future, we'll be able to connect more people with each other around these aspects of cities while we are in them—or away from them.

Finally, we should consider that the future of competition is between cities, whereas it used to be between nations. Many people today identify themselves as what city they are from, versus what country. If cities do not work to become smarter, in all aspects of the word, they will lose the competition for visitors, industries, and revenues.

I know Cisco has been working on what is a start-up city, a city made from scratch, currently being built in Songdo, South Korea. But sometimes people are skeptical about new cities. They wonder, will they lack personality, will they be built so quickly as to be unsafe? So—what are the advantages of building a city from scratch? In Korea, Cisco is the master ICT (information and communication technology) planner for this new city, which is being built by

Stan Gale near the site where General MacArthur landed. The entire new city is designed from a sustainability point of view. There's a waste management system underground. There is a central park that is walkable from all areas. The design of this city reflects the idea that all vital parts should be reachable via foot in 10-15 minutes. There is passive water, electricity, gas. And ICT is, we believe, the 4th utility.

The advantage of such an innovation and design project is to create an entire infrastructure that works together very well. It has a destiny and a purpose.

So what about older cities: New York, London, Delhi? How can they benefit from the new smart-city technologies out there?

Older cities are reinventing themselves. They will succeed when they find a new destiny and purpose. There are two factors to keep in mind: We're in a service economy, and sustainability is driving the agenda.

Think about some European cities and how they have reinvented themselves: Barcelona and Amsterdam, for instance, have always been very charming. And today, both of those old cities attract artists and creative companies. Barcelona took old centers where manufacturing once took place, and after 1992, it began to transform these old sections into clusters of art-centered neighborhoods. The revitalization of older cities comes in clusters. It brings together people with common interests.

Also, cities should consider that there are new patterns of work practiced around the globe, and many workers are virtualized. The effect of this virtualization is that people are attracted to more iconic centers. It's the opposite of what was predicted. They work perhaps in the outskirts, but still live close enough to go into the city for food, sports, music.

Yes, many cities are finding new ways to revive their economies, but many large cities have urgent urban problems, from poverty to crime. How should these communities tackle them? They should begin by asking what is the most imminent need. It's very specific to each

city. In India, the need in many big metropolitan areas is to improve slums, to offer more access to electricity and clean water. In Detroit, it's to spark innovation, to get investors to bring businesses back to the area. It's possible to revive a city relatively quickly if there is a focused goal. Think of how New York City turned itself around by focusing on its need for security twenty years ago, and then again ten years ago.

But there must be some shared challenges that all cities can tackle immediately and efficiently. Yes. Energy management is one of them. Big buildings are so inefficient. The statistics are striking: 75% of the world's energy is used in cities. Besides energy conservation, water conservation is another area that could be improved. Singapore has reached water neutrality. They have a saying, "from toilet to tap"—I'm not sure it's great for marketing, but the initiative proves that even a large city can remake itself by focusing on an urgent environmental need.

Cities can do a lot to alleviate traffic problems. For instance, in the U.S., a big irritation is going to visit the DMV. Why not set up the process to renew drivers' licenses so that it happens virtually? In Paris, the average citizen spends four years of her life looking for parking. If there were parking reservations online or other such programs, it would have an enormous effect on traffic and pollution. Not to mention quality of life.

Cities can do a lot to alleviate traffic problems. For instance, in the U.S., a big irritation is going to visit the DMV. Why not set up the process to renew drivers' licenses so that it happens virtually? In Paris, the average citizen spends four years of her life looking for parking. If there were parking reservations online or other such programs, it would have an enormous effect on traffic and pollution. Not to mention quality of life.

So how can cities actually begin to address these problems? One way is to create an integrated operation system. All utilities could come together. I have to say that this is not just an ICT issue. Another 50 billion devices will be connected to the Internet in the next decade, and we will be able to get massive amounts of data, from sensors. Every gadget or appliance or auto you can connect to the Internet, will provide information on people's energy usage and other habits. Then we can create really targeted solutions.

So often, city planners and tech companies alike think that such a plan, such a focus on one big connected, data-driven urban sys-

tem would be about hardware, primarily. It seems like there's a lot of room for creative innovation, namely in new services. What's necessary to push people beyond idea that ICT is not the end, but the start, right? People need to realize the future of cities is not about devices! We always say that one day, technology will be built into cities, you'll get ICT systems from the beginning, as in the city we talked about in South Korea.

But it's really not about equipment—it's about services.

Still, cities need to understand that a common tech infrastructure makes a city more competitive. For citizens: the quality of life is better. They can get online, make use of smart technologies, and enjoy their social networking or other online services when they have an ICT system that works really well.

Urban planners so often get excited about creating new, iconic buildings, and then worry about bringing in the technology later. We suggest that architects and city officials think about the technology from the beginning. Embrace technology in your integrated urban or building plan as just another utility. The network can only do what the network can enable. How great will it be when anyone can assume their iPad will work anywhere and everywhere. Plus, there will be an explosion of services that will come with the coming deluge of big and open data.

What key concerns are emerging for industrial and interface designers and those in other creative industries, specifically, as cities evolve? And what new types of devices and services

would you like to see? I'd advise for designers to embrace technology in their concepts, just as architects and city planners should. They could ask, how to include technology in design? It's fascinating to see how technology is integrated or not in various products today. A big concern, I believe, is how to make new, smart technologies more accessible, warmer. Clean tech has a lot of design challenges, from an infrastructure point of view.

But there is hope. A good precedent is television; TVs in the past were ugly. Now, they are designed to be integrated beautifully into spaces. The emergence of the flat-screen TV dramatically changed the experience of monitors in any kind of room.

I would love to see designers and engineers play with the whiteboard concept...imagine interactive whiteboards set up in communities around the world. We could see creative conversations happening in real time between friends in San Francisco and Sao Paolo, and not just within offices. From a design point of view, it would be great to see an evolution beyond just a clean, cool screen, generally speaking.

Also, I think sound is very important as we move forward with new communication technologies. We learned this when we developed our telepresence systems—any delay in sound makes the experience unbelievable. If you can't interrupt in real time, or sing together, it's not a real enough experience. So I'd love to see designers and architects keep sound quality, video quality in mind as they integrate communications tech in new cities, and think of the urban environments they design as a work of art—in other words, a wonderful human experience.

By **Tim Leberecht**

11 HOW TO NURTURE YOUR COMPANY'S REBELS AND UNLOCK THEIR INNOVATIVE MIGHT



The takeaway

ARCHITECTS, CITY OFFICIALS, URBAN PLANNERS, REAL ESTATE DEVELOPERS, AND COMMUNITIES ALIKE WOULD BE WISE TO CONSIDER HOW INFORMATION AND COMMUNICATION TECHNOLOGIES CAN BE INCORPORATED INTO NEW BUILDINGS FROM THE EARLIEST DESIGN AND PLANNING STAGES, RATHER THAN AS AN AFTERTHOUGHT. DOING SO WILL LEAD TO MORE EFFICIENT "SMART" SERVICES—AND COMPETITIVE ADVANTAGES.





Tim Leberecht is chief marketing officer at frog.

This essay first appeared on *Co.Design* (published by *Fast Company*).

"Choose your enemies carefully, 'cause they will define you / Make them interesting 'cause in some ways they will mind you / They're not there in the beginning but when your story ends / Gonna last with you longer than your friends." —U2, "Cedars of Lebanon"

We know that opposition is an integral part of the creative process. But sometimes opposition itself can be a creative act. Beyond common tactics (listed on a Community Toolbox site as "deflect, delay, deny, discount, deceive, divide, dulcify, discredit, destroy, deal"), it can manifest itself as craftsmanship and art—whether it be street art by Shepard Fairey or satire like these recent Mitt Romney campaign spoofs of Venn diagrams.

The people who question the status quo are huge assets. Those who disagree with the present often see the future more clearly.

As *Make Shift*'s editor, Steve Daniels, observes in a recent issue, the nature of resistance is changing. Case studies ranging from Occupy Wall Street to neighborhood activism in Port-au-Prince illustrate that a combination of social technology and street-level ingenuity is producing new tools, techniques, practices, and skills for vocalizing opposition. And these in turn drive boycotts, counter-movements, and insurgencies, as well as opposition at a more mundane level, in day-to-day interactions.

With regard to business, numerous acts of creative opposition abound, from

product hacks (e.g., hackers of Ikea products and Microsoft's Kinect) to Beck's decision to release his new album only as "sheet music" to be recorded by his fans. The entire maker and crowdfunding movements, as well as "innovation communes" such as The Glint, the Rainbow Mansion, and the Memento Factories, can be seen as fundamental acts of creative resistance to business as usual.

All of these trends made me think about creative opposition within companies—about employee activities that are counter to the top-down policies without crossing the line into the unproductive and illegal. From passive disengagement, noncompliance, and disobedience to passive aggression, covert sabotage, and overt conflict, which tactics are appropriate, legitimate, and effective? How much resistance from its fringes can an organization endure before it is threatened at its core—and stops being an organization altogether? And most important, why would fostering creative opposition even be beneficial to companies?

In his book *The Opposable Mind*, the management guru Roger Martin argued that the ability to hold opposing truths was a critical quality for business leaders. Or in the words of F. Scott Fitzgerald, "The mark of a first rate intelligence is the ability to hold two contradictory thoughts in its mind at the same time and still retain the ability to function." If it is true that tension is a hallmark of our complex society and requires complex solutions, and that the "most enduring institutions" are contradictory, as David Brooks contends in a recent *New York Times* column about the Olympics, then creative opposition inside companies is nothing but the tangible manifestation of it. With a strong and self-organized in-house opposition, companies can cover the entire breadth of their corporate character. It allows them to acknowledge that they are complex and multipolar, that they have multiple truths, and that, through this tension, they can become capable of stretching themselves, expanding, and realizing their full potential.

There are other, more practical benefits to cultivating internal opposition. Today's Millennial employees value freedom (and opposition might well be the most obvious act of freedom), and in that sense encouraging creative opposition among young employees, rather than squashing it, can serve as an important engagement (and retention) strategy. Moreover, companies that fail to allow internal opposition may be caught off guard and slow to respond when they face *external* opposition. Perhaps most important, resistance can serve as a catalyst for innovation. Alexa Clay and Kyra Maya Phillips, authors of the upcoming book *The Misfit Economy*, posit that the "black, gray, and informal economies," with their underground entrepreneurs ("pirates, terrorists, computer hackers, and inner city gangs"), are underappreciated sources of new business models and products.

Similarly, I would argue, the contrarians and rebels, the people on the fringes of organizations who question and deviate from the status quo, which so often leads to inertia and inflexibility, are huge assets for any organization. Those who disagree with the present often see the future more clearly. This applies to hiring, too. Many business

leaders, at least those who are forward-looking, essentially seek to hire “change agents”—individuals who are both creative and persistent in bursting a straitjacket of outdated practices and processes.

Ashoka Changemakers, a global network of social innovators, and others have adopted the term “social intrapreneurship” and aim to equip contrarian employees with best practices and tools to self-organize more effectively. They also hope to raise executive-suite awareness of the potential of empowering social intrapreneurs. The Rebels at Work initiative has created a community hub for connecting corporate renegades, identifying “good rebels” as those “who feel compelled to create ways to improve, change, and innovate,” who “stand against the prevailing mindset of the organization and argue for a better way.”

Companies are beginning to realize that opposition is vital and a certain amount of conflict healthy. Some have even launched internal disruption units that can drive radical innovation from left field (e.g., Anheuser-Busch’s Beer Garage or Google X). As an alternative, companies may also bring in agencies and consultancies—hired opposition—with the mandate to disrupt conventional thinking and overcome groupthink and organizational myopia. The caveat here is that these outside interventions can lead to changes that fail to become a part of a company’s cultural fabric for the long term.

So what else can companies do to make internal opposition productive? Here are a few possible actions to consider:

1. Create safe spaces

Safe space does not necessarily refer to a formal group like an employee council but rather a practice of tolerating contrarians and mitigating their fears of retaliation or discrimination. It doesn’t mean that companies simply open-source all decision-making, flatten hierarchies, and initiate only grassroots projects. In fact, it might be more effective for companies to continue introducing new initiatives and policies from the top down but at the same time factor in enough space for oppositional voices. Every company campaign, policy, and product that is developed functions as a wave that generates undercurrents. And like every movement, it inevitably breeds a counter-movement. It is often this counter-movement that holds the insight for the next stage in the process.

2. Make sure that internal opposition is constant

Executives may be tempted to believe that inclusiveness (by way of crowdsourcing and other participatory designs) eliminates, or at least minimizes, resistance. That is certainly effective for the conceptual and rollout stages of a new initiative or policy, but many companies then fall short of allowing resistance after the rollout, thereby threatening to undermine the strength of the initial support they had garnered. Alignment is a moving target, and the window for resistance should always be open.

3. Embrace passive and active opposition

On the more passive (and sometimes passive-aggressive) side, employees increasingly find creative ways to sidestep policies and protocol. Take the Bring Your Own Device (BYOD) phenomenon, propagated by professionals who simply bypass IT approvals to bring their own preferred mobile devices to the workplace. According to a recent survey by Forrester Research for Trend Micro, 78% of businesses have implemented BYOD programs—and 70% of them cited increased productivity as the main reason.

Creative opposition, in this sense, means raising the accountability for each and every employee. Employees as innovators strive to find better ways of doing business instead of just following the business-as-usual manual. This may result in the

**Companies are
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that opposition is vital
and a certain amount
of conflict healthy.**

traditional corporate functions giving up authority and shifting from being *owners* to *enablers*. It’s certainly not an easy transition, but one that pays off in the long term.

Companies could even go a step further and adopt and actively support formats such as House of Genius, a brainstorming session/idea incubator in which participants are anonymous. Why not institute an employee council with members whose identities are not disclosed? They could meet regularly to discuss important company matters and make recommendations, maybe even directly to the board, bypassing the management team. Or launch live-work communes that bring together employees and customers to develop antitheses to the company’s vision and policies? Or conduct internal brand hijacks or product hacks that challenge top-down initiatives and may become powerful counter-movements that prompt a rethink or perhaps even a reset?

It’s important to remember that incorporating creative opposition begins with asking the right questions. What is your company’s “black market”? What is its “underground”? Who are your misfits, your hackers? Who are the people who might want to “occupy” your company? Who is seeing the cracks in your organization and seeking to attack them? Invite them to do so before they invite themselves (and others along with them). Make sure your internal opposition has ample safe space to self-organize,

is always close, and utterly creative. Resist the temptation to squash resistance. Bring the renegades into the mix and not into the fold. And remind yourself that occasional disloyalty might be the strongest form of loyalty.



The takeaway

BY ACCEPTING AND EVEN ENCOURAGING THAT EMPLOYEES CHALLENGE THE STATUS QUO IN TERMS OF CORPORATE POLICIES, ORGANIZATIONS CAN DISCOVER EFFICIENT NEW SOLUTIONS AND PROGRAMS.

By **Brandon Berry Edwards** (with **Kaj Vatsa**)

12 DESIGN RESEARCH:

China's consumer culture

Via design research, frog has been observing and analyzing trends in China. We have peeked into the hidden layers of China's unique style of innovation and its everyday business landscape—and in 2012, we shared our key findings.



Brandon Berry Edwards is an executive creative director at frog.

In March, frog presented a talk, “China: Creators and Consumers of the Future,” at the South By Southwest Interactive conference in Austin, TX. frog’s Shanghai studio, which created the presentation, then posted it on Slideshare. The deck was viewed more than 50,000 times. Here, we offer some highlights.

Payment

Regardless of what is being bought online, goods are usually paid for in cash on delivery. This “concierge” moment opens opportunities for brands and services to create additional value.

High Patient Throughput

As doctors grow in seniority, the number of patients they are likely to see also increases. In fact, the average amount of time a doctor in China spends with his patient is just ten minutes.



American vs Chinese patients



USA



CHINA (x8)

40

of patients per day
for junior docs

60

of patients per day
for senior docs

10

of minutes spent
with patients



Gaming

Gaming is an integral part of the Chinese culture—as much for communication and relationship building as for entertainment. This is evident in the groups of young professionals playing games on weekends as much as older folks enjoying mahjong. The education industry has been able to leverage this behavior for the youth, with the creation of games that focus on the history of China.

Generations

The dynamics of 3-generational households are immensely relevant in modern-day China. The question then arises: how can we keep all age groups engaged, and better enable interaction among the family members of different generations?

Safety Concerns

Given high congestion on most roads, it is extremely difficult to drive up to the speed limits (e.g., fast) within major cities in China. For this reason, experienced drivers are not too concerned with keeping passengers safe by using a seatbelt. Given the trade off with personal comfort, they buy “belt buckles” that can be plugged into the seat belt holder to stop the sound of the safety reminder.

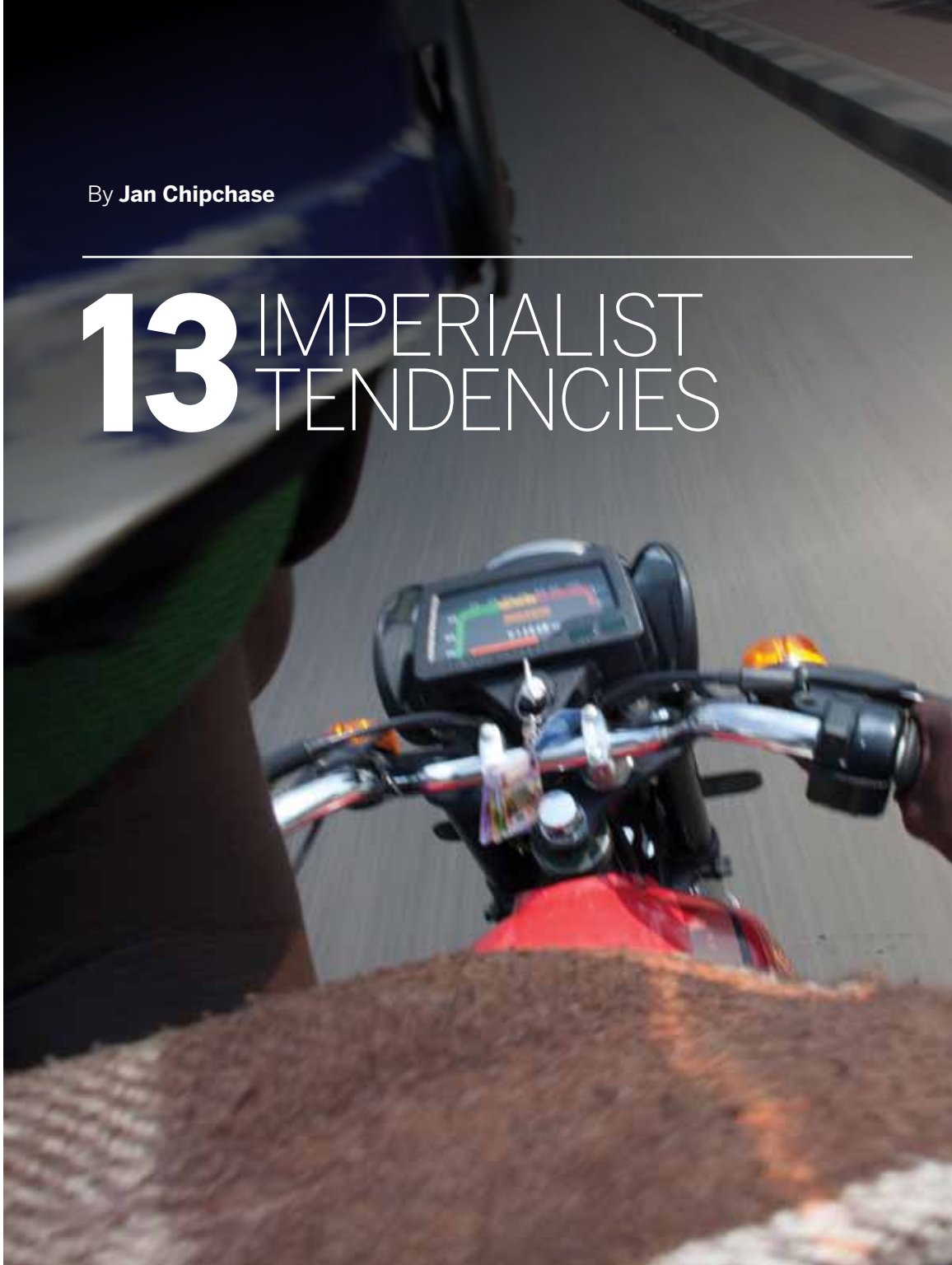
The Rise Of The Shopper
In Q1 of 2012, Chinese shoppers spent USD \$5.7 billion overseas. This is not only more than any other country, it's the highest amount ever recorded. In parallel, sites such as USzCN.com have become immensely popular as Chinese look to purchase goods which could otherwise not be found in their country.

Setting New Standards
Products like Weixin historically have been viewed as Western copy-cats, but this reality is shifting as they gain the ability to outpace their Western counterparts in both time to market as well as a desire to experiment with interesting ideas before they're seen in the West. (Shown here: voice chat, shake to find someone, and message in a bottle.)



By Jan Chipchase

13 IMPERIALIST TENDENCIES





Jan Chipchase is executive creative director of global insights at frog.

This essay first appeared as a four-part series on *Core77*.

I enjoyed going to the 2011 Pop!Tech conference—the combination of bright minds, warm hearts, and the Maine autumn is highly conducive to reflecting on what has been and imagining on what will be next.

During the event, I gave a talk to the audience about my research work, and in the panel session at the end of my talk I took two questions from a member of the audience relating to personal motivations of doing this kind of research and whether anyone has the moral right to extract knowledge from a community for corporate gain. Given the asker's frustrated-politeness, I'll paraphrase what I (and a bunch of folks that came up to me after the talk) took as the intent of his questions:

What is it like working for BigCorps pillaging the intellect of people around the world for commercial gain?

How do you sleep at night as the corporations you work for pump their worthless products into the world?

¹ Give or take permaphuck, the onset of altitude sickness, when there's midnight interviews to run or data to synthesize, when malarial mosquitos are biting, or it's Saturday night and we're holed up next to drunken, arguing lovers in a Seoul love hotel.

Short answer is that I sleep just fine¹.

Those with a desire to go beyond the 110 character headlines should draw a fresh mug of their favorite brew, find a comfy armchair, and read on.

Before delving into a response, here's some context: My Pop!Tech talk wasn't touchy-feely marketing fluff that corporate speakers tend to gravitate toward—consider Pepsico CEO Indra Nooyi's slick talk at the 2011 TED Conference, and the debate that followed. Nor was it focused on the work that frog has done in the social innovation space, which would have no-doubt resonated with the Pop!Tech audience. My talk focused on the social tension that occurs with the introduction of new technologies, including turn-of-the-second-to-last-century portable cameras, and could have applied equally to the Walkman (remember them?) and mobile phones. It touched on technology use and whether "adoption" is proactive, passive, or even conscious; the consequences of near-time facial recognition; how DNA testing reveals parental discrepancy and will for many change the notion of "family," how public displays are increasingly monitoring the world

around us; and on what all this means for designers who are creating products, services, and systems in which consumption, use, and *adoption* is sometimes conscious, sometimes not. A central tenet of the talk was that as more of what we design is jacked into our social network, the option of whether to use or opt-into a technology or service becomes one of opting into or out of society.

On the surface, these questions are both a continuation of the design imperialism discussion that has preoccupied some in the design community, and a rally against globalization (there's a related interview with *Fast Company*). In previous instances, when I've been asked questions along these lines, the motivation for asking was driven by an anger against the all-trampling BigCorps and me as an agent of the BigCorp, a fear/recognition of not being in sufficient control, and on occasion also guilt (where the person asking the question has trouble balancing his/her own consumption habits with the injustice of other people not having the same economic opportunities). Whereas the design imperialism debate honed in on local interventions, this essay will focus on my experiences working with multinational corporations and organizations. I'm not suggesting that the lessons outlined here are the same as for more local initiatives, nor am I making a judgment on the pros or cons of local or global design solutions—that would need to be visited on a case by case basis—and yes I recognize that the international aid/donor community has for many years overlooked locally sustainable solutions, often at the detriment of communities that they were there to serve—this imbalance has been a personal driver to understand for myself for much of my career. I do assume that the benefits of globalization in the short term (~20 years) outweigh the opportunity costs.

First, for those who aren't familiar with the practice, I'll start with a backgrounder on the role of design research/ethnography that was referred to in the talk and some of the nuances of the approach that I think make the process one that is rewarding for the individuals concerned, their communities, our teams that conduct the research, our employer, and ultimately the client. After that I'll tackle each question in turn.

Research for Design

The basic premise of design research is that spending time in the contexts where people do the things that they do can inform and inspire the design process with a nuanced understanding of what drives people's behavior—which can then be used as a foundation for understanding and exploring the opportunities for new products and services. More often than not, the process leads to innovating on what already exists. The practice is mostly associated with up-front research at the beginning of the design process. But in my experience, it is valuable to think of it as a state of mind that can infuse, inform, and inspire across and often beyond the project. Often, researchers get ahead of themselves and like to talk about the opportunities they perceived after uncovering *unmet needs*. The fact is in many cases, needs are being met, just not particularly well. The process assumes of course that the project is aligned to the client's

organization and goals, and that the team knows how to apply the right mix of methods, understands how to make sense of what they are collecting, and can articulate the opportunities that come from this. Some people and/or agencies are good at parts of the process, but far fewer can carry off the whole. Just as there are many different ways to design, there are many ways to run design research. For my clients, design research is particularly effective when it explores the collision of people, technology, culture, and business models to inform what, when, and how to make something and understand how best to get there.

Corporate research studies are often about a two-month sprint: a week or two to ramp up; a week each in two or three research locations; two weeks of pure synthesis; and two weeks to write and deliver a report. Most projects have some form of hand-over workshop with the client, and for a larger consultancy like frog this is usually the bridge to a design phase—where the ideas/concepts are further explored and evaluated, before being refined with increasing levels of fidelity. A research and design project can run for 6+ months, but I'll focus on the research phase here since it is most relevant to the questions. The client often wants the research *yesterday* and it is common for the team to be working 24/7 with only a couple of days break over the course of the research—stepping back only after it's all done and dusted.

As consumers, employers and employees I, you, we are complicit in the ethical debates around all of the products we make and consume.

Common criticisms of this format of corporate research include: The time on the ground is so limited that the breadth and quality of the data is likely to be suspect; that the incoming team is insensitive to how things are done locally; that the broad range of locations and limited total time span doesn't allow for building meaningful relationships with local partners; that the team suffers burn-out; that engagements with participants and local partners is at best superficial and at worst disrespectful; and that the opportunity areas/concepts/ideas that come out of this process bear little or no resemblance to local needs.

All are valid concerns.

All can be mitigated.

Mitigation is not always the smartest move.

Many design research projects also include an element of what practitioners would broadly describe as participatory design—where participants are either brought in for some or all of the ideation, evaluation, or design process. Using participatory design to create products to sell in the global marketplace is very different from designing with and for a specific community—something that I appreciate is important for some of you reading this—a good example of the latter is the approach espoused by fellow Pop!Tech speaker Milenko Matanovic's work at the Pomegranate Center. Participatory design for corporate clients can lead to a moral and legal conundrum—ensuring that participants are adequately rewarded for their intellectual contribution while balancing the needs of the client to legally be able to use the outcomes of the sessions. For this reason, the participatory design sessions that I run are guided by the following principles:

- **Be up-front about how participant's contributions will be used**
- **Be proactive about the issue of the ownership of an idea and devote as much time as is needed to discuss the issue—even if it eats into other planned activities. There's nothing like a researcher trying to stick to the schedule to give a participant the sense they are being hoodwinked.**
- **Advise participants not to share anything that they don't want the team and/or the client to have the legal right to commercially exploit. The name of the client is often not revealed or is revealed under a Non-Disclosure Agreement, so trust can be an issue. It is common to reveal an abstraction of the client (e.g., "a top tier consumer goods company")**
- **Reward the session participants with equitable compensation**
- **Ensure that every member of the team understands these principles and how they play out in practice**

Defining "equitable compensation" can sometimes be tricky for the simplest of design research activities (e.g., a home interview), but is especially problematic when researching highly financially constrained communities where the gulf between the wealth/power of the participants and the researchers can be considerable. The decision about whether to join the study can come down to being one of whether there will be food on the table at the end of the day. Equitable compensation is even more significant in participatory design—where the line between a participant's "bright idea" contribution and a product/service on the market appears to laypeople to be short—they assume it won't take long before their idea will make the company billions. While it is not that common of an occurrence, it is within this context that the ownership of ideas comes up. From my experience this is more of a hot potato issue in some countries (e.g., India) than others. Anyone who has tried to drive a concept or idea through an organization will know how far removed from reality a rapid from-idea-to-market is. Each idea is reinforced, challenged, and shaped with input from many different sources, including the team's gestalt knowledge.

Plus, it takes a significant investment of tens if not hundreds or thousands of workers to turn an idea into a product or service that people are willing and able to buy.

At some point, the equitable compensation issue can create a relationship that is closer to “subcontractor-subcontractee” than “interviewer-interviewee” or “co-participants” with everything that that entails. As full-time employees of a consultancy and, before that, a BigCorp, I and my colleagues are also bound by these contracts—when we are paid to apply our knowledge to a particular issue, our output belongs to our employer. Changing the relationship to be more transactional is not inherently a bad thing—except when the team doesn’t recognize the impact of that change. In communities and households with very low levels of income, the opportunity to earn additional income is valued, as is having a customer base that, for the time that they are on the ground, includes the research team.

There are other ways to structure participatory design sessions so that the outcomes are co-owned by the attendee stakeholders. These same BigCorps invest in events where the attendees retain ownership of their ideas. For example, a discussion might come under the Chatham House Rule, although these are normally not suited to achieving a focused design. These events are also often run under the auspices of the marketing department, which tells you something about their perceived value and skills required internally.

As a side note, there are interesting issues related to international IP law, and what is considered equitable compensation for employees who create IP that leads their employer to make billions (or trillions if we’re talking Japanese Yen). The inventor of the Blue LED or anyone whose patents make it into the global standards specifications are prime examples, although most patents are likely to sit on the shelf until the patent attorneys go to war.

The challenge for researchers in setting up a more transactional relationship with a participant is that setting the wrong level of compensation sets the wrong tone and can bias the responses. In my experience, too many researchers over-compensate—preferring to spend too much money rather than figure out what the right amount is. Throwing money at a problem—any problem—leads to bigger headaches later on, and overpaying in communities where finances are tight creates significant distortions from which it can be difficult to recover.

There are numerous additional “soft” benefits to conducting design research, that are often overlooked:

- **The research sets a more appropriate tone for the relation between the organization and its existing or future customers. Ever walked into a group discussion where the gulf between their assumptions and yours was so large that you felt like you were in a different world? In multinational organizations where there is both a cultural and physical gulf this happens all the time, and it is acute in organizations that for the first time want to address markets of very low income consumers.**
- **The process generates rich, storied material that is excellent at raising awareness across an organization of the broader opportunity space. A well-run project will engage people in the topic well beyond the scope of the project.**

- **It builds a more tight-knit team. A highly immersive approach puts the team in situations where they learn more about one another, motivations, family life, each other’s cultural perspectives. The impact of this is especially effective when team members are arriving from very different cultural landscapes.**
- **Hiring a local team lays the groundwork for a meaningful, extended network of practitioners that can be drawn on later. Every study I’ve done over the past decade has lead to a rich network of fixers, guides, and practitioners that can be tapped on future studies—some of whom I’ve worked with for a number of years.**

While everyone likes to focus on the tangible outcomes—things that were made as a result of the research, design research is also good at helping organizations understand the folly of going in a particular direction at the expense of others. The opportunity cost of bringing product A to market is that products B, C, and D are less likely to get a look in.

In 2005, while at Nokia, I was asked whether the company should design a mobile phone for illiterate consumers—many illiterate people were already buying Nokia’s products that were designed for people who could read and write—and the current experience was recognized as being suboptimal. After a few rounds of design research, my answer was that it was better to sell another half a billion phones of the models that were already being sold to literate consumers (with a few subtle but important user interface tweaks) than to develop something fully optimized but new. There are many reasons why a dedicated product for illiterate consumers was not appropriate at that time. The social stigma associated with buying a device that was seen as being for “disadvantaged” consumers would be a disincentive to purchase—they wanted a device like “everyone else” because they aspired to be treated like “everyone else”; the cost of a new device, versus the economies of scale of selling a few hundred million more of those that were already on the market; the challenge of designing something that made a genuine difference to illiterate consumers is non-trivial—I liked to think of illiterate consumers as “just like the rest of us, only more so”; and something I refer to as *proximate literacy*—that it is better for illiterate consumers to be able to turn to their neighbor and ask them for help because they own the same or similar device, than to struggle with a new interface that needs to be learned (there are many types of illiteracy—the classic definition refers to textual illiteracy, but it might be technical, mobile, financial, numerical—all of which impact use). Whilst the outcome sticks in the craw of the purists and ideologues—a notionally suboptimal device is better than good enough one that is engineered/designed better but misses the bigger picture. An obvious example? I’m writing this on a suboptimal QWERTY keyboard, but benefit from the standardization of suboptimal QWERTY keyboards on many of the laptops I come in contact with. My recommendation then was that a dedicated device for illiterate consumers was the suboptimal choice.

It’s worth pointing out that my answer today could be different for a number of reasons. Many of these illiterate consumers are now on their 3rd, 4th, or 5th phone; connectivity is both more reliable and faster—which makes the learning experience easier. The cost of

devices is significantly lower. And because touchscreen technology—which Huawei and Nokia are increasingly putting into the hands of lower income consumers in emerging markets—enables far more direct manipulation (something that makes more complex tasks easier for an illiterate person to accomplish). My research on designing for illiteracy is a few years old, but the fundamentals are still sound.

You might think that conducting research in a country halfway around the world, in languages and dialects that the core team doesn't speak, would present the biggest challenge. Or that pulling a project together with only a week's notice, gathering sufficiently meaningful data in the a few days the team is on the ground, or perhaps struggling with having a life outside work when you spend half the time on the road/in the skies/on high-altitude mountain trails are the biggest tests. But the real challenge is setting the right tone for the relationship between the team that is going in, and the people they are going to be interacting with.

There are four things that I've found consistently set the "right" tone for the research:

- **Stay and spend local**
- **Build a trusted local team**
- **Recruit through extended networks, rather than through a recruiting agency**
- **Provide participants with sufficient control of the research process**

I could write a chapter on each of these (in fact I have, to be published in due course) but I'll just give a quick example on the last point. Beyond getting the normal data consent, we encourage in-depth participants to review and delete any or all the data we have on them before we leave. We also offer them a copy of their data—at least in a manner that is practical for them to consume—which could be anything from a printed photo to a copy of every digital file. I understand why someone reading this would get anxious about privacy issues (it is a topic that has consumed a lot of my energy over the years), but I consider our teams to be working toward finding workable solutions that meet our legal responsibilities as well as our moral sense of doing the right thing—they are more informed than most.

This does, of course, assume that the research is "done right," when in many instances it isn't. There are teams that take a "lets see what we can get away with" approach. Some are overly motivated by money than more experiential aspects of the project goals. Others don't recognize that they are experiencing culture shock. Some teams subcontract out the most important relationships, which are primarily based on financial reward. And there are instances when the team hired to do the job doesn't have the necessary experience. After a decade of doing this research I continue to learn—but the rudimentary mistakes that people make still surprise me.

Aside from my employer, frog, there are a number of companies that operate in the design + innovation space—IDEO is probably the most well known and is a strong competitor on certain projects, Continuum has just opened a studio in Shanghai (welcome, hope you are enjoying the weather!), and Method has recently been bought and are seeking

to extend their offering to encompass more design and build. Also, many ad agencies and suit-and-tie consultancies are trying their hand at varying degrees of success. And of course, there are many, many more regional and local players. Local agencies/studios in countries such as India and China are evolving and becoming stronger (even if their Web sites sometimes seem to cut and paste the offerings from the international players), but are still a long way away from adequately and consistently serving multinational clients—staff turnover is a bitch in high-growth economies and talent tends to gravitate to the better paid, and less frenetically paced multinationals. Of course, this is not the whole picture, and yes, there are some stunning local agencies out there—but for now I'll stick with the thread of working with multinational clients on complex multinational projects.

Can local design companies come up with ideas that are more relevant to their locale? All things being equal, their nuanced understanding of the local market should give them the edge. But all things are not equal. In the global marketplace it is rare for a single product to be designed for only that one country. In needs to work across territories, and the agency needs an understanding of the big picture—the client's corporate strategy, the culture of the decision makers, how innovations are brought to market, and the multiple other cogs in what is a massive machine. I've also seen time and again that bringing fresh eyes to a market helps reveal things that natives have long since taken for granted.

For the sake of argument lets assume that the label of "design imperialism" doesn't fit if the solutions are proposed by a local design agency. There are multinationals that are looking for a combination of local insights and opportunities that leverage these insights, and help in building these out. Why would a multinational corporation agree to pay a premium to a global (or regional non-local) design consultancy when a local company can do the "same" job for less? Because in most cases it's a long way from being the same. The premium comes from offering something unique, such as deep experience in analogous industries and a breadth of offering—from research to design to build to support. It also comes from the fact that multinationals are tapped into what is happening globally in this space. They also have a track record of delivering. The smart non-local agency doesn't pitch for work where there is a strong local player that could do the same (most likely more narrowly defined) project for considerably less—and takes a medium- to long-term view of the agency-client relationship rather than short-term gain. And yes, sometimes they pitch and are beaten by local agencies who are simply more focused and better in that particular niche. The challenge is that there are few products and services that are truly designed for a single market (basic localization aside).

This makes a decent enough segue to the globalization debate.

The Real Design Imperialism

It doesn't take much effort to find something about globalization to be incensed about: Starbucks pricing your favourite coffee shop out of the neighborhood; riots in Indonesia triggered by Asian financial crisis; Apple imposing its corporate values to the

² Humans do have a penchant for watching other humans do things to one another and Apple takes the position that watching porn through Apple-sanctioned apps will dilute their platform. Their argument that any Web content can be viewed through their devices is hollow given that any designer worth his/her sweaty palms knows the experiential difference between a dedicated app and a Web page offering the same content (although, yes, this distinction too is changing).

³ If you wanted to push the argument, the Chinese government funded building of new apartment blocks in Lhasa is right there on the edge of the design imperialism debate—combining both economic development and “better” housing conditions, with the wholesale change, some would say, destruction of more traditional communities as part of the broader issue of pacifying Tibet by encouraging mainland Chinese migration. For many local Lhasan families the options are a modern apartment with indoor plumbing, hot running water, stable electricity versus more traditional dwelling. I know which I prefer to experience as a visitor. I also have enough humility to know that my preference is irrelevant compared to the families that are being asked to move, and the urban planners that are tasked with supporting a growing urban center. Not to skirt the broader issues around Tibet and China, freedom of expression, rural versus urban child malnutrition, or geopolitical concerns, but the level of knee-jerk naiveté around some of the conversations, especially by people that haven’t spent time on the ground, still startles.

worldwide availability of adult content on their application platform²; Coke and Pepsi logos being painted onto remote pristine mountain ranges.

Or perhaps you prefer to take the profit-at-any-cost argument to the next level: Nestle’s aggressive sale of milk powder in markets where doing so is likely to inhibit the lactation of mothers; Facebook and Google endlessly exploring and redefining privacy in their race to monetize you through new services; Monsanto’s development and apparent halting of sterile seeds to force farmers to make repeat purchases every year; the very visible suicide rate of Foxconn factories in China (most likely some of you will be reading this on a Foxconn-assembled device); companies that are benefitting from the sale of monitoring equipment in countries like Syria and Egypt; and accusations of racism in the advertising of Unilever’s Fair & Lovely Skin Whitening creams—for a good background on the latter read this paper. Make no mistake—governments³, BigCorps, organisations, agencies need watching, need to be held to account, and in many markets there are players that hold a disproportionate amount of power.

But as consumers, employers, and employees, I, you, we, and they are complicit in this relationship in the products we make and consume; as well as the lifestyles we aspire to and the moment-to-moment decisions we make in how the products we buy are used. Sure, we demand privacy, but we are willing to let personal ethics slide when a photo-worthy situation presents itself. We have grown used to free email, but (momentarily) rally against our email being read by an algorithm so that Google can serve us more contextualized advertising. We roll up to a remote

mountain village and mutter expletives at being woken by a ringtone—but get the jitters at the mere thought of giving up our own connectivity. We complain of global warming and then jet off to another conference that espouses, among other things, sustainable living. We are highly vocal about the price of new electronics but vote with our wallets when it comes to disposing of them in a slightly-more-costly-but-environmentally-less-impactful-manner. Or, to loop back to the asker of the original question, we fly halfway around the world to conduct business but not track every source of income that enables that business to occur, the many different players in the global network that allow us to get there, stay there, and communicate with collaborators and loved ones while we are there.

I conduct a fair amount of community-facing activities—from spending time in universities to doing talks around the world—and I am grateful for the opportunity to share

and learn from the intellect in the room. But on occasion, the assumptions behind the questions miss the mark to the point where a step back is necessary—the questions from Pop!Tech were such an occasion. There are a number of misconceptions about consumers in highly income-/resource-constrained (poor) communities that seem to repeat themselves with a depressing regularity and are often directed from passionate minds with a particular, accusatory venom:

- **Consumers with low levels of income are incapable of making rational or “right” choices for themselves**
- **These same consumers are duty bound only to make rational choices (“rational” as in things that have an immediate benefit to their current socio-economic situation, as defined by the person making the argument)**
- **Any time a consumer makes an “irrational” choice the “fault” lies with the company providing the products**
- **Companies that target consumers in countries with very low levels of income are inherently evil**

Lets go through each in turn:

- **Consumers with low levels of income are incapable of making rational or “right” choices for themselves**

I would argue that these are, through necessity, some of the world’s most critical consumers. Not having to think about *every single* thing you spend your money on, the trade-offs, the social debts you might be calling in, are a luxury that relatively few can afford. Consumers on very low levels of income are consistently pushed to make more rational choices than their wealthier counterparts because the issue of how to spend their limited income is consistently more present in their day-to-day decision-making processes. Like their wealthier counterparts, they also have rich strategies for coping with limited and variable formal and informal forms of income and credit—*Portfolios of the Poor* is a good read to get started on this topic, and a minor contribution to this can be found in this research in Afghanistan. *Predictably Irrational*, *Freakonomics*, and *The Undercover Economist* all do an entertaining job of exploring the notion of “rationality” and “rational consumer behavior.”

Consumer literacy (knowing what you are buying and its value, and understanding the trade-offs in the choices you make) and the broader textual literacy/numeracy issue is a fascinating topic, and there are certainly consumers everywhere that don’t make what most of us consider to be rational choices. Don’t worry, if you talk to very low income consumers they often consider the purchase decisions of relatively wealthier people to also be irrational, it’s all relative. The people making the poor-must-behave-rationally argument seem to mix up formal education levels and people’s ability to read and write with intelligence and street smarts (most adult illiteracy is the result of a lack of opportunity to learn or apply what is learned, not a lack of intelligence). I’m not trying to gloss over very real issues of consumer literacy, and the Marketplace Literacy Project is a good place to start

in understanding the benefits of education and training in this area. Financial literacy presents a particularly interesting challenge—and both the IMTFI and CGAP, or even my own research in this area are good starting points if you want to explore more.

- **These same consumers are duty bound only to make rational choices (“rational” as in things that have an immediate benefit to their current socio-economic situation, as defined by the person making the argument)**

Is saving three months' salary and on occasion going without food to be able to afford a basic Nokia branded mobile phone irrational? What if it's used to enable a business? Or play games? Or chat with loved ones? Or browse porn? Is spending one month's salary on a unknown branded device any more rational? Just how rational was your purchase of your iPhone? That pair of Nike sneakers? Those red high heels? Who is to define what is rational? What was the opportunity cost of your last large purchase? What is the opportunity cost of buying that branded phone versus one where the manufacturer is unknown? And who is to decide what the viable opportunity costs are? Or to loop it around to the design community—are low income consumers duty bound to ignore aesthetics and superficial elements over more functional choices? And to loop once more—are designers duty bound to make products for these markets aesthetically displeasing? That's where this argument is heading.

- **Any time a consumer makes an “irrational” choice, the “fault” lies with the company providing the products**

In a country where lighter skin is commonly associated with not having to work in the field, and where people aspire to work in white-collar jobs, is it rational to want to lighten your skin? And if for some consumers the answer is yes, what are the local options for doing so? How safe, reliable, and effective are they? If a multinational comes in and offers a product that lightens your skin, and is (by local metrics) consistently safe, reliable, and effective, are they a pariah or a savior? Is it the designers duty to work on such a product? Or their duty not to? If a multinational company aggressively markets their products by appealing to people's aspiration to have lighter skin, does it inherently make them racist? What if a local company does the same thing? What if a local company does the same thing, but makes even more outlandish claims? Race is understandably a polarizing issue, and some companies shoot themselves in the foot with poorly thought out marketing campaigns that justifiably trigger a strong backlash. But I suspect some of you will have realized over the course of this paragraph that the issue is more complex than you first thought. How can you listen and talk to people on the ground whose agenda you can understand before reaching a conclusion? What do you need to do to move beyond headlines and trending topics?

An example that leans the other way is something that the micro-finance industry is currently grappling with—the consequences of an oversupply of easy-credit into markets where consumer financial literacy is relatively low, and where personal effects of that oversupply is medium- to long-term (lifetime) debt. What are the acceptable costs of trying to service financially constrained consumers with something that, if done right, can have a significant positive impact? For which real world products and services does precautionary principle kick in? And before you start to tut, pause a moment to reflect on your own situation and that of your community. How much of what you spend is on credit? What is your level of debt? When will that be repaid?

- **Companies that target consumers in countries with very low levels of income are inherently evil**

There are companies out there that, given the opportunity, will exploit the communities in which they work and put financial profit seemingly before everything else—just as there are countries in which government/agency oversight is minimal and lobbyists hold sway. But to assume that every company is that way is putting passion before logic. My assumption is that, driven by necessity and constraints, these are the most critical consumers on the planet and that to create a commercially sustainable product or service that can meet their needs at a price point they are willing to pay is quite simply a remarkable achievement, especially considering how nuanced local alternatives can be. Your and my appreciation of whether those products or services are rational choices for those consumers is largely irrelevant—as irrelevant as your purchasing decisions are to them.

**Consumers on
very low levels of income
make more rational
choices than their wealth-
ier counterparts. How to
spend their limited income
is more present in their
day-to-day decision-
making processes.**

To paraphrase something I wrote a few years ago that I think still stands: “Pushing technologies on society without thinking through their consequences is at the very least naive, and at worst dangerous, though typically it, and the people that do it, are just boring. This is a pause for reflection in our planet’s seemingly headlong rush to churn out more, faster, smaller, and cheaper. For me, my employer, and our clients, understanding what drives people, users, constituents, and consumers is the first step in creating meaningful products and services, and eventually creating a sustainable business. That a single financially constrained consumer gives up some of his/her very limited income to purchase that product is quite possibly the highest accolade.

The poor can least afford to purchase poorly designed products and services, or to investment in those that fail to deliver. The real design imperialism comes from the people who assume that the world’s poor are not worthy of the attention.

This essay started with a question from Pop!Tech, so it seems only fair to end it with something from the same event. It’s all good and well to want to think in terms of heroes and villains, if that’s your thing, or to buy into the media-amplified “debate” (yes, this includes many of the media organizations that have covered my research) and critique always has a role to play even if at times it appears endless, and occasionally self-serving (and me having just penned a 6,000-word essay on the topic). Far, far more interesting are people who peel themselves away from their screens, get off their butts, and put something of themselves on the line in order to change the world out there.

There are three people I had the good fortune to understand a little better through the Pop!Tech fellows program, who I think exemplify innovative thinking with a personal commitment to make a difference in the financially constrained communities covered in this essay: Sameer Kalwani of Sarvajal Water, Paul Needham of Simpa Networks, and Rose Goslinga of the Syngenta Foundation for Sustainable Agriculture.

Find yourself, allow yourself to be inspired, and then create your own.



The takeaway

ACQUIRING A DEEP UNDERSTANDING OF WHAT MOTIVATES PEOPLE OF ALL SOCIAL OR ECONOMIC BACKGROUNDS TO USE PRODUCTS AND SERVICES IS THE FIRST STEP IN DESIGNING MORE MEANINGFUL GOODS AS WELL AS MAINTAINING LONG-TERM, VIABLE BUSINESSES. THIS APPLIES ACROSS NATIONS AND WILDLY DIVERGENT DEMOGRAPHICS—INCLUDING WHEN COMPANIES CONSIDER CREATING NEW PRODUCTS AND SERVICES FOR RESOURCE-CONSTRAINED COMMUNITIES.

By **Max Burton**

14 A NEW ERA FOR HARDWARE





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The recent Samsung/Apple patent battle is a reflection of the renewed power of physical objects in the digital age. The significance of the battle is that it mostly centers on design patents as opposed to technical innovations: specifically, for example, the physical design of the iPad relative to the physical design of the Samsung Galaxy Tab.

Physical objects in the digital age function as both vessels and symbols. These new kinds of physical objects are central to the digital ecosystems being developed. They are vessels, windows, and portals for delivering immensely valuable digital content and media—and they are also symbols or talismans that represent the ecosystems and the brands that deliver the services and content.

These new types of products are very much like ships from the colonial days of the past. Then, the countries with the best merchant navies dominated the seas and as a result became the richest and most powerful nations in the world. Today, we have shifted from shipping physical goods to digitally transmitting services and media, and companies with the best vessels control the digital trade.

Yet smartphones, tablets and laptops are more than just vessels and delivery mechanisms for digital content. In the digital age, physical devices also serve as symbols or emblems of the complex, software-based goods and services they bring to life. In a world of inconstant, ever-shifting software and application development, these emblems offer a sense of permanence and consistency. For many technology firms, iconic physical devices have replaced corporate logos as the primary representations of brand identity. Familiar artifacts, like Apple's iPhone, serve as functional, usable, three-dimensional trademarks, simultaneously expressing the ecosystem, content and brand values in one powerful statement.

Form Follows Meaning

Those with an understanding of history will know that the power of symbolic objects is not new. Complex ideas, such as religion, nationhood, and even love are often expressed through the use of objects to help make complicated and abstract ideas simpler to relate to. A cross stands for Christianity, a flag conveys national identity, and a wedding band represents a marriage. The scepter that divides the House of Commons in England has at its origins the sword. The sword, once a fearsome weapon and means of exerting power, has been transformed into an object that *represents* power. Its meaning thus wields more power than it ever could through its mere function as a weapon.

Meaning Has Supplanted Function

Similarly, as tangible, real-world experiences increasingly become digital and virtual, industrial design, through the embodiment of meaning in concrete form, has re-emerged as a critical component of a company's success. Now that digital experiences have entered the mainstream, many software companies have come to understand the incredible value of physical objects. Companies with vast digital ecosystems need simple, straightforward ways to express their brands, and it just so happens that physical devices, which serve both a functional and symbolic purpose, perform this task exceptionally well.

Apple was the first to understand that as the world becomes virtualized, there arises a parallel need for impeccably well-designed and masterfully engineered physical products. Fast on Apple's heels, many other companies have followed suit, especially in the Bay Area. Amazon's Lab 126 has produced some great hardware, including commercially successful products like the Kindle Fire. Google has staked its claim in the hardware space with the Nexus Q and the public unveiling of their groundbreaking Project Glass. In June 2012, BGC Partners Internet Analyst Colin Gillis told the *New York Times*: "Google is a hardware company now. Hardware is becoming the doorway to products and services. If you're going to use the Internet, you are going to have to use a device. Whoever makes that device controls what services and products are offered to you, and those nickels and dimes add up over time."

Microsoft, the world's most successful "pure software" company, is now seeking to develop equally enticing physical products such as the new Surface RT tablet, a move which threatens to permanently disrupt the conventional division between companies that supply software and those that supply the hardware to run it on. If Microsoft produces both the software and the hardware, what will that mean for Dell, HP, and the other hardware suppliers that have spent the past decade focusing on efficient engineering and cost-reduction at the expense of innovation? In a *New York Times* article on October 25, 2012, Steven Sinofsky, president of Microsoft Windows, is quoted saying, "We decided to do Surface because it is the ultimate expression of Windows. It's a stage."

Even Nike (where I worked as a creative director of Tech Lab, from 2004 to 2009) is moving into the realm of digital experience and ecosystem design. Arguably the most highly evolved and powerful brand in the world, Nike intimately understands the power of the physical object. For example, Nike Fuel could have simply been an app on a smartphone, but the system is brought alive by the powerful symbolism of a single, physical wearable piece.

From Product to Ecosystem Design

As we move from designing isolated, single-function products toward a world dominated by universal products, platforms, and ecosystems, the tools, processes, and approaches to industrial design must evolve. In this regard, there are two main factors for industrial designers to consider:

First, ecosystem design is dynamic and expressive.

Design in this context becomes closer to movie making and theater than conventional object design and engineering. We are, in effect, writing a script in which objects are the characters in a play. Most of the recent work I have done at frog focuses on orchestrating an experience, with products and their functionality designed to fit that experience. frog's creative leadership tackles these complex ecosystem programs like a movie-making team with directors, producers, and animators. They work together to shape the narrative and make the production come alive for the audience. The teams are interdisciplinary because the solutions to the new design challenges are rooted in multiple perspectives. Our industry places a high value on the "T-shaped" designer, one with a core skill on the vertical-axis combined with a generalist understanding of a series of contributing disciplines along the horizontal axis. This skill combination creates an overlap among designers and allows for better collaboration as we understand and build upon each other's strengths and capabilities.

Designing ecosystems is closer to movie making than conventional engineering. We are writing a script in which objects are the characters.

Second, ecosystem design involves a multitude of physical devices existing within a diffused space.

As technological advances have made devices more portable and personal, networks and connected environments are becoming more prevalent. These new developments create new possibilities for designers to engineer the three-dimensional world we live in as opposed to just three-dimensional objects. Technology is being dispersed into the environment as networks, sensors, and the cloud replace many of the functions of a traditional, standalone computer. Links to the network through radios, sensors, and transceivers connect people in such a way that the physical environment itself is taking on the role of a supercomputer. We now talk about interactions that go beyond the screen and conventional input devices such as a mouse and stylus.

Taking the computer out of computing means physical product designers have

a radically expanded space to play within. When designing in a three-dimensional environment, we can take advantage of qualities like movement, gesture, gravity, and inertia. In this context, industrial designers have a new and exciting role to play, one where our expertise in designing for the three-dimensional world can be fully applied.


A New Era for Hardware...

Right now is an incredible time to be an industrial designer in the technology industry. To take advantage of this pivotal moment in history, it is critical that designers develop an awareness of the new paradigm that is emerging and adapt to the changes it will impose. Designing products is more challenging and complex than ever before, but it also promises to be far more rewarding. The shift to ecosystem design and the dispersal of technology into fullness of the human environment is creating a radical new context within which designers will shape the future.



The takeaway

ALTHOUGH IT MAY SEEM COUNTER-INTUITIVE, AS SOFTWARE AND VIRTUAL EXPERIENCES AND THEIR RELATED PRODUCT ECOSYSTEMS DOMINATE OUR CULTURE AND BUSINESSES, INDUSTRIAL DESIGNERS NOW HAVE A FRESH AND EXCITING ROLE TO PLAY. HARDWARE IS THE GATEWAY TO SOFTWARE CONTROLLED BY GESTURE, VOICE, AND OTHER NEW TYPES OF COMMANDS, AND DESIGNERS WILL NEED TO REDEFINE THE WAY PEOPLE INTERACT WITH THE PHYSICAL WORLD.

A photograph of two women standing outdoors in a dry, open landscape. The woman on the left, with light skin and brown hair, is wearing a light blue button-down shirt and khaki pants. She is holding a large sheet of paper with a table of data. The woman on the right, with dark skin and braided hair, is wearing a black dress with a bright yellow sash and a colorful patterned shawl. They are both looking down at the paper. The background shows a flat, arid landscape with some trees in the distance under a clear sky.

By **Robert Fabricant**

15 DESIGN IS A PRIVILEGE: AN UPDATE ON FROG'S MOBILE MANDATE AND SOCIAL-SECTOR IMPACT



Robert Fabricant is vice president of Creative at frog.

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Five years ago, frog launched Project Masiluleke, an attempt to tackle the HIV epidemic in KwaZulu Natal, South Africa, with a mobile-technology solution (in this case, a simple text message that encouraged people to reach out for information on HIV testing and treatment). It was our first meaningful social impact collaboration, and the beginning of frog's mandate to create a series of initiatives that deploy mobile services in a humanitarian context and build support for scalable solutions that can have a positive social and economic impact.

Back in 2007, we had zero funding for Project Masiluleke and no idea how we might make any sort of dent in the AIDS crisis in South Africa. All we had was the fairly tenuous belief that we could be a catalyst for the role of design and technology in the social sector—that we could help bring together a diverse group of cross-sector partners and address one of the most challenging public health problems in the world. One way or another we felt fairly sure that this endeavor would teach us new things about the role of design and renew our appreciation regarding the privilege of being a designer.

In the last 12 months we have seen our commitment to deep learning through social-sector collaboration reach a new scale both within frog and across a broad ecosystem of industries and fields, from health to energy, finance, gender empowerment, and disaster response. We have engaged teams from almost every frog studio, from Shanghai to Kiev to Austin, Texas, in this work. And we have seen deep partnerships with organizations such as UNICEF reach substantial scale. We are working on a variety of solutions that include, but expand beyond, mobile technology. We have also been able to attract a much more diverse set of funding from corporate foundations (Nike Foundation, GE Foundation, Johnson & Johnson) to philanthropic organizations (Robert Wood Johnson) to NGOs (World Health Organization and UNICEF).

An Enormous Asset

Most important, we have seen how our social-sector work can be an enormous asset in strengthening our relationships with existing clients, such as GE, as well as attracting new ones. Clients will always expect frog to bring them insights and ideas from beyond their experience and horizon. The social sector provides an enormous opportunity to challenge our assumptions and provoke new thinking. For this reason, we remain

committed to a model in which our social innovation work is integrated into our overall design practice, and not a specialized track that is set aside for a specific team.

Our work with communities around the world, from Rwanda to Bangladesh, continues to amaze and inspire us, giving back to our teams as much or more than what we put in. We are constantly reminded that everyone has a meaningful perspective shaped by his or her own experience. As designers, we have an important but relatively minor role to play in unlocking that experience and creating the necessary momentum towards broader social change. Yet, we have also seen—most strikingly with the adolescent girls who were our collaborators on Nike's Girl Effect program—that not that many individuals are given the opportunity to ask "why" their situation might be challenging or "how" it might be changed. Too few people have the opportunity to contribute their ideas to a collective process of reshaping their community and their world in a meaningful way.

The following highlights from our Mobile Mandate and social-sector work in 2012 illustrate our collaborations and their profound social and economic impact.

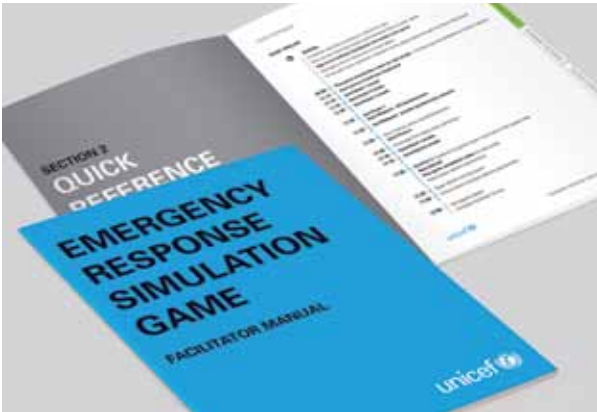


Taking Control of HIV
iTeach, our lead partner in South Africa, has made huge strides in bringing HIV self-testing to reality with continued design support from frog and approval from Massachusetts General Hospital and the Government of South Africa. Key elements of the design have been tested and refined over the last two years with the involvement of hundreds of South Africans in preparation for a forthcoming formal study. In addition, frog helped create a framework for the use of mobile technology to prevent the transmission of HIV from mothers to infants around the world, in cooperation with UNICEF, Johnson & Johnson, Elizabeth Glaser Pediatric AIDS Foundation, mHealth Alliance, Clinton Health Access Initiative, CDC, CARE, and Save the Children.

Harnessing the Girl Effect
frog partnered with the Nike Foundation on its Girl Effect program, a broad initiative to increase opportunity and reduce isolation for young women. frog led a series of workshops and co-design activities with girls in Kenya, Ethiopia, and Bangladesh, to look at how communication technologies might unlock new ways to connect girls and build critical leadership skills.

Spurring Collective Action Through Design
Our collaboration with the Girl Effect revealed a new purpose for design as an essential set of skills to help communities to solve their own problems. Inspired by the Girl Effect, we created the Collective Action Toolkit (CAT)—specifically for non-designers. The CAT encourages problem solving as a form of skill development, and connects change-makers with the appropriate digital tools and resources to meet their activist goals. This move towards “community-centered design” isn’t without its own challenges, as groups by nature engage in dialogues, often without enough “making” to help shared knowledge emerge and point to hypothetical solutions. “Making things” forces groups to align, describe, and evolve the solutions that fit their communities. This concept led to our mantra “Groups MAKE Change.” Thousands of people around the world downloaded the CAT in the first week of its release.

Expanding Access to Financial Services
Building on frog’s past research on mobile money in Afghanistan, conducted with partners like financial services company Finmark and IMTFI, we continued to explore the frontiers of financial inclusion in nations such as Rwanda, India, and South Africa. Our immersive research approach allows us to identify emerging needs and behavior at the edges of formal economies and capture and communicate new opportunities to address the financial needs of the poor through mobile technologies and other channels.



Measuring Impact
The World Health Organization issued a report confirming the positive impact of Project Mwana, our first collaboration with UNICEF’s innovation team. The WHO study showed a dramatic reduction in the amount of time it took for critical lab results to get to clinics and caregivers in the rural districts where the mobile intervention was implemented. Project Mwana is now in the process of a national rollout in Zambia.

Creating New Emergency Response Solutions
UNICEF is one of the earliest responders to humanitarian crises around the world. We partner with them to tackle the challenge of increasing their ability to coordinate resources across the globe and prepare their teams to make decisions under enormous pressures with unreliable information. frog has been collaborating with the UNICEF innovation team on a game to simulate this decision-making environment for UNICEF staff and funders alike.

Driving Collaboration Across Sectors
Design is increasingly seen as an ideal partner to help drive cross-sector collaborations. frog has been asked to play a lead role in designing and facilitating collaborative sessions for diverse stakeholders at organizations like the Ford Foundation, Gates Foundation, Johnson & Johnson, Omidyar Network, Pop!Tech, World Health Organization, mHealth Alliance, and UNICEF. In addition, GE Foundation has come on board as a partner to help fund continued work with frog and UNICEF on community health system strengthening in East Africa.

A New Strategic Framework for mHealth
As part of our partnership with UNICEF’s innovation team, we continue to tackle critical issues in the development space. This year we helped convene a rich set of partners, from Johnson & Johnson to the mHealth Alliance, to develop a strategic framework for the use of mobile technologies to prevent the transmission of HIV to infants. We produced a detailed report capturing the process. Findings from this collaboration have been presented at multiple conferences, and the report continues our series of joint UNICEF and frog publications on topics like real-time data, mobile health, and emergency response.



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