

# Deloitte Review

ISSUE 12 | 2013

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Complimentary article reprint

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## THE MOBILE CHASM

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> ILLUSTRATION BY IGOR MORSKI

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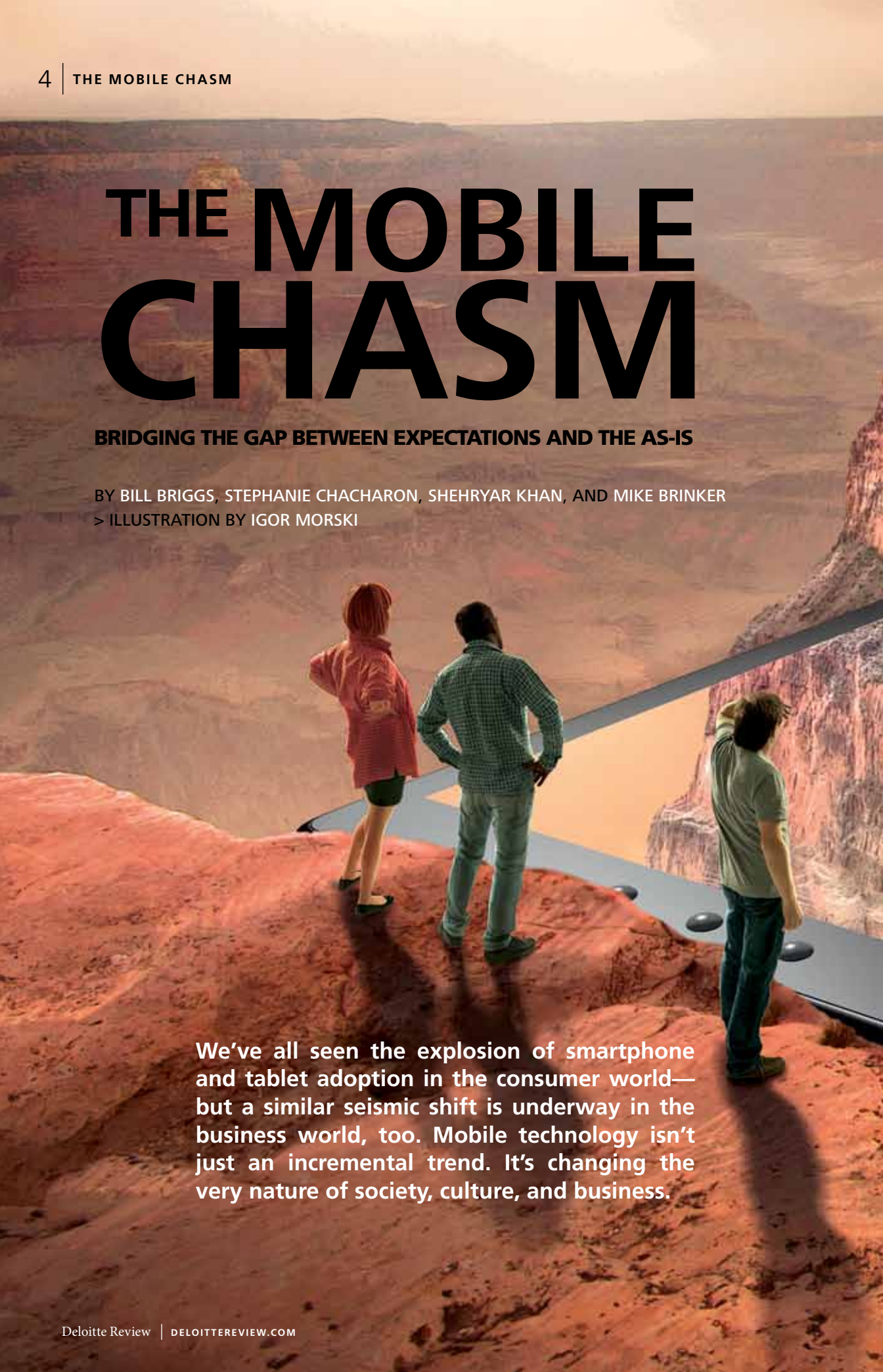
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# THE MOBILE CHASM

**BRIDGING THE GAP BETWEEN EXPECTATIONS AND THE AS-IS**

BY BILL BRIGGS, STEPHANIE CHACHARON, SHEHRYAR KHAN, AND MIKE BRINKER  
> ILLUSTRATION BY IGOR MORSKI



We've all seen the explosion of smartphone and tablet adoption in the consumer world—but a similar seismic shift is underway in the business world, too. Mobile technology isn't just an incremental trend. It's changing the very nature of society, culture, and business.







## THE MOBILE ERA

Personal computer (PC) shipments continue to drop,<sup>1</sup> while forecasters project that iPad sales alone will reach 148 million devices in 2013.<sup>2</sup> Smartphone and tablet shipments are predicted to dwarf those of PCs by 2016,<sup>3</sup> and mobile devices are rapidly becoming the preferred computing platform for many. Smartphones have replaced feature phones,<sup>4</sup> and mobile now accounts for 12 percent of all Internet traffic.<sup>5</sup>

Mobile devices have transformed the way that we interact with our environment. Operating anytime and anywhere, they provide immediacy and context. Their touch- and gesture-based simplicity is now second nature to many, setting new expectations for intuitive, usable interactions with technology. They're a natural convergence device: from communicator, camera, and web browser to barcode scanner, map, and payment device—and everything in between. Postal mail, phone books, shopping lists, and street maps are growing increasingly obsolete thanks to the smartphone.

**T**hese changes have been unfolding quickly, creating a growing gap between the status quo of today and the potential of tomorrow. Mobile is fundamentally reshaping operating models, business models, and marketplaces, at an often surprising rate. Merely having a mobile presence isn't enough.

Though businesses are taking note, there's a big disconnect between consumer and employee expectations and corporate mobile offerings, including those offered by larger companies. And while organizations are starting to explore the possibilities of mobile technologies, the full potential for business remains untapped.

Underlying the changes being wrought by the mobile era is a simple continuum. On one end is the opportunity for innovations to improve goods and services or for launching entirely new business models. On the other end lies the persistent threat of disruption.

On the innovation side of the continuum, many start-ups and innovators have gained momentum that could not have happened without mobile technologies. Think Uber, Google's Project Glass, and mobile-payment processor Square. Two years after its launch, Square now processes more than \$16 million in payments each day.<sup>6</sup> Long-standing enterprises are also taking advantage of new mobile opportunities. Coca-Cola's computer-operated FreeStyle machine gives consumers the freedom to choose from more than 100 beverage options using a touch-based interface. Whole Foods' Smarter Cart is a Kinect-powered shopping cart that

follows shoppers around the store, speaks and responds to voice commands, and uses a Windows 8 tablet, UPC scanner, and RFID to read items.<sup>7</sup> The future-friendly cart doubles as concierge and personal checkout machine.

On the disruption side, the marketplace tells many cautionary tales, from the demise of retail mainstays such as video and book stores to the besieged newspaper industry. But the impacts aren't confined to industries where physical goods have morphed into digital formats. Whether comparison shopping on a showroom floor or finding a restaurant in an unfamiliar city, mobile has spawned radical new ways to conduct business and interact with the world, across industries and locales.

Mobile opportunities generally fall into two buckets. The first involves doing the same things in a different way using mobile apps. For example, a mobile app for a car rental company allows reservations, location trackers, and other customer service functions to be deployed in a mobile-friendly format. It may not be revolutionary, but adding this mobile veneer is improving efficiency and effectiveness—saving time, simplifying processes, and reducing call-center traffic.

Similarly, enterprise mobile enablement encompasses more than bleeding-edge innovations; in many cases, it can be highly pragmatic. Replacing bulky in-flight pilot manuals with tablets; giving sales teams on-the-go marketing materials and real-time access to customer accounts; letting insurance agents customize, price, and sign policies at a client's kitchen table—hardly the stuff of science fiction, but the value is clear.

In the second bucket, companies such as Uber are inherently activated by mobile technologies. Uber's business model turns the traditional taxi service model on its head. Customers use an app to register credit card information and reserve cars when they need a ride. They can choose from a wide range of potential vehicles, with full visibility into the driver's proximity, type of automobile, and driver feedback from previous riders. Uber uses mobile technologies to drive reservation, payment, and fulfillment. The company would not exist without mobile technology.

#### IDEATION VERSUS IMPLEMENTATION

CIOs largely recognize the opportunities in mobile. But they're also dealing with the complexities of even modest mobile adoption. Employees want to BYOD (bring your own device) from the warehouse to the boardroom. Constituencies are bubbling with app ideas, and IT organizations are often ill-equipped to deal with the onslaught of required changes.

Given these realities, it's reasonable to suspect that organizations at the scale of the *Fortune 100* might be slow to adapt. We put that assumption to the test by investigating desktop and mobile websites, native apps, and investments in enterprise mobile enablement for each of the companies ranked in the *Fortune 100* for 2012.



## ***By the numbers***

### **On the web**

#### *Mobile web*

Fifty-one of the *Fortune 100* have a mobile website (that is, a mobile-specific site with a dedicated URL, such as [m.url.com](#) or [url.com/mobile](#)). In general, consumer-oriented businesses, such as retail, entertainment, and airlines, have developed mobile websites in higher numbers than those in business-to-business industries. Companies in energy, heavy equipment, and aerospace and defense are much less likely to have developed a mobile web presence.

Given that mobile web is a dominant channel for marketing, communication, recruiting, and corporate outreach, not offering a mobile website is the modern-day equivalent of a retailer with an unlisted address.

#### *Responsive web design*

Responsively designed sites, which resize layouts and content and adapt design to different behaviors, devices, and resolutions, have emerged as a potential answer to the many development challenges created by a diverse landscape of screen sizes. Responsive design doesn't deliver different content or sites (that is, [url.com](#) vs. [m.url.com](#)) but rather tailors the same content and experience to the screen size and resolution currently accessing it. With this technology, it doesn't matter if the end user is on a mobile device, tablet, desktop, or even viewing content on a television. Despite the benefits, however, only two of the *Fortune 100* websites are built using responsive design.<sup>8</sup> The more robust of those two sites didn't launch until late summer 2012.<sup>9</sup>

### **Native mobile applications**

Developed for a specific platform or device, the number of native apps available in app stores now tops 1 million.<sup>10</sup> As with mobile web, analysis shows that consumer-oriented businesses, such as airlines and retailers, are much more likely to have native apps.<sup>11</sup> Among those, nearly every company that has at least one mobile app supports multiple platforms. iOS has the largest number of mobile app offerings, with Android as a close second, along with occasional offerings for BlackBerry, Windows Phone, and a few Palm OS holdouts.

### **Categories of apps**

- **Marketing and information:** These relatively basic apps are the mobile equivalent of marketing brochures. While they provide information, they don't take advantage of native-device functionalities and serve largely as

mobile extensions of traditional content.

- **M-commerce:** Prevalent in the retail, airline, and insurance industries, these apps focus on driving revenue, though content is often nothing more than an extension of a desktop or mobile website.
- **Account management and loyalty programs:** These apps—typically in the financial services, airline, telecom, and health care industries—allow users to manage their personal account details and recent activity.

The apps we investigated run the gamut from well-designed to missing the point entirely. Many were inappropriately specialized, such as product-specific barcode scanners or gas station finders for a single brand. These apps don't give users a compelling reason to download.



## WHAT'S THE DIFFERENCE?

More than 30 percent of the *Fortune 100* apps did not provide materially different functionality than their mobile web presence. So why even bother?

Sometimes the reasoning is clear, based on factors that point toward a native app: needing access to device sensors such as cameras, GPS, accelerometers, or Bluetooth/near-field communication; offline requirements for users who may not always have Internet connectivity; or the desire to have a seamless look and feel of the experience, indistinguishable from the native interface.

But many times it's as simple as discoverability—a desire to have an app in the app store. For consumer-facing industries, that's not a terrible idea. But consumers expect to be wowed. They desire a steady stream of new functionality and won't be shy about sharing their opinions about your offering. In our study, the average app rating was only 3.4 with over 1,000,000 downloads—not a terrible showing, but fairly underwhelming given the exposure and excitement around the space.

Less-specialized applications—such as a third-party barcode scanner or a brand-agnostic gas-station finder—appeal to a much broader user base. The more appealing apps take advantage of attractive visual design and platform-specific functionalities to communicate core attributes and brand promise via mobile. And

apps that use mobile technology to enhance and communicate a brand experience provide more punch than cutting and pasting traditional print or desktop content into a native app.

### Investments in mobile enablement

In addition to test-driving the *Fortune 100*'s available websites and apps, we assessed their investments in mobile. Many of these investments hinged on m-commerce and direct-to-consumer marketing.

Retailers in the *Fortune 100* are investing in mobile shopping cart technologies to bridge the gap between brick-and-mortar stores and online purchasing, using apps to provide a virtually seamless experience and connect consumers with their full product catalog.

Companies such as Kroger and Safeway encourage the use of their apps by delivering coupons and special offers directly to the device while increasing user engagement and adding value to their shopping experience. Walgreens and other retailers are partnering with third-party vendors such as aisle411 and Shopkick to provide in-store positioning and item location information.

Many of the mobile investments by *Fortune 100* retail companies are tied to a marketing budget. As a result, the apps created by these investments mainly serve as product information or promotional apps—such as a cooking app focused on a particular food item or a game that promotes a particular car model. While these apps may further a product's brand name or image, many do not meet a sustainable consumer need. They run the risk of becoming one-use, throwaway apps.

### THE DISRUPTIVE START-UP STORY

Our examination of mobile maturity of the *Fortune 100* was paired with a study of major players in the start-up and venture capitalist (VC) communities. We specifically targeted mobile-focused KPCB (Kleiner Perkins Caufield Byers); the self-described “boot camp for start-ups,” Y Combinator; NYU-Poly's DUMBO Incubator; Andressen Horowitz (home to the likes of Facebook, Pinterest, Groupon, and Twitter); General Assembly; 1871 Chicago; pioneer software venture capital fund Hummer Winblad; and the MIT Media Lab.

### *By the numbers*

The mobile initiatives we studied from the start-up ventures touched a broad range of industries: from travel and mobile payments to education, health care, and big data. Of the nearly 350 firms and projects we researched across eight VCs and start-up incubators, 89 percent included some mobile dimension, either as a direct



mobile platform, using mobile as a direct channel, or providing a service that could potentially be consumed over a mobile device. More than a quarter (26.2 percent) built their strategy around mobile.

A third of the 91 “mobile only” projects were focused on the technology sector, most of them platform- or enabling-services plays to build new capabilities and enable mobile innovation. A quarter (25.3 percent) were in the entertainment sector, largely spiked by gaming companies focused on mobile platforms. Retail, telecom, and media represented 18.4 percent of “mobile only” efforts. Health care and the public sector each represented only 3.4 out of 5, but it is expected that those numbers will likely rise sharply in the coming years.

More striking than these percentages and raw data were the kinds of problems that the VCs and start-up organizations are tackling using mobile technology. Rather than creating one-off marketing apps or transferring traditional print content to digital platforms, they’re focused on building new business models.

The education sector, for example, is ripe for mobile disruption—a fact that has not gone unnoticed in the start-up community. Education software company Kno (funded by Andressen Horowitz, among others) has set out to change education by delivering an engaging, efficient, and social learning experience. Kno brings the textbook of yesteryear to life with 21st-century flashcards, interactive quizzes, Facebook integration, 3D modeling, course management, and many other interactive features.<sup>12</sup>

Mobile’s ability to increase workplace efficiencies is also being explored by start-up companies. 1871 fundee RIVS.com aims to help companies hire faster with software that maximizes efficiency for high-volume hiring. The software offers what it calls on its website a “ridiculously easy online interface,” automated interview scheduling, and consolidated applicant management. Using mobile, companies can manage all aspects of the hiring process, with automated screening features that have, according to RIVS, contributed to improvements in screening speed, cost, and quality.<sup>13</sup>

### THE NEXT NEXT BIG THING

We’re on the cusp of mobile’s potential, and once-audacious ideas are moving closer to becoming reality. Mobile and mobility are converging in the form of self-driving cars. Digital wallets are combining personal and professional personas to create singular digital identities. More broadly, we have seen a trend toward pervasive connectivity, with some form of computing embedded in almost everything around us.

Mobile is becoming the anchor of our digital identities—providing a centralized,

## INDUSTRY FUTURESCAPE

Mobile's untapped potential doesn't discriminate, with nearly every industry and sector offering opportunities for transformation. However, our analysis of the *Fortune 100* identified especially instructive examples in the retail and health care industries.

### Retail

Today, much of the retail community views mobile as an add-on, filing m-commerce under the dot.com branch of the business. Many retailers treat in-store and web as two entirely distinct businesses, or silos, with different inventories, pricing, and merchandising. Mobile is driving convergence between the physical and the digital, motivating retailers to evolve from siloed business models to an omnichannel approach. The future of retail is not about the channel; it's about best serving the customer at the point of need.

We measure mobile's importance, in part, by the percentage of in-store sales that it influences. In the United States, mobile currently influences 5 percent of in-store sales (approximately \$159 billion in 2012), but that percentage is projected to jump to 20 percent by 2016—an increase that translates to \$628–\$752 billion in sales.<sup>14</sup> This growing shift in influence points to the value of considering mobile through a new lens: It's not e-commerce on a smaller device; it's a new and different set of functionalities to better serve the customer.

For example, consider a customer shopping at a tire store. If the retailer provided a mobile console for that customer to order new tires, mobile would simply be a different platform for the e-commerce paradigm. But if the retailer offered a mobile app that helped the customer select the appropriate tires based on a series of targeted questions (such as driving style, location, average load weight), that's a useful functionality that informs the customer.

Though it's unlikely that brick-and-mortar retail centers will disappear anytime soon, mobile's influence continues to grow along with consumers' expectations for immediate access to information—in and outside the store. Potential implementation goals for mobile may include:

***Driving in-store purchases:*** Consumers convert at a higher rate when they're informed, and smartphone shoppers are 14 percent more likely than their non-smartphone counterparts to convert in-store.<sup>15</sup> With mobile, retailers can provide appropriate information and functionality to the consumer at the point of need—whether it's a mobile registry that lets a high school senior know if anyone from her school has already purchased the prom dress she wants or an app that provides tailored content based on whether the user is in-store or not.

***Improving inventory performance:*** Heightened inventory visibility is a huge opportunity because many retailers today divide their dot.com and in-store inventories. So, when an online product search turns up empty, the system has no visibility into the in-store inventory—which very well may have that item in stock—potentially resulting in a lost sale. Through





mobile, retailers can expose their inventory across the entire network, resulting in increased revenue (decrease in sales lost due to lack of communication between inventory channels) and improved margins (better sales, so fewer markdowns on unsold items).

**Empowering sales associates:** Consumers today often have more immediate access to information than associates do. Consider the Apple retail model: Not only have sales associates moved from behind the counter to the sales floor, customers themselves can function as associates by conducting simple transactions on their mobile devices. In this evolution of the traditional point of sale, associates are no longer mere transactional agents; they're customer service agents.

**Providing inspiration:** Mobile-enabled media can inspire upselling and drive traffic. From an interactive catwalk to video tutorials or digital mood boards, retailers have growing opportunities to connect customers with products they didn't know they needed.

**Rethinking the showroom:** Rather than stocking every imaginable combination of bedding options, for example, retailers can repurpose showroom space to display inspiring bedroom styling options. They can then use mobile to enable timely shipping and delivery from a centralized location.

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**Using social networks to empower customers as trendsetters:** Instead of dictating styles to customers, retailers can tap social networks to give voice to customers as trendsetters by leveraging user-generated content to inspire trending styles (think Pinterest, Etsy, and the Fancy) or social chatter to promote consumer engagement.

The future of retail is emerging as personalized, efficient, information-rich, connected, and empowering. Mobile has a crucial role to play but only if retailers embrace it as a new way of serving customers across channels and not merely as an extension of e-commerce.



### Health

Evolving expectations around mobile technology are also on the verge of reshaping the health care and life sciences industry. We expect mobile natives to become increasingly vocal in demanding mobile apps to supplement traditional services as they (and their parents-turned-patients) age. Twice as many Gen X and Y consumers want to access and

maintain their personal health records using a mobile device than do baby boomers and seniors—indicating that younger generations are more likely to manage their health using mobile.<sup>16</sup>

With mobile, providers can establish better workflows and better coordinate patient care—especially among multiple care settings. Capabilities include viewing and updating patient records from a tablet, remote X-ray evaluation, and real-time provider collaboration enabled by mobile.

In addition, accountable care and outcomes-based models are well aligned with mobile's potential. For example, smoking cessation programs can be enhanced when paired with social apps that help smokers get support and guidance from a virtual community. For knee replacement device manufacturers that are judged by a patient's post-surgery improvements, a mobile device that's preloaded with interactive post-care activities is more likely to keep patients motivated and engaged with their prescribed exercise regimen than a static pamphlet. There are already a handful of available apps for diabetes—and mobile seems a promising partner for a disease that's been shown to produce better outcomes with better disease management.<sup>17</sup> With mobile, patients can receive personalized daily coaching and monitoring of blood sugar levels, nutrition, activity, and medication.

Mobile benefits also apply to the broader life sciences industry. Whether a drug or device works or not is no longer the full picture. Better outcomes matter, too. For the physician, a better outcome may be one that's measured in terms of a patient's decrease in blood pressure over time. In this case, the deciding factor between two similar drugs may soon be an interactive mobile program that guides patients as they reach their goals.

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always-connected hub for services, information, entertainment, and convenience across our personal and professional lives. Mobile is—or is on track to become—the new camera, watch, bookstore, radio, car key, dictionary, textbook, Rolodex, medical health record, sales tool, cash register, daily planner, calculator, customer service agent, thermostat, and personal assistant.

### EARLY LESSONS LEARNED

***“You miss 100 percent of the shots you don’t take.”***

—Wayne Gretzky, Canadian hockey legend

Though the mobile landscape is evolving quickly, much can be learned from early successes. Draw from creative, user experience, engineering, and functional talent, and focus their initial efforts on a target platform and a couple of juicy use cases with clear business value. Monitor the start-up community and technology blogosphere for inspiration, and hold team members accountable for staying current in their space. Even if the sparks don’t yield immediate value, they just might contribute to your next big thing. Give employees access to real-time data, along with the permission to make decisions based on that information.

Though the insights are many, the following three lessons top the list:

#### ***Agility is critical to mobile strategy.***

Strategy is important of course, but ideas should be implemented in eight weeks, not eight months. The rapid evolution of mobile demands nimble, responsive methodologies. Strategies based on technology that’s relevant today won’t be wholly relevant months later without iterative improvements and updates to emerging trends and technologies.

Two elements are essential. First, as with any project, it is important to assess the opportunities by identifying how mobile can reshape customer, employee, product, and partner experience. This may seem intuitive, but it can be difficult because companies often think in terms of processes and associated efficiencies without fully considering the user (more on this in the next section).

Second, develop a roadmap to establish just enough foundational architecture, infrastructure, and management capabilities to lead usage scenarios. Too many companies approach mobile as they might an ERP (enterprise resource planning) implementation, where the timeline for interface development, system selection, and database reconciliation can reasonably take months or years. Instead, recognize

that though it will change over time, a strategy can't move forward without an initial decision on factors such as bring-your-own-device policies and IT support.

Failing fast—and often—can lead to innovation. This is an uncomfortable mindset for executives who attained their roles through a string of successful roles or projects, but it is an important lesson. Approach mobile strategy less like developing an IT application—regimented, slow, and deliberate—and more like an R&D exercise. Iterate, react quickly to lessons learned, and get (and give) permission to fail. If a dedicated R&D lab isn't realistic, consider a prototyping team to experiment with rapid iteration, implementation, and user feedback. “Permission to fail” does not imply a sandbox without accountability. It implies accountability at a broader level. The ways in which companies measure the output and results of technology implementations *now* may not be ideal for the rapid exploration of potentially transformative ideas where concept validation may be more important than perfect execution.

In our experience, companies often encounter several barriers to making this work:

- While stand-alone research organizations can explore concepts unconstrained, they often struggle with bringing products to market.
- Despite the fact that embedded innovation teams are small, easy to build, and capable of rapid prototyping, product exit strategies are often limited by the parent organization.
- Though cross-silo teams often excel at ideating multichannel strategies, they run into challenges when trying to deliver across the business due to competing priorities, decision makers, and processes.

Organizations at the scale of the *Fortune 100* can be agile in this way. We have seen this work when they “think small within the big.” Large companies can maintain their huge IT infrastructures and multiyear initiatives, but they can benefit from a focused suborganization that's staffed, measured, and positioned so they can move at the speed of mobile.

### ***Take a UX-driven approach.***

Meeting user expectations (UX) starts with research and data-driven inquiry to understand the target users' needs, desires, and routines. These insights drive early-stage strategy and feature ideation process. Because customers interact with companies through a variety of touchpoints—from browsing a website to calling a

customer service associate—it’s important to consider each and every interaction through the eyes of the customer.

For an airline, that means grounding features and functionality in the realities of the pilot and attendant experience, from predeparture workflows to in-flight limitations, such as low lighting and turbulence. For a distributor, it means weighing the needs of the business with the on-the-ground needs of drivers. And for a railroad, it means opportunities to help conductors overcome the distractions of a moving train, such as customizable font size, expanded touch areas, and a task-focused architecture.

While it seems intuitive to focus on the user, there are some common situations where this doesn’t happen well:

- Creativity underinformed by the existing body of knowledge in app design, as seen in apps that defy common user expectations by straying from platform-specific interface guidelines, such as the use of “Back” and “Main Menu” buttons in the navigation bar
- Mobile websites that take an “island” approach—for example, by providing a vastly simplified version of their desktop site’s content but without providing a link for mobile users to visit the full site if they need information that’s not captured in the mobile site
- Taking the eye off convenience, which in many cases was a contributing factor to mobile’s appeal—we see this in mobile forms (web or native app) with lengthy log-in processes that have the potential to turn users away
- Prioritizing often competing business requirements at the expense of the user, such as apps that are crowded with links, buttons, options, and functionality—while the needs of the business are important, so too is considering what users need to accomplish and the most intuitive way to enable the user journey.

In order to factor the user’s needs into a mobile initiative, include one or more UX specialists in a development team.

### ***Assign dedicated ownership of the mobile channel.***

Time after time, we’ve seen businesses approaching mobile in the regimented and siloed manner that served them well in an earlier era, where technology was largely department based. Instead of looking at the broader picture and considering how new solutions can integrate with core business drivers, they tack on *ad hoc*

fixes or fund parallel efforts in content and asset management, social media, customer relationship management (CRM), analytics, gamification, and mobile.

A winning mobile strategy often hinges on having a center of excellence led by a dedicated product owner. Such a role demands a broad swath of skills grounded in marketing, operations, and technology expertise and innovation. Organizations are taking note. Gartner predicts that 25 percent of organizations will have a chief digital officer (CDO) by 2015.<sup>18</sup> Starbucks, Diageo, GlaxoSmithKline, and the City of New York all have appointed CDOs.<sup>19</sup> As the mobile frontier continues to expand, we would expect many organizations to recalibrate their capabilities, fusing innovation and technology in potentially groundbreaking ways. **DR**

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*The authors would like to thank **Jayson Nath, Brad Shiveley, James Protzman, and Heidi Boyer** for their contributions to this article.*





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