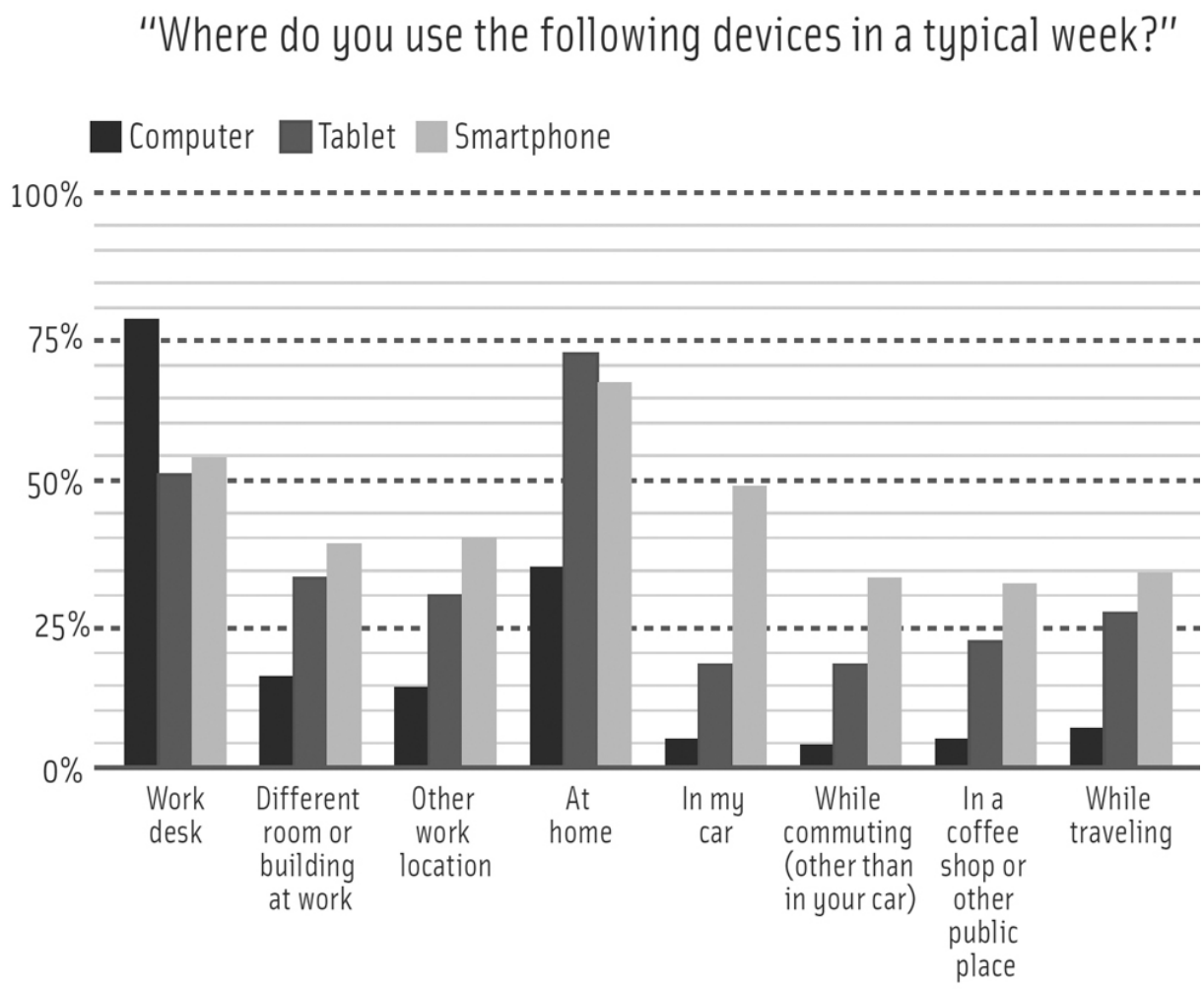
Figure 9-3: Mobile Devices Take Work out of the Office



Base: US online adults (18+) who are information workers and work on the specific device
Source: US Mobile Mind Shift Online Survey, Q3 2013

How can you do this? You must provide three things to your mobile workforce.

First, a mobile workforce wants a mobile toolkit. Smartphones and tablets are better than computers for employees that are inherently mobile in meetings, customer visits, travel, and doing anything that's not chained to a desk (particularly for employees that consume more than create content). That means your mobile workforce wants almost every business app in their pocket, not just the few you provide today.

Second, *every job* improves with better information access. With smartphones and tablets, people that have traditionally worked offline are now becoming people empowered by mobile moments. And it's not just the process jobs like sales and field service that we will describe in chapter 11. It's all jobs. Even the farmer spreading fertilizer based on satellite positioning and in-soil measurement.[2]

Third, mobile devices break down the artificial boundary that the office puts on the workday. Ted's grandfather, James Horsfall, who ran the Connecticut Agricultural Experiment Station for 25 years used to say it this way: "Your time is your own, but your brain belongs to the Station."[3] In other words, don't ask me if you can leave work early on a personal matter. Just get important things done wherever you are. Mobile devices and applications extend this beyond the realm of scientists to every employee and turn work from a place you go into a thing you do.

These forces drive the mobile mind shift at work and the rise of new categories of applications.

The Employee App Gap

Why can't you do most of your work on your phone or tablet?

In theory, you could. These devices have the power you need, but the vast majority of the applications that employees need to get things done are still available only on corporate PCs. In many companies, the technology organization still bans even basic apps such as opening email attachments on personal devices. Imagine trying to get through your daily email if you couldn't open an attachment!

This leads to what we call an *app gap*, in which employees want applications to do real work on a mobile device but find those apps aren't available.

Who will fix the app gap? Companies try, but they move slowly. Entrepreneurs like Evernote move faster, and they help people solve these problems themselves.

CASE STUDY: Evernote Plugs an App Gap in Note Taking

Phil Libin has a better way to remember things: put them in an Evernote where they will exist *for you* forever no matter where you are. And by things, Phil means everything: your shopping list, business to-do list, client meeting notes, website links, video clips, photos, calendar invitations, even your handwritten notes in a paper journal.

"It's the oldest idea in world—use technology to help you remember," says Phil, the CEO of Evernote. From cave paintings to mobile note-taking, Phil's philosophy holds true: "Any time you need that memory, we want to make it available."

In 2008 Evernote, led by Phil and founder Stepan Pachikov, created a simple note-taking app that worked very well on any computer, browser, or mobile device. Today, Evernote is helping 80 million customers plug the note-taking app gap by serving people in their mobile moments. Evernote also partners with product companies like 3M and scanner-maker Fujitsu to merge electronic note-taking with the physical world of paper and scanners. After years of viewing paper as "the enemy," Evernote now strives to help its customers keep "the elegant parts of paper" and augments paper notes with Evernote features, like taking a picture of the note so you can find it forever on your mobile device.

Even Moleskine, the famous paper notebook company, wants to work with Evernote. Why? According to Moleskine co-founder Maria Sebregondi, it's because, "we move back and forth between the physical and digital worlds. It's how our lives are made up." Her goal is to serve her customer's note-taking moments wherever they fall.

Evernote has mastered one of the secrets of the mobile mind shift: Serve *an individual* in her moments of need *both physical and digital*, and she'll come back again. If she wants to take notes in a Moleskine notebook or on a Post-it Note, but search and find them in her Evernote, Evernote wants to help.

Start to Plug the App Gap by Following Your Employees' Lead

Evernote is but one example of an application designed for mobile moments at work. Google Docs, SlideShark, and Skype are others. Employees using applications like these can work anywhere on a smartphone or tablet, often at their own expense. In fact, 51% of North American information workers spend their own money on a mobile device or app for work.[4] This is an example of a pervasive trend: the consumerization of IT.

One way to plug the app gap is to follow your employees' lead. See which mobile applications they're already using, then look for ways to add the business and security features you need. In many cases, there's a starter version of the app for free to individuals and a more sophisticated paid corporate version that allows a company to manage usage and security. Better yet, technology managers can embrace apps that solve both personal and work problems, and allow employees to keep the two parts neatly separated. Like Dropbox.

With 200 million users as of November 2013, Dropbox is growing at the same pace that Facebook did.[5] Mobile moments give Dropbox its ignition. As cofounder and CEO Drew Houston told us, "I remember the day I got my iPhone. It had a glaring omission. There was no way to get or save my files." Dropbox fixed the problem with a mobile app that synchronizes files between a customer's phone and Dropbox. Put a photo, document, or video in your Dropbox in the cloud, and you can get to it from anywhere on your computer, phone, or tablet. And now, developers from other companies have built more than 100,000 apps that use a customer's Dropbox to store and retrieve files. To assuage technology managers, Dropbox makes it easy to keep personal and work files separate.[6]

Table 9-1: Apps That Bridge Work and Personal Activities

Purpose	Apps that do this
Note taking	Evernote, Microsoft OneNote
File share and sync	Box, Dropbox, Google Drive, Microsoft OneDrive
Videoconferencing	Skype, FuzeBox
Travel	TripIt, Hipmunk
Expenses	Expensify, ExpenseIt
Presentations	SlideShark, Apple Keynote
Collaboration	Google Docs, Huddle, JoinMe
Project management	Smartsheet, Trello

We believe that this is the future of business applications. People don't artificially divide their brains when they walk in and out the company door. They shouldn't have to artificially divide the tools they use to live and work. You and your workers should embrace tools that work like that (see Table 9-1).

Use the IDEA Cycle to Find Mobile Productivity Moments

Apps like Evernote and Dropbox can't do everything workers need to do. You already have corporate applications running on PCs that your company maintains to make workers more productive, such as customer relationship management systems, financial software, and transaction databases. If you really want to improve the productivity of your Shifted employees, you will need to invest in some custom-built mobile applications.

If you're going to build apps for employees, use the same planning method that you would use for a customer application—the IDEA cycle. But this time, it's the IDEA cycle for information workers. Start with a mobile moment audit for employee applications:

1. Identify the mobile moments embedded in the workday.

2. Design mobile engagement based on the benefit to employees and to the firm.
3. Engineer mobile apps in the cloud.
4. Analyze how employees work to optimize the impact.

Step 1. Identify the Mobile Moments Embedded in the Workday

How can you identify employees' mobile moments? Take a look at how this works in the wine and spirits business.

The typical owner of a typical wine store is an expert merchandiser—she knows how to sell wine. She could do better if she had a system to track what's selling. That's where Constellation Brands, purveyor of Ravenswood and Robert Mondavi wine, Corona Extra beer, and Black Velvet whisky, steps in to help.

When a Constellation Brands salesperson walks into a wine store, she comes armed with a tablet application that helps explain why a particular brand responds well to an end cap promotion, what the product mix is for the most successful wine sellers in the region, and what the year-over-year performance of that particular store has been. That data transforms the conversation from "how many cases do you want?" to "how can we maximize your profit?"

That tablet application is based on Roambi, the application we describe in Chapter 01. Anushil Kumar, Constellation's VP of information delivery, adapted it for his sales team. The application has been so successful for 150 sales reps on the national accounts team that commercial leaders and sales staff in other parts of the business are lobbying to get in on it. Even executives in operations review meetings use it to drill into the trouble spots to identify and solve problems.

If you're looking for mobile moments, you should ask the kind of questions that Anushil did at Constellation Brands.

First, where can we solve an employee's problem? While employees often find their own solutions, you shouldn't let this stop you from helping them out. It's what Anushil did with the Roambi app: bring data into the sales engagement. Many desktop moments,

particularly those dedicated to searching, reading, or reviewing, can become mobile moments. You just have to look for them.

Second, where can we solve a business problem? This is where you need to bring business people responsible for productivity and revenue together with technical people that understand mobile moments. When a field technician is at a job site, how can you inject data into the visit to help her complete the work the first time? We'll learn how Dish Network did this with a field service app in Chapter 11. You can do the same for situations where people do manual tasks such as collect receipts or file paperwork. Can a photo taken with a phone accomplish the same goal?

Develop the discipline to find the mobile moments hiding in plain sight. You'll make your people and your company more productive.

Step 2. Design Mobile Engagement Based on the Benefit to Employees and to the Firm

Employees' mobile mind shift carries with it the expectation that an app at work will be as easy to use as an app at home. If it's not, they won't use it.

But for the traditional major suppliers of enterprise software, the user experience has typically been an afterthought. The challenge is especially difficult with mobile. Just as with a consumer application, a mobile employee application needs to be simple and intuitive. It must use the employees' context—especially their location and what step they need to take next—to tailor the data and interface to require the fewest clicks. Designing a great mobile engagement requires you to relentlessly pare back the functionality you expose.

How can you determine which mobile apps to build and what mobile functions to include? Use a modified version of the evaluation matrix we developed in chapter 3 to evaluate employees' mobile moments. Prioritize the apps and particularly the features that bring the most value to the firm and to employees (see Figure 9-4). In that way, you will align the firms' goals with your employees' motivation in the mobile moment.

If the service you can provide in the mobile moment helps your employee and is valuable to you—like email, file sync and share, or field service—then it's a clear priority. If the application is good for your employee, but its business impact is unclear, then you may be better off trusting the employee to use the app she chooses. If the application is valuable to your company but your employee finds it clunky to use, then you must redesign it for mobile first. And finally, if the mobile moment isn't valuable to you and doesn't help your employees, then no matter how tempting it might be, forget about it —prioritize other features instead.

Armed with this analysis, you are in a position to trim the list of mobile moments and apps from the Identify step of IDEA down to just the ones most valuable this time around the IDEA cycle.

Step 3. Engineer Mobile Apps in the Cloud

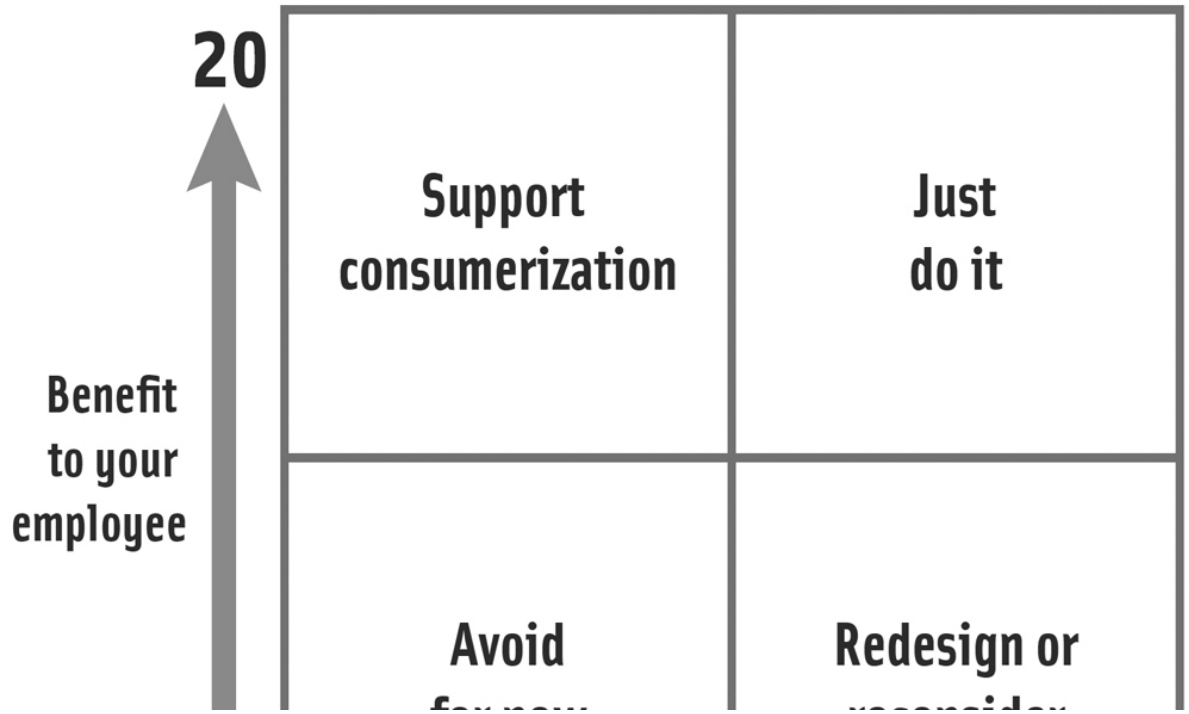
To empower employees on mobile devices, you should run the systems that power their applications in the datacenter of a cloud provider. There is no better way to serve the needs of employees in their mobile moments. Traditional on-premises communications and document collaboration tools can't keep up with the demands of your mobile workforce. Google, IBM, Microsoft, and salesforce.com have built cloud-hosted platforms engineered for your mobile workforce. For them, the race is on to convert your company to the cloud.

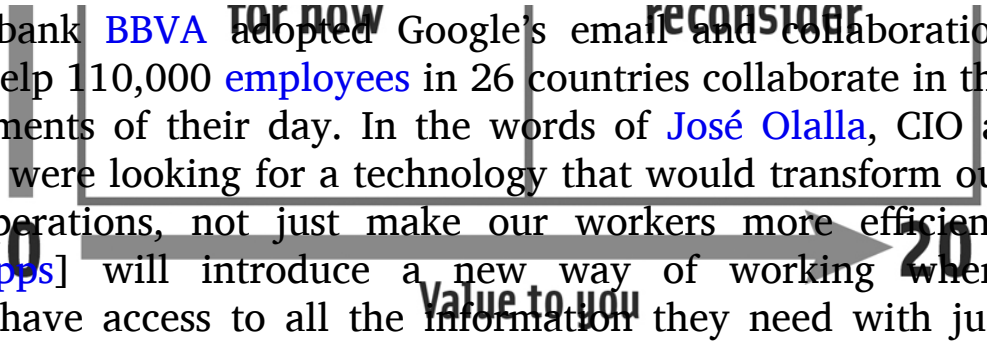
Figure 9-4: Evaluate Apps and Features on a Value Matrix

Score from 1 (completely disagree) to 5 (completely agree). Add the factor scores together to get a total score.

Benefit to your employee	Score
The app or site delivers a service that improves an employee's experience.	
The app or site runs on employees' preferred smartphones and tablets.	
The app or site helps an employee accomplish a goal in seconds.	
The app or site uses context to deliver a better experience.	
Total benefit score:	

Value to you	Score
The app or site greatly enhances an employee's productivity.	
The app or site eliminates many steps or simplifies a process.	
The app or site provides everything an employee needs to complete a task.	
The app or site improves an employee's work/life balance.	
Total value score:	





Spanish bank BBVA adopted Google's email and collaboration service to help 110,000 employees in 26 countries collaborate in the mobile moments of their day. In the words of José Olalla, CIO at BBVA, "We were looking for a technology that would transform our business operations, not just make our workers more efficient. [Google Apps] will introduce a new way of working where employees have access to all the information they need with just one click, no matter where they are, and can reap the benefits of using advanced collaboration tools."[7]

In the next three chapters, we will describe the three engineering tasks necessary to support these apps: building platforms, transforming processes, and organizing people. The challenge of building great mobile apps is just as important for employee applications as it is for customer applications.

Step 4. Analyze How Employees Work to Optimize the Impact

How are your employee apps doing? Where are people getting the most work done, and where are they bogging down? You won't know unless you measure the results.

Cisco measures adoption and satisfaction for its corporate technology services. At one large US government agency, the CIO conducted an employee survey before and after deploying Google Apps to find out what the problems were and whether the new system of engagement solved them. Without this kind of data analysis, your technology department is just guessing if the technology you buy for employees is successful.

Analytics are just as important in measuring the performance and effectiveness of mobile apps at work as it is for consumers. We'll learn more about how to implement these analytics in the next chapter. One healthcare provider selling in-home rehabilitation services used the metrics from a mobile app to see, for the first time, when salespeople meeting with a patient and family didn't lead to a sale. They suddenly had visibility into *all the sales activities*—not just the ones resulting in a deal. Why? Because the mobile app logged

the visit automatically. Previously, salespeople had only logged the visit when it resulted in a sale. Armed with this information, the sales management team could identify which hospitals or discharging physicians or times of day or salespeople were most likely to generate business, then apply the lessons learned to improve sales.

How Mobile Work Changes Your Culture

What happens when your people use mobile applications—yours or their own—to change the way they do their jobs? They become different. They have different expectations, both of themselves and of you. They change the culture of your company.

We've identified three ways that culture changes as a result of mobile—a bias toward direct action, a trend toward organizing spontaneously, and the information-empowerment of every employee. Let's take a deeper look at each change.

Mobile Devices Create a Culture of Direct Action

Mobile devices fuel an intense level of get-it-done-now behavior. With a mobile device, any employee can get the data, find help, get an answer, share a result, and get something done right in the moment.

There's no better example of a culture of direct action than what has happened with the US Department of Defense's non-military disaster response group.

In a disaster—like Haiti after the 2010 earthquake or the devastated Tōhoku coast of Japan in 2011—you've got chaos. Hundreds or thousands of aid organizations are rushing in to help. Communications networks are spotty, and mobile devices, not computers, are the key information asset of people in the field. This is the environment for which the Department of Defense designed the All Partners Access Network (APAN).[8]

Jerry Giles, an APAN technical director for the US Department of Defense, spends a lot of time developing technology systems for use in disaster areas, so he knows mobile devices are ubiquitous in countries like Bangladesh, China, Haiti, and Nigeria while laptops are not. Jerry explains that mobile devices "are basically the humanitarian response operator's primary sources of information, coordination, and communication" during disaster operations. In 2011, he introduced APAN Chat to make APAN "responsive to any device" in a mobile moment. Recently APAN chat was used to support the Nigerian Navy's battle against piracy; most of the coordination and direct action happened via the APAN Chat site on mobile devices over slow networks. Today, 50,000 military and civilian workers from 1,500 different organizations use APAN's social networking tools, document storage and search, mapping, translation, and support for mobile devices to coordinate their unclassified information sharing and collaboration.

In Haiti, the APAN Community used a software platform from a company called Zimbra to coordinate the US military response with 300 aid organizations. In the field, thousands of aid workers and military analysts in the remotest areas uploaded 3,500 images of problems to help direct food and medical aid to the villages most in need. In one case, a hospital staff person indicated that beds were available for patients through a post on the APAN Community, which enabled the US military and relief organizations to redirect hundreds of patients to the hospital for treatment.[9]

Your business is not a disaster area like Haiti after the earthquake. But your people are making decisions right now. They could be moving faster and acting with more confidence, with access to more data, from wherever they happen to be. Your mobile-enabled staff will learn to act more quickly and directly, just as the military and aid workers using APAN have learned to do.

Employees Collaborate and Self-Organize

People collaborate better when they can collaborate on any device.

To see how effective this can be, look at what happened at Tijuana Flats, a company that includes 100 Tex-Mex restaurants. That means 100 places where scheduling shifts for cooks, cashiers, and servers can set the tone for the entire restaurant.

The typical top-down assignment where managers set schedules can create resentment. Employees often want to swap shifts; managers who need to approve waste time chasing down employees rather than spending time with customers.

Things are different now because Darrin Heisey, the company's technology director, brought in a mobile application called HotSchedules to replace the spreadsheets and paper schedules the restaurants had been using. HotSchedules launched an iPhone app in 2009 and soon after supported Android and BlackBerry phones. That's perfect because many of Tijuana Flats' young staffers may not have a computer, but they live on their smartphones. Managers post the schedule. And because employees carry HotSchedules in their pockets, they can immediately find their schedule, swap shifts, and find substitutes right on their phones. They self-organized. The workers are more productive and happier. And happier workers mean happier customers.

Every Employee Becomes an Information Worker

As computers have spread into the workplace, many workers in large companies became information workers. Customer service, sales, research, product development, marketing, finance—all these jobs are now mostly accomplished by workers at computers. But in the mobile mind shift, *every* employee can be an information worker, using the computer in her pocket to get things done. This has a repercussion: You need workers that are comfortable with technology—even in field jobs.

Take the ground crews at China Eastern Airlines, a fast-growing company that carries 250,000 passengers on 3,000 flights every day. When Kevin Cia Yang, the company's CIO, arrived in 2009, the 8,000 ground crew members responsible for luggage, water,

refueling, and passenger support had fixed assignments for gates and times. If flights didn't arrive on schedule, the crew might either sit idle or be overwhelmed.

Kevin saw that putting smartphones in the hands of 8,000 ground crew members could improve efficiency and safety. China Eastern Airlines now uses a real-time dispatch process to service an airplane with the right combination of staff to handle all the tasks when it actually arrives at the gate. After completing the service, the staff members update the status on their smartphones and declare their availability for the next flight. According to Kevin, "mobile changes the timing of every job. We still have to roster staff on shifts, but we don't have to program them for the entire day, not even every hour of the day. We allocate staff in real time."

Kevin didn't stop with the ground crew app. He implemented a similar system for maintenance staff, so China Eastern now knows exactly how long a maintenance task took. This information is a rich database they can analyze to find and fix ongoing problems to minimize the time a plane spends on the ground.

Today, China Eastern has 300 mobile apps across every part of its business: marketing and sales, in-cabin and on-ground service, flight operations, engineering and maintenance, and back-office tasks. Kevin says, "The demand for mobile services continues to pour in. We have a road map for the next three years. It's a business transformation. We always start with the process, not the app."

What China Eastern learned about field workers applies to many other workers that would not be traditionally considered "information workers." In manufacturing, a shop floor worker may use a tablet to program a machine tool for a specific task. A repair technician working in the cockpit of a Caterpillar D7 bulldozer can inspect the 3D manufacturing drawings to identify a problem in a hidden control linkage using a Siemens computer-aided-design tool running on a tablet.

When mobile employees are also information workers, they can bring the full power of your business information and systems outward to serve customers and inward to improve your process and operations.

Just as computers and the Internet flattened organizations by making it easy for information workers to communicate and exchange information, mobile devices and wireless networks extend that power to every employee. As a result, the traditional responsibilities of a command and control hierarchy will continue to change, as we've seen in disaster relief with APAN and with restaurant workers at Tijuana Flats. This is a good outcome for you because it puts more of your empowered workforce in a position to work directly and collaboratively together.

We've shown you how to serve employees in their mobile moments. Now that we have laid the foundation for the mobile mind shift in your business, we will show you how to engineer your business platforms, processes, and people. In chapter 10, we will tell you how to engineer your technology platforms for mobile moments.

10

The Platform Shift

Mobile Moments Require a New Technology Strategy

Imagine you sell men's suits at Nordstrom. You've spent years building relationships with customers who value your opinion on the latest Canali jacket cuts and silk ties. But now, instead of chatting with you about ties while waiting for a fitting, your customer fills that time checking on everything on his mobile phone—and continues to do so during the checkout process. You've lost your opportunity to connect with that customer.

Nordstrom's mission is service, selection, quality, and value. Making customers wait in line at the counter isn't fulfilling any part of that mission. But since 1901, when Nordstrom was founded as a shoe store on a misty Seattle street, waiting in line has been the only way to complete a sale. Until one day when it wasn't.

In the mobile mind shift, store associates expect to have the critical information about customers and products right at the point of service where it matters most. If Nordstrom could build a mobile point-of-sale system with that valuable information, store associates could improve the customer experience—and maybe business performance as well—by remaining connected to a customer throughout each interaction.

In 2010, Nordstrom initiated a mobile checkout project for these aims, hoping to launch in time for Nordstrom's summer anniversary

sale just eight months away. It was a daunting task, but one that John Mayfield, a 30-year technology veteran and a vice president in Nordstrom's IT group, felt ready to help solve.

For decades, Nordstrom has viewed technology—like financial tracking, inventory management, and staff time sheets—as a cost of doing business. As John puts it, "we're a fashion retailer, not a technology company." Mobile checkout would require something new: an investment in new technology that could better serve customers when, where, and how they like to shop.

We described mobile checkout for Alex and Ani in chapter 2. But in the case of Nordstrom, keep in mind that we're talking about a 112-year old company with technology systems built up over many years, not a retail startup building from scratch. What happened at Nordstrom was surprising, even to John Mayfield: A single mobile app triggered a mind shift in how Nordstrom views the risk of new technology investments.

With the full support of leadership, Nordstrom and its technology development partners engineered and delivered 6,000 mobile point-of-sale devices to employees in 117 stores in time for the July anniversary sale event. The company needed to put mobile devices into store employees' hands so those workers could check out customers anywhere in the store, whether in a fitting room, while considering one last pair of shoes, or while relaxing on a bench after a hard day's shopping.

Nordstrom uses Apple iPod devices encased with a credit card reader from Infinite Peripherals for the employee application. Nordstrom manages the iPod devices with software from a startup called MobileIron. The devices use Wi-Fi that Nordstrom had already been deploying for customer use. But don't forget the hard part: engineering the systems that drive the application. Nordstrom hired Infosys to tie in its existing transaction and point-of-sale systems to accomplish that goal.

If that seems like a lot work, it was. But it was worth it. In Nordstrom's Q2 2012 financial results, the company pointed to a 15.3% rise in same-store revenues compared with the year before.[1]

Better in-store customer service and experience through the mobile-enabled workforce was critical.

Nordstrom set out to arm its sales staff with mobile devices, but ended up building a platform for a new way of doing business. According to John, "everything changed: people, culture, risk, process, tools, and technology. We changed our mindset: It's okay to move faster and take more risk." It wasn't just Nordstrom's customers that were making the mobile mind shift. It was the executive team and the whole company.

Four Technology Requirements of Great Mobile Moments

Why did "everything change" at Nordstrom with the advent of the mobile point-of-sale system? In particular, why did the approach to technology change? At Nordstrom, and at every company we've seen win a mobile moment, the technical staff used a new set of technologies that are markedly different from the investments companies had made to that point. The technology experts in these companies keep four principles in mind to win the mobile moment.

First, the application must be *intuitive* to a first-time user. The design thinking starts with a human interaction, not a database. The goal is to help someone accomplish something immediately and with no training. This takes a very different mindset and an entirely new approach to putting information and transactions into people's hands. It starts with a deep understanding of a person and his context, as we described in chapter 2 and chapter 3.

Second, the application is *task-oriented*. It must deliver just enough information and action buttons to help someone take the next step. A mobile moment is brief and purposeful. To enable success in this moment, the data and business process must be "atomized" to serve up only what's needed at that moment. No extra clicks and no wading through screens and data fields to accomplish the goal.

Third, the experience must be served in a customer's *context*. Because you know where someone is and a lot about his preferences and previous actions, you can spoon up information to help him take the next most likely step on his way. This information, content, or insight may come from your internal systems, or it may come from a business partner or a service provider like Google or Adobe.

Fourth, the technology platform needs to *flex and scale* to the demands of the customer's schedule and expectations. There is an inherent volatility with technology in the hands of customers. They use the apps at all hours of the day; they do not schedule upgrades months in advance. This leads to spikes in demand and usage.

Your Technology Isn't Ready for the Mobile Mind Shift and its Unintended Consequences

For 30 years, companies have been building the technology systems to power PCs on employees' desks and then websites on customers' PCs. They built software to connect these tools to the big corporate systems of record that manage things like inventory and customer records. The result of all this activity, in most large companies, is a technological chaos of complexity, redundancy, and antiquity. *It's not ready for the mobile mind shift*.

The technology you invested in to power PCs and the Web won't stretch to handle mobile moments.

Your complex transaction systems aren't designed to deliver simple mobile experiences. These systems were built for employees sitting at desks all day tending complex processes, not for casual customers taking action in seconds on a mobile device over a spotty wireless network. They don't handle the intuitive, task-oriented, contextual requirements of an app used in a mobile moment.

Your technology capacity won't handle the surge in transaction volume. Your systems are designed for a placid and predictable load. Successful mobile applications can drive a tenfold increase in logins and transactions. USAA had to extend and re-extend its capacity because its mobile app generated six times the transactions

than the company had expected.[2] Can your systems handle the demands? One banking CIO fears a meltdown in the core transaction systems of the bank should the stock market tank.

Your separate applications will make it hard to deliver new services. For example, if your customer database is disconnected from your inventory and order management systems, you can't customize an offer or a price based on a customer's loyalty and preferences.

Your content systems and processes will hold you back as you stretch them into new engagement scenarios. In the mobile mind shift, people won't wait for your web content to download, and they won't tolerate a clunky content experience.

Your siloed data will fail to address the real-time demands of engagement analytics. In the mobile mind shift, analytics can't be an afterthought—it must be built into the entire system of engagement.

These unintended consequences can sink your mobile moments. The mobile mind shift demands innovation. The complexity of your current business applications and legacy technology architectures won't support that innovation. You need a new technology approach, one designed for mobile moments.

CASE STUDY: Concur Engages Business Travelers on a Cloud Technology Platform

Steve Singh knows about the challenges of building technology platforms for great mobile moments. He learned them honestly by moving his entire company and its customers to a cloud technology platform.

Steve is CEO and co-founder of Concur Technologies. Concur helps businesses and government agencies manage their corporate travel bookings and expenses. Concur's technology platform, which Steve calls the Concur Travel and Expense Cloud, is designed for the demands of mobile moments: It supports applications that make it easy for travelers to focus on a few tasks and complete them

quickly. Travel and expense (T&E) software is by its nature complex, but at Concur, the complexity remains behind the scenes in the servers, not in the user interface because busy travelers and business expense managers have no time to puzzle out complexity. To make this work, Concur invests 40% of its research and development budget in the applications and 60% in the cloud technology platform that provides the services.

The success of the strategy and technology platform is reflected in the rapid growth of his company, from a startup in 1993 to more than $540 million in revenues in 2013.

Concur's cloud technology platform delivers four benefits. First, because the Concur software running in the cloud is the same for every customer, developers working on it can fix problems continuously and roll out new services daily. Second, the Concur service is integrated with a wide range and growing list of travel providers such as airlines, hotels, car services, and trains to deliver a complete travel experience. Third, Concur's cloud platform is ready to meet the spikes in demand that happen when weather turns stormy and delays cripple the air travel system. Finally, this modern T&E cloud prepared Concur for the needs of business travelers—the most mobile people on the planet.

Concur layers business traveler and expense management apps on the front end of all that sophisticated cloud technology. Today, Concur's T&E Cloud integrates with dozens of apps, both from Concur itself and from third parties. With all those apps and clients using the T&E Cloud, Concur has access to a lot of data. The company has baked data analytics deeply into its platform and strategy. The travel and expense data spun off the 20 million business travelers it serves gives Concur a powerful analytics engine to help managers optimize expenses and personalize the travel experience across the entire travel ecosystem.

One of the most popular apps that integrates with the T&E cloud is TripIt, a popular mobile-first app that help travelers manage their itinerary on the go, get to the right gate, rebook on alternative flights when faced with a travel delay, and even change their ticket

to save money when TripIt alerts them to a cheaper fare. TripIt has almost 10 million users today, and that number continues to grow.

Steve liked TripIt so much that he bought the company. With the T&E Cloud behind TripIt's user base and interface, he knew he could grow and improve the app and its capabilities.

Concur needed both halves of the technology to get things right—sophisticated and complex software and analytics running in the cloud and simple, speedy apps in the palms of a traveler. But it's the T&E Cloud powering the whole system that makes the difference. Great mobile moments can only happen when they're built on a powerful, continually improving platform like this.

The Mobile Mind Shift Demands a New Technology Approach

As Steve Singh and John Mayfield discovered, the technology that companies use now was never engineered to serve customers in their mobile moments. John C. McCarthy, a Forrester analyst who has been studying corporate information systems for more than 25 years, says, "If you want to succeed in mobile, you need to build a whole new digital platform." In the mobile mind shift, you will need a radical overhaul of your entire approach to technology (see Table 10-1).

Both Concur and Nordstrom have learned that mobile requires investments in the systems of engagement that focus on people and their context and tasks, not on internal processes or databases.

The technology platforms for mobile moments are different from the traditional systems of record that companies use to run their businesses. Systems of record, the transaction systems that companies use to manage their back office and core operations like Nordstrom's inventory system or American Airlines' reservation system, were designed to be rock-solid indicators of truth in a business. But these systems—and the business processes they support—are *not* optimized for the speedy, frequent, and granular tasks that people with mobile devices demand.

Table 10-1: The Mobile Mind Shift Will Drive a Radical Change in Your Technology

	In the PC and web eras	In the mobile mind shift
What does the technology do?	Help office employees and committed customers serve themselves on a PC or browser	Proactively serve customers and employees in their immediate context and moments of need
When do you care about technology?	As an afterthought to your business requirements	Throughout a project because technology is a critical enabler and component of the execution
Who is responsible for the technology?	Your IT department	Your technology management organization and employees in business groups
Where does the software run?	On servers and software in your datacenter	Increasingly, as software services on cloud platforms run by other providers

In contrast, mobile apps focus on people, not internal processes. They draw on mobile, social, cloud, and analytics technology to deliver service directly into a customer's context. Google Now can warn that you will miss the train unless you walk a little faster down Park Avenue. That takes technology that can deliver on what a customer expects on his mobile device. And that means a fast response on any mobile device, on any network, in any context.

Elements of Technology Strategy for Mobile Moments

Building a mobile app and grafting it onto your existing transaction systems won't close the engagement gap. To win the

mobile moment with its unique requirements, business executives and technology managers must fund, create, and manage a next-generation technology platform to deliver engaging experiences in a mobile moment. Four elements form the foundation of that strategy: 1) master a slew of new engagement technologies; 2) build a cloud-based integration and delivery platform; 3) simplify retrieving data from your existing transaction systems; and 4) implement a comprehensive analytics capability.

New Engagement Technologies

For years, your company has been investing in some of the technologies behind mobile moments, like cloud delivery and mobile apps. Other technologies are brand new. Still others are emerging. They all gain new importance in the mobile mind shift because you must stitch them together to deliver the best service possible in a mobile moment. Here's a list:

- **Devices**. Device sensors and radios generate a deluge of data about what someone is doing. You can know someone's retail location or even what aisle he's standing in, as long as you've earned his trust so he shares that information with you. Bluetooth and Wi-Fi connections make it easy to extend the data a device can gather through wearables or connected products like the Nest Learning Thermostat.
- **Mobile apps**. Mobile apps excel at interactive experiences on devices. With an app, you can offer your customers deeply engaging experiences, even if they are offline away from a wireless network. The million apps in the app store will become 10 million apps as the mobile mind shift really kicks in.
- **Mobile websites**. Mobile web interfaces are a welcome mat for customers visiting from any smartphone or tablet. If you don't know what kind of device someone is using, or if you expect your engagement model to be discovery and occasional use, then a mobile website may be preferable to an app.
- **Content management and delivery systems**. In the mobile mind shift, you will have to optimize content and content

delivery to a huge variety of devices and networks. Already around half the traffic to sites like ESPN.com, BBC.com, and NYTimes.com comes from mobile devices and apps of all kinds.[3] You will need a new content system to handle the complexity and more granular view of content components that are assembled on the fly.

- **Social network links**. Real life is social. Mobile moments exist in a social context. A mobile engagement that lacks social sharing is incomplete. For example, TripIt gives you the option to post updates into your Facebook or LinkedIn network, or you can use the app to share travel information with your family, friends, and colleagues directly.
- **Feedback**. You would rather be able to help someone in his moment of need than have him snarl his disappointment in a tweet. For consumers and business customers alike you will need a way to find out what's working and chat with customers who need help. Amazon is a gold standard here with its Mayday video chat in the Kindle Fire tablet.

A Cloud-Based Integration and Delivery Platform

Mastering the technology is not enough. You also need a better way to deliver service. To deliver speedy service over that last "mobile mile" of a wireless network in a system integrated with both internal systems and external partners, you must invest in a new architecture for your mobile platform. That architecture includes these elements:

- **Engagement platform**. The software platform to operate the Web needed three tiers: a browser, application server, and database. Mobile delivery demands a more complex four-tier software architecture that we call an "engagement platform."[4] Forrester analyst, Michael Facemire has this advice for CIOs: "Adopt this new four-tier engagement architecture and hand your business leaders a guarantee that the technology will

support the demands of the mobile moment. Reject it and watch your brand fail under the mobile load."

- **Cloud delivery**. You can't deliver a snappy mobile experience if the data sits on a server on your corporate network. The direct Internet connections that cloud providers offer are your best insurance against a bogged-down experience. As a bonus, cloud providers take care of operations and can handle big swings in demand.
- **Third-party services**. You can't possibly host all the software services you need to create a valuable, intuitive mobile experience. You will instead rely on location services, analytics, mapping, and payment services that are easy to link up with. TripIt integrates with more than 2,000 third-party services through its open APIs.

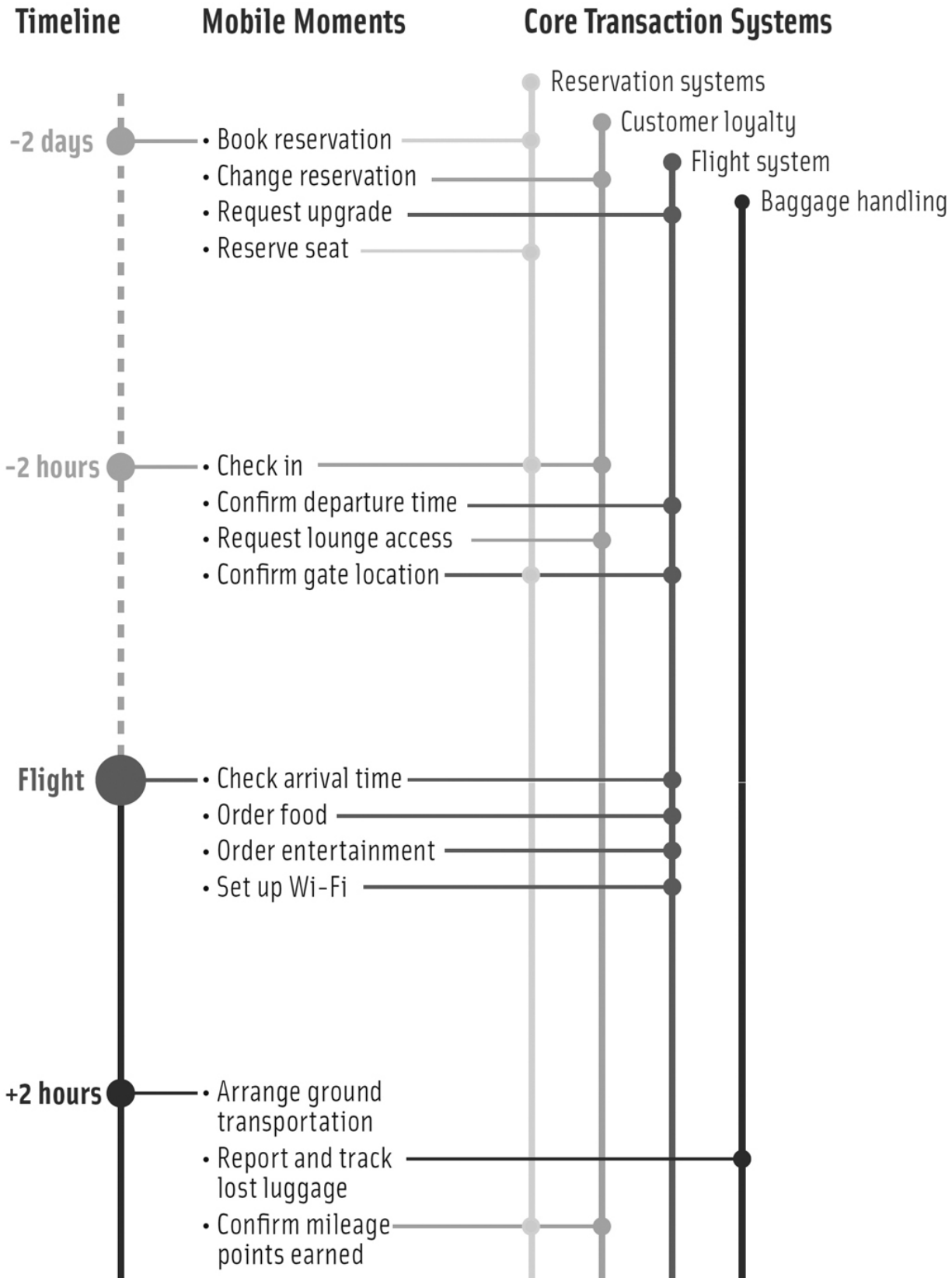
Simplify Your Existing Transaction Systems and Improve Access to the Data

We've described new technologies and architecture—what about the data they connect with? The third component of the mobile technology strategy requires you to simplify your core transaction systems and improve the access to your data. In the airline industry, for example, core transaction systems like reservation systems and loyalty databases are the backbone of the business. They run on mainframe computers that are as risky to touch as the white-hot core of a nuclear reactor. But they also hold the information that travelers need in their mobile moments (see Figure 10-1).

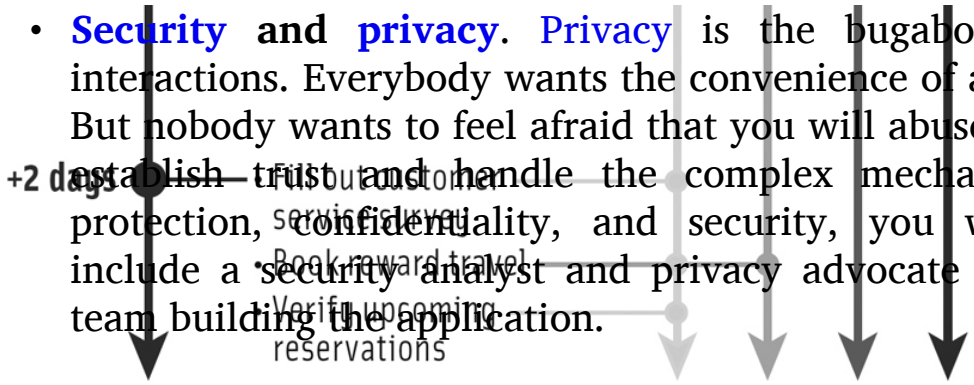
This is why the Engineer phase of the IDEA cycle is so important (and why the cost is so high): These are the systems that make it possible to accomplish something in a mobile moment. And that's expensive; one major consumer brand has asked the board of directors for $150 million to build an "engagement services layer" to support mobile moments. Like that company, you will need to invest in:

- **Atomized processes**. Avon recently wrote off $125 million in a failed implementation of an order management system to support mobile sales.[5] It failed because the sales staff—which, in the case of Avon, are your friends and neighbors—found it too clunky to use on a tablet at the dining room table. One big problem was the mismatch between the complex system of record and the tiny amount of information an Avon sales representative needs in that mobile moment. In the mobile mind shift, companies and the vendors who support them must atomize their complex systems into the bits of data and action that people need in a mobile moment.
- **API management**. It's impossible to extend your mobile engagement with new services unless you create APIs (application programming interfaces) to your back-end systems and put them in a catalogue for developers to use. These APIs provide access to the critical data customers need and let you rapidly assemble new services, offers, or applications without having to rewrite the individual pieces. Randy Tomlin, SVP of AT&T's 26,000 U-verse service reps, exclaims that APIs are "magical" because they make it easy to use the data everywhere.

Figure 10-1: Mobile Moments Require Data from Core Transaction Systems



- **Security and privacy**. Privacy is the bugaboo of mobile interactions. Everybody wants the convenience of a mobile app. But nobody wants to feel afraid that you will abuse his data. To establish trust and handle the complex mechanics of data protection, confidentiality, and security, you will need to include a security analyst and privacy advocate on the IDEA team building the application.



Before we introduce you to analytics, the critical fourth component on your mobile technology platform, let's see how one online real estate service company harnessed mobile analytics to significantly improve its business.

CASE STUDY: Chinese Realtor Anjuke Creates More Leads through Better Analytics

Anjuke's 80,000 Chinese real estate agents needed more leads. They don't get paid unless they sell houses or rent apartments, and that starts with leads from interested buyers. Some leads come in by telephone or office visits. But in mobile-crazy China, leads also come in over mobile devices.

Anjuke has offices in more than 30 cities. Leads from mobile apps and sites on smartphones and tablets are a growing part of its selling process. But there weren't enough leads coming in. Before turning the company's 100 mobile developers loose building new features, Anjuke needed to know which features would pay off. It needed to know what, when, where, and why shoppers click or don't click.

That problem fell to Philip Kuai, who runs Anjuke's product and mobile analytics group.

He started with ethnographic research to catalogue how consumers used Anjuke's service. Then he developed a set of hypotheses on what consumers really wanted to do in their mobile moments. For example, did they prefer a tablet or smartphone? App or site? Did they click more often when they were in the neighborhood than on an evening commute? Did they prefer to

swipe to see pictures of a listing or click a “next” button? At what times of day were listings most likely to convert to clicks and then to visits?

Philip instrumented the mobile apps and site to see what people were doing and develop a better understanding of their physical and emotional context. He also gathered data from the transaction system of record to improve Anjuke’s understanding of conversion rates, from click to lead to sale. Philip’s analytics team monitored every feature and button to see where the action is. He worked with the development teams to do A/B testing—testing two versions of the app to see which worked better.

Philip’s analytics team learned that location-based search is essential. If a prospective homebuyer is in a neighborhood, he will view at least five properties, far more than if he is on a train. So he improved location search.

The team also found that clicks were 10 times higher on a tablet app than on the tablet website. So it revised the mobile site with an app-like interface for the tablet website. That increased conversion on the tablet site by 200%.

Sometimes you have to be clever to understand what analytics tell you. As Philip told us: “We ran into a problem we couldn’t figure out at first. We knew mobile traffic was high in the evenings especially during the evening commute, but our conversions were lower. It didn’t make sense.” Philips’ team dug into the analytics and discovered a simple, but profound insight: There were 20% fewer listings in the evening *and* they were lower quality listings. Why? Because ads that get clicked a lot cost more for the agents. When they hit a daily threshold set by the listing agent, they are automatically taken down. So the most attractive listings were being “turned off” in the evening. Anjuke rebalanced its pricing model to keep higher value listings on the site longer.

Using all this data to revise the application worked out better than even Philip could have expected. In Q2 2013, the combination of mobile phone and tablet traffic was 33% of the total traffic to the service. Six months later, more than 50% of Anjuke’s traffic originates on mobile phones and tablets.

Analytics Is the Fourth Component of Your Technology Platform

All of Anjuke's insights came from implementing a comprehensive analytics capability in both the front-end apps and sites and the back-end systems. The data that spins off of a mobile moment—who is doing what from which location for how long—lets you look into the mobile moments and decode the mystery within.

Mobile analytics delivers four benefits. You can use the data you gather in real time to personalize the content you send to an individual or change the next information they see. You can track what's going on with all your customers at that very moment. Your IDEA team can monitor the uptime and performance of the app to intervene when it turns sluggish. And your analytics team can mine the database for new insights, as Anjuke did. These benefits come from implementing two essential technology elements:

- **Data capture**. Start by "instrumenting" the mobile app and technology platform to capture the data you need to know what's going on, from logins and response times on various mobile device types to content and transactions accessed. This "who/what/when/where" data is invaluable for monitoring what's going on in real time and tracking trend lines that will lead you to build better apps or upgrade back-end capabilities. Your application is not ready to deploy until you're ready to capture this operational and engagement data. Established vendors like Adobe, Google, IBM, and startups like Factual and Mixpanel can help here with cloud services.
- **Predictive analytics**. Once you've captured data, you can harness it to improve the mobile moment through better offers, customized interfaces, and smarter design choices about what functionality to expose where. This is where data scientists—people that can unearth the stories buried in data—play a crucial role. At Microsoft's Yammer, professionals skilled at data analysis provide an independent perspective on which mobile app capabilities work best and why. It's too early to

prescribe a recipe for success with predictive analytics, but there is enough evidence from companies like Amazon, Google, and Netflix to show that this developing technology will be essential to winning in the mobile moment.

The ClO's New Mandate: Champion the Technology Platform That Supports Mobile

You cannot possibly engage customers in their immediate context in their moments of need without the right technology platform in place. Someone must step up and provide that technology. That person is the business-focused CIO.

A business-focused CIO drives the shift in corporate technology departments away from operating "information technology" to managing "business technology" that helps companies win, serve, and retain customers.[6]

Your technology management organization must assemble the suppliers and technologies you need to support mobile, provide or source the designers and developers to build applications and APIs, and host and operate the system of engagement. We have compiled a short list of things to stop doing and start doing in your technology management organization to be ready for mobile moments (see Table 10-2).

Table 10-2: A ClO's Stop-Start List for the Mobile Mind Shift

Stop doing this	Start doing this	Examples of what to do
Stop counting exclusively on your own servers.	Start looking at cloud or SaaS providers with a deep commitment to your market.	Work with the cloud giants Amazon, Google, IBM, and Microsoft or a smaller cloud vendor.
Stop using waterfall	Start using agile techniques to build software applications.	Combine business, design, development,

development methods.		and operations people into small teams.
Stop insisting on building everything yourself.	Start looking outside your firm for solutions and best practices.	Work with new mobile engagement providers like Cynergy, Mobiquity, and SapientNitro.
Stop hiring pure IT leaders to run technology teams.	Start hiring business leaders with a passion for technology.	CIOs Diane Bryant at Intel and Rebecca Jacoby at Cisco came from business roles.
Stop investing in web-only architectures.	Start investing in four-tier engagement architectures.	Work more like Netflix, rather than using a closed technology stack like many eCommerce teams.
Stop treating analytics as an afterthought.	Start building data collection—and analysis—into your core engagement process.	Dish Networks uses analytics to look for ways to improve the field service of 11,000 technicians.

The Mobile Technology Platform Shift Requires a Big Budget

Engagement is expensive. That's why your marketing, sales, service, and product teams are funding engagement technology from their own budgets—because the CIO's discretionary budgets are insufficient to expand the firms' technology capability that fast.

How expensive is it to build systems of engagement that support mobile? Morgan Stanley plans a $400 million investment over 10 years. Nike expects to spend as much as $200 million over the same period. We've already mentioned the $300 million that Home Depot is investing. Even a simple booking app can cost a major hotel chain more than $5 million a year, without including the upgrades it needs to back-end systems of record. Add those in, and the cost could easily surpass $7 million in a single year.

As technology budgets go, those are pretty large investments. But a single sales executive can justify spending more than $30 million on mobile engagement because his staff touches customers. Would you have expected your head of sales to request a capital allocation for 16,000 iPads as one global pharmaceutical company recently did? When presented with the cost of provisioning those tablets with regulated content, applications, training, and service, the sales executive didn't balk. He had already spent almost $14 million on devices and data plans. His team carries a $48 billion sales number, so it was an easy decision for him to make to fund another $18 million in applications and support.

Table 10-3: The Cost of Mobile Engagement and Operations for an Employee App

	Cost in thousands of dollars	
	First year	Subsequent years
Supported staff	16,000 sales reps	16,000 sales reps
Tablets	$8,000	$4,000
Content system	$3,480	$3,480
Mobile data plans	$5,760	$5,760
Training and support	$1,920	$1,920
Sales application	$9,600	$9,600
Other business apps	$3,840	$3,840
Total annual cost	$32,600	$28,600

If the payoff of empowering 16,000 sales reps with a tablet app and interactive content fine-tuned for physician engagement is even a 1% increase in sales, that's $480 million in additional revenue for the company. That covers a lot of cost (see Table 10-3).

The point is that while the technology of engagement is expensive and out of the grasp of many CIO budgets, it's small change for a business executive trying to accelerate the company's growth by even 1% or save a percent or two in labor costs. Both of these

financial goals are a practical result of the investment in systems that power mobile moments. That's why it's important for business people and technology people to work together on the IDEA cycle. (We'll describe how the IDEA team works to generate these results in chapter 12.)

Because technology is embedded in your mobile engagement strategy and execution, it's the single most complex and transformational element of your systems shift. But it's not the only thing you'll have to overhaul to serve customers in the mobile mind shift. You will also need to engineer your business processes and the way your employees work, particularly those that directly touch customers. We'll look at that next in chapter 11.

11

The Process Shift

Transform Business Processes through Mobile Moments

Start with 11,000 field technicians. Give them a smartphone and a beautiful app. Will you improve your service?

Not if you still run your dispatch and service processes on paper work orders.

You need to redesign your business processes if you want mobile devices to make them more valuable. That's what Erik Carlson was determined to do.

Erik is executive vice president in charge of operations at Dish Network, a satellite TV operator serving 14.1 million subscribers across America. Field technicians are Dish's primary customer touch point. If a service engagement goes well, Dish looks good. And if it goes poorly—well, customers have long memories and plenty of neighbors to influence.

When Erik was asked to lead the field service organization, Dish was, as he puts it, "working with rocks and chisels," running the field service operation on paper and manual processes. Erik had little visibility into what was going on in the field. Every day, 11,000 field technicians would pick up a truck and paper work orders, then pull out the map book and get started. Once in the truck, the field tech was hard to reach. And if she faced a problem,

she was on her own. The result? Too many disappointed customers and too much overtime pay.

Erik needed a better way.

One day in 2008, Erik ran into Mike McClaskey, Dish Network's CIO, and a water cooler conversation turned into a "we invented fire" moment. They resolved to rethink Dish's entire approach to field service, empowering field technicians with a mobile device so they could complete the service efficiently on the first customer visit.

Mike and Erik started by installing push-to-talk phones, GPS location trackers, and ruggedized laptops with wireless Internet access cards into every truck. Their goal was to put all the information a field technician needs—customer information, installation details, and service transactions—into the tech's hands on the job. They were off and running.

But after a few years, the implementation ran into snags. Why? Because laptops aren't really mobile devices, they're portable computers. Technicians left the laptops in the trucks where they did nothing to improve the interactions with customers. There were no mobile moments.

Four years later, they found a better solution in the Samsung Galaxy Note, a smartphone with a screen big enough to show all the information a field tech needs but small enough to fit into a uniform pocket. They also implemented a new dispatch and service system from a cloud platform vendor called TOA Technologies. Because TOA's technology platform ran in the cloud, it was relatively easy to connect to the new Samsung phones, and Mike could deploy and secure it over AT&T or Verizon's networks.

Technicians with these new phones transformed field processes, surpassing all expectations. With the upgraded system and the new mobile devices, Erik and Mike improved productivity—the number of visits per day—by 10%. And they did it with 15% less overtime cost. They replaced three devices and a $2,500 toolkit with a single $200 Android phone. They also eliminated 5% in fuel costs through TOA's intelligent route planning. Because technicians could do more on their own with the information right there on their smartphones,

there were fewer calls to the office and Dish was able to cut the back-office field service staff by two-thirds. And best of all, they significantly upgraded the one personal experience that customers have with Dish: the home visit.

Better service is great. But sales are even better. Erik's empowered team of field technicians now sells new services while on the job—hanging a TV on the wall, fixing a Wi-Fi problem, or installing a new speaker system, for example.

How did Dish Network achieve all these benefits—higher productivity, lower cost of operations, better customer engagement, and service upsell opportunities? By redesigning its field service process around more productive mobile moments.

How the IDEA Cycle Applies to Business Processes

Although Erik and Mike wouldn't have described it that way, they were using the IDEA cycle to progressively improve Dish Network's field service. In doing so, they found a new way to accelerate and improve complex processes. They didn't just automate the old process. They redesigned the process to take advantage of mobile technology and systems. The secret? Using mobile moments to simplify tasks dramatically (see Figure 11-1).

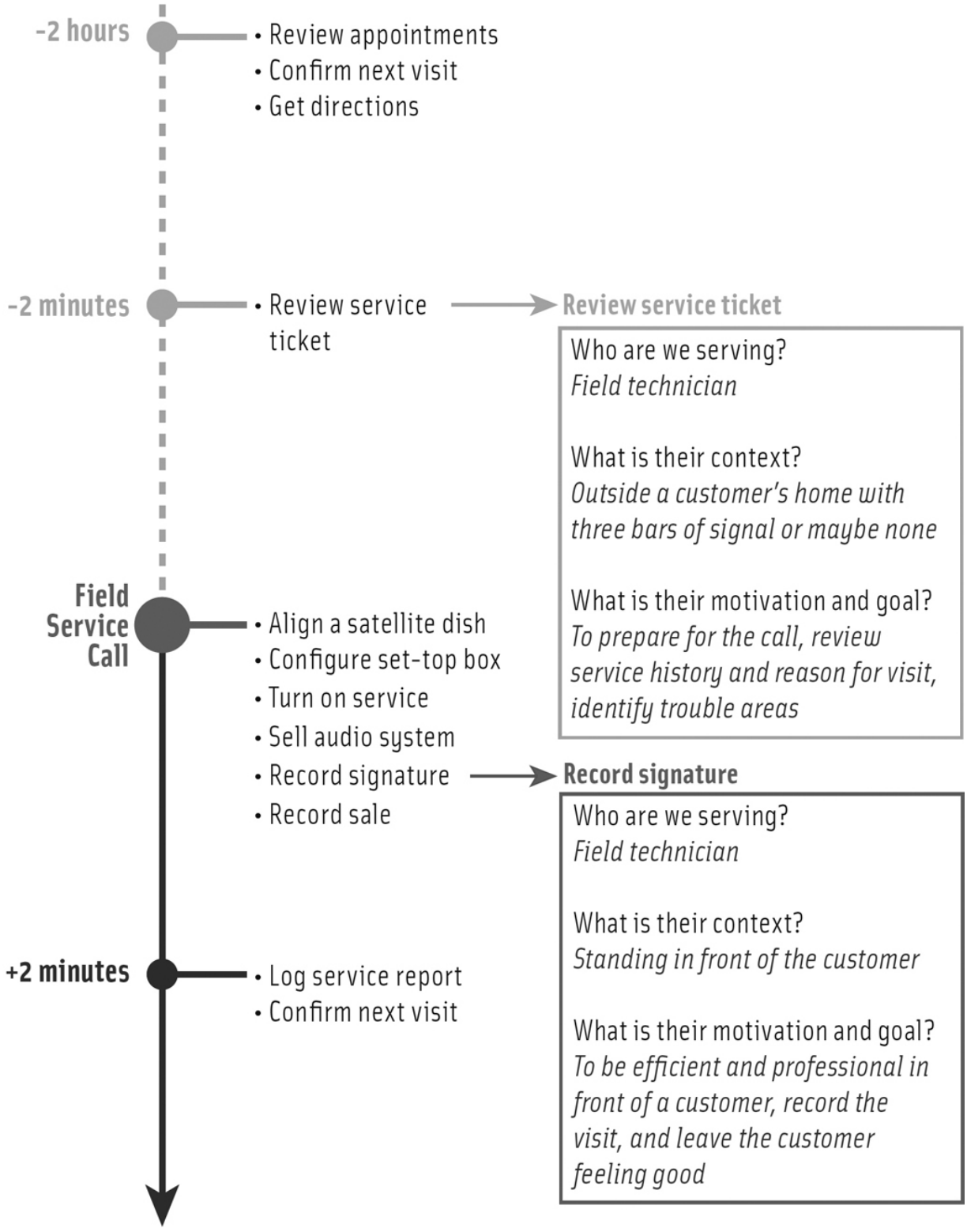
Companies will spend $189 billion over the next seven years to redesign business processes for the mobile mind shift.[1] Any time an employee engages a customer, she is fulfilling a step in some business process: retail checkout, business sales meeting, store inspection, field service event, and so on. These employees are part of the mobile mind shift. They are ready to act in their moments of need at work, too. You just need to support them with the right platforms and processes. Just as mobile customer applications can make customers happier and more loyal, mobile employee applications can make workers and processes more effective and efficient. And as we saw with Dish, more effective and efficient processes usually lead not just to cost savings, but also to better customer experiences. For Dish, this meant a steady and impressive

rise to the top of the TV service provider category in the Forrester Customer Experience Index, with scores increasing from 56 in 2010 to 74 in 2014.[2]

In previous chapters, we've concentrated on how to use the IDEA cycle with customers and your workforce. We've talked about identifying mobile moments, designing mobile engagement, engineering new mobile solutions, and analyzing results—and how to repeat the cycle for a steady stream of improvements.

The process is similar when redesigning processes. Here's what the four steps look like for a process application.

Figure 11-1: Plotting Mobile Moments for a Dish Network Field Technician



1. **Identify the mobile moments embedded in each process**. Reconceive the entire process. Throw out the old notions of how the process works. Think outside-in. Any time an employee could pull out a mobile device to take action or act with confidence is an opportunity for a mobile moment. Just as with customer apps, knowing the physical and situational context of the moment will help you simplify and accelerate the task and thereby transform the process.
2. **Design the mobile engagement to improve each task**. What can an employee accomplish in the mobile moment? What actions or information would empower an employee to take action? Just as with customer apps, an employee needs just the right information and functionality to take the next step.
3. **Engineer your systems to take action in each mobile moment**. Just as with customer apps, you need to align your back-office processes and technology platforms to serve the mobile moment. You will have to "atomize" your business process: break it up into discrete components that accomplish a single goal with the fewest clicks.[3]
4. **Analyze data in real time to make it immediately useful**. With a customer app, you need real-time data so you can customize an offer or deliver a better experience. For employee apps, real-time data makes it possible to give managers a data dashboard showing the current situation with employees and their work. If trouble is brewing, a manager can intervene in just that place.

In the rest of this chapter, we'll show how the steps in the IDEA cycle work in the context of corporate processes like sales, inspections, and field service.

Identify the Mobile Moments Embedded in Each Process

Erik and Mike at Dish Network started with the tasks a technician does every day and worked backward. What does a technician need after pulling up at a house? Or while up on the roof? Or with a customer? Erik, Mike, and their teams rode around with field technicians and climbed up on rooftops to find the moments of engagement that make or break customer visits.

They looked for ways to inject digital intelligence into every physical task. As a result of the insights they gleaned by analyzing their technicians' processes, they made it possible for technicians to get the customer to sign for completed work, right on the screen of the smartphone. Technicians can pull up an arcane configuration sequence for a new set-top box or point the phone at the sky to line up the dish antenna with a satellite. They can even use Google Translate to communicate in a foreign language if needed. Erik and Mike went further to ask what steps in the process they could eliminate. If a technician can now complete a task in the field, what other steps—or people—does that make redundant?

You can do the same thing. Bring your mobile process IDEA team together to explore the universe of possible moments by looking at the tasks on a process timeline: before, during, and after the service. Be sure to include representatives of your own equivalent of a field technician as well as your technical, business, and design staff. Answer three questions to make sure you've considered all possible mobile moments:

1. **Where can we simplify a task by eliminating manual steps?** Dish field technicians can capture and log a customer approval signature on their Samsung devices, so they don't have to file paperwork in the evening and Dish can turn on the service immediately. Any time someone has to pass a piece of paper to someone else or sit down at a computer to enter information is a potential mobile moment. For example, Trax, an audit and shelf monitoring solution, enables CPG sales employees to check compliance and report non-adherence from the aisle of a grocery store with one click. The employees can prepare and

follow up immediately on a mobile device rather than in a manual step on a computer that evening.

2. **Where can we streamline a process by completing a task in a mobile moment?** A Dish Network technician can align a dish antenna with a satellite by using the DishPointer virtual reality app, even with the wrench still in hand. That can save a trip back to the truck to pull out the field manual. The technician can also pull up the information to deal with a complex configuration right from the basement control panel. These resources help complete an installation on the first visit. Similarly, a technician working atop a GE wind turbine tower can use video chat to show an engineer back at the shop the problem, often eliminating the need to traipse 350 ladder rungs back down to the truck.
3. **Where can we improve the engagement quality when employees serve customers?** Using mobile devices and apps, Erik Carlson at Dish empowers field technicians to sell service improvements on the spot, generating not just sales but also happier customers. Banner Engineering has done the same thing for its distributors' sales teams. With an iPad full of product information, a sales rep can immediately answer a customer's questions about how a new sensor will work on the manufacturing line. Giving employees the information they need to solve a customer's problem directly improves the quality of the engagement.

Design the Mobile Engagement to Improve Each Task

Once you've identified mobile moments, you need to design the engagement to help an employee accomplish a task immediately in the context of that moment. Dish accomplished this by working closely with TOA Technologies, its field service management technology platform supplier. Together, they pared back the information and action buttons they put on every screen to make it

as simple and intuitive as possible. Mike's goal was never to have to train a technician how to use the app.

He knew that technicians would leave the mobile device in the truck unless it fit in their pocket and was immediately useful. A useful application is designed to:

- **Take one action at a time**. This sounds simple, but what separates the efficiency of a mobile moment from the complexity of a typical process application is that with a mobile device, you can predict what an employee needs to do in that moment—capture a signature, aim a satellite dish antenna, or log a service update. Cynergy, for example, relentlessly refined tasks for an app it created for a major wireless company, making it drop-dead simple for a busy retail store associate to learn about a new service offering or see where she stands against her monthly quota.
- **Use context to eliminate keystrokes**. Because the app knows which customer a sales rep is visiting, it can automatically pull up the correct sales history. That's an example of using *customer context* to eliminate keystrokes. You can also use *physical context* to simplify an app. Using the GPS in a tablet, GE's wind turbine maintenance app knows which of the 200 turbines in the field a technician is standing next to. It uses the location information to pull up the right maintenance history. Use all the contextual information you have, but particularly the physical location and transaction history, to pull up the right information automatically.
- **Relentlessly improve the task experience**. Just because you've built the app doesn't mean that you've greatly improved the process or task completion rate. Even small changes can make or break a mobile moment. At one pharmaceutical company, for example, sales reps were uncomfortable at first pulling out the iPad to show a physician the clinical results because they found it hard to find the right material. When the IDEA team moved

all clinical results to a single place in the app, the problem vanished.

Engineer Your Platform to Serve Up One Task at a Time

We told you about systems of engagement in chapter 10. We're now going to describe how this technology platform helps you transform your business processes by serving up one task at a time.

Here's your challenge. If you work at a large company, you've probably got tens of thousands of employees who want access to your data systems to participate in the processes that make up their jobs. Consider the challenge of building the technology platform to support 11,000 field technicians at Dish Network or 19,000 flight attendants at Delta Air Lines.

Over the past 40 years, companies have spent trillions of dollars building complex applications for employees sitting in front of a computer. These applications are not designed for mobile. They're too complex. Employees on the go need just enough information and a single action button to complete the task, not complex screens and onerous data entry.[4] They've been trained by the five-star consumer apps that they use at home.

You will have to re-engineer the APIs to your core data systems to serve up just the right amount of data and action for each mobile moment. You need cloud platforms to serve information to a variety of devices faster, and you must also re-engineer the way the systems work together. If you just shrink down the web interface to tiny dimensions, you'll find the software can't deal with the demands of the mobile moment.

Let's take a look another field service example, because it is rich with insight into how to engineer the processes and platform for mobile moments.

Randy Tomlin, senior vice president of field operations for AT&T's TV, phone, and Internet service called U-verse, had to engineer an entirely different technology platform to help his 21,000 field technicians hit a two-hour time window for each customer visit.

Six years ago, Randy set out to revamp the technician-customer engagement to install broadband and television services. He wanted U-verse to "have the right moment with the right technician for every one of our 10 million customers." He knew that giving tablets to technicians was key to that mission. "We had to make it easy for a technician to initiate a step and have it cascade through six or eight back-end systems before coming back with a single answer."

The problem was those "six or eight back-end systems." That software wasn't designed to serve up tasks in a mobile moment. When he realized that software was the critical component of hitting the two-hour window, Randy decided that he had to become a technology guy. (Only a technology guy says things like, "we do all our testing in the cloud" and "I love APIs" and "innovation is now an ecosystem.") So he made friends with the technology department.

Randy and his new friends in the technology department broke the service process down into discrete tasks then stitched together what a tech needed in each mobile moment using new APIs: 23 of them for field technicians and three more for managers.

They also instrumented the entire process to collect data and gave field managers a data dashboard on an iPad with real-time status updates.

The results were phenomenal. U-verse now hits that two-hour window so often that field service is a major contributor to AT&T's success in television. U-verse TV was ranked highest in overall satisfaction in the North Central region where it operates, according to the J.D. Power 2013 US Residential Television Service Provider Satisfaction Study.[5] And it has gained so much efficiency that it can now make one additional service call every day. That means Randy can serve *15,000 more customers every day*. Not only that, by giving local managers tablets with real-time visibility into what's going on in the field, Randy's managers are saving *90 minutes per day* in manual tasks.

What should you take away from AT&T U-verse's engineering success with field service?

First, know that this is hard. Randy says that he is the North Star to keep everybody on track. Randy got support to upgrade the back-end systems to support the mobile apps from the very top of the organization.

Second, "atomize" your business processes into the discrete tasks. Don't let back-end complexity sap the life from your mobile employees. Simplify things by serving up just the information and actions they need in each moment.[6] Under the relentless redesign of mobile moments, processes become tasks (see Table 11-1).

Lastly, build software APIs that expose just what's needed in that moment. Each API handles a tiny slice of the process and handles it robustly over wireless networks.

Table 11-1: How Mobile Moments Turn Processes into Tasks

	Processes on a PC	Tasks on a mobile device
Assumption	An employee has minutes or hours to sit down and focus on the application.	An employee has a few seconds to accomplish a task on the go and move on.
Design goal	Give an employee a comprehensive application and train her to use it.	Help an employee complete a single task as efficiently as possible with no training whatsoever.
Device	Desktop or laptop computer with a dedicated application using a keyboard and mouse	Mobile device, often a small tablet or a large smartphone, with a touchscreen interface
Key challenge	Knit together multiple systems to cover a complete process in a comprehensive application.	Expose the tasks in discrete APIs that can be stitched together to serve a worker's immediate context.

Key technology	Business process management (BPM) and middleware	BPM and middleware plus APIs and analytics

Analyze Data in Real Time to Make It Immediately Useful

Here's how AT&T's Randy Tomlin describes the visibility that comes from his mobile-enabled workforce and how he can see problems developing as people go about their workday: "Of the 26,283 things happening that day across the nation, you can see the 200 hot spots where trouble is brewing. And as a manager, you can stop worrying about things because you can see trouble before it starts. That's a great improvement over the old technique of moving colored pins on a bulletin board back in each local dispatch center."

A business that works in real-time solves problems faster because managers can fix a problem as they see it forming on the horizon. When your employees are carrying mobile devices from task to task, you gain visibility from three sources of real-time data. First, location: You always know where your people are. Second, transactions: The system records each action; whether it's a Dish Network customer's signature or sales information sent to a Banner Engineering prospect, the system can serve up the next logical action to the employee. And third, usage data: The app records which activities and features are working and getting used and which are wasteful and need to be redesigned or scrapped.

All three sources of data yield immediate benefits if you put them into a data dashboard for your operations managers. But they also are valuable as databases you can mine to optimize a process over time. Dish Network, for example, collects location data to improve its service routes over time. Trane collects content analytics to prioritize its investments in marketing content.

You will have to work your way ever closer to the analytics competency that AT&T and Dish Network have achieved. If your sales force is skittish about being watched from afar, then you can't light up the analytics on where they are and what content they are

showing a customer on day one. You'll have to slowly earn their trust that you are collecting data to make things better for them. That's how things worked at Delta Air Lines, where flight attendants now have new tools to serve travelers in their mobile moments.

CASE STUDY: Making Delta Flight Attendants As Empowered As Their Customers

Like the other airlines we've described in this book, Delta decided to begin its mobile transformation with the traveler experience. As Bob Kupbens, vice president of marketing and digital commerce at Delta Air Lines, explains, "Now every bit of information available to our employees is also available to our customers in real time. You can confirm that your bag made it onto the plane. Or what carousel to find it on at your destination." To do this, Delta has opened up its transaction systems to its travelers. Today 90% of Delta customers traveling locally check in digitally, and nearly 20% check in on a mobile device.

Customer mobile applications have a curious side effect. Delta's customers are now smarter and in a better position to travel successfully. That puts new demands on customer-facing employees. So Delta expanded its mobile strategy to empower its highly mobile workforce. Delta gives baggage handlers a mobile scanner to track bags as they go up the belt into the belly of the plane. Its pilots carry a lightweight Microsoft Surface tablet with the operating manuals and flight paperwork that they formerly lugged around in 40-pound leather flight bags.

And in July 2013, Delta Air Lines gave 19,000 flight attendants Nokia smartphones. These devices help flight attendants serve 160 million travelers annually in the air and work more efficiently. With mobile technology, a Delta flight attendant can better engage an anxious traveler with information that eases her anxiety or solves a problem.

With the help of Avanade and AT&T, Delta is building three kinds of mobile apps to improve the everyday process of being an employee in the sky. First, the smartphone replaces the on-aircraft payment systems. Flight attendants use a familiar device and interface to take a passenger's credit card to pay for a beverage or a meal or an in-flight product.

Second, flight attendants get the same apps that travelers can get on their mobile device, enhanced with information for all connecting flights. This enables flight attendants to serve customers instantly with the same systems that power the customer apps.

Third, Delta has made common employee services available on the smartphone. This saves a flight attendant time. They can pull up shift information or ask another flight attendant for a swap wherever they are, including at 35,000 feet using the airplane's Wi-Fi.

There is a higher-order benefit to all these mobile applications: *A mobile device is a platform for service innovation*. Delta's advertising tag line is "Keep Climbing." It aims to deliver a quality travel experience to every traveler. So Delta plans to build more apps. For example, it might be able to marry the passenger manifest with the loyalty system, so a flight attendant could offer a personalized service, from a quick "Thank you, Mr. Schadler, for flying Delta," to "I see you travel with us frequently. Can I offer you a better seat or a complimentary beverage as a thank you for your loyalty?" Once it's all on a mobile device, higher levels of service become available in the palm of the flight attendant's hand.

Here's what Delta has really learned: One of the most powerful forces at work is the force of customer expectations. Once a customer's expectations are raised, the entire company must respond. Once Delta began investing in mobile customer apps, mobile employee apps became the next logical step.

Use Mobile Moments to Transform *All* Your Business Processes

Mobile enablement is not just about customer-facing processes.

From how we've described the changes at Delta, Dish, and AT&T, you might think employees that interact with customers are the main beneficiaries of mobile engagement. They are. But it doesn't have to stop there.

Any place an employee works away from a computer is a place where a mobile moment can transform a task. Let's look at four short examples to give you a sense of the range and comprehensiveness of mobile moments at work: training employees at restaurant chain Red Robin, capturing photographs of problems at Cisco Systems, handling in-store stocking and sales globally at Mondelēz International, and making chocolate at Tcho Ventures.

Red Robin Turns Tablets into a "Yummm University" To Train Employees

Red Robin Gourmet Burgers sold more than 16 million pounds of beef to 81.5 million guests in 2012. Running a restaurant efficiently at that scale means building systems that work well in every restaurant and for every employee. When Red Robin rolls out a new recipe or drink to 30,000 employees, it must make sure the new recipe tastes great in every restaurant.

Red Robin needs to train 500 new employees every week, and most of them are better acquainted with YouTube, Facebook, and iPhones than classrooms and manuals. To meet that challenge, Chris Laping, CIO and SVP of business transformation, needed a better training process, one that would appeal to younger employees used to learning on the fly.

For Chris, this felt like an opportunity made for tablets. On a tablet, Chris can serve up training materials and make learning a social and video-rich experience. He called the solution Yummm U. Using the Yummm U app, employees can learn in their downtime or when coming on board. They pull up videos that teach new techniques, interact with games and simulations, take quizzes to record progress, and ask questions of experts back at headquarters.

The tablet app helps new employees come quickly up to speed, and it gives veterans a quick way to learn a new process or technique. The program has been a huge success. Since launching the program, Red Robin has reduced turnover in the first critical month by 10%. But Chris isn't done yet. He just christened a program to encourage employees to make videos of their best ideas. His operations team will share the best videos with everybody and, in some cases, invite an employee to reshoot a video professionally to make it part of the training program.

Cisco Captures Photographic Evidence of Incidents and Facilities Problems with Smartphones

Cisco Systems has a large team of people dedicated to the physical security of its more than 75,000 employees and 23 million square feet of facilities. That's as much space as a small city, and Roger Biscay has to keep track of it all. Roger is not your typical facilities and security executive; he is Cisco's vice president, treasurer and global risk management, a former banker, and the executive responsible for Cisco's $47 billion in cash. In addition to taking care of all that cash, Roger also runs a very efficient global safety, security, and business resiliency operation helping protect Cisco's physical assets and 489 facilities worldwide.

One of the keys to that efficient operation is capturing pictures of incidents including attempted break-ins, vandalism, and other physical damage. Roger's global security team not only needs to take photos, it needs a secure place to store them where they will stand up to the scrutiny of a legal or insurance challenge.

The staffers on Roger's security team register their smartphones, then take photographs of problems with a certified mobile app from a vendor called EvidencePix. The app automatically uploads the photos with the right location data, time, and device information to EvidencePix's secure cloud. Once there, the photos remain in a tamperproof digital lock box until they are needed to file an insurance claim or address a legal challenge. Roger's security team

also uses the photo process to trigger a maintenance repair or even an escalation to Cisco's physical security force that handles building security.

Thanks to the app and the system behind it, what was once an ad hoc part of the security and facilities job is now a structured, policy-driven activity.

Mondelēz International Empowers Sales Teams Globally with Tablets

How do you grow faster if you sell Oreo cookies, Cadbury chocolate, and 50 other snack food brands in 165 countries?[7] How do you empower 45,000 people in your global sales force to sell efficiently into hundreds of thousands of individual retail outlets?

If you're Mondelēz International, the global snacks company formerly known as Kraft Foods, you replace a thousand separate sales operations with a single global sales process.

That's the challenge Mondelēz International's CIO, Mark Dajani, and his team are tackling. They have to figure out a way to put just the right information into the hands of sales reps at the mobile moment when they talk to the owner of a small retailer: what products, what sales history, what promotions, and so on. A tablet or smartphone with the right sales data and content is key to the solution.

Mark faces a challenge that AT&T and Dish Network don't: He needs a solution that works on any smartphone or tablet in any country globally. He can't buy every employee the same mobile device. And it has to run on any network: slow, fast, or missing. Mark has chosen to use cloud platforms for sales, email, content delivery, and analytics apps that work on every carrier's network in every country in which Mondelēz International does business. The core application is designed to support the key steps in a sales call performed by a rep in the field as she visits a retailer.

Mondelēz International is still early in this global sales process transformation, but it has seen early success in markets as diverse as

Indonesia, France, the United States, and Australia. For the first time, the company can set goals for each individual store and measure progress against those goals. By injecting the right information directly into mobile moments in the selling process, it can scale up the success it has with a few large retailers to every individual retailer.

With mobile devices and a technology platform in place, Mondelēz International can add training services, more analytics, catalogues of point-of-sale display units, and much more. As Mark says, "we are building a platform that takes work to where our people are every day. We are just getting started with this transformation."

Tcho Uses Mobile Moments to Improve Chocolate Quality from Farm to Factory

Tcho Ventures makes chocolate. Not just any chocolate. Heavenly chocolate for cooks and connoisseurs. From its perch on San Francisco's Pier 17, around the corner from Fisherman's Wharf, Tcho relentlessly improves the process for making chocolate, from growing and harvesting to producing and distributing, to create the most delicious and socially responsible chocolate possible. It had better. The competition for heavenly chocolate is unrelenting.

Chocolate maker Brad Kintzer uses mobile moments to improve the quality of Tcho's chocolate, from farmer's field to factory floor.

He improves chocolate at its source—on the trees in Ecuador, Peru, the Dominican Republic, and Ghana—by helping farmers build a tiny laboratory from readily accessible parts: a turkey roaster, a countertop coffee grinder, and thermometers. He and other Tcho chocolate makers then train farmers using Skype on a mobile device how to taste and test the quality of the cacao beans as they ferment and dry. Brad explains that "direct connectivity saves us a lot of time—the more we can articulate what we are looking for, the easier it is for us to purchase the right crop."

An essential element of the process is a cloud-hosted evaluation service from a company called Cropster designed to run on mobile devices. This service gives farmers in their home countries, like Peru, and Brad's team in San Francisco a way to work together, simultaneously monitoring fermentation parameters (during the process that turns raw beans into chocolaty flavor morsels) and tasting a particular cacao batch so the farmers learn to judge the right blend of chocolaty, fruity, citrus, acidic, and bitter characteristics.

Farmers using Tcho's test lab program have improved their growing and fermenting process so much that they beat out 125 Peruvian growers to earn the top five awards for chocolate quality in 2012.[8]

Brad loves mobile moments for a second reason: His chocolate makers can keep a watch over a 20-hour production process on their iPhones. Tcho employees can use an iPhone to control the company's lab with a remote monitoring and control application. The company connected thermometers to its chocolate grinders and added video cameras so chocolate makers can see what's happening in the lab. No longer does a chocolate maker have to drag herself into the factory at 2 a.m. just to check the viscosity of the chocolate slurry. Instead, she can roll over and in a mobile moment make a small adjustment based on the data collected over the past few hours. This data also enables Tcho to analyze and optimize the production process.

In this way, mobile devices bring information and control to where workers are: In the field, at the fermentation pavilion, in the lab, on the production floor, or home in bed. The result is better chocolate through better processes delivered in mobile moments.

Use Mobile Moments to Transform Business Processes

All the companies in this chapter have invested in mobile devices to improve how an employee works and how they work with customers. There is a lot of operational science behind process

redesign, and you can work with your process transformation team or pay consultants a lot of money to help you design efficient processes.[9] But before taking on that huge expense, you can get started simply by using the IDEA cycle and focusing on mobile moments. Keep four things in mind as you traverse the universe of possible apps you could build for employees executing the processes of the firm:

1. **Start with mobile moments: Where can you take direct action?** Business management author Michael Hammer famously decried: "Don't automate, obliterate."[10] He was thinking of how software systems could improve back-office processes. As we saw with Dish Network's satellite alignment and digital signature apps, an employee can take direct action on a mobile device. The hard work is identifying where a mobile device can help someone cut out steps and take immediate action. That's why ride-alongs, persona development, and closely observing people at work are so important.
2. **Consider the impact on your employees: Will they use the application?** You can't foist a crappy app on an employee and expect her to use it. So spend the time and money to design an app that completes the task in the simplest way possible. Use the mobile context to put the right data on the screen with no typing. If you use the device's location to accomplish that, employees will embrace your apps rather than resisting.
3. **Consider your technology platforms: Can they serve up discrete tasks?** Most systems are too complex for a mobile moment. We predict that as companies resurface transaction systems and implement new systems of record to drive them, corporate systems will undergo the biggest technology refresh in history. We will collectively spend $1.3 trillion, more than a third of the total technology economy in 2017, on mobile technology and systems.[11]

4. **Instrument the app for real-time visibility: What data do you need?** Collect and store more data than you think you will need just to get in the habit of analytics thinking. Once you develop the muscles for data analysis, you won't stop until you have a full dashboard with visibility into the current status and a dedicated team of data scientists to find patterns in the history that translate into efficiency (like route planning) or insight (as in knowing what kinds of field technicians sell the most services in the home).

Platforms and processes are just two parts of your engineering effort. The last major change you must navigate to win the mobile moment is how you build mobile apps and sites. In chapter 12, we will show you how major companies like ING Bank use agile development techniques and organize and manage people to build and continuously improve mobile apps and sites.

12

The People Shift

Engineer Mobile Moments with an IDEA Team

Max Mouwen has learned that the mobile mind shift is inexorable. His customers at ING Bank in the Netherlands expect more every single month. When Apple introduces a new iPhone or upgrades the look and feel of its operating system, customers expect that his mobile banking app will take advantage of the new features immediately. If a competitor lets people deposit a check by taking a picture of it, his customers wonder when they can do that, too.

It takes a relentlessly productive team to keep ahead of customers' expectations. It takes teams using an agile development process to continuously build, test, and deploy new capabilities.[1]

Agile development has transformed how Max's team builds applications for its banking customers. Max Mouwen has been the director of online banking at ING since 2011. In that time, the functionality of ING's consumer banking app has grown, from showing balances to making payments to tracking savings to viewing credit card transactions. In more than 5,000 ratings in the Apple App Store, the app has consistently averaged 4 or 4.5 stars. Max credits that success to the agile approach his team uses to make constant improvements.

Here's how the agile process works for ING's mobile app.

At ING, the agile team of twelve people building the mobile app is made up of developers, designers, and business people *working continuously together*. This close working relationship keeps the technology people highly aware of the business goals—in this case, to build banking services that keep customers coming back frequently on their mobile phones. It also keeps the business people in touch with the cost and complexity of designing and developing a mobile app with direct links to the bank's data and transaction systems. The combination of business and technology skills keeps the team focused and aligned.

ING's agile teams are supported by a steering committee of eBusiness, marketing, and technology directors that meets monthly. The mobile steering committee prioritizes the long and growing backlog of requests coming from every part of the bank, always focusing on banking services over marketing. The success of this strategy is reflected in two key metrics that ING has built into the application and process: 1) Mobile banking customers log into their accounts six times a week, three times as often as ING's web banking customers; and 2) those customers consistently rank ING higher than other customers do on Net Promoter Score.

Armed with a long list of prioritized requests, the agile team then breaks them down into sets of features they can develop and test in three-week time slices called "sprints." At the start of each sprint, the technology, design, and business people on the agile team, together, select just the features they can design, build, and test in three weeks. Before the team releases those features to customers, they get other employees to test the features. The big payoff of three-week time slices is that the team can rapidly deploy and *learn*. The team can minimize the time they spend building a feature that nobody likes. The mistakes are small and get fixed immediately; the successes are quickly noted and the team builds upon them.

Sometimes the team can't fully develop a feature in a few weeks. If the feature requires extensive changes to link into a back-end transaction system, the business people on the team understand that and are ready to scale back or reprioritize features while developers continue work on the back-end changes needed for the next round

of improvements. Some things just take more time; that is a fact of life that the business people on the agile team understand and support.

Finally, the team knows that the mobile app is only part of the engagement. To help a customer take action in his mobile moments, the bank must also engineer its *processes* for things like changing an address or processing a credit request. Like the technical teams, the customer process teams have adopted the agile playbook and are changing processes in three-week bursts. As Max explains, "We now use *business sprints* to quickly improve our customer processes." As a result, the mobile team and the business process team can coordinate their releases so the process is ready to go when customers first experience the moment. This is where the magic happens: technology people, designers, and business people come together to deliver a great service in a mobile moment.

Organize for Continuous Improvement

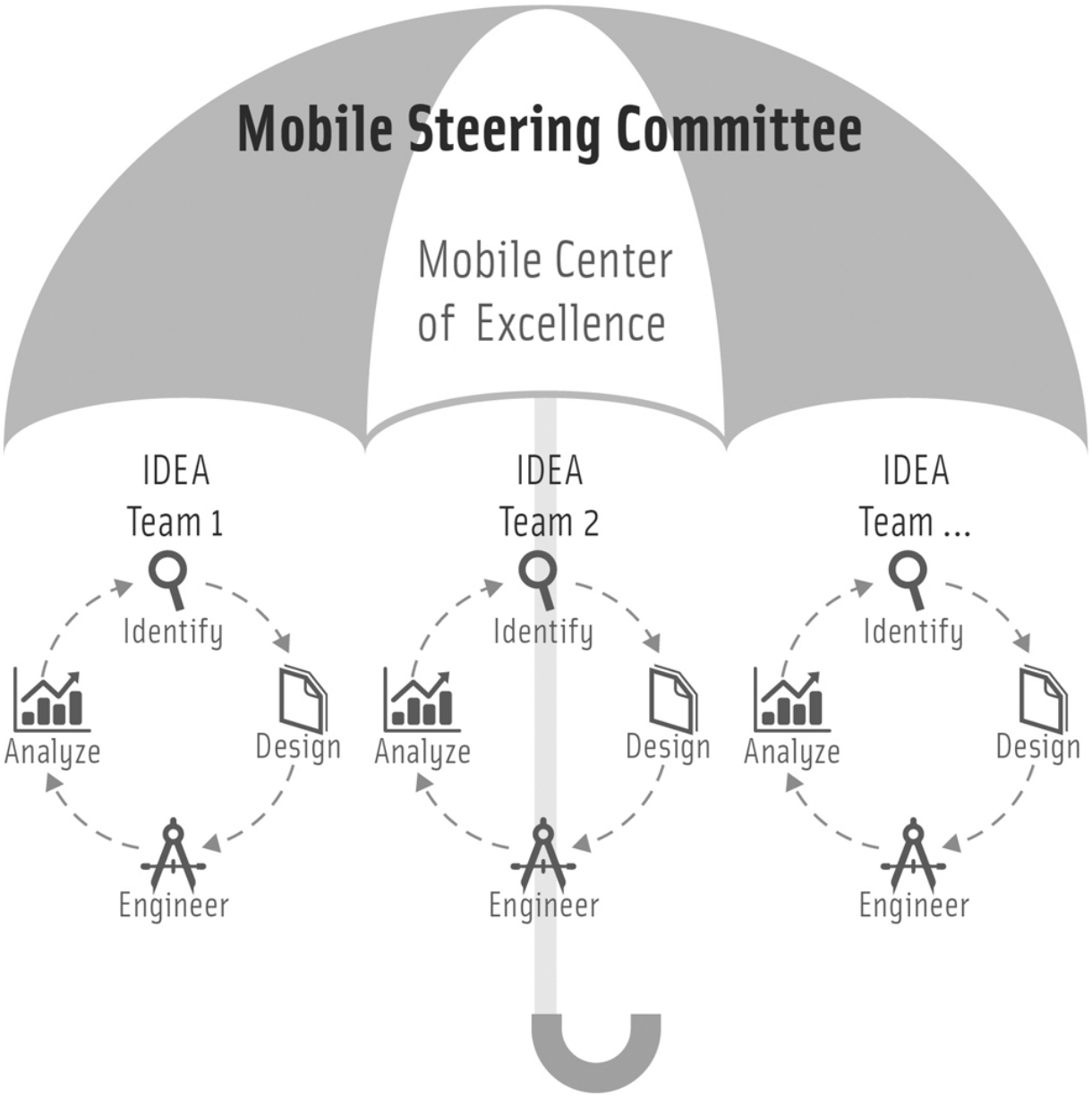
Just like Max, you're going to find that the mobile mind shift forces you to focus on relentlessly improving your app. Customers are constantly discovering new and valuable things to do on their mobile devices. They expand their mobile moments and expectations every time they notice a new app from an entrepreneur or new capabilities from Apple, Google, Microsoft, or device makers. What delighted your customers a few months ago becomes table stakes today and will be humdrum next year. You must deliver something quickly if you want to be there in your customers' mobile moments. But you must *also* continuously improve it with new capabilities based on new insight. That's the key to the IDEA cycle: a commitment to continuous improvement.

Jeffrey S. Hammond, a Forrester analyst who has been studying or practicing software development for more than 20 years, says, "Development velocity is the key to success. That's why successful mobile teams use development sprints, continuous delivery, and fast

feedback via analytics to give customers what they want, as fast as they possibly can."

The organizational unit that delivers this continuous improvement is an agile team of design, technology, and business people that develop apps together. There is not a single consistent way that companies organize to support their agile teams. But companies as diverse as ING Bank, InterContinental Hotels Group (IHG), Starbucks, Dish Network, and American Airlines all organize their people for mobile moments around three elements: IDEA teams, agile development methods, and a mobile steering committee (see Figure 12-1).

Figure 12-1: Setting Up Your Mobile Organization



The basic development unit is the *IDEA team* comprised of people from technology, design, business, and, sometimes, from partners helping with technology or with business elements. The core of the team is typically dedicated to a single mobile application for a year or more, though some people may be part time or come in for a quick contribution. Some IDEA teams have only five people, while some have 20; it depends on the scope of the effort. Team members

report to their functional managers but have dotted-line responsibility to the product owner. Many companies start with a single agile team focused on a mobile app and then find the organizational model so successful that they expand to other initiatives. ING Bank, for example, has 170 agile teams working across the company on different technology projects.

This team uses an *agile development process* to release new software every few weeks. Every successful mobile app we've encountered is built by a multidisciplinary team using agile development and delivery techniques. This process allows the team to develop, test, assess, and extend features continuously. (Developers call this continuous delivery.)[2] It also helps a company avoid a big mistake, which is to spend too much time and money on a feature that nobody uses but that some manager has staked his career on.

Because agile development is so important, we include it explicitly in our description of the IDEA cycle. To deliver great mobile moments that get better over time, you will use the agile technique to develop software and engineer your business operations, just as ING does.

The management decisions come from a *mobile steering committee* and its execution body, a *mobile center of excellence*. Because mobile touches so many lines of business, departments, and technology systems, you will need an executive leadership team to prioritize and coordinate the work across every business function and operation. And if your mobile strategy extends beyond an app or two, you will also need a mobile center of excellence to coordinate the skills, investments, and partnerships your company is developing.

While this may all sound daunting, we'll make it easier: In this chapter, we'll describe the new team, explain how it works, and define the leadership charter for your new mobile center of excellence.

Put an IDEA Team in Charge of the Mobile App

Historically, when businesspeople or marketers created software, they jotted down ideas and pitched them over to their technology department or to technology partners like Accenture, Deloitte Digital, Infosys, SapientNitro, or Razorfish. Or perhaps they slaved away for months working with their technology staff or vendors, meticulously guessing which features will matter and writing them all down. Either way, they then built and launched the application, often to find out they guessed wrong about what was important.

For mobile apps, these approaches simply don't work—they are too slow and inflexible.

What pioneers like ING, Nordstrom, and Starbucks have learned (and what every mobile entrepreneur has built into his corporate culture) is that great mobile moments don't happen unless the business employees responsible for the success of the application—product owners—work side-by-side and continuously with both designers and developers. This small group—business people, designers, developers—is the IDEA team.

There are two organizational insights that apply here.

First, designers and developers must work closely together. Dave Wolf, the head of research and development for mobile engagement provider Cynergy (now part of KPMG), describes it this way: "We used to separate designers and developers because they really didn't like each other anyway. But it meant they designed things that we couldn't build or that ran really slowly. One day we made them sit together. It was hard at first, but once they got to know each other and how their brains worked, they started to create beautiful things that work really well."

Designers and developers are two halves of a genius—great mobile moments happen only when you mash a designer's right brain and developer's left brain together. Keeping designers and developers on separate teams leads to apps with a pretty face but no value. You must put designers and developers onto a single team united by the common aspiration and a motivation to build an app that people use again and again in their mobile moments.

And it's not just designers and developers on the team. The second organizational insight is that *product owners* from the

business must work closely with designers and developers. To deliver a great mobile experience, you must treat the app or site not as a *project* to be built and left alone, but as a *product* to be designed, built, operated, monitored, enhanced, and built again. This means the team needs a full-time product owner with a business frame of reference, someone who's on the hook for the business outcome. Product owners are the bridge between your customer and the mobile moments you are tackling.[3]

Beyond the business people, designers, and developers, the composition of the team may vary somewhat based on your specific situation. At Starbucks, for example, the cross-functional team includes store operations so that baristas and store managers are prepared for any change to the customer mobile app, plus a liaison from the legal department to make sure the app adheres to the company's customer data protection policies. At Dish Network, the team includes field operation managers responsible for everything from the dispatch process to the uniforms designed to hold the mobile device. At American Airlines, the team includes representatives of the back-end transaction systems, ensuring that a feature like seat selection won't overwhelm the mainframe computer running those systems. But the core of the IDEA team remains the business people, the designers, and the developers.

Because this organizational principle of multidisciplinary teams and agile process is so important, let's hear from another company that's learned how to work collaboratively across functional boundaries: the hospitality company IHG.

CASE STUDY: How IHG's Mobile Team Succeeds with Agile Development

At IHG, the parent company of InterContinental Hotels, Bill Keen's mobile app product team and James Prolizo's design and development team build the hotel's booking app together. They work in the same building. They are motivated and united by a

single metric: room nights booked. With this shared goal, the teams collaborate to build a great mobile experience that keeps hotel guests coming back.

Because Bill's and James's groups use an agile development process, they are always learning and adapting to find ways to improve the experience. They work together to generate business ideas and technology ideas for improving the guest experience. Here's how they do it.

Bill Keen, director of mobile solutions, manages a team of eight product managers that focus on the business problem and product. These product managers ultimately decide which features to put on the road map and which to focus on in any given release. Because they work side-by-side with the developers, they understand the challenges and complexities of app development and mobile marketing across multiple platforms. They tailor their expectations and contributions accordingly.

James Prolizo, director of mobile and installed applications delivery, manages a development group of 12 people. His people have particular expertise in mobile app design and development as well as in building APIs that access the key transaction systems, the content system, and public services such as maps or the weather.

These two groups operate together as a single unit, sharing and trading off responsibilities. They meet daily to plan, develop, and test new features. Each accepts responsibility for all aspects of the process, from ideation to deployment. The product managers focus more on the first three steps—ideation, conceptualization, and requirements—but remain involved in design and testing as well. Similarly, designers and developers focus on the last three steps—design, build, and deploy—but are very aware of the goals and mechanisms to improve customer engagement.

The team operates in two-week sprints using agile development techniques. As development director James describes it, "The product managers pick the next features to focus on. We let them know what can be done in the next two-week sprint, and they make the final decision on which ones to do." What makes this system work is that product managers participate in the daily standup

meetings in which developers review their progress and discuss solutions. Each group knows the capabilities and limitations of the other. That makes it easier for them to solve problems and improve the mobile app.

Why Agile Development Processes Work Best

What works for ING Bank and IHG will also work for your IDEA teams. By adopting an agile development and business process, you will accomplish four goals.

First, your business and technology teams are united to engage customers in their mobile moments. There is no artificial separation, only unification around a single goal: serve customers. We've seen how IHG does this. At ING Bank, the metrics of success include customer satisfaction, transaction volume, and repeat contacts. At Delta Air Lines, a unifying metric is the number of mobile check-ins.

Second, you will move quickly to find and develop new mobile moments. In the agile process, you build, test, and learn in rapid cycles. That means you can quickly see what's working and what to do next to take advantage of the mobile moment. Charles Teague, the CEO of the company that developed LoseIt!, says, "Let's not pretend we know the endgame; let's do the least amount of features to know if it will work. Then improve it if people use it." Just as with the connected products like the Nest Learning Thermostat we described in chapter 7, you should build a minimum viable mobile product, then improve it over time.

Third, you will mitigate the financial risk of building the wrong thing. Some early mobile apps failed because they focused on the wrong thing: marketing instead of service transactions, for example. The agile process helps avoid this by chunking your investments into short cycles with immediate market feedback so you won't throw good money after bad. Nordstrom's vice president of IT, John Mayfield, says, "We now speak of investment themes and six-month positive returns, not capital investments over two years."

Fourth, you will learn how to apply agile development to business processes, not just technology development. At Alex and Ani, the team learned how to adapt its store operations process for package wrapping, for example, to match the speed of the mobile checkout process. This is a collateral benefit to having business and technology people on the same IDEA team: Business people learn the power of rapid cycles of building, testing, and learning to shape customer processes. One of the biggest lessons for business people is that it's okay to fail if you quickly correct the problem and move on. This requires a leap of belief that customers will forgive mistakes if they don't happen twice. But it's a necessary part of staying focused on the mobile moment.

If you need help getting started, you'll probably find that you have an agile team already up and running in your technology management organization or development group. If not, you can find detailed tutorials and how-to guides for agile development, including Forrester's published research on development methods and the works of Dean Leffingwell and Donald Reinertsen.[4]

So much for the team structure. But how do you organize mobile development in a large company, where many different parts of the organization work on mobile applications? You create an executive team to drive it. That's what American Airlines did.

CASE STUDY: American Airlines Organizes Mobile with a Steering Committee

We met Maya Leibman and Phil Easter of American Airlines in chapter 3. Phil manages the IDEA team building the traveler app. Maya is the CIO of the company. She's very busy these days integrating American Airlines and US Airways technologies but she still finds time to spearhead American Airline's mobile steering committee.

Once it was clear that the traveler app was a success, every business group—sales, marketing, loyalty, flight operations,

catering, baggage handling, customer service—wanted its features presented to travelers in a mobile moment. Phil and his team couldn't do it all and certainly not all at once. So they needed a mobile steering committee to set the investment priorities.

American Airlines' mobile steering committee includes executives from every facet of the business, both from operational groups, such as sales and marketing, and from groups that would be affected by apps, such as technology and flight operations. Only in this way can the company engage resources from across the company to deliver a great mobile experience.

Phil Easter takes this charter from the mobile steering committee and executes it. His technical organization, which we would call a mobile center of excellence, has doubled in size every year over the past three years to 80 technical staff in 2014. Most of his staff are on agile IDEA teams. He uses some outside resources for things like interface design, but mobile development has become a core competency of the airline. Mobile moments are too important to American Airlines to do it any other way.

Charter a Mobile Steering Committee to Oversee the Strategy

Some companies' early mobile efforts have been burned with poor app store ratings, attracting concerned attention from CEOs and boards of directors. That's often when senior management sets up an executive mobile steering committee. But don't wait for that disaster. Even if you start small with a single IDEA team, get a charter from an executive committee. That will set the stage for continuous improvement and mobile moment success.

If you're a retailer and your retail customers bring smartphones into your store to beat you down on price or quality, this steering committee gives you the organizational commitment to make changes in everything from store operations all the way through to investments in mobile technology platforms. The challenges may be different by industry, but the authority of the steering committee is

crucial to retaining a consistent commitment to winning in the mobile moment.

A mobile steering committee is responsible for overseeing a company's mobile initiatives. Here's how it works.

The committee of between four and 10 executives from every part of the organization meets monthly. As American Airlines learned, because mobile touches so many parts of your company, you need a representative from each domain. For example, at Starbucks this team is led by chief digital officer Adam Brotman, and includes executives from store operations in every region, digital strategy, marketing, legal, and technology.

The committee typically focuses on four things. First, what are the mobile priorities? For example, is it more important to focus on mobile marketing or, as ING did, on transactions? Second, what is the status and level of business success for each of the initiatives? IHG reports app metrics and business outcomes. Third, is the right staff in place internally or does the company need to pay a partner? Fourth, what are the investment themes and where will the money come from?

The committee is also responsible for seeing problems and finding solutions. For example, if an organizational barrier prevents business and technology people from working together on IDEA teams, the steering committee could recommend starting with a single agile team to see how it goes. If the technology systems are not ready for mobile moments, the steering committee might support the CIO by making a board-level decision to invest in technology, as Home Depot did.

The Role of the Mobile Center of Excellence

The mobile steering committee is an executive decision body. It needs an execution arm to implement the decisions. This has led to the rise of the mobile center of excellence (sometimes called digital center of excellence or digital transformation group) that operates by authority of the mobile steering committee. There is no single

organizational model for a mobile center of excellence. To create the one that works best for your company, you'll need to figure out three things.

First, decide if the mobile center of excellence will also include the people who build applications—will it encompass the resources on the IDEA teams? At GE, the mobile center of excellence based in Detroit has more than 900 people dedicated to improve the mobile and customer experience across the firm. At American Airlines, the center of excellence has 80 full-time employees. But not all mobile centers of excellence build things. For example, at Northwestern Mutual, ten people appointed by the steering committee meet weekly to keep mobile initiative on track, but they don't actually build them—they work with the teams or agencies and integrators that do.

Second, figure out which department hosts the multidisciplinary center of excellence. A mobile center of excellence may be part of the eBusiness organization, as at IHG; the digital strategy organization, as at Starbucks; or the technology department, as at American Airlines.

Third, determine how you will staff your mobile center of excellence. The positions might be full time as at GE or part time as they are at some other companies. Some centers of excellence have implemented programs where people cycle through to master the skills. At IBM, developers and product managers take crash courses in the Austin design center. At GE, employees from different product teams come to Detroit in three-month assignments to master the process. But other employees in GE's center are permanently assigned and full-time members of an IDEA team.

Once you have made those decisions, you must next decide what parts the IDEA team, center of excellence, and steering committee play in making and implementing decisions ranging from the brand experience to the development technology (see Table 12-1). For the mobile center of excellence and its sponsoring steering committee, decide where to educate people, where to coordinate activities, and where to control outcomes.

Educate people to create and share best practices. Some mobile practices are best handled with guidelines and assistance rather than restrictions and oversight. For activities like a mobile moment audit or experience design, the mobile center of excellence plays an education role. At GE, for example, the mobile center of excellence offers strategy workshops to bring business and technology teams together. This kind of education unites staff around common goals and interests to launch them in the best direction to complete a mobile product.

Coordinate activities that need clear leadership but where many people are working on execution. Most organizations won't and shouldn't centralize mobile initiatives or even mobile app development.[5] The breadth of mobile products makes it impossible to control output. But simply educating people on the topic is often not enough to keep an app moving forward at the right pace. Sometimes, the mobile center of excellence needs to implement a decision and coordinate activity around that decision. For example, at one global bank, the center of excellence designated the software development tool to bring consistency to the application.

Table 12-1: One Example of How a Mobile Organization Could Function

Responsibility	Mobile steering committee	Mobile center of excellence	IDEA teams
Setting investment priorities	Set and audit the investment themes.	Make recommendations based on collective needs.	Create the case for mobile apps and associated systems.
Defining the brand experience	Work with marketing to define.	Audit brand experience.	Implement the brand experience.
Designing apps	Establish design as an	Set up design choices, training,	Incorporate design into the

	investment priority.	and services.	agile development process.
Building mobile apps and sites	Ensure commitment of supporting groups and systems.	Broker changes in processes, systems, and organizations.	Build and continuously improve the mobile experience.
Handling security, privacy, and compliance	Authorize, support, and audit the policies.	Build policies with the help of legal, security, and compliance teams.	Adhere to the security, privacy, and compliance policies.
Determining a skills plan	Assess skills mix needs, determine whether to train or acquire.	Create job descriptions, including salary levels.	Hire or train team members with the right skills mix.
Building technology platforms	Prioritize platform requirements.	Aggregate requests across IDEA teams.	Define the platform requirements for mobile apps.
Managing technology choices	Enforce technology decisions.	Recommend technology choices.	Adhere to technology guidelines.
Managing agency or development partnerships	Ensure compliance with strategic partners.	Own agency or integrator relationships.	Manage agency or integrator relationships.

Control outcomes that give you scale or put you at high risk. The technology group typically owns the security policy, while

marketing is usually the watchdog of the brand. For these elements, the mobile center of excellence must insist on compliance to a standard. At Cisco, for example, all apps for the Apple App Store go through a single senior manager. But the center should be careful to govern only the things that carry the most risk, like security, brand, and access to back-end transactions systems such as the customer database. Too much control will turn what should be an enabling organization into a major barrier to deployment and success.

What to Worry About When Organizing for Mobile

Few companies have mastered the mobile organization that we outline in this chapter. We have drawn on the best practices of different companies to paint a picture of best practices. So don't fret if it takes you time to put the right organization in place. Start with the basic building block: the multidiscipline IDEA team using an agile development process. And keep an eye out for some common mistakes.

Look out for the conflict that comes from overcoming channel barriers. If there's one certainty, it's that your customers will expect more from you on their mobile devices next year than they do today. Keep an eye out for an eCommerce team that gets squirrely about supporting the mobile app or a store operations group that avoids looking at the impact of mobile on retail customers. You must overcome the channel conflict, but because of potential turf issues, this may need high-level attention even from the CEO.

Make sure that even if you use partners to accelerate your progress, you also acquire the skills you need to make mobile moments a core competency. At ING Direct in Australia (another ING Group company), the head of digital and emerging channels, Janelle McGuinness, learned this the hard way. The company started with a hybrid app (app plus mobile website) that it launched and then didn't update. As Janelle said, "The market moved on. Customer expectations surpassed us." On the second go-round, her team used outside expertise to design and code the app but then

hired a full-time user experience specialist to continue the company's commitment to a better mobile experience. Today it has a four-star app and also the skills in-house to design and develop mobile apps along with the necessary back-end APIs.[6]

One last thing: Have the courage to occasionally scrap the whole app and start from scratch. As you continuously add features, the app inevitably starts to become bloated and tired looking. When you can no longer see where to cram in new features or stretch your existing design paradigm to fit the new capabilities, throw it away. American Airlines did this brilliantly when it launched a completely redesigned application on the same day that Apple upgraded its operating system to iOS 7. By doing so, American got the jump on other airlines and created a beautiful and elegantly functional application with room to grow further in the relentless cycle of improvement. This is a great reason to charter a mobile center of excellence that sits outside the IDEA teams—it helps break the lock the IDEA team has on its app.

How to Know When You Are Doing It Right

In the first part of this book, we described what the mobile mind shift is and how to approach it. In the second part, we showed how the mobile mind shift affects customer-facing groups. The third part described how to engineer your company and technology to deliver on the promise of mobile moments.

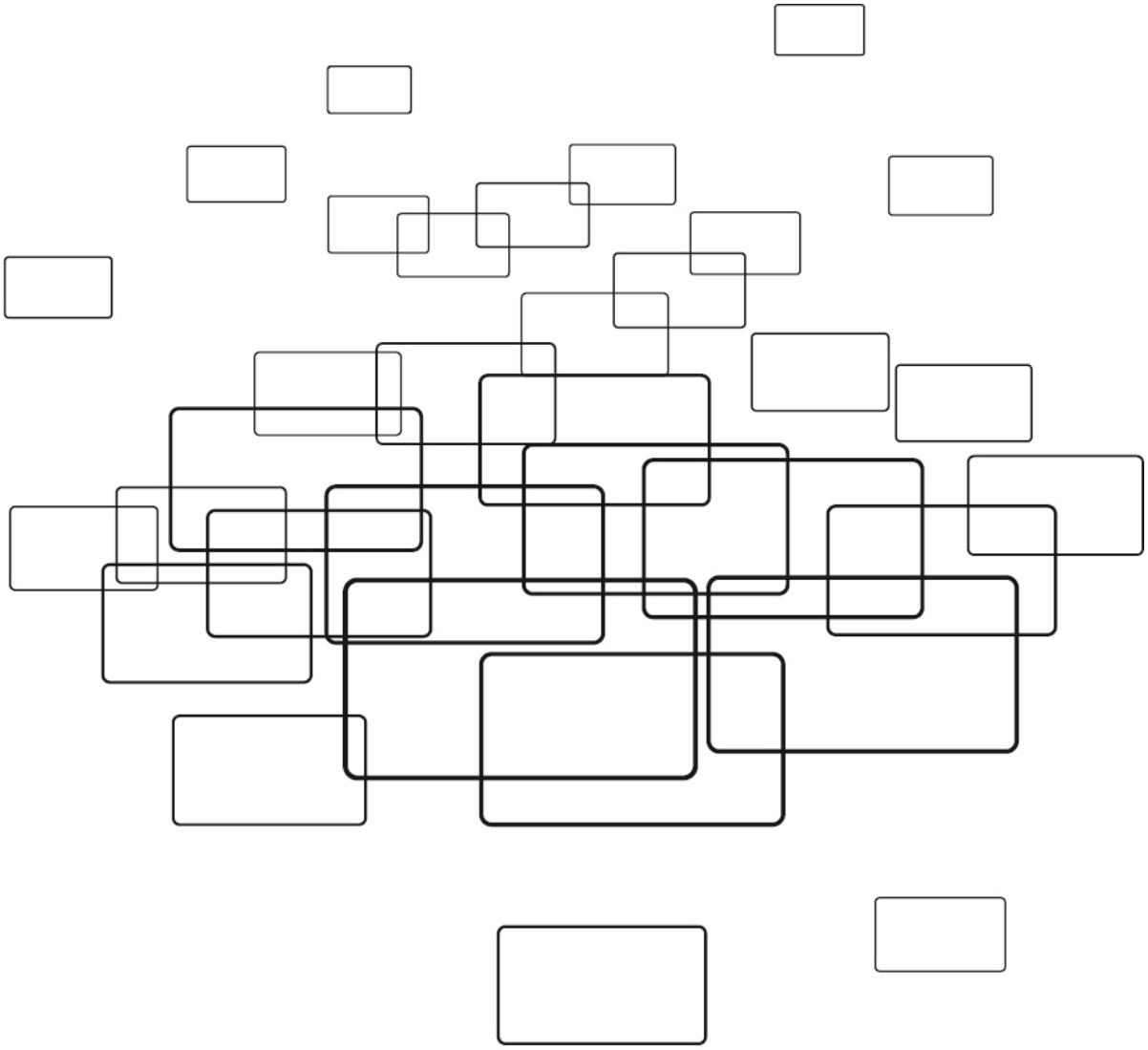
The key is the mobile moment, not the app. Companies must unite the elements we describe—the IDEA cycle, continuous improvement, and re-engineered platforms and processes—to win in a mobile moment.

Here are three signals that a company is poised for success in the mobile mind shift:

1. Any officer of the company can explain why he is investing in his customers' and employees' mobile moments. This is what makes Starbucks and Nestlé successful.

2. Employees are able to move across functional siloes and business boundaries to work together on the platforms and processes to support a great mobile moment. This is why ING Bank and USAA are able to innovate at scale.
3. Business budget holders are queued up to fund new applications and features that make customers and employees successful in their mobile moments. This is why American Airlines' mobile apps improve dramatically every year.

In the next chapter we will peer over the horizon to describe what the mobile mind shift looks like 10 years from now.



PART IV
The Future Shift

13

The Future Shift

Mobile Moments Will Blanket the World

"Kids are amazing everywhere in the world. There's so much hope and potential and ambition in a child. Then, slowly, the hope and potential gets killed." That's Shannon May, the co-founder of Bridge International Academies, talking about the challenge of teaching in Kenya. "The real problem is that children aren't learning. If children aren't learning, they can't support themselves, their family, their community, their country. It leaves the children vulnerable. How can you totally change the trajectory?"

Shannon realized that it was possible to change trajectory in Kenya, and it didn't need to be expensive, either.

Shannon understood that children need educators with the best curriculum available to break a cycle of poverty and enter the modern world. She and her co-founders Jay Kimmelman and Phil Frei launched an educational solution using mobile technology that has now reached more than 250 academies and 80,000 Kenyan school children.

The idea is simple: Enable parents to place their children in schools with professionally developed curriculum, even in villages with no electricity or running water. Put the cost of that education within reach of people living on $2 per day. Keep the children in school long enough to give them a fighting chance to pass an exam

to enter secondary education and break out of a cycle of subsistence. And use mobile technology to do it.

Here's how it works. Bridge International Academies hires professional educators to develop curriculum and lesson plans in both Nairobi and Cambridge, Massachusetts. It hires local teachers and administrators for the academies. And then the company uses mobile to distribute the lesson plans.

The environment in rural Kenya is challenging for technology. There's basic mobile phone network coverage but sometimes no electricity. Bridge International Academies found a way around that. Each school's administrator gets an inexpensive mobile phone with administrative, testing, and billing apps to run the school. Bridge updates the phones over the cellular network with seven days' worth of teaching materials. The phone also operates as a Wi-Fi hotspot so teachers can download the teaching materials and day's lesson plans to an eReader. These eReaders can run for days without needing to be recharged.

The teaching materials appear on the eReaders. Teachers also use them to enter the test scores, which are then communicated back to the phone and subsequently back to Bridge headquarters. The content expertise is central, the teaching is local, and the learning is mobile.

One master teacher can now empower hundreds of classroom teachers with secondary educations to teach thousands of schoolchildren the educational necessities of the modern era. To you, this may sounds simplistic. But to a Kenyan child who has little alternative, it's enlightenment.

The cost is just over $6 per student per month. For this price, Bridge makes a whole day full of education moments possible for tens of thousands of children. They're planning on tripling the number of students every year for the next four years. We're betting they'll succeed.

Mobile Moments Multiply to Define the Future

Here's what you need to understand about the wave of change that is the mobile mind shift: It is on a vastly bigger scale than any digital technology that's come before.

When PCs became commonplace in the 80s, they changed things. Over the next 15 years, hundreds of millions of people sat in front of a screen and started to create their own content, rather than just consuming it. Workers became masters of their own information instead of slaves to their central information services department.

When the Internet and laptops became ubiquitous in the 90s, people connected. Over the next 15 years, social media exploded to reach a billion people. Companies put up websites so people could serve themselves on a single screen. Workers demanded and received instant access to information and each other. Both consumers and workers began to see information as a resource, and everything accelerated.

But the changes created by PCs and by the Internet are dwarfed by what's coming. Why? Because the mobile mind shift affects more people in more parts of their lives. And it's happening much more quickly.

As we see in Kenya, mobile technology will reach billions more people than PCs and the Web did. The mobile mind shift means that *most people on the planet* will see mobile as the answer, no matter what the question. That expectation for instantaneous assistance will transform every aspect of our world—*and* your business.

Here at Forrester Research, our clients ask us to look into the future. The mobile mind shift is such a profound transformation that, frankly, we can't definitively tell you how things will look in 10 years. But we can see some interesting things coming. Let's shift our view from what's already happening to what will happen next.

Mobile Moments Will Fill Your Day As Everything Connects

As we write this, in 2014, 21% of online American adults are Shifted, reliant on their mobile devices to get most things done. That could easily be 50% or more by 2020. Younger consumers

raised on touchscreens and voice control will find mouse-and-keyboard interactions clunky and slow. Toddlers already tap on TVs, tablets, and tabletops expecting to make the images dance.

And it's not just screens. Communications chips and sensors are so cheap now that any real-world object can be instrumented. This will give us wearables to track our every step, eyeglasses that shine a universe of media onto an eyeball, wristwatches with a kitbag of buzz tones to uniquely identify a texter, garments endowed with body sensors to monitor our health, and ingestible medications that broadcast their dosage to a caregiver.

What does this all mean? It means that any moment in which someone touches a product or object or structure can also be a mobile moment.

You will ask your dress whether you wore it last week. Your shoes will nag you to take the stairs instead of the elevator. Your car—well, your car is a moving computer already, with access to media, directions, maintenance information, and, in the case of Mercedes-Benz Mbrace system, even recommendations on where to get a nice dinner. How long will it be until the door to your house knows you're coming and warms up the house in anticipation or the peaches in the bowl tell you this is the exact right moment to eat them?

Phones were first. Tablets came next. But in the next few years, these devices will be joined by dozens more that will address your needs in a mobile moment. By 2020, your customers could have 30 connected products delivering mobile moments, not just the handful they have today. Here's what this means for your business.

If you have a product, connect it. Consider the ecosystem of other objects it interacts with (beverages with refrigerators, tires with cars, conference rooms with video walls) and keep a close watch on how those other objects are connecting—look for partnerships you can build on.

If you have information, shrink it or atomize it. The real estate available to you to communicate with your customers has already shrunk from a 19-inch monitor to a 4-inch mobile device. Next it will shrink to a 2-inch screen on a wrist or cornea.

If you have apps, consider a future in which they've gone underground. The next inconvenient step people will bypass is clicking on each and every app. Our phones or wearables will know where we need to be when, whether or not we have an applicable coupon while we stand in line at Target, or if we have enough money to make a payment. The app will notify us to take action without the hassle of opening it. Google Now already gives us a glimpse of this future by waking us up earlier if there is traffic on our route to work.

So, stop thinking only about phones and apps. Think instead about the moments in your customers' and employees' lives, and what service you can provide in those moments. Because phones will become just another device, but mobile moments will proliferate endlessly.

Privacy Will Be Your Differentiator or Your Peril

Protesters gathering on January 21, 2014, in Kiev, Ukraine, received this text message on their mobile phones: "Dear subscriber, you are registered as a participant in a mass disturbance."[1] Oy! This kind of surveillance is entirely within the (brand new) law of the land, spotting protestors from location data spun off their mobile phones. But it reminds us just how visible our every move is in the mobile mind shift. Governments, corporations, and employees will be seduced by the power of information. In an age filled with paranoia generated from NSA spying and shocking corporate privacy violations, how companies use or abuse the data they gather will determine how people think about them. A customer's trust is a cornerstone of a twenty-first-century brand.[2] Lose trust, lose a customer.

It's even more of an issue because these mobile devices are so intimately part of our lives. Nest CEO Tony Fadell had to reassure customers that once the company was part of Google, their data would still be protected from prying eyes, and that all policy

changes would be “opt in;” customers will have to choose to share information rather than have to explicitly restrict its use.[3]

Connected cars are a nexus for concern here. Each time you start a Nissan Leaf, it pops up a message warning you that “Your vehicle wirelessly transmits recorded vehicle data to Nissan” and requires you to accept or decline. Ford executives recently revealed how much data the GPS in its cars is collecting, and while insisting that privacy comes first, acknowledged that it would be possible to know when and where someone is speeding.[4]

As Forrester’s expert on big data, analyst Brian Hopkins said, “You are entering new business-ethics territory that will test your resolve to put your customers’ interests first.” Beginning right now, you must make customer privacy your personal responsibility.

If you run a company, let the dinner table guide your decisions. If over dinner you described what you were doing to your children or your parents, how would they feel about it? If they would wrinkle their brow, sour their smile, or blank their face, then don’t do it. Start with trust. Seek to serve rather than sell in a mobile moment.

If you create public policy, anticipate the backlash of surprise. If a citizen finds she is running around naked to scrutiny and exploitation because of the information her mobile device or thermostat gathers, she will lash out. Don’t let the public be surprised. Find and head off the dangers even if people don’t yet see them.

If you work with young people, teach them about disclosure and sharing. Collecting birthdates may appeal to a marketer, but it’s probably more information than a 12-year-old should share with a brand. Teach children about privacy settings and data disclosure.

As with any mobile functionality, the key to appropriate privacy policy is *context*.[5] Collecting and using personal data should be consensual and for a mutually agreed upon purpose. If Nissan wants to upload your data, it should ask you once then remember your preference. People are quite willing to let companies collect and use data—and its context—to help serve them, but only if you prove that you will always get the appropriate permission. Smart companies will collect only the information they need to serve

people and keep it only as long as it can help deliver that service. Companies that behave like that will earn the trust that's essential in the age of the customer.

Mobile Moments Will Transform the Physical World

People hate waiting in line. Mobile moments help them skip it.

Companies hate paying for space that doesn't generate sales. Mobile moments help them avoid wasted space. Mobile moments also let them avoid building traditional retail points of presence in the first place, as we saw in Kenya with M-Pesa's mobile payments.

Nobody with a mobile airline app needs to wait in line at a kiosk or check-in counter. Airlines are leaving desks dark and starting to take them away altogether as passengers go directly to security, mobile boarding pass in hand.

Checkout counters are disappearing in retail stores. Apple Stores don't have them. We explained how Alex and Ani uses mobile devices to reduce the need for checkout counters in chapter 2. Hointer, a Seattle clothing store, has taken this idea to a new level. In its stores, shoppers encounter a thinly populated rack of clothes. They scan a barcode and enter a few fitting details, then head to the dressing room where the garment shows up ready to be tried on. The shopping experience is reduced to its essentials with less staff and less rack space clutter.

eBay is one company that is pursuing a new vision for retail that thinks very differently about location. Steve Yankovich used to be eBay's vice president for mobile. As we described in chapter 4, mobile is huge for eBay; people have posted more than half a billion listings using its app. But Steve is leaving all that mobile commerce behind in his new position as VP of innovation and new ventures, with a focus on eBay Now, a commerce business that facilitates traditional (non-auction) sales from local merchants and delivers to a person in real time, wherever they happen to be.

"We are building on two core principles," Steve says. "First, mobile has made consumers more impatient—they want instant

gratification. Second, they want control—especially over delivery. We give them both with eBay Now. We deliver what they want, when they want it and to where they want it—even if it's a park bench in Union Square." Steve has recognized that mobile moments can happen anywhere. He understands that the important location is not where the store is, it's where *you* are.

In financial services, banks are closing branches, not only in response to economic pressures, but also because more customers are using online and mobile banking services. First Niagara Financial Group, a regional bank with branches concentrated in western New York, Pennsylvania, and Connecticut, is cutting branches and retraining staff to handle more complex services as more customers conduct business away from the branch. In January 2014, Mark Rendulic, the bank's executive vice president, said that more than 40% of its customers are registered to bank online and 140,000 had downloaded the mobile app in the first year.[6] Bank of America, SunTrust Bank, PNC Financial Services Group, Lloyds Bank, BNP Paribas, and Bankia are other examples of banks cutting branches, partially in response to lower demand for branch services.

In the mobile mind shift, real estate plays a different role: to bring people together to share product and service experiences. Transactions and service delivery happens on a mobile device, not a kiosk or counter. Think of the car rental return person greeting you as they walk around the car and check you in. China Eastern Airlines girds staff with vests complete with a boarding pass printer to greet and serve travelers where they stand.

Every retail branch experience will be reconstituted in the mobile mind shift. It may be your real estate, but to your customers, it's just another place where mobile moments can make or break the experience.

Mobile Payments Will Upend the Economics of Loyalty

A battle is coming for mobile payments. Incumbents like Visa and Master-Card and disruptors like Apple and PayPal are bringing

payment services in the form of digital wallets that make payment just part of a deeper relationship. Subway, for example, is using a mobile payment system from Paydiant in its loyalty application to establish a platform for new services and promotions similar to what we described for Starbucks in chapter 6.[7]

After years of planning and with the help of Worldline, McDonald's has taken mobile payments to 1,200 restaurants across France in 2013. The killer app? Order on the phone and pick up in the restaurant with no waiting. But the spinoff value is that McDonald's has a platform to extend new services, perhaps even some outside the restaurant, to loyal customers.

Jean-Noël Penichon, head of digital strategy and transformation at McDonald's, told us, "The question is how can we be more than just an ordering tool? How can we transform the customer experience, to bring value before, during, and after the purchase?"

We are moving out of the experimentation stage into a world where more and more transactions will flow through mobile devices. By 2018, US retailers will take $26 billion in payments directly off of mobile devices.[8] And that's just the start. It will take time to develop, but the payment industry will look entirely different in a world populated by mobile payment and loyalty moments.

Mobile Data Will Create More Competitive—and More Volatile —Pricing

We've already seen how mobile devices expose the prices and price variability in your store versus online or at a competitor. Mobile shopping moments guarantee that your customers will be too smart to fool with channel-based pricing.

Mobile devices also enable performance-based pricing.

For example, a mobile device now makes it possible for Progressive Insurance to reward good driving behavior through performance-based pricing. A driver agrees to put a gadget called

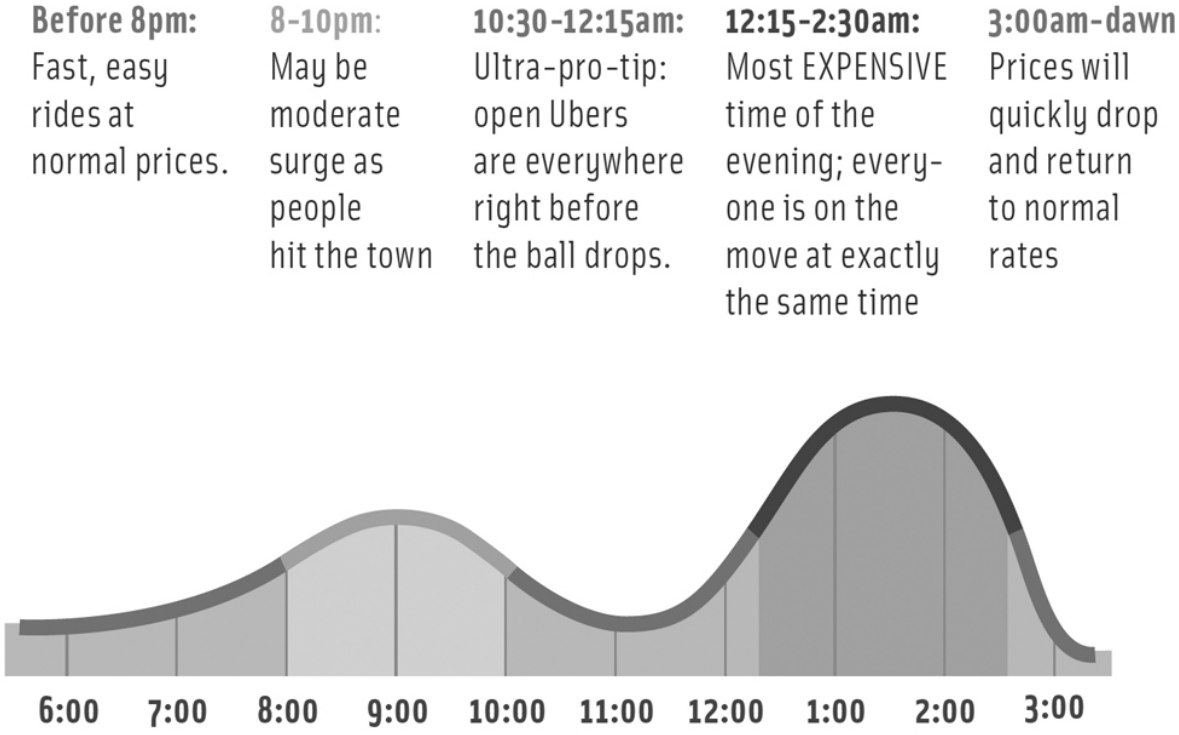
Snapshot in her car to track speed, acceleration, and time of day for 30 days. Good drivers get up to 30% off their car insurance bill.[9]

Similarly, self-insured company health plans are experimenting with performance-based pricing. In one company, employees and family members use "life miles," a point system that tracks exercise with a fitness wearable and encourages members to report their health, get regular checkups, and work with a clinician on sticky issues. The payoff for people with healthy habits? As much as $400 in cash.

These are examples where mobile sensors enable companies to create more accurate prices, customized to individuals. But can companies adjust prices by the moment, like a stock price, based on current conditions?

That's exactly what Uber did in San Francisco on New Year's Eve, just before and after the calendar ticked over to 2014. Uber used "surge pricing" to charge passengers more than three times as much after midnight as in the hours leading up to it, because there was much higher demand during that time period. Because it wanted to be transparent, it warned people ahead of time with an email that included a chart of how prices would change (see Figure 13-1).

Figure 13-1: Uber Notifies and Practices Variable Pricing to Match Supply and Demand



Source: Uber New Year's Eve 2014 blog and email notification

The question "what is the right price" depends on information. Much more information—and more context—is available in a mobile world. Companies will be able to charge more when demand is high (like Uber) and charge less for customers who prove they deserve it (like Progressive). Here's what this means for you. If you have an ongoing relationship, you must instrument your apps and products to provide you with the information you need to optimize prices. To minimize a backlash, you must follow Uber's example and be transparent in the way that you do this. And if you don't set prices this way, be ready for your competitors to do so. If your internal systems don't allow you to change prices quickly and in a flexible way, you may find yourself flatfooted when the competition changes its pricing mechanisms.

All three pricing forces put power into the hands of individuals and reward companies willing to bring pricing to the forefront of business strategy.

Medicine, Too, Will Gain Mobile Moments

In chapter 7, we learned how Withings is tying weight and fitness together through a connected bathroom scale. Connected devices and mobile health can deliver more effective and cost-effective care: telemedicine, connected medical devices, even medications that signal when they've been swallowed.

A few years ago, the Serono division of Merck, the pharmaceutical giant, was winning only 1 in 12 new patients in the UK who needed human growth hormone (HGH), an important therapy for undersize children and people recovering from a debilitating disease. Don Cowling, then vice president and managing director of Merck Serono UK, knew he needed to find a way to differentiate his product.

The answer lay in the mobile moment of injection. If Merck could show that the new drug was more effective when it was used properly, it could win more prescriptions.

Don's team turned to a connected medical device that injects medicine through the skin with a hidden needle.[10] Sensors on the bottom of the injector detect contact with skin as well as monitoring the depth, angle, and speed of the injection—important adjustments in an effective treatment. But because the device is connected, it can also track the time and place of the injection, which shows a clinician and insurer that a patient is keeping up with the treatments.

This attracted insurance payers. Because it could monitor compliance with the treatment and tweak the injection parameters to maximize efficacy, Merck's HGH treatment solution outperformed the competition. In just one year, Merck shifted its acquisition rate from 8% to 55% of new HGH treatment patients. It took market share even from rivals who were cutting their prices. Don went on

to become senior vice president, commercial programs of Proteus Digital Health, a company building medical technology based on the idea that medications, including pills, should be able to report on whether they're being used effectively.

The HGH treatment that Merck succeeded with was demonstrably better because it was connected. What about your product? As we described in chapter 7, many products are becoming commodities. Mobile apps to control them and mobile sensors that indicate how they're doing will create differentiation in all products. If you make products, this is your new competitive dynamic.

Data Will Become the New Currency of Competition

More sensors. Privacy concerns. Competitive pressures creating mobile-connected products. Pricing based on real-world information. There's a pattern in all of these trends: data. Lots and lots of data.

Data drives the advertising businesses of Google, Facebook, and Flipboard. It also extends the value of the Nest Learning Thermostat, Withings bathroom scale, and Nissan Leaf. Data is also the prime way in which brands like Starbucks and retailers like Sephora derive insight from loyalty programs. Data is rapidly becoming a competitive weapon.

Mobile moments generate more data than any technology before, data from photos, location metadata, and contextual searches and posts, for example.

When thousands or millions of people share their immediate experiences in a mobile moment, the accumulated data can be a powerful, competitive weapon and a force for good. When citizens report potholes and burned out streetlights from a mobile app, the city of Boston can repair roads ravaged by the polar vortex. When MyFitnessPal collects data from its community of more than 40 million customers, it's a piece of cake to create a database with nutritional information on three million food items.

Data from the crowd remakes maps. You can tell Google Maps on your iPhone that a store or a street is closed. Waze (now owned by Google) automatically collects data on how fast the traffic is moving on side streets and thoroughfares and on breakdowns, accidents, and construction. It uses this information to reroute drivers around traffic jams (and turns once-quiet streets into rush hour byways in the process).

In Lahore, Pakistan, a cheap mobile device lets city workers track insecticide use and report the data to the public. City health officials correlate that data with infected cases of dengue fever, a mosquito-borne illness, to see how effectively the health strategy is working. In one year, the number of confirmed cases plummeted from 21,292 to just 255 (with no fatalities) as mobile data flowed in to drive the insecticide program.[11]

Companies can tap into customer data in new ways, too. Intu Properties, United Kingdom's biggest shopping center owner with 350 million visits every year, has made being "digitally connected" a core strategy. It provides free Wi-Fi and is working on a mall navigation app. It then uses Cisco wireless technology to aggregate data about where people walk ("internal footfall tracking") and where they spend time ("dwell-time analytics"). Gian Fulgoni, Intu's chief information officer, explains that Intu will use this data to work with its retail partners to direct traffic, offer promotions, and be smarter about helping people get where they want to go.

Lastly, every mobile startup has made customer intelligence based on the behavioral data they collect off mobile phones a foundation of the business. Nest Labs guides people to conserve energy by tracking how they use the thermostat and the room it's in. Nike+ FuelBand tells consumers how they are doing relative to people like them. Grocery iQ taps the data to offer coupons to shoppers.

Data scientists and analysts who can turn this torrent of bits into useful intelligence are the key here. Data is useless unless you can synthesize it into insight. As mobile matures, the Analyze stage in the IDEA cycle is where companies will invest to gain an edge.

How to Think Differently for the Mobile Future

You've now seen how mobile moments change the expectations of people waiting in the rain for the next pope to arrive and how mobile moments transform taxi companies ferrying passengers through that rain. You've witnessed disruptive changes in retail, travel, media, banking, and healthcare. You've experienced augmented business models in consumer products, manufacturing, and apparel.

That's just a prelude.

Ten years from now, any business not built on mobile moments will seem as outdated as a cassette player.

You need to think further ahead.

Think like Brad Smith, the CEO of Intuit, who counsels his company to think five years out, not quarter-to-quarter. He has created a CEO Fund to invest in ideas that may not bear fruit for years, but must be developed in a world so rapidly changing. You need to do the same.

Imagine that you have $15 million to invest in mobile moments that could transform your company and completely disrupt your industry. Think of it as a team of 10 people, three partners, and a lot of technology for the next three years. What will you do with that money?

Think big. And think disruptively—that's how the entrepreneurs targeting your business are thinking. (If you want to know more about thinking like a disruptor, see James McQuivey's definitive book on the topic, *Digital Disruption*.[12]) Here are four principles for how to apply your thinking:

1. **Start with your customers and your assets**. Don't start by thinking about your current business. Think about your customers—what do they need? What's their biggest problem? When Johnson & Johnson thinks about its customers—parents of new babies—it realizes that they need help with getting the baby to bed. That's why the company created an app called Bedtime, not one called Mobile Baby Powder. Alternatively,

think about your assets—partnerships, manufacturing plants, institutional competencies. In what new ways could you apply those assets in a world of mobile moments?

2. **Design for mobile moments**. That's where your customers will be. Even if they're in your store, they are mobile. Even if they are on your website, they are mobile. Even if they are waiting for your call center agent, they are mobile. That means you must "follow them home" in the words of Intuit CEO Brad Smith. Know their habits and context because you care to serve them. Know what tasks they care about, what actions they want to take, what information they need to feel confident in taking that next step.
3. **Rent what you need, own what you must**. Don't expect to have all the equipment and skills you need at first. Rent servers and software. Hire expertise. A horde of technology and service providers is out there to help. But don't abdicate responsibility for the essential components of the application and platform. Transfer skills from partners to your staff. Establish long-term relationships. Pay for success, not just completion.
4. **Be ready to launch, learn, and adjust**. Nobody gets it right the first time. It's why we've continually reinforced the importance of agile, multidisciplinary teams throughout this book. No successful person we've interviewed has done it alone. The teams include business and marketing and design and technology people that use two- or three-week development sprints and a continuous improvement cycle. There's a lot buried in that idea: testing on every device and network, setting up the right feedback loops, listening carefully, analyzing the data you've collected, rapidly fixing broken things, and explaining why. So start by thinking of a small engagement, but prepare for how you will grow and improve it.

Get your executives or your team together and mull this over. Brainstorm your best ideas to win in mobile moments. And after that, don't just go home. Make a plan, and do it.

The mobile mind shift will rock your world. It's inevitable. The only question is whether you or someone else will do it first.

WHAT'S NEXT

Wondering how to act on what you've just read? Here are some things you can do next:

- **Get help**. We'd be happy to work with you and your company on strategy and execution for the mobile mind shift. We can help you understand the mobile mind shift of your customers, identify the mobile moments of your customers and employees, and develop or improve your mobile strategy. Learn more and contact us at http://mobilemindshift.com.
- **Get resources**. We have complimentary reports, interactive tools, and self-assessments on the mobile mind shift at http://mobilemindshift.com.
- **Get a speech**. We can speak at your corporate and public events to inspire and educate people on how to embrace the mobile mind shift. To line up a speech, contact us at speakersbureau@forrester.com.
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Forrester has an awful lot of knowledge on mobile, and we tapped into all of it. We leaned especially hard on Thomas Husson for international perspective and John C. McCarthy, who with Ted originally conceived of our analysis of systems of engagement. Much of Julie's foundational research on mobile and context has been tightly entangled with insights from Jeffrey Hammond, our mobile development guru. We also tapped the collected wisdom of Dane Anderson, Kurt Bittner, Victoria Bough, John Brand, Eric Brown, Matt Brown, David Cooperstein, John Dalton, Michael Facemire, Nigel Fenwick, Charles S. Golvin, JP Gownder, Katyayan Gupta, Brad Holmes, Carrie Johnson, Patti Freeman-Evans, Christian Kane, Khalid Kark, TJ Keitt, Craig Le Clair, Deanna Laufer, Sharyn Leaver, Mark Lindwall, Diego Lo Guidice, James McQuivey, Sucharita Mulpuru, Melissa Parrish, Michelle Pelino, Doug Roberge, Sarah Rotman Epps, Ron Rogowski, Clay Richardson, Tim Sheedy, James

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Insight depends on data. In this case, the data came into being when Roxie Strohmenger brought her creative insights to bear on this topic and offered to conduct a survey on mobile attitudes and expectations, a survey that became the basis for the Mobile Mind Shift Index. Colin Campbell was tireless in his efforts to make our data correct and useful, with assists from Vikram Sehgal, and Jeff Wray. Anjali Lai chimed in with insights from our online community, Community Speaks.

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Gail Mann was our counselor, in all the meanings of that word.

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And thanks to all the entrepreneurs, technologists, mobile developers, device makers, and cloud engineers who made the

mobile mind shift possible. We're ready to embrace the new world you have created for us!

—Ted Schadler, Josh Bernoff, and Julie Ask Cambridge, Massachusetts, and San Francisco, California

ABOUT THE AUTHORS

Ted Schadler

Ted is the co-author of *Empowered: Unleash Your Employees, Energize Your Customers, and Transform Your Business* (Harvard Business Review Press, September 2010). *Empowered* shows how companies must empower their employees to directly engage with and solve the problems of empowered customers. *Empowered* has been featured several times on the 800-CEO-READ bestseller list, which lists the most popular books among corporate book buyers.

As a VP and principal analyst, Ted leads Forrester's analysis of the impact of mobile on corporate processes and systems. His report "Mobile Is The New Face Of Engagement" was the most popular report among Forrester clients in 2012.

Ted has 26 years of experience in the technology industry, focusing on the effects of disruptive technologies on companies and the technology industry. His research history includes breakthrough analyses of the impact of web, open source, cloud, and mobile technologies on businesses and consumers.

Ted's research and analysis have been widely cited in publications including *The Wall Street Journal, The New York Times, Forbes, ZDNet, and CIO* magazine, as well as on NPR and PBS.

Ted has a master's degree in management from the MIT Sloan School of Management and an M.S. in computer science from the University of Maryland as well as a B.A. in Physics from Swarthmore College. Ted's first career was as a singer and bass

player for Crash Davenport, a popular Baltimore-based rock-and-roll band.

Josh Bernoff

Josh is a bestselling author and senior vice president, idea development, at Forrester Research.

He is the co-author of the *Businessweek* bestselling book *Groundswell: Winning in a World Transformed by Social Technologies* (Harvard Business Review Press, 2008), a comprehensive analysis of corporate strategy for dealing with social technologies. Abbey Klaassen, editor of *Advertising Age*, picked *Groundswell* as "the best book ever written on marketing and media." Josh was also the co-author of *Empowered: Unleash Your Employees, Energize Your Customers, and Transform Your Business* (Harvard Business Review Press, 2010).

Josh is also the editor of two other books: *Outside In: The Power of Putting Customers at the Center of Your Business* (New Harvest/HMH, 2012) by Harley Manning and Kerry Bodine, and *Digital Disruption: Unleashing the Next Wave of Innovation* (Amazon Publishing, 2013) by James McQuivey.

Josh's job at Forrester is to identify, develop, and promote the company's most influential and forward-looking ideas. He joined Forrester in 1995 and created the company's Technographics segmentation, a classification of consumers according to how they approach technology, which is still in use more than 15 years later.

Josh is frequently quoted in publications like *The New York Times* and *The Wall Street Journal*. Josh has keynoted major conferences on television, music, marketing, and technology in Barcelona, Beijing, Brussels, Cannes, London, New York, Rome, Tokyo, São Paulo, and Seoul.

Prior to joining Forrester, Josh spent 14 years working for startups in the technology industry and studying mathematics in the Ph.D. program at MIT. His hobbies include recreational biking, the futile pursuit of wellness, and standup comedy.

Julie Ask

Julie has authored more than 120 reports on mobile in her 14 years as an analyst, and she has helped establish Forester as a mobile research leader since 2009. Her research includes “The Future Of Mobile Is Context,” one of Forrester’s most downloaded reports, and the foundation for many of the ideas in *The Mobile Mind Shift*. She currently coordinates Forrester’s research on the impact of mobile technologies and has helped hundreds of clients with mobile strategy.

Julie’s 25 years of work experience are balanced between the engineering and management consulting work she did in the first half of her career and her work as an analyst for the past 14 years. She began her career in telecom as a microwave circuit engineer at Comsat Laboratories in 1988. As a management consultant, she worked in the US, Germany, Poland, the Czech Republic, Hungary, Romania, and Slovenia solving business problems.

Julie’s research and analysis have been widely cited in publications including *The Wall Street Journal, The New York Times, USA Today, Businessweek*, and *The Onion* and on CBS, NBC, and PBS. She was cited as one of the 25 “Mobile Women to Watch” by *Mobile Marketer* in 2013. She has given speeches on mobile in Australia, Austria, Brazil, China, Germany, Israel, Korea, Spain, the UK, and across the US.

Julie holds a B.S.E.E. and a Master of Science in electrical engineering and computer science from the Massachusetts Institute of Technology (MIT). She also holds an M.B.A. from the University of Michigan. Julie has played ice hockey in the Budesliga in Germany and climbed Mt. Kilimanjaro.

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by Industry

Numbers indicate chapters in which these cases and examples appear. (Italic type indicates full case studies.)

Food/Beverage/CPG

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CASE INDEX

by Geography

Numbers indicate chapters in which these cases and examples appear. (Italic type indicates full case studies.)

METHODOLOGY

Most of the data in this book comes from the Forrester's US Mobile Mind Shift Online Survey, Q3, 2013, which was fielded in September 2013 to 8,249 US individuals ages 18 to 88. For results based on a randomly chosen sample of this size (N = 8,249), there is 95% confidence that the results have a statistical precision of plus or minus 1.08% of what they would be if the entire population of US online individuals ages 18 and older had been surveyed. Forrester weighted the data by age, gender, income, broadband adoption, and region to demographically represent the adult US online population (defined as those who go online weekly or more often). The survey sample size, when weighted, was 8,224. (Note: Weighted sample sizes can be different from the actual number of respondents to account for individuals generally underrepresented in online panels.) The sample was drawn from members of an online panel managed by MarketTools, and respondents were motivated by receiving points that could be redeemed for a reward. The sample provided by MarketTools is not a random sample. While individuals have been randomly sampled from MarketTools' panel for this particular survey, they have previously chosen to take part in the MarketTools online panel.

The international data came from four other surveys, described below.

For its North American Technographics® Online Benchmark Survey, 2013, Forrester conducted an online survey fielded in April 2013 of 61,167 US individuals and 5,800 Canadian individuals ages 18 to 88. For results based on a randomly chosen sample of this size

(N = 61,167 in the US and N = 5,800 in Canada), there is 95% confidence that the results have a statistical precision of plus or minus 0.4% of what they would be if the entire population of US online individuals ages 18 and older had been surveyed and plus or minus 1.3% of what they would be if the entire population of Canadian online individuals ages 18 and older had been surveyed. Forrester weighted the data by age, gender, income, broadband adoption, and region to demographically represent the adult US and Canadian online populations (defined as those who go online weekly or more often). The survey sample size, when weighted, was 61,104 in the US and 5,778 in Canada. (Note: Weighted sample sizes can be different from the actual number of respondents to account for individuals generally underrepresented in online panels.) Please note that respondents who participate in online surveys generally have more experience with the Internet and feel more comfortable transacting online.

For its Asia Pacific Technographics Online Benchmark Survey, 2013, Forrester conducted an online survey fielded in May 2013 of 9,007 individuals in Australia, Indonesia, Japan, South Korea, metropolitan China (including Beijing, Chengdu, Dalian, Guangzhou, Nanjing, Ningbo, Shanghai, Shenyang, Suzhou, Wuhan, Wuxi, and Xian), Hong Kong, and metropolitan India (including Ahmedabad, Bangalore, Chennai, Hyderabad, Jaipur, Kolkata, Mumbai, New Delhi, and Pune). This survey is based on an online population of people ages 18 and older who are members of the Ipsos-MORI online panel. Ipsos weighted the data in all countries by age, gender, and geographical distribution to be representative of the adult online population in each country surveyed. In metropolitan China, the data was also weighted by income level for each city surveyed. In metropolitan India, the data was also weighted by the SEC AB groups. For results based on a randomly chosen sample of this size (N = 9,007), there is 95% confidence that the results fall within a range of statistical precision of plus or minus 2.0% to 4.3% of what results would be if each country's entire population of online individuals (defined as those online weekly or more often) ages 18 and older had been surveyed. The survey

sample size, when weighted, was 9,007. (Note: Weighted sample sizes can be different from the actual number of respondents to account for individuals generally underrepresented in online panels.) Please note that this was an online survey. Respondents who participate in online surveys have more experience with the Internet in general and feel more comfortable transacting online. The data is weighted to be representative for the total online population on the weighting targets mentioned, but this sample bias may produce results that differ from data collected offline. The sample used by Ipsos is not a random sample; while individuals have been randomly sampled from the Ipsos panel for this survey, they have previously chosen to take part in the Ipsos online panel.

For its European Technographics Online Benchmark Survey, 2013, Forrester conducted an online survey fielded in May 2013 of 22,027 European individuals in the UK, France, Germany, Italy, the Netherlands, Poland, Spain, Sweden, and Turkey. This survey is based on an online population ages 16 and older who are members of the Ipsos-MORI online panel. Ipsos weighted the data by age, gender, and online frequency to demographically represent the online adult population in each country. In Turkey, the data was weighted by age and gender only. For results based on a randomly chosen sample of this size (N = 22,027), there is 95% confidence that the results have a statistical precision of plus or minus 0.7% of what they would be if the entire population of Western European online (defined as those online weekly or more often) individuals age 16 and older had been surveyed. This confidence interval can widen to 3.1% when the data is analyzed at a country level. The survey sample size, when weighted, was 22,027. (Note: Weighted sample sizes can be different from the actual number of respondents to account for individuals generally underrepresented in online panels.) Please note that respondents who participate in online surveys have more experience with the Internet in general and feel more comfortable transacting online. The data is weighted to be representative of the total online population on the weighting targets mentioned, but this sample bias may produce results that differ from data collected offline. The sample used by Ipsos is not a

random sample; while individuals have been randomly sampled from the Ipsos panel for this survey, they have previously chosen to take part in the Ipsos online panel.

For its Latin American Technographics Online Benchmark Survey, 2013, Forrester conducted an online survey fielded in May 2013 of 5,994 individuals ages 16 to 75 in top metropolitan areas/provinces of Argentina and top metropolitan areas/states of Brazil and Mexico.* For results based on a randomly chosen sample of this size (N = 1,995 for Argentina; N = 2,001 for Brazil; N = 1,998 for Mexico), there is 95% confidence that the results have a statistical precision of plus or minus 2.2% of what they would be if the entire metropolitan population of individuals ages 16 and older had been surveyed in each country. Forrester weighted the data by age, gender, socioeconomic level (representing ABC1, C2, and C3 levels in Argentina; AB1, B2, and C1C2 levels in Brazil; and ABC +, C, and D+ levels in Mexico), and city. The survey sample size, when weighted, was 5,994. (Note: Weighted sample sizes can be different from the actual number of respondents to account for individuals generally underrepresented in survey data.) Please note that this was an online survey. Respondents who participate in online surveys have in general more experience with the Internet and feel more comfortable transacting online. The data is weighted to be representative of the total online population of each country on the weighting targets mentioned, but this sample bias may produce results different from data collected offline. The sample provided by Ipsos Livra is not a random sample. While individuals have been randomly sampled from Ipsos Livra's panel for this particular survey, they have previously chosen to take part in the Ipsos Livra online panel.

For its Russian Technographics Online Benchmark Survey, 2013, Forrester conducted an online survey fielded in May 2013 of 2,000 Russian online individuals ages 16 and older who are members of the Ipsos-MORI online panel. Ipsos weighted the data by age and gender to demographically represent the online adult population of metropolitan Russia. For results based on a randomly chosen sample of this size (N = 2,000), there is 95% confidence that the results

have a statistical precision of plus or minus 2.2% of what they would be if the entire population of metropolitan Russian online (defined as those online weekly or more often) individuals ages 16 and older had been surveyed. Please note that respondents who participate in online surveys have more experience with the Internet in general and feel more comfortable transacting online. The data is weighted to be representative of the total online population on the weighting targets mentioned, but this sample bias may produce results that differ from data collected offline. The sample used by Ipsos is not a random sample; while individuals have been randomly sampled from the Ipsos panel for this survey, they have previously chosen to take part in the Ipsos online panel.

ENDNOTES

Much of the information in this book comes from direct in-person, telephone, and email interviews by the authors with the people and representatives of the companies described in the book. Facts and quotes that do not have a note are either from public sources or from these personal interviews.

In these notes, when citing a long Web address, we typically use an equivalent address of the form http://forr.com/mmsX-Y. We created these site references for the convenience of the reader. Enter the web address into your browser and you will be redirected to the appropriate site online.

Please note that, as in all cases with Web addresses, people sometimes change or remove content that we have cited. Web content cited was visible at the time the book was written.

Many of these citations are Forrester reports. If you are a Forrester client with appropriate access, the cited address will take you to the report page online where you can read or download the full report. If you are not a client or your relationship with Forrester does not include access to the report, you'll see a short excerpt of the report. If you're still interested in the full report, you can sign up to become a client or purchase the report.

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Chapter 12

1. Agile development is a software development practice that delivers new functionality every two to four weeks. Customers get new features on a regular cadence, and the company gets to rapidly launch, learn, and extend without taking huge risks. Agile development is more like iterative evolution with change built in the process: Features that work are extended; features that don’t work are changed or retired (“deprecated” is the word your software teams will use).
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ADVANCE PRAISE

"Businesses embracing a mobile mind shift are already disrupting markets, creating new business models, and, most important, engaging with customers in ways they could not have imagined before. The mobile future has arrived, and the smart companies know it."

—Andy Geisse, CEO, AT&T Business Solutions

"Philips is transforming to become a connected, real time company in all our businesses: patient-centric digital health, connected lighting solutions, and mobile-controlled consumer devices. This implies the creation of new customer propositions and experiences, business models and enabling IT platforms. This book explores the business impact of mobile and gives leaders great insights into the opportunities and the business changes required to capture the value."

—Jeroen Tas, CEO Healthcare Informatics, Solutions & Services, Philips Healthcare

"Julie Ask, Josh Bernoff, and Ted Schadler provide a compelling account of consumers' rapid and inexorable shift from the desktop to mobile devices, as well as effective strategies to capture and maintain their attention and loyalty. This book is a must-read for

anyone who wants to compete in this new era of consumer technology."

—Jim Lanzone, CEO, CBS Interactive

"The center of computing has so very rapidly evolved from the mainframe in the enterprise clean room to the pockets and purses of everyday people. This changes a great deal. Schadler, Bernoff, and Ask have written the fundamental guidebook for business thinkers on how mobile changes the relationships among companies, customers, prospects, media, and investors."

—Shel Israel & Robert Scoble, Co-authors, *Age of Context* and *Naked Conversations*

"As content creators, we recognize the undeniable behavior driven by our audiences' insatiable desire for immediate gratification—whether for entertainment or information—and how in this on-demand environment, mobile provides us with the added ability to always be 'on' with our consumers. Continuing in the tradition of smart and insightful Forrester publications, *The Mobile Mind Shift* takes an intense look at this phenomenon and how businesses and brands can learn from it."

—Van Toffler, President, Viacom Music Group