

Tech Trends for
Consumer Products 2013
Elements of postdigital



Preface

Welcome to Deloitte's annual report examining trends in technology put to business use. Once again, we've selected ten topics that have the potential to impact businesses over the next 18 to 24 months.

Developing the list of trends is an ongoing process of primary and secondary research. The process includes:

- Feedback from client executives on current and future priorities
- Input from Deloitte industry and practice leaders
- Perspectives from industry and academic luminaries
- Research from alliance partners, industry analysts, and competitor positioning
- Crowd-sourced ideas and examples from our global network of practitioners

This year's theme, *Elements of postdigital*, examines the convergence and controlled collision of five forces – Analytics, Mobile, Social, Cloud, and Cyber – as businesses move closer to achieving the possibilities of the Postdigital Enterprise™, where all five forces are mature, implemented, integrated, and baked-in instead of bolted-on. These five forces offer a new set of tools for business, opening the door to a new set of rules for operations, performance, and competition. IT can deliver engagement and empowerment to business customers, both innovating and industrializing.

The Postdigital era, like the post-industrial era, reflects a "new normal" for business and a new basis for competition. In post-industrial times, we didn't forego industrialization, we embraced it. The Postdigital era is similar, but with digitalization as its core.

It's an uncommon time to have five forces – all newly emerged, all evolving, all technology-centric – already impacting business so strongly. It is an opportunity for IT to deliver extraordinary value via modest investments on top of a strong legacy technology footprint.

Our 2013 report shares ten trends grouped into two categories. *Disruptors* are opportunities that can create sustainable positive disruption in IT capabilities, business operations, and sometimes even business models. *Enablers* are technologies in which many CIOs have already invested time and effort, but which warrant another look because of new developments or opportunities. Enablers may be more evolutionary than revolutionary, but the potential is often there nonetheless to elevate the business game.

For 2013 we have also attempted to personalize our general Tech Trends article to include topics and examples specifically relevant to the Consumer Product industry. While we have maintained much of the rich content contained in the original version of this article, we've specifically included examples from leading Consumer Products companies such as Schwan's (Mobile Only and Beyond) and OfficeMax (Design as a Discipline), and have also featured our collaboration on Big Data with the Grocery Manufacturers Association (GMA).

Each topic also includes an external point-of-view in the *My Take*. This year, you'll also find a new section called *Flying Car Future*, which takes a provocative view into where the trend may be headed in Horizon 3 – and beyond. Last but not least, where we deem applicable, we've included our Consumer Products perspective to share our industry insight on the implications of the respective trend.

Each of the 2013 trends is relevant today. Each has significant momentum and potential to make an impact. And each warrants timely consideration. Forward-thinking Consumer Products organizations should consider developing an explicit strategy in each area – even if that strategy is to wait and see. But whatever you do, step up. Provoke and harvest disruption. Don't get caught unaware or unprepared.

Thank you for your interest in this year's report. We welcome your feedback and questions. To the many executives who have provided input into Tech Trends for Consumer Products 2013, thank you for your time and insight. We look forward to having more of the essential dialog between business and IT.

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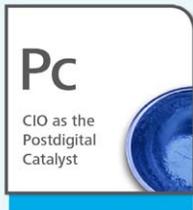
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At a Glance

Disruptors

Opportunities that can create sustainable positive disruption in IT capabilities, business operations, and sometimes even business models.



CIO as the Postdigital Catalyst

Catalyzing value from the elements of mobile, social, analytics, cloud and cyber

CIOs can lead the move to tomorrow – reshaping business as usual, and driving innovation. They are faced with unprecedented opportunity for innovation such as the potential to enable Customer Intimacy at scale for Consumer Products Organizations. How should business respond? When CIOs harness the convergence of the five postdigital forces, they can change the conversation from systems to capabilities and from technical issues to business impact. Plan big, start small, fail fast, scale appropriately.



Mobile Only (and beyond)

The enterprise potential of mobile is greater than today's smartphone and tablet apps

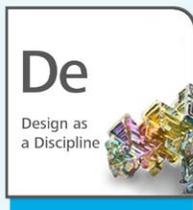
Mobile should be top of mind for organizations. But don't limit your ideas to Mobile First. Think *Mobile Only*, imagining an untethered, connected enterprise. The next wave of mobile may fundamentally reshape operations, businesses and marketplaces – delivering information and services to where decisions are made and transactions occur. The very definition of mobile is changing – as evidenced by our featured Consumer Products organization that already improved customer service efficiency and quality through the Mobile Only paradigm.



Social Reengineering by Design

How work gets done is no longer constrained by 19th century platforms

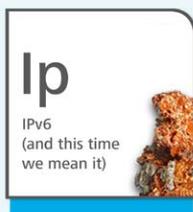
Businesses are no longer building technologies just to enable interaction – they are now engineering social platforms for specific context – platforms that can relieve rather than serve traditional organizational constraints such as deep hierarchies, command-and-control cultures, physical proximity and resource concentration. Social reengineering can fundamentally transform how work gets done, but it isn't just a "project." It's a strategy. It's time to uncover the opportunities for Consumer Product organizations to harness the power of the crowd to augment business operations through external communities.



Design as a Discipline

Inherent, pervasive and persistent design opens the path to enterprise value

Driven by consumer experience, intuitiveness and simplicity are moving from IT aspirations to enterprise mandates. Design is not a phase; it's a way of thinking. Beyond look and feel, beyond user interfaces. Isolated in silos of user experience (UX), marketing and product development, individual design functions may be reaching their limits. What's needed is a collaborative, immersive environment to work together. Design is not just an "IT thing" or a "marketing thing" or a "product engineering thing." It's an *enterprise* thing as evidenced by our featured Consumer Products organization that dramatically improved user productivity and customer experience.



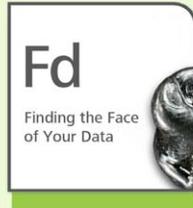
IPv6 (and this time we mean it)

Ubiquitous connected computing is straining the underlying foundation of the Internet

Internet Protocol is the foundation of networking, but we've run out of addressable space for addressable items. The more important it is for your business to connect with the outside world, the more important IPv6 is for your future – and the more urgent this issue is for you today. IP addresses are woven deep into applications and infrastructure, and migration can bring challenges. While there's no drop dead date for IPv6, the final IPv4 address blocks have already been allocated. Careful and proper adoption will take time for planning, execution and verification. The time to start is now.

Enablers

Technologies in which many CIOs have already invested time and effort, but which warrant another look because of new developments or opportunities.



Finding the Face of Your Data

Fuse people and technology to discover new answers in data – and new questions, too

Humans do some things really well, while computers are better at other things. It is this particular combination that enables the identification of new patterns and relationships across dimensions of data – structured and unstructured, internal or external, big or otherwise. By combining human insight and intuition with machine number-crunching and visualization, companies can answer questions they've never answered before. For Consumer Products organizations, Deloitte's collaboration with the Grocery Manufacturer's Association is raising awareness of the business value of data visualization.



Gamification Goes to Work

Driving engagement by embedding gaming in day-to-day business processes

Gamification can encourage engagement and change employee, customer and supplier behavior, creating new ways to meet business objectives. The goal is to recognize and encourage behaviors that drive performance – sometimes in unlikely places. This trend has moved beyond hype and is already demonstrating business value. More specifically, Deloitte's collaboration with the Grocery Manufacturer's Association is exposing the significant potential for consumer-targeted applications (such as in-store gamification).



Reinventing the ERP Engine

Revving up data, hardware, deployment and business model architectures at the core

If you could really get ERP cheaper and faster, what would you do differently? Run materials requirement planning (MRP) many times each day? Close the books in a matter of minutes? Optimize delivery routes on-the-fly in response to new orders, traffic or customer preferences? What would it mean for business agility, capability and competitiveness? If approached with a focus on reinventing business capabilities, the evolution of the ERP engine can yield significant competitive edge.



No Such Thing as Hacker-proof

If you build it, they will hack it. How do you deal with that?

You've either been breached – or you soon will be. Your boss knows it, your business knows it, your board knows it, your customers know it, and hackers know it. It's your job to deal with it. That means changing the way you think about defending yourself. Be more proactive about the threat – and react more rapidly when breaches do occur. Detect them quickly, respond, clean up and adjust your tactics. Be outward-facing, prepared and ready in advance. Anticipate and prevent when possible, but be ready to isolate and encapsulate intrusions to minimize impact. It's better to lose a finger than to lose an arm.



The Business of IT

After reengineering the rest of the business, IT's children deserve some shoes

Fragmented processes and systems can prevent IT from effectively delivering on the changing demands of the business. IT may need to transform its own management systems to keep up. Is this ERP for IT? Maybe someday. Today, CIOs are crafting solutions from industry-leading products and testing business cases at each step. And the potential benefits are worth the investment – not only in driving down costs and better managing risks, but in positioning IT as the business partner in provoking and harvesting disruption in the Postdigital era.

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Disruptors



2 Mobile Only (and beyond)

Apps are just the beginning

A bevy of statistics triumphantly proclaim the arrival of the mobile era – from Internet traffic statistics to device sales to even broad measures of how people spend their time:

- In 2012, both Apple¹ and Google Play² surpassed 25 billion app downloads
- As of September 2012, Square is processing \$8 billion on an annualized basis, up from \$1 billion a year ago³, and 35 million Americans have completed purchases using Square⁴
- A survey of Web-enabled phone owners found that 80% of the participants multitasked on their mobile device while watching TV⁵
- As of December 2012, 13% of all Internet traffic originated from mobile devices⁶
- In the second quarter for 2013, the total global install base of smartphones and tablets is predicted to exceed those of PCs⁷

The explosion of smartphone and tablet adoption in the consumer world cannot be denied. And enterprises have taken note. Mobile initiatives have popped up in almost every corner of the business – looking to untether the workforce, engage customers more effectively, and reshape business-as-usual. CIOs are scrambling to deal with the outcry. To manage, maintain, connect, and protect devices. To imagine, build, deploy, and promote applications. And all the while, many are singing the gospel of “an app for that,” trying to close the gap between end-user expectations and current offerings.

Against this backdrop, “mobile first” became a rallying cry in 2012, calling for each project, solution, or investment to strongly consider a mobile component. That’s where many companies stand today: wrestling with how to use mobile – specifically smartphones and tablets – to veneer existing operations and processes. Unfortunately, it’s been slow

going. Our research shows that across the *Fortune 100*, only 62% of companies have some kind of publicly available app. Even fewer, 52%, have mobile-oriented websites (that is, a mobile-specific site with a dedicated URL, such as *m.url.com* or *url.com/mobile*).⁸

But things are changing, with the mobile ecosystem moving at lightning speed. Smart phones and tablets aren’t the only – or sometimes even the preferred – targets. Advances in embedded sensors and actuators are driving powerful machine-to-machine (M2M) use cases. Pattern recognition and contextual analysis, ambient access and connectivity, and mass adoption of natural user interfaces – voice, gesture, and beyond – are creating new modes for user engagement. The opportunity goes well beyond using mobile apps to do what you’ve always done differently. It’s about doing fundamentally different things.

We’re entering an era of “mobile only,” with outcomes that would be impossible without today’s mix of persistent connectivity, artisanal solutions that blend creativity and UX and next-generation engineering with devices. Uber, Square, and Project Glass would not exist without mobile. Neither would Whole Foods’ robotic shopping carts – which double as concierges and personal, in-aisle checkout machines. As the cost of Bluetooth chipsets and WiFi continue to drop, suddenly it seems *everything* has the potential for intelligence – either as a stand-alone device or by tethering to a phone, tablet, or PC.

In the post-PC era, mobile can’t be just a hobby. It’s not noteworthy that your enterprise has great mobile apps; it’s noteworthy if you don’t. As you move past experimentation, make sure you avoid getting stuck on mobile first. Focus instead on the prospect of reinvention, based on the new realities of *Mobile Only – and beyond*.

History repeating itself?

We're still in the early days of the mobile era. Deloitte research shows that leading mobile operating systems are less than five years old, and enterprise adoption has only just begun⁹. IT professionals are barraged with hype from vendors and talking heads eager to announce the arrival of a new age. Coming in the wake of incessant cloud rumblings, discerning CIOs are wary of getting too far ahead of mobile's intended promise.

	What were the challenges?	What's different in 2013?
"Web era" hype	<ul style="list-style-type: none"> • "E" everything became the rule, as vendors saturated the market with retooled solutions to take advantage of the Web. Marketing over-sold products with marginal business value and unsophisticated technical architectures. • Web was approached as its own, independent domain – organizationally, technically, and operationally. As adoption hit maturity, the distinction became meaningless. eCommerce was simply another channel and business was inseparable from eBusiness. Organizations were left trying to integrate web divisions back into the fold. • The switch from thick clients to web presence was an important shift, but it still largely focused on desktops and laptops with broadband connectivity. The result was only a modest effect on the nature of technology services, or the types of problems that could be addressed. 	<ul style="list-style-type: none"> • While a land grab is underway across mobile, there has been a remarkable amount of standardization on platforms and services. From OS to micro-blogging to social sharing to location-based recommendation services, a handful of dominant players have emerged in each market. And while the futures of individual vendors are far from certain, the services they provide and the use cases made possible will likely continue to thrive – providing a foundation for innovating beyond today's definition of mobile. • Mobile will likely become a solution fabric, like the Web – present in almost every part of a business. And because mobile centers of excellence are introducing multi-disciplinary, Agile-based solution approaches, their usefulness will likely extend beyond the shelf-life of mobile's novelty – and should be easily shifted to the next emerging technology. Companies are learning from their e-mistakes, thinking about omni-channel sales, logistics, and marketing instead of domain silos. • Mobile's impact on business can be even more radical than the Web's – removing physical boundaries as to where business can occur and who can conduct it.
Asset intelligence / "Internet of Things"	<ul style="list-style-type: none"> • Sensor and embedded-chip pricing historically had not hit a tipping point allowing mass market adoption. • RFID backlash and uncertainty around NFC adoption slowed corporate investment – exacerbated by competing protocols¹⁰ and visible lack of support¹¹ from industry leaders. 	<ul style="list-style-type: none"> • Recent roll-out of next-generation printable tags and low cost/footprint components is making widespread adoption feasible. • Sector-specific innovation is short-circuiting adoption cycles. mHealth advances by conventional consumer goods companies (e.g., Casio, Jawbone, Nike) and new entrants (e.g., AgaMatrix, FitBit, Vitality) are creating new standards – and encouraging a growing population of niche players that are innovating on top of their platforms.

Technology implications

Many CIOs don't need convincing on mobile. They understand that its potential is only beginning to be unlocked, and they're excited about the chance to play corporate Prometheus – bringing emerging technologies to the business to spark innovation.

But they're also dealing with the complications of even today's modest mobile adoption: bring your own device (BYOD) pressures from line employees to the boardroom. Draconian restrictions around security, risk, and legal by the Chief Information Security Officer (CISO) and general counsel. Constituencies that are long on app ideas (some good, some great, some awful). And an IT organization that is ill-equipped to deal with the tsunami. Thankfully, the same building blocks needed for the tactical response can likely be re-used once the business embraces *Mobile Only – and beyond*.

Topic	Description
Security and privacy	<p>Organizations need policies and tools: To authenticate users. To control devices, applications and data. To provide end-to-end encryption while at rest, in flight, and in use. To run content filtering and malware protection. To allow security event monitoring, logging, and response. Security policies and profiles should be tied to specific users and plausible scenarios, focusing remedies on likely incidents, not the infinite range of imaginable risks.</p> <p>Privacy is a universal concern – from industry regulations, to legally protected information, to sensitivity about inappropriate monitoring of behavior and social interactions. Industry-leading practices should be merged with organizational policies and governance to address today's regulatory needs. Some very real technical design considerations unfold, including how to present, cache, and store personally identifiable information (PII) and transactional data to comply with the Payment Card Industry (PCI) Data Security Standards, HIPAA (Health Insurance Portability and Accountability Act), and others.</p>
Mobile device management (MDM)	<p>MDM is an important dimension of security and privacy, allowing organizations to manage and control devices – especially as the definition of “device” grows beyond phones, tablets, and laptops. MDM allows for policies, provisioning profiles, apps, and data to be enforced, monitored, and protected. Patches, software (OS/app) updates, and automatic back-ups can be executed over the air.</p> <p>MDM can also allow devices to be triaged, disabled, or wiped clean if compromised. Mobile OS providers are trying to build more detailed management tools into their platforms – but with a crowded vendor landscape there will likely be consolidation in the coming year.</p>
Digital content management	<p>Mobile is forcing renewed attention on digital content, asset, and rights management – and downstream activities of monitoring, measuring, and analytics. “Multi-channel” mandates are maturing into “omni-channel” strategies – requiring consistency and completeness across whatever means of interaction a customer chooses. Content is at the heart of the experience, and is increasingly interactive, high resolution, and dynamically allocated based on customer and location context.</p>
Mobile architecture	<p>Native, responsive Web, and hybrid (Web views within native app containers) application architectures currently dominate. But a new generation of cross-platform development tools have “build once, deploy many” and “low/no code” approaches. Many organizations will need to support a combination of these techniques, with appropriate choices being driven by business objectives and usage scenarios. But remember, the underlying data and services layers are just as important. Mobile middleware is an extension to many existing integration solutions, improving message delivery by parsing/buffering large data payloads and allowing for offline transaction processing.</p>
Mobile QA	<p>The end-user experience is king in mobile, and mobile QA should reflect that attitude. A baseline of automated scripting is encouraged – with compilation and build-verification addressing compatibility issues with the target device portfolio. This portfolio is likely to expand. Edge-case testing simulating connectivity and usage parameters of the end user are also necessary – validating graceful feature degradation as signals lose strength, traumatic event handling if devices are dropped, and inadvertent interaction (e.g., “pocket dialing” equivalent for apps).</p>
Mobile center of excellence	<p>Many organizations are approaching mobile with a non-traditional delivery model – embracing Agile methodologies using a multi-disciplinary team with unconventional skills such as creative directors, graphic designers, and user experience engineers. Regardless of consumer- or employee-facing scope, rapid development with a heavy emphasis on usability and design are needed – neither of which is a core discipline for many enterprise IT shops. Mobile and, more broadly, digital centers of excellence, are becoming commonplace, helping to bridge the historical divide between the CMO and CIO organizations.</p>

Lessons from the frontlines

Leave your wallet at home

Square is an electronic payment company that enables a mobile-only payment experience, where the customer can make a payment from the “wallet” app on his or her smartphone – and the vendor can process payments using the “register” app on a smartphone or tablet. In addition, when both customer and cashier are using the apps, the cashier can detect the customer through location-based technologies. In that case, all the customer needs to do is say his or her name to complete the purchase. No more fumbling for change, digging through credit cards, or even picking up your smartphone. Making a payment can become hands-free.

Businesses that didn’t accept credit cards before can now take advantage of the millions of cards that Americans carry – vendors at flea markets, mom-and-pop shops, artists, farmers’ markets, and more. And beyond the “cool factor” of paying with a smartphone, customers can use Square to give and receive gift cards and earn rewards points for their purchases. With Square, customers can truly leave their wallets at home.

Collaborative Care¹²

The New Media Medicine research group at the MIT Media Lab has been using mobile to disrupt the health care industry and reinvent the doctor-patient relationship. Using CollaboRhythm, an open-source technology platform the group created, patients with chronic diseases are empowered to become apprentices and active participants in their own health, and doctors and other health professionals are converted into real-time coaches.

Interaction with CollaboRhythm begins with a speech- and touch-controlled interface that enables doctors and patients to make shared decisions about care. It’s not a tele-presence system, but a tele-collaboration system. CollaboRhythm provides patient data tracking interfaces, data synchronization services, communication tools, and visualization frameworks, and makes it easy to deploy applications to mobile phones, tablets, and computers. The goal is for patients to own their health data and track their own progress so they can take appropriate action – with doctors serving as health coaches instead of commanders. Using CollaboRhythm, many things that patients would see in their doctors’ offices is available at home – or when patients visit another doctor, or change jobs, or move across the world. And, patients can contribute their own data that doctors often do not see: data points and perceptions about social support, diet, alternative therapies, and how these factors influence their quality of life. What could this mean? No more letting patients slip through the cracks.

The research group has already thought about how to take CollaboRhythm to the next level. In the not-so-distant future, doctors could push medication reminders to a patient’s bathroom mirror or television. Or, patients could talk with an “intelligent conversational agent” to prepare for a visit to the doctor. Doctors could even send patients visualizations of their health progress in fighting disease, in a way that’s both understandable and actionable for patients.

The New Media Medicine group believes that patients of the future will likely know more about their health than their doctors. And by making patients active and informed contributors to their own care, patients can be healthier and in control. And, as patient wellness is likely to become an important factor in the profitability of the health care system, this is likely to be something that life sciences companies, providers, and plans are incented to promote.

Hardware renaissance: thy name is mobile

Kickstarter is a popular crowd-sourced venture capital platform. Two of its milestone projects embody the Mobile Only mindset. Tik Tok was the first company to raise nearly \$1 million¹³, selling watchbands to hold Apple’s Nano 6. Even with a relatively sparse set of features, the idea of a smart watch captured imaginations, selling 250,000 units through May 2012¹⁴ and sparking a new niche industry. Pebble Watch is Tik Tok’s spiritual, if not literal, successor, featuring an e-ink display and Bluetooth 4.0 connectivity to smartphone devices. Caller ID, incoming text messages, notifications, weather, and other app-specific content are delivered on the wrist. Buttons and touch screen prompts allow interaction with the devices: answering the phone, launching voice commands, etc. And with its own software development kit (SDK) and app marketplace, new features are being rolled out daily.

Finally, Smart Things moves beyond wearable computing, looking to imbed intelligence into many things in your life with an affordable range of sensors, actuators, and hubs. Not surprisingly, a smartphone app is included for manual control. Possibly its most intriguing feature is its rules engine and open SDK – allowing complex events to be modeled and executed based on chains of sensors and controllers. For example, location triggers on a phone can trigger a “leaving home” event, causing doors to lock, thermostat to be adjusted, lights to be turned off, and security devices to be initiated.

Mobile at the Dinner Table

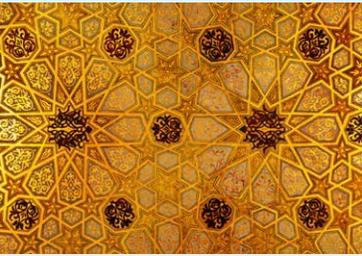
The proliferation of retail food stores, supermarkets, membership wholesale stores and online retailers throughout the rural United States threatened the profitability of Schwan's Home Service (SHS). What started as a business model designed to provide easy-to-prepare frozen meals to the doorsteps of homes needed to evolve in order to compete with the increasing availability of deeply discounted products. To address years of diminishing sales, Schwan's developed a multi-channel approach to compete on the basis of customer satisfaction. SHS focused on providing high quality food and timely service to customers as the foundation for their customer retention and growth strategy.

Schwan's collaborated with Deloitte to plan, execute and sustain the enterprise-wide transformation, the largest project that the company has undertaken. While people and process were important to driving long-term cultural changes, technology would enable the sales force to operate with better, correct data. To bring the technology thread to light, Deloitte helped Schwan's implement a mobile strategy in which each of its 6,000+ delivery routes were managed to allow for more efficient delivery and greater opportunities to build the route with a new customer base. Ruggedized mobile point-of-sale units equipped with GPS sensors and wireless data connections were deployed to the sales force.

Tight integration of these devices to the Schwan's order system allowed customers to place same day delivery orders if the driver was in the area and had availability on the route. Customers could now forgo the waiting period of two weeks for the next sales visit if they ran out of their favorite scallop sautés or ice cream sandwiches. Orders placed online or over the phone were routed directly to the appropriate distribution center, where real-time inventory levels and fleet location data were used to push the delivery into the route sequence of the nearest sales representative with adequate stock. This drove additional sales that Schwan's may not have been exposed to without the mobile technology enabler.

Additionally, the new technology enabled district managers and corporate headquarters to view real-time fleet disposition and sales statistics. Coupled with the geographical information of each customer's location, it is now possible for management to determine that all customers are being visited, and allows those customers to request two-hour time windows in which the route sales representative would drop by. Previously unmeasured service levels are now a tenant of the sales force; seeing the customer at the appropriate place, the specific time, and at the targeted location. With the help of effective route management software and cleansed master data, sales reps' routes were sequenced to manage face-time with the customer in an agreed upon time window. This allowed the sales force to catch more customers at home, increase sales, and reduce miles driven.

The adoption of mobile technologies enabled Schwan's Home Service to evolve an antiquated business model into a mobile era story that achieved the desired outcomes. Gone are the days that management is operating in darkness after the truck leaves the distribution center. With their new agile distribution platform, SHS is defining a new level of customer service.



My take

Larry Quinlan

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On a recent family vacation, my daughters and I rented jet skis. And I noticed something: our entire rental process was mobile-enabled. The operator scheduled our equipment, swiped my credit card, and even issued a receipt from his mobile phone – and I later learned that he uses his mobile phone to arrange for maintenance too. This is just one example that “mobile only” is a trend that is here to stay. It’s changing the way we operate in both our personal and professional lives.

At Deloitte, we have a five-pronged approach to take advantage of the mobile trend. The first prong is hardware: you can’t be mobile without devices. Companies take various approaches, from “everyone will get the same device – and you’re going to like it” to “bring your own device to work, whatever it is, secure or unsecure.” We opted for an approach in the middle. Once a mobile device passes our security testing, we believe in offering it as a choice.

The second prong is device management. In what we believe is in the best interest of our people and clients, we’ve chosen a tightly-managed approach, but without adopting a single, heavy mobile device management application.

The third prong is our software. How do we feel about tablet, PDA, and multiplatform software? We did some experimenting to figure this out. There are many amazing apps out there, but at Deloitte, we have to tune to the business imperative. We have an enterprise app store, and we’re now globalizing it to unify our software experience.

The fourth prong in our approach is collaboration. We fundamentally believe that mobile is a critical enabler to improve collaboration with one another. We’ve started using a web conferencing solution that allows us to join web conferences from our tablets and smartphones in addition to our laptops. Mobile web conferencing helps us not miss a beat with our teams and clients even when we’re on the go.

And the last prong is handling the unknown answer to the question of “what’s next?” Can we radically improve a business process, like the jet ski operator working in a way that he couldn’t before? Will mobile help us deploy our people? Manage skill sets? Write proposals? Maybe it’s not revolutionary, but what if we could use mobile to manage office space? Monday through Thursday our offices are virtually empty, yet on Friday you can’t find a seat. What if our badges acted as real-time sensors to improve management of our space, and ultimately saved tens of millions of dollars?

How do we measure our achievement? We’re in the people business, so improvements in productivity provide us with a competitive advantage – but the impact is hard to measure. However, consider this: today, if you land after a six-hour flight and have 89 messages in your inbox, by the time you get through Customs, you’ve cleared most of them. Before mobile, you’d have had to get to the hotel and fire up your laptop, and spent your night on those 89 emails. It’s hard to argue that mobile doesn’t improve productivity.

Many CIOs, myself included, like to be in control. But with mobile, my advice is to not try to control it completely. Consider an experimental approach to developing apps – it will likely teach you something. Listen to your people, and get an improved understanding of how they are using mobile. Build prototypes, get feedback, and throw them away. This is hard to embrace, since nobody has ever said “let’s implement an ERP system, see what it does for us, and scrap it next year.” But mobile brings the need for a different approach.

Ultimately, success is when technology supports the way we inherently do our jobs, so we need to figure out how to tie mobile back to our fundamental business processes. When we can finally affect business processes with mobile in a way that makes people say “Wow, I never thought of that!”...we’ve done our job.

Flying car future

We are already living on the cusp of mobile's future. Mobile and mobility are converging in the form of self-driving cars, now legal in three U.S. states¹⁵. Digital wallets are delivering on the holy grail of a singular digital identity crossing our personal and professional personas. Society is trending towards connectivity and some form of computing embedded in almost everything around us, which we're interacting with in more and more natural ways. Four forces are taking shape, defining the new face of mobile:

- **Convergence.** Mobile will likely become the anchor of our digital identities, providing a centralized, connected, always-with-us hub for services, information, entertainment, and convenience across our personal and professional lives. Impulse computing is moving from luxury to the very fabric of how we interact with the world around us. Mobile is already the new camera, watch, book store, radio, car key, dictionary, textbook, address book, medical health record, sales tool, cash register, daily planner, calculator, customer service agent, thermostat, and personal assistant. How long before it also becomes the new doctor, personal historian, retail store, personal manufacturing line (3D printing and replication), and official proof of identity? More compelling than the individual use cases is how they'll converge in a mobile footprint accessible across different devices, as our definition of device evolves from a discrete piece of electronic equipment to a collection of participating nodes.
- **Ubiquity.** Virtually everything and everyone we interact with will likely soon have the potential to be wired – containing embedded sensors and mobile technologies that allow new and advanced tracking of and interaction with physical things. Portability of the ever-growing list of converging services will likely be expected. Sync almost any activity across almost any device. Begin reading the morning paper in your bathroom mirror and continue by listening to the text-to-voice version from the dashboard of your car during traffic stops. Then finish through the heads-up display from your glasses on the elevator ride to your office.
- **Transparency.** The user interface is evolving. We've already moved from point-click-type to touch-swipe, but we're still consciously interfacing with a device. Voice, gesture, and location-based services are likely to become the primary modus operandi – unlocking new use cases for commerce, back-office, and personal lives. A simple example is a mobile boarding pass for an airline flight. Until recently, a user had to take her phone out, unlock the device, open her calendar, find her flight, copy her confirmation code, find and launch the airline's app, choose check-in, paste her confirmation detail, and then stay in the app to present the boarding pass at security and again upon boarding. Using location-based services and a host of technologies for short-range communication, today's devices can make the operation a user-free interaction. When the user arrives at the airport within three hours of a flight on her calendar, the boarding pass is automatically displayed on her screen and transmitted to the TSA and gate agents without her having to take the device out of her purse.
- **Extending reality.** Augmented reality is moving out of games and military and scientific environments into the mainstream enterprise. What you can read, hear, or feel is delivered based on how you gesture, move, and talk – sensitive to location and context, with information you need or want in a format that can adapt to the environment at hand. The defining developmental work of Sixth Sense from Pranav Mistry and Patty Maes in the MIT Media Lab's Fluid Interfaces Group demonstrates that this is not science fiction – but rather business reality¹⁶.



Where do you start?

Many companies find themselves off to the mobile races – with efforts launching across business units and across functions around the globe. Prioritization and focus remain critical, but just as important is a bold vision to think beyond veneering today's business and processes. This puts even more pressure on the enterprise enablement front – how to secure, build, integrate, deploy, and manage a new set of devices, services, and assets that are necessarily dynamic. Even in this changing world, there are some foundational steps that many early achievements have followed.

- **(Accelerated) digital strategy.** Mobile is moving too fast for a prolonged academic exercise in strategic planning. Make no mistake – strategy is important. But it should happen in eight weeks instead of eight months. It should begin with opportunity identification – helping the business discover ideas for reshaping customer, employee, product, and partner experience through mobile. And don't forget about enablement – creating a roadmap for just enough foundational architecture, infrastructure, and management capabilities to be slightly ahead of the usage scenarios.
- **Cross the streams.** Is your organization funding parallel efforts in content management, asset management, social, CRM, analytics, gamification, and mobile? If so, you're not alone. At best, there's redundant work being done. At worst, connections are being missed, and competing priorities may be leading in drastically different directions. These efforts don't necessarily have to be corralled under a single centralized team, though they increasingly are. But there are enough real dependencies and overlap that they can't be handled in isolation, either.
- **Lessons from kindergarten.** Mobile is begging for show, not tell – especially as you start dabbling with advanced features. Even your most creative end users are subconsciously anchored in how things work today. You need to bring concepts to life – whether through illustrated user stories or wireframes or working prototypes. Create a mobile 'A-team' with a mix of talents that include creative, UX, engineering, and sector and functional knowledge. Consider starting by deciding on a target platform and have them come up to speed. Let them earn their stripes on a particularly juicy use case with clear business value. Also, consider using them as the inner circle of your mobile center of excellence – guiding choices as mobile moves from an experiment to a core strategic discipline.

- **Eat TechCrunch for breakfast.** Inspiration is likely due more to the importing and exporting of ideas than to "eureka" moments of radical breakthroughs. Who in your organization is monitoring the start-up community and technology blogosphere for anecdotes that may seed your next big thing? Especially in mobile, use cases are remarkably portable across industries. Consider making team members accountable for staying current on what others are doing. Create social platforms for the broader organization to engage around these potential sparks – with the added benefit that ideas and commentary will likely not dissipate into the ether of isolated inboxes, but instead will remain persistent assets whose value may not be unveiled for some time.
- **User down, not system up.** Meeting user expectations starts with research and data-driven inquiry to understand the target users' needs, desires, and routines. These insights drive the early-stage strategy and feature ideation process. Because customers interact with companies through a variety of touchpoints – from browsing a website to calling a customer service associate – it's important to consider each interaction through the eyes of the customer.

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



Bottom line

Mobile is more than just the latest step function in tech innovation. It is a fast-moving engine that is fundamentally reshaping operating models, business models, and marketplaces. The start-up and venture communities have embraced this notion – but the *Fortune 100* have been slow to react. Organizations should move boldly to establish themselves in the mobile era – and be prepared to ride the tsunami as it evolves. Those who do not may be left behind in its wake.

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Endnotes

- ¹ "Apple's App Store Downloads Top 25 Billion," Apple Inc. press release, March 5, 2012, on the Apple Inc. web site, <http://www.apple.com/pr/library/2012/03/05Apples-App-Store-Downloads-Top-25-Billion.html>, accessed December 6, 2012.
- ² Velazco, C. *Google's Play Store Hits 25 Billion App Downloads, Kicks Off Five Day Sale To Celebrate*. Retrieved December 6, 2012, from <http://techcrunch.com/2012/09/26/google-play-store-25-billion-app-downloads/>
- ³ Kim, R. *Square goes big: raises \$200m at \$3.25b valuation*. Retrieved December 6, 2012, from <http://gigaom.com/2012/09/17/square-goes-big-raises-200m-at-3-25b-valuation/>
- ⁴ Tofel, K. *Future of mobile: 5 takeaways from Mobilize 2012*. Retrieved December 6, 2012, from <http://gigaom.com/mobile/future-of-mobile-5-takeaways-from-mobilize-2012/>
- ⁵ Jeremy Lockhorn, *Forget Mobile – Think Multiscreen*, <http://razorfishoutlook.razorfish.com/articles/forgetmobile.aspx#01>, accessed December 6, 2012.
- ⁶ Mary Meeker, *2012 Internet Trends*, <http://kpcb.com/insights/2012-internet-trends> (May 30, 2012). Slideshare
- ⁷ Mary Meeker, *2012 Internet Trends*, <http://kpcb.com/insights/2012-internet-trends> (May 30, 2012). Slideshare
- ⁸ Deloitte Consulting LLP proprietary research, September 2012.
- ⁹ Deloitte Consulting LLP proprietary research, October 2012.
- ¹⁰ Charlie Fine, Natalie Klym, Milind Tavshikar, and Dirk Trossen, *The Evolution of RFID Networks* (Paper 224), http://ebusiness.mit.edu/research/papers/224_Fine_Klym_Evolution_of_RFID_Networks.pdf (May 2006).
- ¹¹ Kim, R. *iPhone 5's NFC snub will keep technology out of mainstream*. Retrieved December 6, 2012, from <http://gigaom.com/2012/09/12/iphone-5s-nfc-snub-will-keep-technology-out-of-mainstream/>
- ¹² See: <http://newmed.media.mit.edu/collaborhythm>
- ¹³ See: <http://www.kickstarter.com/projects/1104350651/tiktok-lunatik-multi-touch-watch-kits>
- ¹⁴ Laurie Segall, *\$7 million Pebble watch shatters Kickstarter records*, <http://money.cnn.com/2012/05/02/technology/startups/pebble-kickstarter-watch/index.htm> (May 2012).
- ¹⁵ Thomas Claburn, *Google Autonomous Cars Get Green Light In California*, <http://www.informationweek.com/government/policy/google-autonomous-cars-get-green-light-i/240008033> (September 27, 2012).
- ¹⁶ See: <http://www.pranavmistry.com/projects/sixthsense/>

Conclusion

Faithful readers of our Tech Trends reports will find some familiar topics in these pages. The postdigital forces have seen extraordinary attention in the past four years – and each is still in the early stages of adoption. The book on how each can fundamentally reshape business is still being written.

Although the topics are familiar, the underlying trends continue to evolve at an astounding pace. Take mobile, for example. In 2010 the story was about ubiquitous connectivity and device (i.e., smartphone) advances. In 2011, the focus was on the “app” – and the advent of the tablet. In 2012, we covered enterprise implications for prioritization of opportunities, as well as the operational realities of governing, managing, and delivering mobile solutions. And now in 2013, we consider mobile’s place as an utmost strategic priority. The very notion of “devices” is exploding into near-ubiquitous connectivity of many physical objects. The fundamental element of mobile still applies – the innovative idea of removing limitations based on physical location, and of a truly untethered enterprise. But the supporting nuance and details are moving at a rapid clip, making it paramount for IT executives to keep pace with change.

Postdigital’s potential can spur both offensive and defensive responses. On one side lies opportunity for innovation. On the other, the existential threat of disruption. Every industry may be affected by the underlying digital forces. Every market may be reshaped by their controlled collision.

Who will lead the charge? The reports of IT’s demise may be exaggerated, but there is often truth behind the rhetoric. How will CIOs reimagine their roles in business strategy? What will the corresponding IT department look like? One thing is for certain: the elements of postdigital will play a foundational role.

We close this year’s report with the familiar quote from futurist William Gibson: “The future is already here...it is just not evenly distributed.” Our hope is that the Tech Trends reports will help you discover the elements of postdigital in your enterprise.

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