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Introduction

WELCOME to Deloitte's fifth annual *Technology Trends* report. Each year, we study the ever evolving technology landscape, focusing on disruptive trends that are transforming business, government, and society. Once again, we've selected 10 topics that have the opportunity to impact organizations across industries, geographies, and sizes over the next 18 to 24 months. The theme of this year's report is *Inspiring Disruption*.

In it, we discuss 10 trends that exemplify the unprecedented potential for emerging technologies to reshape how work gets done, how businesses grow, and how markets and industries evolve. These disruptive technologies challenge CIOs to anticipate their potential organizational impacts. And while today's demands are by no means trivial, the trends we describe offer CIOs the opportunity to shape tomorrow—to inspire others, to create value, and to transform “business as usual.”

The list of trends is developed using an ongoing process of primary and secondary research that involves:

- Feedback from client executives on current and future priorities
- Perspectives from industry and academic luminaries
- Research by alliance partners, industry analysts, and competitor positioning
- Crowdsourced ideas and examples from our global network of practitioners

As in prior years, we've organized the trends into two categories. Disruptors are areas 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 that warrant another look because of new developments, new capabilities, or new potential use cases. Each trend is presented with multiple examples of adoption to show the trend at work. This year, we've added a longer-form *Lesson from the front lines* to each chapter to offer a more detailed look at an early use case. Also, each chapter includes a personal point of view in the *My take* section.

Information technology continues to be dominated by five forces: analytics, mobile, social, cloud, and cyber. Their continuing impact is highlighted in chapters dedicated to wearables, cloud orchestration, social activation, and cognitive analytics. Cyber is a recurring thread throughout the report: more important than ever, but embedded into thinking about how to be secure, vigilant, and resilient in approaching disruptive technologies.

For the first time, we've added a section dedicated to exponential technologies, working with Singularity University to highlight five innovative technologies that may take longer than our standard 24-month time horizon for businesses to harness them—but whose eventual impact may be profound. Examples include artificial intelligence, robotics, and additive manufacturing (3-D printing). The research, experimentation, and invention behind these “exponentials” are the building blocks for many of our technology trends. Our goal is to provide a high-level introduction to each exponential—a snapshot of what it is, where it comes from, and where it's going.

From a Consumer Products lens, we provided industry sector specific perspective on majority of the topics including CIO as a venture capitalist (how to leverage brand categories perspective for portfolio planning), crowdsourcing (specific strategies including crowdfunding, flexible workforce and data analysis contests), wearables (discussing the Empowered Employee and the Persistently Connected Consumer) and digital engagement (Omnichannel Brand Engagement, Ubiquitous Sensors and other topics).

Each of the 2014 trends is relevant today. Each has significant momentum and potential to make a business impact. And each warrants timely consideration—even if the strategy is to wait and see. But whatever you do, don't be caught unaware—or unprepared. Use these forces to inspire, to transform. And to disrupt.

We welcome your comments, questions, and feedback. And a sincere “thank you” to the many executives and organizations that have helped provide input for Tech Trends 2014; your time and insights were invaluable. We look forward to your continued innovation, impact, and inspiration.



Al Langhals
Principal
Deloitte Consulting LLP



Matt Law
Principal
Deloitte Consulting LLP



Karl Rupilius
Principal
Deloitte Consulting LLP



Darwin Deano
Senior Manager
Deloitte Consulting LLP

Enablers



Share



Social activation

From passive to active tense

Over the years, the focus of social business has shifted from measuring volume to monitoring sentiment and, now, toward changing perceptions. In today's recommendation economy, companies should focus on measuring the perception of their brand and then on changing how people feel, share, and evangelize. Companies can activate their audiences to drive their message outward—handing them an idea and getting them to advocate it in their own words to their own network.

ORGANIZATIONS have spent the last several years chasing the tantalizing prospect of “social.” Within the enterprise, social represents a bastion of hope for productivity and collaboration—a chance to effectively navigate who knows what, who knows whom, how work gets done, and how decisions get made. We're still in the opening frames of a broad wave of social-driven enterprise transformation,¹ as a recent study by *MIT Sloan Management Review* and Deloitte confirms. That study revealed that 69 percent of executives thought social business would be critical to their organizations in the next three years.²

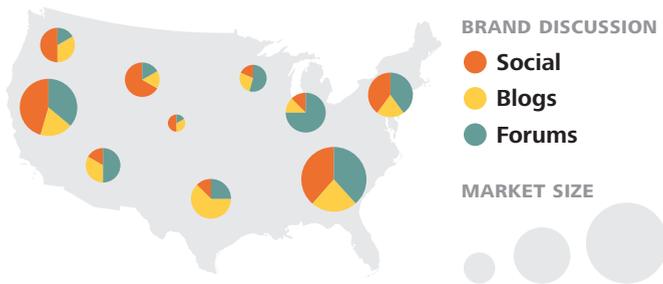
Social businesses³ ideally rally around well-defined business problems, supported by committed communities with well-defined incentives for participation. To take full advantage of this potential, age-old organizational constraints need to be identified and rewired. Hierarchies, biases, standardized operating procedures, rigid job descriptions, and other embodiments of institutional inertia can stunt progress.

Meanwhile, the flurry of activity around external social channels continues. Social media has become a frequent online

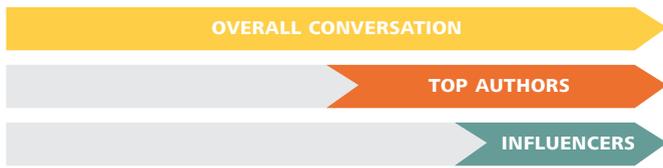
destination, commanding 27 percent of global time spent on the web.⁴ Not surprisingly, social monitoring and listening were some of the earlier investments companies made in the social arena. Social efforts leaned on the enabling tools that allowed passive data collection, tracking the volume of surface-level activity and broad-stroke awareness—followers, likes, mentions, and click-throughs to their own corporate channels. As the numbers grew, premature victory was announced. But volume doesn't tell you much—good, bad, or indifferent.

Monitoring gave way to sentiment analysis. Raw quantitative counts were replaced by happy and sad faces in an attempt to glean what the social masses were thinking about brands, products, services, and campaigns. Once again, out-of-the-box tools were often used to drive sentiment calculations, but they often lacked the nuance and context needed in business. The aggregated sentiment was a general measure of positivity, but it lacked subject-matter specificity. The sentiment camps ignored so-called “neutral” conversation—the lion's share of dialogue and the place where opinions are formed through exploration and discussion. Sentiment analysis was difficult

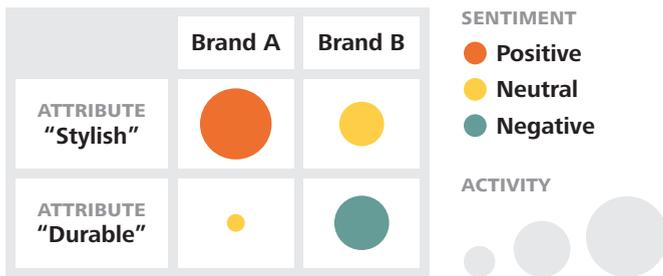
1 Focus: Map the audience



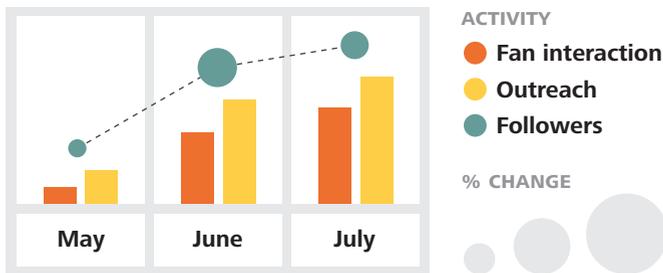
2 Insight: Identify influencers



3 Perception: Use brand analysis to identify target areas



4 Audience: Distribute content through advocates, enable audience contribution



5 Campaigns: Inject new energy



to take action on, though the possibility nonetheless sparked a wave of investments in social command centers.

The thought process was that we need to do *something*, now that we've shone the light on what people are saying about us. So companies rolled out social-based customer service, communications, broadcast marketing, and crisis communications. These applications use social as another channel and are largely a means to distribute mass messaging or to pull customers back to a company's own websites and call centers.

The business potential of social technologies is real. But that potential lies in moving from monitoring sentiment to influencing perception—and helping customers become advocates for marketing, for sales enablement, and for servicing.

The recommendation economy

Social activation is based on the new recommendation economy—where customers have tuned out anything that smells like traditional advertising, seeking instead the contextualized recommendations of peers. We have seen the rise of informed, passionate audiences who are ready to engage—willing co-creators who are actively sharing what they are interested in, buying, and using. They are participating in their own words, on their own turf, with personalized messages on social networks, blogs, community forums, and other locations where those with shared interests

congregate. They are inspired to share why they made a decision, what they considered along the way, and why others should follow suit. A recent Nielsen study confirmed that 84 percent of global respondents trust word-of-mouth recommendations from friends and family—the most highly rated among digital and traditional methods.⁵

Social activation involves new tactics. Audiences and influencers need to be understood at a granular level—who they are, what they care about, and how they spend their time. Then campaigns can be designed to empower and engage specific communities for tangible, expected results. Content should be rapidly created, tailored, monitored, and refined—according to the context of the audience, the outcome, and the campaign. It should be designed so that consumers feel motivated to add context to brand content with their individual insights for friends and readers. Content supply chains are often put in place, allowing core collateral to be pushed through internal and external ranks—in formats that encourage regional social teams and end consumers to localize, personalize, and enhance it.

Finally, digital outreach can—and should—be paired with traditional in-store or on-site campaigns, delivering on the potential of seamless, omni-channel digital engagement.⁶ The goal is not to divert social activity onto corporate assets; instead, it is to influence outcomes and promote advocacy.

Lessons from the front lines

The social TV experience

Recognizing that the Internet and social media have started changing the way people watch TV, the FOX Broadcasting Company identified an opportunity to both enrich the TV viewing experience of its existing fans and generate a new fan base through an engaging second screen experience using social media and the voices of its dedicated viewers.

FOX's approach combines the live television viewing experience with a parallel online experience specifically designed for each show and the preferences of its audience. For one reality show, FOX let fans vote for the winner via Twitter. Another show uses social media for a "fan of the week" contest where individuals publicly share why they are a fan and winners are given "shout-outs" on-air during the broadcast.⁷ When FOX News started letting viewers agree or disagree in real time with speakers on one show, they saw its audience grow by 21 percent among a key demographic.⁸

By designing separate social business strategies for each show and enabling viewers with compelling content, FOX has activated a large, online fan community that is driving the conversation and helping amplify its message to reach new viewers.

Unleashing the power of social

Four years ago, Hartz, one of the nation's largest providers of pet products, was not engaged in social media. Recognizing the need to have a social presence to remain competitive in the marketplace, Hartz launched a multifaceted social media strategy designed to educate and foster relationships with pet enthusiasts.

The company listened to the online conversations of pet owners and developed content in response—having detailed conversations with owners and breaking down the company's products for specific audiences such as small dog or short-haired cat owners. It conducted online contests and engaged industry influencers, largely bloggers, with relevant pet care topics and products to test. Hartz also used social media to educate pet owners on which pest control products were best suited for their companions through the interactive "Flea and Tick Education Center" on its Facebook page.

Hartz was able to tap into the widespread positive conversations about animals that were already happening in social media, positioning itself as an advocate for an existing online community passionate about pets and their overall well-being. As a result, Hartz has built an affinity between its brand and the "pet lifestyle," creating stronger relationships with its customers.

Community outreach

Parallels, a desktop virtualization and hosting and cloud services enablement company, sells Parallels Desktop for Mac, which allows users to run Windows applications on a Mac® computer,⁹ side by side, without rebooting. Several years ago, Parallels faced competitive pressure and wanted to improve its online reputation. The company decided to engage with its customers across multiple social media channels and share the insights with its engineering and marketing teams to incorporate the customers' voice into its product.

The virtualization engine is complex software—running two or more operating systems on the same piece of hardware and making them act as if they are one. The product team had a roadmap for performance improvements and sophisticated new features, but the company launched a listening study to see what other ideas might come from social media followers. The study found that one out of three recommendations to buy a competitor's product was based on its “prettiness.” By polishing the product—rounding the corners on message boxes, creating more natural translations of error messages originally written in another language, shifting the color palette of the menus and headers—Parallels had the opportunity to convert new customers. This was new feedback not previously shared in direct customer input or focus groups—but in the world of open purchase recommendations, the company was able to directly address the perceived gap in usability. Social activation helped reshape the company's product roadmap and drive new revenue.

Parallels also created two separate programs to build its online reputation: an “influencers program,” in which a group of power users were encouraged to write content for a Parallels blog highlighting their own uses of the program; and the “advocates program,” which leveraged customers who were avid social media users and positive supporters of the product and brand to help increase positive sentiment via social channels. Both programs activated passionate users—giving them access to beta software and encouraging them to share their perspectives to shape future product releases.

A few years later, when an updated version of the software was two weeks away from being released, an employee of a big box retailer accidentally shelved it early, and a customer took a picture of the packaging exposing the product's specifications, features, and marketing messaging. Parallels had planned massive media coverage announcing the product release, but it was scheduled to be launched two weeks later. The company decided instead to go to market with the product at the time of the leak solely with social media and public relations communications. Members of its influencer and advocate programs were core pillars of the roll-out. Due to the strong, engaged online community that Parallels had built, that online messaging alone drove sales of the new product equivalent to those of the previous year's release.

The company's realization of the importance of cultivating, appealing to, and rewarding a passionate community of customers transformed its brand. Especially with strong competition, customer perception can change quickly, and maintaining customer loyalty is fundamental to maintaining sales. Today, Parallels Desktop has 90 percent market share in Mac desktop virtualization software.¹⁰

My take

Peer Schneider, executive vice president and co-founder, IGN Entertainment

Social is the glue that holds together our IGN site experience. We've been a web property for over 16 years—before Facebook, YouTube, and Twitter. Facilitating a social experience between our users has consistently been at the core of what we do. We morphed from exclusively trying to pull visitors to our website to proactively pushing content to where gamers live through social channels like Facebook, Twitter, YouTube, and Google+. The crux of that strategy is our premium content delivered by recognizable online personalities, intended to resemble the person on the couch next to you playing a video game.

Opinion is the basis of our social interaction. But opinion can be a two-edged sword. People sometimes talk about games two years before their release, and it's almost as if they're "willing" games to be good. If highly anticipated games earn negative reviews, that generates heated conversation; for our users, it can sometimes be about satisfying expectations or justifying purchase decisions rather than about the game itself. The editorial team has to actively participate in discussions to make sure the audience doesn't place blame on the messenger. The openness of voice we strive for can also be challenging for our relationship with the industry. But, we believe authenticity is at the core of engagement—especially via social channels. Game developer Peter Molyneux signed on our wall, "Thank you for all the reviews, both the good ones and the bad ones." The bad reviews give him an added push to improve his upcoming products.

IGN went public right before the dot-com crash and started looking for alternate revenue streams. At that time, we had a vibrant community on our message boards, accounting for approximately 50 percent of our page views. Experimenting with how to monetize our users, we moved a large portion of that community behind a paywall. Though the short-term gain was beneficial, this ultimately stunted our growth and created a love-hate relationship with the most vocal segment of our user base. Shortly thereafter, we moved the paywall back and reintroduced free forums. Two years ago, we created the subscription service, Prime, which lets subscribers behind the "velvet rope"—an ad-free experience, free games, and access to our editorial team—without keeping other users out. The moment we pivoted, we saw the site's growth return.

I recommend four steps for getting started with social channels. First, understand your baseline audience. We run an annual segmentation study to determine our audience. Second, identify, and activate, your social influencers. We labeled this segment our "All Stars." We have someone dedicated to interface with them because, while they are influential enough to run their own blogs and cultivate their own Twitter followers, we also want them to keep using our tools and share our content. To this end, we provide rewards in the form of social currency, such as highlighting their commentary on IGN's homepage. Third, execute on your plan. For example, facilitate giveaways and contests that encourage your audience to share comments and content. Lastly, appropriately measure your outreach—different content is appropriate for different social channels. Some channels are better suited for traffic referrals and others for starting conversations and getting the word out. Don't get caught up in "vanity metrics" like how many followers you have. Focus on what matters: true engagement, quality content sharing, and commentary.

Where do you start?

THERE are many beneficial social listening, sentiment, and analytics products on the market—and likely many already within your organization. But social activation shouldn't start with tools. Instead, it should begin with well-defined business objectives and measurable, attributable metrics that can guide your efforts. Your objective may be to increase the number of leads or sales, boost your share of voice on a strategic topic, or reduce call volume to your call center.

Once the call to action is clear, the following areas of emphasis can help you fast-forward to social activation:

- **Focus.** Avoid the temptation to overload initial efforts across too many desired outcomes. There will be opportunities to extend the reach and effect of campaigns, but initially you should opt for focused results.
- **Insight.** Gain understanding about existing communities, channels, and content. Community insight involves understanding the various relevant constituencies within regions and groups, as well as the influencers and their relationships across the market. Channel intelligence measures the impact that programs make across various digital platforms and sites. Content reviews look to understand the health of social assets and how aligned they are to community and channel preferences.
- **Perception.** Perception involves uncovering what conversations are taking place, where they're happening, and how people really think and feel about the company or product. Counting Facebook "likes" or how many tweets contained positive words such as "good" or "happy" only skim the surface. Instead, engage in a perception study and let today's conversations inform how you, your competitors, and your partners are perceived. You will likely need to deal with negative perceptions, amplify positives, and design strategies to seed and grow your aspirational perceptions.
- **Audience.** Gather, monitor, and enlist targeted pockets within the community over time. Create plans to motivate and shape perceptions—including the build-out of content supply chains to manage, govern, and enhance digital content worldwide. Launch hyper-targeted ambassador or consumer VIP programs, fostering a community of passionate and connected users to help drive messaging, promotions, and—perhaps—even product innovation.
- **Campaigns.** Focus on the ideation, creation, execution, and monitoring of social experiences that engage audiences and shape perceptions. These may be tied to external events such as seasons and holidays, conference schedules, or industry milestones. Or they may be linked to internal happenings such as product launches, new content releases, or media events. Content, promotions, games, mobile applications, and microsites that harness the power of social media to achieve business objectives are possible tools. Either way, look to create natural links to e-commerce platforms—allowing activation to actually influence sales.

Bottom line

Effective social engagement is no longer about consumer loyalty to the brand; it's about a company's ability to nurture loyalty from the consumer.¹¹ The goal is not just passive monitoring, but active influencing. In today's recommendation economy, educating and empowering your audience can lead to impactful, long-lasting results. Social is neither a passive distraction nor a dangling modifier. It can drive real business performance through measurable, sustainable results. But it requires a shift in mindset—with a focus on perception, engagement, and activation.

Authors



Dave Hanley, principal, Deloitte Consulting LLP

Dave Hanley is one of the leaders of Deloitte Digital's social offering. In his career as a web marketer, he has specialized in creating and marketing viral social applications. Hanley joined Deloitte Digital in October 2013 with the acquisition of Banyan Branch, a leading social media agency which he co-founded.



Alicia Hatch, principal, Deloitte Consulting LLP

Alicia Hatch is one of the leaders of Deloitte Digital's social offering. She joined Deloitte Digital in October 2013 with the acquisition of Banyan Branch, a leading social media agency where she led new business for the firm, introduced new strategic offerings, and built a broad client portfolio of Fortune 500 brands.

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Appendix

Authors

Bill Briggs

Chief technology officer
Director, Deloitte Consulting LLP
wbriggs@deloitte.com

Disruptors

CIO as venture capitalist

Tom Galizia, principal, Deloitte Consulting LLP
tgalizia@deloitte.com

Chris Garibaldi, principal, Deloitte Consulting LLP
cgaribaldi@deloitte.com

Cognitive analytics

Rajeev Ronanki, principal, Deloitte Consulting LLP
rronanki@deloitte.com

David Steier, director, Deloitte Consulting LLP
dsteier@deloitte.com

Industrialized crowdsourcing

Marcus Shingles, principal, Deloitte Consulting LLP
mshingles@deloitte.com

Jonathan Trichel, principal, Deloitte Consulting LLP
jtrichel@deloitte.com

Digital engagement

Christine Cutten, principal, Deloitte Consulting LLP
ccutten@deloitte.com

Barbara Venneman, principal, Deloitte Consulting LLP
bvenneman@deloitte.com

Wearables

Shehryar Khan, principal, Deloitte Consulting LLP
khans@deloitte.com

Evangeline Marzec, specialist master, Deloitte Consulting LLP
emarzec@deloitte.com

Enablers

Technical debt reversal

Scott Buchholz, director, Deloitte Consulting LLP
sbuchholz@deloitte.com

David Sisk, director, Deloitte Consulting LLP
dasisk@deloitte.com

Social activation

Dave Hanley, principal, Deloitte Consulting LLP
dhanley@deloitte.com

Alicia Hatch, principal, Deloitte Consulting LLP
ahatch@deloitte.com

Cloud orchestration

Andy Main, principal, Deloitte Consulting LLP
amain@deloitte.com

John Peto, principal, Deloitte Consulting LLP
jpeto@deloitte.com

In-memory revolution

Mike Brown, principal, Deloitte Consulting LLP
mikbrown@deloitte.com

Doug Krauss, specialist leader, Deloitte Consulting LLP
dkrauss@deloitte.com

Real-time DevOps

Ayan Chatterjee, principal, Deloitte Consulting LLP
aychatterjee@deloitte.com

Alejandro Danylyszyn, principal, Deloitte Consulting LLP
adanylyszyn@deloitte.com

Exponentials

Bill Briggs, Chief technology officer
Director, Deloitte Consulting LLP
wbriggs@deloitte.com

With contributions from Singularity University faculty and leadership and Marcus Shingles, principal, Deloitte Consulting LLP.

Contributors

Aaron Sotelo, Abdi Goodzari, Adarsh Gosu, Amy Bergstrom, Andrew Luedke, Angel Vaccaro, Ann Perrin, Antonio Caroprese, Chad Clay, Chrissy Weaver, Dan LaCross, Dan McManus, Daniel Ledger, Daryl Jackson, Dennis Startsev, Derik Quinn, Ed Panzarella, Elizabeth Rielly, George Collins, Gina Marchlowska, Irfan Saif, Jarrod Phipps, Jeff Powrie, John Daab, John Keith, John Stefanchik, John Sprouse, Jon Wiesner, Jostin Darlington, Junko Kaji, Kavin Shelat, Keith Zalaznik, Kevin Weier, Kumar Chebrolu, Lisa Iliff, Maria Gutierrez, Martin Hougaard, Matt Lennert, Missy Hyatt, Navin Advani, Nicole Leung, Oliver Page, Paul Krein, Paul Roma, Paul Toler, Prabhu Kapaleeswaran, Rajeswari Chandrasekaran, Ram Venkateswaran, Rithu Thomas, Robert Kasegrande, Sandy Ono, Steven Bailey, Steven Shepley, Tara Newton, Travis Budisalovich, Trey McAdams, Troy Bishop, Vladimir Baranek, Yu Zhu

Consumer Products Contributors

Darwin Deano, Richard Kupcunas, Matt Law, Russell McLean, Mukul Nagle, Oliver Page, Khelan Patel, Jarrod Phipps, Nitin Rao, Karl Rupilius, Shomic Saha

Research

Leads: Tom Carroll, Chris Chang, Tore Dyvik, Justin Franks, Thomas Gleason, Rui He, Thomas Henry, Karthik Kumar, Nicole Leung, Simy Matharu, Abhishek Mishra, Jose Munoz, Paridhi Nadarajan, Akshai Prakash, Fatema Samiwala, Jeremy Young

Team Members: Jacob Artz, Anwar Ayub, Rachel Belzer, Simeon Bochev, Kevin Bojarski, Mark Brindisi, Alex Carlon, Felix Cheng, Judy Chiu, Eugene Chou, Ian Clasbey, Kyle Collins, Kevin Craig, Brian Cusick, Philip Davis, Michael Davis, Jefferson DeLisio, Zach Epstein, Inez Foong, Marjorie Galban, Leksi Gawor, Rachana Gogate, Calvin Hawkes, Taylor Hedberg, Dan Heinitsh, Dan Henebery, Seimi Huang, Sam Jamison, Simon Jo, Solomon Kassa, Rebecca Kim, Ryo Kondo, Adrian Kosciak, Ashish Kumar, Varun Kumar, Corey Lian, Alyssa Long, Pulkit Maheshwari, Ryan Malone, Tyler Martin, David Melnick, Akhil Modi, Alice Ndikumana, Kashaka Nedd, Brittany Neisewander, Ryan Pallathra, Aaron Patton, Lee Reed, Talal Rojas, Tammy Ross, Jaclyn Saito, Hugh Shepherd, Will Shepherdson, Andrea Shome, Kylene Smart, Sam Soneja, Gayathri Sreekanth, Xenia Strunnikova, Lindsey Tsuya, Peter Van, Jordan Weyenberg, Jenny Zheng

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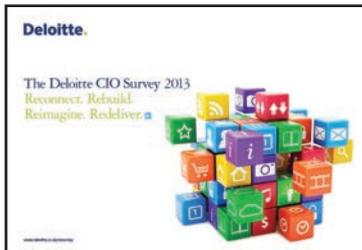
Mariahna Moore—for being the heart, soul, and “buck” of this year’s report—where every detail started and stopped, big or small. Your tireless leadership, spirit, and drive are truly inspirational and a singular reason we hit every ambition without compromising seemingly impossible deadlines.

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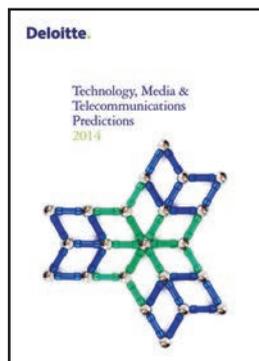
Finally, a special thanks to **Mark White**, the founder of our Technology Trends report series and an invaluable contributor, mentor, and friend. Thanks for all of your continued support as we build on your legacy.

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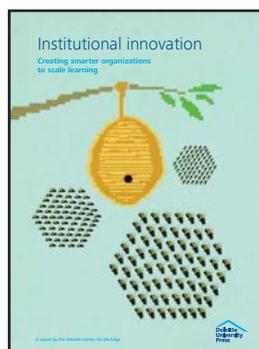
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