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Three rules

How exceptional companies think

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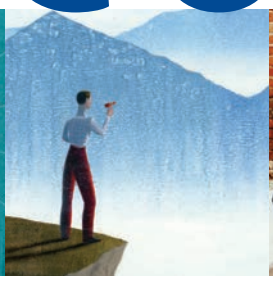

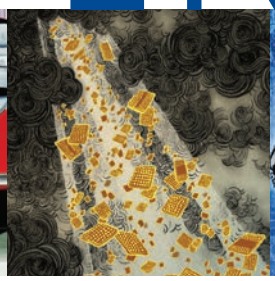

No small bets

OF ALL THE ISSUES I DISCUSS REGULARLY WITH BUSINESS LEADERS, PERHAPS none is as mysterious and enticing as innovation. Every company wants to do it better. It doesn't matter whether they've established a winning record of new products, services, and processes, or whether they're always playing from behind: Every company wants to sharpen its ability to innovate.

Perhaps because so many people want to capture that "innovation gene," a lot of study goes into the subject. Of course everyone's experiences are different, and as yet there is no widely accepted set of rules. But we can find examples that shed light on our own companies' efforts.

I recently read about an Israeli scientist named Abe Karem, the engineer who came up with a way to produce reliable unmanned aerial vehicles (UAVs), more popularly known as drones. His story, in *The Economist*, is a blueprint for innovation: dynamic, inventive, frustrating.

Karem took up the challenge of creating a UAV for the Pentagon in the late 1970s. The projects then underway were hopelessly muscle-bound: too many engineers, too many advanced technical systems—and too prone to crash. In the end, the UAV that he and his small team produced was relatively low-tech but elegantly simple. He said that keeping his innovation effort small was critical. "Doing things with the absolute smallest team increases the chance that you're not going to screw up," he said. "Nothing replaces highly talented people—white hot, passionate thinkers in love with doing challenging things."

He shared other lessons learned with regard to innovation: By programming his UAVs with massive computational power, he deterred copy-cats. By eschewing expensive backup systems, he forced his engineers to avoid accidents at all costs. "Crashing when you can't afford to is the best way to learn," he said.

One thing I've learned from Karem and others: Innovation isn't just about being smart or creative. From a leadership perspective, it's a set of behaviors that require commitment. At an admittedly very high level, this includes several actions:

1. Invest in it. Until you truly commit to innovation, you won't accomplish big things. People know whether their project is a priority or an also-ran.
2. Don't dabble. The best innovations often come from people who focus primarily on coming up with fresh ideas. If you try to squeeze innovation in on the side, it will probably keep getting squeezed out.
3. Make innovation part of your business plan. The best innovations tend to relate closely to the business, and they tend to complement existing business lines.
4. If you get stuck, don't stop. Some of the most fruitful innovation efforts start with a lot of long and painful meetings and discussions. It's not a straight line journey, and debate takes longer than group head-nodding sessions.

Whenever I've gotten stuck trying to drive innovation forward, one question always helps: If you were competing with your company, how would you beat it to the next major innovation in your market? Maybe you won't get that eureka moment right away, but at least you'll tease out new thinking and new ideas.

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PHOTO: MATT LENNERT

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Unmapped intersection

AUTOMOBILES ARE A SPECIAL TYPE OF OBJECT. The guts of them date back to the industrial age and, in the right car, remain a visceral experience. We may surround ourselves with touch screens, LEDs, and wireless devices with soft touch buttons, but cars are still about gears, gauges, and grease. There's wind to move through, physics to tame at every contact point, and explosions going on thousands of times per minute in small metal cylinders not far from your right foot (or just behind your head—if you're in the right sort of car). All that violence comes with its share of beauty. Important cars have been celebrated more recently as art—Ralph Lauren won best of show for his 1938 Bugatti 57SC Atlantic Coupe at the Concorso D'Eleganza Villa d'Este this year because it is near impossible to believe that something so fetching could ever be expected to transport someone.

But 1938 was a long time ago, and the age of the coach-built car seems remote when additive manufacturing, hydroforming, and other technologies are changing the equation of what we can produce and where. Is the art and craft that made the great names of twentieth century design giants still relevant—and more importantly, how does this brand of creativity live on?

This issue features Scott Wilson's interview with Paolo Pininfarina, whose calling is to steer a design firm with a legacy of Italian sports car glamour in an era when racing is more about supercomputers and sensors than hammers and knockoff wheels. How do you take a creative, family-based business into a global, technology-driven business environment and preserve a brand? Does a design language survive translation over a century, and does it still mean anything?

It does, and two points struck me as I listened. First, Mr. Pininfarina observes that design is in some respects aspirational. The work that brought his firm renown, producing what are widely regarded as some of Ferrari's finest designs, was not born in an environment of mass production, work-motion studies, and budgets. Elegance first, he said. While this does not grant the rest of us license to ignore the realities of the modern workplace, it suggests that the constraints of volume and efficiency are, at times, something to keep at bay.

Next, his perspective on the role of talent and its fit with his organization is stark: "If someone is talented at Pininfarina, I do not think it is inevitable they will be just as talented somewhere else because they will have left the special environment we have at Pininfarina and they will not receive the same support they get here."

While he recognizes top design talent as an asset, there is the notion that the right talent and the right company—combined deliberately—are an underappreciated intersection.

Jon Warshawsky
EDITOR-IN-CHIEF

PHOTO: MATT LENNERT

Courting the candidate-customer

The unlikely art of attraction

BY JOHN HENRY AND PETER MACLEAN
> ILLUSTRATION BY DONGYUN LEE

Despite relatively high unemployment in the United States, millions of job vacancies are going unfilled as a result of talent shortages. The struggle to attract and retain top talent is exacerbated by many factors: demographic shifts, changing attitudes toward careers, and the globalization of business. Talent shortages often occur in critical, skilled roles that are vital to a company's success and have high barriers to entry, and traditional recruiting methods may not be the answer.

As a first step in bolstering their workforces, organizations are increasingly focusing on identifying the positions, skills, attributes, and behaviors that drive a disproportionate amount of value. These organizations are adapting talent-acquisition strategies and hiring the most promising candidates by focusing on key attributes such as a capacity for innovative thinking, an ability to effectively work with others, being highly passionate, and having strong social intelligence.

Growing a business often hinges on making appropriate investments; growing a workforce to support a business requires the same approach. For many organizations, growth is limited by shortcomings in their workforces, and a traditional linear hiring model does not allow them to hire enough skilled workers to remain competitive. Some are investing in and maintaining a strong pipeline of potential employees by preemptively recruiting candidates—even when there is no immediate need. By continuously engaging qualified candidates through social media, alumni networks, and other methods, organizations can provide an intimate, memorable experience that could lead to job offers later on. As part of its "Silver Medalist Strategy," for example, a leading auto manufacturer engages top candidates in the market even when there aren't open roles for them. Recruiters proactively maintain ongoing conversations with potential employees and invite them to join the company's talent community as well as the company's career social spaces on LinkedIn and Facebook. Candidates also receive RSS feeds or emails when a role that matches their interests becomes available.[1]

Beyond the need to tend the pipeline, we have also seen that impressions are increasingly important. As indicated in Deloitte's* September 2012 *Talent 2020* report, potential employees are more inclined now than in the past to work for companies that have a reputation for being a good employer.[2] Given this trend, organizations are beginning to develop talent acquisition programs that cast themselves in a positive light among potential employees. They are designing recruitment experiences that benefit candidates from start to finish—even in cases where they do not culminate in a job offer. By developing programs from the candidate-as-customer perspective, these companies aim to strengthen their brands as employers of choice among employees as well as prospective employees. For example, a large international retailer is positioning employees as brand ambassadors by encouraging them to post key openings on their LinkedIn pages. Employees receive a monetary reward for hired candidates that they referred directly or indirectly through their social networks.[3]

An organization's ability to attract customers ultimately drives the need to expand its workforce. Some companies are deepening their talent pools using the tactics that lured their customers in the first place. Analytics, social media, innovative technological applications, organic growth and development, and tailored service delivery models—established methods for developing a customer base—can go a long way in helping a company cater to customer-candidates and cultivate an ample workforce.

*As used in this document, "Deloitte" means Deloitte Consulting LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte LLP and its subsidiaries.

ANALYTICS AND THE POWER OF A PROACTIVE RECRUITING STRATEGY

Companies have grown accustomed to using analytics to identify potential profitable customers and drive business development, but these technologies also have the potential to become a disruptive force for talent acquisition, where the costs of getting it wrong can be large. Bad hiring decisions due to inadequate and subjective candidate screening processes cost organizations hundreds of thousands of dollars every year. A recent CareerBuilder (CareerBuilder, 2012) study found that bad hires cost some firms as much as $50,000 per hire.[4]

Analytics can help an organization make better recruitment decisions by helping it identify insights and attributes associated with high-performing, high-potential employees. These insights, based on real information about their strong performers, are helping companies hire the right people for the right roles. Organizations with mature analytical capabilities are able to analyze performance, promotions, skill sets, personality characteristics, and other data of their high performing employees to create a data-derived set of attributes for success. At the same time, these organizations conduct data analysis to parse through external data on candidates from social networks and career pages in order to understand their interests, skills sets, project experiences, personalities, and endorsements. They then deploy predictive modeling and advanced algorithmic programs to identify external data that correlate with the organization's attributes for success. By mapping the key external candidate indicators with attributes of their top internal talent, companies can pinpoint the right candidates to hire and tailor their recruiting strategies accordingly.

Despite robust hiring practices, mature as well as fast-growing organizations can find themselves reacting to spikes in hiring demand. For these companies, even with clearly identified needs, there isn't always a clear sense of where to locate candidates. Analytics can provide the foresight needed to inform strategic recruiting decisions and identify the skills and critical talent pools that will provide the next high-potential employees. Among the efforts where we have observed analytics being especially useful:

- Gaining insight on critical talent pools within your company
- Identifying and proactively courting passive candidates in the external marketplace with the right skills, attributes, experiences, and passions
- Understanding your company's competition for critical talent
- Understanding the most effective ways to source talent, given that different critical talent pools may require different sourcing strategies

A leading insurance company, for example, uses predictive analytics to identify individuals from a large general population who have the highest likelihood of becoming successful agents. The company then uses this data to create targeted branding strategies to engage and attract top prospects. Similarly, a large global media company is using analytics to predict its future workforce needs. This company is dramatically rethinking its business model in light of shifting consumer preferences in favor of streaming content, and is leveraging its business forecast and predictive modeling capabilities to identify skills needed to meet its future strategic priorities. By building a supply-demand model of talent required over the next 18 months, the company uses business-driven workforce planning underpinned by analytics to create a proactive recruitment strategy.

SMART CANDIDATE RELATIONSHIPS BROUGHT TO YOU BY SOCIAL MEDIA

Social media is an established channel for identifying customer and market trends, but it also allows organizations to proactively access information about potential employees. Many organizations are reducing their investments in formerly cutting-edge Internet sourcing methods and focusing on social media as a core recruiting tool. Cloud-based social media tools like LinkedIn, Twitter, and Facebook are helping companies identify and source active candidates as well as "passive" ones who are not actively seeking new jobs. These organizations are making social media the foundation of robust recruiting and targeted communication campaigns that develop lasting relationships with potential candidates.

Communication between friends, colleagues, alumni, and potential employers evolved with the advent of social media communities, and younger candidate pools have come to expect them in the workplace. In some cases, because of the resulting brand perception, an inadequate or nonexistent social media presence can be a deal breaker in and of itself.

Social media platforms, used effectively, enable prospective workers to connect with potential employers. Companies can strengthen relationships and keep their talent pipelines warm by making sure company profiles, open positions, the skills they require, and referral capabilities are easily accessible and smartly presented to candidates. A large hotel chain developed a social media community of top talent that follows the company's organizational news, networks with others, and receives updates on exciting and informative internal activities, job postings, and testimonials from current employees.[5] The company's career opportunities page on Facebook now has over 10,000 fans; its Twitter account advertises job openings and employee testimonials to over 4,500 followers; its YouTube channel shares employee videos that illustrate a day-in-the-life of an employee; and its Ning group for college

internship alumni lets it talk to new campus recruits about the company's culture and offer virtual support to applicants. These channels have led to a substantial pool of engaged talent that the company uses to fill its open positions. Its social media strategy generates buzz in the industry, entices potential candidates to learn more through targeted social networks, and eventually leads to more qualified candidates for open positions.

We have observed several ways in which companies have improved their social media presence:

- Develop a fan page for the organization on Facebook and LinkedIn, as well as a recruiting-related Twitter feed. Make sure each of these channels provides consistent messaging.
- Distribute targeted communications to spark the interest of passive candidates.
- Enable referral capabilities within social media tools.
- Create "cool" communities, and post simulations or videos that show people what it's like to work for a particular employer.
- Provide easy-to-navigate sites with clearly displayed open roles where candidates can submit resumes.

Done well, a social media strategy can spread awareness and spark the interest of the most qualified candidates. Recruitment, marketing, and relationship management campaigns—when working together with one voice—entice these candidates to learn more and are often the difference between an opportunity being overlooked and an application being submitted.

TECHNOLOGY DISRUPTS TALENT ACQUISITION

While applicant tracking systems have been around for a long time, the explosive growth of sourcing through social media, cost concerns, and demand for a better candidate experience are fostering the emergence of innovative and disruptive talent acquisition technologies. These technologies are redefining the recruitment experience by providing low-cost capabilities that save time, increase productivity, shrink the barriers to candidate contact, and enhance their early interactions with potential employers.

Imagine being able to watch, rate, share, and compare prerecorded video responses from candidates along with their resumes on a cloud-based platform before picking up the phone or flying them in for an interview. This describes what happened at the African Development Bank Group in 2009. Candidates prerecorded

and submitted video responses to job-specific questions in multiple languages and completed recorded interviews.[6] Face-to-face interviews were scheduled once the bank had ample insights about its candidate pool. This approach narrowed the field of candidates selected for face-to-face interviews and reduced travel costs by nearly 60 percent. Therefore, HR was able to quickly screen candidates and compile short lists of interviewees. As a result, 150 candidates from 49 countries were screened and interviewed in 10 days.

Arguably, there is no longer a one-size-fits-all service delivery model that will serve to attract talent in a highly competitive and candidate-driven talent market. The challenge is to think about ways organizations can build and leverage their internal capabilities and resources to provide them a competitive edge in hiring top talent.

In conjunction with social media platforms, many organizations have also adopted cloud-based CRM strategiesto improve the efficiency and tracking of their recruitment processes. In the traditional model, these processes were often managed offline in spreadsheets on recruiters' desktops. The problem with this was that data collected wasn't integrated with other talent solutions and did not provide sufficient visibility across leadership and recruitment. Advanced CRM tools help address these issues because they can be used to maintain a viable and active candidate pipeline by collecting, tracking, and monitoring candidate information on a regular basis. This helps companies efficiently forge long-term relationships with qualified applicants by keeping recruiters apprised of their ongoing dialogue with candidates. These tools are being embraced to create profiles tracking detailed candidate information, which recruiters use to tailor their messages to targeted individuals.

By expanding the use of advanced screening technologies, videoconferencing, and CRM relationship management tools, companies can expand their access to potential employees. Historically, companies have not adapted to the candidate's current employment situation, geographic constraints, and other unique circumstances. These technologies help address these limitations and dissuade candidates from viewing an organization as unaccommodating and therefore discounting an opportunity.

From recruiters' perspective, these solutions can help to increase their productivity, reach, and efficiency while decreasing the time to fill positions and generating more interest among candidates. These tools help recruiters improve their knowledge of particular candidates while adapting to a prospective employee's travel restrictions and schedule limitations before spending money and time on travel. These lower barriers of contact are helping organizations to reach geographically dispersed talent pools without wasting time and dollars interviewing bad candidates. Employing advanced screening technologies and cloud-based CRM solutions to improve the recruitment process and collect robust candidate information enables a recruitment process that reimagines candidates as customers.

This notion of candidates as customers points to some specific goals for recruiting processes: Are we valuing candidates' time? Are we moving people through the interviewing process at an expeditious but appropriate rate? Finally, are we devising processes and adapting technologies that allow us to accommodate candidates' schedules and locations?

While the possibilities are still unfolding, there are a number of ways technology can improve the candidate experience:

- Actively engage candidates through ongoing dialogue on social channels, and make sure recruiters address any issues that candidates may have. This is a leap from the traditional, often rigid sequence of mail or email communications, in which candidates are often left in the dark between various stages in the recruitment process.
- Put a face to the company. Online job searches can be quite literally a faceless experience. Make sure candidates know they are engaging with genuinely interested recruiters (in the broader sense, not necessarily the org chart sense) rather than an inbox for forms.
- Arrange virtual interviews on the candidate's schedule in order to reach into geographically dispersed talent pools.
- Lower the barrier to contact with candidates currently employed elsewhere by providing video tools that allow them to complete parts of the interview process without missing work.

CREATE A TAILORED SERVICE DELIVERY MODEL

Traditionally organizations have relied primarily on executive search and third party recruiting agencies to fill critical roles. This means that search firms own the candidate relationship, and organizations are extremely limited in their ability to engage in ongoing dialogues with top talent. Attempts to improve the

candidate experience and proactively engage candidates in the market have spurred the adoption of the "internal executive search" service delivery model by some organizations. These companies are building their own in-house executive search delivery model capabilities in order to own and manage the candidate experience, create tailored candidate messaging and employer value propositions, and hire high-caliber talent when suitable roles open up. In addition, social media tools such as Facebook, LinkedIn and Twitter, combined with advanced CRM technologies, make it much easier for organizations to access candidates in the market and sustain long- term relationships with them. For these companies, executive search firms are still critical for identifying high-value, hard-to-fill positions, but they are increasingly seeing the value of insourcing some elements of executive search through powerful candidate messaging, social media sourcing, and building strong internal recruiting teams.

For example, an online retailer's rapid growth over the past five years and need to recruit top-notch global talent in a short period of time required the organization to rethink its recruiting service delivery model. Traditionally reliant on search firms for finding most of its top talent, this company saw an opportunity in creating a global, technology-driven in-house executive recruiting model. The organization hired experienced executive recruiters as part of its in-house team and provided them a full arsenal of cloud-enabled technology services, candidate data, analytical capabilities, and powerful employer brand to attract some of the best and brightest talent for the organization. At the same time, the organization is fully cognizant of its limitations and engages search firms proactively in finding high-caliber talent with unique skills in emerging markets and new service areas.

Other organizations extend the candidate experience toward their alumni by treating them as employees for life. Recruiters and leadership in these organizations proactively engage with alumni through alumni communities on social media (e.g. LinkedIn Alumni Pages) to forge strong relationships. By doing this, firms are able to boost their recruiting efficiency by posting jobs on alumni pages, using alumni as brand ambassadors, and tapping into alumni's referral networks.

While employee referrals have been around for ages, many organizations are taking it a step further by engaging social media and technology to utilize employee referrals as a recruiting tool. These firms use tools such as LinkedIn Company Pages and Facebook Talent Communities to enable prospective candidates to have peer-to-peer conversations with employees who act as brand ambassadors and talent scouts for the firm. In addition, social media and technological advances have enabled employee referrals to go viral. Some technology-driven service models tap into employees' social and professional networks, and electronically identify and reward employees who can make digital references. eBay uses an online Referral

Community that encourages employees to share open roles on their Facebook and LinkedIn profiles. The employees' connections see these and apply for the role themselves or forward it to someone who they know is suitable. Employees receive monetary rewards for new hires that came through their social network through technologies that track digital references across an employee's virtual network.[7]

Arguably, there is no longer a one-size-fits-all service delivery model that will serve to attract talent in a highly competitive and candidate-driven talent market. The challenge is to think about ways organizations can build and leverage their internal capabilities and resources to provide them a competitive edge in hiring top talent.

INNOVATE AND GROW FROM WITHIN

Recruiting from the marketplace comes with substantial costs. Top talent increasingly demands higher compensation, and there are significant opportunity costs associated with hiring external candidates, including lost productivity and time.

In an attempt to mitigate these costs, many organizations are relying on their own workforce to fill critical roles. According to Bersin's recent research on talent acquisition best practices, at least one in five open job requisitions are filled by an internal candidate.[8] Moreover, given the challenges of retaining talent in today's highly competitive market, organizations are boosting their succession planning, internal mobility, and high-potential programs while simultaneously providing ample visibility for these initiatives. Keeping top talent around is often difficult, and transferring internal talent into critical roles can increase retention and trigger an influx of fresh ideas.

Making succession management and mobility programs a more integral component of recruitment endeavors can help fill critical roles with internal talent, and it sends a message to the market that an organization grows its employees through progressive techniques as opposed to merely hiring from the outside. For example, a global financial services provider recently staged its first-ever internal career fair in London. This one-day, *employee-only* event made employees keenly aware of opportunities outside of their individual departments while keeping them within the corporate "family." Similarly, CACI, a professional services and IT solutions firm, used its internal mobility program to fill 701 positions, thus increasing its retention rates and reducing hiring costs in an intensely competitive industry.[9]

A strong talent acquisition strategy relies on insightful analysis, visibility, and better integration with internal talent programs:

1. **Identify characteristics that predict future success**: Analyze data from performance review cycles to help identify skills, attributes, and characteristics

common to the most successful employees. This can be used as a benchmark to attract candidates (both internal and external) with the highest potential for success in the role and organization.

2. **Use your workforce plan to drive a robust and flexible recruiting strategy:** Conduct analytics-driven workforce planning to ascertain the candidate pools (full time, flexible, free agents) to source from to meet workforce demands over the short and long term.
3. **Move high-potential talent into critical roles:** For mobility and succession management programs, provide visibility into current and future staffing needs, and deploy your high-potential talent into those roles based on suitability and career aspiration.
4. **Link career development to a recruitment strategy:** Align career development goals and career plans with current and future capability needs to enable the organization to stay ahead of the curve when it comes to recruiting talent internally for critical roles.

While developing an integrated talent strategy facilitates cost-effective recruitment, this is easier said than done. Recruiting internal talent from across an enterprise requires disparate business divisions to share employee data. Organizations need to assess their culture, leadership alignment, and technology infrastructure to decide whether or not to encourage this kind of movement between departments.

CATERING TO THE CANDIDATE-CUSTOMER

New job searches can be frustrating, stressful, and time-consuming for both the job seeker and the company. From the candidates' perspective, a company's recruitment experience is often little more than a necessary evil that doesn't accurately reveal who they are or reflect who they will be as contributors within the organization. Moreover, those candidates who don't receive a job offer are seldom given feedback derived from the process that might help them in the future. Frequently, organizations design the entire recruitment process around the company itself (and its lawyers) at the expense of its applicants.

From the company's perspective, finding new talent that can thrive and effectively navigate its unique and often complex social environment can be challenging. Too often, technically competent candidates who excel in job interviews turn out to be costly mistakes because the interviews didn't accurately reveal the candidates' creativity, emotional maturity, and social intelligence—the capacity to effectively navigate and negotiate complex social relationships and environments.

Brand-conscious companies are beginning to interact with potential employees with the same care they would give to their customers. These companies are redefining the entire talent acquisition experience by making sure their candidate-customers gain tangible value from the interview process, and have the capabilities to navigate and succeed within the organization should they be offered a position. The results of this innovative approach are impressive because the very process is designed to provide prospective candidates with a better understanding of themselves, while establishing a trusted relationship between a company and its potential employees.

How salesforce.com builds a workforce

Salesforce.com is focused on sustaining and accelerating its growth by building its workforce while simultaneously ensuring that the new employees fit its innovative, community-oriented culture. In 2011, the company's information technology (IT) organization relied exclusively on traditional linear talent acquisition processes. These traditional processes required myriad sequential recruiting steps, and filling an open position could take months. Moreover, because this process relied heavily on interrogatory interviews, they were skewed to reveal good interview skills and not necessarily how a candidate would actually function on the job.

In 2012, under the leadership of a new EVP of operations, the company augmented its traditional acquisition process for IT by introducing a nonlinear model that focuses on a candidate's experience, aptitude, and emotional intelligence. Its new model—Social Intelligence Hiring—holistically evaluates each candidate's technical competency, social intelligence, resiliency, and personality.

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Rather than relying on a series of traditional interviews, salesforce.com holds

MAIN TAKEAWAYS

Brand-conscious companies that treat the candidate with the same attention and focus that they give their customers should find the Social Intelligence Hiring model to be impactful. In implementing this model, several guidelines have emerged as especially helpful:

- Focus on more than just technical skills by having the candidate participate in a variety of activities that reveal his or her personality, creativity, emotional maturity, and social intelligence.
- Design the recruiting process to mirror how work actually gets done within the company; emphasize team activities for companies that have team based cultures.
- Use extended workshops rather than a short series of interviews as the interaction will more accurately reveal who a candidate is in different contexts.
- Drive and nurture connectivity, collaboration, and sustained relationships between candidates and with the company through social media tools.
- Demonstrate to the candidate the importance that the company places on potential employees by actively involving and providing access to senior management who are committed to be at the workshop events.
- Build trusted relationships by being transparent with the candidates and letting them know that the process is about helping them succeed so that they understand and appreciate what you are doing and how it helps them become better.

daylong workshops with its prospective job candidates. Instead of relying solely on traditional methods of attraction such as job boards to build interest in the workshops, the company directly targets, connects, and extends invitations to prospective candidates using LinkedIn, Facebook, and Craigslist. Moreover, before the workshops, invitees are given access to salesforce.com's social collaboration technology, Salesforce Chatter, which allows them to make connections, build relationships, develop teams, and collaborate in an online community.

Leading up to and on the day of the workshop, the company asks its candidates to form teams because much of the work at the company is accomplished through teams. At the workshop, these teams perform a series of exercises, all of which are designed to reveal strengths and opportunities for improvement for the candidates. Because salesforce.com is interested in maintaining a culture where its employees are "healthful, creative, and self-aware," it uses an innovative and expansive enneagram-based personality modeling exercise in the workshop, which reveals personality types and working styles. This activity also identifies candidates with high levels of social intelligence.

The workshop provides the teams real-life challenges in the form of case studies. The process itself is designed to mimic the way salesforce.com might address its actual challenges. Teams of candidates are given time to flesh out solutions, formulate their ideas, and present them at the end of the day. The results of the challenge

have been encouraging; several groups of workshop candidates have produced breakthrough ideas and solutions that the company had not considered. Moreover, the process reveals how individual candidates interacted with their teams. The salesforce.com management teams attend the events and are able to observe, first hand, each candidate's creativity, emotional maturity, social intelligence, and ability to interact and communicate. These interactions and the ideas they produce give salesforce.com the insights it needs to select candidates compatible with the organization. Furthermore, candidates come away from the hiring process with new relationships, a better understanding of themselves and, as surveys indicated, a positive view of the company.

THE ART OF ATTRACTION

A company's success is directly related to its ability to attract and retain top talent. New approaches, technologies, and tools are increasingly becoming available that can help build an employer's brand, employee base, and relationships with potential candidates. Although not all of the activities described will make sense for all organizations, companies that have deployed a selected combination of them have achieved impressive results utilizing the art of attraction to their benefit. **DR**

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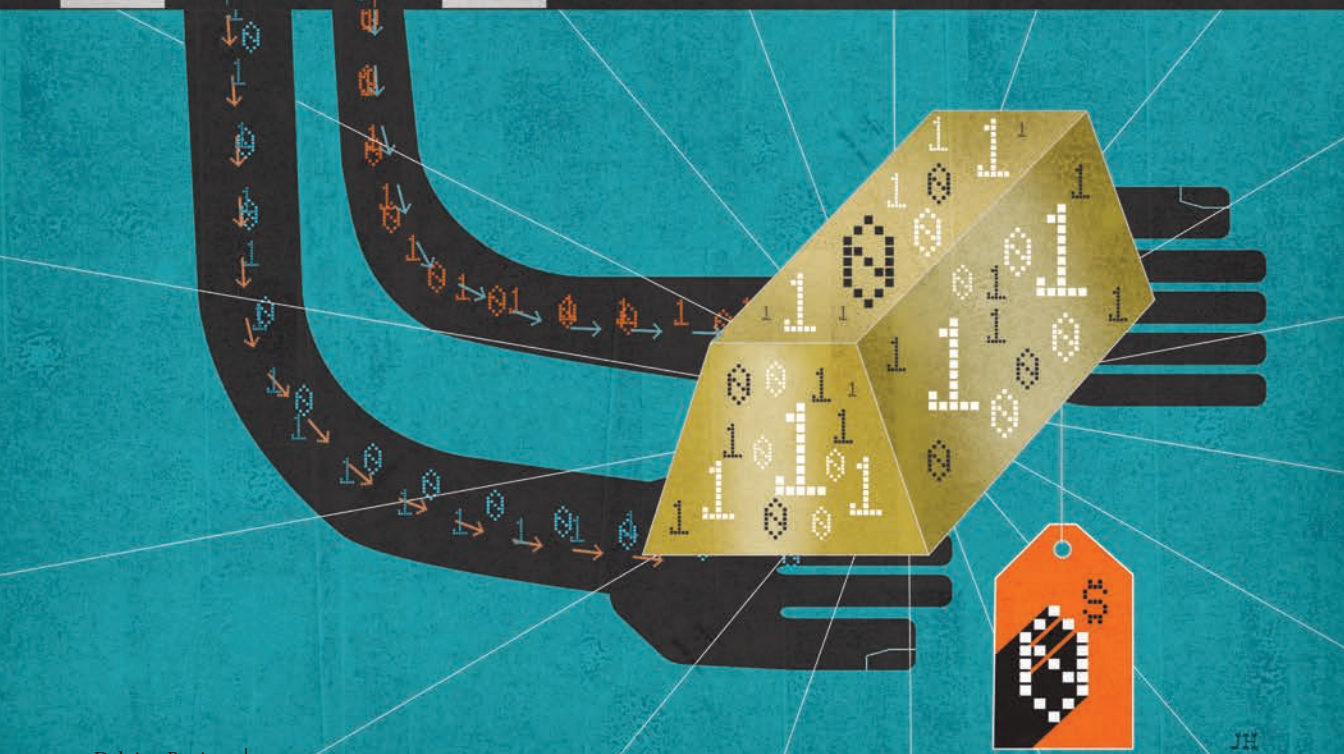
Endnotes

1. "Hot Trends in Talent Acquisition and Retention," Bersin & Associates, January 2013.
2. Kwan, Neveras, Schwartz, et al.,"Talent 2020: Surveying the Talent Paradox from the Employee Perspective," September 2012 <http://www.deloitte.com/assets/Dcom-Azerbaijan/Site%20SMF/EN/Events/US_Talent2020_September2012_09142012.pdf>
3. "Hot Trends in Talent Acquisition and Retention," Bersin & Associates, January 2013.
4. Mary Lorens, "What Bad Hires Really Cost Companies," December 2012. <http://thehiringsite.careerbuilder.com/2012/12/13/cost-of-a-bad-hire/>
5. Katherine Jones, PhD, "Best Practices in Social Sourcing," Bersin & Associates, May 2012.
6. "Video Enabled Talent Acquisition: Improving Cost, Quality, and Satisfaction," Aberdeen Group, November 2009.
7. "Hot Trends in Talent Acquisition and Retention," Bersin & Associates, January 2013.
8. Karen O'Leonard, "The Talent Acquisition Factbook 2011," Bersin & Associates, 2012.
9. ERE Excellence Awards, Best Practice in Recruiting, <http://www.drjohnsullivan.com/articles-mainmenu-27/articles/recrzzuiting-strategy-mainmenu-36/507-best-practices-in-recruiting--ere-excellence-awards-2010-part-4-of-4>

Data as the new currency

Government's role in facilitating the exchange

BY WILLIAM D. EGGERS, ROB HAMILL AND ABED ALI
> ILLUSTRATION BY JOHN HERSEY



Google "data as a currency," and you'll get back search results in the millions. "What if web Users Could Sell Their Own Data?" asks a blogger for the *New York Times*.[1] A story in *Information Management* highlights "Big Data Analytics: The Currency of the 21st Century Enterprise."[2] You'll find stories heralding big data as the new currency for science, stories on the personal data marketplace, and even stories on stolen data as a currency—not to mention prominent TED talks, World Economic Forum studies, and multiple books on the subject. The gist of the argument: Personal data has an economic value that can be bought, sold, and traded.

Remarkably, one area has gone largely unexplored: the role that government will—or should—play in establishing data as a currency. Given the problems governments face in maintaining stable monetary systems, many data enthusiasts would just as soon have government stay away from this emerging instrument of exchange.

Like it or not, that's not going to happen. For one thing, government is one of the biggest producers of data—and one of the few major producers that deliver data to the public free of charge. At last count, more than 1 million data sets from governments around the world were available on the web.[3]

Second, governments already regulate how organizations may use personal data, what privacy rights individuals have, and myriad other issues involved with the new data marketplace. If anything, regulation is likely to increase in coming years as privacy advocates and consumers step up their demands.

Lastly, revelations of the use of private data by the US intelligence community have brought the issue of co-mingling of public and private data to the forefront of public debate. While the politics are beyond the scope of this article, public consensus on the balance between privacy, security, and the flow of personal data will be critical to realize the promise the new data economy represents. Will government encourage and stimulate a vibrant exchange in this new currency, or will it just get in the way?

Government can play three principal roles in the emerging data economy: producer, consumer, and facilitator. We focus the bulk of our attention on the first two roles, with a brief take on how regulation and privacy may shape the market. But before we examine these roles, it's important to gain a better understanding of the emerging data marketplace.

A QUICK TOUR OF THE DATA ECONOMY

Ninety percent of the data in the world today was created in the last two years.[4] Between now and 2020, the global volume of digital data is expected to multiply another 40 times or more. Much of that new information will consist of personal details: where people have been, what products they've bought, what movies they like, which candidates they support—the list is nearly endless.[5]

Companies are working hard to cash in on the market for personal data. They range from aggregator behemoths such as Rapleaf and Acxiom, which hold information on as many as 500 million consumers globally, to start-ups such as Personal.com, which helps individuals control and make use of their own personal data.[6]

Government is also an important player in the data economy, not just as a regulator but also as a significant provider and consumer of data.

The marketplace for data

Open Data Providers: Government agencies collect huge troves of data (of the non-controversial sort) in the course of doing business. Through its White House Open Data Initiatives and Challenge.gov projects, the US federal government has been releasing large government data sets to the public, free of charge. Companies and individuals use this data to create valuable products and services, doing it faster and more cheaply than government could on its own.

Data Aggregators: Some marketing companies today build vast databases of consumer preferences and behaviors. If you have an email address, a firm such as Rapleaf probably knows something about you. Combining information from public records and consumer transactions, along with digital exhaust collected from social

IS DATA REALLY A CURRENCY?

When people discuss currencies, they tend to think of paper notes—American dollars, Japanese yen, or euros. Printed money, however, is only one kind of currency. Throughout history, currencies have appeared in many forms, from the storied stone wheels of the Yap islanders to cowries, the mollusk shells that became a popular means of exchange in China more than three millennia ago.

Currencies have evolved over time from stones and seashells to the sophisticated forms of legal tender that enable today's global financial transactions. The evolution of the notion of currency continues today, as new, alternative currencies grow in popularity, from bitcoin to the online game World of Warcraft's holy dust.

To understand how data fits into this evolution, we must rethink our conception of currencies. Currency is how we create and exchange economic value across geography and through time. It is anything that can serve as a medium of exchange, something that can be "cashed out" for goods and services, or used to pay debt or to store value for future use.

Data has each of these essential characteristics. Because many business transactions involve buying and selling data, it can serve as a medium of exchange—as cellist Zoë Keating noted in suggesting that instead of sending her royalties, streaming music services should provide her with data about her listeners.[7]

The value of data also can be measured easily. And as many of today's most successful companies have demonstrated, data appreciates in value when translated into meaningful information. For instance, according to the Aite Group, retailers could be paying major US banks $1.7 billion a year by 2015 to send targeted discount offers to customers, based on information on shopping habits gleaned from credit card records.[8]

media, mobile transmissions, and other sources, these aggregators give advertisers new insights into target audiences.

Data for Service: Nothing in life is free. When we use services such as Facebook, Twitter, or Google, we pay for the privilege by divulging personal information. The

Facebook "nation"—now larger than many countries—grows in value with every "like," "share," and post.

Data Protectors: To help address concerns related to privacy and personal data, the market now offers products to give individuals control over their own information. With a data locker from Personal.com, for example, you can store personal information, control access to that data, and exchange it according to your wishes. Others services, such as Reputation.com, tell you what information others are collecting about you, who's collecting it and how they're using it. Several firms also provide sophisticated privacy services to keep personal data anonymous.

DATAPALOOZA: GOVERNMENT AS DATA PRODUCER

It's an early Thursday morning, and Todd Park takes the stage at the Washington Convention Center. Park, the hyperkinetic chief technology officer for the US Department of Health and Human Services (HHS)—who has since been appointed US CTO—is in character as the nation's "entrepreneur in chief." The goal, he says, "is to catalyze the development of an ecosystem—an ecosystem that leverages data to improve health."[9]

Eleven universities are hosting viewing parties. (That's right, college students are gathering—in the morning—to watch a bureaucrat speak.) People worldwide are streaming the video live. "America is giving you billions and billions of dollars of data for free," Park tells them. He means government data, like the kind that launched a $90 billion global positioning system (GPS) industry. As he closes, the audience launches into a standing ovation. Data is the new currency.

Welcome to Health Datapalooza, a celebration of the most innovative uses of health information. Having recently released troves of data, HHS is using the event to debut some of the best health care-related web and smartphone apps driven by open government data.

One app, designed by Silicon Valley-based Palantir, matches patients to clinical trials. Another, from the University of Rochester, overlays disease incidence data from the Centers for Disease Control, plus related tweets, on a map in order to track the spread of illness. A similar solution traces the path of a recent salmonella outbreak. Maya Designs has used the US Department of Agriculture (USDA) Food Environment Atlas to highlight sources of cheap vegetables in America's "food deserts," areas lacking supermarkets or large grocery stores.

Each program, if successful, promises to save or improve lives. Health care data could add billions to the nation's economy, says Park, and he wants to attract more innovators to use it. As founder of successful health care management start-ups, he knows an opportunity when he sees one.

Similar Datapalooza events have focused on energy and environmental innovation, demonstrating the potential value of free government data in those sectors as well.

A generation ago, mounds of government data sat in file cabinets, tucked away from all but a few officials. At best, governments produced prepackaged statistical reports—and charged user fees for special data runs.

Not all government data is digitized yet, but a growing movement seeks to change that. Just look at what happened in the 1980s, when the government released GIS (geographic information system) data. The release fueled an industry that now includes over 30 million monthly Google Maps users, as well as a GPS market that has grown by 26 percent annually in recent years.[10] GIS data has transformed daily life for many citizens, simplifying travel and saving them the time they used to spend muddling through glove compartments for maps. And GIS can be joined with complementary and cross-sector data to groundbreaking effect.

When a 2010 earthquake wreaked havoc in Haiti, for instance, responders needed maps. Soon, a crowdsourced application developed by the NGOs Ushahidi and Humanitarian Open Street Map became the default tool for search and rescue teams. More than 600 volunteers traced roads and encampments from aerial images into a computer program. They mapped data from the World Bank, Yahoo!, and Japan's space agency. In support, the US military released P3 and GlobalHawk imagery.[11]

Search and rescue groups could read the resulting maps from handheld GPS units. In the evolving disaster area, crowdsourced markers identified resources such as refugee camps and cholera response centers. Multiple nations, NGOs, volunteers, and ordinary Haitian citizens came together in an unprecedented way, sharing information to save lives.

Enterprising citizens can build real-world solutions out of data. Data from sources as disparate as crime records, reports of power outages, and personal accounts of corruption tell a story to those who can translate it. The possible uses for government data far exceed what even the best government agencies can devise on their own. By making such data public, governments can tap the power of vast networks of capable groups and individuals to create public value.

Among the scores of start-ups built around the mountain of open government data is New York City-based Enigma. Originally, the company's founders planned to build a currency trading platform. Toward that end, they started digging deeply into data from sources such as the World Bank, the Securities and Exchange Commission (SEC), United States Agency for International Development (USAID), and the Import Export Bank.

While masses of public data were available free of charge, they found that it took

an incredible amount of time to acquire and manage that information. "I realized that the opportunity was no longer in trading but in providing services around the data itself," explains Enigma co-founder Hicham Oudghiri.[12]

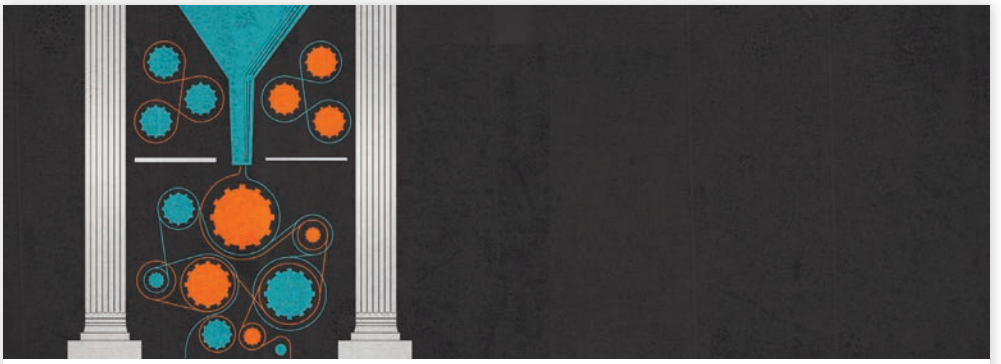
It didn't take the founders long to drop the trading platform altogether in favor of something far more audacious. "Our goal is to become 'the' search and discovery platform for public data," says CEO Jeremy Bronfman.[13] A little over a year later, Enigma has brought more than 100,000 public data sets into its database. "We aim to get it all," Bronfman says.

Enigma is just one of scores of new companies trying to convert government data into a successful business model. Energy.datamarket.com is transforming more than 10,000 open energy data sets, from sources such as the US Bureau of Transportation Statistics and the World Bank, into useful intelligence for energy companies. Hospital Register's massive database provides access to hospital system data from 24 countries.

Helping to enable such business models are organizations such as the Sunlight Foundation and Transparency International, which have pushed governments to provide data online. At least 16 national governments have major open data initiatives. From Australia to Kenya, from Denmark to Canada, open data projects are under way at all levels of government.

To make government data more widely available in the United States, on his first day in office President Barack Obama signed the Memorandum on Transparency and Open Government. The memorandum ordered federal agencies to provide their mountains of data to the public through open application programming interfaces (APIs). An open API shares data in a format that any programmer can use and develop, paving the way for dynamic enterprises that organize public data for social good. "A new generation doesn't see government as a problem of ossified institutions, but as a problem of collective action," says Jennifer Pahlka, founder of Code for America.

Pahlka calls her organization a "Peace Corps for geeks." It hires midcareer software developers and embeds them with city governments, where they use their creative skills in partnerships with city managers. One Code for America fellow in Boston noticed that homeowners shoveled snow from their sidewalks but left fire hydrants buried. This led to Boston's "Adopt-a-Fire Hydrant" app, which allows citizens to commit to clearing snow from a fire hydrant, to keep it clear for fire department access. Because Code for America's programs are open source, other cities have adapted the app; Honolulu uses a version of "Adopt-a-Fire-Hydrant" to keep citizens checking batteries on its tsunami warning system, Seattle to get them clearing storm drains, and Chicago to organize volunteer snow shoveling. At least five other cities are investigating uses for the app.



OPEN DATA RESEARCH IN THE UK

In 2009, the UK government made its first public sector information assets available as open data. At first, the initiative gave citizens and the media the chance to uncover poor performance and behavior. And while transparency remains a fundamental policy aim, open government data also has an important role to play in the British economy. It creates opportunities for entrepreneurs and data innovators to build new businesses and business models, and it also allows established businesses to add rich context to their existing proprietary data sets, strengthening decision making, uncovering cost savings; and enhancing profitability, customer experience, and consumer choice.

Deloitte UK is collaborating with Professor Nigel Shadbolt and the newly launched Open Data Institute on a program of research focused on business demand for open data. While many businesses have become hooked on "big data," many are unaware of the potential impact and benefit of open data. Deloitte's report, *Open Data: Driving Growth, Ingenuity and Innovation*, hypothesized that, despite the market being relatively immature, the quantity and quality of open data in the UK had reached the critical mass necessary to trigger a step-change in attitudes. Businesses in all industries can now find relevant open data and use it to improve their products and services. Thus, new business models are beginning to emerge: Suppliers, aggregators, developers, enrichers, and enablers. And new businesses, like Placr, ELGIN, Locatable and Mastadon C, are delivering new products and services predicated on the insight they deliver from open data.

In *Open Growth: Stimulating Demand for Open Data in the UK,* we investigated the supply of and demand for open data as a first step in estimating its economic impact. Our research was based on statistics for more than 37,000 data sets from three of the largest official open data portals in the UK. The evidence suggested that consumer-driven sectors of the economy, such as real estate and retail, would benefit most from data of relevance to choices individuals make as part of their day-to-day lives. We also conducted the first ever UK-wide assessment of the market for public sector information, in conjunction with the Shakespeare Review, which is making recommendations to the UK government. Our research calculated the economic and wider social value of public sector information to the UK economy to be approximately £7.2 billion ($11 billion).

—***Harvey Lewis and Haris Irshad***, Deloitte United Kingdom

"This suggests how government could work better," says Pahlka. "Not more like a private company, not more like a tech company, but more like the Internet itself. That means permission-less, open, and generative."[14]

GOVERNMENT AS DATA CONSUMER

Ever wonder how someone breaks into television? Netflix certainly did. When company officials decided it was time for Netflix to start offering original content, they boosted their chance of success by using their most powerful tool: customer data. Combing that data to discover which producers, actors, and shows its viewers liked most, Netflix used the results to choose its first production: *House of Cards*.[15] That series became the most popular show Netflix had ever offered. Netflix developed a successful new business strategy by using data to get into its customers' heads. Governments are also starting to realize the transformative power data can have in better serving its citizen-customers.

The public sector is one of the largest and most diverse customer segments in the data economy. From traffic patterns to web search trends, from demographics to statistics on student achievement, governments need data of all kinds, and they spend a great deal of time and money collecting it. Unfortunately, those efforts are labor-intensive and involve massive duplication. They also tend to focus on taking data snapshots rather than tracking conditions as they evolve over time.

But now that the commercial market offers accurate consumer data in near-real time, and technology has emerged to perform sophisticated data analytics, more and more governments are likely to explore the benefits of outsourcing some of their data collection so they can concentrate instead on data analysis. Working with reliable third-party data services, government agencies may increasingly look to reduce the security and liability-related risks associated with collecting and storing data across multiple agencies.

Some government agencies are already moving in this direction. For example, the US Census Bureau buys commercial data for address verification. And to track local developments and monitor online gang activity, police departments increasingly subscribe to the Twitter firehose, gaining full access to all Twitter content as it's published.

Transportation agencies are some of the biggest consumers of third-party data. The Virginia Department of Transportation (VDOT), for instance, uses traffic data obtained from TomTom—a vendor of GPS navigation systems for consumers—to predict traffic jams on the I-95/I-64 corridor.[16] By accessing data from millions of cars in the region, VDOT quickly gets the information it needs without deploying roadside sensors.

There are both potential risks and benefits arising from government becoming

a bigger consumer of third party data. The risks are obvious: breaches of privacy and a deep distrust amongst citizens themselves about how governments may use commercial data. Complex and impenetrable privacy and user agreements, and a history of data breaches, among other things, in the private and public sectors have contributed to this uneasiness. Citizens lack a clear picture of what is being collected about them, by whom, or to what end. As privacy norms and practices are codified, government will be responsible for implementing a consensus privacy infrastructure, not just as a regulator, but also as a market participant.

With all the challenges, it's easy to lose sight of the substantial benefits that also exist. One of the biggest advantages governments can gain from commercial data is having a better picture of trends among target populations. That's what the US Department of Health and Human Services (HHS) gained in 2012 when it launched a competition to find an efficient way to monitor emerging health trends through social media.[17] The winner, a start-up firm called Social Health Insights, LLC, produced a web-based tool called MappyHealth that predicts and monitors disease trends by analyzing tweets in real time.[18]

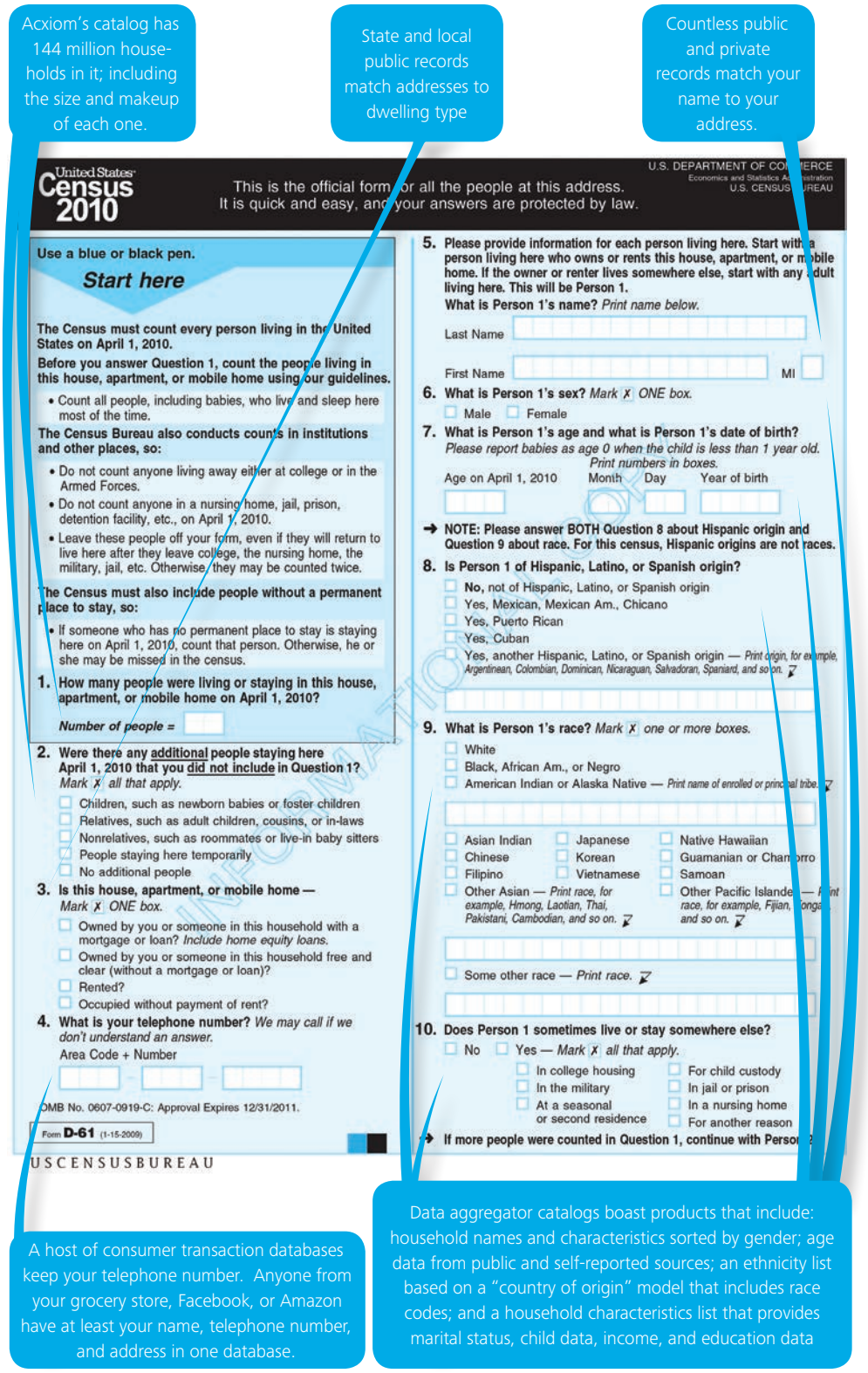
MappyHealth analyzes groups of 1,000 or more tweets on the same topic and in the same area—based on keyword matching and location data—in aggregate.[19] The US Centers for Disease Control and Prevention (CDC) now incorporates MappyHealth data with other real-time health data, such as Google Flu Trends, to better track and predict the spread of disease.[20]

It's not hard to imagine dozens of similar uses of commercial data. For instance, one could combine census data with data on consumer shopping trends to analyze public health issues, such as nutrition and obesity, and then connect the results to other health and social issues, such as localized infant mortality rates or high school dropout rates. The trick will be to strip out the personally identifiable information (PII) in order to protect privacy. While private firms use personal data for marketing and other purposes, government is often prohibited from collecting and using such information—personal Twitter feeds, for example—especially if it's deemed sensitive under state or federal law.

Besides tapping commercial data to achieve new goals, governments might also use such data to augment—or even replace—some of their traditional data gathering activities. For instance, the US government spent $13 billion on the 2010 US Census.[21] That included salaries paid to more than 565,000 temporary workers who conducted in-person interviews with millions of households. But data aggregators such as Acxiom, ChoicePoint, and Rapleaf already offer much of the information the Census Bureau needs, including demographic, lifestyle, financial, and other personal data on individual households, not to mention lists that match individuals

Figure 1. Data aggregators could save the US government time and money

Data aggregators have already compiled public records, consumer transactions, and social media exhaust into databases of 200 million or more names. Most of this census form could be filled out from these databases.



Graphic: Deloitte University Press | DUPress.com

to address, age, gender, household makeup, country of origin, and race.[22]

To be sure, enlisting a private aggregator to help with a census count could draw challenges focused on everything from privacy and legal constraints to issues of transparency, data accuracy, and reliability (not to mention some public uneasiness with the data aggregation industry itself). Nevertheless, as these databases become larger and more reliable (Acxiom's database includes 126 million households and 190 million individuals in the United States alone[23]), it is worth exploring whether governments could conduct a more efficient and less costly census by tapping into third-party data. If nothing else, such data might be used to prefill census forms that citizens would edit as necessary.

Government agencies don't always have to look to the private sector to save money on data. Much of the information that agencies need already resides on the servers of other government agencies. Better sharing among agencies could reduce costs by eliminating redundant data collection. A recent study by the London-based think tank Policy Exchange concluded that the United Kingdom could save more than $56 billion a year by making better use of personal data that citizens had already volunteered to various government agencies.[24] By promoting better inter-agency information sharing, the UK could eliminate the national census, according to the study, creating approximately $800 in savings per citizen per year and troubling the population with far fewer data requests.[25]

By seeking out more opportunities to collect data from alternative sources, governments can have a positive impact on the data economy by using their prominent place in the market as a means to stimulate innovation and promote improved privacy and security standards proactively in the global data exchange.

GOVERNMENT AS FACILITATOR

Lastly, government acts as a facilitator of the data economy and does so in three distinct ways: by creating parameters, providing platforms and infrastructure for data exchange, and leading from the front.

Creating parameters. As a regulator, government can foster an environment that promotes innovation while respecting privacy. Balancing the need to help entrepreneurs create value from data and the need to protect individual privacy isn't easy, but government has faced such challenges before in areas such as intellectual property. And while digital privacy policy is beyond the scope of this article, key questions remain about how government agencies should handle PII and what governments should do to protect citizens' digital privacy rights. Developing standards for the use of personal data and a Digital Privacy Bills of Rights are steps in the right direction.

Building infrastructure. Governments can also provide platforms to foster thriving data markets. The most audacious example of such an initiative is found in India, where the government has embarked on the largest identity management project in history. Known as Aadhar—India's Unique Identification (UID) program—it brings to life the concept of personal data as currency by creating a unique set of biometric and demographic data points for each one of India's 1.21 billion living citizens. The government and potentially business will be able to use the resulting database in innumerable ways, from building lender confidence to extending microfinance to remote areas to introducing new personalized health care services.[26]

Leading from the front. The modern data economy often looks like a "Wild West" digital environment where commercial ingenuity, rapidly changing technology, and a dearth of regulation leave many uneasy about the future. Government can help bring order and direction to this market by leading from the front—providing an example to guide other actors in the data economy. Opening as much data as possible to the public is one way to provide leadership. Another is for governments and international organizations to make data the foundation for a new kind of data philanthropy—persuading private companies with large troves of big data to donate data sets for social good—a movement that has already begun.[27]

As a major producer and consumer of data, and as a key player in efforts to protect personal privacy, government already occupies a crucial role in the new data economy. Recent events highlight sensitivities to the types of private sector data and how it is acquired, yet the opportunities for data as a currency exist well beyond the areas of controversy. Government initiatives will likely become even more important as the data marketplace continues to evolve. Government can use public data to help foster new commercial opportunities; use commercial data to perform its own work more efficiently and effectively; and combine public and commercial data to serve the public in ways still to be conceived. As a new form of currency, data offers the promise of new wealth for the private and public sectors alike. DR

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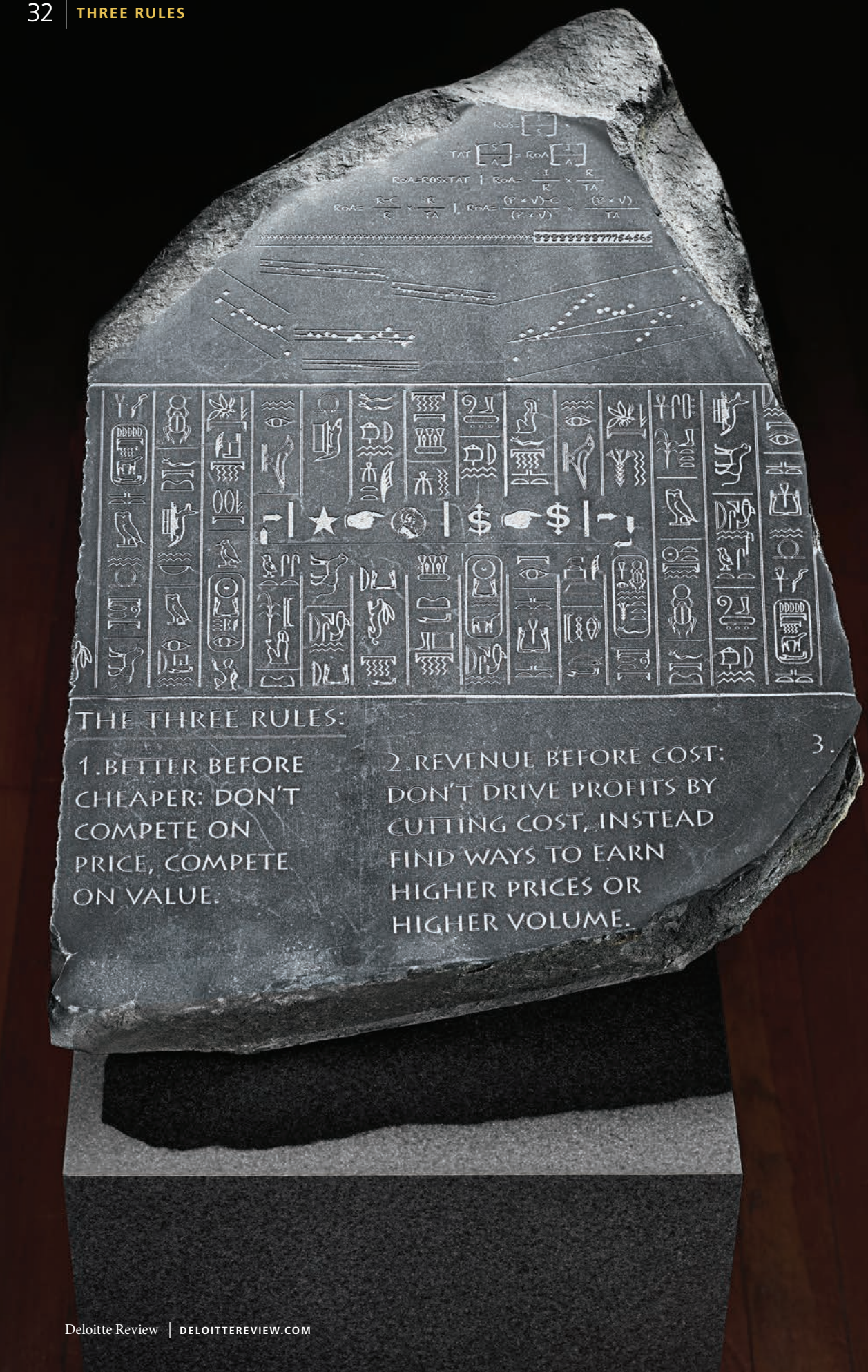
Abed Ali *is a manager with Deloitte Consulting LLP.*

Parts of this article are adapted from Solution Revolution: How Business, Government and Social Enterprises are Teaming up to Solve Society's Toughest Challenges *by William D. Eggers and Paul Macmillan (Harvard Business Review Press Fall 2013). More information on the book can be found at http://www.solutionrevolutionbook.com.*

Endnotes

1. Jessica Bruder, "What if Web Users Could Sell Their Own Data?" *The New York Times*, Oct. 2, 2012, <http://boss.blogs.nytimes.com/2012/10/02/what-if-web-users-could-sell-their-own-data/>
2. Randy Bean and Harvey Koeppel, "Big Data Analytics: The Currency of the 21st Century Enterprise," Sept. 10, 2012, <http://www.information-management.com/news/big-data-analytics-the-currency-of-the-21st-century-enterprise-10023139-1.html>
3. Brian Niemann, "43 Nations Now Offer a Million Government Data Sets," Jul. 10, 2012, http://breakinggov.com/2012/07/10/43-nations-now-offer-a-million-government-data-sets/
4. IBM, "Big Data at the Speed of Business," Accessed Apr. 14, 2013, <http://www-01.ibm.com/software/data/big-data/>
5. Ibid.
6. Thomas Galizia et al., "Gold Rush," *Deloitte Review*, Issue 9, 2011. <http://dupress.com/articles/gold-rush-protecting-value-in-the-digital-world/>
7. Derrick Harris, "Data Isn't Just the New Oil, It's the New Money. Ask Zoë Keating," Gigacom, Nov. 20, 2012, <http://gigaom.com/2012/11/20/data-isnt-just-the-new-oil-its-the-new-money-ask-zoe-keating/>
8. Blake Ellis, "The Banks' Billion-Dollar Idea," *CNN Money*, July 8, 2011, <http://money.cnn.com/2011/07/06/pf/banks_sell_shopping_data/index.htm>
9. Todd Park, "Welcome," presented at Health Data Initiative Forum 2011, Bethesda, Maryland, June 9, 2011, <http://www.iom.edu/Activities/PublicHealth/HealthData/2011-JUN-09/OpeningSession/Administrator.aspx>
10. TechNavio, "The Global Positioning System (GPS) Market 2008-2012," April 15, 2009, <http://www.technavio.com/content/global-positioning-system-gps-market-2008-2012-0>; and Matt Rosoff, "Here's What Google Will Lose When Apple Wipes Google Maps From The iPhone," *Business Insider*, June 8, 2012, <http://www.businessinsider.com/apple-maps-effect-on-google-2012-6#ixzz20WNNL89s>
11. Jeffrey Johnson, John Crowley, and Schuyler Erle, "Haiti: CrisisMapping the Earthquake," presented at O'Reilly Where2.0 Conference, San Jose, California, March 30, 2010, <http://whereconf.com/where2010/public/schedule/detail/13201>
12. Hicham Oudghiri, interview with the authors, April 2013.
13. Jeremy Bronfman, interview with the authors, April 20013.
14. Jennifer Pahlka, "Coding a Better Government," TEDTalk, February 2012, <http://www.ted.com/talks/jennifer_pahlka_coding_a_better_government.html>
15. NPR Staff, "The 'Big Data' Revolution: How Number Crunchers Can Predict Our Lives," *NPR*, Mar. 7, 2013, <http://www.npr.org/2013/03/07/173176488/the-big-data-revolution-how-number-crunchers-can-predict-our-lives>
16. TomTom, "Virginia DOT Chooses TomTom Historical Traffic Data for I-95/I-64 Corridor Project," May 21, 2012, <http://corporate.tomtom.com/releasedetail.cfm?ReleaseID=675139>
17. US Dept. of Health and Human Services, "Now Trending: #Health in My Community," Sept. 2012, <http://challenge.gov/HHS/334-now-trending-health-in-my-community>
18. "What is MappyHealth?" Accessed Apr. 2013, <http://socialhealthinsights.com/mappyhealth/>
19. <http://www.mappyhealth.com/faq>
20. Frank Konkel, "Predictive Analytics Allows Feds to Track Outbreaks in Real Time," FCW, Jan. 25, 2013, <http://fcw.com/articles/2013/01/25/flu-social-media.aspx>
21. Ed O'Keefe>, "2010 Census Was $1.6 Billion Under Budget," Washington Post, Aug. 10, 2010, <http://voices.washingtonpost.com/federal-eye/2010/08/2010_census_was_16_billion_und.html>
22. Natasha Singer, "Mapping, and Sharing, the Human Genome," *The New York Times*, Jun. 17, 2012, <http://www.nytimes.com/2012/06/17/technology/acxiom-the-quiet-giant-of-consumer-database-marketing.html?_r=1&pagewanted=all>
23. Ibid.
24. Christ Yiu, "The Big Data Opportunity: Making Government Faster, Smarter and More Personal," Policy Exchange, Jul 3, 2012, <http://policyexchange.org.uk/publications/category/item/the-big-data-opportunity-making-government-faster-smarter-and-more-personal>
25. Ibid.
26. "UIDAI vision on micropayments," UIDAI, Accessed Apr. 14, 2013, <http://www.uidai.gov.in/index.php?option=com_content&view=article&id=142&Itemid=135>
27. Robert Kirkpatrick, "A New Type of Philanthropy: Donating Data," Skoll World Forum, Apr. 7, 2013, <http://skollworldforum.org/debate-post/a-new-type-of-philanthropy-donating-data/>


THE THREE RULES:
1. BETTER BEFORE CHEAPER: DON'T COMPETE ON PRICE, COMPETE ON VALUE.
2. REVENUE BEFORE COST: DON'T DRIVE PROFITS BY CUTTING COST, INSTEAD FIND WAYS TO EARN HIGHER PRICES OR HIGHER VOLUME.
3.

THREE RULES

HOW EXCEPTIONAL COMPANIES THINK

BY MICHAEL E. RAYNOR AND MUMTAZ AHMED
> PHOTOGRAPHY BY DAVID CLUGSTON

Since 2007, Mumtaz Ahmed and Michael Raynor, with support from colleagues from within Deloitte* and beyond, have been working to identify what counts as "exceptional performance" and the behaviors that cause it.

The publication of *The Three Rules: How Exceptional Companies Think* (www.thethreerules.com) in May 2013 is the culmination of this years-long effort and provides an opportunity to look back and see how the journey has unfolded in these pages as they developed and tested their conclusions along the way.

*As used in this document, "Deloitte" means Deloitte LLP and its subsidiaries. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte LLP and its subsidiaries.

"Survival of the Fattest" in January 2010 looked at the secular decline in return on assets among US public companies, observing that middling performers were bulking up while poor performers were being punished more than ever and top performers were doing better than ever. That observation validated the relevance of their project: If superior performance is more difficult to achieve and more rewarding than in the past, understanding its underlying causes is insight worth having.

Of course, Ahmed and Raynor are not the first to tackle this problem, as they acknowledged in "Rank Ignorance" (January 2011). Much popular business research lionizes companies that are merely salient, confusing popularity for meaningful economic performance. Statistical rigor is indispensable when separating the skilled from the lucky and picking out truly high-performing companies.

The notion of trade-offs has featured prominently in their work. As anyone who's ever had Michael as a dining companion can attest, there's no such thing as a free lunch. "It's a Mad, Mad, Mad, Mad World" in July 2010 explored the risk/return trade-off in pursuit of superior performance, and "Growth's Triple Crown," in July 2011 examined trade-offs among profitability, growth, and shareholder returns.

Over the last three issues of *Deloitte Review*, Mumtaz and Michael shifted gears, moving from population-level analysis to the careful excavation of specific case studies. "To Thine Own Self Be True" in January 2012 examined the promise and peril of strategic change; "Pulling Ahead vs. Catching Up" in July 2012 looked at how individual companies made difficult choices in the pursuit of sustained excellence, and "The Profit Parfait" in January 2013 revealed the underlying structure of superior, long-term profitability and how to build business models that deliver it.

The three rules they identified to describe the primary determinants of superior long-term performance are:

1) Better before cheaper: Don't compete on price, compete on value.
2) Revenue before cost: Don't drive profits by cutting cost, instead find ways to earn higher prices or higher volume.
3) There are no other rules: View all your other choices through the lens of the first two rules.

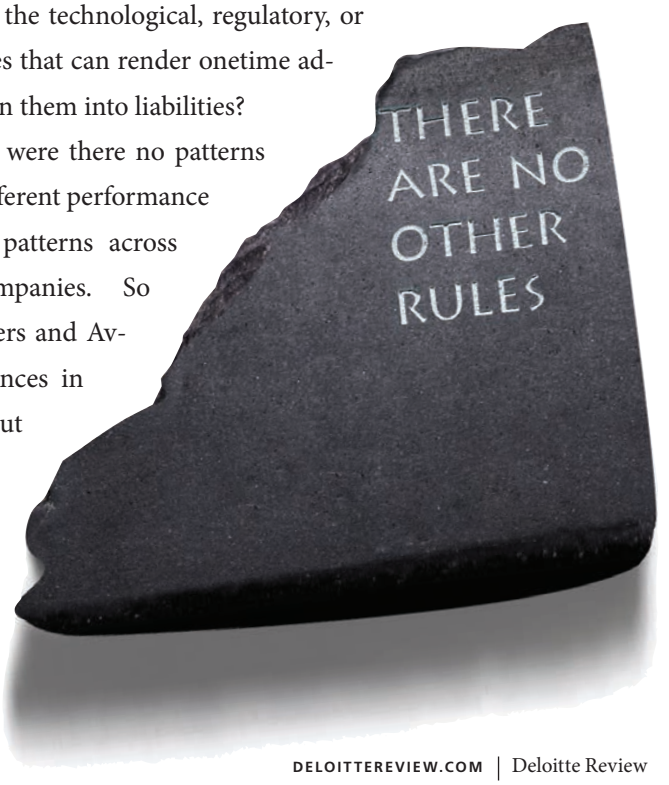
Where to from here? The research to this point has used US-based companies exclusively. The authors are pushing ahead to explore the frequency and nature of exceptional performance in non-US markets and have so far completed preliminary analysis on (in alphabetical order) Australia, France, Germany, India, Japan,

Korea, Malaysia, Switzerland, and the United Kingdom. The questions they hope to address are only beginning to emerge but include determining whether and in what ways the three rules that seem so powerful in the American experience apply in other markets, or if an entirely different rulebook is required. We will publish the first installment in the January 2014 issue of *Deloitte Review*.

THERE ARE NO OTHER RULES

It might seem somewhat precious to posit "there are no other rules" as our third rule, but we feel it serves two important purposes. First, it is our admission that we were unable to find any other meaningful patterns in the behaviors of our case study companies that were associated with differences in performance. We cannot prove a negative, but in what follows we will explore at greater length why we dismissed such perennial favorites as M&A or diversification as systematic drivers of performance. The irretrievably idiosyncratic and contingent nature of how these and many other behaviors contribute to performance led us to conclude that exceptional companies all have the same recipe (*better before cheaper, revenue before cost)* but use different ingredients.

Second, in addition to creating superior levels of performance, exceptional companies deliver superior levels of performance for longer than anyone has a right to expect. It seems worth exploring, then, if and how exceptional companies adapt. Is exceptional performance a function of deep moats and thick ramparts, or does it require agility and flexibility to cope with competitors' attempts to imitate a winning formula, or with the technological, regulatory, or other environmental changes that can render onetime advantages useless, or even turn them into liabilities?



We found that not only were there no patterns *between* companies from different performance categories, there were no patterns across time *within* individual companies. So not only did Miracle Workers and Average Joes show no differences in their appetites for M&A, but individual Miracle Workers were just as likely to adopt M&A as to abandon it over time. In short, what mattered when assessing how a behavior affected performance was not

the behavior or even its implementation, but the contribution made to a company's adherence to or deviation from the first two rules. Where Lost It Miracle Workers typically changed in ways that violated the rules, Found It Miracle Workers became more aligned with the rules. Most revealing, Kept It Miracle Workers often showed evidence of the greatest degree of change in their specific behaviors, but always in the service of remaining in alignment with the rules. We conclude from this that exceptional performance demands an ability to change in order to stay the same.

SAME RECIPE, DIFFERENT INGREDIENTS

We shared with you in chapter 1 some of the frustrations born of our search for patterns in behavior at the level of relatively specific activities, many of which are the subject of ongoing and extensive research and often feature prominently on managerial agendas. Take, for example, mergers and acquisitions. The conventional wisdom has crystallized into "buyer beware," which is certainly not bad advice but not particularly helpful. (When would one ever think it is good not to beware?) Research on the topic is largely consistent with this view, observing that acquirers, on average, earn about the going rate of return on their investments but are subject to wide variation, sometimes doing very well, sometimes spectacularly poorly.[1]

Unfortunately, the demonstrated riskiness of deals is not reason enough to eschew them. Mergers and acquisitions are critical to many initiatives that can be essential to a company's success and even its survival, from gaining access to new technologies to international expansion to competitive preemption to creating strategic options. Consequently, the question is not "Does M&A help?" but "Given my circumstances, and given the details of this deal, is this particular acquisition the best mechanism for achieving my goals as I understand them now, and how can I employ it most effectively?" Since circumstances and goals vary widely from company to company, and within a particular company over time, it comes as no surprise that evidence of a first-order relationship between M&A and performance is weak and elusive.

In our sample we saw Miracle Workers and Long Runners doing no deals (Linear and Micropac in semiconductors) and using M&A to transform themselves (Medtronic and Stryker in medical devices), nearly driving themselves to ruin (T&B in electrical wiring), and attempting to reverse a long-term decline (Finish Line and Weis). The deals that worked were in accord with the rules. The ones that didn't, weren't.

The relationship between business line diversification and performance is only slightly less ambiguous, despite the recurring finding that companies with more

business units do worse than those with fewer.[2] As with M&A and much else, an "on average" result hides as much as it reveals. For example, consider a company that has found a highly profitable but slow-growing niche. This company might see opportunities in an adjacent market that are less profitable than its current business, but such diversification can still make perfect sense if those new opportunities are profitable enough. Diversification therefore lowers the company's performance, yet still makes good economic sense.[3]

This was arguably the dilemma that faced A&F: its core business was rapidly filling its niche in the retail landscape, yet new opportunities were not as profitable. Part of what makes our research helpful is that it differentiates between declines in absolute and relative profitability. Where more conventional research approaches would see only a negative relationship between diversification and profitability in A&F's chosen path, we see its diversification as making a key contribution to exceptional performance by extending the run of 9th-decile results even as absolute profitability declined.

Also running counter to expectations, we saw focus associated with mediocre performance: International Rectifier abandoned medical devices and pharmaceuticals to concentrate its efforts on semiconductors, yet its performance only deteriorated. We therefore conclude that focus is not what matters. *Better before cheaper* and *revenue before cost* are what matters, and it was along these fronts that IR failed to distinguish itself.

Vertical integration is another type of diversification that has multiple determinants and wide variation in outcomes. For example, in nineteenth-century America several major manufacturing companies expanded into distribution in order to compensate for the inadequate capabilities of the "jobber"-based channels of the day.[4] More recently, the rise of highly diversified business groups in emerging economies such as China and India has been seen as a response to all manner of "missing markets" for inputs in everything from capital to labor.[5] Theoretical models show that vertical integration can serve both nonprice and cost-based competitive positions.[6] Empirical investigations have shown in a variety of contexts that vertical integration can be profitable or unprofitable and that changes in degree of vertical integration in either direction can improve performance.[7] In an attempt to reconcile these findings, there have been repeated efforts to define relevant contingencies that might guide us in determining when vertical integration makes sense and when it does not.[8] But here, too, there are credible competing views. For example, some argue that vertical integration is an effective way to cope with uncertainty while others hold that uncertainty undermines its effectiveness.[9]

In our sample, A&F's vertical integration was a way to create a more responsive supply chain, which was central to its nonprice competitive position. Weis, in

contrast, vertically integrated in the service of its lower-cost, lower-price private-label strategy. Both companies enjoyed notable success, but A&F has seemed able to renew its performance through continued commitment to the first two rules where Weis seems less likely to recapture its past glory.

Additionally, business line diversification can sometimes be not a cause of poor performance but instead a consequence.[10] Weis did not diversify into pet supplies until after the performance of its core grocery business had deteriorated significantly. The same can be said of Finish Line's ill-fated expansion into hip-hop fashion with its Man Alive franchise.

A form of diversification that seems to have a less ambiguous relationship with performance is international expansion. Several studies have found consistent and positive relationships, suggesting that going abroad is a good idea, and especially so for companies with diverse product portfolios.[11] Our sample seems largely consistent with these findings, for although internationalization was a drag on Hubbell's profitability, it seems to have helped Thomas & Betts and was central to success for Wrigley and Merck while the lack of a global footprint seems to have been part of Maytag's decline.

In light of these contradictory, or at least highly nuanced, findings on these and other dimensions of behavior, we felt it made sense to explore whether our case study data showed evidence of any consistent patterns. Appendix J, "Behavioral Differences by Pair-Wise Comparison," shows the differences for all twenty-seven pair-wise comparisons across five behaviors. Sometimes Miracle Workers do more M&A, sometimes less, and on average there is no real difference. Sometimes Miracle Workers are more diversified, sometimes less, and on average there is no real difference. We reached similar conclusions for Miracle Worker–Average Joe and Long Runner–Average Joe comparisons. The absence of any compelling patterns for these or other behaviors we were able to analyze led us to believe that anything goes. We could find no other behaviors where the contingencies did not swamp the prescriptions, and so the third rule is *there are no other rules*.

The absence of any rules beyond the first two has important implications for how exceptional companies adapt. As with questions of position (*better before cheaper*) and profitability (*revenue before cost*), whether exceptional companies change over time is an empirical matter. It could have been that exceptional performance is typically achieved through relative intransigence: Find a winning formula and stick with it. Eventually it will be overtaken by events or the competition, but

little matter; nothing lasts forever. On the other hand, superior performers might be characterized by change. In this case, we would like to know if there are any guiding principles that might help determine when and what to change.

We found that, just as the specific recipes for exceptional performance were unique to each Miracle Worker, the nature of the changes each employed in order to create or sustain its exceptional performance defied meaningful generalization. There was neither a small, consistent subset of activities that responded to competitive or environmental shifts, nor did "everything" have to be reinvented. About all that seemed to matter was the first two rules.

DEFYING GRAVITY

The eighteenth-century philosopher Immanuel Kant (a contemporary of David Hume's) formulated a "categorical imperative" that, he argued, should be the basis of all human action: Act only according to that maxim whereby you can, at the same time, will that it should become a universal law without contradiction.[12] Lying, for example, is immoral because if everyone lied, language would cease to have meaning and communication would become impossible—thereby making lies impossible as well.

There is a case to be made that success studies, as a class, founder on the shoals of Kant's principle. Success studies seek to provide advice on how to improve your relative performance, that is, on how to do better than the competition. This is very different from the sort of advice that seeks to help you improve compared with your own historical performance. A successful cost-cutting initiative will reduce your costs compared with what they were. That says nothing, however, about how your costs will compare with those of your competitors. If they are pursuing the same initiative equally successfully, and so reducing their costs at the same rate you are, you might improve compared with yourself but end up exactly where you started compared with them. It is this phenomenon that gives rise to the Red Queen effect, referred to in chapter 3, of having to run just to stand still.

Consequently, advice on how to compete successfully is subject to an irony that borders on paradox. If the advice is right, then it will be universally adopted; if it is universally adopted, it does not improve your relative performance; if it does not improve your relative performance, it is wrong. In other words, if the advice is right, then the advice is wrong.[13]

Although true, this criticism is overstated because it is based on the notion that success studies seek the secrets of eternal dominance. Certainly this one does not. Our objective is to make it possible to do better for longer than one otherwise would.

We think of it this way. Glider pilots, like all airplane pilots, know the expression "takeoffs are optional; landings are mandatory." It means that no matter how high, fast, or far you fly, you are going to come back down. Gravity always wins.

The same can be said of corporate performance. The only certainty for any company doing well is that eventually it will be doing worse. Every company that has ever soared has or will eventually become entirely average—or worse. Although you might not be able to predict precisely what will bring down any given high flier, it is a sure thing that something will.

Sometimes greatness erodes because of internal failings: Inertia born of complacency might lead you to resist obvious and necessary changes; or entropy born of hubris might dilute your focus on key customers or markets. Sometimes external forces undermine performance: Competitors, spurred on by your success, emulate your behaviors or even improve on your original insights, leaving you with no advantage at all; changes in customer preferences or regulatory or legislative constraints can render historical strengths irrelevant or even turn them into encumbrances. Whatever the proximate cause, just as no glider can stay aloft forever, no company can remain on top eternally.

This unfortunate fact of corporate life imposes an upper bound on the extent of the claims one can hope to make about the drivers of long-term, superior profitability. No advice can come with a credible promise of perpetual superiority. It might be theoretically possible for a corporation to deliver endlessly standout profitability, but as an empirical matter, we lack even an existence proof, never mind the sort of sample that might make possible the inference of general principles.

We have concluded, however, that even if defeating gravity is impossible, we can realistically hope to defy it. Despite the inevitability of a return to earth, some glider pilots do fly higher, faster, and farther than others. Using the same equipment in the same circumstances, some pilots—the *exceptional* ones—remain airborne far longer, soar far higher, and travel far greater distances than others. For these pilots, gliding is not a passive experience. They understand their aircraft, the conditions, and themselves and use that understanding to find lift where others find only the void, to achieve just the right angle of attack, or to exploit the paradox of diving earthward to generate lift and head skyward again. Even exceptional pilots must land—but not until long after the rest of us.

Similarly, some companies are exceptional. They are able, for a time—and occasionally for a long time—to overcome inertia, resist entropy, and adapt to competitive or environmental changes. They create better performance and sustain it for far longer than anyone has a right to expect. Nothing lasts forever, but then, that is not the goal. The objective is to deliver the best possible performance for as long as possible.

Every glider lands eventually. But how long it stays up, how far it flies, and the heights it reaches are all profoundly affected by the pilot's choices. It is our belief that by consciously adopting the three rules—*better before cheaper, revenue before cost*, and *there are no other rules*—you can reasonably hope to deny gravity its due for just that much longer. **DR**

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Endnotes

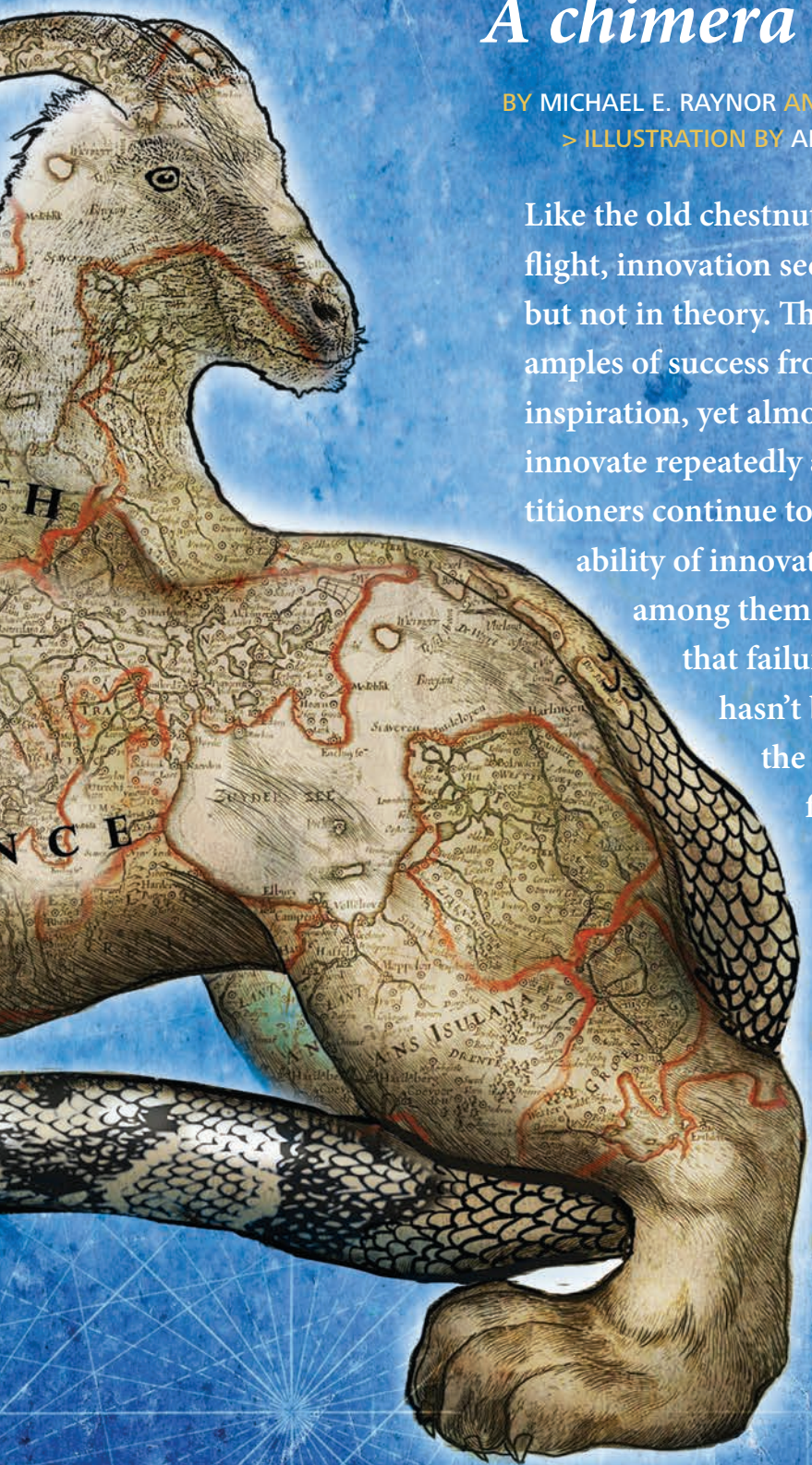
1. The most comprehensive review of the M&A literature we are familiar with is Robert F. Bruner, *Applied Mergers & Acquisitions* (Hoboken, N. J.: John Wiley & Sons, Inc., 2004).
2. The literature here is vast. Cornerstone findings include Richard P. Rumelt, "Diversification Strategy and Profitability," *Strategic Management Journal* 3 (1982): 359–69; L.H.P. Lang and R. M. Stulz, "Tobin's Q, Corporate Diversification, and Firm Performance," *Journal of Political Economy* 102(6) (1994): 1248–80; P. G. Berger and E. Ofek, "Diversification's Effect on Firm Value," *Journal of Financial Economics* 37 (1995): 39–65. Recent investigations, however, suggest that we've been wasting our time and that the so-called diversification discount is little more than an artifact of segment-based reporting. See Xi He, "Corporate Diversification and Firm Value: Evidence from post-1997 data," *International Review of Finance* 9(4) (2009): 359–85.
3. Cynthia A. Montgomery and Birger Wernerfelt, "Diversification, Ricardian Rents, and Tobin's Q," *The RAND Journal of Economics* 19(4) (1988): 623–32.
4. A. D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Mass.: Harvard University Press, 1997).
5. Tarun Khanna and Krishna G. Palepu, "Is Group Affiliation Profitable in Emerging Markets? An analysis of diversified Indian business groups," *Journal of Finance* 55(2) (2000): 867–91.
6. Robert C. Schmidt, "On the Robustness of the High-Quality Advantage under Vertical Differentiation," *Journal of Industry, Competition and Trade* 6 (2006): 183–93.
7. See, respectively, Robert D. Buzzell, "Is Vertical Integration Profitable?" *Harvard Business Review* (January–February 1983); Richard A. D'Aveni and D. J. Ravenscraft, "Economies of Integration Versus Bureaucracy Costs: Does vertical integration improve performance," *Academy of Management Journal* 37(8) (1994): 1167–1206; Richard T. Mpoyi and K. E. Bullington, "Performance Implications of Changing Vertical Integration Strategies," *American Business Review* (January 2004).
8. Kathryn Rudie Harrigan, "Matching Vertical Integration Strategies to Competitive Conditions," *Strategic Management Journal* 7 (1986): 535–55.
9. Cf. Hau L. Lee, "Aligning Supply Chain Strategies with Product Uncertainties," *California Management Review* 44(3) (2002); and Srinivasan Balakrishnan and B. Wernerfelt, "Technical Change, Competition and Vertical Integration," *Strategic Management Journal* 7 (1986): 347–59.
10. J. M. Campa and S. Kedia, "Explaining the Diversification Discount," *The Journal of Finance* 57 (2002): 1731–62; Belen Villalonga, "Does Diversification Cause the 'Diversification Discount'?" *Financial Management* 33(2) (2004).
11. J. D. Daniels and J. Bracker, "Profit Performance: Do foreign operations make a difference?" *Management International Review* 29(1) (1987): 46–56; Michael A. Hitt, R. E. Hoskisson, and Hicheon Kim, "International Diversification: Effects on Innovation and Firm Performance in Product Diversified Firms," *Academy of Management Journal* 40(4) (1997): 767–98; Stephen Tallman and L. Jaitao, "Effects of International Diversity and Product Diversity on the Performance of Multinational Firms," *Academy of Management Journal* 39(1) (1996): 179–96.
12. Immanuel Kant, *Grounding for the Metaphysics of Morals*, 3rd ed. (1785), transl. James W. Ellington (Hackett, 1996), 30. As philosophical principles go, this one has had a pretty good run. As you might expect, it is not without its critics, but it has resisted any credible reformulations until only very recently; and even here the conversations are just beginning: you cannot expect a principle that has held its ground for more than two hundred years to topple over in a relative instant. See Derek Parfit, *On What Matters* (New York: Oxford University Press, 2011).
13. See Phil Rosenzweig, *The Halo Effect* (New York: Free Press, 2007).


INNOVATION
GROWT
PERFORMAN

Innovation

A chimera no more

BY MICHAEL E. RAYNOR AND HEATHER A. GRAY
> ILLUSTRATION BY ANTHONY FREDA



Like the old chestnut of the bumblebee's flight, innovation seems to work in practice but not in theory. There are myriad examples of success from which we can draw inspiration, yet almost no one seems able to innovate repeatedly and on purpose. Practitioners continue to lament the unpredictability of innovation, the more Zen-like among them embracing the idea that failure is inevitable. Who hasn't been told something to the effect that if you're not failing often, you're not trying hard enough? It's difficult to know if this is powerful advice or just defeat cloaked in the rhetoric of victory.

In such circumstances, it is common practice to invoke the parable of the six blind men and the elephant, with the hope that progress lies in synthesizing the many and divergent views. Unfortunately, such a path is not available to those who wish to understand innovation, for this field of inquiry faces a much more fundamental problem: Where the blind men knew that they each had purchase on the same animal, when it comes to innovation, many of us hold parts of entirely different beasts.

Think of the variety and diversity of initiatives in most organizations that seek to bask in innovation's golden light. From disruptive new product initiatives to efforts to introduce recyclable cutlery in the commissary, there is precious little that doesn't seem to qualify. It is not an elephant we seek to describe, but a menagerie. Imagine now the sightless six grasping, respectively, the wing of a condor, the body of a lion, the horn of a rhino, and the fluke of a whale. It is unsurprising, if disappointing, that our efforts to make innovation manageable have conjured only chimeras.

Few other fields in applied management labor under this burden: Hedging financial risk belongs to finance, while motivating and rewarding employees falls to a subfield within human resources, and reducing the variation in the output of a manufacturing process belongs to operations management. Managers can be effective in these domains largely because the implicit or explicit definitions that limn the boundaries of each tell them what they need to know in order to achieve specifiable outcomes and how to improve over time. If we are to become similarly effective at managing innovation, we need to define what it is in practical, useful terms. Only then can we assemble the parts of the creature that truly belong together.

MORE THAN A HARMLESS DRUDGE

Establishing a useful definition to guide any field of inquiry is not an esoteric exercise but the most practical of first steps. Unfortunately, it is a step we have yet to take for innovation, which has been plagued, almost since its inception, with far too broad a notion of what it might encompass.

The trouble began with the seminal work of Joseph Schumpeter in the 1930s and 1940s. Almost single-handedly, the Harvard economist convinced a discipline obsessed with marginal cost competition that what really mattered was innovation, which he defined as, "the introduction of new goods…, new methods of production…, the opening of new markets…, the conquest of new sources of supply…, and the carrying out of a new organization of any industry."[1]

Consider now what this definition places within innovation's remit. Do we really think that finding a Chinese distributor for CAD software (opening new markets)

requires the same sort of management processes as shifting from bricks to clicks in the retail sector (establishing a new organization)? Does exploring digital fabrication or additive manufacturing (3-D printing as a new method of production) raise challenges that are sufficiently similar to those arising from finding substitutes for rare earth metals in the high-tech sector (new sources of supply) that they can be treated as one and the same?

A reasonable question is whether having a common definition matters all that much. Can't we follow the lead of Potter Stewart, a late Justice of the US Supreme Court, who famously averred that when it came to obscenity, he knew it when he saw it?[2] As a practical matter, the answer appears to be no. In a seemingly direct riposte to the Potter Stewart school of thought, recent literature identified 60 distinct definitions of innovation, prompting the derisive conclusion that researchers had collectively abandoned the question of definition entirely, leaving it "to the reader to intuitively understand what is now a popular subject in management literature."[3]

When definitions are offered, they collectively lack the coherence necessary to create a solid, common foundation. Is innovation "the creation of new knowledge and ideas to facilitate new business outcomes,"[4] "the effective application of processes and products new to the organization and designed to benefit it and its stakeholders,"[5] "the generation, acceptance, and implementation of new ideas, processes, products, or services,"[6] or something else altogether?

The lack of a shared, accurate definition has undermined our collective ability to manage innovation effectively because we cannot determine what matters and why.[7] One study identified 9 factors and 31 subfactors that determined success.[8] Another revealed 55 factors, and a metastudy of the field itemized 42 subfactors clustered into 10 factors.[9] In short, efforts to understand innovation are looking at phenomena that are the same in name only, so it is no surprise that there are wildly different opinions about what matters most.[10]

How shall we get out of this muddle? We cannot adopt the lexicographer's conceit and attempt to derive a definition from how the word is used. Yet on what basis and with what authority would we—or anyone else, for that matter—impose a definition?

NO FREE LUNCH?

There is perhaps a third way: Rather than infer or impose a definition, we can perhaps derive one by following to its logical conclusion the microeconomic theory at the heart of modern competitive strategy.

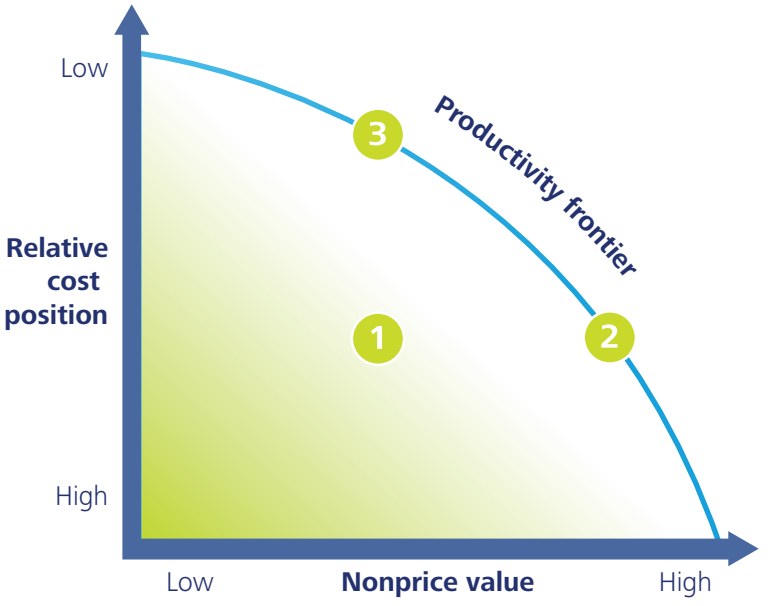
In his 1996 article "What is strategy?" Harvard Business School professor Michael E. Porter synthesizes over 20 years of writing, research, and reflection on the

implications of microeconomic theory on business competition.[11] He concludes that different strategies are defined by the *trade-offs* in the performance of the activities that define the value created by a *business model*.[12] Porter illustrates this framework using two dimensions of customer value: price and nonprice. (Nonprice value is really a vector of all the different dimensions of performance that customers want. For instance, in the case of automobiles, these might be safety, acceleration, styling, roominess, and so on.)

Delivering any given bundle of nonprice benefits always incurs a cost—it is tough, after all, to get something for nothing. The minimum cost required to achieve a specified nonprice value is not some fixed Platonic ideal: It is whatever cost is incurred by the lowest-cost provider in the market. Similarly, the level of any nonprice value that can be provided at any cost has a maximum: No matter what you're willing to pay, you cannot have a car that goes from 0 to 60 in 2.8 seconds and gets 75 miles per gallon in the city. The limits of what can be provided at what cost describe the "productivity frontier" for a business model at a point in time.

In figure 1, at point 1, a firm can appear to break trade-offs and deliver greater nonprice value without an increase in cost; that is, it can move "right" to point 2 (an increase in nonprice value) without moving "down" (an increase in cost). This is because a firm is merely wringing out inefficiencies that others already know how to avoid. In other words, at at point 1, it really can get something for nothing by

Figure 1. The productivity frontier



Source: Adapted from Michael E. Raynor, *The Innovator's Manifesto,* 2011
Graphic: Deloitte University Press | DUPress.com

working smarter rather than harder. Firms that have reached the frontier of what a given business model can do are "operationally excellent," in Porter's terms.

Once a firm gets to 2, however, that is as smart as it can work: The frontier defines the limits of what is possible at that moment. Of course, one could exploit different types of trade-offs to reach a different point on the frontier, competing instead at 3 by moving "up" (a reduction in cost) from 1 without moving "left" (a reduction in nonprice value). Once firms are at the frontier, however, changes in cost and nonprice value are inextricably linked: More of one necessarily means less of the other. Thus, 2 and 3 are qualitatively different strategies because they are at different points on the same frontier.

A company's strategy, then, is defined by the trade-offs inherent in its business model, or the activities it performs in order to deliver value to customers. A company's business model is strategically differentiated to the extent that it exploits a different set of trade-offs than its competition, choosing, for example, to provide higher quality but at higher cost and hence price.

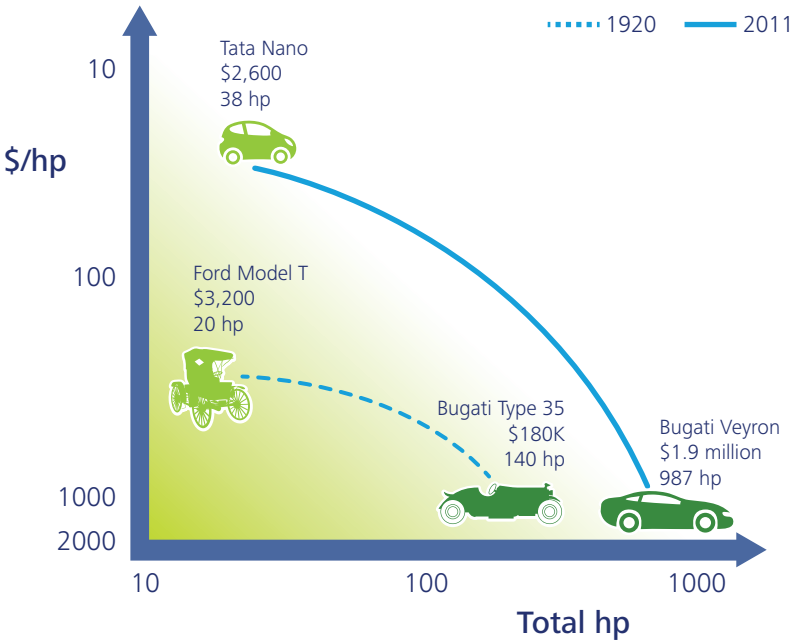
For all its power, this model is essentially static because it takes the production possibility frontier (PPF) as given and fixed. This is a useful assumption, but like many assumptions, it eventually buckles under the weight of accumulating reality. In the auto industry, for example, the trade-off between cost and power has changed dramatically over time.

Today, for example, one of the least expensive machines that we are willing to call a "car" (a closed-body private transportation device with a given passenger capacity and range) is the Tata Nano. Its price (a proxy for relative cost) is approximately $2,600, and it has 38 horsepower. At the other end of the spectrum is the Bugatti Veyron, which at $1.9 million delivers 987 horsepower. These two automobiles define, to a reasonable approximation, the PPF of the trade-offs between cost and power in the commercial market for automobiles (figure 2).

It will come as no surprise that 90 years ago the industry was subject to different constraints. In 1920, a good candidate for the cheapest car generally available was the Ford Model T, which cost $3,200 (in 2013 dollars) and delivered 20 horsepower. Back then it was still a Bugatti (the Type 35) at the other extreme, which cost $180,000 inflation-adjusted and delivered 140 horsepower.

It's worth noting that breaking a trade-off does not necessarily translate into commercial success: Some innovations disappoint when the trade-offs broken are not broken in ways valued by customers. For example, the Nano has faced some headwind in finding marketplace acceptance. March 2013 Nano sales were down 86 percent from a year prior, and only 229,157 units have sold since inception. The reason seems to be that many scooter owners aren't upgrading to the Nano because it isn't viewed as a "real" car, and car buyers view the Nano as inexpensive and too

Figure 2. Production possibility frontiers in the automotive industry



Source: Wikipedia; company websites; Deloitte analysis

Graphic: Deloitte University Press | DUPress.com

akin to a scooter.[13] In other words, although the Nano falls between a car and a scooter, it is still too close to a scooter. Consequently, commercial success seems to lie in being more like a car.

Independently of the commercial success, from an engineering standpoint, this outward expansion in the automotive sector's PPF means that the combination of cost per horsepower and total horsepower readily available in a minivan today would have been unfathomable to the engineers contesting Le Mans during the interwar period. Such movement does not pose a problem for Porter's notion of strategy since minivans in 2013 do not compete with racing cars from 1923. Yet this somewhat contrived example reveals how the accretion of many small improvements over the years can yield dramatic improvement overall.

Conceptually, of course, there is no difference between any one of those small improvements and their collective impact on automotive performance. How then are we to think of those products or services that expand the frontier compared to their contemporaries and, rather than competing by making different sets of trade-offs, compete by *breaking* trade-offs?

We propose that strategy is defined by the trade-offs you *exploit*, while innovation is defined by the trade-offs you *break*.

Establishing the utility of a definition is not something one does with regression equations or purely deductive arguments. This definition will have to prove

its worth one case at a time and gain currency only through adoption. To begin to make the case for defining innovation this way, consider four competitive battles and how viewing them through the lens of innovation as "breaking trade-offs" brings into focus what happened and why.

BEER AND WINGS

In an oft-told tale, the structure of today's American beer market is a legacy of prohibition. With the repeal of 1919's 18th Amendment to the US Constitution through the passage of the 21st Amendment in 1933, the manufacture and sale of alcohol was once again legal. Americans, so the story goes, wanted their beer cheap, fast, and in large quantities. The only breweries that had managed to stay afloat were those big enough to diversify into other businesses, and so America's brewing industry has long been dominated by a relatively small number of mega-brewers: Today, the two largest, both global players, have 75 percent market share between them.[14]

Beginning in the 1970s, however, smaller microbreweries began to crop up. Focusing on specialty formulations—bocks, pale ales, wheat or honey beers, and so on—microbreweries brew small batches, distribute locally, and often use highly idiosyncratic ingredients and processes. With 10 percent of the US beer market today, microbreweries see themselves as innovative and are frequently described as such by the popular media.[15]

In truth, however, they are simply exploiting cost/performance trade-offs to appeal to less price-sensitive segments of the beer market. They have not found a way to make "better beer, cheaper." Rather, they sacrifice economies of scale in their supply chain, production, and distribution in the pursuit of other dimensions of performance that matter to the customers they court. They have not expanded the frontier of the beer industry, merely staked a claim to a different spot on the same frontier.

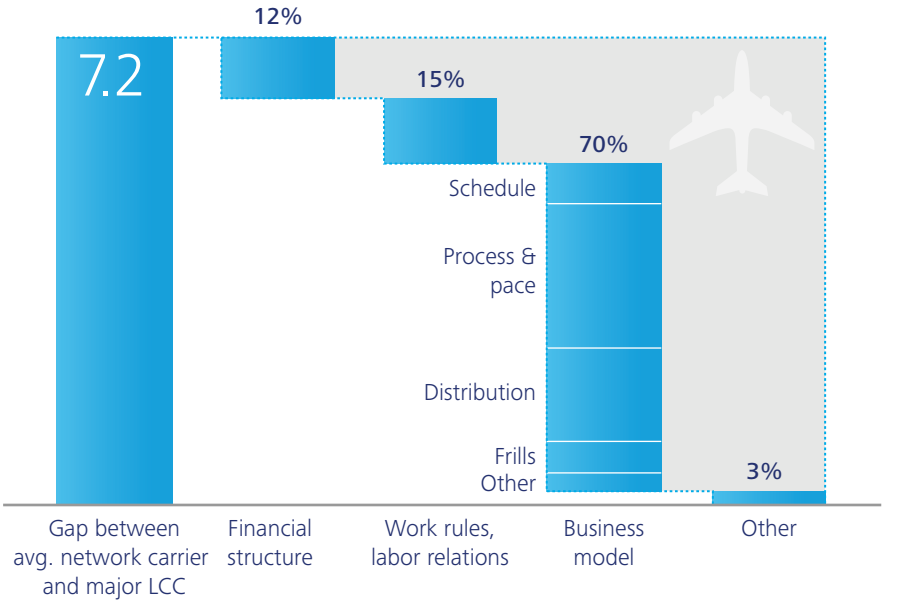
Megabrewers have responded by launching their own craft beer brands, addressing increasing market fragmentation with a careful balancing of production efficiencies and product differentiation. Leveraging production facilities and expertise, supply chains, and even marketing spend, the craft beer divisions of the major brewers are really no different from traditional line extensions one might see in any consumer products industry. One of the majors in the United States has a portfolio of over 250 craft labels, and megabrewer craft brands are now growing faster than microbrewery volumes.[16] The result has been a new competitive equilibrium in the beer market, with the majors taking constant and careful measure of the craft beer segments of the markets they serve.

Incumbents are not always able to mount such effective responses to competitive incursions, however. Consider the fate of established airlines at the hands of low-cost carriers (LCCs). At one level, it is a mirror image of the same problem the larger brewers faced. New entrants popped up in response to regulatory changes that allowed them to exploit different cost/performance trade-offs that appealed to more price-sensitive segments of the market for air travel. Incumbent airlines typically responded in much the same way the megabrewers responded to microbreweries, comparing the marginal cost of leveraging existing assets such as planes, airport gates, reservation systems, loyalty programs, and staff with the total cost of setting up something from scratch. This strategy led them to launch LCC divisions that were very often closely tied to the core operations, just as the megabrewers have done.

Yet the outcomes were far less favorable. Over a 13-year period, there were six major attempts by incumbent airlines to launch an LCC division, none of which proved successful. Continental was first out of the gate with Continental Lite (1993–1995), followed by United's Shuttle by United (1994–2001), whose run overlapped with Delta's Delta Express (1996–2003). US Air took a kick at the can with MetroJet (1998–2001). Delta's Song (2003–2006) was a second at-bat for the Atlanta-based carrier, and United tried it again with Ted (2004–2009). What kept going wrong?

Figure 3. Drivers of a major LCC's cost advantage over incumbent airlines

US networks and a major LCC (737-300: Stage length, seat density, and factor cost adjusted)



Source: Adapted from Michael E. Raynor, *The Innovator's Manifesto,* 2011

Graphic: Deloitte University Press | DUPress.com

The problem was that, unlike the microbrewery challenge, the stand-alone LCCs were true innovators, delivering comparable performance at a cost that incumbents could not match (figure 3). They were not merely exploiting trade-offs in the interests of differentiation; they were breaking trade-offs, that is, they were innovating.

Microbreweries opened up new growth opportunities in the beer industry by creating products that appealed more directly to what had been latent, unserved market segments. The megabrewers' response was effective at least in part—and perhaps in large part—because the organizational context of their response was appropriate to the nature of the challenge. Faced with the need to differentiate their product, they used the organizational tools of differentiation but kept those elements of the underlying business model that did not need to change. This allowed them to exploit their inherent cost and distribution advantages. Incumbent airlines, however, mistook a true innovation for mere differentiation. Consequently, when they too reached for the tools of differentiation, their responses fell dramatically short.

It needn't have turned out this way. What might have happened had the megabrewers responded to the microbreweries as if they were true innovators? How bad could it have gotten for them? What if the airlines had better understood the nature of the threat they faced? How effective a response might they have mounted? We can never know for sure, of course, but for some insight into these questions, consider the experiences of Intel in microprocessors and incumbent management consulting firms during the dot-com era.

SILICON VALLEY VS. SILICON ALLEY

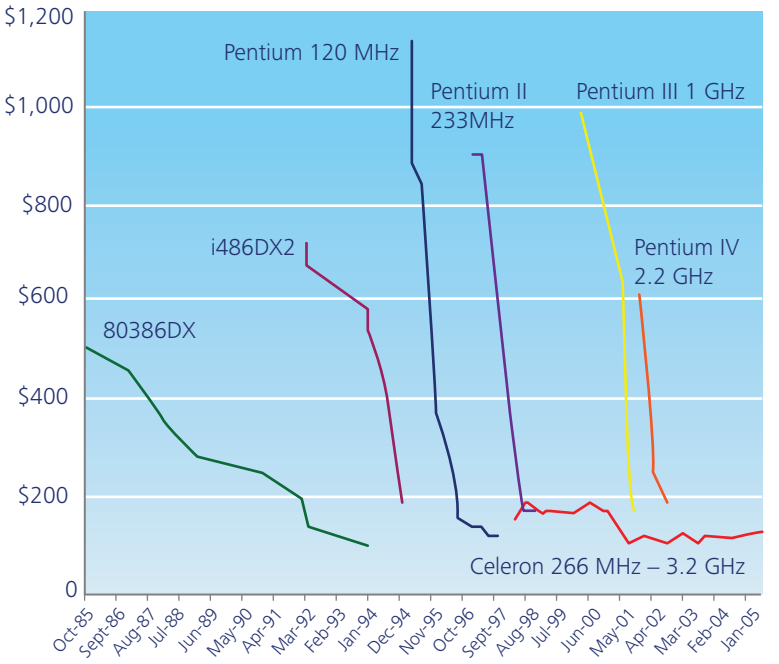
From 1985 to the end of the twentieth century, Intel enjoyed near hegemony in the chip business thanks to its ability to introduce increasingly faster chips on an increasingly shorter life cycle. Yet in 1999, for the first time, Advanced Micro Devices (AMD) had higher market share than Intel in the US retail desktop segment with 43.9 percent, thanks largely to its gains in the sub-$1,000 system segment.[17] AMD had gained this lead by beginning early—in the mid-1990s—to focus on less demanding tiers of the market, where chips that were less powerful than the best that Intel had to offer were welcomed with open arms, especially since they were being sold at much lower prices than Intel's highest-performing products. In other words, AMD captured a different segment of the market by making different trade-offs among dimensions of performance and cost.

So far, this is the just the beer example with higher capital intensity. However, unlike the microbreweries and far more similar to the case of the LCCs, AMD had set itself on a trajectory of performance improvements that promised to break the

cost/performance trade-offs that, at that time, defined Intel's product roadmap. What looked in cross section like a segmentation-based attack was actually the beginning of one based on innovation.

Intel's response was to establish a new unit in Israel, far away from the core operations in Santa Clara, California, to focus on building what would become the Celeron processor. Based on the Pentium "chassis," the Celeron was a deliberate attempt to fight back with a lower-cost, lower-priced, lower-performance microprocessor. Launched in 1998, the Celeron's performance improved dramatically even as its price remained constant (figure 4). It quickly became the largest line of processors by revenue in Intel's history. Only in the last few years has Intel phased out the Celeron and replaced it with Atom, Intel's new line of low-price microprocessors.

Figure 4. Price and performance of Intel microprocessors, 1985–2005



Source: Adapted from Michael E. Raynor, *The Innovator's Manifesto,* 2011
Graphic: Deloitte University Press | DUPress.com

Now cast your mind back to the late 1990s. Venture capital partnerships prowl university campuses, showering millions in seed financing on anyone who could spell "dot com." (At least it felt that way.) No industry seemed immune from the corrosive yet generative, terrifying yet exhilarating impact of the Internet, including management consulting. The so-called Fast Five (in a dig at the consulting arms of the then Big Five accounting firms) of RazorFish, iXL, Scient, Viant, and marchFirst were scooping up the cream of the business school crop and securing high-profile engagements with not just other start-ups but even the incumbent firms' major

clients. With dot-com era financing to sustain them, the Fast Five were eager to take equity rather than cash in payment, and, unencumbered by established process or allegedly outdated paradigms, they promised a level of creativity and insight mainstream firms couldn't even aspire to. (At least it felt that way.)

After two or three years of this, even the bluest-blooded consulting firms began to respond in ways Intel would have recognized. They set up new divisions with new names, new brands, new locations, and seemingly unprecedented autonomy. They looked for talent in entirely new places, claiming that they didn't want all those MBAs after all, and that PhD students in physics and math were just what they needed. They aped the "payment in equity" with some clients and developed new compensation models, sometimes based on ghost equity in the division itself in an effort to create the buzz of a true e-consultancy and the high-powered reward structures that implied.

Providing high degrees of organizational autonomy and developing new business models seems to increase dramatically the likelihood that one can eventually break the trade-offs that define an industry's existing frontier.

None of it lasted long or amounted to much. Scient and iXL became part of Razorfish, which is today part of Publicis, a multinational advertising and public relations company. Viant was acquired by divine inc., which went bankrupt in 2003, and marchFirst went public in March 2000 and was defunct by May 2001. Most of the mainstream consulting firms, if they talk about this period at all, do so with some chagrin. Their new divisions were closed, the ping pong tables disposed of, the new business models and compensation systems abandoned.

The major management consultancies of the day overreacted because they mistook mere differentiation for a true innovation. Thanks to the economic and sociological phenomenon of the dot-com bubble, new market segments emerged that wanted, for a time, a different set of price/performance trade-offs. But the e-consultancies that sought to capitalize on those preferences had not created a new frontier. They were at best seeking to exploit trade-offs and were a long way from breaking them.

Figure 5. Matching organizational responses to competitive opportunities and threats

Graphic: Deloitte University Press | DUPress.com

THE END OF THE BEGINNING

These case studies reveal the importance of understanding at a fundamental level what is and isn't innovation. Treat an attack based on differentiation as if it were breaking important trade-offs and you will likely overreact, but mistake a true innovator for the merely different and the pain can last for decades.

As these examples illustrate, at least some of what is prescribed for successful innovation can be very effective. Providing high degrees of organizational autonomy and developing new business models seems to increase dramatically the likelihood that one can eventually break the trade-offs that define an industry's existing frontier. Taking advantage of this insight, however, demands that we apply this advice only where appropriate—that is, where innovation is in fact called for.

Identifying these circumstances means having a practical, accurate definition of innovation, and "breaking constraints" would appear to meet these criteria. In each of the four cases examined above, it would have been possible to map the cost/performance profiles of the market opportunities in play and determine with sufficient precision whether innovation or differentiation were likely to be the more effective response (figure 5).

For innovation researchers, we hope our definition will help bring some consistency to the field so that it can emerge from its current pre-paradigmatic welter. By consistently defining the underlying phenomenon, perhaps it will be possible to

move beyond arguments over the factors and subfactors of innovation and engage the real question: how to innovate effectively.

For practicing managers, who are deliberate or de facto consumers of management theory, we hope our definition will allow them to screen the advice they receive and identify the nuggets that speak to the problems they actually face. Is it any wonder that so many see "predictable innovation" as an oxymoron when so much of the advice on offer is actually targeted at an entirely different outcome?

Whatever the merits of our definition, we remain convinced that one is needed. Only when we attempt to synthesize our elephant from the parts of an elephant will innovation be a chimera no more. **DR**

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Endnotes

1. Joseph A. Schumpeter, *Theory of Economic Development* (Cambridge, MA: Harvard University Press, 1934).
2. Jacobellis v. Ohio (1964).
3. Anthony Read, "Determinants of successful organisational innovation: A review of current research," *Journal of Management Practice* 3, no. 1 (2000): pp. 95–119; Anahita Baregheh, Jennifer Rowley, and Sally Sambrook, "Towards a multidisciplinary definition of innovation," *Management Decision* 47, no. 8 (2009): pp. 1323–1339.
4. Victor A. Thompson, "Bureaucracy and innovation," *Administrative Science Quarterly* (1965): pp. 1–20.
5. Michael A. West and Neil R. Anderson, "Innovation in top management teams," *Journal of Applied Psychology* 81, no. 6 (1996): p. 680; most recently quoted in Alfred Wong, Dean Tjosvold, and Chunhong Liu, "Innovation by teams in Shanghai, China: Cooperative goals for group confidence and persistence," *British Journal of Management* 20, no. 2 (2009): pp. 238–251.
6. Marina Du Plessis, "The role of knowledge management in innovation," *Journal of Knowledge Management* 11, no. 4 (2007): pp. 20–29.
7. Ian Barclay, "The new product development process: Past evidence and future practical application, Part 1," *R&D Management* 22, no. 3 (1992): pp. 255–264; Mary M. Crossan and Marina Apaydin, "A multi-dimensional framework of organizational innovation: A systematic review of the literature," *Journal of Management Studies* 47, no. 6 (2010): pp. 1154–1191; Richard Adams, John Bessant, and Robert Phelps, "Innovation management measurement: A review," *International Journal of Management Reviews* 8, no. 1 (2006): pp. 21–47.
8. Marisa Smith et al., "Factors influencing an organisation's ability to manage innovation: A structured literature review and conceptual model," *International Journal of Innovation Management* 12, no. 04 (2008): pp. 655–676.
9. Garry L. Adams and Bruce T. Lamont, "Knowledge management systems and developing sustainable competitive advantage," *Journal of Knowledge Management* 7, no. 2 (2003): pp. 142–154.
10. Gerben Van der Panne, Cees van Beers, and Alfred Kleinknecht, "Success and failure of innovation: A literature review," *International Journal of Innovation Management* 7, no. 03 (2003): pp. 309–338.
11. Michael E. Porter, "What is strategy?" *Harvard Business Review,* November/December 1996.
12. As a definitional aside, I used "business model" in the previous section as it is a term in general use. I take it to be synonymous with Porter's notion of an "activity set," and make this substitution later in what is otherwise a rehearsal of Porter's argument.
13. Philip, Siddharth, "The World's Cheapest Car Runs Out of Gas," *Bloomberg Businessweek*, April 15-21, 2013, p. 21.
14. Charlie Papazian, Bob Pease, and Dan Kopman, "Craft or crafty? Consumers deserve to know the truth," *St. Louis Post-Dispatch*, December 13, 2012, <www.stltoday.com/news/opinion/columns/craft-or-crafty-consumers-deserve-to-know-the-truth/article_e34ce949-d34a-5b0f-ba92-9e6db5a3ed99.html>.
15. Devin Leonard, "Jack McAuliffe, father of American craft brew, brings back New Albion Ale," *Businessweek*, March 29, 2013, <http://www.businessweek.com/articles/2013-03-29/jack-mcauliffe-father-of-american-craft-brew-brings-back-new-albion-ale>; Brewers Association, "Craft brewing statistics: Facts," <http://www.brewersassociation.org/pages/business-tools/craft-brewing-statistics/facts>.
16. Papazian, Pease, and Kopman, "Craft or crafty?"; Brewers Association, "Market Development Committee chain buyers sell sheet & presentation notes and beer & food matching chart," <http://www.brewersassociation.org/pages/business-tools/chain-buyers-presentation>.
17. Intel Corporation in 1999. Stanford Business School case SM-70.

Disegno di Pininfarina

An hour with Paolo Pininfarina

BY SCOTT WILSON

The chairman of the renowned Italian design house discusses creativity the Italian way, how to extend a luxury brand into new markets, and offers his opinion on his company's best-ever Ferrari design.

GROWING UP IN 1980s SCOTLAND, I was transfixed weekly by *Miami Vice* and my hero Sonny Crockett's bad mullet haircut, suits with rolled-up sleeves, and his beast-on-four-wheels white Ferrari Testarossa. Only later did I discover the creative power behind the car's glorious pure lines and aggressive swooping curves was Sergio Pininfarina, owner of the Pininfarina automotive design house and venerable Italian coachbuilder that perhaps epitomizes our notion of Italian sports car design today.

By that time, Pininfarina had of course established a long and successful partnership with Ferrari as the firm's de facto design team. That relationship remains strong today under the aegis of the late Sergio's son and current Pininfarina chairman, Paolo Pininfarina, who has extended the company's creative reach—often via Pininfarina Extra, the company's product design subsidiary—into new luxury markets and industries, while retaining the traditions that brought the brand fame in automobile design. Over a long-reaching discussion on what makes his company tick in terms of innovation and creativity, we explored a variety of topics including the perennial appeal of Italian design, lessons learned extending a company's core competence into new markets, and how tradition and heritage remain at the center of the company's design philosophy forged more than 80 years ago when his grandfather, Battista "Pinin" Farina founded the company in Turin, North Italy.

I begin our dialogue by wondering aloud what makes Pininfarina unique in the world of design firms. And has this had any kind of impact on allowing the company to diversify? The chairman pauses before explaining that the decision to compete in new markets was originally taken by his father, Sergio, in the mid-'80s, who saw an opportunity to gradually leverage the strength of the brand's reputation in the automotive sector into other transport sectors and then eventually into global industrial and consumer design markets.

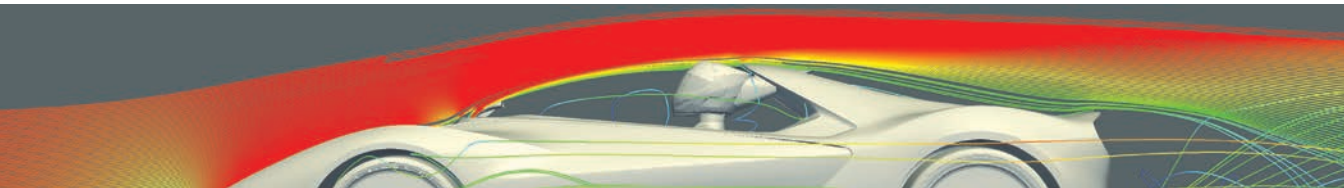
"My father took the decision to expand the brand because he recognized the potential for development and extraction of the value we had built up in automotive into new markets, beginning with other forms of transport. He was also aware that if we leveraged the brand in other sectors we would reduce the risk of imitation by others in those sectors, so it was also a defensive approach to protect the brand that gradually became quite important and strategic over the years.

"And what makes us unique I think is our history, which is very special. Our firm dates back to the '30s prewar, and there are not so many design firms today that can say they have more than 80 years' history. It's our family heritage which I think makes us unique because there is only one Pininfarina family and one Pininfarina vision on design. My grandfather was special in creating this vision and making sure it lasted, building something that would be around for decades. He was also lucky in a way because his son Sergio, my father, was also very talented,

perhaps even better at building the company we are today. He was a great engineer and very committed to improving the company with strong ethical values. But then I would say that he, too, was also lucky in that his sons—myself and my brother (the late Andrea Pininfarina)—were very involved in the business from an early age and also determined to continue the development of the company in the same way. So we are a family business, and it's a nice story with many good moments but also bad moments, such as the Second World War for my grandfather and then the death of my brother five years ago. But we are very strong, and I think we are also very resilient."

Does that resiliency translate into the essence of the Pininfarina design vision? Are there other elements that separate Pininfarina design from your competitors'?

"Absolutely, and one of the things that I do every day when I am involved in the design projects is to guarantee the Pininfarina brand. I can see when we have a clear solution to a technical problem in a new car or train or whatever, but it has to be the *right* solution. Something can be good but if it's not what I classify as Pininfarina then we don't implement it. Being one of the experts on the history of the company



I often make final judgment on what is and what is not "Pininfarina."

I often make final judgment on what is and what is not "Pininfarina."

"Much of what can go into that judgment can seem intangible but our design work has to be innovative, it has to be essential, it has to be harmonic, it has to be balanced, and above all it has to be *elegant*. Elegance is something that is very important, and after all these years I think we can be proud to say that our cars are the most elegant. And this is the result of great consistency in our design approach, year after year, project after project. We have a history of about 800 cars designed and about 500 other design projects outside of automotive we were involved in, so that in itself is a good reference for what we do."

Would you say there is a specific approach to implementing that design philosophy at Pininfarina?

"I think I can be a little provocative in answering that question when I say that we believe there are two approaches to design. One is very *contemporary*, an approach based on design by the people, coming from the people… it's a bottom-up approach. It's like local fashion getting popular and suddenly becoming global. It

starts with the people and goes all the way to the top. And the other approach is what I would call more *aristocratic*, more of a top-down approach. So for example, design elements of a Ferrari eventually influence design elements of an Alfa Romeo and so on. It's extending some of the design from the level of grand luxury down to the level of mass-produced products to give that sense of imitation of luxury.

"At Pininfarina we believe in the top-down approach. We think that starting from luxury we can generate progress and innovation because it embodies the logical spirit of curiosity and admiration people have for luxury products. It allows you to have the freedom and budget to explore innovation, and by following the top-down approach you can eventually bring ideas to the mass market. We know this is a different approach to the other way that some may say is more "democratic" rather than "aristocratic," but I believe that luxury goods are important to enable new designs to emerge. And in that sense I don't believe luxury goods are an isolated area to the rest of the world; absolutely not."

"When it comes down to it, great design for me is something that is durable. Durable means something that is evergreen, classic; design that will always last.

At this point I am reminded of the philosophy of renowned chef and innovator of molecular gastronomy, Ferran Adria, who, while reaching his creative zenith at his landmark restaurant *elBulli*, attributed much of his success to managing and deploying talent and technology in a harmonious approach to innovation.

How does talent and technology play a role in Pininfarina's top-down approach to design?

"Talent is very important, of course. We look for people with values like integrity and thinking for the long term, that is, long term for the company and also for the development of their personal careers in the company. We don't want to have people come here, learn, and then go. We prefer to have people that stay and grow in the company.

"But there are also people who come to our company from outside who we think can produce design work that is in tune with Pininfarina. The world is more complex these days, more competitive, so we need to find the right balance between our tradition of developing our own people to grow with the company and bringing in new people with new ideas who share our values and can help support the growth of the company."

Are you ever concerned that if too many people come and go at Pininfarina they will take what they have learned there and use it to succeed at other companies?

"No. I actually think that is not a big concern because if someone is talented at Pininfarina I do not think it is inevitable they will be just as talented somewhere else because they will have left the special environment we have at Pininfarina and they will not receive the same support they get here. To be frank, we have lost key people in the past who went to other companies, but I believe they never again expressed the same talent they had while at Pininfarina. What concerns me more is that we lose our time bringing someone in, developing them, and building their career for them to then leave. But that's life. People come and go, but Pininfarina is always there.

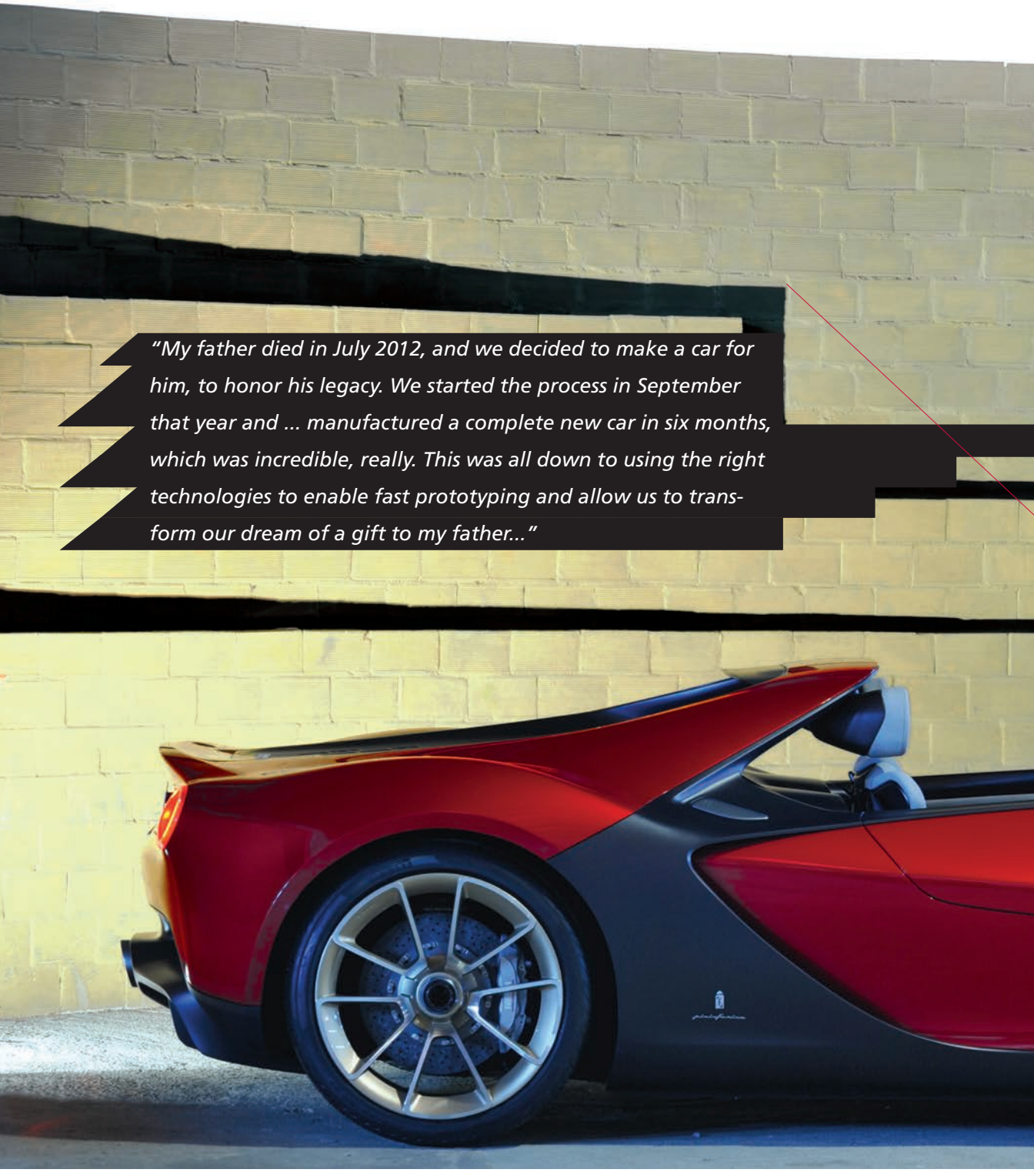
"What we do have to be careful about when bringing people in from outside is on the one hand not ignoring what is going on with more contemporary design and engineering trends. We always have to be curious and knowledgeable about such things. But we cannot be impressed too much, otherwise we risk becoming too contemporary rather than truly innovative. We have to anticipate what the trends are likely to be in the future, but we have to preserve the classical Pininfarina style and also maintain our tradition of innovation.

"When it comes down to it, great design for me is something that is durable. Durable means something that is evergreen, classic; design that will always last. It's what we are known for, and I think it is good for the industry and has proven to be a good investment for our partners through the years. When you come to Pininfarina you know your product will last, and that's very important from an economics perspective."

What about technology? Over the last 30 years there have been huge technology changes in the automotive and design industries, and technology occupies a greater space in our lives. Is this a good thing for design and creativity? Can you still maintain your classical heritage in the face of relentless jumps in technology?

"It's an interesting question. Craftsmanship and artistic talent was the core 50 years ago, but then technology began to play a bigger and bigger part, as you say. But I think Pininfarina has always been very in tune with technological progress. We have a strong engineering tradition, and you can see that in our designs, which are often expressed via use of new materials or new aerodynamic processes or advances in areas like electric propulsion. We think we are always very involved in the evolution of automotive technology, but what's also important is to make sure we get the right mix of technology and craftsmanship in what we do.

"A good example of this is the prototypes we make, the concept cars or the limited editions, and one-offs, etc. It's here that you can see a lot of new technologies, new materials, new solutions combined with the capability to make these pieces in



very small quantities. These products are tailor-made, which is at the core of our brand's heritage of craftsmanship. And I believe this is where our brand has more recognition, in that area of special editions, one-offs, grand luxury projects rather than, say, in mass production. And this is very much in alignment with our redefinition of the Pininfarina vision that we carried out five years ago when we moved away from design for mass production and instead concentrated manufacturing on very select limited editions.

Would you say, then, that technology has not compromised the artisan creativity that you've always been known for?

"Technology helps, but you must not become a slave of technology. It only helps if you select the *right* technology for you. But it can definitely help. I'll give you a simple example: My father died in July 2012, and we decided to make a car for him, to honor his legacy. We started the process in September that year and presented the Sergio Ferrari concept car at the Geneva motor show in late February. So we

actually designed, engineered, and manufactured a complete new car in six months, which was incredible, really. This was all down to using the right technologies to enable fast prototyping and allow us to transform our dream of a gift to my father of this beautiful car in just six months.

"But let me say something very Italian. What made the difference in this instance was passion. Passion and the commitment of our people to give 110 percent because we all wanted to produce the best of the best—a car with the name of our chairman."

That must have been a very emotional project for you. Are there any lessons learned that you can apply to other projects?

"Yes. To be able to turn something like that around in six months is quite remarkable. It was a very special project, but probably the lesson is that sometimes if you compromise too much and get too many suggestions from your team or from outside then you end up wasting too much time. In the end we said, OK, we want to be fast, we want to make a Ferrari, a Ferrari inspired by the chairman. And we agreed, and we started. We did not need too many checks or the need for confirmation. So everything was done fast, and in the future I hope we will be able to learn from what we did there."

You mentioned before that you sometimes have outsiders come into the company and help grow the brand, but you also have many high-profile partnerships with other luxury brands, and I read that your father, who was also an Italian statesman, was very keen on being able to partner with international companies as a mechanism for growth into new markets beyond Italy.

"As far as Pininfarina is concerned I would say that we are Italian first, of course, but we are very much international. We don't want to be perceived as only an Italian brand. We have an ambition to be active globally, and yes, that has always been something Pininfarina has tried to do with partners. My grandfather used to say 'I want to have a partner in every country' and we certainly had partners in Italy such as Alfa Romeo, Ferrari, Fiat, and so on, but from an early age the company also had partners in France with Peugeot, we had British Leyland in the UK, and we had General Motors in the USA. This was in the '50s and '60s, and then we partnered with Nissan, then came Honda and Mitsubishi, and afterwards we did a lot of work with Ford, then Volvo. So we have definitely tried to continue this strategy as a means of growing our business globally, and this has paid off for us. About 90 percent of Pininfarina turnover goes outside of Italy now, and the majority of the remaining 10 percent is for Ferrari, and that too goes mainly outside of Italy.

"This is something we think is good for us because being more international opens your mind to different markets, attitudes, customers, and technologies. It's good for innovation. And also I find that being an Italian business helps with

becoming more international because I find a tremendous enthusiasm for Italy whenever I travel for business. It doesn't matter if I am in Singapore or San Francisco, or like last week when I was in Sao Paolo, I find this fantastic enthusiasm about Italy, which allows us to be much more positive and optimistic about working internationally."

Has partnering with these international companies ever influenced your design process?

"Yes and no. Not so much the design, which is our core competency, but certainly in the areas of process engineering and manufacturing, for sure. Partnering with the Japanese was very helpful when we redesigned our factory 20 years ago because of course they were very strong in process engineering, and we learned from them. But as we extend the company internationally, we will always keep the conceptual, creative design phase in Italy because that was my father's mission; that's what gives us our Italian style, our Italian flavor."

Do you have strict criteria for who gets to partner with you?

"It all depends on the type of partnership because it may be a design partnership or an engineering service or some limited edition manufacturing. Each partnership can be different according to the brand or the end customer, so selection of partners can often be quite complicated. However, we always abide by our own partnership principles of making sure we never disturb our partners in the markets they serve. So let's say we are doing a car with Ferrari—we will never do something else that would directly compete with our partner Ferrari. That is true in all the sectors we partner in. For us, it is very important that we can build trust with our partners, to be very clear with each other, to be very transparent in the way we do business."

You mentioned that you have plans to push the Pininfarina brand into other grand luxury sectors that are far removed from the automotive industry. How easy is it to do something like that when your brand is so strongly associated with automobiles? Isn't there a risk that moving into more consumer products markets and even getting into sectors such as the hotel industry (the company designed the Keating Hotel in San Diego, which opened in 2007 to critical acclaim) where you have no previous expertise could be damaging to your core automotive brand?

"Well to begin with I think expanding our brand into new sectors will always be a very gradual process. We are very curious to see how we can leverage the strength of our brand in new industries. With the Pininfarina-designed hotel in San Diego, that was really our very first experiment in this sector. But I would be interested in seeing what we could do with another Pininfarina hotel in New York or Paris or Rome and eventually throughout Italy. I am sure there will be some others in the future. To me this is following the logical process of innovation, and while it should be gradual we should not fear innovation.

"Regarding risks to the core brand, we do spend a lot of time selecting and working with consumer panels. We are very conscious of the dangers of over-inflating the brand, but at the same time we don't want to lose opportunities to explore new sectors that could help grow the company. Like everything, it has to be a balance. You cannot always say yes to new opportunities, but it is also correct not to always say no because then we would never be able to explore the potential of our brand. Also, we have confidence in our brand being quite solid after more than 80 years. I think people around the world now understand that Pininfarina is not just about automotive. And that makes me quite comfortable about exploring other sectors but always being mindful to respect our core values of elegance, durability, and never being considered too fashionable. I think there are many opportunities where our automotive heritage will give credibility and value, and we will focus on those in the future."

Do you take what you learn in these new areas of business back into the automotive design process? Any learning experiences in designing hotels or consumer products that can be used in the core business, or is it the other way around?

"When we collaborate on design we always try to go through the experience of our partner while always trying to give our own input. We do that to try and make something that is in line with the brand of our partner but is also expressing the values of Pininfarina. For example, we made a dispenser for Coca-Cola, which is definitely in line with their brand because it expresses their colors and the friendly values of Coca-Cola. But it also expresses the values of the Pininfarina identity formed in automotive when you consider things like materials, graphics, colors, technologies, et cetera.

"I wrote a book with a journalist about eight years ago, and we did an analysis of about 20 Pininfarina projects outside of automotive, examining any connections back to automotive in the designs, exploring where the automobile was in the process. And we actually found there was always a more or less subliminal connection with automotive in every project we do because it's in our hearts. So it somehow always comes out in every project."

As our time together draws to a close, I bring our conversation back to the subject of Italy and the notion of *Italian flair* in design. I ask the chairman why he thinks Italy leads the world in many areas of design. Does he believe there are cultural reasons to this?

"I think it's a mix of reasons that are mainly historical and geographical. The latter because we are in the middle of the Mediterranean, the middle of Europe, and at various points in history Italy was divided into many small states and monarchies with influence over neighboring countries such as Germany, France, Spain going right back to the time when the popes had great influence. This meant the history of

Italy was also fragmented and allowed a lot of different artistic standards to emerge. So if you see a church in Sicily it's different from a church in Milan or Torino, but they all have strong artistic values. And of course this meant we had many different styles of craftsmanship and artisan skills, a lot of which were established when the fragmented states were at war with each other. And then of course we had the Renaissance period, and Italy was known for having great sculptors, painters, engineers, the era of Michelangelo and Raphael creating this fantastic tradition of art and craftsmanship that you can still see today expressed in modern brands such as Ferrari, Gucci, and all the others that are at highest levels of quality. In these brands you can always find that tradition of handmade artisanship, skill, and elegance that comes from the past. I think this is the secret to the enduring Italian style."

What's next for Pininfarina, what are the plans for growth, and how will you achieve them?

"I see a lot of international growth as we explore new markets where our brand has strong recognition. Every country is different of course, and not all markets will have the same reaction to Pininfarina. So every market has to be explored and studied, and if we think there is potential we will gradually build partnerships there. For example, I see great potential in Brazil, and every time I go, there is one more partnership starting. It's a country that we previously had no business in, so I feel very positive about our opportunities there.

"So growth geographically, but also growth in new services that will not only be in automotive but also industrial and environmental and eventually doing more in the area of architecture and buildings where we think Pininfarina can be a good fit. In automotive I think the growth for Pininfarina is back to our roots, to go back to doing more of the limited edition work because that is an area that could be explored more than we have done recently. One example of that is of course the Sergio car we discussed, and we could eventually do more than one. We could also explore doing similar projects with other automotive brands if we can find the right opportunity to express co-branding in the best way."

A final question and I can't resist: In your opinion what is the most beautiful car your firm has ever made?

"That we ever made? I'll tell you the same I told Italian television: the Sergio Ferrari. It's the car I made for my father, and it's my favorite. It was a real challenge to do something at that level of excellence, but I think we succeeded, and that is my favorite." **DR**

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Making open innovation work in mobile

Insights from the semiconductor industry

BY SCOTT WILSON AND CRAIG WIGGINTON
> ILLUSTRATION BY YUKO SHIMIZU

OPEN INNOVATION IN THE MOBILE SECTOR: A MATCH MADE IN HEAVEN

For many who have succeeded in capturing value from the onslaught of disruptive mobile technology, stories abound of entrepreneurial dare combined with strategic nous to fend off the waves of competing firms, old and new. Others it seems are just happy to be in the right place at the right time to exploit emerging markets awakened to the possibilities the mobile web affords. But dig beneath the surface of some of the sector's best performing companies and recognizable patterns of behavior surrounding their approach to innovation and growth begin to emerge.

Indeed, one segment of the industry notable for perhaps flying under the radar when it comes to high-profile mobile growth strategies is the semiconductor sector. Traditionally known for pursuing innovation via Moore's law to the nth degree and shrinking chipsets onto expanding silicon wafers, the industry's leaders have quietly positioned themselves at the center of mobile technology innovation across multiple emerging markets. Look closer still and some of the best-known chip companies making significant moves in mobile are connected by a common thread—the use of open innovation (OI) strategies and tactics to gain leadership in new mobile markets.

In this article we explore how and where select semiconductor companies have taken the standard OI playbook and have been able to evolve and shape-shift critical elements in order to lead innovation in mobile. Specifically, we focus on prominent new markets in sectors undergoing rapid transition, where growth opportunities flourish for those able to compete with innovative mobile business models. But first a quick glance at some of the industry's headline growth trends sets the scene.

THE RISING TIDE THAT LIFTS ALL BOATS

Ask most executives tasked with developing new business models with mobile tech at the core and they'll probably agree it's a tremendous opportunity, but one that's increasingly difficult to realize. At least in part this is because the once traditionally predictable wireless sector finds itself constantly disrupted in what Dartmouth professor Richard D'Aveni once described as a period of sustained *hypercompetition*.† Nevertheless, as the saying goes, out of adversity comes opportunity, and now more than ever consumer and enterprise markets are demanding mobile products and solutions that, in turn, fuel the fire for innovation.

The blistering growth in mobile data traffic continues

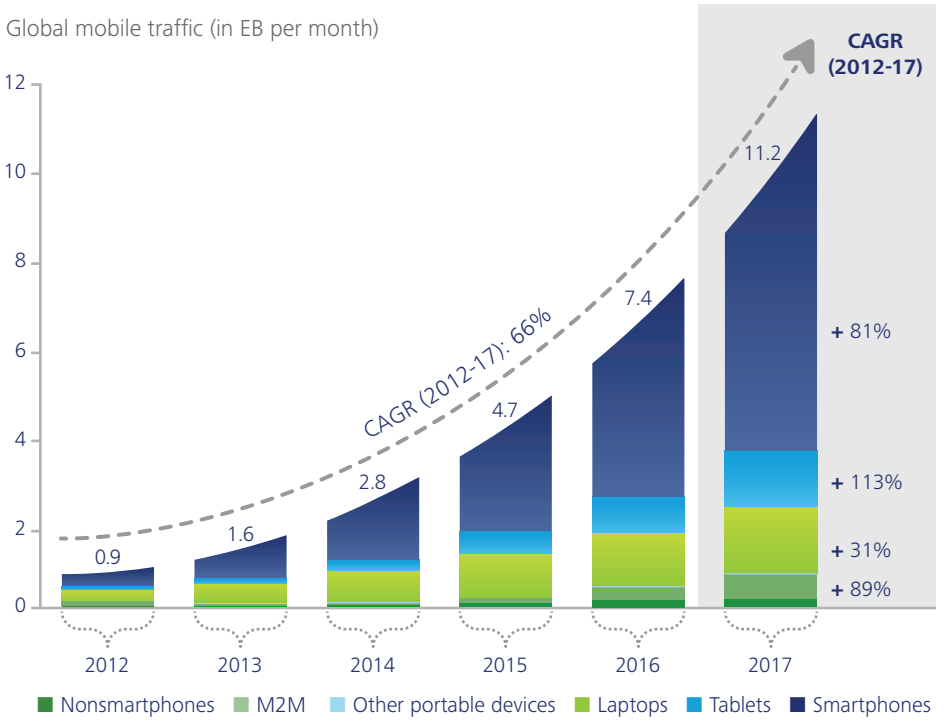
In case you haven't heard, mobile data traffic is through the roof. Earlier this year, Cisco's annual *Visual Networking Index* predicts mobile and Internet data traffic to increase 13-fold from 2012 levels over a five-year period. Even more significantly, the index forecasts total mobile traffic to increase at a CAGR of 66 percent during 2012–17 (see figure 1). In the United States alone, according to industry wireless association CTIA, wireless traffic doubled, with 104 percent year-over-year growth between 2011 and 2012, as the base of mobile subscribers grew (see figure 2). And let's not forget emerging markets across Eastern Europe, the Middle East, Africa, Asia-Pacific, and Latin America, which are poised to eventually outgrow the developed world in terms of mobile traffic growth by 2016.[1]

Across the technology, media, and telecoms (TMT) sectors, the magnitude of these forecasts should not be underestimated. The pace of growth in mobile data traffic is staggering, reflecting how society has embraced mobile wireless technology in ways that were unthinkable a mere five years ago. As Silicon Valley venture capitalist Mary Meeker points out,[2] innovation in mobile technology and wireless connectivity has rapidly touched upon all facets of life and "reimagined" everything from personal computing, printed media, news, and information to music, video,

†*Hypercompetition*, as described by Prof. Richard D'Aveni, describes hyper-inflated market competition that can emerge in sectors prone to rapid technological disruption with competitive advantage often difficult to sustain. See R. D'Aveni, *Hypercompetition: Managing the dynamics of strategic maneuvering* (New York: The Free Press, 1994).

home entertainment, and art, to eating, drinking, health care, banking, and commerce. The list is seemingly endless. Mobile technology has undoubtedly changed how we live, work, socialize, and collaborate. And yet, in many ways, we've barely scratched the surface. With the advent of ubiquitous wireless access in cities across the developed and developing world set to spur waves of democratized digital populations, the possibility that mobile technology will transcend previous technological shifts in societal impact is very real indeed.

Figure 1. Mobile traffic in exabytes (EB) per month, global, 2012-2017



Note: 1 exabyte (EB) = 1,000 petabytes (PB) = 1 million terabytes (TB) = I billion gigabytes (GB)

Source: Cisco Systems' Visual Networking Index (2013)

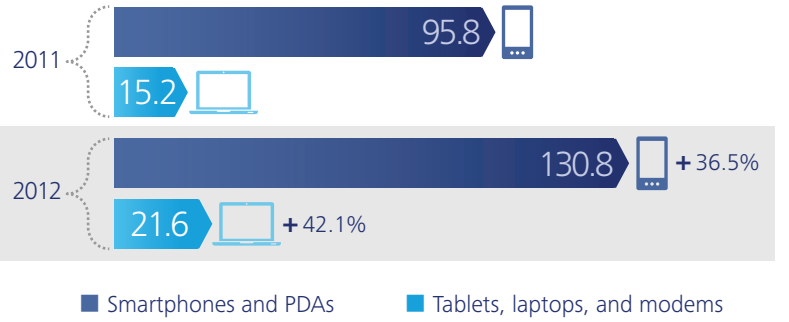
Graphic: Deloitte University Press | DUPress.com

The 4G era in with a bang

In economic terms, the emergence of the 4G wireless era has profound consequences for firms competing across the TMT sectors. Perhaps more so than previous network standards, fourth-generation network technology in the form of the LTE (long term evolution) standard is poised to boost mobile innovation and adoption and fuel the upward growth of mobile data traffic to new heights.[3] On paper, LTE provides a jump in network speeds and bandwidth capability, ushering in that new wave of mobile ubiquity, which has seen 4G adoption in the United States lead the

way, commanding roughly 64 percent of worldwide LTE subscribership. Analyst estimates suggest LTE services will generate more than $11 billion in service revenue in the United States by 2015[4] with global LTE subscribers likely to exceed 1 billion by 2016.[5] That's a whole lot of connectivity going on.

Figure 2. Number of wireless-enabled subscriber connections (millions), United States, 2011–2012



Source: CTIA (2013)

Graphic: Deloitte University Press | DUPress.com

Smartphones continue to dominate as mobile growth platforms

These days smartphones are ubiquitous, blurring the boundaries between the worlds of enterprise, commerce, and high-street consumers. From the latest *superphones,* such as the *iPhone* and *Galaxy* models, to lower-tech devices (not-so-smart-phones, if you will) flooding emerging markets and enabling greater access to mobile computing for the masses, their popularity has never been higher. Unsurprisingly, this device category is easily the most significant growth driver for the mobile semiconductor sector.

Indeed, a comparison with the traditionally robust PC semiconductor market illustrates just how quickly smartphone and tablet adoption has risen over the last 18 months, with an even greater uptick expected in the next three to five years. Much of this demand will emerge from basic and low-cost phones in the emerging markets as cost-conscious consumers seek out increasingly affordable devices. As mobile technology development accelerates, a trickle-down effect is prevalent in many markets, helping spur growth in low-end product categories across developing economies. For example, in regional markets such as China, technology reuse has never been higher and is set to spike further with a reference design approach in semiconductor chipset utilization becoming common among vendors. This will have a lasting impact, and analysts expect China's connected device market, which encompasses a broad range of consumer electronic devices in addition to mobile

Analyst estimates suggest LTE services will generate more than $11 billion in service revenue in the United States by 2015 with global LTE subscribers likely to exceed 1 billion by 2016. That's a whole lot of connectivity going on.

devices, will experience six-fold growth by 2020, representing some $700 billion in potential revenue—twice the current semiconductor market.[6]

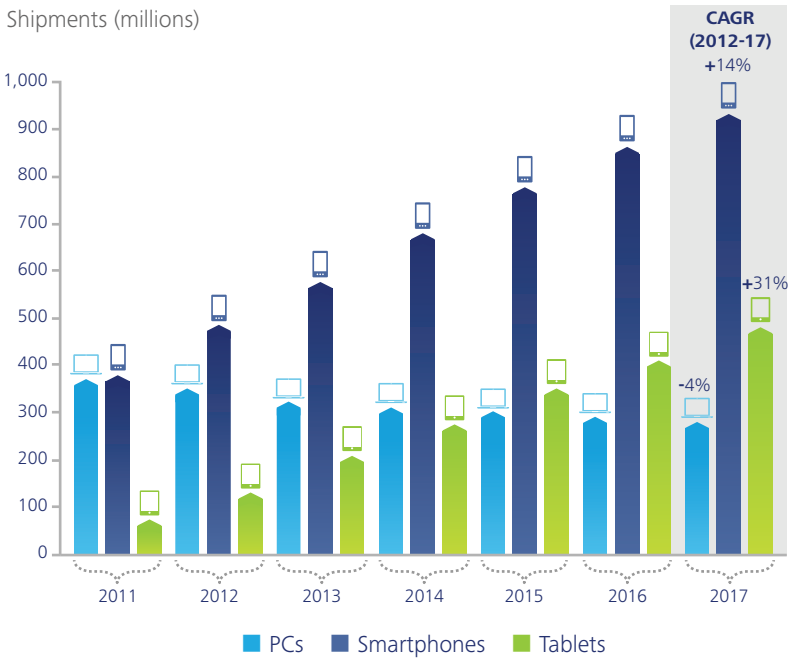
The tablet takeover … au revoir PCs?

And let's not forget tablets. Possibly the biggest shift in mobile device ownership over the last 12 months has been driven by a voracious consumer demand for tablets, which have become the mobile device *du jour* across an increasingly wide demographic. Such is the extent of the demand that some analysts predict up to 44 percent of consumers worldwide will own tablets by mid-2013, with 25 percent being first-time owners.[7] In the United States this trend is particularly pronounced, with tablet ownership thought to be in the region of 25 percent in 2012, compared with just 3 percent in 2010.[8] Moreover, a recent study by Deloitte LLP* predicted that almost 50 percent of US consumers will likely own tablets by the end of 2013, with 22 percent expected to be first-time buyers.[9]

In the short term, a victim of this shift toward ultra-mobile computing platforms could be the market for desktop personal computers (PCs). As the mobile

*As used in this document, "Deloitte" means Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte LLP and its subsidiaries.

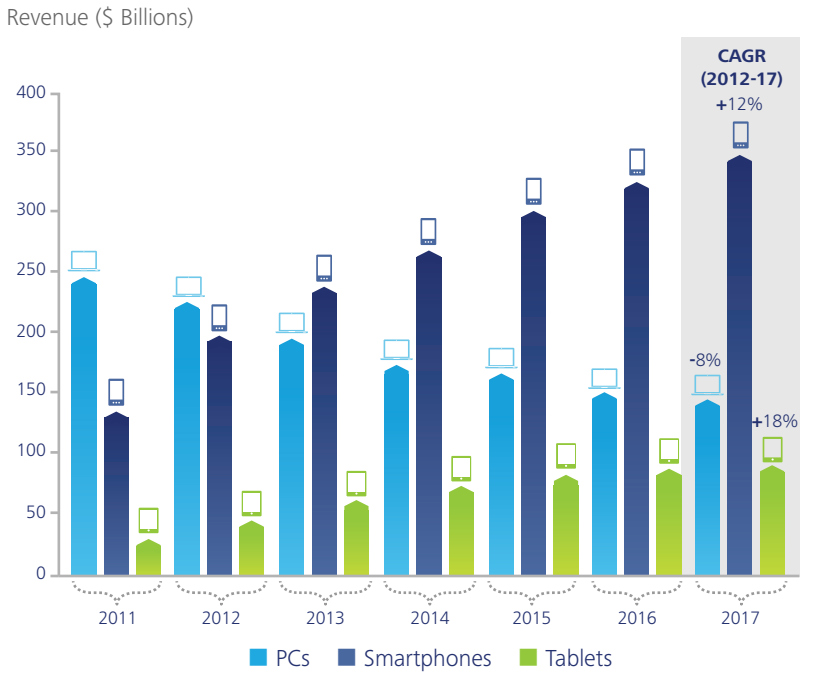
Figure 3a. PCs, smartphones, and tablets: Unit shipment forecast, global, 2011–2017



Source: Gartner (2013)

Graphic: Deloitte University Press | DUPress.com

Figure 3b. PCs, smartphones, and tablets: Revenue forecast, global, 2011–2017



Source: Gartner (2013)

Graphic: Deloitte University Press | DUPress.com

web experience increasingly matches, and in some cases exceeds, the desktop PC web experience, a significant amount of IP and Internet traffic is originating from non-PC devices. As tablets such as Apple's iPad become content creation devices, consumer demand for PCs is expected to plateau and remain sluggish in the immediate short term. At the same time, new tablet design form factors and innovative mobile software development will spur consumer adoption and help address email, social networking, web browsing, and mobility requirements at relatively lower price points compared to PCs. Again the numbers don't lie—468 million tablets are expected to be shipped worldwide by 2017, and subsequent revenue is expected to increase from $40.8 billion in 2012 to $93.2 billion in 2017 (see figures 3a and 3b). At the regional level, the United States will primarily continue to lead in tablet shipments through 2017.[10]

It's a wonderful (connected) life

Mobile growth opportunities for semiconductor companies are not just restricted to smartphones and tablets. Cast the net wide, beyond the wireless sector, and the impact that 4G will have on nontraditional wireless industries such as retail, health care, energy, and automotive is expected to be even more pronounced. Here, mobile device and software innovation—focused on enhanced wireless connectivity powered by machine-to-machine (M2M) technologies—is driving business model innovation. The outcome is a flood of new mobile products and services in industries adopting mobile technology at their core. In economic terms, the net effect of this technological shift is significantly positive across multiple facets of the mobile industry's value chain, from both the supply and demand sides. Health care, commerce, retail, and energy are all industries considered to benefit the most from the emergence of 4G broadband technology.[11] Devices integrated by M2M wireless technology are enabling new gateways to connectivity and propelling mobile revenue growth in the process. As a result, worldwide M2M interconnected devices are on a steady upward march that is expected to surge 10-fold to a global total of 12.5 billion devices by 2020.[12] M2M traffic forecasts show a similar trajectory with traffic predicted to grow 24-fold during the period 2012–2017.[13] Revenue from M2M services spanning a wide range of industry vertical applications, including telematics, health monitoring, smart buildings and security, smart metering, retail point-of-sale, and retail banking, is predicted to reach $35 billion by 2016.[14]

To chip companies, all of this is manna from heaven. With new mobile device adoption set to proliferate in many industries, leaders will be well placed to drive product innovation across a variety of verticals. The question is just how, why, what, and where can they do so?

THE KEYS TO UNLOCKING MOBILE GROWTH—DEMOCRATIZE OR DIE!

For many of the leading semiconductor companies making a play in mobile, tactics for exploiting growth opportunities vary, unsurprisingly, according to the specific industry, product technology, and market offering. However, our research did reveal a number of common threads between the core components of the leading companies' innovation strategies. Specifically, it was clear that elements from the OI playbook played a key role in achieving breakthrough innovation in each company analyzed. This enabled democratized pathways to growth to emerge, allowing them to look beyond the four walls of the organization to secure new knowledge and new partners for collaboration. In doing so, each of the company's boundaries become permeable, and the process for developing innovation becomes increasingly distributed and dispersed across geographies.

Open innovation—a decade old and still evolving

"Not all the smart people work for us. We need to work with smart people inside and outside our company." **—Henry Chesbrough, 2003**

A decade has passed since Henry Chesbrough, the Berkeley professor often considered the leading academic on OI, laid the foundations for what many think is *the* dominant model in innovation strategy today. Since then, OI has allowed many companies from an increasingly wide variety of industries the chance to explore the advantages of cooperation and collaboration and kick-start their previously stagnant innovation process. Even more significant are the risks associated with not having some semblance of an OI strategy active, with some research indicating that firms that do not enter into collaborative knowledge sharing can, as a consequence, expect to shrink their knowledge base over the long term, lose their ability to partner with other organizations, and ultimately stymie their innovation capability. All of which is bad news for those seeking growth in new mobile markets.

Nevertheless, as more companies shift from the traditional closed model of innovation and embrace a more open approach, the days where all research and development was kept in-house are gone. No longer do firms need to rely on the old ways of using internal resources to closely guard the development of intellectual property until new products or services are launched in the market. OI is the antithesis of this approach, helping companies look beyond their boundaries to seek and utilize flows of knowledge, both inbound and outbound, to accelerate internal innovation and expand markets for external innovation.[15] And as the model becomes more widely used, recent management research on the topic has primarily focused on understanding the "mechanics" of execution.[16]

Consequently, approaches to making OI work tend to fall into three broad process categories:

The outside-in process

The most common approach to implement OI is through a series of activities that can be characterized as *outside-in* processes. Here, the objective is to improve the company's knowledge base primarily to stimulate and enhance the process of innovation. This is usually done by integrating and interacting with external sources of new knowledge, such as those in the immediate competitive landscape including suppliers, clients, customers, and competitors. Other external sources can also include research institutes and those noncustomers and suppliers from completely different industries. It is here that the importance of developing an astute innovation networking strategy is paramount, with the ability to expand networks into supporting ecosystems that integrate disparate communities now recognized as a core skill.

The inside-out process

The *inside-out* approach to OI concerns the routes by which firms can capture value by bringing ideas to the market, trading in intellectual property, and transferring technologies to the external market for further development. Those companies that emphasize this process as their core OI approach primarily look to shift the exploitation of their intellectual property beyond the firm's boundaries by licensing mechanisms often used to spread technology and ideas to other companies and other industries. Value is often generated and captured using IP licensing royalty fees, agreements with other firms in joint ventures, and with the development of spin-off companies allowing firms utilizing these tactics to collectively generate more overall value from innovation. The focus on new business model innovation in new markets via corporate venturing is also an outlet for larger multinational companies who have the resources to pursue such strategies.

The hybrid (or coupled) process

This OI process focuses on combining aspects of the outside-in approach to secure new knowledge, with tactics from the inside-out process to bring ideas to the market. Here, cocreation between usually complementary partners via network alliances, joint ventures, and other vehicles for cooperation is combined with commercialization tactics to develop and exploit innovation. Many of the approaches used in this process stem from lessons learned in areas such as open source software development where communities of self-organizing peers evolve to enable development

of products, which also includes integrating early adopters of technology (also known as lead users), consumers, and universities and research institutes. Partnering with innovation intermediaries such as Innocentive and crowdsourcing solutions using digital platforms are also examples of deploying a hybrid process in an OI strategy. They are proof that developments in social media technologies are enabling companies to interact with an unprecedented variety of partners, drawing them into the heart of their OI strategies in all stages of design, development, and adoption in the market.

Our study on semiconductor companies in mobile[17] synthesized these three process categories into a single framework for analysis, which then acted as a "lens" on the tactics being used for innovation across a wide range of industries.

CHIP COMPANIES USING OI GAIN GROUND IN MOBILE

As consumer and enterprise demand increases for mobile products and services, a few forward-looking semiconductor companies are set to reap economic benefits. Our research points to influential positions being established at the heart of emerging mobile growth platforms and ecosystems in sectors where mobile and wireless technology adoption is rising, such as the automotive, health care, and consumer electronics industries.

Capitalizing on mobile and wireless growth in the automotive industry

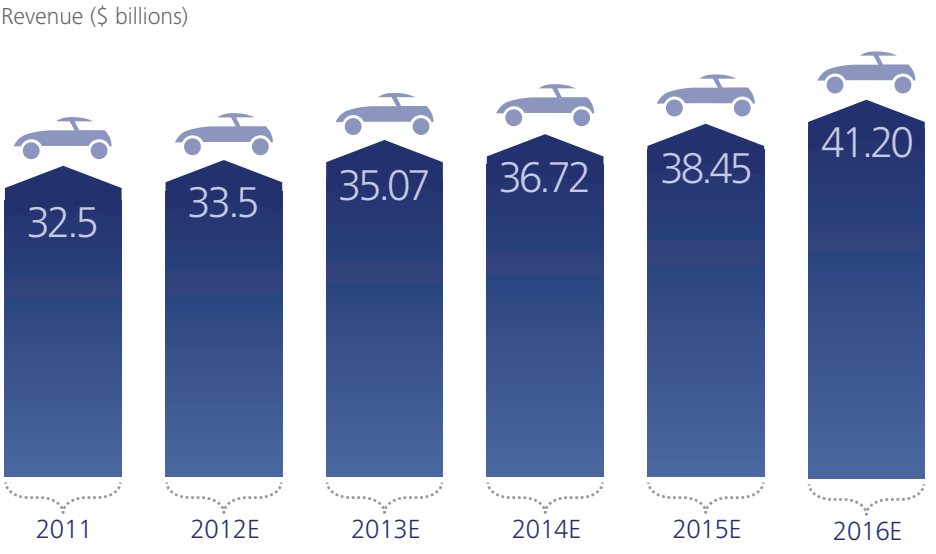
The automotive industry has made great strides over the last three years to rapidly adopt wireless technology across a range of consumer and enterprise products and services. With in-vehicle electronics growing in complexity and demand, two categories for semiconductor growth currently stand out: in-vehicle infotainment (IVI) and telematics/connectivity systems. By far the biggest automotive connectivity growth channel, the IVI market is estimated to reach $41 billion by 2016 (see figure 4).[18] Propelled by a surge in integration of infotainment and wireless connectivity solutions that will power the likes of next-generation navigation systems, advanced premium audio, fuel efficiency, and enhanced safety functionality, this section of the market is expected to provide chipmakers with opportunities to significantly expand their embedded market footprint. Similarly, chip companies are also finding strong growth opportunities in the telematics category, where connectivity systems to assist vehicle diagnostics for maintenance, fleet vehicle management, and roadside assistance are converging with advanced driver insurance systems in products such as pay-as-you-go driver insurance and driver-based insurance mapping.

Those making a play in these areas using OI tactics include Intel, which is using its Atom processor to develop next-generation IVI platforms, enabling codevelop-

ment partnering to take place with the likes of Hyundai Motor Corp., Kia Motors, Toyota, and Nissan. Intel's strategy is to grow its leading position at the core of an ecosystem that incorporates multimedia and voice technology companies, IVI system manufacturers, mobile software developers, and car manufacturers.[19] As the company plays catch-up in mobile, this initiative is indicative of its goal to become competitive in the embedded wireless market via the Atom platform, which promises lower power consumption and ease of product functionality, such as advanced video streaming, navigation, and gaming capabilities. Along the way, Intel is also leveraging key technology in-licensing deals with partners such as Wind River Systems and expanding its collaborative shared product architecture programs to improve knowledge sharing and transparency to partners in the innovation process.

Broadcom is another company beginning to make headway in automotive, this time focused on connectivity solutions as part of the company's plan to expand its embedded wireless technology portfolio. Initial growth strategies are centered on the firm's BroadR-Reach Ethernet-based connectivity technology, which enables in-vehicle systems and sensors while improving speeds up to 100 Mbps and reducing traditional cabling costs and weight. Innovation tactics are once again focused on partnering and community-building with the likes of Hyundai Motors working with Broadcom to deploy Ethernet technology in advanced driver-assist, telematics, and infotainment systems. Broadcom is also one of the founding members of the One Pair Ethernet (OPEN) Alliance group, which was organized in 2011 to promote the wide adoption of Ethernet-based networks as a standard in automotive applications. Other members of the 100+ group include major car companies such

Figure 4. Automotive infotainment system revenue forecast, global, 2011–2016



Source: iSuppli, 2012

Graphic: Deloitte University Press | DUPress.com

as BMW, Hyundai, Jaguar, GM, and Honda, all of whom are partnering to develop new Ethernet-based automotive connectivity solutions with chip providers.[20] New solutions delivered to the market include the Broadcom-Freescale Semiconductor-OmniVision Technologies' jointly developed 360-degree surround view parking assistance system, which was notable for its open shared architecture process. Building on its success in open collaborative product development, Broadcom has also been aggressive in using its noted M&A capability to bring in-house new technology development that helps the firm enter new mobile growth markets, such as NFC mobile payments, and expand its intellectual property portfolio, generating sizeable revenue along the way.

Chipmakers embrace the mHealth opportunity

The US health care sector is witnessing increased adoption of mobile and wireless technology, with the global mobile health (mHealth) market forecast to be worth $11.8 billion by 2018.[21] Within this fast-growing, embedded segment, the consumer medical device market is expected to be a leading connectivity growth opportunity for semiconductor companies.

Key drivers of this expected growth are the recent health care reforms in the United States, such as the Affordable Care Act and the Health Insurance Portability and Accountability Act, which are aimed at reducing health care costs, improving care quality, and increasing general public access to health care. These reforms, together with an aging population, are driving the need to reduce the cost of treatment, thus fueling demand for remote patient treatment and monitoring. Within this niche market, device OEMs are utilizing semiconductor processor platforms to enable advanced functionality in areas such as diagnostics and therapy. This is helping fuel the US wireless health monitoring device industry, which has doubled in the past four years from a value of $7.1 billion (2010) and is estimated to grow to $22.2 billion in 2015.[22]

Semiconductor companies making plays in this area include Qualcomm, which through its subsidiary Qualcomm Life, has launched the 2net platform, a cloud-based platform designed to provide wireless connectivity and data management services for chronic disease management and improve the sharing of medical information. More than 180 partners and collaborators have integrated or are considering integration with the 2net platform. For Qualcomm, this is an example of the company's approach to becoming a platform leader in mobile and wireless using elements of the OI playbook—in this instance network and community building. Already leading the mobile applications processor market with the hugely successful Snapdragon chipset,[23] which powers many of today's smartphones and tablets, the company has successfully leveraged a number of tactics designed to exploit col-

laborative innovation. For example, the firm's prominent use of acquisitions and in-licensing technology, most notably in the form of the ARM processor architecture at the core of the Snapdragon chipset, has allowed it to build a series of resilient technology platforms across multiple markets and engage third parties as part of a collaborative innovation strategy. Partnering with firms to assist them in developing new mobile software and in hardware innovation allows the firm to build networks and lead new ecosystems that complement and enhance its proprietary core technologies.

Other vehicles used to establish collaborative innovation networks and allow codevelopment on shared product architectures include Qualcomm's venture capital group, which acts as a conduit to bringing in and spinning out new ideas to the market. The Qualcomm Life Fund is part of this group, focused on investing in companies active in areas such as chronic disease management, remote diagnosis, and health informatics and analytics, all of which will help accelerate adoption of the 2net platform. The firm also established the Qualcomm Innovation Center in 2009 to promote open source software development in conjunction with developing proprietary Qualcomm technologies. Once again, acquiring external technology and establishing innovation networks, this time in the open source community, has become a key element of the process that has led to a series of successful initiatives in areas such as smart home technology. [24]

Smart homes on the rise

The impact of *Smart Home*‡ technology adoption is picking up speed, and semiconductor companies are well placed to capitalize. Recent analyst projections suggest global smart home revenues are estimated to reach $72 billion by 2017 with new ecosystems focusing on the development of systems and devices for smart home entertainment, computing, monitoring and control, and even health.[25] Market trends to watch in this area include the emergence of app-based home automation solutions; adoption of multiple, and seamless, connectivity options within the home; and a general shift in consumer discrete content viewing to content-as-a-service model. All of these trends will provide semiconductor companies opportunities to develop and utilize new platform chip technologies in a multitude of home connectivity solutions and consumer devices.

Companies already making inroads in this market include Samsung, which has introduced AllShare, a digital content sharing platform for smart home use. The firm, which has a well-established semiconductor operation feeding a variety of its

‡A *Smart Home* can be generally defined as a living space in which wireless connectivity technology is embedded in consumer electronics and home appliances, which are then managed via Internet broadband connections.

consumer electronic markets, has also launched Smart View, a software application that links Samsung's Smart TV with its own brand of mobile devices, enabling users to stream live TV and other content. Also part of the firm's platform strategy is a home energy management solution that integrates smart appliances, smart TVs, thermostats, mobile devices, solar panels, and smart meters. Tactics used by Samsung to boost innovation capability in this area and beyond increasingly rely on elements of the OI playbook. The company invests heavily in research and development across all business units—some $22 billion in 2012 alone—and has operated a robust OI program for a number of years. The primary aim is to network its standalone research centers with partners in industry and academia through initiatives such as the global research outreach program, an annual call for research proposals from universities, with Samsung then sponsoring and collaborating on the winning ideas.[26] Recent moves to expand the outreach strategy include the soon-to-be-open OI and venture capital centers in Silicon Valley and New York City being built to enhance open outreach to the technology, mobile, and media communities and keep the firm ahead in mobile software and hardware innovation.

TOWARD A SUSTAINABLE OI CAPABILITY

At the broadest level, our research confirms that leading semiconductor companies are utilizing multiple tactics associated with OI to eke out dominant positions in the mobile ecosystem. By moving the focus on growth beyond the confines of their traditional markets, companies such as Qualcomm and Samsung are successfully implementing platform leadership strategies that incorporate key elements of the OI playbook.[27] Specifically, our findings highlight wide implementation of the three pillars of OI—namely, combinations of the outside-in, inside-out, and coupled processes—at the core of the OI strategy.

Dig deeper, and the common use of five tactics aligned to each core process becomes apparent in each instance where semiconductor mobile growth through OI is targeted. These tactics include: in-licensing technology through partnerships and acquisitions; enabling third-party codevelopment and complements by developing innovation networks and ecosystems; sharing product architecture control through open source development; enabling information transparency via open platform technologies; and out-licensing internal technology via venture capital mechanisms. When all of these elements are brought together and deployed as part of a systematic OI process, a company can expect to improve its growth capabilities and go some way in building a sustainable OI model. DR

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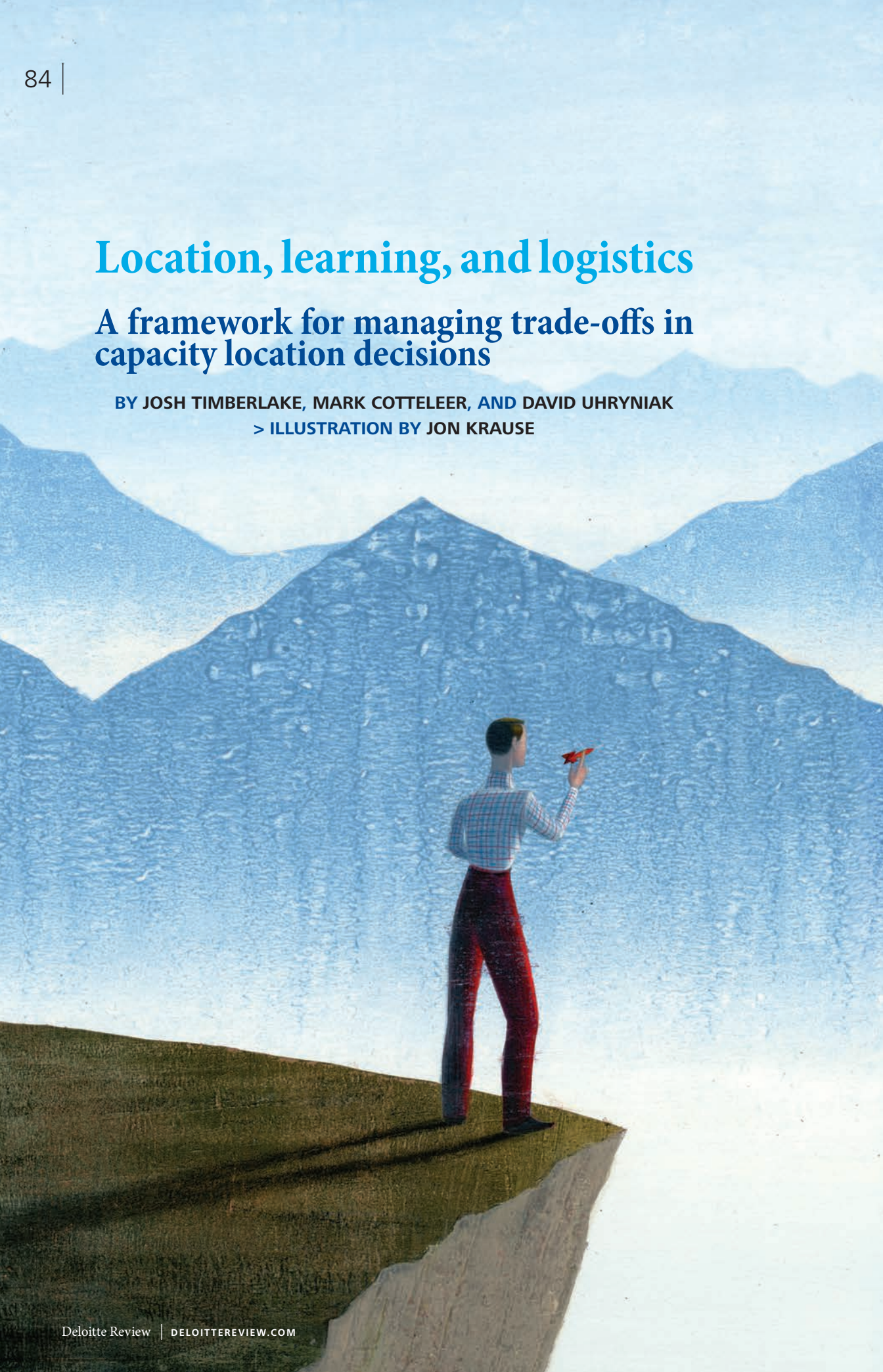
Endnotes

1. Cisco Systems, "Cisco visual networking index: Global mobile data traffic forecast update, 2012–2017," February 6, 2013; CTIA, "Consumer data traffic increased 104 percent according to CTIA-the wireless association semi-annual survey," <http://www.ctia.org/media/press/body.cfm/prid/2216>
2. Mary Meeker, "Internet trends," presented at D10 Conference, California, May 29-31, 2012, <http://www.kpcb.com/insights/2012-internet-trends>
3. Deloitte Development LLC, "The impact of 4G technology on commercial interactions, economic growth, and US competitiveness," August 2011, <http://www.deloitte.com/us/impactof4g>
4. ABI Research, "LTE services in the US will generate more than $11 billion in 2015," December 16, 2010; iSuppli, "LTE momentum expected to easily overcome WiMAX head start," February 3, 2011.
5. iSuppli Corporation, "Global LTE subscribers set to more than double in 2013 and exceed 100 million," January 22, 2013.
6. Standard & Poor's, "Industry surveys: Semiconductors," August 30, 2012.
7. Morgan Stanley, "Tablet landscape evolution: Window(s) of opportunity," May 31, 2012.
8. Pew Internet, "Tablet and e-book reader ownership nearly double over the holiday gift-giving period," January 23, 2012; Pew Internet, "25% of American adults own tablet computers," October 4, 2012.
9. Deloitte Development LLC, "Devices, consumption, and the digital landscape 2012," May 2012.
10. Gartner, "Forecast: Desk-based PCs, notebooks, ultramobiles and tablets, worldwide, 2010-2017, 1Q13 update," March 20, 2013; Gartner, "Forecast: Mobile phones, worldwide, 2011-2017, 1Q13 update," March 22, 2013.
11. Deloitte Development LLC, "Open mobile: The growth era accelerates," January 1, 2012, <http://dupress.com/articles/open-mobile-a-survey-of-u-s-mobile-industry-executives/>
12. Machina Research, "Assessing mobile network operator capabilities and opportunities in M2M," September 5, 2012.
13. Ibid.
14. Juniper Research, "M2M to generate $35bn in service revenues by 2016, driven by automotive telematics and consumer electronics," May 17, 2011.
15. For example see: Henry W. Chesbrough, *Open Innovation: The New Imperative for Creating and Profiting from Technology* (Boston: Harvard Business School Press, 2003); Henry W. Chesbrough, *Open Business Models* (Boston: Harvard Business School Press, 2006); Henry W. Chesbrough; Wim Vanhaverbeke, Joel West (Editors) *Open Innovation, Researching a New Paradigm* (Oxford University Press, 2006).
16. For example see: Kevin J. Boudreau and Karim R. Lakhani, "How to manage outside innovation," *Sloan Management Review* 50, no. 4 (2009): pp. 69-76; Oliver Gassmann, Ellen Enkel, and Henry Chesbrough, "Open R&D and open innovation: Exploring the phenomenon," *R&D Management* 39, no. 4 (2009): pp. 311-316.
17. For more on this research, see: "Rising tide; Exploring pathways for growth in the mobile semiconductor industry," *Deloitte University Press* (forthcoming, summer 2013).
18. iSuppli Corporation, *Automotive infotainment electronics market set for growth in 2012*, February 2012.
19. For more on Intel's embedded market opportunities see: David Wong, Amit Chanda, Parker Paulin, "Intel Developer Conference 2012," Intel Corp., June 27, 2012, <http://www.intel.com/content/www/us/en/intel-developer-forum-idf/san-francisco/idf-2012-san-francisco.html>
20. OPEN Alliance Special Interest Group, "Partners," <http://www.opensig.org/partners.php>
21. GlobalData, "mHealth: Healthcare goes mobile," August 3, 2012; Deloitte, "mHealth in mWorld—How mobile technology is transforming health care," 2012.
22. Kalorama Information, "Remote and wireless patient monitoring markets," August 1, 2011; "mHealth in mWorld—How mobile technology is transforming health care," 2012.
23. Wells Fargo Securities, "Semiconductors handsets/tablets processors," March 22, 2012.
24. Qualcomm, "Q1 2013 Investor Fact Sheet," <http://investor.qualcomm.com/factsheets.cfm; http://www.qualcomm.com/about/research>; Qualcomm, Annual Report/10-K 2012.
25. Telecompaper, "Smart home revenues forecast to reach USD 72 bln by 2017," January 8, 2013.
26. Samsung, "Business Overview," <http://www.samsung.com/global/business/semiconductor/aboutus/business/open-innovation/participation-in-global-consortiums>; Samsung Information Systems America (SISA), "University Relations," <http://www.sisa.samsung.com/open-innovation-research-development-sisa/university-relations.html>; Samsung Electronics Co. Ltd., 2010 Annual Report.
27. "Rising tide; Exploring pathways for growth in the mobile semiconductor industry," Deloitte Development LLC (forthcoming, summer 2013).

Location, learning, and logistics

A framework for managing trade-offs in capacity location decisions

BY JOSH TIMBERLAKE, MARK COTTELEER, AND DAVID UHRYNIAK
> ILLUSTRATION BY JON KRAUSE



Consider this scenario in which you want to develop a new capability: You want to learn to drive a car.

> *You're 16, sitting behind the wheel for the first time. You have spent your life watching Mom and Dad from the back seat. They explained it all to you. Now it's your turn. Start the car. Put one foot on the brake. Put it in "Drive." Go easy on the gas and—away you go! You're driving.*

Now reframe the situation in a small but important way:

> *You're 16, sitting behind the wheel for the first time. You have spent your life watching Mom and Dad from the back seat. They explained it all to you. Now it's your turn. Start the car. Put one foot on the brake—and the other on the clutch. Move your right foot off the brake and onto the gas. Ease off the clutch and add a little gas. The car lurches forward and dies. Try again.*

A few dozen more attempts at getting rolling and you can begin to think about shifting into second gear.

For most people, there are big differences in approach when it comes to learning to drive an automatic versus a manual transmission-equipped vehicle. Even though the objective is the same (get the car moving), differences in the specific nature of the task necessitate different ways of learning how to accomplish it. Most drivers require some trial and error to become proficient at operating in a manual mode. You can only get that by actually trying to drive the car.

Now imagine there is only one place to practice, and it is 11,000 miles away.

An observer might take this last bit of our example and assert that few would ever learn to drive a vehicle with a manual transmission. Under the best of circumstances, the geographic separation of the practice (capability development) location and actual driving (capability execution) location would dramatically lower the odds of the learning taking place.

Yet this is exactly the decision that many executives make when it comes to the development of important capabilities for their businesses—capabilities more crucial than mastering the nuances of the clutch pedal, and with broader implications. Decisions about how to locate development capacity versus execution (henceforth we will call it "production" capacity) can exert a strong influence on a company's future success.

This article explores the link between production location decisions, the nature of the capabilities required to create a product, and the ability of a company to develop the next generation technologies it may seek. While the consequences vary by company, a common theme emerges: Leaders who misjudge the location of production relative to the location of product and process development resources may adversely impact the company's long-term competitive position.

Here we provide a framework to guide executives as they consider how best to position production capacity around the globe. The framework highlights important trade-offs in the pursuit of an optimal facility location that may ultimately influence company success. There is an opportunity to enhance the quality of location decisions by building on the classic determinants of capacity location—factors such as real estate costs and availability, taxes and incentives, logistical costs, and importantly, the availability of talent—with an appreciation for the profound impact such decisions can have on the ability of the company to develop future products.

Our framework considers three learning and logistical factors that contribute to an effective production location decision:

- **Learning mode:** The manner in which knowledge about the production process is transferred from R&D to the factory floor
- **Market-to-plant ratio (MPR):** The capacity of the market to support more than one production location
- **Value density:** The relationship between product value and the logistical costs of distribution

Two case studies illustrate the framework in action. First, in the early 2000s, many firms in the optoelectronics industry moved production offshore to save costs, a decision that led to unexpected trade-offs with next generation product development. Second, we consider the Spanish company Ingeteam Corporación

S.A. Ingeteam is a producer of electric power conversion equipment, supplying its products to, among others, the wind power industry. The company adopted a hybrid location model that preserved its ability to develop high quality products and enabled the firm to customize those products for the US market. Ingeteam demonstrated how multiple production locations can be designed to protect product development capabilities.

LOCATION IS INFLUENCED BY HOW LEARNING IS TRANSFERRED FROM R&D TO PRODUCTION

The manner in which learning about how to produce something occurs should be a fundamental input to the decision about where to locate facilities, particularly in relation to the research and development capabilities that are critical for next-generation versions of a product.

Research identifies two primary modes of learning related to the transfer of capabilities from the lab to the factory floor: learning-*before*-doing and learning-*by*-doing.

Learning-before-doing

Learning-before-doing can take place when a process is so richly described, so well understood, that development engineers can communicate a process and product design with precision.[1] In learning-before-doing, a receiver of knowledge about a process simply needs to understand what is being said and can act to accomplish the task. Production personnel can therefore execute without close interaction with designers. Because learning is completed before doing, manufacturing is able to move closer to regional markets—often separating development and production—in pursuit of more rapid response, improved production economics, and hopefully, competitive advantage.[2] Conversely, production can also move further away from markets in order to take advantage of savings in lower-cost geographies.

Successful execution of a learning-before-doing approach requires that critical variables of production are known. Processes and techniques must be well defined, relying on technology that is stable and clearly understood. This understanding allows for an accurate prediction of how the process will transfer to the factory floor, regardless of where the factory floor is located.

Learning-by-doing

In learning-by-doing, the executors of a task may need to test a variety of strategies and/or seek coaching prior to accomplishing their goal. Producers expect to improve over time and by trial and error. Critical variables may as yet be unidentified, making it difficult to predict how a process established in design will transfer

to the factory floor.[3] Learning-by-doing contexts are those in which gaps between actual and potential or expected performance are likely to be revealed, and must be addressed, through cumulative production experience.[4]

When developers are directly involved with the factory floor they can identify clues and relevant information that may otherwise go unrecognized.[5] In the opto-electronics industry case that we will describe, engineers reported constant contact with the shop floor and "suited up" at least once daily to work with production personnel. This engagement allowed manufacturers to improve through a continual process of problem solving, which was triggered by the difference between actual performance and potential or expected performance as defined by the company.[6]

Firms facing learning-by-doing product and process transfers must consider the interdependencies between development and production as they think about the positioning of capacity. Separation of one from the other may sever important communication linkages and impede the ability to transfer knowledge across the company.

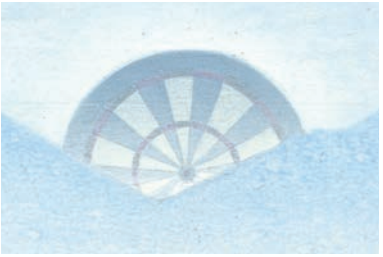
WAYS TO DETERMINE THE NUMBER AND LOCATION OF PRODUCTION PLANTS

The challenges presented by learning modes are amplified by decisions about the number of production facilities operated by the company. We will see that where multiple production facilities can be maintained, executives have greater latitude to manage the impact of learning modes and development. Many factors contribute to the choice of facility quantity, including available capital and management attention, but two simple metrics allow executives to generally assess the optimal number: market-to-plant ratio and value density.

Market-to-plant ratio

Market-to-plant ratio (MPR) offers insight into the economic viability of multiple production facilities. It is calculated as a ratio of global market demand for a product and the minimum efficient size for a production facility.[7] For example, if the market for a company's product is one million units and the minimum efficient plant size is 250,000 units, then the MPR is 4.

An MPR close to 1 indicates market demand is likely insufficient to support multiple production facilities. Companies competing in high technology and growth-oriented industries often face this constraint.[8] MPR tends to be higher in stable, mature markets, allowing companies in these markets to support production across multiple geographies.



Many factors contribute to the choice of facility quantity, including available capital and management attention, but two simple metrics allow executives to generally assess the optimal number: market-to-plant ratio and value density.

Value density

Companies may choose to limit the number of production facilities they employ even in situations where MPR allows a greater number. A reason may be the value density of the products they sell.

Value density summarizes the relationship between a product's value and the logistical costs associated with its distribution. It is calculated as the ratio of these two measures. When a product is value dense, companies have an incentive to centralize manufacturing even when MPR does not make it necessary to do so.[9] Alternatively, low value-density products offer incentives to scatter productive capacity more widely. Here companies prefer to locate close to end demand so they can limit the logistical cost of delivery.

VALUE DENSITY EXAMPLES

- Many consumer electronic and other technology products are value dense. They are often of high value, yet also tend to be compact and relatively easy to ship and manage through distribution channels. Producers often centralize production in a few locations and ship globally as needed.
- Bulky or heavy products such as furniture, foam products, and many commodities are low value-density products. The logistical costs associated with distribution are often high relative to the cost of the product itself. Producers have the incentive to push production closer to the end consumer in order to save on these costs.

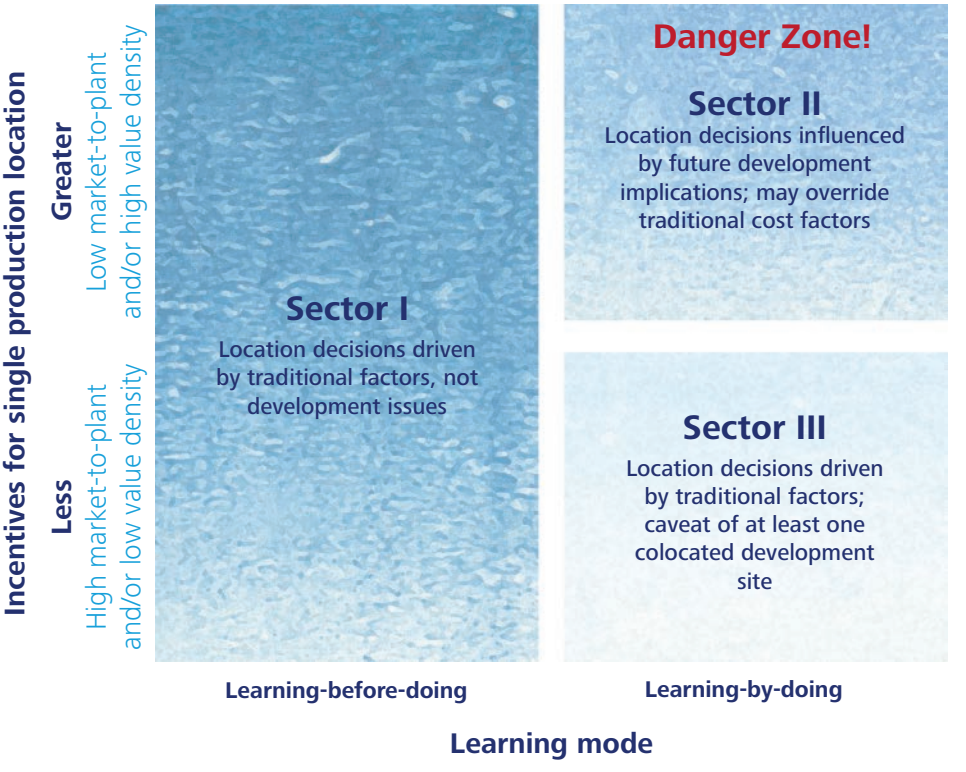
The role of value density in the production process is illustrated by the market for soft drinks. Despite the $18.3 billion US soft drink market commanding a high MPR, the production of the concentrated syrup from which the final drink is made tends to be focused in a small number of locations.[10] Final production of soda occurs at the widely scattered bottling locations to which this value-dense syrup is shipped. Once there, the syrup is combined with carbonated water and packaging—dramatically lowering its value density—and distributed to the final customer.

FRAMEWORK FOR INTEGRATING FACILITY QUANTITY AND LEARNING MODE

Researchers have found that a combined understanding of factors related to learning mode, MPR, and value density can inform the plant location decision in important ways.[11] Here we adapt their frameworks to help guide decisions as to how to position production capacity around the globe. Our framework allows us to situate a company or product line in one of three sectors based on attributes associated with learning mode, MPR, and value density. The framework can also be used to monitor the migration of the company or product line across the different sectors as market conditions change.

In proposing this version of the framework (figure 1) we note that, for the most part, the regular rules of location strategy apply. It is incumbent upon executives to account for traditional factors such as real estate costs and availability, taxes and incentives, logistical costs, and importantly, the availability of talent as they choose production locations. Yet there are important additional insights to consider as part of a location strategy.

Figure 1: Positioning capacity relative to plant quantity and production learning mode.



Graphic: Deloitte University Press | DUPress.com

Sector I corresponds to contexts in which learning-before-doing is the relevant learning mode for a company's production process. The well-understood attributes of the production process allow for a relatively easy separation of development and production. Increasingly ubiquitous electronic communication methods continue to accelerate the ability of companies to operate over extended distances, perhaps increasing the incentive to pursue lower-cost locations that exist closer to local pockets of demand.[12] Learning-before-doing, it turns out, can dramatically lower the risks of such decisions.

Sector II companies inhabit a danger zone in which learning-by-doing is required and the company is constrained to a single production location. Executives may feel the need to retain an engineering core in a highly skilled development site, yet ship production off to lower-cost locations in order to improve profitability. As we will see in the example of the optoelectronics industry, this decision can have a profound impact on the developmental trajectory of companies and markets.

Sector III companies face a different challenge. Here a high MPR and/or low value-density provide companies with the incentive and ability to geographically distribute production capacity. However, caution is still warranted, as learning-by-doing demands access for development engineers to the factory floor. Production in such environments can grind to a halt without proper engineering support.[13] Sector III companies must understand their production processes at a depth that allows them to separate those critical aspects that demand learning-by-doing from those that can be segregated from development resources in pursuit of other objectives. In some cases, the demands of different production environments or stages may require the colocation of different kinds of development capabilities at different sites. This approach may yield hybrid location strategies that allow the company to push forward with its new product development objectives while simultaneously enjoying the benefits sought in traditional location decision-making processes. Failure to foster this understanding may result in retarded progress toward product development objectives. The case of Ingeteam will illustrate how one company managed this trade-off.

APPLICATION OF THE FRAMEWORK—OPTOELECTRONICS AND WIND TURBINE GENERATORS

Sector II framework and consequences: The optoelectronics industry

Optoelectronics provide an example of an industry confronting the Sector II danger zone of the framework. Recent research by Professor Erica Fuchs and

NEXT-GENERATION OPTOELECTRONICS

Optoelectronic devices convert electronic signals to light, and vice versa. They are preferred to more traditional electronic devices for some applications because of their resistance to the electromagnetic interference that vexes designers of highly dense circuitry. They play a critical role in the telecommunications industry, as providers strive to offer their customers more bandwidth.

In addition to telecommunications, optoelectronics have the potential to revolutionize computing. As the power of microprocessors continues to rise, issues of information transfer between them continue to emerge. However, in computing, size matters a great deal more than it does in telecommunications. In 2000, then-current-generation optoelectronic devices were too big to make headway in the computing market. The key to market penetration was size-reducing integration. Standard optoelectronic devices incorporate six different components. As of 2010, manufacturers could only integrate two at a time on a single chip. The ability to integrate the remaining components (or even just a larger number), thus reducing the size of the device, remained a critical challenge for the industry.

her colleagues at Carnegie Mellon University demonstrates the challenges faced by firms in this industry as development needs are traded off with the incentive to locate production in low-cost geographies.[14]

In the early 2000s optoelectronics manufacturers faced intense competition. With the bursting of the technology and telecom bubble, optoelectronic component manufacturers had to make a critical choice as to whether to retain production at their domestic sites in developed economies such as the United States, Europe, and Japan, or to move manufacturing to the lower-cost developing countries of East Asia. In this case, the current generation technology was sufficiently well understood to make such a move possible. The cost advantages were there for the taking. So compelling was the incentive that seven of the eight US-based optoelectronic component manufacturers studied by Fuchs and team chose to relocate manufacturing offshore.

The consequences for firms that moved production to lower-cost locations may not be obvious at first. However, industry analysis in light of our framework helps illustrate potential long-run effects and why the next-generation "integrated" technology for optoelectronics sits in Sector II of the framework:

- Producing next-generation integrated optoelectronic devices was a **learn-by-doing** activity. Reported yields for such devices ranged from 1 to 3 percent with the possibility of days passing between the creation of usable components.[15] Production, design, and test engineers reported having to go "down to the shop floor" multiple times per day in order to solve problems.

The engineers highlighted the need for an "intimate" connection with the production process.

- The MPR ratio was close to 1. The market size for next-generation optoelectronics was approximately equal to the minimum efficient scale of a single production facility for each competitor, thus compelling them to choose a single facility.
- Optoelectronic devices are value dense, thereby increasing the incentive to consolidate production, even in the face of potentially growing markets.

Was offshoring production done at the expense of R&D?

Optoelectronics manufacturers that moved production offshore generated cost savings, but to the detriment of next-generation product development. The research of Fuchs et al. confirmed the cost advantage achievable by firms willing to move production offshore, even after accounting for reasonable learning curve effects and a dramatic improvement in process yields. Yet the researchers cautioned offshoring could have negative consequences on R&D.

> If the optoelectronic component manufacturers move offshore and, because of a lack of short-term economic incentives to do so, cease to push forward research and development in optoelectronic integration, there could be dire implications for long-term technology development in IT globally.[16]

Related research on 28 US-based optoelectronic firms that made different decisions about offshoring linked those decisions to the subsequent ability to develop next-generation integrated devices.[17,18] Yang et al. made three observations about firms that offshored to developing geographies—in this case East Asia—in pursuit of cost advantages:

1. **R&D activity on next-generation products substantially decreased, in particular when the most complicated, least understood chip fabrication sequences were moved offshore**. Each additional year of offshoring corresponded to a 26 percent decrease in the development of next generation integrated technologies.
2. **Offshoring corresponded to a departure of the engineering talent responsible for next-generation development.** In many cases, these engineers relocated to competing firms that were still engaged in next-generation development. In other cases, they left the field entirely, pursuing opportunities in other product domains. Regardless, the data suggests that not only could offshoring activity prevent or delay the development of products for new markets (such as optoelectronics in computing), it could also lead to an

THE INGETEAM LOCATION DECISION

Headquartered in Spain, Ingeteam specializes in the development of electrical equipment, motors, generators, and frequency converters. The company's Indar division produces generators for increasingly ubiquitous wind turbines. Indar generators, weighing approximately seven to 10 tons each, are combined with a gearbox and other equipment in a 90-ton "nacelle" (cover housing) and hoisted 250–400 feet into the air where they are attached to a set of wind blades. Quality and reliability in this context are crucial. The gearbox accelerates rotation from a languid 20 RPM on the blade side of a wind turbine to the 2000 RPM required to generate adequate power. A failure of the generator once it is "in the air" can cost up to $200,000 to fix.

In 2010 Ingeteam decided to increase penetration in the growing US market for wind power. Success in the US required Ingeteam to gain a deep understanding of product component attributes and development needs specific to US compliance and regulations. The firm chose Milwaukee, Wisconsin, because of the area's manufacturing heritage and its proximity to other producers of power and control systems, potential suppliers, and customers. Ingeteam also valued a high-quality local workforce, solid local infrastructure, and the area's proximity to a major international airport.[19]

erosion of capability through loss of talent that forestalls future efforts at retrenchment.

3. Product development did not end with the choice to separate development and production, but it did undergo a material shift. Instead of focusing on the next generation of products (i.e., integrated devices), development efforts tended toward the improvement of the current generation production process. Each additional year of offshoring corresponded to a 27 percent increase in these types of incremental improvements. While the researchers in this example did not assert a reason for this shift, we infer that the available talent pursued what was possible given their context and capabilities.

The US optoelectronics firms in the study that offshored production did generate sought-after cost savings, but the trade-off was their future competitiveness. The relative merits of this trade-off will be judged by history, but anticipating the effects of it is a matter for today's executives.

Sector III framework and consequences: The wind turbine industry

Ingeteam Corporación S.A. is an example of a company that has adapted its product development and production approach, balancing its need to meet market demand with an understanding of the types of learning required to succeed. The company fits within Sector III of our framework.

Ingeteam adopted a hybrid production model that gives it the benefit of local market access while maintaining developmental effectiveness. It achieved this by keeping approximately 95 percent of its core R&D capability at its central development site in Spain. Ingeteam's management chose to maintain production of rotors and stators (the core components of a generator) in Spain as well, because it felt more capable of achieving a combination of high quality, precision, and coordination with its development engineers. Their ability to do so is facilitated by the higher value-density of those components, relative to a fully assembled generator.

However, production in the United States requires its own kind of learning-by-doing. Ingeteam leaders cite cultural differences as a driver of the need to modify production operating procedures. Products also need to be modified to meet US code and tooling standards and to adapt to "the reality of the shop floor." According to Adolfo Rebollo, vice president of Indar Electric Machines:

> This is an iterative process. There is lots of working together on the shop floor to make it happen. If we had to do it in Spain, we would have to bring a crew of Americans over just to figure it out. That is just not possible.[20]

Developing core system components required extensive interaction between engineers and production personnel—learning-by-doing—in Spain. Therefore production of those components remains in Spain. Adapting to local US conditions requires extensive interaction between engineers and production personnel—learning-by-doing—in the United States, where final assembly and adaptation now occur.

A BALANCING ACT

The choice of where to locate production can have a long-term impact on overall business success. Construction of new facilities is expensive and difficult to undo.

Traditional factors associated with location choice are important. Real estate costs and availability, talent, taxes and incentives, and logistical costs, to name a few, all impact the ability of a location to support the needs of a business. But so, too, does the impact of location choice on the ability of the company to evolve its product offerings.

Our framework offers executives another tool for location evaluation. They can position their companies in the framework and derive a better understanding of how to promote long-term business and product development success. They can also use the framework as a tool for evaluating capacity location strategies in light of ongoing market evolution. To use it, executives need to understand the important attributes of the markets they serve and the products they offer. They need to

consider the mechanism by which knowledge about how to produce is transferred from the lab to the shop floor.

Sector I companies, those that can safely rely on learning-before-doing regardless of MPR or value density, are in an enviable position. They may choose to locate based on more traditional criteria, with little regard to their choice's impact on long-term product development capability. These firms should keep careful watch on their product development needs. Markets can change such that an unwary company may find itself drifting into Sector II or Sector III without knowing it.

Sector II companies face real danger. Low MPR and/or high value-density limit the number of producing locations. Before pursuing a cost-efficient production strategy, it is important to consider what the long-term implications may be for next-generation technologies. Balancing today's survival against tomorrow's success (or survival) is an ongoing effort, and overweighting traditional factors at the expense of future viability poses its own set of risks. We saw this in the example of firms in the optoelectronics industry that saw declines in product evolution capacity, along with the departure of key development personnel.

Sector III companies benefit from the ability to use a greater number of production locations, even if learning-by-doing remains an important element of their developmental capability. Here it is important to think carefully about product attributes and life cycles. Colocation may be important for new products to evolve, but capacity may move elsewhere when products mature. As with Ingeteam, different locations may offer different opportunities to achieve production and development goals. Savvy executives carefully evaluate these issues along with the more traditional factors that drive location decision making. They also look for opportunities to promote learning-before-doing in production processes, thus increasing location flexibility and enabling migration toward Sector I.

Careful evaluation of product development needs is a critical dimension of the plant location decision. Incumbent on executives across all sectors is an appreciation for how those needs will evolve over time and the ways in which they should influence decision making. DR

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Endnotes

1. Gary P. Pisano "Knowledge, Integration, and the Locus of Learning: An Empirical Analysis of Process Development," *Strategic Management Journal* (Winter 1994, 15), p. 85.
2. J. Brown and J. Hagel "Innovation Blowback: Disruptive Management Practices from Asia," *McKinsey Quarterly* (1Q 2005), pp. 34-35.
3. Ibid.
4. Ibid.
5. M.J. Tyre, Eric Von Hippel "The Situated Nature of Adaptive Learning in Organizations," *Organization Science* (January-February, 1997), 8 (1).
6. Ibid.
7. A.D. Chandler, *Scale and Scope: The Dynamics of Industrial Capitalism* (Harvard University Press, Cambridge, MA).
8. Erica R.H. Fuchs, R. Kirchain, "Design for Location? The Impact of Manufacturing Offshore Technology Competitiveness in the Optoelectronics Industry," *Management Science* (2010), Volume 56 (12).
9. J. Shah, *Supply Chain Management: Text and Cases* (Pearson Education India) 104.
10. 2012 State of the Industry Report: Carbonated Soft Drinks, Beverage Industry, July 18, 2012.
11. Erica R.H. Fuchs, "On the Relationship Between Manufacturing and Innovation: Why Not All Technologies are Created Equal," Working Paper, Department of Engineering and Public Policy, Carnegie Mellon University, March 31, 2012.
12. Deloitte Consulting LLP, "The Future of Manufacturing: Opportunities to Drive Growth," *World Economic Forum Report*, April 2012, p. 84.
13. Fuchs and Kirchain, "Design for Location?" 2010.
14. C. Yang, R. Nugent, E. Fuchs, "Gains from Others' Losses: Technology Trajectories and the Global Division of Firms," Carnegie Mellon University, August 2012.
15. Fuchs and Kirchain, "Design for Location?" 2010, p. 2338.
16. Ibid.
17. C. Yang, R. Nugent, and E. Fuchs, "On the Relationship Between Manufacturing and Innovation," 2012.
18. The researchers measure next-generation development using the number of US patents filed by the targeted companies. The companies in the sample accounted for almost 50 percent of these patents during the research period.
19. Interview with Adolfo Rebollo, Vice President Indar Electric Machines, December 14, 2012.
20. Ibid.

THE OPEN TALENT ECONOMY

Beyond corporate borders to talent ecosystems

BY JEFF SCHWARTZ, ANDREW LIAKOPOULOS, AND LISA BARRY
> PHOTO-ILLUSTRATION BY IGOR MORSKI

The classical employment model—vertically integrated companies hiring full-time employees to work eight- to nine-hour shifts—has given way to a new approach: the open talent economy—a collaborative, transparent, technology-enabled, rapid-cycle way of doing business through networks and ecosystems. The problem for many business, talent, and HR leaders is that they are operating as if the classical "balance sheet" model of talent is still dominant and relevant. It's not.


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Today's evolving workforce is a portfolio of full-time employees, contract and freelance talent, and, increasingly, talent with no formal ties to a company at all. People move from role to role and across organizational boundaries more freely than ever. Global markets and products are driven by accelerating innovation and growing scale, and they demand talent pools and systems that can be rapidly assembled and reconfigured. Business leaders and customers expect agility, scale, and the right skills on demand. These new business and talent models look less like integrated factories and companies and more like highly orchestrated networks and ecosystems with a multitude of approaches to mobilizing, orchestrating, and engaging talent, skills, leaders, and ideas.

What the open source model did for software development, the open talent economy is doing for work. Today's younger, connected, globally mobile people are managing their careers on their own terms. Where their parents may have sought job security, they prize engagement and meaning. This means that organizations must reinvent their sense of what they have to offer talent and even what it means to "have" talent in the first place.

In "Reframing the Talent Agenda," we concluded by saying, "The new [talent] agenda will recognize that corporate boundaries are not the end of the talent management challenge. They are a departure point for influencing, enticing, and integrating talents of freelance, third-party, and open source talent ecosystems from almost anywhere by building new networks and ways of working."[1] This article outlines a new way of thinking about talent that looks at talent strategies across organizational boundaries: in the company, the extended enterprise, and beyond the enterprise.

We recognize that we are in the early years of the open talent economy. Some parts of the landscape are clear; others are still being defined. Like early mapmakers, we recognize that we are creating an early version of a new reality, and we hope to provide a useful and engaging view of the next phase of talent strategy and management.

INTRODUCING THE OPEN TALENT ECONOMY

The open talent economy includes a growing number of categories of talent that are being integrated to produce goods and services:

- **Balance sheet talent:** Balance sheet talent is talent employed directly by a company, typically full-time, and often with the expectation that career opportunities will be available that keep employees substantially within the company. This is the traditional view of corporate and organizational work. Because balance sheet talent is the most traditional talent category, it is

Figure 1. Types of talent

Balance sheet talent: Full-time statutory employees of an organization. The employing organization bears all the carrying and development costs for these employees.

Partnership talent: Employees who are part of a partnership or joint venture and are on a related balance sheet (whereby an organization has some equity or ownership stake in a related entity).

Borrowed talent: Employees who are directly part of an organization's extended value chain but who reside on someone else's balance sheet, such as contractors who work in support roles, outsourced call centers, or manufacturing.

Freelance talent: Independent workers hired for specific but temporary projects. Workers are hired by the hour, the day, or the project, and they are typically integrated with and working alongside balance sheet talent.

Open source talent: People who provide services for free or who provide paid services as part of a Web community or marketplace. Examples include volunteer crowdsourcing and the paid crowd work industry. These workers can be anywhere in the world and generally work outside of an organization, separate from balance sheet talent.

Graphic: Deloitte University Press | DUPress.com

expected to represent the fastest-declining proportion of all talent arrangements in the future. Most HR and talent executives and teams are focused almost exclusively on balance sheet talent.

- **Partnership talent:** When companies collaborate, venture, and license to increase their business reach and capabilities, employees often find themselves effectively employed by two or more companies that operate as part of joint ventures or as entities with multiple investors. This creates a category of talent that finds itself straddling the talent cultures, programs, and strategies of collaborating companies. This is an important category of talent in emerging and growth markets due to the combination of statutory and regulatory requirements limiting foreign ownership and the attractiveness of joint ventures for accessing local markets, factories, capabilities, and talent. Many HR and talent organizations have historically had an arm's-length relationship with talent in joint ventures, leaving these employees in a no-man's land that lacks clear linkages to any one joint venture partner's talent programs, employer brand, and culture.

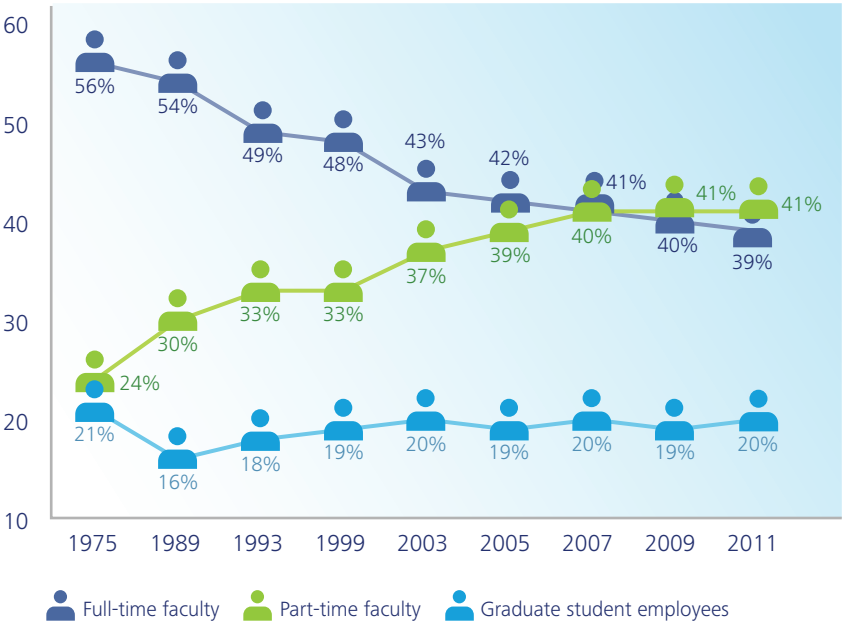
- **Borrowed talent:** Borrowed talent is talent contracted through another organization, often through an outsourcing or contracting arrangement (either locally or globally, as in an offshore outsourcing contract). These contracted or "borrowed" services can range in scope from support (for example, cleaning and maintenance) to outsourced functions such as finance, HR, customer support call centers, and contract manufacturing. Generally, these relationships are managed by procurement and operations teams with low levels of input and support from HR and talent teams.
- **Freelance talent:** One of the fastest-growing segments of the talent economy consists of individuals who work independently but substantially as part of larger company networks and teams. Freelance talent is typically role- and position-based and involves individuals providing capabilities and skills to augment or complete teams on an independent, ad hoc, or adjunct basis. Often, this can entail providing temporary assistance to fill a position or role or to complement a project team. Freelance talent is also used to manage variable demand for roles or positions: for example, when adding a section of a course at a university or staffing additional temporary shifts at retail stores during holiday shopping seasons. Freelance talent often works on site and on project teams alongside balance sheet talent.

  Some industries, including the entertainment, media, music, and software industries, have well-established models for building teams of freelance talent. Other industries are increasing their use of adjunct talent, which is a growing trend in higher education in some countries. And still other industries are increasingly turning to independent talent of many types to provide deep and specialist skills on a project basis.

  In the United States, the number of freelance or independent workers continues to rise. According to MBO Partners, in 2012, there were 16.9 million independent workers in the United States—a number MBO forecasts to rise to 23 million in 2017[2] and that could reach 65 to 70 million, or half of the US workforce, by 2020.[3] Some sectors of the economy are already witnessing the steady movement of knowledge workers to independent and ad hoc status. The higher education sector (university and college levels) in the United States is a case in point. Over the past 35 years, the percentage of full-time faculty has steadily declined (from 56 percent to 39 percent), with a corresponding increase in part-time and adjunct faculty (from 24 percent to 41 percent) (figure 2).[4]

Figure 2. Trends in US college and university instructional staff employment status, 1975–2011

Percent of total instructional staff

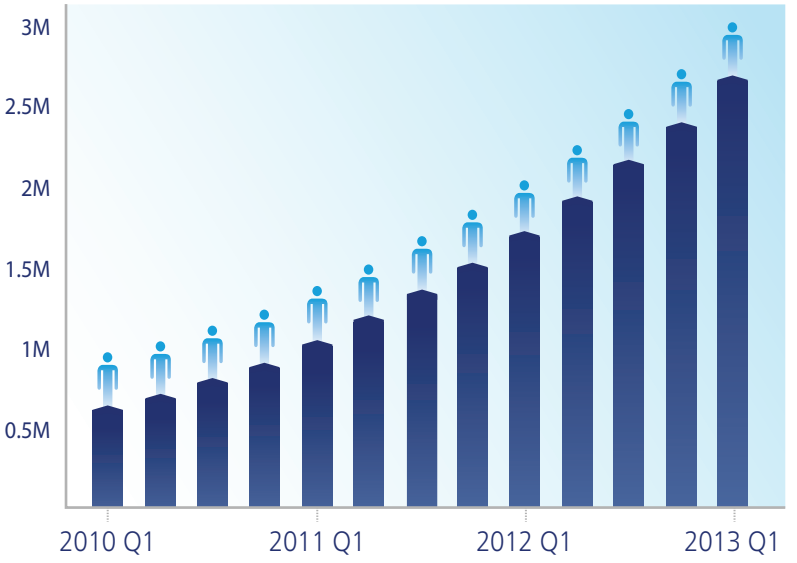


Source: John W. Curtis and Saranna Thornton, "Here's the news: The annual report on the economic status of the profession, 2012-13," *Academe 99*, No. 2 (March–April 2013), p. 7: <http://www.aaup.org/file/2012-13Economic-Status-Report.pdf>, accessed May 29, 2013

Graphic: Deloitte University Press | DUPress.com

The growth in the number of freelancers in the workforce has been accompanied by the rise of online marketplaces, such as Elance.com and oDesk.com, that specialize in connecting contractors and freelancers with employers. Elance.com, for instance, is an online job platform where companies can find and hire freelancers from 170 countries. Launched in 1998 as an e-commerce application to manage contractor services, Elance.com sold its enterprise software division in 2006 to focus on developing a web-based platform for the contingent workforce.[5] Freelancers create and manage profiles online and collaborate to find jobs. The work ranges from website development to mobile app development, graphic design, and content writing. As a service fee, Elance.com charges 8.75 percent of the amount an employer agrees to pay the job seeker, who can be paid by the project or by the hour. The number of employers and freelancers using Elance.com has grown markedly in the past three to four years, as have the cumulative earnings of Elance.com's freelancer community (figures 3–5).

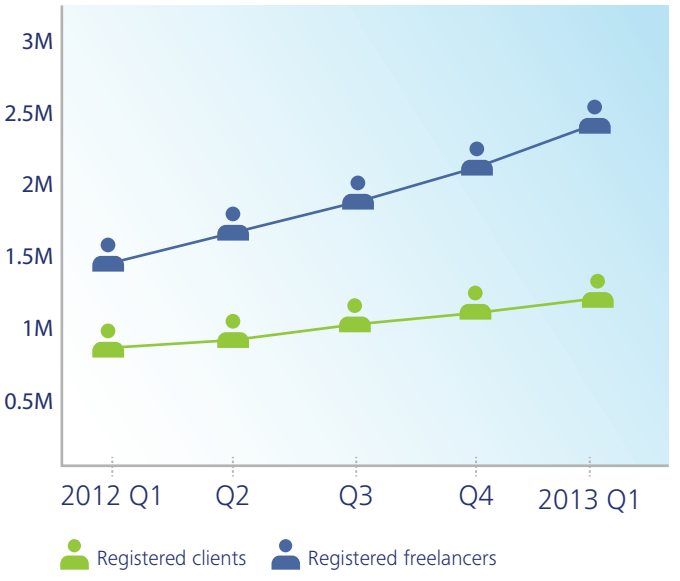
Figure 3. Number of jobs posted on Elance (cumulative lifetime)



Source: Elance, "Global Online Employment Report—Q1 2013," <https://www.elance.com/q/online-employment-report>, accessed June 10, 2013

Graphic: Deloitte University Press | DUPress.com

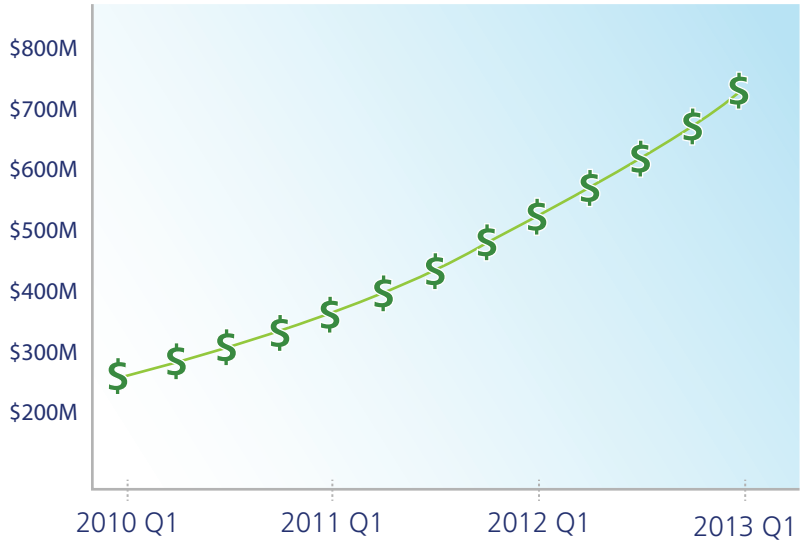
Figure 4. Total registered users and freelancers on Elance



Source: Elance, "Global Online Employment Report—Q1 2013," <https://www.elance.com/q/online-employment-report>, accessed June 10, 2013

Graphic: Deloitte University Press | DUPress.com

Figure 5. Freelancer earnings on Elance (cumulative lifetime)



Source: Elance, "Global Online Employment Report—Q1 2013," <https://www.elance.com/q/online-employment-report>, accessed June 10, 2013

Graphic: Deloitte University Press | DUPress.com

- **Open source talent:** Over the past decade, we have been witnessing the rise of open source talent: individuals collaborating to create products and services by sharing their skills, experiences, and ideas and insights, sometimes (though not always) without direct ties to a company or organization and sometimes with no remuneration. This phenomenon is also often referred to as crowd talent, crowd work, or crowdsourcing work. Open source or crowd talent can work anywhere in the world and generally operates outside of the offices and facilities of companies, separately from balance sheet talent. While freelance and contract workers are generally hired to fill roles and positions, using open source talent involves using online communities and networks to access large numbers of workers for very specific tasks and projects. The reach of these communities and networks is often global, well beyond the traditional geographical frame for freelance workers. In addition, while it is not uncommon for freelance workers to have access to corporate offices, labs, or other facilities, open source talent generally works remotely to complete specific tasks and/or to provide ideas and insights.

Given the growing ability to digitize many types of work, this category of talent continues to grow rapidly. People in an open source talent community

may participate in a literal open source project, such as the development of Linux software, the Fox browser, or Wikipedia. Or they might provide information and advice on a particular topic by participating in blogs and discussion boards (a number of technology companies, in fact, increasingly depend on these sites to answer technical questions that were previously handled by in-house employees—why hire technical and customer support staff when you can encourage blogs and discussion board sites to provide the same support for free?). Some companies are using open source sites and competitions, such as the platform provided by InnoCentive, to post challenges meant to invite insights and inputs to critical business problems.

As documented in the *Harvard Business Review* case study, among the best-known recent examples of creating a business ecosystem that leverages networks to significantly extend the reach of a critical function and team is P&G's experience in the last decade with Connect and Develop, sometimes referred to as the evolution of R&D (research and development) to C&D (connect and develop).[23] In response to a challenge from A. G. Lafley, the CEO, P&G's R&D team was asked to develop a strategy for leveraging global scientists, suppliers, and networks for half of their future innovations. The idea was not to replace but rather to extend the reach, productivity, and capability of P&G's 7,500 product development specialists and researchers by connecting them, using both propriety and open networks, with suppliers (and their 50,000 R&D specialists) and scientists around the world. The result offers a useful case study for talent and HR as well as for business and R&D leaders on how to utilize multiple business models—in this case, in-house (balance sheet) talent combined with external networks to access ideas and insights that can be acquired and commercialized.

P&G's Connect and Develop network uses multiple talent approaches, including:

- Hiring retired R&D scientists for specific projects (a form of freelance talent)
- Conducting competitions for technical and product development challenges, providing awards for specific challenges using proprietary and third-party open source markets such as InnoCentive
- Deepening relationships with its supplier network to identify solutions to product development challenges (a form of partnership talent that involves licensing and purchasing product ideas and technologies)

Through Connect and Develop, P&G has created an R&D talent and idea ecosystem that integrates a range of R&D talent spanning P&G staff in the company's own labs, suppliers, retired scientists, and a global network of inventors and researchers.

OPEN SOURCE TALENT: A BRIEF INTRODUCTION

In recent years, a totally new way of working has become possible. This can be seen in the advent of a range of new business models with a new set of players and a new language. There are three emerging models of open source talent that are central to understanding this evolving landscape:

- Volunteer-based models: Examples of volunteer-based open source talent models include Wikipedia, an online encyclopedia written and updated by 100,000 volunteer contributors. It currently includes 26 million articles in 286 languages.
- Crowdsourcing idea marketplaces: Among the best known of the crowdsourcing idea marketplaces is InnoCentive, a site that posts challenges for researchers, inventors, and problem solvers around the world.
- Crowd work and project marketplaces: Crowd work and project marketplaces are composed of a growing set of business models and websites that distribute and manage small components of projects (and sometime entire projects or subprojects) to be done remotely. Work can be done by the piece, project, or hour. One example is Mechanical Turk.

Crowd work is also emerging as a field of academic study at business and technology colleges and universities.[6] Examples of crowdsourcing idea, crowd work, and crowd project marketplaces include:

InnoCentive

Year formed: 2001[7]

About the company: InnoCentive is an online platform for open innovation that helps companies reach out to talent around the world by posting problems as challenges. InnoCentive, formed by Eli Lilly in 2001, awards a cash prize to the idea that best meets the challenge criteria. In its first year, it posted 12 challenges and sought 82 submissions from 16 countries.[8]

Number of InnoCentive employees: 51–200[9]

Number of InnoCentive users (solvers): 285,000[10]

Number of countries catered to: 200[11]

Revenue model: InnoCentive charges its clients for posting challenges on the website. Its fees range from $2,000 for a brainstorm challenge to $20,000 for a premium challenge.[12]

Award amount: Varies from $500–$1 million[13]

Mechanical Turk

Year formed: 2005

About the company: Mechanical Turk is an online crowdsourcing platform that helps computer programmers to reach out to a set of people across the world that can help with tasks that are beyond the scope of computers' current capabilities. These tasks, such as tagging, choosing the best among a group, and performing data duplication, are known as Human Intelligence Tasks (HITs). Estimates suggest that Mechanical Turk reaches around 500,000

workers across 100 countries, with workers concentrated mainly in the United States (50 percent) and India (40 percent).[14]

Number of HITs: 263,791[15]

Number of Mechanical Turk users (workers): 500,000[16]

Number of countries catered to: 190[17]

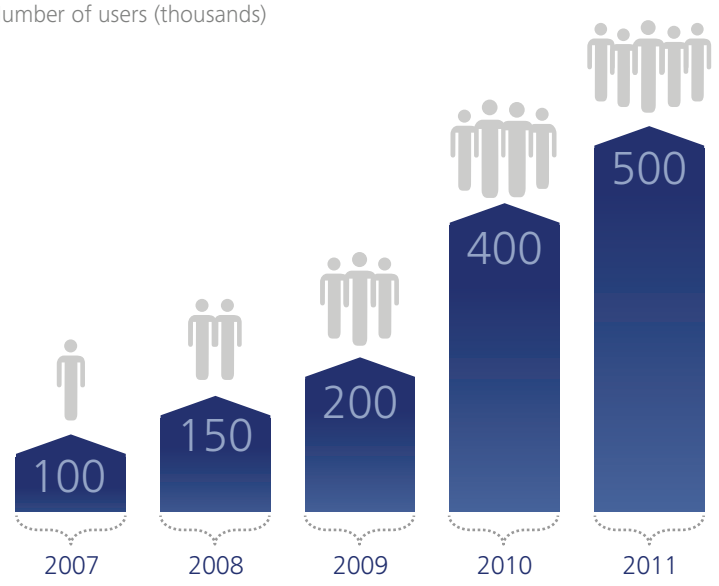
Revenue model: Mechanical Turk charges 10 percent of the amount the "requestor" pays to the worker for a task, with a minimum charge of $0.005 per HIT.

Reward amount: The reward amount ranges from $0.005–$10 per HIT.

Growth: The number of workers participating in Mechanical Turk has quadrupled over the past five years.

Figure 6. Number of Mechanical Turk users (workers)

Number of users (thousands)



The number of workers in 2008 has been estimated as the average of 2007 and 2009 workers.
2011: The data are as of January 2011.

Sources:
2007: Jason Pontin, "Artificial intelligence, with help from the humans," *New York Times*, March 25, 2007, <http://www.nytimes.com/2007/03/25/business/yourmoney/25Stream.html?_r=0>

2008: Joel Ross, Andrew Zaldivar, Lilly Irani, and Bill Tomlinson, "Who are the Turkers? Worker demographics in Amazon Mechanical Turk," <http://www.ics.uci.edu/~jwross/pubs/SocialCode-2009-01.pdf>, accessed May 29, 2013

2009: Joel Ross, Andrew Zaldivar, Lilly Irani, Bill Tomlinson, and M. Six Silberman, "Who are the crowdworkers? Shifting demographics in Mechanical Turk," <http://www.ics.uci.edu/~jwross/pubs/RossEtAl-WhoAreTheCrowdworkers-altCHI2010.pdf>, accessed May 29, 2013.

2010: Ibid.

2011: Amazon Web Services discussion forum, <https://forums.aws.amazon.com/thread.jspa?threadID=58891>, accessed May 29, 2013

Graphic: Deloitte University Press | DUPress.com

TopCoder

Year formed: 2001[18]

About the company: TopCoder hosts various online competitions on computer programming among its online community of software developers, algorithmists, and digital designers. The community is accessed via TopCoder's online platform for open innovation. The projects are organized into small tasks and posted as competitions, with prize money awarded to the winners.[19]

Number of TopCoder employees: 75[20]

Number of TopCoder community members: 476,037[21]

Number of countries catered to: 200[22]

It's the difference between employing an R&D staff of a few thousand employees within one's own company and having access to a network of hundreds of thousands, or more, of idea and insight generators around the world.

From an open source talent ecosystem perspective, the experiences of Apple's app store and Google's Android store offer another significant example of a business model designed to leverage the efforts of highly talented individuals and professionals who work for themselves or for someone else, but who generate business value, brand value, and profits for a company. Apps were introduced by Apple in July 2008.[24] At the Apple app store's launch, approximately 900 apps, free and for purchase, were available for the iPhone and iPod and were then made available for the iPad. In April 2013, there were more than 775,000 apps for the the Apple operating system, including website tools, publications, and games. In five years, the Apple app ecosystem has grown to a multibillion dollar business with an estimated 300,000 Apple app developers in the United States alone; including developers for the Android and other operating systems, an estimated 500,000 app developers are active in the United States.[25]

The app industry is largely staffed by developers who do not work for Apple, Google, or any of the curators of the extant app marketplaces. They largely operate as part of the freelance and open source talent economy. Yet the global Apple app store has grown to more than $7.5 billion in the past five years (figure 7). The overall apps market (Apple, Android, and other platforms) is forecasted to potentially surpass $22 billion by 2016.[26] Apple takes a 30 percent share of the revenue that flows through its app store.[27] That's a sizable source of revenue, profits, and brand stickiness that comes from people who don't work for Apple. From a talent perspective, that's the point: to extend the talent ecosystem beyond a company's balance sheet and develop new ways to integrate talent and ideas into a business ecosystem.[28]

FROM THE EMPLOYEE LIFE CYCLE TO THE TALENT ECOSYSTEM

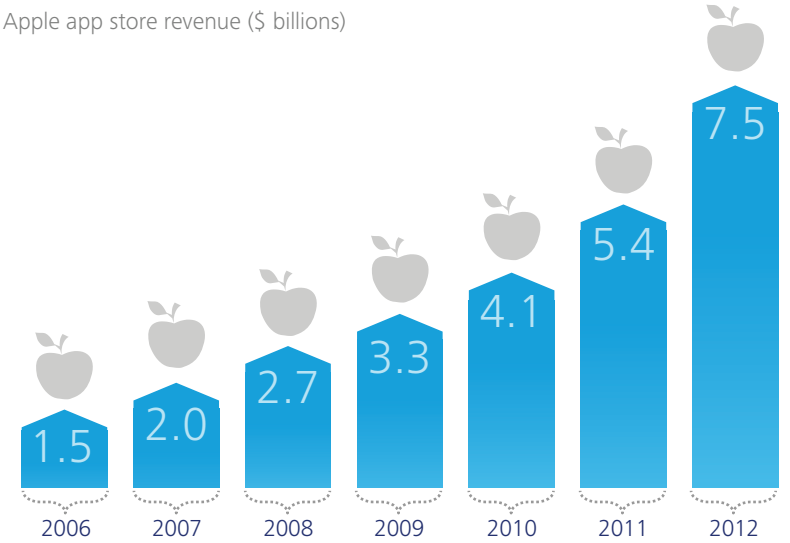
Traditionally, HR, talent, and business executives think of talent and employee processes as a supply chain with an on ramp for new employees and an off ramp for retirees. In between, they work for a company in its own offices, campuses, or factories. The process starts with "acquisition" and continues through deployment, learning and development, performance management, rewards, and career planning.

All this is different in the open talent economy, where the life cycle—supply chain—view of talent is giving way to an ecosystem view that requires a fresh perspective on the foundation or scaffolding on which to build and manage talent networks. The starting point is to reimagine both what work needs to be done and who can do it; in essence, the process begins with an expansive view of work design and workforce planning. While the concept of the employee life cycle may continue as the underpinning for balance sheet talent, for other categories of talent, business and HR leaders may need a new set of principles directed more toward navigating and managing talent ecosystems.

Consider the evolution of five core processes from the old "life cycle" to the new "ecosystem" model, and how they are changing in the open talent economy:

- **From "plan and acquire" to "design, brand, attract, and access."** In the open talent economy, the central question is how to use all forms of talent, work, and business models to access and attract the talent you need to do the work you need done. This way of thinking goes beyond the concept of the "extended enterprise" to a view that reimagines the business and function, what and how work gets done, and who can possibly do it. Whether it's the

Figure 7. Apple app store global revenues



Source: Apple SEC filings

Graphic: Deloitte University Press | DUPress.com

PHOTO: GAWRAV SINHA /ISTOCKPHOTO

WHAT'S DRIVING THE OPEN TALENT ECONOMY?

Several global megatrends are driving changes that propel the open talent economy around the world in every sector. These global megatrends don't necessarily arise in the talent sphere, and they affect other business decisions as well, but they are fundamentally changing the structure of talent and work.

- **Globalization:** The coming together of global talent markets across an increasing number of disciplines is changing the way work is distributed and sourced. Communications and connectedness have opened the world to new ways of acquiring, developing, and managing talent and work. The open diffusion of ideas, practices, and technologies—and, above all, people—creates opportunities for different parts of the world to influence and depend upon one another in new ways.

- **Technology:** The growth in computing speed and storage is making virtual and global collaboration possible in more fields every day. When technology makes it easy and economical to work anywhere in the world, all of our workforce and workplace assumptions are open for review. Additionally, the development of smart machines driven by increasingly complicated algorithms (witness Watson from IBM and Siri from Apple) is again shifting work, in some cases from emerging markets back to developed ones. In the future, the open talent economy may well integrate smart machines *and* people in talent networks.

- **Mobile:** Mobile computing is rapidly expanding access to the network of global workers connected by data as well as voice. Technical and social mobility decouples people and organizations from physical geography and defined markets. Today's critical workforces are freer to go where they want to work instead of staying where work originates. Easier access to skill development resources is making vertical moves easier, too, for both people and organizations.

- **Education:** In the past 20 years there has been an explosion in the growth of the education sector at all levels around the world, especially in Asian growth and emerging markets. The rapid growth of pools of talented manufacturing, services, and knowledge workers around the world continues to reshape global talent networks. We are witnessing a new wave of innovation driven by massive open online courses (MOOCs) in which leading universities, including Stanford and MIT, are making high-quality courses, taught by many of the world's leading professors, available to tens of thousands of students around the world.

- **Social media:** The rapid rise of social media has changed the way people connect and collaborate. For the first time, people can quickly, in some cases in real or almost real time, share ideas, information, and requests. These technologies and networks make possible a new level, speed, and intensity of collaboration, and sharing that is critical to the emerging open talent economy.

- **Analytics:** Managing global talent ecosystems requires the ability to manage and mine large pools of employee and business data. Analytics allows companies and employers to access, review, rank, analyze, and maintain millions of records on individual tasks, projects, and workers. A number of freelance and open source talent, product, and idea marketplaces have quickly evolved over the past several years. The scale and reach of these online and open markets require a combination of cloud technologies and analytics to access, sort, and evaluate the hundreds of thousands, and in some cases millions, of people connecting to these networks. The core tools of data collection, mining, and analysis, as well as the ability to handle huge volumes of tasks and workers, make analytics one of the key enablers of open talent networks.

The themes of technology, mobile, social, and analytics are increasingly common ways of framing the forces driving business models in multiple realms. From a talent perspective, these postdigital trends, combined with the larger forces of globalization and the phenomenal growth of the education sector, are reshaping what is possible and relevant for HR and talent executives planning for the future. Understanding these forces and their potential impact, and the opportunities they present for business and talent strategies, requires a broadening of the traditional approach to talent, which has been almost entirely focused on balance sheet employees.

Apple app store or the P&G Connect and Develop strategy, talent models in the open talent economy consciously reach across corporate boundaries to create ecosystems and ways of doing business that rely on and partner with talent almost anywhere.

A crucial first step for managing talent in the open talent economy is to connect talent leaders with the business executives designing businesses and business models so that they can develop new ways of working that take advantage of the range of current talent models. A second step is to brand and position the business and talent ecosystem in ways that can attract the best talent and engage them to participate, whether that talent resides within or outside the enterprise. While companies will continue to focus on acquisition for the portion of critical talent that remains on their balance sheet, the new approach to talent, as the examples discussed above suggest, moves beyond ways to acquire to ways to attract and access different pools of talent.

The open source economy presents new challenges to workforce planning

as well. The historical model was focused on filling capability requirements by hiring people, full- or part-time, to work for the company as employees, with the accompanying expectations of an organizational livelihood and career. In contrast, the future challenge is focused on workforces (yes, plural). The emerging challenge is to plan and design work around, and to access, workforces of all types—on the balance sheet, in joint ventures, borrowed, freelance, and open source.

- **From "training and deployment" to "participation, learning, and leadership networks."** In a business environment evolving as quickly as it is today, companies are recognizing the value of moving from command-and-control training and deployment approaches to new models built around projects and networks. Project-based companies are an increasing feature of the business landscape, and projects—as opposed to processes and assembly lines—play the central role in many types of work. In a world of continually changing project portfolios, the demand moves from outfitting and deploying employees to creating learning, leadership, and work networks that become the backbone of work structure and employee development.[29]

  As an increasing percentage of talent and work moves off the balance sheet, one can see the growing relevance of new learning models. In a world where half of US employees might be independent workers and half of the R&D at leading companies is done outside corporate labs, individuals will have a growing need and incentive to be up to date on leading ideas, approaches, and tools. Lifelong skill development will increasingly be the responsibility of the individual; off-balance-sheet employees will need an off-balance-sheet corporate university. In this connection, an important development is the advent of massive open online courses (MOOCs) from consortia such as EDx and Coursera, as well as new learning models like the instruction offered by the Khan Academy. The value of a certificate of completion from the Stanford MOOC on artificial intelligence or machine learning becomes clearer in an environment where individuals need to both keep their skills up to date and find new ways of communicating their capabilities and credentials.

- **From "performance management" to "performance engagement."** How to measure and gauge how well employees are doing when they might work for you, near you, for someone else, or on their own will challenge the current thinking and approaches to performance management. Companies will need new measures, new processes, and new expectations for what success looks like on all sides of the employer-worker relationship. Performance

management is a battle between two models: competitive assessment (sorting and ranking) and coaching and development. Companies are still struggling to understand performance for balance sheet employees and find the appropriate mix of assessment and coaching. As the workforce extends to third-party organizations, individuals, and the human cloud of ideas and effort, performance management will face the challenge of evolving to measure engagement, development, quality, interest, access, and output. This will likely involve a combination of the familiar focus on worker assessment and coaching with new measures of network characteristics such as influence, attraction, and engagement. Perhaps the future of performance management will look more like reviews of books on Amazon.com—with professionals and workers sharing their "ratings" (how many "stars" are on your online profile)—than like the closed, linear performance management systems we are familiar with today.

- **From "compensation and benefits" to "experience and rewards."** The historical focus of total rewards programs has been on grading and sorting employees and managers into bands while designing compensation structures and benefits schemes that generally prioritize health and retirement benefits. Again, the near-exclusive focus has been on compensation, benefits, and rewards for a company's own employees—those on its balance sheet. There are at least two emerging challenges for total rewards programs in the open talent economy. The first is to keep pace with the rapidly changing expectations of full-time employees across all the generations in the workforce, from veterans and boomers to millennials. The people companies keep on their balance sheets are looking for an unprecedented level of flexibility.[30] This is often most true for the critical skill sets companies are most interested in hiring and retaining. At the same time, employees are looking for community involvement, social responsibility, and a higher level of meaning and engagement in their work.

  The second challenge for total rewards is to begin the complex process of creating rewards, meaning, and careers for employees who are *not* on a company's balance sheet. One of the areas in which new approaches and innovation are needed is how companies can compensate, reward, and create career options for workers in all segments of their talent portfolio. This might involve creating tiers or categories of freelance employees with different levels of access to projects, work opportunities, and corporate learning and development programs (both online and in person). Additionally, as is already done by network marketing organizations, compensation for off-

balance-sheet workers might involve different levels of rewards for different levels and types of participation.

- **From "company employee value proposition" to "ecosystem talent brand."** As companies deliberately design and build talent networks that incorporate on- and off-balance-sheet workers, freelance workers, and open source talent, the corporate brand and employee value proposition will need to be reengineered with an eye to attracting and engaging multiple sources of talent. Similar to the dynamics of the leading media producers and directors who attract the top entertainment talent, talent ecosystems will compete on their brands as well as on their talent platforms. How a company's talent ecosystem reaches out to different pools of talent, and what the company offers in terms of work, collaborative environments, engagement, and rewards, will become part of its "beyond the balance sheet" talent strategy.

These five core reimagined talent life cycle processes are the start of a new framework for planning and managing talent across the open talent economy. There are other issues as well, including how to measure, anticipate, and manage risks; there have been some highly publicized cases in recent years where employees working for third-party companies to make and assemble products have created reputational risks and related expectations and liabilities. Managing talent risk in the open talent economy will require proactively considering risks associated with all types of talent, including off-balance-sheet talent. In addition, new challenges will arise with respect to systems and reporting, both for managing talent and employee processes and for maintaining collaborative platforms to support crowd work and network-based projects.

MANAGING TALENT BEYOND CORPORATE BOUNDARIES

The open talent economy places organizations and talent in new relationships with each other, providing new benefits and new challenges. Employer-worker relationships are more fluid, faster-paced, and more focused on results and impact; at the same time, we are seeing changes in bargaining power, job security, and the social benefits offered by employment. In a business environment that offers a new array of talent markets and models extending well beyond the corporate balance sheet, the open talent economy presents a new starting point for talent strategy and management. Creating talent strategies that integrate different categories of employees and workers across a company's talent portfolio may be among the fundamental challenges facing business and HR leaders in the next decade. Managing in the open talent economy will require a fresh look at core talent and employee life

cycle processes and systems to ensure that they are taking advantage of the range of talent options available and anticipating and managing the emerging risks for talent on and beyond the balance sheet.

As Bill Joy, one of the cofounders of Sun Microsystems, famously remarked: "There are always more smart people outside your organization than inside." This is one way to summarize the challenge for business, HR, and talent leaders as we chart the next generation of talent strategies and systems in the open talent economy. **DR**

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Endnotes

1. Jeff Schwartz, Lisa Barry, and Andy Liakopoulos, "Reframing the talent agenda: The shift, the race, and the riddle," *Deloitte Review,* Issue 12, January 2010, <http://dupress.com/articles/reframing-the-talent-agenda/, accessed May 7, 2013>
2. MBO Partners, "The state of independence in America, 2012," <http://www.mbopartners.com/state-of-independence/docs/2012-MBO_Partners_State_of_Independence_Report.pdf, accessed May 7, 2013>
3. Ryan Kim, "By 2020, independent workers will be the majority," Giagom, December 8, 2011, <http://gigaom.com/2011/12/08/mbo-partners-network-2011/, accessed May 7, 2013>
4. Saranna Thorton and John W. Curtis, "A very slow recovery: The annual report on the economic status of the profession, 2011-12," *American Association of University Professors*, <http://www.aaup.org/reports-publications/2011-12salarysurvey>, accessed May 7, 2013.
5. Graham Charlton, <http://econsultancy.com/in/blog/8313-start-me-up-a-profile-of-elance>, November 2011.
6. Aniket Kittur et al., "The future of crowd work," December 18, 2012, presented at the 16th ACM Conference on Computer Supported Cooperative Work (CSCW 2013). <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2190946>, accessed May 29, 2013.
7. Innocentive, "At a glance," <http://www.innocentive.com/about-innocentive/facts-stats>, accessed May 7, 2013.
8. Opensource.association, "Innocentive—Fortune 500 meets 80K Biochemists," <http://freethinkr.wordpress.com/2007/03/23/innocentive-fortune-500-meets-80k-biochemists/>, accessed May 7, 2013.
9. LinkedIn, "Innocentive," <http://www.linkedin.com/company/innocentive>, accessed May 7, 2013.
10. Innocentive, "At a glance."
11. Ibid.
12. Innocentive, "Overview," <http://www.innocentive.com/innovation-solutions/challenge-products>, accessed May 7, 2013.
13. Ibid.
14. Panos Ipeirotis, "Demographics of Mechanical Turk," <http://www.ipeirotis.com/research/publications/demographics-of-mechanical-turk>, accessed May 7, 2013.
15. Mechanical Turk, "Introduction," <https://www.mturk.com/mturk/welcome>, accessed April 11, 2013.
16. Panos Ipeirotis, "Demographics of Mechanical Turk."
17. Amazon Web Services discussion forum, <https://forums.aws.amazon.com/thread.jspa?threadID=58891>, accessed May 29, 2013.
18. Crunchbase, "Topcoder," <http://www.crunchbase.com/company/topcoder>, accessed May 7, 2013.
19. Topcoder, "What is Topcoder," <http://www.topcoder.com/whatiseoi/>, accessed May 7, 2013.
20. Inc., "Company profile—Topcoder," <http://www.inc.com/profile/topcoder>, accessed May 7, 2013.
21. Topcoder, <http://www.topcoder.com>, accessed March 2013.
22. Crunchbase, "Topcoder," <http://www.crunchbase.com/company/topcoder>, accessed May 7, 2013.
23. Larry Huston & Nabil Sakkab, "Connect and develop: Inside Procter & Gamble's new model for innovation," *Harvard Business Review*, March 2006, <http://hbr.org/2006/03/connect-and-develop-inside-procter-gambles-new-model-for-innovation/ar/1>, accessed May 7, 2013.
24. Federico Viticci, "Four years of app store," May 18, 2012, <http://www.macstories.net/stories/four-years-of-app-store-developers-weigh-in-on-search-discovery-and-curation/>, accessed May 7, 2013.
25. Michael Mandel, "Where the jobs are: The app economy," February 2012, <http://www.technet.org/wp-content/uploads/2012/02/TechNet-App-Economy-Jobs-Study.pdf> accessed May 7, 2013.
26. Jason Armitage, "App Store Downloads Exploded in 2012, Apple Says," Yankee Group Daily Insight, January 13, 2013, <http://maps.yankeegroup.com/ygapp/content/53219e11218e45ec9831b297fc6f35a5/50/mobilenow/>, accessed May 29, 2013.
27. Charles Arthur, "Apple sells 50 billionth app," theguardian, May 16, 2013, <http://www.guardian.co.uk/technology/2013/may/15/apple-50-billion-app-store-downloads>
28. Aniket Kittur et al., "The future of crowd work."
29. John Hagel, John Seeley Brown, and Lang Davidson describe these networks, the importance of passion, and the integration of learning, skill, and work in their 2010 book *The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion* (New York: Basic Books).
30. Cathy Benko and Anne Weisberg, Mass Career Customization, (Boston, MA: Harvard Business School Press, 2007).

The concept of insurance is fairly straightforward: Individuals or organizations purchase a service that mitigates their risk in the event of an unforeseen problem. It's about financial security—hoping it may not be required to use the coverage purchased but hedging just in case. In many insurance markets, premiums paid by policyholders are pooled so that the financial impact of a single event doesn't wipe out a household or organization. The majority pay, and over time, many receive a payout, but in a given year, a large majority do not. Health insurance is an exception where many policyholders use their insurance frequently. Thus, the math of insurance is about basics: pooling of risk from a large number of policyholders to fund a smaller number of unforeseen losses.

The future of health care insurance: What's ahead?

BY PAUL KECKLEY, BILL COPELAND AND GREG SCOTT
> ILLUSTRATION BY IGOR MORSKI

For many types of coverage, the insurance industry has two customers:

- Employers, including not-for-profit organizations, purchase a variety of insurance services—property and casualty coverage to mitigate damages to physical property; directors and owners liability for errors of omission or commission; liability protections; and for many bigger businesses, health insurance coverage for employees, dependents, retirees, and so on. The same is true for health insurance: Today, 56 percent of employers purchase health insurance coverage for their employees.[1]
- Individuals purchase homeowners, auto, and life insurance coverage as an after-tax discretionary investment. Insurance companies that target individuals frequently advertise on TV and are known for direct-to-consumer marketing campaigns. Health insurance is also sold to consumers—currently comprising 17 million—termed "the individual insurance market" by health insurers.[2]

... since the mid-1950s, employers have paid the bulk of costs for employee coverage while being timid about restrictions on how their employees use the benefit. That has changed.

But, in the United States, health insurance is different than other types of insurance coverage. It has its origins in Texas where physicians in the 1920s created a model to help individuals handle the costs of hospital care when needed.[3]

Two events drove the growth of the industry in the modern era: to recruit veterans returning from World War II, companies used their health insurance coverage to differentiate in recruiting efforts. And in 1972, as part of the Nixon administration, when wage and price controls were placed on employers to control runaway inflation, health insurance costs were not counted against constricted wage ceilings. Health insurance offered by employers became standard fare—first dollar coverage, modest (if any) co-payments, low premiums and deductibles, and large networks of doctors and hospitals from which to choose were common features of many plans. In effect, the workforce was treated to a benefit that mitigated the full gamut of risk from routine office visits and medications to hospitalization for serious medical problems. And Congress granted employers a tax exemption for their portion of premiums now worth $216 billion today.[4]

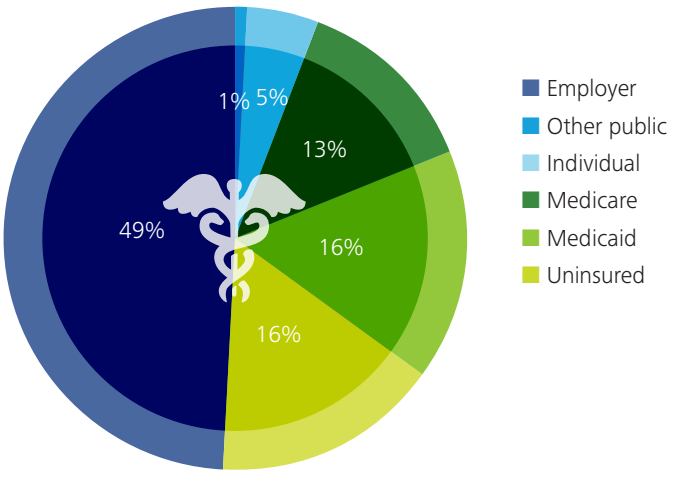
Health insurance, therefore, is different than other types of insurance coverage. Unlike insurance that covers risk for catastrophes or big-ticket items, health insurance evolved as a form of comprehensive coverage for everything from minor cuts

and routine visits to organ replacement and accidents. It's akin to a hypothetical automobile insurance plan that covers flat tires, not just collisions. And complicating matters, in traditional employer-sponsored coverage, the company pays 75 percent of the premium so the individual's share is relatively low and the tendency to overuse health services is high.[5] Thus, consumers have little skin in the game. As a result of these structural flaws, health insurance is widely used because it covers everything—and it is expensive for the same reason.

WHERE IS THE INDUSTRY NOW?

Fast forward to the present, where the US health insurance industry plays a ubiquitous role in the nation's economy and in many American households. More than 160 million Americans are covered by employer-sponsored insurance plans.[6] Another 17 million Americans purchase insurance for themselves in the private insurance market, and about 100 million are covered by government-sponsored insurance plans.[7] Notably, in each of these categories, there are unique eligibility, enrollment, and premium requirements, and each is under intense regulatory scrutiny at the state and federal levels.

Figure 1. US breakdown of health insurance coverage, 2011



Source: Kaiser Family Foundation, *Health insurance coverage of the total population* <http://www.statehealthfacts.org/comparebar.jsp?ind=125&cat=3>

Graphic: Deloitte University Press | DUPress.com

It's a big industry comprising about 400 operators, including 154 with more than 100,000 enrollees, with enrollment split almost evenly between investor-owned plans and not-for-profit plans.[8,9] And it is growing at home and abroad as individuals,

governments, and companies seek to mitigate the financial risk of health cost while attracting/retaining employees.

Three major changes are reshaping the health insurance industry:

1. **Changing role of employers in the insurance market:** Many working Americans choose a plan from options preselected by their employer, often balancing the premium, out-of-pocket costs, and co-payments against the size and scope of coverage and provider participation. And, since the mid-1950s, employers have paid the bulk of costs for employee coverage while being timid about restrictions on how their employees use the benefit. That has changed. Employer activism is a forcing factor in the health insurance industry: Ten percent of employers, mostly smaller companies and organizations, dropped coverage altogether in the last decade.[10] For those that have maintained the benefit, a three-pronged strategy has become the norm:

... the Congressional Budget Office (CBO) estimated up to 27 million could be newly insured, and over the decade only 4 million may lose coverage as a result of employers paying a penalty and walking away.

   - *Shared financial responsibility with employees:* Shifting financial responsibility to employees via high deductible plans and defined contribution plans that replace benefits programs are increasingly the norm for employers. And employees are being encouraged to pay attention to prices for the services they use, in some cases through incentives to purchase from "high value" providers, and in other cases limiting access to providers that are too pricey.
   - *Narrowing networks of providers:* Employers are contracting with fewer providers (doctors and hospitals) to extract better prices and drive volume to those that deliver higher quality and lower costs. In some cases, larger employers are contracting directly with providers; in others, they are pooled through arrangements with health insurance companies to get better pricing in their contracts.
   - *Focused efforts in employee wellness and prevention:* Lifestyle-related habits and chronic diseases contribute to 75 percent of health costs.[11] Employers are using coaching programs targeted to employees with chronic illnesses (obesity, diabetes, heart disease) and implementing incentives to encourage healthy lifestyles. Employers believe wellness-related activities—for those with medical problems already and to prevent the healthy from

becoming unhealthy—are strategic investments in their workforce strategy and in health cost containment.

2. **Increased enrollment in government-sponsored health insurance plans:** Today, enrollment in federal and state insurance programs is over 100 million including Medicare, Medicaid, Federal Employee Health Plan, Children's Health Insurance Plan, State & Local Government Employee Health Plans, and Military Health Plans (Veterans Health/TRICARE).

   Enrollment in each is increasing, and as a result, the influence of the government as a sponsor of the health insurance programs is growing. In some cases, government agencies purchase insurance coverage through private insurance companies: For example, 13 million Medicare enrollees have a Medicare Advantage Plan (Part C) purchased through a private insurer; another 32 million have a Part D Prescription Drug Discount Plan offered through private issuers; and private plans are routinely offered to federal, state, and local employees.[12]

   The significance of the increased role of government as a sponsor in the US insurance market is size: It affords the government the ability to purchase for large numbers of enrollees and negotiate aggressive terms and conditions with private insurers who want to enroll and manage a plan on their behalf. The growing role of the government as a purchaser of coverage for employees from private health insurers is an important dynamic in the US health insurance market.

3. **The Affordable Care Act and health reform:** The third factor driving fundamental change in the US health insurance industry was the passage of the Affordable Care Act (ACA) in March 2010. Prior to the ACA, there was no law that required employers to provide health insurance coverage to employees and no law that required individuals to buy it for themselves. Both have changed: The law requires employers with more than 50 full-time employees to provide affordable insurance or pay a penalty—$2,000 per employee per year.[13] And starting in 2014, US citizens not eligible for Medicaid or other public programs must purchase health insurance or pay a penalty that is the greater of $95 or 1 percent of the difference between the household's taxable income and tax threshold, increasing annually for three years. As a result, the Congressional Budget Office (CBO) estimated up to 27 million could be newly insured, and over the decade only 4 million may

Figure 2. Affordable Care Act provisions directly impacting the commercial health insurance industry

Prohibits lifetime limits
Restricts annual limits
Restricts rescissions
Requires coverage for preventive services with no cost-sharing
Extends dependent coverage to age 26
Requires uniform explanation of plan benefits
Prohibits discrimination based on employee compensation
Requires quality of care reporting
Requires reporting of medical loss ratio and provision of rebates
Requires internal and external appeals processes
Patient protections
Annual rate review
Prohibits coverage exclusions for pre-existing conditions
Imposes adjusted community rating rules
Imposes guaranteed issue requirements
Imposes guaranteed renewability requirements
Prohibits discrimination based on health factors
Prohibits discrimination against medical providers
Requires coverage for essential health benefits
Limits out-of-pocket spending
Limits cost-sharing
Prohibits excessive waiting periods
Requires coverage for clinical trials for qualified individuals

Sources: ACA and Congressional Research Service [CRS] analysis, *Includes Sections 1302, 1341, 1342, 1343, 1101, 1104, 1001, and 1201)

lose coverage as a result of employers paying a penalty and walking away.[14,15,16]

But the law also added a number of new regulatory constraints on how health insurance plans operate, adding new rules at the federal level and vesting responsibility in states to implement a number of major structural changes including Medicaid expansion and creation of health insurance exchanges. So while the industry is likely to see increased coverage as a direct result of the ACA, it also faces additional compliance and oversight from state and federal regulators.

Each of these three factors has contributed in a unique way to the changing landscape of the health insurance industry in the United States. Each is unique, but their combined impact is a significant disruption to the industry.

WHAT'S AHEAD FOR THE HEALTH INSURANCE INDUSTRY?

There are four likely themes that could help frame the future of the US health insurance industry:

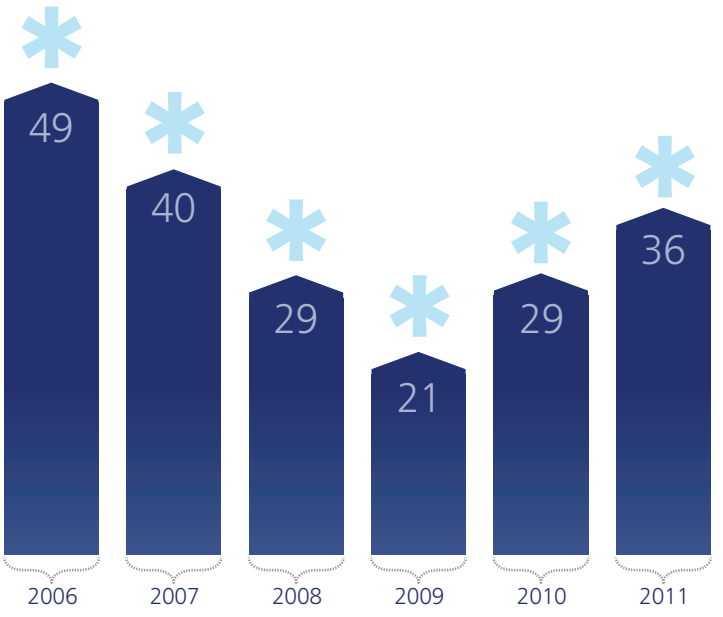
1. **Enrollment growth at home and abroad:** Enrollment in insurance plans sold by private insurance companies may increase dramatically in coming years. Employers that provide coverage may offer high deductible plans that

transfer risk to employees while protecting them against catastrophic costs. Individuals lacking access to insurance through an employer and the self-employed may purchase individual plans through private insurers. The popularity of the Medicare Part C and Part D programs shows no sign of slowing, and individuals eligible for subsidies through state health insurance exchanges may expand the market by up to 24 million per the CBO.[17] And, there's growing interest among state legislators and governors to contract with private plans to manage Medicaid enrollment. The health insurance industry's core value proposition—reducing costs by managing health—is a solid platform for growth. The core competencies and infrastructure necessary to manage individual and population health cost effectively are required in health care systems worldwide, so enrollment growth may be significant at home and exponential abroad for many US health insurance operators.

2. **Consolidation—fewer players with wider reach:** The insurance industry is heavily regulated and capital intense. The margins in its core business—managing health—are thin, so for many, it's a mandate to "go big or get out." Consolidation is accelerating in the US health insurance sector and in some cases, globally.

Figure 3. Number of announced health plan-related M&A transactions

Number of transactions



Source: Deloitte Center for Health Solutions, *Unlocking value in health plan M&A: Sometimes the deals don't deliver*, 2012

Graphic: Deloitte University Press | DUPress.com

Margin erosion and increased regulatory oversight have driven increased merger activity among incumbent companies. In 2011, 20 managed care M&A transactions took place, totaling nearly $8 billion, and more deals took place the year after the ACA was enacted than in each of the three years prior.[18]

The increased "urge to merge" is driven by necessity in many cases: Increased

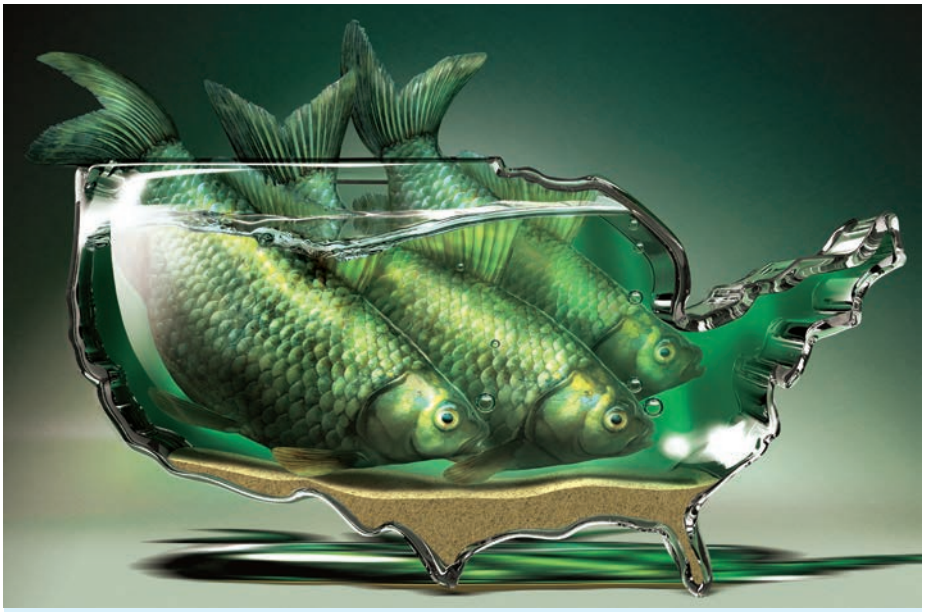


Figure 4. US health insurance market

Significant absence of health insurer competition exists (based on revised Horizontal Merger Guidelines issued 2010 by the US Department of Justice and Federal Trade Commission)	83% of metropolitan markets rate as "highly concentrated"
At least one health insurer had a commercial market share of 50% or more	Roughly 50% of metropolitan markets
Two largest health insurers had a combined commercial market share of 70% or more	24 of 48 states studied
Average market share of state's largest insurer	Individual market: 54% Small group market: 51%
Average number of state insurers with at least 5% market share	Individual market: 4 Small group market: 4
States with least competitive commercial health insurance markets	From least to most competitive: Alabama, Alaska, Delaware, Hawaii, District of Columbia, Maine, Michigan, Nebraska

Sources: AMA, "2011 Competition in Health Insurance: A Comprehensive Study of US Markets"; Kaiser Family Foundation, "How Competitive are State Insurance Markets?"

costs of operations and downward pressure on premiums by individual, employer, and government purchasers are a requisite for scalability and size. It's increasingly a competitive industry that historically pits strong "local" brands against "national" brands. Consolidation is expected to continue among US operators, as well as acquisitions of insurance companies in emerging and developed health systems of the world.

In all likelihood, there may be fewer US health insurers, but their enrollment and scope of operations may be broader.

3. **Diversification—new products and services:** The health insurance industry is in the enviable position to take advantage of these major drivers of innovation:

Ultimately, the health insurance industry's value proposition boils down to this: managing health costs without compromising safety and outcomes. The escalating costs of health care borne by employers, families, and taxpayers calls for innovative solutions that balance these dual goals.

- *Consumerism*: Behavioral economics is a daunting term. It essentially means that individual behavior is influenced by a complex set of triggers—incentives, circumstances, needs, values, opportunities—that determine how we respond. The majority of health care costs worldwide are the direct result of unhealthy lifestyles and/or failure to adhere to recommended treatment plans. Nevertheless, how does a health care system change how its citizens behave? The health insurance industry might provide new mechanisms to influence behavior—incentives, benefits design, and technologies—that reward desired responses from individuals and populations. As the individual (retail) insurance market grows, the ability to adapt health plans to individual needs and offer self-care tools that are useful when making decisions provides an attractive opportunity.[19]
- *Integrated health:* In an emerging trend, the convergence of clinical and administrative management of the system means bigger organizations that deliver and finance health care services (a.k.a. integrated health systems). Insurers are in an enviable position to collaborate with or acquire clinical delivery capabilities either through acquisitions or as business partners in accountable care organizations and medical homes. In some communities, health insurers may become business partners to hospitals and physicians

who sponsor a plan. In others, health insurers might manage a provider's accountable care organization or medical home programs. In a few, health insurers may own and operate hospitals and clinics, and manage a network of employed physicians.

- *Big data*: Health care is rich in data and weak in information. As health insurers engage as business partners in large, regional/national integrated systems of care, they may amass huge amounts of data about what treatments work best, which diagnostics are predictive, what stimuli prompt optimal consumer engagement, how processes optimize efficiency, and what everything costs based on an individual's customized plan. And the emergence of state insurance exchanges, widespread adoption of electronic health records in medical practices and hospitals, and the ubiquitous presence of social media provide huge opportunities for further data gathering (as well as opportunities for its abuse). As a result, health insurers may play a lead role as infomediaries about health—structuring data into useful tools for individuals, employers, and providers.

The majority of health care costs worldwide are the direct result of unhealthy lifestyles and/or failure to adhere to recommended treatment plans. Nevertheless, how does a health care system change how its citizens behave?

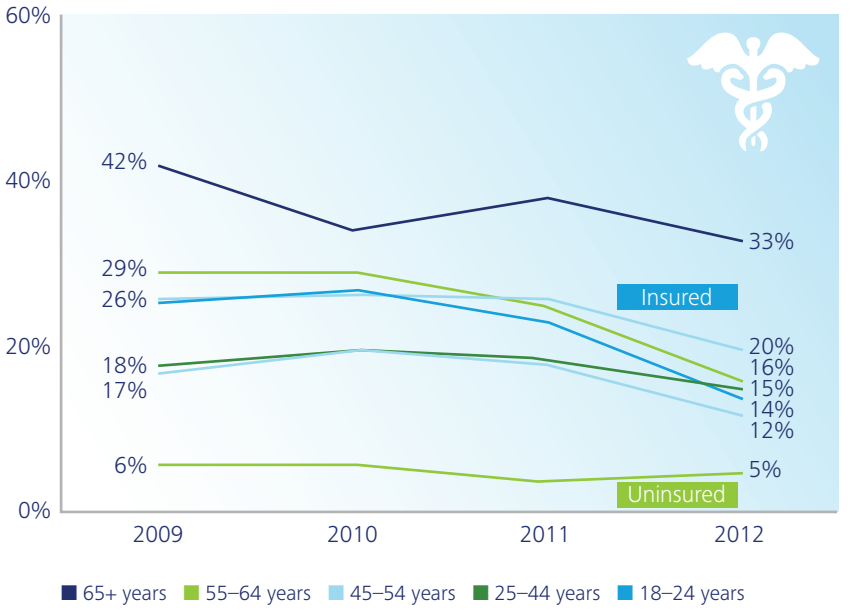
4. Value—the balance of costs and care: Notably, in the heat of the health reform debate of 2009, President Obama used a phrase that is perhaps the essence of one of the health insurance industry's greatest challenges: trust. On numerous occasions he reiterated this reference to trust, and while encouraging the passage of health care reform, cited a need to "keep them honest," in reference to insurance providers.

Like any industry that is highly regulated, highly visible, big, and getting bigger, US health insurers are in the spotlight. It is an industry that elicits strong feelings and wide ranging opinions.

- Many physicians think health insurance plans limit access to needed coverage they recommend and impose unnecessary administrative paperwork that's burdensome and costly.[20]
- Many employers think health insurance benefits are a necessary but costly talent recruitment and retention strategy.[21]

- Consumers who can afford health insurance coverage think it a hedge against back-breaking health care costs. Yet even those with coverage do not feel completely secure. See our latest findings from the 2012 Deloitte* Survey of US Health Care Consumers.
- Ironically, seniors on Medicare feel the most secure of all insurance populations—perhaps the reason politicians are hyper-sensitive to changes that might arouse their passion to protect the program.[22]

Figure 5. Percentage of consumers who feel their household is financially prepared to handle future health care costs



Source: Deloitte Center for Health Solutions, "Deloitte 2012 Survey of US Health Care Consumers," June 2012

Graphic: Deloitte University Press | DUPress.com

Trust is an issue for the industry. The potential loss of financial security as a result of health costs is a widespread fear, even among those with health insurance.

Health insurers understand the challenge. Their response to date has not fully remedied the trust gap fully. Some are rebranding, some are methodically changing their business model to enhance relationships with consumers, and all are active in educating legislators and community leaders about the role and scope of their operations. It may likely take more effort. Increased transparency about the business operations in a health plan—how coverage and denial decisions are made, how

*As used in this document, "Deloitte" means Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte LLP and its subsidiaries.

doctors and hospitals are evaluated and compensated, how premiums are spent—is clearly a step in that direction.

Ultimately, the health insurance industry's value proposition boils down to this: managing health costs without compromising safety and outcomes. The escalating costs of health care borne by employers, families, and taxpayers call for innovative solutions that balance these dual goals. The health insurance industry has an opportunity to deliver on this value proposition, leveraging its unique competencies in partnerships with providers.

Bets of the demise of the health insurance industry are ill-advised. It's an industry with challenges but with substantial opportunity. If managed care is a dubious concept in some circles, unmanaged care is the greater risk. Therefore, the future of the insurance industry is bright—at home and abroad. DR

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Endnotes

1. US Census Bureau (2012). "Table C-3. Health Insurance Coverage by Age: 1999 to 2011."<http://www.census.gov/prod/2012pubs/p60-243.pdf>
2. Deloitte Center for Health Solutions, "The Impact of Health Reform on the Individual Insurance Market," October 2011.
3. Alex Blumberg and Adam Davidson, "Accidents of History Created US Health System," October 2009. <http://www.npr.org/templates/story/story.php?storyId=114045132>
4. The Commonwealth Fund, Progressive or Regressive? A second look at the tax exemption for employer-sponsored health insurance premiums, May 2009.
5. Kaiser Family Foundation, Snapshots: Health care cost, November 2012.
6. The Commonwealth Fund, Whither employer-based health insurance? September 2007.
7. US Government Accountability Office, "Private health insurance coverage: Expert views on approaches to encourage voluntary enrollment," February 2011; National Center for Policy Analysis, "Understanding health reform," January 2011.
8. Paul H. Keckley, "Five C's of 2013: Clarity, Costs, Compliance, Consolidation, and Consumers," Deloitte Center for Health Solutions, January 2013.
9. Alliance for Advancing Non-Profit Health Care, "Basic Facts and Figures: Nonprofit Health Plans," 2012.
10. Deloitte Center for Health Solutions, "2012 Deloitte survey of US employers: Opinions about the US health care system and plans for employee health benefits," July 2012.
11. Center for Disease Control and Prevention, "Chronic Diseases: The Power to Prevent, The Call to Control—At A Glance 2009," December 2009.
12. Medicare Payment Advisory Commission (MedPAC),"Medicare Payment Policy," March 2013.
13. Kaiser Family Foundation, Penalties for employers not offering affordable coverage under the Affordable Care Act beginning in 2014, March 2013.
14. Kaiser Family Foundation, The requirement to buy coverage under the Affordable Care Act beginning in 2014, March 2013; Congressional Budget Office.
15. Congressional Budget Office, "CBO's February 2013 estimate of the effects of the Affordable Care Act on health insurance coverage," February 2013.
16. Congressional Budget Office, "CBO and JCT's estimates of the effects of the Affordable Care Act on the number of people obtaining employment-based health insurance," March 2012.
17. Ibid.
18. <http://www.levinassociates.com/pr2012/managedcare>
19. To learn more about the retail market and disruptive innovation, check out the Deloitte report "Power to the People? How health care reform could result in the disruption of the group health insurance industry." The report explains how, through a mechanism of change known as "disruptive innovation," upstarts and new entrants may assume marketplace leadership at the expense of group health insurance incumbents.
20. Deloitte Center for Health Solutions, "Physician perspectives about health care reform and the future of medical profession," December 2011.
21. Deloitte Center for Health Solutions, "2012 Deloitte Survey of US Employers: Opinions about the US Health Care System and Plans for Employee Health Benefits," July 2012.
22. Deloitte Center for Health Solutions, "Deloitte 2012 Survey of US Health Care Consumers," June 2012.

An excerpt from the forthcoming book
The Solution Revolution

MULTIRATIONAL MULTINATIONALS

The shifting business ethos

BY WILLIAM D. EGGERS AND PAUL MACMILLAN
> ILLUSTRATION BY ALEX NABAUM

Dean Kamen is one of the world's great inventors. His arsenal of 440 patents runs the gamut from the Segway scooter to irrigation equipment to implantable insulin pumps.[1] Kamen's success derives in no small part from his technical genius, and he has an uncanny ability to promote the usefulness of his inventions.

To demonstrate a prosthetic arm Kamen designed for the Defense Advanced Research Projects Agency, he showed a wearer overcoming daily inconveniences—peeling a banana and sipping coffee—to display the enhanced motor skills.[2] His gravelly Long Island frankness emphasizes the intuitiveness of his designs, belying their full complexity. Kamen knows how to be understood.

Yet igniting interest in a solution to water scarcity has been an uphill climb for Kamen. His team prototyped a water purification unit, the Slingshot, back in 2003. The Slingshot is capable of churning out a thousand liters of purified water daily while running on a variety of energy sources, including cow manure. Kamen and the rest of the team hope the unit will provide safe drinking water to more than a billion people. The purifier produces drinkable water out of even the murkiest contents, as Kamen once demonstrated on *The Colbert Report*, when Stephen Colbert skeptically poured a bag of spicy, bright-red Doritos into the Slingshot and produced colorless water. Kamen said it would yield purified water from ocean water, a "50-gallon drum of urine," and even toxic waste.[3]

Entertaining antics aside, the Slingshot stands to prevent 3.4 million deaths annually attributed to waterborne disease.[4] Kamen has personally invested $50 million in the solution. Unfortunately, finding a buyer for the Slingshot has proven difficult, eliciting waves of gracious declines or unresponsiveness from big players such as the United Nations and large nongovernmental organizations (NGOs). The negative responses prompted Kamen to realize that "the NGOs aren't the ones who can help us get the machine into production, scale it up, [and] bring down the cost curve."[5]

Struck by its global reach across even the most rural regions of more than 150 countries, Kamen set his sights on Coca-Cola instead. In 2005, he developed a vending machine serving custom blends of carbonated beverages for Coca-Cola in the hope of building a future partnership.[6] Now Coca-Cola is distributing the Slingshot, beginning in rural Ghana, as part of the company's extensive water stewardship efforts.[7] The company targets numerous aspects of water use, beginning with its own production practices. Thanks to improved water stewardship, Coca-Cola's water use has remained flat even as production rises steadily.[8]

Partnering with Kamen to expand access to clean water supports Coca-Cola's already far-reaching clean-water initiatives. Coca-Cola also partners with organizations like The Nature Conservancy and USAID to improve water management.[9] Meanwhile, Coca-Cola's Safe Water for Africa program supplies water to areas of West Africa where water resources have deteriorated.[10]

Multinational corporations like Coca-Cola can scale social innovations faster and more widely than other institutions can. This capability magnifies the significance of those global companies that are elevating social causes from a footnote to a primary consideration in business decisions.

The concept of pursuing a *double bottom line*, in which companies seek to maximize financial *and* social impacts, or even a *triple bottom line*, with environmental benefits added to the equation, has gained traction among large, established firms and fledging enterprises alike. Corporate responses vary from beefing up corporate

social responsibility (CSR) initiatives to reinvesting profits back into a company's social mission. In recent years, CSR has taken off. Contrast the mere 70 CSR reports published in 1990 to the thousands produced today.[11] In 2006, only 25 percent of *Fortune* 500 companies produced CSR reports. Today that figure has climbed to 80 percent.[12] While an increase in CSR reporting does not necessarily correspond to an increase in overall social impact, a rise in reporting does signal a mind shift—a realization that corporate profits aren't the only meaningful product of a *Fortune* 500 company.

A few decades ago, Kamen's idea of partnering with a large multinational corporation to wipe out waterborne disease would have struck many as bizarre. The widely held notion of businesses' role in society was succinctly captured in the title of Milton Friedman's famous 1970 *New York Times* piece: "The Social Responsibility of Business Is to Increase its Profits."

Recent years, however, have seen many business leaders rethinking this basic premise. John Mackey, the founder of Whole Foods Market, is at the forefront of this evolution. A proud libertarian, Mackey strongly and unapologetically champions the free market. Nonetheless, his central idea, which he writes about in his book *Conscious Capitalism*, is that investors are only one of multiple constituencies with which a company must engage.[13] Customers, employees, vendors, and the community at large represent other important stakeholders. Since a company's choices can affect each stakeholder, it should pursue value for all constituents to create lasting financial and social returns.[14]

This concept at the core of the Whole Foods Market mission has caught on. Each year, Mackey's Conscious Capitalism Institute draws executives from dozens of large firms, including REI, the Container Store, and Trader Joe's, to discuss how they can bring the ethos to their own companies.

In a similar vein, Harvard Business School professor Michael Porter and Mark Kramer, founder of the social-impact consulting firm FSG, have evolved Jed Emerson's concept of "blended value" into a related concept they call "shared value." The idea "involves creating economic value in a way that also creates value for society by addressing its needs and challenges."[15] Businesses that practice shared value connect company success with wider social progress.

"We can make market forces work better for the poor," explains Bill Gates, "if we can develop a more creative capitalism—if we can stretch the reach of market forces so that more people can make a profit, or at least make a living, serving people who are suffering from the worst inequities."[16]

What Mackey, Gates, Emerson, Porter, and Kramer have in common is the belief that business should no longer solely cede the solving of social problems to government and nonprofits. The specific terms may vary, but the concepts converge

around the idea that caring solely about profits is simply not *rational* anymore and in the long run is actually a liability. The ripples of business decisions across ecosystems, cultural and environmental, are too wide to ignore. If a company ignores the social impacts—both positive and negative—of its mainline operations, it does so at its own long-term peril. For this reason, a business must increasingly consider multiple factors, both internal and external, in its decisions. Hence the term *multirational multinational*.

A growing body of research supports the notion that such an expansive view of a company's role can boost profitability. Paul Griffin and Yuan Sun of the University of California Davis and Berkeley studied a group of companies that have issued CSR reports. The researchers found that the companies' shareholder perceptions improved and that the aggregate market value of the companies rose by $10 billion after the reports were released. Surprisingly, smaller companies benefited the most from reporting. A 2007 study from the Wharton School of Business demonstrated that companies striving to address the best interests of *all* stakeholders rather than just shareholders outperform the S&P 500 by a significant margin.[17]

Many mature companies' first involvement with the solution revolution is via corporate philanthropy. While companies have always invested in their communities, the sheer size of today's contributions and their global impact is unprecedented. In a study by the Committee Encouraging Corporate Philanthropy, 214 respondent companies reported collectively giving more than $15.5 billion in 2010, billions more than the UN Development Program's annual spending. Fully 82 percent of the respondent companies run their own foundation or trust.[18]

But philanthropic action alone runs counter to the premise of a multirational multinational. Instead, companies are increasingly applying their competitive capabilities and expertise to challenges that nonprofit organizations have struggled with for decades. Cincinnati-based Procter & Gamble is partnering with UNICEF to wipe out tetanus in Africa by 2015. Profits from the sales of Pampers diapers contribute to free vaccines for expectant mothers and newborn babies, through a program that has immunized over 300 million to date and raised widespread awareness about the issue.[19]

Unilever is another corporate trailblazer. Since 2000, it has partnered with NGOs, banks, and governments to sell cleaning products in parts of rural India where sanitation is a constant concern. Unilever employs women in rural villages to sell the products, lifting them and their families from poverty as they strive to address the sanitation needs of more than 600 million underserved Indians.[20] This base-of-the-pyramid approach, discussed in more depth later in the book, introduces a brand-new market segment to Unilever—and underscores that doing good can often also be good business.

Table 1. Sample initiatives of multirational multinationals

Company	Target issue	Campaign, year started	Impact to date
Coca-Cola	Access to clean water	Safe Water for Africa, 2005	382 community water projects in 2012; 1.6 million people benefit
Whole Foods Market	Poverty	Annual Prosperity Campaign, 2009	Supported over 1 million people with microcredit; $5.6 million raised in 2012
Shell	Poverty	Shell Foundation, 2000	Invested over $1.2 billion in solving developmental issues by creating scalable enterprise-based solutions
Zappos	Urban revitalization	Downtown Project, 2011	Investing $350 million in real estate, education, small businesses, and tech start-ups to help transform downtown Las Vegas
P&G	Health	Tetanus vaccines, 2006	Immunized ~300 million expectant mothers
Unilever	Sanitation	Project Shakti, 2000	45,000 entrepreneurs in 135,000 villages, 15 Indian states, by 2009
Walmart	Access to quality food	Stores in USDA-designated food deserts, 2011	To add 275-300 stores in food deserts by 2016; to produce 40,000 jobs; to give 800,000 people access to healthy groceries
Microsoft	Internet access	High-speed broadband, 2011	Committed to deliver high-speed broadband to 1 million low-income households within three years
Yum! Brands	Hunger	The World Hunger Relief Program, 2007	In United States, 148 million pounds of food donated (worth $650 million) to needy
GE	Cancer and environment	Ecomagination, 2004	Launched natural gas turbines that can replace coal plants and offset 2.6 million tons of carbon emissions per year
Virgin	Environment	Environment-friendly fuels	Uses Airbus A320 aircrafts, each of which emits 3,600 fewer tons of carbon per year

There is no shortage of skeptics of the corporate push into social innovation. On the one hand, many conservatives and libertarians argue that companies best serve larger societal interests not by focusing on social good but by employing workers and meeting consumer demand. On the other hand, some liberals remain skeptical of business intentions, viewing CSR and other efforts as merely self-serving exercises in corporate PR, as some of these efforts are. Still others assess the impacts of CSR and corporate social innovation initiatives as greatly overblown. In *The Market for Virtue*, political scientist David Vogel argues that while there might be a market for firms that do good, there is also one for less virtuous firms and "the size of the former does not appear to be increasing relative to the latter."[21]

Each perspective has a modicum of truth to it. What they all tend to miss, however, is the growing alignment of financial and social incentives that is pushing companies to move beyond traditional CSR. When larger societal problems are seen not as just charity but as actual market opportunities, then actions by business are more scalable and viable over the long term.

As a result, corporate contributions often align with each company's unique capabilities and objectives (table 1). Health care companies tend to focus on health causes. Large technology firms with highly sophisticated educational requirements often contribute to higher education. Internationally, contributions to education and health account for more than half of corporate giving, dwarfing all other categories, including the arts and disaster relief.[22]

Many companies, then, are becoming multirational, integrating their corporate and social missions. Mark Kramer says that "social change becomes part of the competitive equation—companies have to compete around their ability to improve social conditions and achieve social outcomes."[23] Consumers are helping drive this trend. In an Edelman global survey, the majority of consumers viewed corporate donations as insufficient, instead urging companies "to integrate good causes into their day-to-day business."[24] DR

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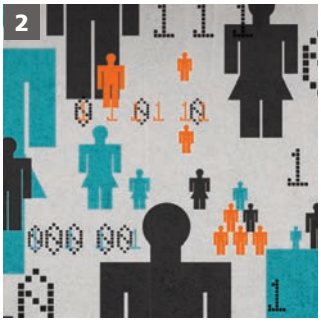
Learn more about the book or pre-order at solutionrevolutionbook.com.

Endnotes

1. "Our Founder," DEKA Research and Development Corporation, January 5, 2013, <www.dekaresearch.com/founder.shtml>
2. Sarah Adee, "Dean Kamen's 'Luke Arm' Prosthesis Readies for Clinical Trials," *IEEE Spectrum*, February 2008, <http://spectrum.ieee.org/biomedical/bionics/dean-kamens-luke-arm-prosthesis-readies-for-clinical-trials/2>
3. Tim Studt, "To Build a Better World," *R&D Magazine*, August 21, 2006, <www.rdmag.com/Awards/Innovator-Of-The-Year/2006/08/To-Build-a-Better-World/> ; Dean Kamen, interview by Stephen Colbert, *The Colbert Report*, Comedy Central, March 20, 2008, <www.colbertnation.com/the-colbert-report-videos/164485/march-20-2008/dean-kamen>; John Abele, "Innovation and Collaboratio for Social Change: Dean Kamen's Slingshot," *Kingbridge Collaboration Blog*, September 25, 2009, <www.kingbridgecentre.com/wordpress/?p=81>
4. "The Crisis," Water.org, accessed February 6, 2013, <http://water.org/water-crisis/water-facts/water/>
5. Jessie Scanlon, "Coca-Cola's Freestyle, Dean Kamen, and More," *BusinessWeek*, September 30, 2009, <www.businessweek.com/innovate/next/archives/2009/09/coca-colas_freestyle_dean_kamen_and_more.html>
6. Ibid.
7. Paul Solman, "Tech's Next Feats? Maybe On-Demand Kidneys, Robot Sex, Cheap Solar, Lab Meat," *Newshour*, PBS, April 20, 2012, <www.pbs.org/newshour/bb/business/jan-june12/makingsense_04-20.html>
8. Allan Gerlat, "Traveling Down the Long Green Road," *Waste News*, November 6, 2006, <www.highbeam.com/doc/1G1-154155985.html>
9. "USAID Administrator Shah Delivers Remarks at Morehouse College, Recognizes Coca-Cola for Leadership in Private-Public Partnership," US Agency for International Development, October 14, 2011, <http://transition.usaid.gov/press/releases/2011/pr111014.html>
10. "Water Stewardship," The Coca-Cola Company, <http://www.coca- colacompany.com/videos/safe-water-for-africa-yt9womedqgsry>
11. "Being 'Good' Is Good Business," Deloitte Consulting LLP, 2006, <http://www.deloitte.com/assets/Dcom-Shared%20Assets/Documents/us_cb_goodbusiness_122006.pdf >
12. Katie Kross, "An Authoritative and Candid Insider's Guide to the Essential Knowledge, Skills, and Abilities Needed to Establish a Successful CSR Career" (review of *Corporate Social Responsibility, Health, and Wellness*, by Timothy J. Mohin [San Francisco: Berrett-Koehler Publishers, 2012]), August 1, 2012, <www.csrwire.com/press_releases/34432-An-Authoritative-and-Candid-Insider-s-Guide-to-the- Essential-Knowledge-Skills-and-Abilities-Needed-to-Establish-a-Successful-CSR-Career>
13. John Mackey and Rajendra S. Sisodia, *Conscious Capitalism: Liberating the Heroic Spirit of Business* (Boston: Harvard Business Review Press, January 2013).
14. "Rethinking the Social Responsibility of Business," *Reason*, October 2005, <http://reason.com/archives/2005/10/01/rethinking-the-social-responsi/singlepage>
15. Michael Porter and Mark Kramer, "Creating Shared Value," *Harvard Business Review*, January–February 2011, 64.
16. Bill Gates, "Remarks of Bill Gates, Harvard Commencement 2007," *Harvard Gazette*, June 7, 2007, <http://news.harvard.edu/gazette/story/2007/06/remarks-of-bill-gates-harvard-commencement-2007/>
17. For CSR reporting, see Aman Singh, "CSR + Transparency: Can Voluntary Disclosure Increase Shareholder Value?" *Forbes*, February 14, 2012, <www.forbes.com/sites/csr/2012/02/14/csr-transparency-can-voluntary-disclosure-increase-shareholder-value/>. For businesses addressing all stakeholders' interests, see John Mackey, "Conscious Capitalism: Creating a New Paradigm for Business," Whole Planet Foundation, 2007, <www.wholeplanetfoundation.org/fi les/uploaded/John_Mackey-Conscious_Capitalism.pdf, 5>
18. "Giving in Numbers: 2011 Edition: Trends in Corporate Giving," Committee Encouraging Corporate Philanthropy, June 2012, <www.corporatephilanthropy.org/measurement/benchmarking-reports/giving-in-numbers.html>; Margaret Coady, "2011 Trends in Corporate Philanthropy," CECP, June 2012, <www.corporatephilanthropy.org/pdfs/2012summit/CGS_Summit_Presentation_FINAL.pdf, 9>
19. "International Partnerships: P&G Pampers," UNICEF, 2010, <www.unicef.org/spanish/corporate_partners/index_25098.html>
20. "Shakti Program, India," Unilever, accessed August 12, 2012, <www. unilever.com/careers/insideunilever/oursuccessandchallenges/shaktiprogrammeindia>
21. David Vogel, *The Market for Virtue: The Potential and Limits of Corporate Social Responsibility* (Washington, DC: Brookings Institution Press, 2005), 44.
22. Alison Rose, "Giving in Numbers: 2011 Edition; Trends in Corporate Giving," CECP, 2011, <www.corporatephilanthropy.org/research/benchmarkingreports/giving-in-numbers.html>
23. Paul Klein, "Why Social Change Is Good for Business," *Forbes*, February 5, 2012, <www.forbes.com/sites/csr/2012/02/15/why-social-change-is-good-for-business/>
24. "4th Annual Edelman Good Purpose Consumer Survey," *Edelman Editions*, November 4, 2010, <http://edelmaneditions.com/2010/11/4th-annual-edelman-goodpurpose-consumer-survey/>



1. DONGYUN LEE returns to *DR* with his illustration of the "world's most intense date" for the *Courting the Candidate-Customer* article. He lives in Brooklyn.

2. JOHN HERSEY is an internationally exhibited artist and freelance illustrator from San Anselmo, California.

3. DAVID CLUGSTON has contributed photography to nearly every issue of *DR* since its inception. We think his work—for this issue especially— "rocks." He lives in Seattle.

4. ANTHONY FREDA'S unique artwork has been seen in numerous major US publications and ten times in our pages. He works from his studio in Mt. Sinai, New York.

5. YUKO SHIMIZU is an illustrator based in New York City and instructor at the School of Visual Arts. *Newsweek Japan* named Yuko as one of "100 Japanese People The World Respects."

6. JON KRAUSE continues to make contemplative contributions to *Deloitte Review.* He lives in Philadelphia.

7. ALEX NABAUM's clever illustrations are regularly featured in *TIME, Newsweek, WIRED, The New York Times, ESPN, RollingStone,* and *The Economist*. He lives in Salt Lake City.

8–9. IGOR MORSKI manipulates pixels like nobody in the world. His studio is in Poznań, Poland.

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