Deloitte Review

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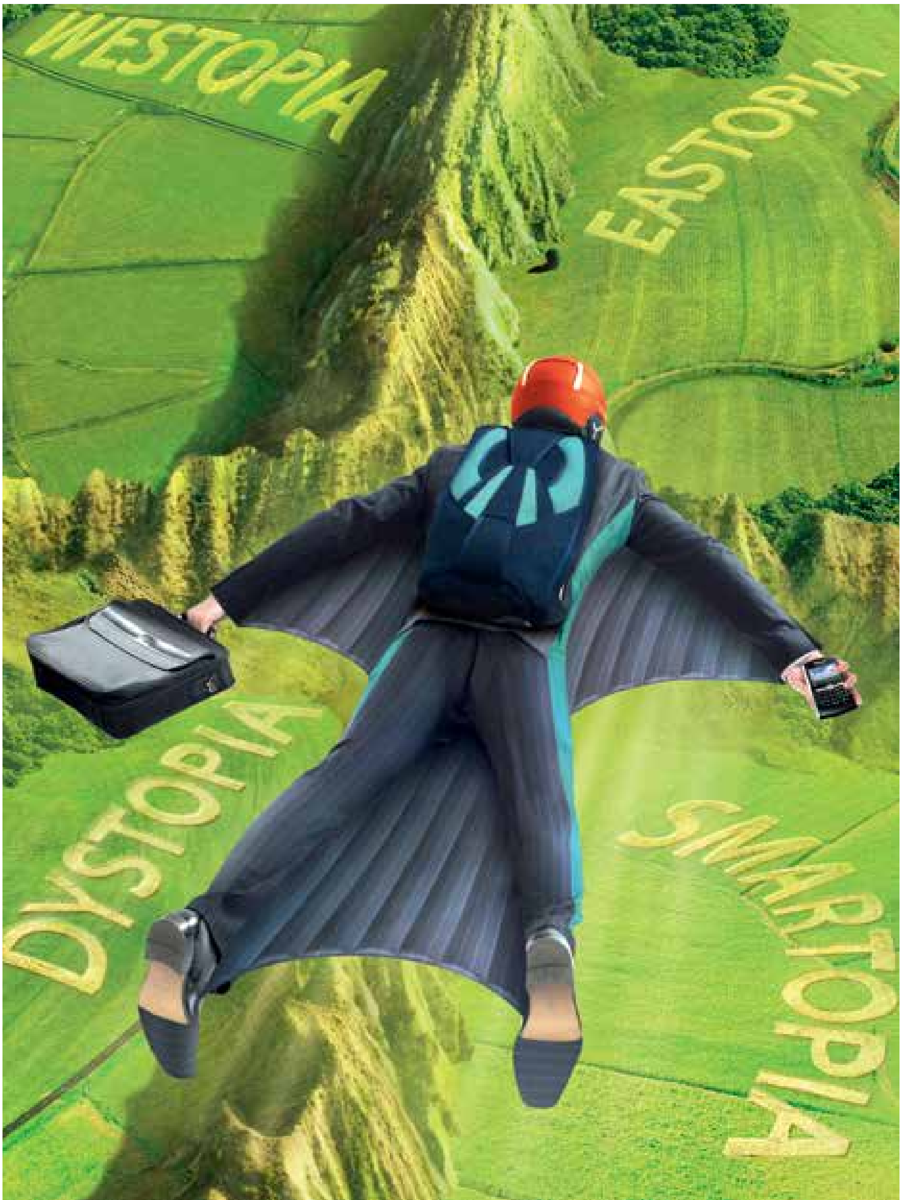
What Next? Business in 2010 and Beyond

A review of perspectives and viewpoints on possible scenarios



Platforms and the Open Door
The new rules for value capture in wireless — and beyond

The Great Transformation
A different kind of recovery

How Profitable Are Your Customers ...Really?

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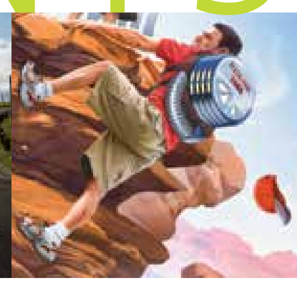

DEPARTMENTS

Passions and Professions

I WAS STANDING IN A 10TH FLOOR CONFERENCE ROOM, NEXT TO the wine and cheese, having just finished my talk to a group of twenty-something professionals. One approached me. “My colleagues and I?” he said. “We don’t get to talk about the fun stuff very often. Where the world is going. What technology means.

“In this job,” he confided, “we’re getting dumber by the day.”

Dumber by the day. That could be the cheerless motto of millions of workers — and not just the bank teller or burger flipper, but even those with supposedly plum jobs.

Take Bruce Bartlett, deputy assistant secretary for economic policy at the U.S. Treasury under George H.W. Bush. Bartlett’s job was so crushingly boring, he told *The Washington Post*, that occasionally he would simply leave the office in the afternoon to go to the movies. One day he ran into a senior official in another government department, who happened to be a friend — and who also was going to the movies.

Sure, most everybody, even the twenty-somethings, are thankful just to have a job in today’s recessionary times. Many stay in their jobs because they’re not sure where they would get another one right now. But that doesn’t mean they’re happy.

Does “happy” matter? *Financial Times* columnist Lucy Kellaway writes that “earning money [is] the main reason for work”— not finding happiness or meaning. And she’s right that for many people money remains the primary motivator.

But what then to make of Wharton Professor Alex Edmans’ research showing that companies with happier employees generate superior returns to shareholders?[1] Perhaps it’s because people are happier in their work when they’re learning and growing. It’s simply more fun when we’re deeply engaged with our role. The poet John Ashberry calls it the “paddle-wheel of days”: getting so absorbed with what we’re doing that one day dovetails into the next.

Thus the correlation between happiness and higher shareholder returns: more engaged workers are happier because they’re learning and growing, which helps them innovate new products, processes and business models, in turn boosting revenue and cost productivity.

But if all this is true, how do people become more engaged with their work? One clue comes from a recent *New York Times* column exploring how, during the financial crisis, more people realized that, if they were going to have to work more intensely to protect their income, they might as well work at something they find meaningful.

We need, in other words, to find the sweet spot where our talents, passions and roles overlap. That option isn’t open to everybody. But for many of us, I suspect, the question is less “why can’t we?” than “why don’t we?” The answer may combine both imagination and entrepreneurialism.

A friend of mine provoked envy from his peers in 1999 by creating a new role in a big firm involving then-new web-based learning concepts. One of them asked: “why does he get the glamour job when I’m stuck at the client doing training binders?” The answer: because my friend made it happen — and his colleagues did not.

Lang Davison,
EDITOR AT LARGE

PHOTO: MATT LENNERT

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Recession, Recovery and Beyond

PREDICTING THE FUTURE IS A FOOL'S ERRAND. Preparing for it, however, is everyone's business. While there is much to learn from the next hundred postmortems on the real estate boom and credit behaving badly, there are green shoots among the financial burn — signs of what may be coming next. The world after the current economic contraction promises to be a different and exciting place.

Before we overindulge in cheer, though, our chief economist brings us *The Great Transformation*, a look at trends that could not continue and how these corrections could change the global business playing field. In a companion piece — *What Next? Business in 2010 and Beyond* — we consider scenarios for the recovery and review them from the perspective of strategic flexibility. No one knows what tomorrow will look like, but the likely possibilities can inform our decisions.

"Different and exciting" describes the widening embrace of open platforms, once the province of the technology fringe, now a strategic priority for established companies turning a perceived threat into an opportunity. In *Platforms and the Open Door*, we consider how companies can capture value where open innovation predominates. As an encore, Scott Wilson of Deloitte Research recently interviewed Professor Eric von Hippel of MIT — a leading proponent of open methods of innovation. We feature his interview in this issue.

When it comes to possibilities, solar energy may be poised — well, I could say for a brighter future, or that the sector is heating up. Fortunately the possibilities are better than the ready metaphors. *Solar's Push to Reach the Mainstream* describes recent trends and shares implications in this sector.

Many of our coming decisions, however, will be on familiar ground. *In China: Still Manufacturing's Shining Star?* we revisit the strategic opportunities in a country that has seen remarkable change over the last decade. Likewise, companies have always sought to retain their most talented people but, with rampant unemployment, can we back off the accelerator? *In Where Did Our Employees Go?*, we consider common and bad assumptions leaders make when the (blue) chips are down. And we have a look at customer profitability, a topic that is even more crucial during economic adversity than in happier times.

Finally, with IFRS looming for U.S. companies, compliance ultimately is not an option. But the road to implementation presents several, and the true payoff may be as much in the route as in the destination.

Jon Warshawsky,
EDITOR

PHOTO: MATT LENNERT


PIZZA-PAK
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How profitable are your customers ... really?

BY ED JOHNSON, MIKE SIMONETTO, JULIE MEEHAN AND RANJIT SINGH
> ILLUSTRATION BY RALPH VOLTZ

With thousands of golf courses needing to be mowed, watered and fertilized, the U.S. West Coast looked like the perfect new market for one Midwest-based lawn care products manufacturer. Initial forays into the region yielded strong sales, high market penetration, and a 26 percent gross margin. So why was the company's bottom line still stagnating? Because the cost of freight to the West Coast, which the company provided free as a standard industry practice, was not being factored into the company's profitability metrics. When it was, leaders realized that the company was actually losing six to eight percent on every West Coast transaction. If it had not looked more closely at these customers' *real* profitability before finalizing plans to expand its West Coast operations, the company could have literally grown its way into bankruptcy.

No company can afford a flawed understanding of customer profitability, least of all in a recession when the margin for error (as well as profit) is whisper-thin. The flip side is that improvements in this area can be a very effective way of bolstering the bottom line — and companies can often make those improvements with only a modest initial investment. In fact, because employees tend to be more accepting of change in a downturn, now may be a good time to invest in changes that can not only deliver a badly needed revenue boost, but help your company better take advantage of the eventual recovery.

POCKETING THE PROFITS

A customer profitability analysis, done right, tells you not just which customers are profitable, but why certain customers are more or less profitable than others. At a strategic level, this information can help guide decisions on everything from growth initiatives to marketplace segmentation. And, tactically, the information can suggest a variety of ways to improve profitability, such as lowering the cost to serve, improving the sales force's bargaining position, and developing more effective prices and promotions.

Pocket margin refers to the amount left in a company's "pocket" after all of the costs related to a transaction, as well as the cost of goods sold, are subtracted from the list price.

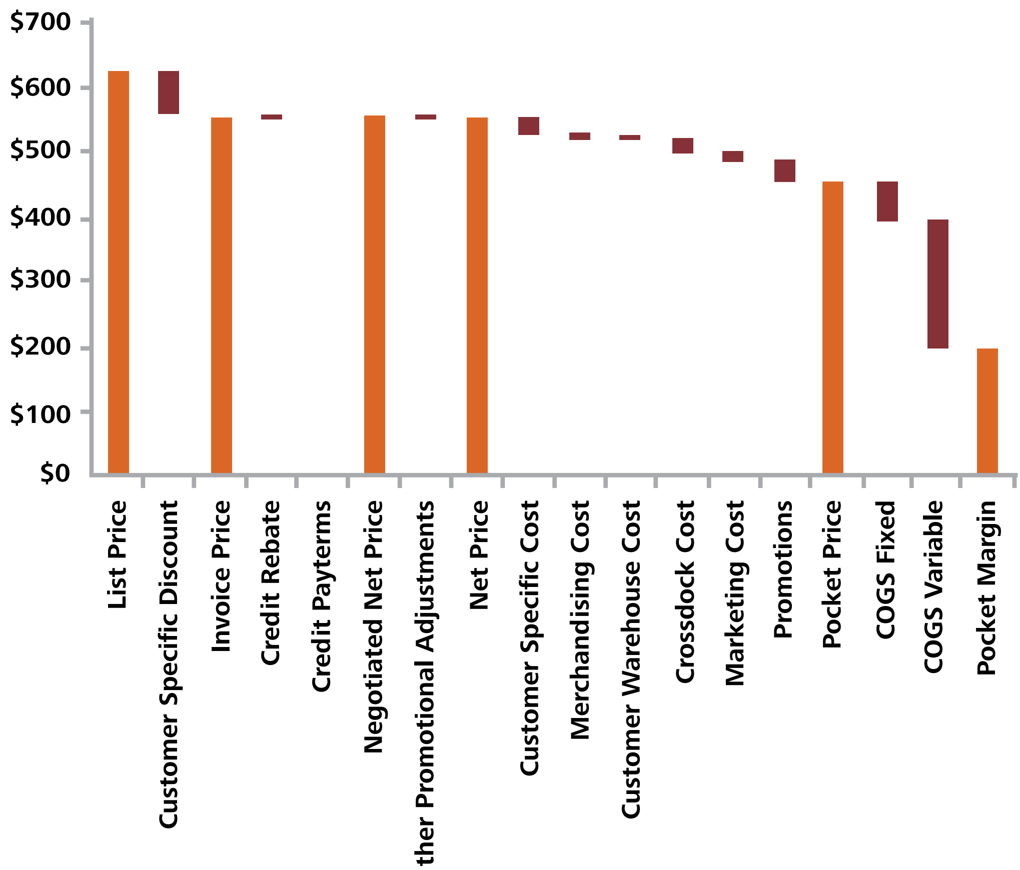
However, many companies that believe they understand customer profitability are actually working with the wrong information. Most use aggregate measures of profitability, typically gross margin, that fail to account for costs that are difficult to measure or that can't be attributed to individual transactions (such as marketing expenses or distribution costs).

Even when these costs are considered, they're often computed at an aggregate level using metrics that ignore the nuances of serving particular customers, segments or other populations of interest. One $10 billion U.S. retailer, for example, subtracted a flat "cost-to-serve" percentage from each transaction's gross margin to calculate the transaction's profitability. But because the same percentage was applied to all stores regardless of their efficiency, this metric ignored important variations in store selling costs. Adjusting the calculation to reflect individual stores' cost to serve gave leaders better information on which to base a number of decisions, such as whether to close a certain store or where to place a regional office.

In fact, when it comes to specifics, more is always better. That's why companies should analyze profitability on a transaction-by-transaction basis, looking not just at every customer but at every transaction each customer completes. But the drill-down shouldn't stop there. To gain true actionable insight, companies need to examine each transaction's profitability based on its "pocket margin" — the fundamental metric on which all higher-level profitability metrics are based.

Pocket margin refers to the amount left in a company's "pocket" after all of the costs related to a transaction, as well as the cost of goods sold, are subtracted from the list price. These costs can range from the obvious, such as off-invoice discounts and promotions, to the easily overlooked, such as costs associated with freight,

Figure 1. An illustrative price waterfall. A price waterfall portrays the progression from list price to pocket margin for a specific "slice" of the business — such as a customer or customer segment — based on cost-to-serve data collected at the transaction level.



warehousing and other activities that may be generally classified as "overhead." The costs incurred at each point in a transaction are often graphically represented in a "price waterfall," a bar chart that depicts the impact of each successive cost-to-serve element on the list price (Figure 1).

Unlike measures that gloss over differences among customers or omit cost-to-serve elements, pocket margin gives a company a clear view of how much revenue each transaction generates, how much it costs the company to generate that revenue, and — crucially — when and why those costs are incurred. And because pocket margin is measured for every transaction, metrics based on pocket margin can provide insight into costs and revenues at any desired level of detail, from individual clients all the way up to broad marketplace segments.

WHAT YOUR CUSTOMERS WON'T TELL YOU (BUT POCKET MARGIN CAN)

Metrics based on pocket margin can give companies a wealth of insight into what they spend to make how much from whom — and how they might be able to improve the outcome. Here are some of the ways we've seen it work.

"You're losing money on me"

One obvious use of customer profitability metrics is to identify the customers who cost more to serve than they generate in revenue. Once a company knows who those money losers are, it can either try to transform them into profitable buyers or attempt to flush them out of the business altogether.

Best Buy, the U.S. consumer electronics retailer, took just such an approach in its efforts to boost the bottom line. As described in the *Wall Street Journal*, the company used customer profitability analyses to differentiate between "angels" — customers who buy high-definition televisions, portable electronic devices, and other items at full retail price — and "devils" — customers who only buy sale items or loss leaders, return a large fraction of their purchases, and generally "wreak enormous economic havoc" on margins, according to then-CEO Brad Anderson. The company then made changes designed to attract more business from angels, such as stocking more merchandise and enhancing customer service, and to discourage sales to devils, such as removing them from marketing lists. The company also took steps to reduce the negative impact of the devils it couldn't shed, such as enforcing a 15 percent restocking fee on returned merchandise.[1]

"You're spending too much to serve me"

Many times, relationships with large customers that are presumed to be profitable actually have special terms, unusual shipping conditions, or other "below the radar" idiosyncrasies that erode profitability until those idiosyncrasies are addressed. Price waterfall information can help companies identify such accounts by flagging "outlier" customers whose cost to serve in certain areas is disproportionately high or whose pocket margin across transactions is consistently lower than average. The company can then look more closely at those customers to uncover and address the reasons for their atypical profitability profile.

In one extreme case, a $9 billion global manufacturer discovered that one of its largest customers was arbitrarily reducing the invoice amount every time orders were not filled 100 percent correctly. These unilateral adjustments had gone unnoticed until the company delved into the details of the relationship to build a price waterfall. Not wanting to make waves with what was assumed to be its most profitable customer, the company's accounts payable staff had been crediting the difference to an "outstanding clarifications" expense account that was not included in the calculation of the customer's specific profitability metrics. (In fact, when the adjustments were factored in, the customer turned out not to be the company's most profitable buyer after all.) The company is considering ways to address this issue in its future negotiations with the customer, on the principle that such penalties should be agreed upon by both sides before being imposed.

"I'm in the wrong segment"

Companies often segment their customers along demographic lines or according to how much revenue each customer generates for the business. But while these approaches are suitable for some purposes, such as marketing and product development, segmenting customers according to profitability can be much more useful in managing margins. Examining the differences between customers at different levels of profitability can give companies valuable insights into what their more profitable customers look like — what they buy, how they buy, what it costs to serve them — and guide efforts to change their less profitable relationships to better fit a profitable mold.

A revised segmentation approach based on customers' overall value to the business helped the lawn care manufacturer mentioned previously focus its plans for making the West Coast profitable. The company drew heavily upon its improved understanding of customer profitability to create its new segmentation scheme, which also considered factors such as location ("How badly do we want to establish a presence in this area?") and customer brand (e.g., "Is this customer Pebble Beach or a no-name public course?"). The company then evaluated the probable impact of various pricing and service changes on each segment's profitability. For some segments, the company decided that going against industry tradition by charging its customers for freight — in exchange for more frequent sales visits, extended warranty terms, and other concessions that customers valued but cost the company less to provide — would be the most feasible way to boost profits. For other segments, the company decided to continue to offer free freight, but charge higher prices or adjust the terms of service to compensate.

Another company, an international beverage distributor, used customer profitability data to refine a segmentation approach that classified customers into "large" and "small" buyers based on each customer's contribution to revenue. After dividing each category into profitable and unprofitable sub-segments, the company discovered that the drivers of profitability differed markedly between its large and small customer groups. Large customers' profitability depended on product mix, while small customers' profitability depended on the cost of sales visits. This insight helped the company understand that it would need to use different tactics with each segment to increase overall profitability. It launched a tailored, two-pronged improvement effort aimed at changing the product mix among large customers and reducing sales costs among small customers, which is expected to increase profits by $10 million annually — an improvement of more than one percent in profit driven by relatively small changes.

FIXING THE MIX

"33 percent more in every bottle!" That's the offer that played havoc with profits at the international beverage distributor described in the main text. On the surface, the issue seemed simple enough: Unprofitable large customers were buying too much of the company's low-margin value brand and too little of its high-margin premium brand. Leaders were mystified, however, as to why many large customers had only recently switched to this unprofitable buying pattern after a long history of acceptable profitability.

A review of the company's promotional efforts solved the puzzle. In a bid to boost sales of its value brand, the company had increased its serving size by more than 30 percent while keeping its price almost the same. But while volume of the super-sized value brand did indeed rise, the net effect was to reduce overall profits due to extensive cannibalization of the premium brand.

How could the company direct its large customers back toward a more profitable balance? A detailed analysis of transaction-level data helped leaders tailor its tactics to suit specific markets. By examining historical purchase patterns, the company discovered that the super-sized value product actually was driving new volume in certain areas of the country. In other regions, however, cost-conscious customers were merely "trading down" to the value brand. The eventual fix involved first adjusting prices on a region-by-region basis to drive customers' product mix back to profitability, and then using the introduction of a new product to reset all relative prices and restore volume to the premium brand.

PHOTO: RUNE THORSTEIN

"You should be charging me more for ..."

Price isn't all that matters to most customers. Many also have definite preferences about aspects of the transaction process that affect your cost to serve, such as how often they place orders or the way products are shipped. It's not unusual for salespeople, especially in a business-to-business context, to oblige such requests gratis or for a nominal fee. They may be worried about preserving the customer relationship, or they simply may not know how much extra to charge to cover any additional costs. By clarifying the impact of customer requests on individual cost-to-serve elements, a customer profitability analysis can help your company avoid leaking margin through such missteps, giving salespeople the information they need to negotiate more profitable prices and terms of service.

By the same token, a detailed breakdown of costs to serve can help you identify opportunities to improve profits by changing buying behavior in ways that are relatively unimportant to the customer, but drive large cost-to-serve savings for you. Companies may need to make concessions on price or other factors to gain customers' acceptance for such changes. Here again, a cost-to-serve analysis can guide negotiations by quantifying the impact of various price and service adjustments on profit. For example, the international beverage distributor mentioned previously is planning to cut sales costs by reducing the frequency of sales visits to some of its less profitable small customers. To offset the impact of asking customers to consolidate their purchases, the company may consider lowering prices, extending credit terms, or other steps that would accommodate customers' needs while still delivering a net profit increase to the company.

To execute tactics like these, a company needs two types of information. First, it needs to identify the elements that go into the cost to serve, determine the impact of any changes on pocket margin, and assess the feasibility of making those changes. It's essential, too, to get this information to the people in a position to use it — with technology that gives salespeople instant, dynamic access to price waterfall information, for instance.

Second, a company needs to understand what its customers value about their relationship with the business and how much they're willing to pay — or what concessions they might demand — for any changes. Sometimes, a salesperson may be able to make this call based on his or her personal knowledge of a customer. A "voice of the customer" survey, supplemented by interviews as necessary, can also help clarify customers' priorities. Business-to-consumer companies often conduct market research for just this reason. And if asking one's actual customers isn't practical, publicly available industry and marketplace data can often serve as a proxy.

"This promotion costs more than it's worth"

An accurate understanding of customer profitability can shed important light on the value of sales promotions, growth initiatives or any other activity that depends on profitability to produce the desired results. For example, one consumer packaged goods company ran a promotional program in which it paid for product display cases and associated electrical costs at some of its customers' retail stores. The company made plans to add up to 2,000 more stores to the program based on initial calculations that showed that the expanded program would yield a profit of 15 percent. However, this estimate overlooked the fact that the program's existing infrastructure could not absorb a 2,000-store increase — the company would need to make significant new investments in overhead and distribution capabilities to support such a large jump. When these additional infrastructure costs were included, leaders realized that the program would actually lose money if it were expanded as originally intended. Based on its improved understanding of program costs, the company is now taking steps, such as consolidating in-program stores and weaning unprofitable accounts off the program, that are expected to improve the program's current profitability by up to 30 percent and put the program's future expansion solidly in the black.

Depending on a company's strategic goals, of course, an unprofitable program may still be worth continuing for broader business reasons. Take the case of one large soft drink manufacturer whose leaders wondered whether they should maintain the company's exclusive contract to place vending machines in a professional sports venue in one of its key markets. A profitability analysis showed that the machines at that location were less profitable than what the company normally considered acceptable. Yet, after seeing the analysis, management decided that the branding value of owning the venue was worth the trade-off in profitability — gaining a comfort level with the decision that they had lacked before quantifying the extent of the investment in the brand.

"Sell me _____ now, and I'll keep coming back for more"

Every salesperson in the world understands the time-honored "bait and hook" technique for driving repeat sales. The problem is, it's not always obvious which products are effective "hooks." That's where a historical view of customer profitability can help. By examining customers' transaction histories, a company can determine which products are likely to drive profitable add-on sales. Conversely, a company can also use historical customer profitability data to identify product/price combinations that tend to encourage unprofitable "cherry-picking" by customers that pay no dividend in future loyalty.

One major U.S. boutique retailer drew on historical customer profitability information to reclassify its products into four categories — "invest," "develop," "preserve," and "harvest" — that reflected the role of each product in driving margins and revenue. The new classification model allowed the company to improve its pricing, promotion and store layout efforts in several ways. For instance, the company realized that some "hot" products that were being heavily promoted during the holiday season were actually items that appealed primarily to "cherry-pickers" and hence did not drive profitable long-term customer relationships. The company therefore de-emphasized those products by moving them closer to the back of its holiday circulars. The analysis also helped the company's merchants develop bundles of products for promotion in ways that had been demonstrated to drive customer loyalty and profitability (such as by offering discounts on accessories instead of rebates in the form of gift cards). All of these insights helped align the strategy for managing each product more closely to its actual contribution to company performance.

WHY YOU CAN'T AFFORD *NOT* TO ACT NOW

A widespread myth about establishing a pocket price-based view of customer profitability is that it's expensive, impractical and time-consuming — certainly not something most companies can afford to do in a downturn. It's true that making improvements can require a certain amount of upfront investment. But many companies we've worked with find that even a modest investment can yield substantial returns. A company can start small, focusing first on a portion of revenues or a single product line, business unit or location, and then expand the effort as resources permit.

In fact, a pilot project can be both a useful proof of concept and also yield increases in profitability that can help fund further improvements. One global chemical company, not wanting to put all of its eggs in one basket, ran a pilot program at three of its poorest-performing business units, reasoning that they would be more willing to try something new than would better-performing divisions. During the pilot, the participating business units made many minor adjustments — including "firing" customers, rationalizing products and offerings, and raising prices in certain segments — that increased their profits by $165 million within 12 months. This amount represented a greater than 1000 percent return on initial investment, surprising even the initial project sponsors and yielding more than enough cash to fund the project's subsequent global rollout. As an additional welcome surprise, the company discovered that many customers that had initially been "fired" for unprofitability returned to buy from the company again under more profitable terms, showing that a company that knows how to sell its value to customers, and has the data to know when to hold the line, can afford to take bold steps with customers to improve their value to the business.

Contrary to popular belief, a company doesn't need activity based costing or a customer loyalty program to gather detailed cost-to-serve data, assign costs to individual transactions, or create a customer transaction history. Most companies routinely collect much of the information needed to analyze customer profitability for other purposes. A little digging in the right places — salesperson time and expense reports, freight systems, marketing budgets, documentation of payment and collection terms — can allow them to piece together enough information for at least a rudimentary customer profitability analysis. Even information that was never explicitly collected can sometimes be derived from primary data. For instance, one retailer that originally thought that its lack of a loyalty card program would preclude a customer profitability analysis was able to construct customer purchase histories by combing individual transactions for linkages between credit card numbers, phone numbers and e-mail addresses customers gave as part of their warranty information.

So consider viewing the recession, not as a barrier, but as a catalyst for transformation in the way you treat customer profitability.

How long does it take for a company to benefit from customer profitability improvements? In our experience, many companies start to see results in as little as 8 to 12 weeks, often as a result of relatively simple changes. One automotive manufacturer, struggling to find a silver lining in a down economy, realized that significant profit-enhancing opportunities could exist in the hundreds of thousands of parts the company sold in the aftermarket. During a 12-week analysis of the market and of supplier costs, the company found that many parts were overpriced, reducing the competitiveness of the dealers that sold them, while others were underpriced and losing money for each sale. The company quickly adjusted these prices to more appropriate levels while the analysis was still underway and experienced a significant revenue lift in the very next reporting period.

Finally, one of the strongest arguments for starting now is that a recession can make it easier to push through organizational changes that might be difficult to make in times of growth. Your customers, your sales force, and your operations people are probably much more willing to accept tough decisions today than they might be in a strong economy. Their greater receptivity can not only speed adoption of new processes and procedures, but allow you to make much more sweeping changes than might be feasible in better times.

So consider viewing the recession not as a barrier, but as a catalyst for transformation in the way you treat customer profitability. Start with the low-hanging fruit, think about ways to reinvest the benefits, and aim high with respect to organizational change. The sooner you begin, the faster you'll start to understand how profitable your customers *really* are — and the better equipped you'll be to pursue renewed growth when the economy recovers.

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Endnotes

1. Gary McWilliams, "Analyzing Customers, Best Buy Decides Not All Are Welcome," *The Wall Street Journal*, November 8, 2004,


OVI
ANDROID
CDMA
IPHONE
iphone

PLATFORMS AND THE OPEN DOOR

HIGH STAKES IN PLATFORM LEADERSHIP MAY REWRITE THE RULES FOR VALUE CAPTURE IN WIRELESS — AND BEYOND

BY SCOTT WILSON & PHIL ASMUNDSON
> ILLUSTRATION BY STERLING HUNDLEY

Capturing value from innovation is tricky business in this "flat" and increasingly open world. Responding strategically to changing marketplaces can be uncertain and perilous, especially for firms that are reluctant to overhaul the "closed" business models that made them successful in the first place. But the ever-quickening pace of innovation is beginning to outstrip the capabilities of any lone organization.

Nowhere is this more apparent than the U.S. wireless telecom sector, which is on the verge of a seismic shift. The root causes seem unstoppable. Surging consumer demand for a sophisticated mobile web experience and a resurgence of open source technologies are chipping away at the "walled gardens" of carrier-owned services, devices and applications. Increasing regulatory pressure and a voracious consumer appetite for mobile Internet services are steepening the wireless innovation curve, while reducing already aggressive product and service innovation lifecycles to all-time lows. Capturing value and remaining competitive in this disrupted sector will be challenging for many established telecom players. Indeed, those companies best positioned to take advantage of the disruption may well be the ones that are causing it. But in this instance, they are not traditional telcos; they are the formidable giants of the digital economy such as Google and Apple.

Google, in particular, has been forceful in its approach to entering the wireless industry via its recently launched, open source Android platform. At the heart of this platform is a mobile device operating system built on the foundations of *Linux* open source software code. Open source, in this instance, refers to the "free" nature of the software and the type of license under which it is made available. Android is available to anyone to use, build and develop without incurring license or royalty payments. Android development, like all open source software development, is then carried out via Internet-based communities of developers who voluntarily collaborate to develop software that they or their organizations need. When executed properly, the potential innovation advantages using this model are significant in many ways.

THE POWER OF OPEN PLATFORMS

Google continues to actively promote Android as the future standard mobile platform in the global wireless sector through its Open Handset Alliance (OHA). OHA is an industry trade organization with a growing membership of high profile telecom companies that wants to be involved in the evolution of a potentially far-reaching platform standard. The company believes the opportunity for rapid innovation in mobile web applications that are designed to run on Android is significantly higher in comparison to the proprietary, closed platforms that currently dominate the sector. Google envisages demand for the best mobile web experience will push consumers to platforms that offer the closest wireless approximation to a desktop experience. Expectations are that handsets powered with the Android OS will naturally come to dominate the competitive landscape — the mantra being that Android is the only platform that can deliver rapid mobile web innovation through open source economies of scale. Google points to its growing ecosystem — self-organizing networks of developers who volunteer their time and experience to collectively develop applications for the Android platform — as proof of the power of distributed innovation in sourcing new ideas and expertise outside the boundaries of the company.

Apple has a similar view on delivering web-based innovation to the wireless sector, albeit via a closed, proprietary operating system on its iPhone mobile device. The company has embraced the idea of building an iPhone platform utilizing its expertise with its popular Mac OS platform and is steadily growing an accompanying ecosystem of (preselected) software developers who operate outside of the company. This ecosystem feeds innovation in mobile web applications designed to run on the iPhone OS and sold exclusively through its tremendously popular iPhone App Store. To date, the iPhone has made impressive gains in the highly competitive consumer wireless market through the popularity of its design, functionality and applications.

Network carriers and mobile device manufacturers are being forced to respond to the moves made by Apple and Google over the last two years. Nokia, in particular, has embraced the concepts and culture of open source. In 2008, the company assumed outright control over Symbian, its smartphone operating system partner. It plans to open up and distribute the Symbian software code (under the royalty-free Eclipse Public License) to volunteer developers in a move similar to Google's Android strategy. Nokia is also developing a broad coalition of leading wireless handset manufacturers and network carriers, the Symbian Foundation, to garner support to make Symbian the most widely used wireless software platform. This is a major step in the company's broader push into mobile services rather than relying on the diminishing margins of handset sales to drive growth. Expectations are that by 2010, when Symbian goes open source, handsets will reduce in price with manufacturers no longer having to pay $10-15 per device for proprietary licensed mobile operating systems.[1]

> In the case of Android, Google is essentially commoditizing the mobile operating system and stripping it of value as a source of proprietary competitive advantage. If adoption of Android then becomes ubiquitous, competitors could be forced to compete on areas such as web services, software applications and marketing, all of which are strong functional asset positions for Google.

In addition to its Symbian strategy, the firm is rapidly developing a mobile platform called "Ovi" (Finnish for "door") as the gateway for harnessing and deploying its new service-focused innovation. Investments to the tune of $10 billion in 2008 have expanded and fueled Nokia's services strategy. Interestingly, carriers such as Verizon and T-Mobile have agreed to allow Ovi onto their own handsets for a cut of any revenue generated. To some industry observers, this signals a more laissez-faire attitude on the part of the carriers who previously had little success with their own closed services platforms and portals. Time will tell if Nokia can use Ovi to supercharge its growth from e-commerce, advertising and subscriptions and if its Symbian strategy can trickle from smartphone sales down to its mid-range and basic phone markets.[2]

Companies wondering how to take advantage of this shift toward an open platform strategy need to understand the tactics involved in capturing value from technology that is freely available to anyone to use (and develop) essentially for the public good. This eliminates the traditional route taken by manufacturers investing in proprietary technologies and generating returns in the usual way by exploiting their intellectual property. Instead, companies must learn to adapt and find indirect pathways to generating profit from open source projects. In tandem, organizational strategies focused on developing ecosystems of user innovation communities to support an emerging platform are essential for those planning the transition to an open platform.

EXPLOITING OPEN TECHNOLOGIES

Leveraging the power of open source technologies requires being comfortable with the resultant shift in the conventional business model. Traditional product or service development is based on proprietary methods, and developers do everything possible to prevent innovation from being imitated or used in an uncompensated manner. This is usually done through a variety of legal mechanisms such as patents and copyrights or through trade secrets/confidentiality. However, with open source, the reverse holds true. Open source technology leads to a commonly shared base of technology, normally produced and distributed for free (utilizing various open source licenses) via the web. The important thing to remember is that the technology is in the form of software and is essentially information rather than a physical product.[3]

Recent moves by Nokia and Google that embrace open source technology architectures suggest they believe the battle for competitive advantage in wireless will hinge on open platforms rather than proprietary ones. Both companies are making freely available mobile device operating system technology interfaces to broadly stimulate innovation in mobile web applications and services.

However, products like mobile phone handsets that use embedded, open source software as part of the core functionality require strategies that focus on traditional manufacturing value chain activities as pathways to profit. Physical products must be produced and physically distributed. They will, therefore, incur significant economies of scale.[4] Adopting open source technology in such products requires a company to first evaluate the strength of its capabilities in other functions of its operations. It also requires a solid understanding of the strength of its intellectual property regime (a term used to describe how rigorously intellectual property laws are upheld in industries). If the potential value from an intellectual property regime is intentionally weakened by the emergence of a freely available open source platform such as Android, companies in this area may have to look elsewhere to remain competitive. They should ensure strong capabilities in business functions such as manufacturing, sales, marketing and supply chain operations in order to compete.

In the case of Android, Google is essentially commoditizing the mobile operating system and stripping it of value as a source of proprietary competitive advantage. If adoption of Android then becomes ubiquitous, competitors could be forced to compete on areas such as web services, software applications and marketing, all of which are strong functional asset positions for Google. This may create a new competitive landscape for wireless firms who have relied on proprietary operating systems and services in the past to secure customers and generate significant profits. Their ability to compete in a newly weakened value capture regime may depend on their capacity to develop new capabilities and strengthen existing functions previously not considered core. Failure to do so could leave them vulnerable.

This strategy is evident in other areas of the technology sector where open source has made an impact. For example, IBM has embraced open technologies and actively promoted their use with a wide range of products for many years. A weakening of the value capture regime due to an influx of open source server software was ultimately beneficial to IBM's competitive position. This was due to the company's preexisting strong capabilities in applications development, hardware and services. Conversely, it damaged competitors who held strong positions in proprietary server operating systems. As the server operating system becomes commoditized, the opportunities to capture value migrate to other areas of the value chain. For firms with strong capability positions in a broad range of core functions, it then becomes logical to deliberately weaken the value capture regime by actively contributing free code and operating systems to the market, thereby destabilizing those competitors who zealously guard their proprietary systems. This begs an obvious question: how will companies with proprietary platforms respond? One step is to begin building an innovation community to support the platform.

COMMUNITY BUILDING FOR THE COMMON GOOD

The experience gained in the organization of open source software development has led to significant changes in the organization of innovation across many diverse industries and sectors. One big effect has been the emergence of communities of "lead" consumers or users. These users of new technology voluntarily self-organize and collaborate in loose network coalitions, freely sharing innovations for the benefit of collaborative development. Groundbreaking research at Massachusetts Institute of Technology in the early part of this decade illustrated the power of early-stage innovation communities in diverse fields such as extreme sports (in this case, windsurfing). Windsurfers would develop and share new innovations among communities of participants with the end goal of making improvements to their equipment and techniques. Participants in the community have sufficient incentive to share when the benefits of collaboration exceed the costs. The overriding ethos of such networks is "if you want something done right, do it yourself."

Similarly, organization of such communities has occurred in other industries such as the semiconductor sector. Here, some companies distribute "user kits" to customers in order to develop bespoke circuits that are designed exactly to meet their needs and are easy to produce. The core research and development function is effectively outsourced, resulting in significant cost benefits normally associated with talent management and the identification and development of skilled resources.[5]

In the wireless sector, communities of innovation providers have already emerged and are beginning to have an impact on the competitive landscape. The Android developer community is drawing on traditional open source development strategies with networks of lead programmers collaborating across the code's core software interfaces. Google distributes free software developer kits and application programming interfaces (APIs) to facilitate the community-based development. The more users and program usage there is, the more innovation will occur and the more likely that quality issues will be resolved quickly and efficiently. Greater exposure of the Android platform will likely arise and heighten its potential for becoming a *de facto* wireless standard. The network effects of distributed collaboration can therefore be significant. Developers enjoy a sense of community, enhanced status and accomplishment from their involvement with Android. In this setting, new ideas are peer reviewed, and learning can be accelerated through social integration in the network.[6]

> Having an innovation community in place is just one piece of a broader puzzle in capturing value with open standards. Becoming dominant in "platform battlegrounds," such as the wireless sector, requires a wider-reaching ecosystem strategy that in turn will enable companies to become platform leaders.

Nokia's open source strategy for its Symbian community is similar in operation and organization. Networks of developers link together using Symbian developer kits to integrate across multiple platform architectures. However, Nokia's take on building its community may be more corporate-centric than developer-centric. Interestingly, the choice of license used with the open Symbian code will be the Eclipse Public License rather than the Apache license used with Android's Linux open source code. The Eclipse license allows users who develop and submit new code to keep their submissions proprietary. This may signal a move toward a more corporate partnership development community rather than a traditional open source developer community. Nokia's transition from proprietary to open is therefore being tempered by prior and existing business relationships, which are strong in all areas of the wireless value chain.

Having an innovation community in place is just one piece of a broader puzzle in capturing value with open standards. Becoming dominant in "platform battlegrounds," such as the wireless sector, requires a wider-reaching ecosystem strategy that in turn will enable companies to become platform leaders.

PLATFORM LEADERSHIP

Companies competing in industries where platform battles are commonplace face a number of hurdles to overcome. The biggest challenge is to understand the distinctive capabilities required to separate straightforward product strategies from more intricate platform strategies. Platform strategies drive coalitions of firms who in turn form communities to innovate around a platform. Platform leaders can then expect significant influence over competitors, complementors (companies that make supplementary products that expand the platform's market) and customers — all of which helps them shape the evolution of their industry.

Mobile device operating systems such as Google's Android, Nokia's Symbian and Apple's iPhone OS are stand alone platforms that help drive industry wide innovation. Each of these platforms integrates separately developed technologies and attracts other third parties to add their own product innovations. The parallels to the evolution of the personal computer (PC) industry are self-evident. The explosive growth of the PC industry over the last two decades could not have occurred without a broad supporting cast of other companies' products. Operating systems; hardware such as keyboards, monitors and disk drives; software applications; and developer kits all helped fuel the stellar growth of the PC industry as we know it today.

Qualcomm's astute licensing of the CDMA patents made it possible for a growing contingent of wireless companies to use the CDMA protocols and embed the technology across multiple generations of wireless devices.

The same evolution may be anticipated for the wireless industry. The operating system platform will be the core technology architecture around which layers of hardware and software will be integrated via the platform owner and the ecosystem of complementors. The platform owner's objective is to then become a platform leader by driving and sustaining innovation around the core platform technology at the broader levels of the industry. To this end, they must leverage network effects to increase the number of people using the platform product. The presence of more users implies more opportunities and incentives for complementor firms to introduce products and continually develop the platform.[7]

Recent studies have described the success criteria associated with platform leaders such as wireless communications company Qualcomm, which experienced great success on the back of its core technology development in the late 1980s and early 1990s.[8] During this period, the company successfully solved a technical problem that had resulted in incompatible and inefficient wireless cell phone technologies. By inventing CDMA (code division multiple access) technology, Qualcomm eliminated a problem that affected the industry's carriers and handset makers equally. The technology facilitated the breaking-up and reassembling of phone calls into smaller "bits", which proved to be of great benefit to the likes of AT&T and Motorola who quickly licensed the technology. By developing CDMA and making it easy for other companies to use, connect and build on the technology, Qualcomm effectively laid the foundations of a platform strategy. The company went on to invest further in chipset designs with integrated circuits embedding the CDMA technology. These made for easy integration into cell phones via physical connectors that allowed the circuits to be "plugged in" to the internal workings of the handsets. To exploit the advances made in technology development, Qualcomm's astute licensing of the CDMA patents made it possible for a growing contingent of wireless companies to use the CDMA protocols and embed the technology across multiple generations of wireless devices. The company is now looking to build on its previous platform success with CDMA technology by investing in the development of mobile broadband connectivity on laptop computers. It hopes its chipset designs in this area will have a similar effect on the laptop market that CDMA had on the wireless sector.

Although Qualcomm is a salient example of how profitable a well-executed platform strategy can be, the downside of such an approach is the potential for a standards war to erupt. Companies failing to plan for both the technology and business aspects of a platform strategy will face severe challenges. The major technology issues include designing the appropriate architecture and interfaces to allow users and the supporting ecosystem of innovation communities to develop new product complements to the platform. A robust technology and intellectual property plan must then be in evidence to guide decisions on managing the platform technology interfaces. Questions on how much modularity (ability to separate components) is required in the technology architecture need to be answered at this stage. Modular architectures and interfaces can greatly enhance the ease of use and compatibility of the core platform technology across multiple product generations. Qualcomm's CDMA integrated chipsets are an example of a modular architecture being used to great effect across a wide range of the wireless industry's products and services.

In tandem with the decisions on architectures, companies should also pay close attention to how much of their intellectual property should be made available to the market and the complementor firms. If too much is given away, firms risk complementors becoming competitors. Conversely, if not enough is shared, the potential for innovation to sustain platform momentum will be severely diminished.

Knowing what to protect versus what to disclose in order to stimulate third party innovation is therefore vital. Companies should evaluate their functional capabilities and understand exactly where their strengths and weaknesses lie in the context of their value chain activities. The decision to free-up proprietary technology in order to weaken the opportunity of rivals to capture value from the same technology works only if strengths in other business areas are sufficient to generate competitive advantage. This is a critical decision to take when considering open source technology.

Another decision is the "make versus buy" issue with complementary products that will build platform momentum. Firms can either choose to make their own platform complementary products, let the market produce them via third parties, or follow a hybrid approach. Crucial at this juncture are careful considerations of incentives to assist and attract complementor firms and investors to the platform. Using third parties to act as complementors, as a means to defeat competing platforms, may help reengineer the entire industry architecture. Significant industry partners with plentiful resources can also help alter the shape of an industry through corporate investments in platforms and through co-investment with ecosystem partners.[9]

Recent moves by Nokia and Google that embrace open source technology architectures suggest they believe the battle for competitive advantage in wireless will hinge on open platforms rather than proprietary ones. Both companies are making freely available mobile device operating system technology interfaces to broadly stimulate innovation in mobile web applications and services. Of course, the success of these moves to create a sustainable complementors network rests on the ability to execute an appropriate incentive strategy. Nokia and Google will have to strike the right balance between being platform leaders and industry enablers, helping the complementor communities to make their platforms more innovative. Only then will they build the momentum needed to sustain platform leadership positions.

GUIDELINES FOR CAPTURING VALUE

The impending disruption in the wireless sector's competitive landscape illustrates the challenges faced by incumbents attempting to transition into a more open business era. However, observing leading companies such as Google, Nokia, Apple and Qualcomm points to a number of strategies that can be employed across a wide variety of industries. For instance, companies in multiple manufacturing industries can leverage the organizational aspects of open source software development. By developing innovation communities wherein lead users are networked together to develop cutting-edge technology, firms can effectively enhance their research and development function at low cost.

The power of platform leadership is also evident beyond the confines of the high tech and telecom industries. Strong network effects and visible separation between platforms and complements are apparent in industries such as the energy sector, where new developments in the area of fuel cells and biofuels promise to become platforms for powering a wide range of devices from a broad sweep of companies. In finance, banking services are undergoing significant developments in the digital era, with a number of banks, Internet companies, telecom companies and credit card firms all collaborating and competing to develop new platforms that will transform the process of banking as we currently know it. Similarly, in the life sciences sector, pharmaceutical and biotech firms utilize the human genome database as a platform for new compounds and drugs made in collaboration with many partner firms.

It is clear that the underlying approach of moving to a more open, platform-based strategy can help firms capture value in industries subject to constant disruption and change. Companies looking to capitalize on making the transition from closed business models may find value in the experiences gleaned from the wireless sector as they focus on three fundamental steps to begin the journey:

Harness the power of communities

Companies should become proactive in developing their own communities of innovation providers, much like those witnessed in the fields of extreme sports technology. By providing support and incentives to bring together loose networks of lead users and suppliers of new ideas, they can greatly enhance the innovation capability of an organization. Companies such as Nokia, Google and Apple are adept at organizing communities of users, partners, suppliers and developers, all motivated to improve the product innovation process for their own benefit.

Exploit technologies that are open

Many companies can benefit from technologies whose core information is open in the market. Cost reduction and increased potential for innovation are two immediate advantages. However, careful analysis of the surrounding value capture regime must precede any decision to make technologies free in the hope of stimulating innovation and weakening rivals' competitive proprietary technologies. In parallel with this analysis, firms who are taking the decision to open up their core technologies should do so only if they have strong capabilities in other business functions to command competitive advantage. Otherwise, their competitive positions will be irrevocably weakened.

Become a platform leader

Platform leaders drive innovation in their industry, motivating others to form ecosystems to supply innovation and support their core product platforms. Companies adept at platform leadership wield tremendous influence and help shape the evolution of their industries. Firms looking to become platform leaders should solve an industrywide business problem that affects a large number of firms in their industry. They should then facilitate a community of complementors to supply the add-on products and create momentum around the platform. Once again, careful consideration of what to make open and what to protect in terms of core intellectual property is a critical factor — and possibly one of the larger strategic decisions to be made for the next decade or longer.

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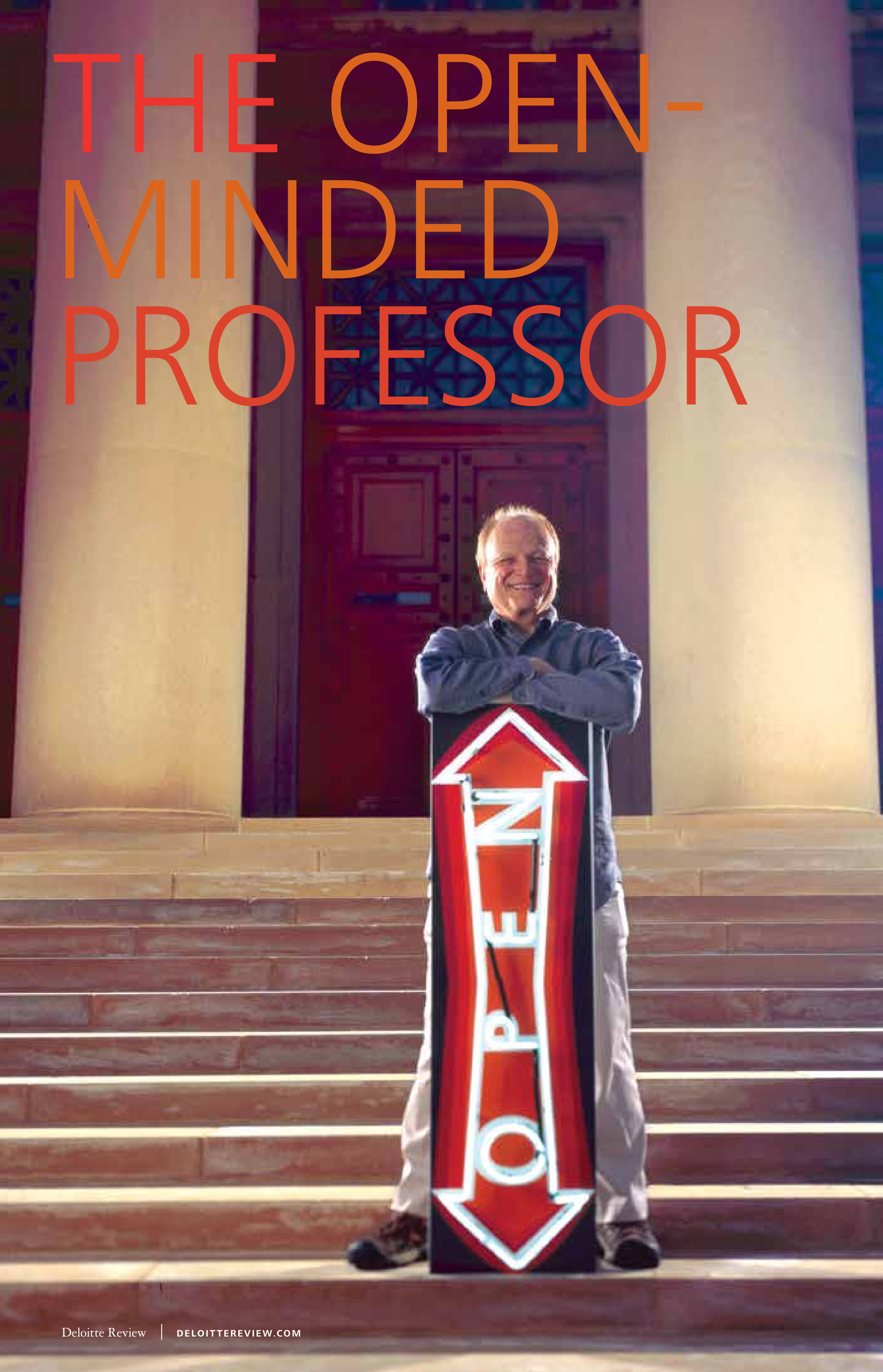
THE OPEN-MINDED PROFESSOR



An Interview with Eric von Hippel

INTERVIEW BY SCOTT WILSON > PHOTOGRAPHY BY MATT LENNERT

Open source technology and lead user innovation: two subjects very much in evidence across a diverse number of business sectors today. But how can they help companies grow, and what can we learn from the likes of open innovators ranging from small communities of windsurfers to digital giant Google?

Professor Eric von Hippel of MIT's Sloan School of Management is known for pioneering research that has prompted a major rethinking of how the innovation process works. He is the originator of lead user theory and a leading voice on open methods of innovation development. Here he expounds on the benefits of open source technology, why users are at the center of the innovation process and how they can trigger major changes in both company business models and in government policymaking.

Von Hippel is the T Wilson Professor of Innovation at Sloan and also a professor of Engineering Systems at MIT. His academic research examines the sources and economics of innovation. He has founded and participated in start-up firms and is a founder of the entrepreneurship program at MIT. His most recent book is *Democratizing Innovation* (MIT Press). In the spirit of openness, copies of this and of his earlier book *Sources of Innovation* (Oxford University Press) can be downloaded free of charge from his MIT website at http://web.mit.edu/evhippel/www/democ.htm.

SCOTT WILSON: OVER THE LAST TEN YEARS, WHAT HAVE BEEN THE BIGGEST CHANGES IN MANAGING INNOVATION, AND HOW SUCCESSFUL HAVE COMPANIES BEEN IN MAKING THESE CHANGES?

ERIC VON HIPPEL: We are in the middle of a huge shift in our economy. It is a paradigm shift, really, from closed, IP-protected, manufacturer-centered innovation to an innovation system centered on "open" — intellectual property-free — innovation that is often developed by users. Manufacturers have to learn how to adapt their business models to this. Some companies are succeeding very well. For example, many manufacturers are now both developing and basing products on open source software — and making good profits.

SW: OVER THE LAST TWO DECADES YOU'VE FOCUSED ON INNOVATION IN SUCH DIVERSE AREAS AS EXTREME SPORTS RIGHT THROUGH TO SOFTWARE DEVELOPMENT. INDEED, A LOT OF YOUR EARLIER RESEARCH IN THE 1980s AND 1990s

PIONEERED WHAT PEOPLE TALK ABOUT TODAY WHEN THEY TALK ABOUT OPEN INNOVATION AND CROWDSOURCING AND THINGS LIKE THAT. DO YOU SEE A TREND WHERE COMPANIES ARE INCREASINGLY GOING OUTSIDE THE FOUR WALLS OF THE FIRM TO SOURCE INNOVATION AND BRING IT INSIDE RATHER THAN BEING VERTICALLY INTEGRATED IN R&D?

EVH: Yes, it is a major trend. But it is important to note that there are many different flavors to the notion of looking outside a company's four walls. Understanding of what is possible and effective is evolving very rapidly. There is also a lot of confusion on terminology right now. For instance, "open innovation" is a term that I use to mean innovation that is freely accessible by all via an information commons. That is how I use the term in this interview with you, and that is what people in open source software mean by the term. Others use that same term to refer to the buying and selling of closed, proprietary intellectual property among firms. Can be confusing unless you are careful.

The challenge firms face is to make clear to their employees that they are still needed and can provide major contributions and have major job satisfaction in the new model.

SW: HOW SUCCESSFUL AND WILLING HAVE FIRMS BEEN AT TAKING THE LESSONS LEARNED FROM YOUR RESEARCH ON USER INNOVATION AND OPEN SOURCE DEVELOPMENT?

EVH: Basically I haven't seen an industry that changes from closed to open voluntarily. It is *very* difficult for firms to make that shift. Closed business models that have been in place and successful for a long time tend to become nearly unchallengeable. Things really have to fall apart before basic change is seriously explored. We are seeing this kind of disruptive situation nowadays among media companies, for example, and it has occurred elsewhere earlier.

For example, consider custom semiconductor design. In that field, the business model in the early 1980s was that manufacturers designed chips *for* users. Chip users were eager to design their own custom chips, but established firms in that field like TI and Fujitsu were adamant about not giving design tools and design freedom to users. Finally a start-up company, LSI, did transfer design freedom to users, and customers flocked to work with that firm. Only when the larger firms saw this to be a serious challenge — and saw a successful new business model actually demonstrated by LSI - did they switch over to the new, user-centered design model that is dominant today.

SW: WHAT ARE THE TYPICAL CHALLENGES FACED BY FIRMS TRYING TO DEVELOP THOSE KIND OF INNOVATION CAPABILITIES, AND HOW DO THEY ACTUALLY OVERCOME THEM?

EVH: The chief problem is that there is a lot of investment bound up in a closed innovation model for firms that now use such models, and the investment is both individual and corporate. Much of this has to get thrown away or loses value when firms shift from closed to open innovation models.

People naturally and reasonably resist destruction of value they own, especially if it is personal. For example, R&D employees often resist being asked to look outside for innovations. They may well view the outside as a competitor; as a rival: "If we ask outsiders to help with our job, our managers may think that we are dispensable. Let's not do that!" Similarly, marketing research people who look for unmet user needs via surveys and focus groups find a lot of their tools are at risk of becoming obsolete if users become the innovators. And internal patent attorneys who are told that open IP can be more useful than patents — well, let's not even go there. [laughs].

The challenge firms face is to make clear to their employees that they are still needed and can provide major contributions and have major job satisfaction in the new model. Firms also need to provide a clear transition path. For example, internal product developers needs to know that there is a lot they can contribute even if their firm switches to outsourcing prototype development to innovation users. And this is the case. Internal developers are essential to help create user innovation toolkits to enable and improve user innovation relevant to their firm. Also, they are needed to convert user-developed prototypes into robust commercial products via product engineering.

Lego offers a good example of a smooth transition. Lego is a long-established Danish firm. Within that firm there were maybe about 20 people who were looking at a new, open model of new product development. Top management protected them, encouraged them, and they are managing to build within an old firm a new way of doing things that is gradually making a transition for the entire Lego company. But that's a really remarkably smooth and excellent transition. The transition to open can be done without major disruptions, but it's not easy.

SW: ARE THERE ANY INDUSTRY SECTORS WHERE USER INNOVATION WOULD BE DIFFICULT TO PUT INTO OPERATION JUST BECAUSE OF THE NATURE OF THE BUSINESS?

> Manufacturers don't have to jump to adopt new user innovations right away — they can wait to see which user innovations succeed. After all, the users are developing innovations at their own expense, not the manufacturers'.

EVH: It's not really a matter of sectors. It is more about: "the greater the investment in the old, closed model that is at risk, the more difficult the transition to new, open models." For example, if a firm has never had R&D or never had a major investment in patents and patenting, it does not face those retooling losses, and so will have an easier time switching to open.

SW: UNDER WHAT CIRCUMSTANCES SHOULD A COMPANY PURSUE OPEN LEAD USER INNOVATION VERSUS CLOSED INNOVATION? CONVERSELY, IS THERE A SET OF CONDITIONS THAT WOULD SUGGEST THEY SHOULDN'T DO IT?

EVH: Our research is showing that there are very few — maybe even no — conditions under which properly equipped users engaged in open innovation cannot outdo closed, manufacturer-based innovators. It is also true that users have their highest advantage over manufacturers in innovating in new and rapidly changing markets. Under these conditions lead users — users at the leading edge of markets — develop new products and services because they need them. They don't care if the present market is small — they are seeking to satisfy their own needs and not a market need. In contrast, manufacturers don't tend to like small and uncertain markets — and that is what new markets are by definition. So manufacturers should especially look to users — and to open, user-centered innovation — to develop new product prototypes for new and rapidly changing markets.

Manufacturers don't have to jump to adopt new user innovations right away — they can wait to see which user innovations succeed. After all, the users are developing innovations at their own expense, not the manufacturers'. Some user innovations will succeed and some will fail. User communities will show which are the most promising ones via their adoption patterns. If many users pick up and copy a user innovation, it has commercial promise — if few do, there is probably little promise. Of course, the longer firms wait for the winners to become certain, the more costly to enter. It is a risk-reward trade-off.

SW: THERE'S BEEN A LOT OF DISCUSSION AROUND DISTRIBUTED INNOVATION OVER THE LAST FEW YEARS. ONE COMMONLY CITED FEAR ABOUT COMPANIES LOOKING OUTSIDE THEIR FOUR WALLS FOR INNOVATION IS THAT THEY LOSE CONTROL OF THEIR INTELLECTUAL PROPERTY. OR AT THE VERY LEAST, THEY INCREASE THE RISKS OF IP LOSS BY BEING TOO OPEN IN THEIR COLLABORATION WITH OTHERS WHO MAY WELL TURN OUT TO BE THEIR COMPETITORS IN THE FUTURE. I THINK, IN PARTICULAR, THAT IT SEEMS TO BE AN ISSUE IN AREAS OF THE WORLD WHERE IP IS NOT SO STRONGLY ADHERED TO AS IT IS IN THE WEST, I.E. MAYBE CHINA. DO YOU SEE IT AS A PROBLEM?

EVH: It is true that the most rapidly developing designs are those where many can participate and where the intellectual property is open. Think about open source software as an example of this. What firms have to remember is that they have many ways to profit from good new products, *independent of* IP. They've got brands; they've got distribution; they've got lead time in the market. They have a lot of valuable proprietary assets that are not dependent on IP.

If you're going to give out your design capability to others, users specifically, then what you have to do is build your business model on the non-design components of your mix of competitive advantages. For instance, recall the case of custom semiconductor firms I mentioned earlier. Those companies gave away *their* job of designing the circuit to the user, but they still had the job of manufacturing those user-designed semiconductors, they still had the brand, they still had the distribution. And that's how they make their money.

It is also true that firms can *base* their new products on user-developed designs and still capture significant IP protection from internally developed improvements. That is the pattern we found in research we did at 3M. Even when 3M developers sourced the basic idea for a new product line from users, they were able to capture strong IP by patenting their improvements to the user idea.

The recent buzz in other fields is coming about because all of a sudden everyone is realizing that all products are information products during design — and some are turned into hardware in the very last stage.

SW: DO YOU SEE ANY CHANGES IN TERMS OF GOVERNMENT POLICY IN THE UNITED STATES THAT ARE REQUIRED WITH REGARDS TO INNOVATION, R&D OR IP POLICY THAT MIGHT STIMULATE FIRMS TO ENGAGE DIFFERENTLY WITH THE OUTSIDE WORLD?

EVH: My colleagues and I are working now on government policies related to the new user-centered and open innovation paradigm. Companies should be in favor of new policies in this area. It is to their advantage to encourage the healthy growth of this free resource.

Users will innovate more as the infrastructure and support for this activity is improved. Examples of what is needed from government: encouragement of open standards, cheap collaboration tools, and cheap Internet that does not discriminate against user-developed content.

SW: ARE YOU CONFIDENT THAT SOMETHING WILL HAPPEN IN THIS ADMINISTRATION'S TERM TO SORT THAT OUT?

EVH: Well, the Obama administration is showing great interest in improving the Internet as important infrastructure. Interestingly, however, countries in Europe are ahead in implementing many additional needed changes. The first country to embrace user innovation as official policy has been Denmark, and they're pushing a bundle of measures needed to support and encourage the new paradigm. Denmark understands they will never be able to compete with big countries like the U.S. on the R&D spending tech-push model, so they see an advantage in making their policy hospitable to the world's free user innovations. They want Danish firms to be the ones to quickly turn user innovations into products. I think the U.S. and other countries should follow their lead.

SW: OPEN SOURCE SOFTWARE HAS SHOWED HOW INNOVATION CAN BE DEMOCRATIZED. IT HAS HAD A BIG IMPACT ON THE PRACTICES AND BUSINESS MODELS USED IN THE SOFTWARE INDUSTRY. ARE YOU SURPRISED THAT OPEN SOURCE NOW SEEMS TO BE CREATING A BUZZ IN BROADER MANAGEMENT AND BUSINESS THAN IT HAS DONE PREVIOUSLY?

EVH: Software is an information product. This means users can democratize its innovation process easily because they don't need manufacturer cooperation. Manufacturers, as we discussed earlier, tend to resist the introduction of user-centered innovation processes. All the manufacturer-controlled choke points that exist in hardware manufacturing didn't exist in software. The result has been that open, user innovation practices have tended to be developed on software first. For example, Richard Stallman's brilliant idea of the general public license, the copyright-based GPL, to ensure openness was a brilliant stroke, and it was applied to software first.

The recent buzz in other fields is coming about because all of a sudden everyone is realizing that all products are information products during design — and some are turned into hardware in the very last stage. You can design almost everything in software nowadays, and you can distribute the designs around the world in software form as well, and so the open innovation rules designed for software can largely apply to hardware as well. In other words, a lot of the open innovation practices developed in software are turning out to be adaptable to broader uses.

SW: HOW CAN MANUFACTURERS WHO CHOOSE TO EMBED OPEN SOURCE SOFTWARE INTO THEIR HARDWARE CAPTURE VALUE FROM THE SOFTWARE IF IT'S AVAILABLE FOR FREE?

EVH: They can't. They have to capture value from what's called complements to that free software — other things related to the free software that people will want to buy. For example, Red Hat distributes Linux — free software — and makes money from the services it offers in addition. IBM gives away Linux. But it makes money from the server hardware it sells that Linux runs on and the proprietary software it sells that runs along with Linux.

SW: SO WOULD MORE MATURE COMPANIES WITH A MORE SOPHISTICATED MANUFACTURING OPERATION OR SALES OPERATION INHERENTLY DO BETTER EMBEDDING AND USING OPEN SOURCE SOFTWARE THAN SMALLER STARTUPS WHO MIGHT NOT HAVE THE CAPITAL TO INVEST IN COMPLEMENTARY FUNCTIONS?

First Apple resisted apps developed outside Apple. Then iPhone owners hacked their iPhones to add 3rd party apps — often developed by users. Then Apple gave in to the tide and responded with an "approved apps" store.

EVH: Not necessarily. Recently there was some interesting research on companies that use embedded Linux software by my German colleague, Professor Joachim Henkel. Many of the companies using embedded Linux in their products are small firms, and the range of products these companies manufacture is quite broad. Some were making dishwasher controllers, for example, and others were making industrial process machines. They shared embedded Linux as a common free software platform, but each offered unique customer service to their customers — and this was their proprietary value added from which they were able to profit.

SW: SO SIZE IN THIS INSTANCE DOESN'T HAVE AN IMPACT?

EVH: No. The only way size would have an impact is that oftentimes big companies have these economy of scale related elements such as big brands, big factories and so on. Those are strong complements to designs from which they can generate a lot of revenue.

SW: ARE THERE STILL CONCERNS AROUND SECURITY AND LICENSES WHEN EMBEDDING OPEN SOURCE SOFTWARE INTO A PRODUCT RATHER THAN USING PROPRIETARY SOFTWARE?

EVH: I don't think so. Open source software has been shown to be much faster than closed in responding to security threats. With respect to licensing, that problem has been pretty much solved. For example, there's a company called Black Duck. Their business, as I understand it, is to help firms keep proprietary code separate from open source code in product designs so legal risks are avoided.

SW: WHAT ABOUT OPEN SOURCE IN THE U.S. WIRELESS SECTOR. WHAT DO YOU THINK ABOUT GOOGLE AND THEIR ANDROID STRATEGY?

EVH: What's happening is that open and user innovation is progressively taking over things like the design of the applications. You see this illustrated with the history of the iPhone. First Apple resisted apps developed outside Apple. Then iPhone owners hacked their iPhones to add 3rd party apps — often developed by users. Then Apple gave in to the tide and responded with an "approved apps" store. Now Google and Android are offering options that are still more open. The trend is clearly towards openness and user empowerment.

SW: ON THAT, HOW DO YOU THINK GOOGLE WILL BE ABLE TO MOTIVATE OTHERS TO DEVELOP THEIR OPEN SOURCE CODE FOR FREE?

EVH: This is a fundamental question. It has an easy answer — but to get it, people have to understand what user innovation really is — it is innovation *by people who want to use what they develop.* Built into your question is the assumption that people have to sell something to benefit from it. If you're a user, you're benefiting from using what you develop — and that is a *very* powerful motivator to, as you say, "develop open source code for free." Eric Raymond (open source guru) said it very well: the best software is developed by those who do it to "scratch their own itch."

User motivation is a major reason why both individuals and firms build physical products "for free." If I build a mountain bike to use and it's an innovative mountain bike, I can benefit by riding — that is, using — the bike I built. If I am a manufacturer and build a process machine to use in my own factory, I benefit from using that machine. Users do not have to sell something to benefit from developing it — they benefit very powerfully from use.

SW: IF TYPICAL OPEN SOURCE SOFTWARE DEVELOPERS DON'T LIKE TO BE LED OR TOLD BY OTHERS WHAT TO DO, HOW WILL THAT WORK WITH, FOR EXAMPLE, GOOGLE'S ECOSYSTEM — WITH GOOGLE ESSENTIALLY TRYING TO ORCHESTRATE WHAT THEY DO?

EVH: Neither Google or anybody else is going to "orchestrate" user-innovators. What they do is *attract* them by offering good platforms and user development tools.

SW: ON THAT THEME, WEB 2.0 AND THE EXPLOSION OF SOCIAL NETWORKING AS YOU WERE ALLUDING TO WITH FACEBOOK: HAS IT HAD A TANGIBLE IMPACT ON LEAD USER COMMUNITIES?

EVH: Again it's a matter of tools. Web 2.0 offers even better free tools for users to use in communicating and innovating — and so potential user-innovators are attracted to these platforms as a place to set up their communities and activities.

SW: ON A RELATED TOPIC, I'VE READ RECENTLY THAT YOU'RE INTERESTED IN THE IDEA OF "OPEN HARDWARE". CAN YOU EXPLAIN EXACTLY WHAT OPEN HARDWARE IS AND WHAT THE POTENTIAL IMPACT TO THE MANUFACTURING INDUSTRY COULD BE?

EVH: Open hardware is a set of open platforms and tools to support people who want to design their own hardware. For example, the Arduino board is a basic electronics processing board with open specifications that anyone can copy and use in their own projects. People are proving that profitable firms can be set up around supplying hardware built to open specs.

SW I'VE HEARD YOU TALKING ABOUT BUG LABS. THEY SEEM TO

BE LEADING IN THIS AREA ALSO. COULD YOU TELL ME A BIT ABOUT THAT?

EVH: The whole open source hardware movement has multiple layers. Some people are selling components like the Arduino board. Other people are selling systems that people can modify easily — and this is what Bug Labs is doing. Bug Lab supplies a set of attractively packaged hardware modules that can be linked in novel ways and that can be programmed with your own custom software. All the specifications for what they build and offer on the market are open and can be reproduced by anyone for free. Both individuals and firms are finding it very attractive to make the special products they need based upon open hardware platforms like that. But many choose to buy from Bug Labs, and so Bug Labs make a profit. The world of open and user innovation is growing like crazy in many varied ways — it is a very exciting time.

SW: WHAT'S NEXT ON YOUR RESEARCH AGENDA?

EVH: A major project right now is to help get government policy in line with the open, user-centered innovation paradigm. Our first step is to help governments to measure user innovation and its degree of openness better. At the moment they really don't do that — which means that user innovation is largely invisible to policymakers. I'm working with two excellent colleagues in the area of measurement — Fred Gault and Jeroen de Jong - and we're creating new measures. When governments adopt these new measurements — and we think that in the next year or two this will happen — policymakers and firms for the first time will be able to see that open and user innovation is *really* big and is growing very rapidly. In fact, we think it will be the dominant innovation process in the economy.

More generally, I am helping to push things forward by doing lots of research on user and open innovation with lots of excellent coauthors. The transition to the new, open, user-centered innovation paradigm is painful to some, but the end result will be very valuable and enhance possibilities for us all.

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Where did our e

Examining the rise in voluntary turn

employees go?

over during economic recoveries

BY BILL CHAFETZ, ROBIN ADAIR ERICKSON AND JOSH ENSELL
> PHOTOGRAPHY BY DAVID CLUGSTON

Fast forward to smoother seas after the current economic storm: your company has survived. You made the hard decisions regarding layoffs, expenses, and closing facilities to improve operational performance and short-term earnings. Like your peers, you made cutting and managing costs your number one strategic priority while pushing focus on managing human capital to the back of your mind.

But unfortunately this turns out not to be the whole story.

Executives may be tempted to think that their current actions are having no effect on the retention of their employees since voluntary turnover rates have been low throughout the downturn. However, their actions may be actually increasing ***turnover intentions*** with many employees planning to jump ship once the economy improves. To prevent the loss of talent typically seen during economic recoveries with a resulting "resume tsunami," leaders must avoid making mistakes that increase employees' turnover intentions. A downturn, it turns out, should not be considered a license to put human capital management on the back burner.

> ***A TURNOVER INTENTION IS AN EMPLOYEE'S "CONSCIOUS AND DELIBERATE WILLFULNESS TO LEAVE THE ORGANIZATION" WITHIN A CERTAIN TIME INTERVAL, E.G., THE NEXT SIX MONTHS***
> *(TETT AND MEYER, 1993)*

Instead of celebrating the upturn, many corporate leaders may well face a new problem: replacing lost employees as the economy kicks into gear and talent is once again a scarce commodity.

THE IMPENDING RISE OF VOLUNTARY TURNOVER AFTER A DOWNTURN

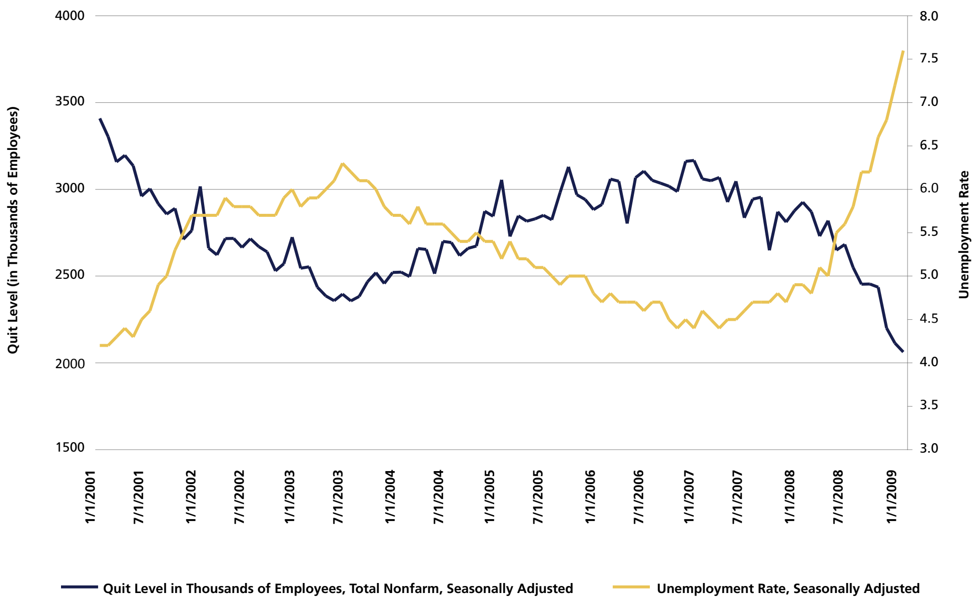
While the vast majority of employees stay put during economic downturns, an analysis of the correlations between voluntary turnover (quits) versus unemployment and voluntary turnover versus consumer confidence suggests that employees will begin to leave their organizations once the economy recovers.

When the economy is strong, unemployment decreases as firms hire more employees to create the output needed to meet rising demand. Alternatively, and as expected, when economic demand and growth slow, organizations cut costs and downsize the workforce, increasing unemployment. Because of this, looking at the unemployment rate's relationship with voluntary turnover shows how voluntary turnover will change as the economy seesaws back and forth.[1] Chart 1 shows that as unemployment goes down, voluntary turnover goes up (and vice versa), which implies that voluntary turnover will most likely increase once the economy recovers.

Looking at voluntary turnover's relationship with consumer confidence also shows that organizations should expect employees to leave their current jobs when the economy improves.[2] When consumer confidence is high, consumers expect the economy to grow, causing them to become more willing to spend. Since consumer spending represents two-thirds of gross domestic product, the increased consumer spending helps drive economic growth. Alternatively, when consumer confidence drops, consumers expect the economy to weaken, and they reduce spending, contributing to a slowdown in economic growth.

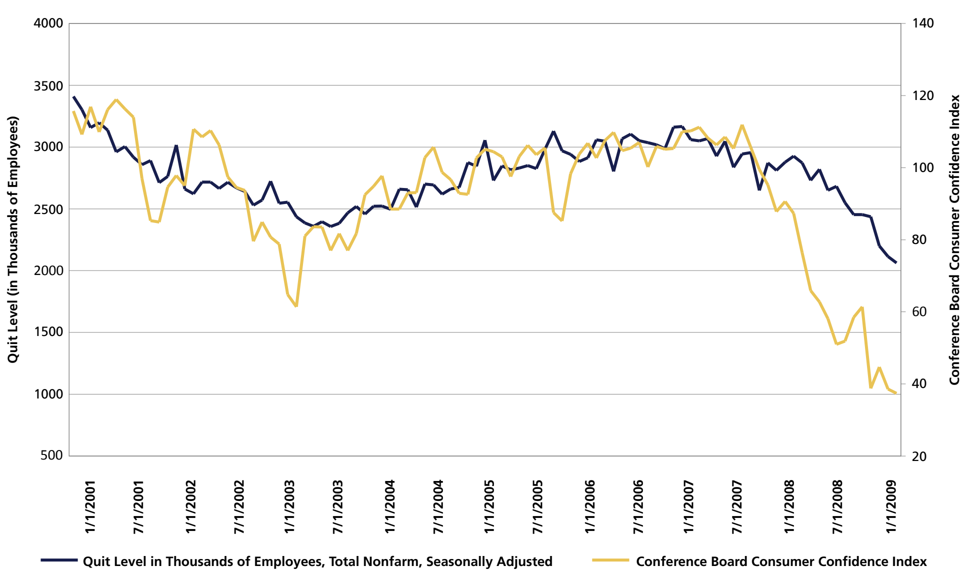
Chart 2 shows that when people expect the economy to improve, they are more likely to quit their jobs (and vice versa), implying that voluntary turnover will most likely rise when economic growth is expected to start again.

Chart 1: Quit Level in Thousands of Employees, Total Nonfarm, Seasonally Adjusted vs. Unemployment Rate, Seasonally Adjusted



Data Source: Bureau of Labor Statistics, St. Louis Federal Reserve Economic Data[3]

Chart 2: Quit Level in Thousands of Employees, Total Nonfarm, Seasonally Adjusted vs. Conference Board Consumer Confidence Index



Data Source: Bureau of Labor Statisics, Polling Report[4]

These two trends suggest that, while voluntary turnover is low throughout economic downturns, organizations should expect a spike in voluntary turnover once the economy recovers.[5]

THE CAUSE OF VOLUNTARY TURNOVER'S CYCLICALITY

As the economy languishes, workers have reduced alternative employment opportunities. Since quits are motivated in part by the prospects of finding a new job, employees do not quit during the downturn but instead put their heads down and weather the storm until the economy recovers.

However, while the number of alternative opportunities is a factor in voluntary turnover, it is not the driving force. Instead, decreased job satisfaction, which is "a simple single summary measure" capturing employees' perceptions of how their organization treats them,[6] sets employees off along the path of voluntary turnover. During an economic downturn, employees experience decreased job satisfaction for a number of reasons, including increased job insecurity[7] and preventable employer mistakes.

Decreased job satisfaction drives increased turnover intentions.[8] When job satisfaction decreases, employees begin to consider leaving their jobs and start evaluating their alternative employment opportunities. If they think it is likely they will find a job that will bring them more tangible and intangible benefits than their current one, they will begin to have a turnover intention. Once an employee reaches this point, it is likely they will leave your organization as turnover intentions are strongly positively correlated with voluntary turnover.[9]

Therefore, if you do not take action to prevent a drop in employee job satisfaction and rising turnover intentions, then many of your employees will walk out the door as the economy recovers. First out the door will be your critical workforce segments, those employees and groups that "drive a disproportionate share of their company's business performance and generate greater-than-average value for customers and shareholders," top performers, and future leaders who have transferable and highly demanded skills.[10]

KEEPING THE LID ON EMPLOYEE TURNOVER INTENTIONS

It seems counterintuitive — employees are not running for the exits in a downturn — but organizations should be careful not to alienate employees during a downturn because of the tangible and intangible costs associated with losing talent once the economy recovers.

If voluntary turnover increases after an economic downturn, then companies have to bear the costs to recruit, train and attract new employees to replace those who have left. Replacing lost employees quickly becomes expensive. A review of various benchmarks suggests that the cost of replacing an employee lies somewhere between 25-200 percent of leaver salary.[11] Not only does turnover have direct financial costs, but voluntary turnover has also been shown to decrease workforce performance.[12] However, these costs are only the tip of the iceberg as customer relationships are impacted, knowledge is lost, and other employees have to pick up the slack.

Given this and the trends in voluntary turnover, organizations may think they are fated to see their people walk out the door once the economy recovers. To some extent, that may be true: a good economy presents more options and some people will make the move. But there are several mistakes that organizations make that decrease job satisfaction and increase turnover intentions. These can be caused by both actions taken without proper planning or important actions not taken.

> To prevent the loss of talent typically seen during economic recoveries with a resulting "resume tsunami," leaders must avoid making mistakes that increase employees' turnover intentions.

1. Don't forget that your high performers can always get jobs somewhere else.

Your top performers, future leaders, and critical workforce segments increase operational performance, drive value creation, and — to put it plainly —can succeed anywhere. During an economic recovery, companies are likely to lose these employees as they have the most options. Not only can these employees find new jobs during an economic recovery, but they also are actively recruited during an economic downturn. Forty percent of surveyed executives reported they would try to attract more critical talent with hard-to-find skills in response to the current economic downturn.[13]

By communicating one-on-one with top performers, you can let them know that they will not be cut, preventing the rise in turnover intentions that might have caused them to look for outside opportunities. Also, instead of offering only additional compensation, consider offering them other benefits, such as developmental experiences that they cannot find elsewhere, for example international assignments, rotational programs, or leadership roles. These actions can increase organizational commitment and help you keep your top performers without breaking already tight budgets.

2. Don't give leaders bonuses while expecting employees to go without.

Given the public outcry over Wall Street bonuses and automaker CEOs flying in private jets to ask for bailout funds, it is apparent that the focus on executive compensation is greater than ever before. Because of this, CEOs and other executives cannot cut employee salaries and jobs on the one hand and take large bonuses on the other if they hope to prevent a rise in employee turnover intentions.

To show that leadership is dedicated to organizational success and is willing to share the economic burden with their employees, leaders should consider a symbolic act of dedication.

To show that leadership is dedicated to organizational success and is willing to share the economic burden with their employees, leaders should consider a symbolic act of dedication. During the 2001 downturn, the 107 partners of DiamondCluster Consulting unanimously agreed to take a 10 percent pay cut to avoid layoffs. DiamondCluster's employees viewed this gesture positively and thought that it reflected their team-focused culture.[14] Symbolic acts of dedication have also occurred more recently such as when Gap CEO Glenn Murphy volunteered to take a 15 percent pay cut.[15]

By following these examples, you will show your employees that you care about them and are committed to your organization's success. Such actions can prevent employees from resenting management and feeling as if they have been treated unfairly throughout the downturn. By showing that you have dedication to the firm and its employees, you will earn your employees' respect and dedication.

3. Don't cut employee compensation to avoid layoffs without first looking at your company's tolerance for compensation cuts.

Throughout the economic downturn, some organizations looking to reduce costs are considering cutting compensation instead of reducing headcount. In a 2009 Deloitte* survey, 326 global executives were asked how they anticipated their organization's focus on reducing costs and employee headcount would change over the next 12 months. As a way to reduce costs, these executives noted that they expected to reduce bonuses (35 percent), benefits (23 percent), and salaries (18 percent).[16] However, before implementing compensation reductions, you need to understand your organization's tolerance for compensation cuts because this will determine if they are a better route for your company than layoffs.

In 2001, a professional services firm decided to institute pay cuts to reduce the number of layoffs. However, they learned the hard way that their organization's culture was not tolerant of pay cuts. Their top performers, who did not feel tied to the company, knew they could get better money elsewhere. Additionally, those who remained had strong feelings of resentment and a lack of trust toward management; they felt they should be compensated for their hard work throughout the downturn. As the economy picked up and salaries for new hires increased, the company faced salary compression issues taking several years to remedy and saw voluntary turnover increase substantially leading to a talent gap they are still recovering from today.

Alternatively, as mentioned in *The Boston Globe,* Beth Israel Deaconess Medical Center CEO, Paul Levy, recently proposed to his staff the idea of doing what they could to protect "the lower-wage earners — the transporters, the housekeepers, the food service people." He told them that to protect these workers, they all would have to "make a bigger sacrifice," including giving up "more of their salary or benefits." As soon as the words left his mouth, the crowd roared with applause. He went on to ask his employees for cost-cutting ideas and, as emails started to pour in, it was clear that employees were willing to forego pay and benefits to prevent their fellow employees from being let go. For example, employees suggested bypassing raises, working only 4 days a week, giving up vacation and

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sick time, and eliminating bonuses as possible ways to cut costs and avoid layoffs.[17] Because of the interconnectedness between hospital employees, where nurses and administrators rely on janitors and cafeteria workers to keep everything running smoothly, Beth Israel possessed a culture where employees were willing to bypass pay to save their fellow employees' jobs.

Considering your culture's tolerance for compensation cuts is key to understanding if they are a viable option. If they are, you can avoid the anxiety and insecurity associated with layoffs, which can prevent a rise in voluntary turnover when the economy recovers. However, if your employees are not willing to take a pay cut to keep others' jobs, you will create resentment and anger in your company, leading to higher voluntary turnover, especially among your top performers. In this situation, you are also weakening your company because you are losing your best employees to keep your worst.

4. Don't let your managers off the hook for retaining their employees.

While manager focus on improving business results is especially important and challenging during a downturn, it can lead to a reduced focus on a company's human capital if managers do not have an incentive to proactively deal with employee issues.

Managers need to focus on how they treat their employees because employees' satisfaction with their supervisors is negatively related to employee turnover.[18] The Corporate Leadership Council has reported that 22 of the top 25 most effective levers of employees' intentions to stay within an organization were driven by their managers (for example, accurately assessing employee potential, clearly articulating organizational goals, and encouraging employee development).[19] Additionally, employees' perceptions of manager support play such a large role in their decision to stay or leave an organization that even when employees do not believe that their organization supports them, employee perceptions of manager support can still keep employees committed to their organization, preventing a rise in turnover intentions.[20]

To make sure managers do their part in preventing talent from leaving your organization, consider tying their bonuses and rewards to not only operational and financial metrics but also to their department's turnover numbers. By tying managers' rewards to turnover, you will give them the incentives they need to maintain their focus on their people.

5. Don't assume that downsizing survivors can do all the work of their laid-off colleagues.

In 2000, a technology company had 10 HR coordinators spread throughout the country managing their 650 interns. When the economy dropped in 2001, they decided to let go of all 10 HR coordinators who had experience running the program. Instead of closing down the intern program, they chose one HR employee to run it. At first, the employee taking over this role felt proud that the company thought she could do the work of 10 people, until she realized how much work had to be done. Trying desperately to complete the work of 10 people led to endless long days and nights, causing the employee to resent the company and to leave as soon as the opportunity presented itself. Additionally, the interns had a bad experience that resulted in fewer accepted offers and negative buzz on campus.

While this is an isolated example, we often see organizations, in their rush to reduce costs, cut people without focusing on how layoffs will affect their remaining employees. This causes additional new responsibilities to be thrust upon survivors who are expected to pick up the slack for their downsized colleagues. As a result, employees experience "role overload," which lowers organizational commitment and increases turnover intentions.[21]

...if your employees are not willing to take a pay cut to keep others' jobs, you will create resentment and anger in your company, leading to higher voluntary turnover, especially among your top performers.

Before you cut your employees, analyze their tasks and be prepared to cut their low value-add activities. If you are planning to have employees take on new roles, make sure you provide training and clearly communicate their new responsibilities so they understand what is required.

6. Don't be afraid to communicate what is really occurring.

There is no way around it: spin does not work, and honesty does. At a life sciences company, management refused to announce a downsizing until the day that it occurred because they feared that an earlier announcement would cause people to stop working and begin looking for new jobs. However, as news of the downsizing leaked out and company performance continued to drop, the lack of communication from leadership led to anxiety and fear among their employees. The fear and anxiety reduced organizational productivity as employees spent their time talking and worrying about the impending layoffs. It also led to an increase in turnover intentions throughout the organization because employees knew layoffs were coming but were unsure when they would occur and who would be affected.

Contrast that with one public sector organization that was implementing a new claims processing system. Leadership realized early on that the system would lead to a reduction of one-third of their workforce, and they knew which employee roles would not be required in a year. Due to state disclosure laws, leaders had to go to employees and tell them their roles would be eliminated in a year. However, leadership proactively communicated that cuts were coming, were as transparent as possible, and let employees know they would help those impacted acquire new skills and find new jobs. This targeted and effective communication strategy made it possible for the director to comment only a month after the announcement that the pending layoffs were a "non-issue."

While the decision may be hard, it is better to make one large cut than a bunch of small ones. "A single big layoff is tough on everyone but does a lot less damage than seemingly endless rounds of unpredictable cuts…"

These two examples show the importance of effective communication in helping reduce employee anxiety and building trust between leaders and employees. Honest and transparent communication can help reduce employee anxiety and turnover intentions as it allows employees to understand that a layoff is coming, how it will affect them, and how the organization will handle the process. Creating trust between you and your employees can also help prevent a rise in turnover intentions as trust may help keep employees supportive of their organization, even when the organization's decisions are unfavorable.[22]

7. ***Don't ignore the loss of valuable institutional knowledge caused by downsizing.***

When management looks to downsize, there is an incentive to cut as quickly as possible to realize cost savings. However, management often underestimates how much knowledge resides in their workers' heads and how little is contained in the organization's systems and processes. Companies may go through layoffs without thinking about those who are left behind, often overlooking the absence of a formal process for knowledge transfer. The resulting chaos may lead to turnover intentions as survivors experience confusion, stress and burnout as they figure out how to do their predecessors' work.

In some cases, it is impossible for survivors to figure out what their predecessors did, causing some organizations we have worked with to bring back certain terminated employees as contractors, paying them more than when they were employees. Without taking steps to capture this knowledge before it leaves, the organization must decide whether to bring back laid-off employees at higher wages or risk losing customers and productivity as someone new adapts to the job. To avoid this risk and the risk of increased turnover intentions, consider offering downsized employees a financial reward or a service, such as job placement or resume help, to incent them to share their knowledge before they leave.

8. Don't make small cuts over and over again to avoid the press coverage and shock of large layoffs.

A recent *New York Times* article spoke not of massive headline-making layoffs but of how some companies have begun to "routinely carry out scattered layoffs that are small enough to stay under the radar."[23] While small layoffs stretched over a period of time may not make the paper, these small cuts still create a lot of anxiety throughout the organization as employees start to wonder when it will be over. Repeating small cuts over time creates increased turnover intentions and wreaks havoc on a company's organizational culture.

For example, a consumer products company, which relied on its culture of knowledge sharing to spur innovation, found itself continuously laying off a few workers here and there until, over a period of years, layoffs were a way of life. The constant cuts caused knowledge hoarding to become the new norm. Employees felt they could not be let go if they had information that no one else knew. As a result, employees became increasingly reluctant to share information with their colleagues, leaving corporate knowledge management systems outdated and empty. Consequently, productivity dropped as employees no longer had access to previous work products and spent time worrying about when the next cuts would come. The fear of the ever-impending layoff also led employees to look for new jobs because they never knew if they might be next.

While the decision may be hard, it is better to make one large cut than a bunch of small ones. "A single big layoff is tough on everyone but does a lot less damage than seemingly endless rounds of unpredictable cuts," writes Robert Sutton, Stanford professor of management science and engineering.[24] By cutting once, you can put the layoff behind you and focus your efforts on improving the morale and reducing the anxiety and insecurity of your remaining employees. This will help reduce the likelihood that your remaining employees will leave the organization, help them once again become productive, and better position you to realize the business benefits that motivated the cut in the first place.

9. Don't buy into the belief that across-the-board layoffs are good for your company.

Often, newspaper layoff announcements include the designation "across-the-board." In our experience, organizations implement across-the-board layoffs because they feel they are fair since all departments share the burden. While having employees believe that the procedure for choosing downsizing victims is fair can help increase organizational commitment,[25] an across-the-board layoff is bad business and will ultimately increase employee turnover intentions.

For example, a pharmaceutical company may ask each department to cut 15 percent of its workforce in an effort to reduce costs. However, in doing so, they will end up cutting their critical workforce segment, the scientists and researchers who develop new drugs that drive company growth, by the same amount as other departments. Such a cut is bad business; You are essentially shooting the goose that lays the golden eggs to keep around the one that lays nothing. Additionally, if such a cut were to occur, survivors on the R&D team could view layoffs as unpredictable, causing an increase in job insecurity, anxiety and turnover intentions among the critical workers.

To avoid these dual threats, you first need to identify your critical workforce segments and avoid cutting there unless you have no choice. During, before and after the cuts occur, get your leaders in front of your employees and prepare them to communicate the reasons, basis and procedures for the layoff. Make sure they are prepared to answer any questions, deliver a common message, and do not say anything that might cause legal trouble.

PREVENTING THE DOWNTURN FROM SPREADING INTO THE RECOVERY

Cutting costs and focusing on operational performance can help companies control the flames of an economic downturn, but if they hope to put out the fire completely, they must also focus on their talent. If not, they will be prone to making mistakes that will leave smoldering resentment throughout the downturn. Mistake after mistake, resentment, anxiety and turnover intentions will slowly grow and spread. As long as the economy is not growing, these embers may appear dormant. However, once the economy picks up, new alternative employment opportunities in the economy will ease the way for employees to begin leaving your company. Instead of being able to take advantage of the economic recovery, you may find yourself on the defensive as talent walks out the door.

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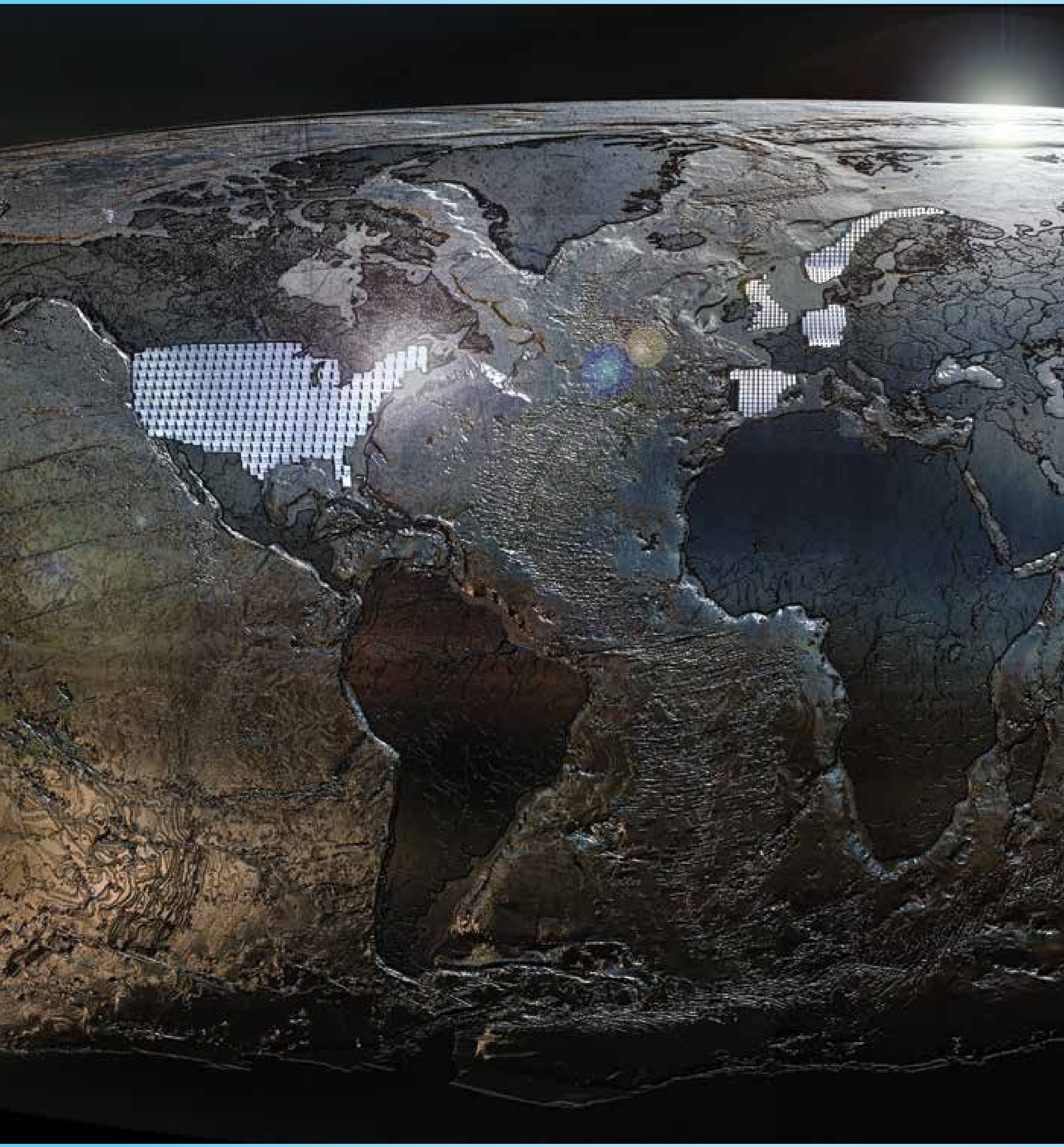


Solar's Push to Reach the Mainstream

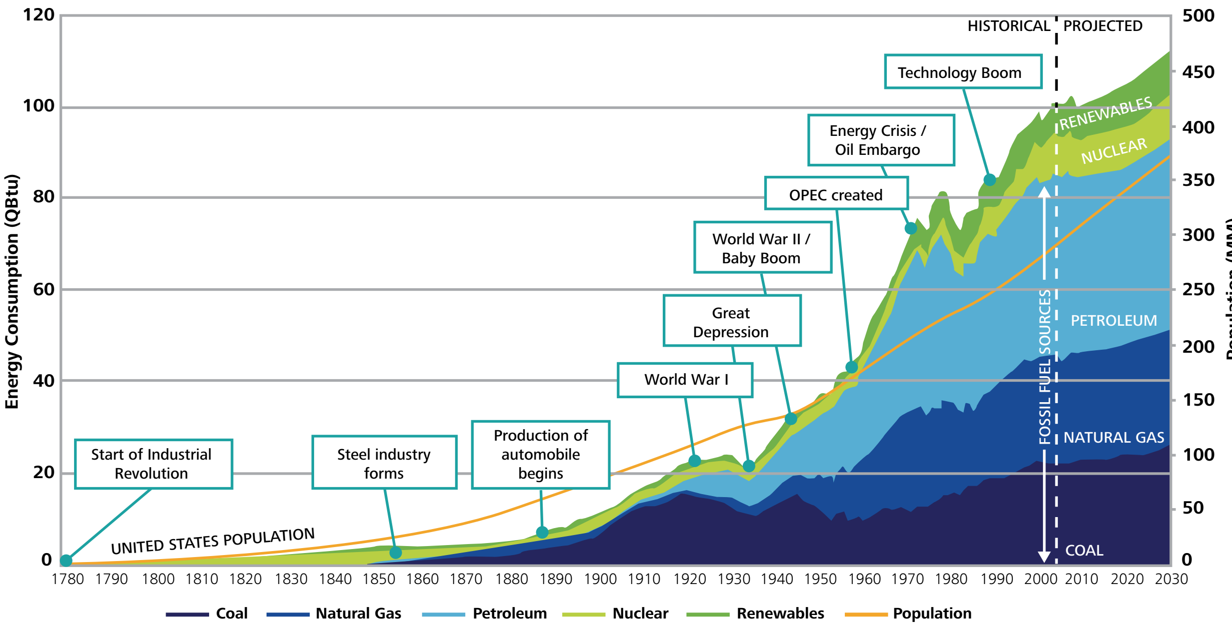
BY OLAF BABINET, DUSTIN GELLMAN AND JOVANA TRKULJA
WITH PHIL SCHNEIDER
> ILLUSTRATION BY KEV JENKINS

IN THE COMING DECADE, SOLAR ENERGY WILL IMPACT YOUR LIFE AND BUSINESS. IN THIS ARTICLE, WE EXPLORE CHALLENGES CONFRONTING THE SOLAR INDUSTRY IN THE RACE TO GRID PARITY AND PUSH TO EXPAND GLOBAL ADOPTION.

LOOMING ENERGY CHALLENGES

Hardly a day goes by without a news story, article or academic finding that suggests energy will be among the world's most significant challenges in coming decades. By 2030, global energy consumption is expected to nearly double 2005 levels.[1] Put simply: it will likely be difficult to meet projected energy demand with available supply — a situation that could present dire economic and environmental consequences. As countries across the world strive for energy independence and environmental stewardship, demand for clean, affordable, renewable power is expected to increase dramatically.

How will we meet rising demand for energy?



U.S. demand for energy is expected to increase 14-28% from 2005 to 2030

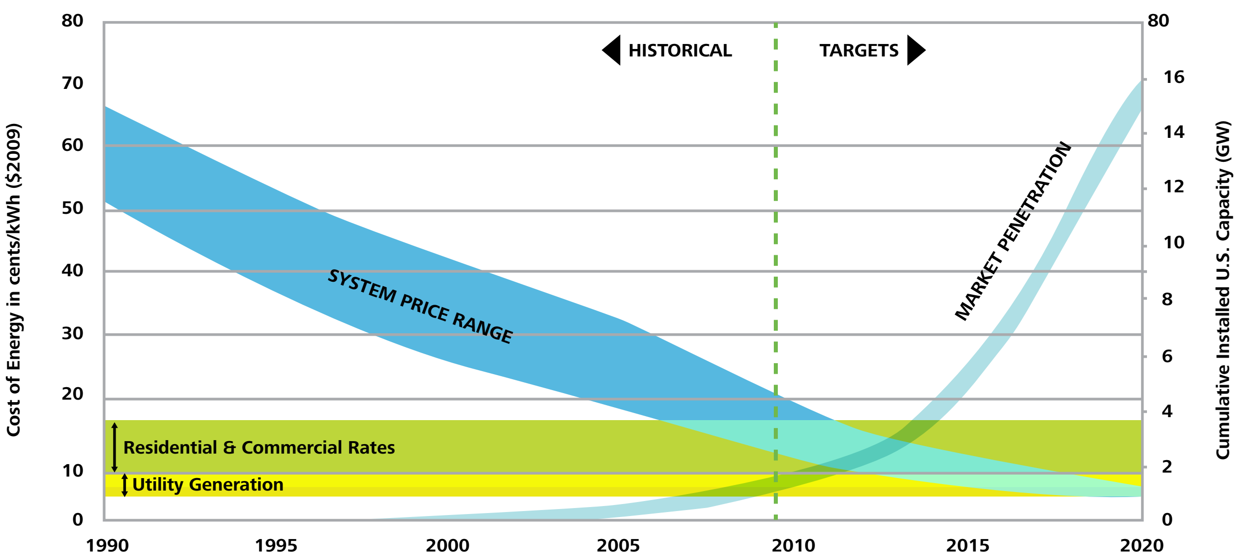
Source: Energy Intelligence Administration. International Energy Outlook (2008)

After decades relegated to powering calculators, parking meters and roadside telephones, solar energy[2] is now positioned to deliver abundant clean energy at an industrially scaled level. While more energy from sunlight hits the earth in an hour than is consumed in an entire year, solar currently constitutes less than half of one percent of the United States' overall generation portfolio and is projected to reach just over three percent by 2030.[3] The data underscore a critical issue: without more dramatic action, solar's great potential will go unrealized. So how can solar companies and governments accelerate the growth of this industry, ultimately to benefit society?

Solar Incentives: a Pareto Improvement

In most areas of the world, solar energy is too expensive to compete directly with traditional fossil fuels — primarily because the industry is relatively immature and lacks economies of scale. Grid parity refers to the point at which the cost of solar electricity (or other alternative energy source) rivals that of our more traditional sources, such as coal, oil, natural gas or nuclear. While many areas of the United States are expected to reach this point for solar by 2015, grid parity actually varies geographically as a function of local climate, utility rates and government support, to name a few. In the United States, residential electricity rates vary between about \$0.07 to nearly \$0.25 per kWh;[4] consequently, different areas will reach grid parity at different times. Globally, the variance is even more pronounced, with a significant portion of the world's population not served by a grid at all.

Projected PV Solar Market Penetration



Falling PV system prices will spur a sharp increase in demand from 2010 to 2020

Source: U.S. Department of Energy. Solar Energy Industry Forecast (2008)

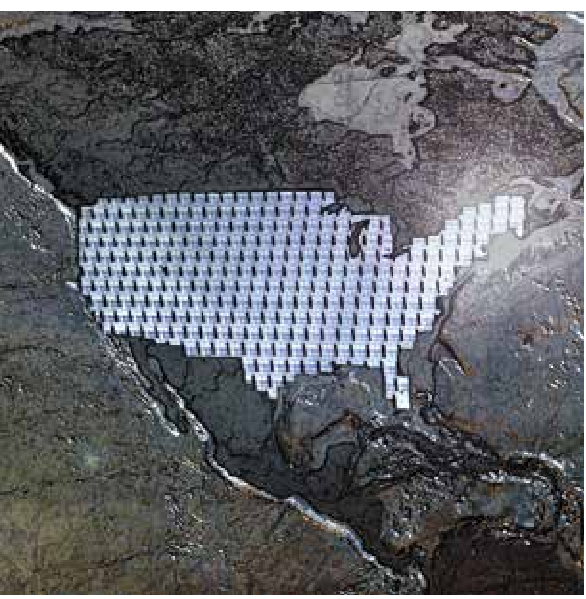
The solar industry faces a chicken and egg dilemma: lower costs will stimulate demand and increase economies of scale, but achieving lower costs now requires scale — or market subsidies. To achieve grid parity, industry players need to survive the current economic recession, reduce operating costs, and pursue technological advancements. Simultaneously pursuing all three initiatives will be difficult;

therefore, governments should consider whether or not to support the industry by subsidizing supply and demand and providing the necessary electrical grid infrastructure. Additionally, capital markets and governments should consider making available the necessary funding for solar companies to invest in R&D, expand production, and deploy solar energy projects. These actions would likely help expedite solar industry technology, innovation, and production scale — which should accelerate the industry toward grid parity.

Growing Pains Ahead

The road to grid parity is fraught with potholes; and beyond parity, mass market adoption poses new challenges. Manufacturers that fail to innovate and lower costs may face extinction. From a revenue growth perspective, numerous solar energy business models — from complex leases to retail dealers — exist today with no clear winner. In the realm of public policy, the United States trails both Western Europe and China in stimulating consumer demand and has a burdensome corporate tax structure. Further, America's electric grid infrastructure is a patchwork of antiquated technology with conflicting stakeholder interests and intricate governance.

Compounding these issues, consumers are mostly unfamiliar with solar products; and those that desire the technology often lack sufficient capital to finance projects. For all of its promise, solar faces an uphill climb to mature and deliver its potential. While the industry may eventually create billions of dollars of investments (and tax revenues) and millions of jobs, the timeline for solar-driven prosperity is uncertain, and the winners and losers remain undetermined.



THE ROAD TO GRID PARITY

In 2009, the solar industry witnessed two milestones: First Solar announced that it produced thin film solar modules for less than $1.00/watt,[5] and the U.S. government passed the American Reinvestment and Recovery Act (ARRA) with significant incentives for both consumers and producers of renewable energy. These are important steps toward making solar systems more cost competitive, thereby fueling innovation and bringing solar closer to grid parity and mass market adoption in more regions of the United States. But these are early steps in a long journey that includes surviving the current economic crisis, lowering production costs across the value chain, and developing new technologies.

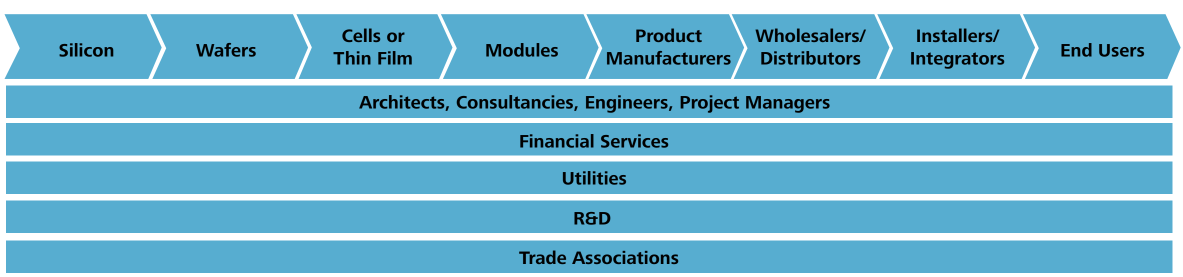
Survive the Global Recession and Solar Shakeout

In recent years, a global shortage of polysilicon — feedstock for crystalline silicon (c-Si) solar modules — drove up system prices. More recently, the global economic crisis and falling fossil fuel prices resulted in weakened demand for solar solutions. Consequently, many solar companies postponed or delayed expansion projects, cut jobs, and carried bloated inventories across much of the value chain. With a shakeout underway, companies were forced to reduce variable costs and delay expansion plans in order to survive.

Reduce Operating Costs

The solar value chain is complex and has numerous stakeholders. The illustration below highlights key steps in the process from raw materials (e.g., solar grade silicon) to building rooftops or solar farms.

PV Solar Value Chain



Source: Deloitte Research, SolarPlaza.com

According to REC, an integrated solar company and industry pioneer, the aim of every solar producer is to move toward grid parity by reducing costs at each step of the value chain. Companies are under enormous pressure to identify areas where costs can be most effectively reduced within each step, while simultaneously improving operational efficiency, driving innovation, and managing business risks.

Balancing such a broad set of operational challenges requires solar companies of all sizes to think and act globally. At each step in the value chain, producers must simultaneously maintain access to suppliers and customers, attract and retain qualified talent, reduce execution and operational risks, and lower costs — all the while anticipating rapid market evolution. For example, in March 2009 the Chinese government announced some of the most aggressive solar subsidies in the world that, if implemented, may amount to nearly half of the cost of installation for medium-sized projects.[6] While industry analysts may debate the long-term impact of China's actions, it is clear that solar companies must remain nimble to adapt to changing global market conditions.

The United States consumes more energy than any other country in the world and has the largest potential market for solar installations. From this standpoint, U.S.-based companies are well positioned to lead the solar industry — and reap considerable economic and social benefits as a result. However, the United States significantly lags Germany, Japan and Spain in terms of solar installation and manufacturing companies and risks missing significant wealth and job creation opportunities.

Pursue Technological Innovation

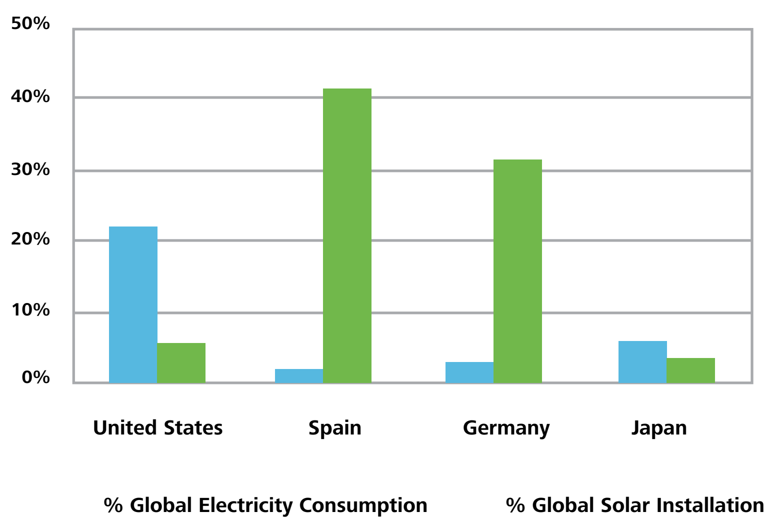
Crystalline silicon (c-Si), sometimes referred to as First Generation solar, presently accounts for 90 percent of industry demand.[7] First Generation modules require solar-grade silicon, which is processed into solar cells. Securing adequate silicon feedstock and using it efficiently is key in reducing end product costs. Technological advances may reduce the industry requirements for this raw material by cutting thinner wafers or reducing cell breakage during the manufacturing process. These technological advancements should improve efficiency and contribute to creating economies of scale. Despite these technology innovations, some analysts predict that it will be difficult to drive First Generation solar manufacturing costs below $1.00/watt.[8]

According to Austin-based HelioVolt's founder, Dr. B.J. Stanbery, the solar industry is at the cusp of rapid growth of its next generation technology. Between 2008 and 2012, thin-film technology is expected to grow ninefold.[9] Thin-film, sometimes referred to as Second Generation solar, uses sophisticated equipment to coat a surface (e.g., glass or plastics) with a layer of photovoltaic material—a process that lowers manufacturing costs by reducing or eliminating the need for solar grade silicon and bypassing several production steps.[10] This cost advantage is expected to be an important contributor toward reaching grid parity. Additionally, Second Generation thin-films can be applied to a variety of surfaces, such as building materials and consumer products, opening up new markets for the industry. Incumbent First Generation producers must strike a delicate balance between improving existing processes and investing in disruptive (and potentially cannibalistic) new technologies. For example, Q-Cells, the world's largest solar cell manufacturer, is actively investing in emerging thin-film technologies while continuing its traditional silicon-based cell production.[11]

Effect Public Policies

The United States consumes more energy than any other country in the world and has the largest potential market for solar installations. From this standpoint, U.S.-based companies are well positioned to lead the solar industry — and reap considerable economic and social benefits as a result. However, the United States significantly lags Germany, Japan and Spain in terms of solar installation and manufacturing companies and risks missing significant wealth and job creation opportunities. To help accelerate the U.S. solar industry, federal, state and local governments might consider new policies in four key areas: market subsidies, renewable electricity standards, carbon regulations, and corporate taxation.

Public Policy Drives Solar Installations



While Germany consumes only 15% as much electricity as the U.S., it has about five times as many solar panels installed.[12]

Source: CIA World Fact Book, SolarBuzz.com, *New York Times*

Market Subsidies

In March 2009, Gainesville, FL became the first city in America to adopt feed-in tariffs (FiT), a subsidy that effectively pays homeowners to install solar modules on their rooftops. By contrast, Germany implemented its FiT program on a *national* basis in 2000. Unfortunately, nationwide programs are difficult to implement in America because most utilities are regulated by states. Alternatively, the federal government could consider offering aggressive federal tax credits and other incentives for solar manufacturing and installation like the recent changes enacted in the federal stimulus (ARRA). For example, industry analysts expect that the $6 billion of federal loan guarantees for renewable energy projects could help stimulate $60 billion of lending for renewable energy companies. However, industry executives note that to compete with the leading European and Asian countries, the solar manufacturing industry will need additional financial support.

Renewable Electricity Standards

More than half of U.S. states have enacted Renewable Electricity Standards[13] (RES) legislation, which mandates that a minimum percentage of a state's electricity come from renewable energies by a specific date (e.g., 20 percent by 2020) — a system that effectively *imposes* demand. However, increased costs are passed along to consumers in the form of higher rates, which critics argue is akin to a regressive tax. Proposed legislation for a national RES has previously failed to pass but is expected to resurface in Congress. Such legislation could be a boon for renewable energy manufacturers.

Carbon Regulations

Fossil fuels such as coal and natural gas power most American utilities — 50 percent and 20 percent of total generation, respectively — and emit carbon dioxide (CO_2) during the process.[14] CO_2 emissions are generally accepted to have a negative impact on the environment, although this impact or societal cost is not presently accounted for in the price of electricity in the United States, consequently understating actual costs. At the time of writing, U.S. lawmakers are preparing to debate carbon regulations, economic measures designed to reduce CO_2 emissions through taxation, auctions, trading schemes and other methods. If passed, such regulation is expected to increase electricity prices in most areas of the country and accelerate alternative sources such as solar power toward grid parity.[15] The economic impact is expected to vary by program structure, with some experts predicting residential electricity rate increases of up to 40 percent in Midwestern states.[16]

Corporate Taxation

The U.S. average combined federal and state corporate income tax is close to 40 percent, second only to Japan. High income taxes have deterred foreign solar companies from locating in America. Most solar companies are startups and, given industry growth prospects, expect healthy profit margins to fund expansion, maintain aggressive R&D, and attract investment capital. As the industry matures and margins compress, manufacturers will weigh the tradeoff between increased logistics costs to ship products to the United States from low tax countries and higher corporate income taxes from locating in America closer to the market. Corporate income tax credits could stimulate growth of the domestic solar industry, including both manufacturing and installation.

Upgrade America's Century-Old Grid

In the United States, electricity is usually generated at central power plants and transmitted to consumers. Based on century-old technology, the transmission networks in certain areas of the country are often outdated, strained and poorly suited for renewable energy. High-voltage lines — necessary to carry electricity from remote solar or wind farms to consumers — simply are not as developed in areas where the sun shines brightest or the wind blows strongest.[17] The ARRA economic stimulus directed over $40 billion toward improving the grid, but related projects will take years to reach fruition.

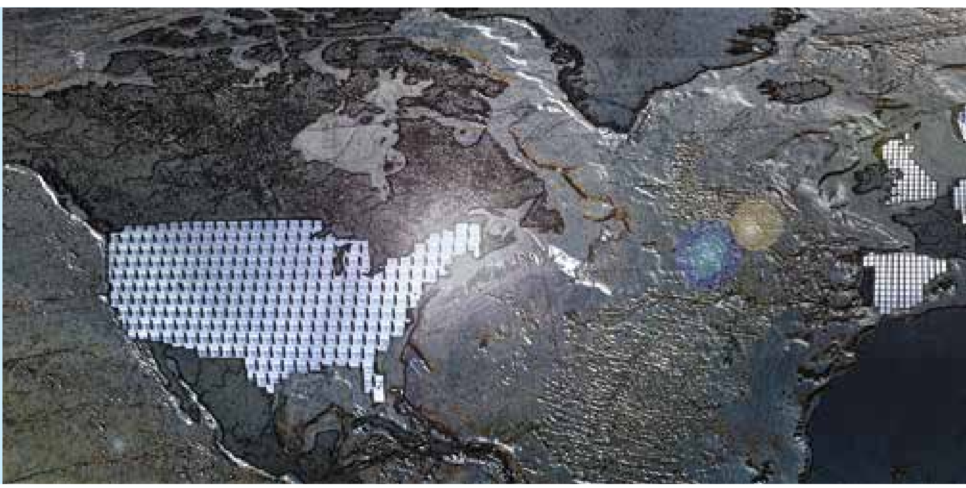
In contrast to traditional electricity generation, solar power collection may be distributed across numerous rooftops or centralized in utility-scale farms. Distributed solar will require grid operators to install technology to monitor power supply and demand, balancing thousands of individual generators with central power plants. Connecting remotely located solar farms will require building new high-voltage transmission lines and routing them to the grid. The ultimate goal among public policymakers and industry insiders is to develop a *smart grid*—a modern electricity network driven by digital technologies, capable of monitoring activity in real time, detecting and healing issues, increasing efficiency through demand management, and accommodating interconnected distributed generators, such as solar and wind farms.

Today, electricity is a just-in-time commodity, routed to consumers as it is produced. When the sun stops shining, solar cells cease generating power. For solar to truly have a meaningful role in the electric power generation mix, in addition to extending and improving the country's transmission network, a power storage infrastructure is required. To maximize efficiency, utilities can use advanced batteries to store up energy from solar as it is generated for future use ondemand. However, broadscale deployment of this technology is immature and, to date, limited in the United States.

Secure Access to Capital

Less restricted capital markets are necessary to expedite solar industry's growth. Between 50-70 percent of solar projects are financed by debt, which makes the industry particularly susceptible to the current credit crisis.[18] And when customers can't secure financing, demand weakens, prices fall, and solar companies are forced to reduce production, alter payment terms, or postpone projects. According to Germany's Commerzebank, tight credit conditions impact solar project returns to a much greater extent than falling module prices.[19]

HelioVolt, considered a leader in thin-film solar technology, illustrates the financing challenges faced by many technology startups: its 20 MW pilot factory cost nearly $40 million to equip, and commercial production won't begin until 2010. Building larger-scale factories will deliver dramatically lower capital cost per unit output but requires additional capital from investors with a longer-term outlook and appetite for risk — rare characteristics in today's economic climate but essential for HelioVolt to gain speed to market.



ACHIEVING WIDESPREAD ADOPTION

The U.S. Department of Energy anticipates that by 2020, solar will achieve widespread grid parity, with worldwide installations reaching a cumulative 200 GW. While the implied growth rate to achieve this level of installation over the next decade is impressive, this figure represents only one percent of projected global energy demand. Harvesting the sun to make a more significant impact on energy independence and environmental leadership will require far greater adoption. For solar power to account for more than a token portion of the world's energy portfolio the industry must drive costs even lower and pioneer new business models, and governments must continue to deliver supportive public policy.

Drive Costs Even Lower

Driving costs significantly lower will likely accelerate adoption, especially in light of solar's environmental and energy independence benefits. Solar energy prices have declined by about four percent annually since the mid-1990s[20] and are expected to continue downward at a rate of five to six percent.[21] The commodity nature of solar modules will force producers to continuously lower costs to gain competitive advantage and improve margins. Economies of scale will be a major driver. Solar Revolution author Travis Bradford estimates that solar production costs decline 18 percent each time output doubles.[22] From this perspective, it certainly pays to be bigger.

Solar manufacturers can optimize their global R&D and manufacturing footprint to lower production costs by strategically deploying these assets across facilities, functions and geographies. Similar to the semiconductor industry, solar wafer and cell manufacturers will need to leverage production locations with lower variable cost inputs such as taxes, labor and utilities while maintaining reasonable access to markets for final module assembly.

Stanbery notes that as solar module prices fall, shipping costs relative to product value will rise. Consequently — and contrary to popular opinion — module manufacturers may actually relocate production closer to customers in large markets to minimize distribution costs; likewise for other next generation solar products, such as solar-integrated building materials.

Today, the majority of solar modules produced are sold to a relatively small number of customers. Beyond grid parity, both the type and number of customers will fundamentally change, with commercial and residential segments increasing dramatically. To capture a larger portion of the value chain and streamline costs, today's savvy manufacturers will likely seek to vertically integrate by moving either further up or downstream from their current core competency. Thin-film leader First Solar exemplifies this idea, having recently purchased solar integrator OptiSolar's entire portfolio of utility projects.

Solar companies can also drive production costs lower through innovation and technological advancements at any stage of the value chain. For example, Elkem Solar has pioneered a process to produce a tailor-made solar grade silicon through metallurgical refining with performance equivalent to polysilicon for a fraction of the cost of traditional production methods. Numerous companies have made great strides toward module manufacturing automation. Dramatic raw materials savings are already inherent in both thin-film and silicon manufacturing, and wafer producers continue to make strides toward thinner wafers. Both silicon and thin-film will likely continue to improve efficiency yields of solar cells, further lowering the total cost/watt. Regardless of technology, solar manufacturers in a post-parity world must maintain a distinct competitive advantage by driving to an ever lower cost structure, dominating a specific application, or vertically integrating to achieve production and cost efficiencies across the solar value chain.

> To dramatically increase adoption, the solar industry must develop new products, enter new markets, and expand financing options. The industry may evolve across a spectrum: On one end, a smaller number of high-volume producers will produce cells and modules at relatively low margins. On the other end, numerous smaller product developers will produce lower volumes of specialized, higher-margin products.

Deliver Supportive Public Policy

When solar electricity costs are comparable to fossil fuels such as coal, will governments continue to offer subsidies and favorable legislation? It depends on public policy goals and to what extent the environment and energy independence remain in focus. To accelerate solar adoption beyond a tiny fraction of total energy demand, governments will need to continue to play a proactive role.

The Obama administration has targeted renewable energy as a catalyst for economic growth and prosperity. Manufacturing and installing solar power systems creates jobs. According to a recent EPIA study, 10 jobs are created per MW of modules manufactured, and 33 jobs are created per MW during installation. Adjusted for varying project types, if global demand reaches the projected 200 GW by 2020, and not controlling for likely labor efficiencies, this would translate to over one million installation jobs globally. According to the University of California at Berkeley's Renewable and Appropriate Energy Laboratory, over the course of a 10-year period the solar industry creates 5.65 jobs per million dollars in investment, the wind energy industry 5.7 jobs, and the coal industry only 3.96. Research from the University of Florida estimates solar creates more than fifteen times the number of jobs per MW installed when compared to nuclear.

Which countries capture the lion's share of solar-related economic growth and jobs remains in play and will be driven in large part by public policy. Countries that offer aggressive incentives, develop modernized infrastructure, and streamline the regulatory environment will be well-positioned to lead in both the manufacture and installation of solar modules. The ARRA federal stimulus incentives and state-mandated Renewable Electricity Standards will help the United States gain market share, but recent announcements of aggressive solar subsidies by China and Ontario, Canada underscore the reality that the race to lead the industry will be hotly contested.

While solar installations are inherently local, solar cells, modules and other system equipment can be manufactured nearly anywhere. This bodes well for tax holiday and otherwise low cost manufacturing countries such as Singapore and Malaysia, but less well for the United States, Japan and Western Europe. However, module assembly is becoming rapidly automated. So unless the entire supply chain is optimized in a low labor cost region, the tradeoff between labor, taxes and logistics and other favorable operating conditions will likely be evaluated on a case-by-case basis. In the short run, to be globally competitive in solar manufacturing, countries with high taxation and labor costs will likely need to compensate with supportive public policy that provides tax credits for capital investment, R&D and technical training.

Pioneer New Business Models

To dramatically increase adoption, the solar industry must develop new products, enter new markets, and expand financing options. The industry may evolve across a spectrum. On one end, a smaller number of high-volume producers will produce cells and modules at relatively low margins. On the other end, numerous smaller product developers will produce lower volumes of specialized, higher-margin products. Instead of opening expensive factories, smaller companies may outsource production to larger fabrication plants, in similar fashion to the semiconductors. The localized nature of solar installations raises the prospects of specialized retail stores, dealerships and franchises.

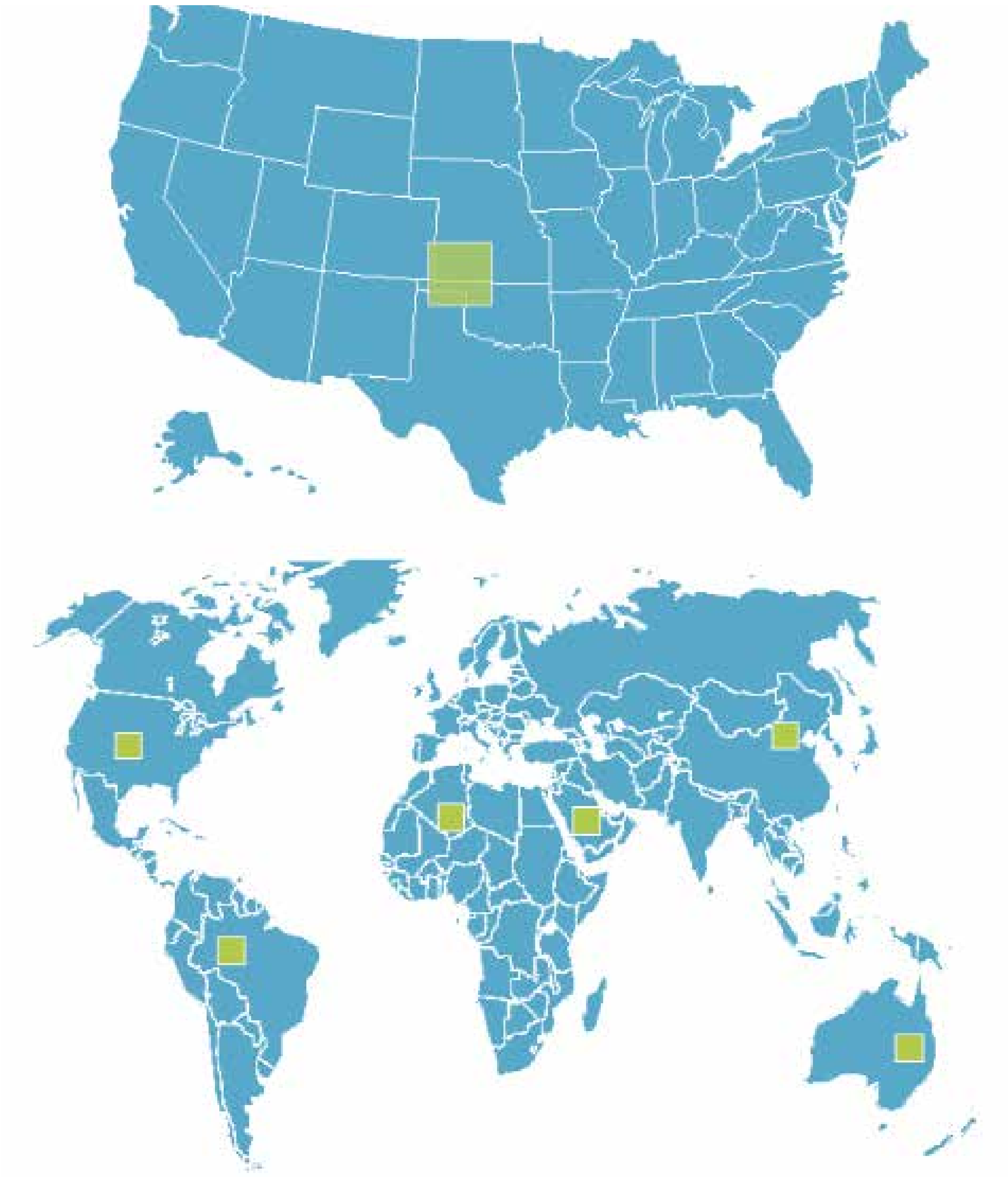
There are presently three distinct market segments for solar: industrial, commercial and residential. Industrial solar generates electricity centrally, usually in large-scale farms. Pre-grid parity, utilities such as Pacific Gas & Electric and Duke Energy are using large-scale solar projects to help meet state-issued standards.[23] By contrast, commercial and residential solar segments put solar panels on individual rooftops and generate electricity in distributed fashion. Beyond grid parity, a new segment of building integrated products (BIPV) will emerge, with solar cells built directly into windows and roofing materials, fixtures and consumer electronics. These products require sophisticated engineering and will command higher margins compared to commoditized solar modules. Industry analysts estimate the global potential market size for BIPV in the tens of billions.

> While current costs for solar largely limit the technology to wealthier nations, falling prices present opportunities to enter developing countries. Distributed solar is particularly promising for areas that lack a modern grid infrastructure, particularly Africa and much of Southeast Asia. Increasing adoption in non-OECD countries carries the added benefit of mitigating some of the world's dirtiest power plants.

The 30 member countries of the OECD presently consume 47.3 percent of the world's energy.[24] The next wave of demand will be driven by developing countries that have a less developed grid. The Energy Intelligence Administration projects that between 2005 and 2030, the demand for energy in non-OECD countries will increase by 85 percent, while demand for energy in OECD countries will increase by 19 percent.[25] While current costs for solar largely limit the technology to wealthier nations, falling prices present opportunities to enter developing countries. Distributed solar is particularly promising for areas that lack a modern grid infrastructure, particularly Africa and much of Southeast Asia. Increasing adoption in non-OECD countries carries the added benefit of mitigating some of the world's dirtiest power plants. In similar fashion to mobile phone companies, solar companies must adapt their business models to sell technology that fits with local incomes, infrastructure and regulations in developing countries, allowing them to bypass grid technology.

Purchasing a solar system to power the average American home currently costs about as much as buying a new car. Even when prices fall, the investment will remain a stumbling block for most households. To increase adoption, solar companies will need to develop a broader range of financing options. Companies such as Solar City — which purchases and installs panels on rooftops, then leases them

Solar's Potential: Mass Scale Clean Energy



America's entire energy needs could be met by tiling a 400 x 400 KM tract of land in the sunny Midwest with solar panels. Six comparable sites, properly located, could power the entire world.[26]

Source: The Lewis Group

to customers — will likely grow in popularity. Banks may present the option to finance solar systems alongside home purchases or refinancing mortgages, while solar retailers may follow the path of the auto industry by offering financing. Utilities are already using their balance sheets to purchase and operate larger-scale projects, and the trend will likely continue. Commercial property owners and tenants may partner with financiers offering purchase power agreements — long-term contracts to lease installed equipment at fixed rates.

SOLAR FUTURE

In the coming decades, the world will likely confront a new energy crisis: combining rapid demand growth and strained supply with increased environmental and independence concerns. The rise of renewable energy sources is inevitable, and solar is particularly well suited for rapid growth as a result of its abundance and broad availability. Unfortunately, today's solar power is too expensive to compete with energy generated from fossil fuels in most areas of the world — a situation that demands solar companies pursue aggressive cost reduction and governments consider supporting the industry with market subsidies, even in the midst of a weakened global economy.

Beyond grid parity, the United States, Europe and Asia will compete for solar's economic prize — estimated worth billions of dollars and millions of jobs. Public policy will likely play a significant role in defining the winners and losers. As the industry matures, producers will compete globally and seek locations that balance production costs, logistics, talent availability, and market access. Integrated products — from buildings clad in "solar skin" to portable power applications — will complement existing market segments. From the consumer's perspective, sun power will eventually become as commonplace as the sun itself, with a global impact of equal magnitude to the industrial revolution or rise of the Internet.

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Endnotes

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IOU

The Great Transformation

BY CARL STEIDTMANN > ILLUSTRATION BY TIM BOWER

THE GLOBAL ECONOMY IS IN THE MIDST OF A GREAT TRANSFORMATION. There is not a country, an industry, a company or an individual who will not be affected in some manner. On the global stage, the loss of the American consumer as the spender of last resort has pitched countries like Taiwan and Japan — which have thrived on exports to the United States — into deep recessions. While the short-term pain for exporters to the United States is severe, the realignment of both capital and trade flows that will come about as a result of this process will produce a global economy that is both more stable and more sustainable.

The global economy of the coming recovery may well look very different from the global economy of the last expansion. Every business cycle leaves its mark on both the nature of business and the role of government in the economy. Not since the 1930s have we seen the government policy response to a recession as transformative as the response by the U.S. government to the current recession. Going forward, the U.S. government is going to have a much larger role with the issues of governance, green economics, energy and transparency taking center stage.

APPLYING STEIN'S LAW: EIGHT TRENDS THAT COULD NOT GO ON FOREVER

If something cannot go on forever, it will stop.

— Herbert Stein, Chairman of the Council of Economic Advisors, 1972-74

Herb Stein was a well respected economist who could coin a clever phrase. The transformation underway in the global economy is a broad application of Stein's Law. It is the reversal of trends that simply could not go any farther. Some of these trend reversals are more obvious than others. All of them were in one way or another an important part of the fabric of the U.S. economy. Their reversal will create a real but very different economy in the future.

1. DEBT LEVELS CANNOT GROW TO THE SKY

If you owe the bank $100, that's your problem. If you owe the bank $100 million, that's the bank's problem.

—J Paul Getty

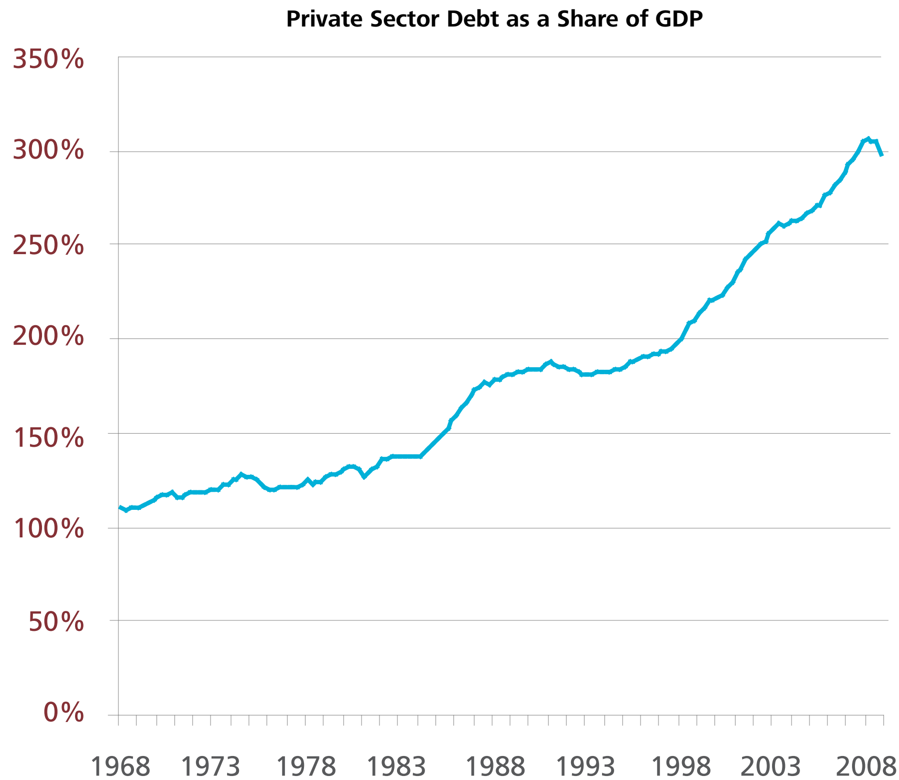
Debt in the United States reached levels in recent years that were simply not sustainable. The process of debt reduction has begun to take hold. Mortgage debt has declined sharply as foreclosures rise and the issuance of new debt slows. The reduction in debt is going to accelerate as the write-offs taken by the banks works thier way through the financial system.

Going forward, the banks have significantly tightened their lending standards. Lines of credit for everything from credit cards to commercial and industrial loans have been reduced. The cost of debt for both businesses and households will be greater even as the availability and terms of new debt will be much more stringent.

Likely implications:

1. The growth of the financial services industry over the past decade has been dependent on the massive expansion of business and household debt. The contraction of that debt is one of the factors that suggests a smaller financial services sector that is less profitable and has less ability to attract the kind of talent it has in the past.

2. A reduction in the availability of credit for households means that households will no longer be able to spend at levels significantly greater than what they earn. For consumer businesses, this points to a smaller, slower



Source: Federal Reserve Board and the Bureau of Economic Analysis

growing industry that will be forced to cater to a consumer who is more income constrained and much more price driven.

3. For non-financial businesses the restriction of credit means that growth will have to be financed through retained earnings and the raising of equity. Managing working capital will become more critical and costly.

4. For merger and acquisition activity, the restriction of debt means that merger financing will have to come from cash or a swap of equity, a development that will result in mergers that will be smaller in size and done for strategic purposes.

2. U.S. TRADE DEFICITS COULD NOT CONTINUE TO DEEPEN

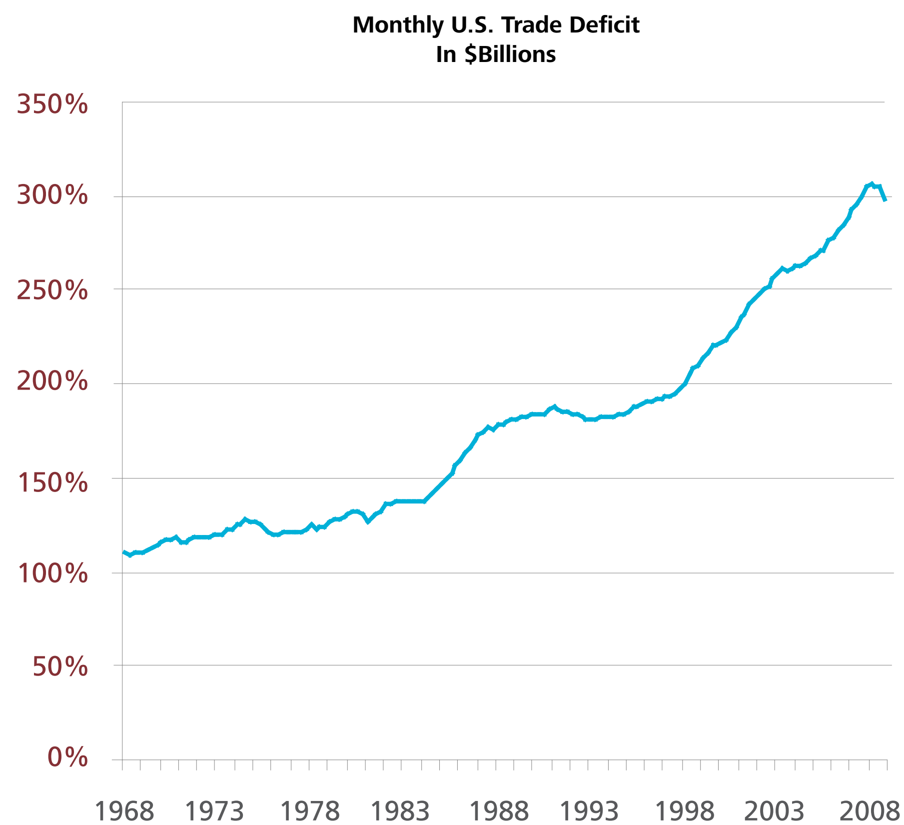
No nation was ever ruined by trade.

— Benjamin Franklin

The debt binge of the past decade fueled the growth of consumer spending, which in turn fueled a massive growth in the U.S. trade deficit. As this debt binge unwinds, the trade imbalances it created will follow with consequences for both consumer and financial service businesses that manage the flow of goods and the counter flow of capital.

Following the Asian currency crisis of 1997-8, Asian countries that suffered the ill effects of rapid currency devaluation quickly began to build up their currency reserves to ensure such a debacle would never happen again. They did this by taking advantage of their depressed currencies to generate sizable trade surpluses, mostly with the United States.

The dependence on trade skewed the balance of growth in those countries away from satisfying the needs of local consumers and developing needed infrastructure to meeting the needs of U.S. consumers. In the United States, the influx of low cost imports gave a boost to consumer purchasing power at the expense of domestic manufacturers who found it difficult to compete with low cost Asian producers. Those who survived did so by moving more of their operations to low cost Asian locales.



Source: U.S. Bureau of Census

The U.S. trade balance began to slowly improve in mid-2005. That improvement was due to slow repatriation of U.S. manufacturing capability due to a falling dollar and rising energy prices. That slow improvement turned into a dramatic shift with the intensification of the credit crisis in the fall of 2008. While U.S. exports have fallen, imports have declined at an even faster pace. Even when recovery does come, the U.S. trade balance is poised to continue the improvement that began in 2005.

Likely implications:

1. An improvement in the trade deficit will be a positive for the U.S. economy and for the U.S. dollar.
2. Developing countries will be forced to shift their mix of growth away from trade and towards domestic consumption and domestic infrastructure investment.
3. The United States will continue to shift the mix of U.S. growth away from consumption and towards government spending, trade and business investment.
4. The change in the global mix of growth will shift the opportunities for manufacturing companies from overseas back to the United States and for consumer business companies from the United States back to overseas.

3. FOREIGN APPETITE FOR U.S. INVESTMENT IS NOT SUSTAINABLE

Americans started believing that they can live on other people's money. Okay, we'd love to support you guys — if it's sustainable. But if it's not, why should we be doing this?

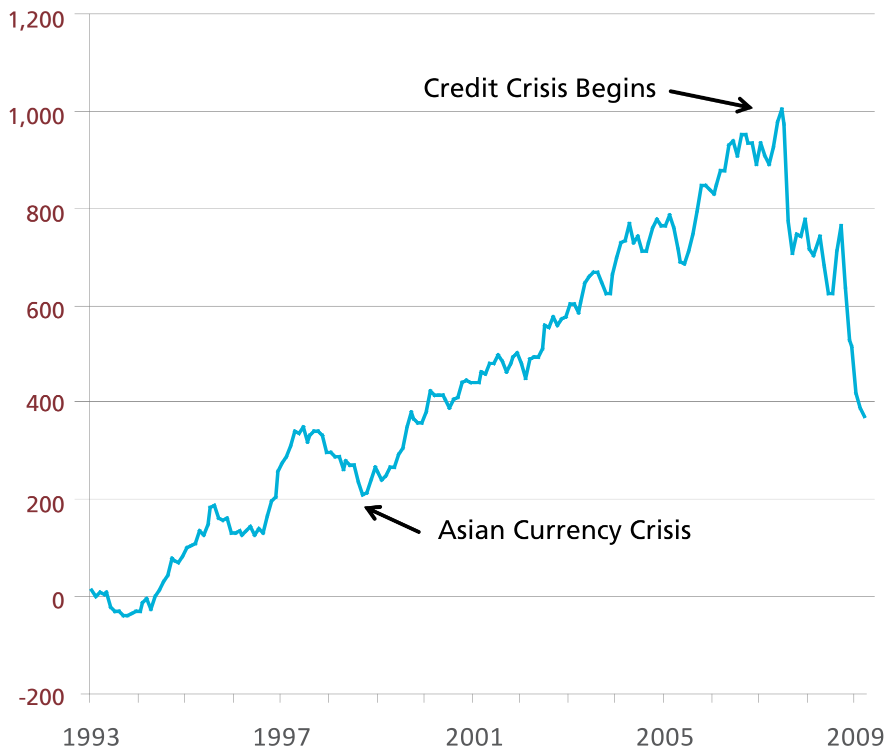
— Gao Xiqing, president of China Investment Corporation, December 2008

The flip side of the U.S. trade deficit has been the growth in sovereign wealth funds, flush with cash. Originally created to defend their country's currency, they have quickly evolved into major players in the global financial system. In many ways, they have become the world financial system's lenders of last resort. With domestic savings flirting with zero, the United States has depended on foreigners to finance everything from the growing trade deficit to a widening government deficit to corporate takeovers.

Despite the need for foreign investment, the growing participation of foreigners in the U.S. economy began to create a populist backlash against the "selling of America". First came the failure of the Chinese National Offshore Oil Corporation to purchase Unocal in 2005. The deal was withdrawn in the face of Congressional rumblings over national security concerns. The failure of the Dubai World company to take over management of six U.S. ports in 2006 confirmed protectionist momentum against foreign investment.

U.S. protectionism was not the only factor working against the growth in foreign investment. An improvement in the U.S. trade deficit has begun to reduce the availability of foreign capital in total. At some point in time, foreign investors may get their fill of dollar denominated assets. Simple demands for diversification of risk would limit the appetite of foreign investors. This recycling of capital earned from trade surpluses back into the United States could not go on forever. That inflection point came in August 2007. The onset of the credit crisis started a pull back in the flow of foreign capital into the United States.

Annualized Net Foreign Investment in the United States
In $Billions, 12 Month Moving Average



Source: U.S. Treasury Department

Since hitting its peak in mid-2007, the inflow of net foreign investment has declined by nearly $600 billion at an annualized rate. The rise in U.S. domestic savings and the satiation of foreign demand coupled with the improvement in the U.S. trade deficit points to continued decline in foreign investment in the United States.

What is replacing foreign direct investment is investment by the U.S. Treasury and the Federal Reserve. The Treasury's $700 billion Troubled Asset Relief

Program (TARP) and the Fed's $1.25 trillion investments in everything from mortgage backed securities to commercial paper to U.S. Treasury notes has made these two government institutions among the largest sovereign wealth funds in the world. The creation of these two funds will have significant and, at the moment, undecipherable long-term implications for both business investment and the functioning of the private sector.

Likely implications:

1. The reduction of foreign investment in the United States reduces another source of capital for future U.S. growth, resulting in higher interest rates and reduced capital availability.
2. The backlash against foreign investment may make future cross-border deals more difficult.
3. The reduction in the U.S. trade deficit may reduce capital flows in sovereign wealth funds, reducing their size and importance as a source of capital.
4. The growth of U.S. government sovereign wealth funds has greatly expanded the role of the U.S. federal government into the capital markets, giving them the ability to pick winners over losers and to influence investment and personnel decisions of the financial and industrial institutions they have invested in.
5. The size of the U.S. government investments in the U.S. economy will be a challenge to unwind once the economy begins to recover.
6. The massive growth projected in U.S. government budget deficits is not sustainable, pointing to significant spending cuts and tax increases in the future.

4. CONSUMER SPENDING AS A SHARE OF U.S. GDP COULD NOT CONTINUE TO GROW

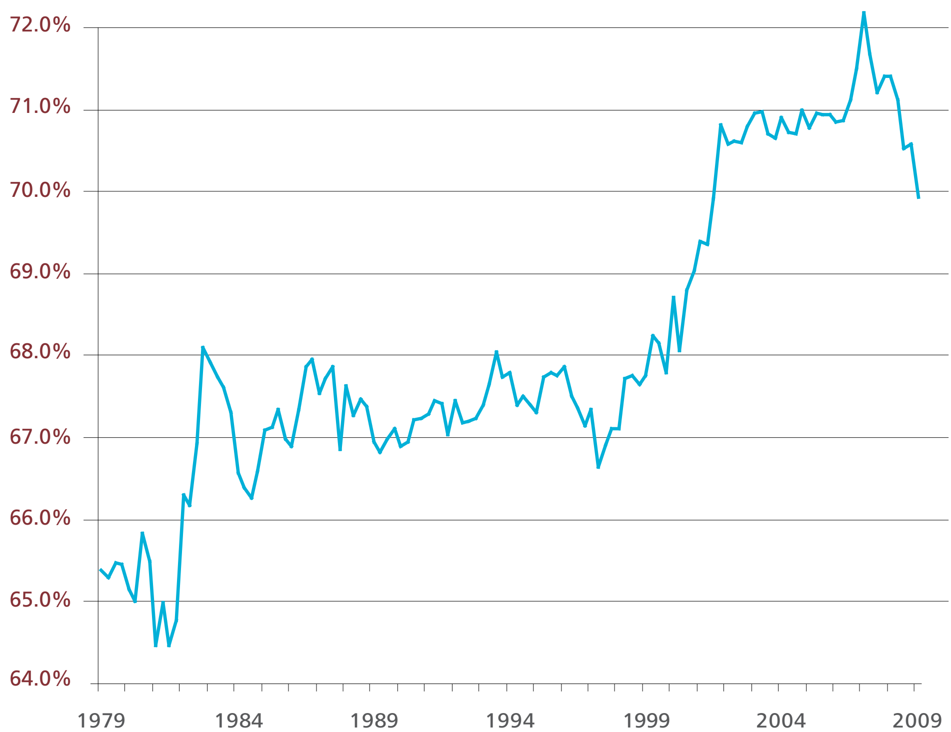
Shop till you drop, spend to the end, buy till you die.

— 1990s Bumper Sticker

The contraction in consumer spending as a share of the economy is being driven in large part by credit constrained consumers. With government spending growing rapidly, some other sector of the economy has to give ground, and that sector will be consumer spending. The share of the economy going to consumer spending soared in the first part of this decade as households cashed out their home equity through the mortgage refinancing process and headed to the mall.

The growth in consumer spending prompted a boom in mall and retail development. At its peak in late 2007, spending on new mall construction was up 30 percent from the previous year and 167 percent from its 2002 low. The overbuilding of mall space coupled with the contraction in retail spending has led to record high vacancy rates in malls and bankruptcy for several mall-oriented real estate investment trusts.

Consumer Spending as a Share of GDP



Source: U.S. Bureau of Economic Research

Likely implications:

1. U.S. consumers are no longer the consumers of last resort for the rest of the world.
2. U.S. consumer business will consolidate into fewer, larger and better capitalized companies.
3. U.S. mall owners will look for alternative uses for their real estate.
4. Export countries that have depended on the U.S. consumer will have to stimulate local growth through the building of infrastructure and the development of a domestic consumer economy.

5. CONSUMER SAVINGS COULD NOT CONTINUE TO SHRINK

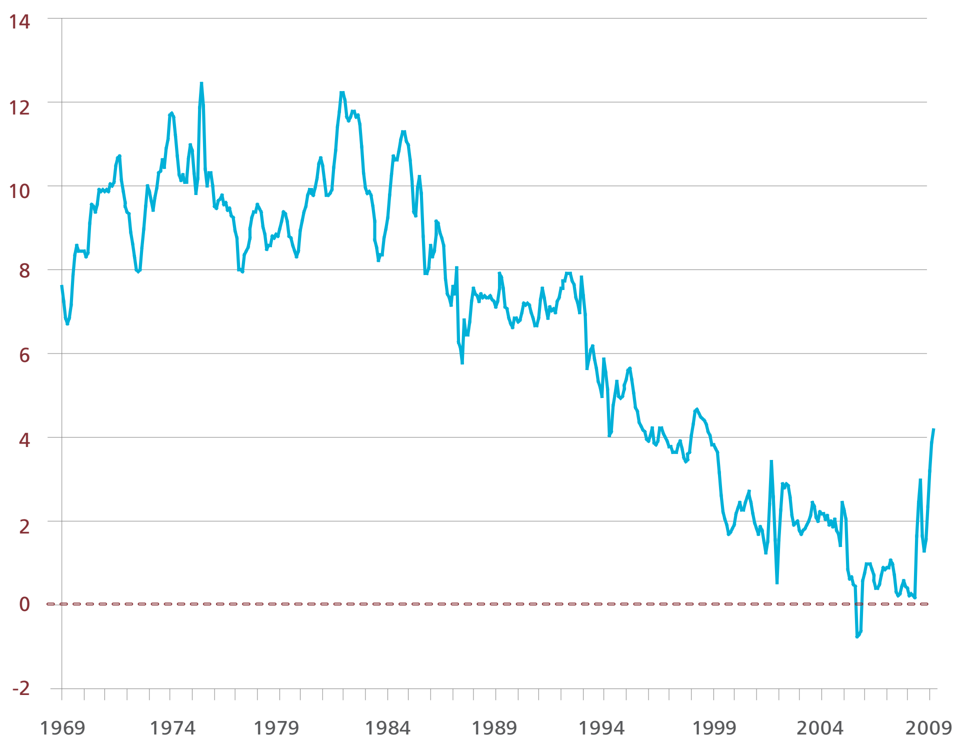
A penny saved is a penny earned.

— Benjamin Franklin

The United States faces an impending retirement crisis that will transform both the workforce and the way we view retirement. Even before the current credit crisis and recession, both the public and the private sectors had made promises with respect to retirement that most likely cannot be kept due to the lack of past funding coupled with the heavy burden these retirement plans impose on future generations. The decline in asset prices has left virtually all private pension funds underfunded. At the same time, the underfunded liability of the Social Security trust fund has grown by trillions of dollars as budget deficits have grown and tax revenues going into the fund have shrunk.

Consumers have responded to the deterioration in their balance sheets by boosting savings. This is but the first small step toward addressing this issue. While the rise in savings has had a negative impact on consumer spending, it has increased the pool of investable funds, reducing the need for foreign investment.

U.S. Savings Rate
As a Percentage of Disposable Income



Source: U.S. Bureau of Economic Analysis

The Baby Boom generation has done everything later in life than previous generations, including saving for retirement. The asset price boom of the past 25 years created the perception that wealth could be generated without the sacrifice of savings. Having taken substantial losses through two major bear markets in addition to losses on their homes, Baby Boomers find themselves ill prepared for retirement. With both public and private pension systems coming up short, the Boomer generation is going to have to save more and work many more years in order to secure their retirement.

Likely implications:

1. Savings rates will continue to rise as the Boomer generation scrambles to rebuild their retirement nest eggs, adding downward pressure on consumer spending.
2. Rising savings will not be enough to offset asset losses and declining pensions. Boomers' labor force participation will have to rise.
3. Social Security reform can no longer be delayed given the growing needs of the Boomers and the deteriorating finances of the U.S. government.
4. Bankruptcy among companies with large legacy pension systems coupled with losses from solvent pension funds will force a reduction in promised benefits.

6. HOMEOWNERSHIP LEVELS IN THE U.S. WERE NOT SUSTAINABLE

The is no place like home.

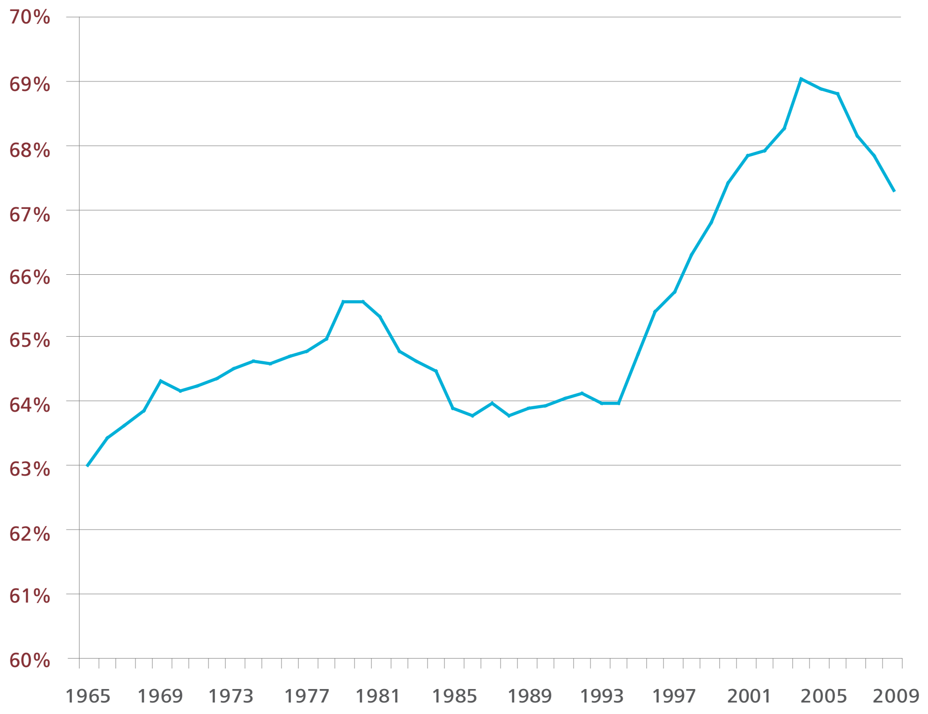
— Dorothy, The Wizard of Oz

At the heart of the American Dream lies the hope of homeownership. For an increasing number of American households that is a fading dream, and for some it has turned into a nightmare. At the center of the financial system meltdown has been a dysfunctional mortgage banking system. The securitization of mortgage debt separated lenders from the consequences of bad loans, resulting in a destructive loosening of lending practices. This was a practice that could not continue once the true quality of the mortgages backing much of the securitized debt became widely known.

The results of these past lending practices have been twofold. First, there has been a significant increase in mortgage defaults and foreclosures. Secondly, there has been a sharp increase in mortgage lending standards and a significant reduction in mortgage lending. The reduction in mortgage debt availability coupled with rising foreclosures and the bad experiences that many households have had with homeownership will likely bring down the share of homeowners into the mid-to-low-sixties, a level not seen since the early 1990s.

The stability of many communities is anchored by homeownership. With the decline in homeownership, fewer households will feel a connection to their community than they once did.

Homeownership as a Percentage of the Population



Source: U.S. Bureau of Census.

Likely implications:

1. The decline in homeownership will reduce the importance and profitability of mortgage financing to financial service businesses.
2. The decline in homeownership will eliminate an important source of wealth creation for many households.
3. The reduction in homeownership will increase the rootlessness of many households and increase their geographic mobility.
4. By reducing the sense of affiliation of some households with their communities, the drop in homeownership will diminish the level of social capital.
5. The reduction in homeownership will hurt the future prospects of home-related businesses like homebuilding, home improvement and home furnishing.

7. FINANCIAL SERVICES' SHARE OF PROFITABILITY WILL HAVE TO REBOUND

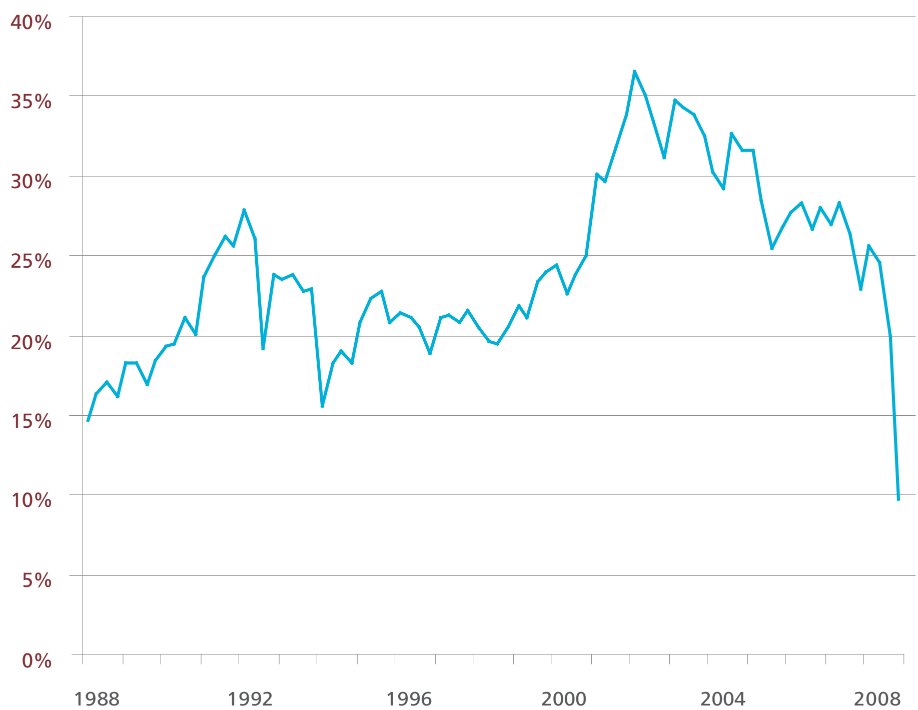
Rumors of my death have been greatly exaggerated.

— Mark Twain

The same might be said of the financial services industry. While the industry had a near death experience in the second half of 2008, the foundations have already been put in place for its recovery. Financial services skated through the 2001 recession with profits relatively intact. Following the successful resolution of several financial crises in the 1990s, the banking industry began to believe in its own infallibility.

Risk management standards were relaxed. As risk spreads came down, bankers reached for additional yield by taking on risks for which they clearly were not being compensated. That was a fatal mistake. The first decade of this century has been less than kind to financial services. After peaking at 37 percent of total profits, financial services' share steadily declined until the second half of 2008, when it totally collapsed.

Financial Service Profitability as a Share of Total Profits



Source: Bureau of Economic Analysis

The current share of profitability is at a level that is likely not sustainable. Either the profitability of the financial services sector will have to rebound sharply or the broader economy and the profitability generated from the rest of the economy will have to shrink. Given the recapitalization of the banks by the federal government through the Troubled Asset Relief Program and the wide margins the banks are currently enjoying, it seems much more likely that the reversion to mean levels of profitability will be achieved by a recovery in financial industry profitability. However, even with that recovery, the industry is going to look very different in terms of appetite for risk, industry structure, regulatory oversight, and return on capital.

Likely implications:

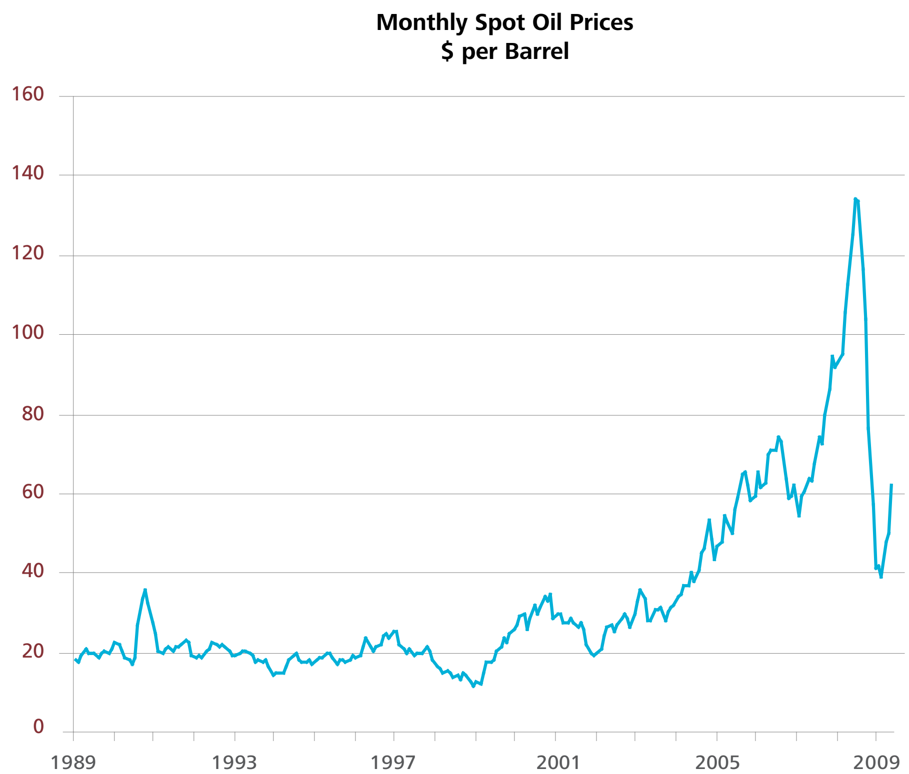
1. Financial services institutions will face substantially more regulatory oversight, reducing their ability to take on more institutional risk.
2. Systemic risks are going to be reduced through regulatory means, resulting over the long term in a less consolidated business.
3. The cost of capital for the rest of the economy is going to rise, generating a much greater need for businesses to reduce working capital and increase the return on invested capital.
4. Industry growth will come from smaller non-traditional players that are able to avoid some of the regulatory oversight and that will be better positioned to attract talent.

8. LOW ENERGY PRICES ARE NOT SUSTAINABLE

The Stone Age did not come to an end because we ran out of stones.

— Former Saudi OPEC Oil Minister Sheikh Yamani

As the global economy peaked in the summer of 2008, energy prices went through the roof, giving the world a peek at things to come. Oil prices soared to record highs. Some of the price action was speculative, but a lot of it came from rising demand from developing countries like China and India. In the United States, gasoline prices briefly rose above $4 per gallon. For all of its shortcomings, the global expansion from 2002 to 2007 produced the strongest five year pace of growth in the post-World War II era. More wealth was created and more households were pulled out of poverty than at any time in the history of the world.



Source: St. Louis Federal Reserve

With greater wealth come two historically conflicting demands: the demand for more energy and the demand for a cleaner environment. With an economic recovery, global demand for oil will make a comeback and with it will come higher prices. But even without the rising demand for oil that will come with a recovery, the price of all energy is headed higher.

The Stone Age ended because humans developed better tools. The age of oil will come to a similar end, with better alternatives that are cleaner, cheaper and easier to use. But the most probable path to those alternatives is for the price of oil to rise. Alternative energy is alternative because it is currently much more expensive than either oil or coal.

Oil and coal have externalities associated with them that make them less than ideal energy sources. Much oil comes from regions of the world that are politically unstable or ideologically hostile to the West. Both oil and coal generate high levels of greenhouse gases. Internalizing these externalities is one of the goals of the cap and trade system proposed by the Obama administration. Such a system would impose a tax on carbon, pushing the price of carbon-based energy higher. Much in the way information technology drove growth in the 1990s, investment in energy technology and conservation may be a growth engine of the next decade.

Likely implications:

1. Faced with higher energy prices, manufacturing will look to produce products closer to the point of consumption to reduce distribution costs.
2. Consumers will look to live closer to work and shopping alternatives to reduce travel.
3. Telecommuting will increase for work and school.
4. Energy conservation will be a growth business.
5. Alternative energy development will be a growth business.

A NEW ERA

In the United States, we are witnessing a fundamental realignment of the relationship between government and the private sector and between the U.S. economy and the rest of the world. With government as the growth sector in the U.S. economy, both taxes and regulation are set to expand. These changes will create a financial services sector that is less leveraged, with business models that are much less prone to wide swings in earnings and losses. Increased government oversight of U.S. business may not be limited to financial services. Consumer businesses, energy and the environment all can expect significant changes. In energy we will likely see regulations and business models that will sustain new innovation and growth for the broader economy.

For the rest of the world, dependence on U.S. consumers as a source of demand is coming to an end. For the global economy, this will free up resources that can be used to expand domestic demand and build infrastructure. While the transition to this new economic dynamic will not be easy, the global economy that will emerge will be much more stable and have a lot fewer trends that are at risk of running into Stein's Law.

Carl Steidtmann is the chief economist with Deloitte Research, Deloitte Services LP.


WESTOPIA
EASTOPIA
DYSTOPIA
SMARTOPIA

WHAT NEXT? BUSINESS IN 2010 AND BEYOND

A review of perspectives and viewpoints on possible scenarios

BY DWIGHT ALLEN, MARK KLEIN AND CRAIG MURASKIN
> ILLUSTRATION BY IGOR MORSKI

Companies are often told to position for the future even as they struggle to survive the challenges of the moment. Good advice — a bold and distinctive strategy is essential for gaining competitive advantage. Yet committing to a particular path forward is daunting when there's so much debate about how tomorrow will look.

One way to describe the outlook is unclear or clouded. It's worse than that, though. Rather than an absence of predictions about tomorrow's business conditions, there are plenty — it's just that they conflict. Equally qualified experts have diametrically opposed ideas about how things are going to go.

The wrong answer is to adopt nebulous strategies in the hope of succeeding regardless of what happens. Instead, we suggest an approach that allows making the kinds of commitments that can pay off big while providing alternatives to call upon if it turns out conditions favor a different tack.

The approach doesn't rest on being smart about what lies over the horizon, but rather on paying attention to where people disagree and why. Doing that lets you understand the significance of what you're counting on when you select a strategy and what other possibilities need to be considered.

Scenarios are an effective means of evaluating disagreements about the future in ways that yield the insights companies need to make, and to hedge, strategic commitments.

ARGUMENTS THAT MATTER: DIFFERING VIEWS ON WHAT'S AHEAD

Raw material for scenarios is readily available from a variety of sources in the media, academia, government, the blogosphere and so on. There may be different points of view within the corporate leadership team. Listening carefully and noting the issues most in dispute provide clues as to what trends are worth attention.

In the context of business strategy, three broad, interrelated topics seem especially hot. They have to do with where the pendulum will swing in areas with implications for many industries: (1) between government and market forces, (2) between concern about the environment and concern about energy supply, and (3) between globalization and geopolitics.

We've defined four scenarios for the upcoming decade by intertwining conflicting points of view concerning the three hot topics. Each suggests a very different set of things to plan for.

EASTOPIA

Government's role in economies increases, reversing the previous free market, free trade trend. "Decoupling" becomes more of a reality as economically resilient developing nations reduce their dependency on exports to the West. Government-owned enterprises, national oil companies, and sovereign wealth funds based in the developing world thrive at the expense of Western businesses, whose clout is limited by sluggish economies at home. Energy security concerns are heightened by a decline in global oil production. Nations and enterprises compete fiercely for access to growing domestic markets and badly needed supplies of natural resources.

The financial crisis has accelerated trends that are shifting the world's center of gravity way from the West, according to Roger Altman, formerly U.S. deputy treasury secretary and now chairman of investment banking firm Evercore

Partners. The recession has hit the big industrial democracies hardest, he says, and "This damage has put the American model of free market capitalism under a cloud."

The potential for a feeble U.S. economy worries Simon Johnson, MIT professor and former chief economist at the International Monetary Fund. He warns about the dangers of failing to act decisively on financial sector problems: The United States "could very well stumble along for years — as Japan did during its lost decade — never summoning the courage to do what it needs to do and never really recovering."

Europe's prospects look bleak to Laurent Cohen-Tanugi, a French lawyer, columnist and author. He charges that Europe isn't responding to "the economic and social challenges of weak growth, insufficient innovation, a nonexistent energy policy, deficient higher education and research, and a declining population." He thinks the European Union must be revised and strengthened before Europe can address these internal problems or properly defend its "interests and identity" in the global arena. However, he reports "no visible signs" that European leaders are prepared to act.

The ascent of China, Russia and other developing countries with government-led economies is foreseen by Ian Bremmer, head of political risk consultancy Eurasia Group: "State capitalist economies are likely to emerge from the global recession with control over an unprecedented level of economic activity."

Fareed Zakaria thinks the "rise of the rest" goes beyond economic clout. Editor of *Newsweek International* and co-moderator of the PostGlobal blog, Zakaria argues that, although the United States will remain militarily preeminent, "in every other dimension — industrial, financial, educational, social, cultural — the distribution of power is shifting, moving away from American dominance."

Canadian geoscientist J. David Hughes is among those who believe the world is at or near the point at which annual crude oil output will fail to meet demand. Hughes notes that oil production has peaked in Mexico, Russia and the North Sea, not to mention in the fields of six countries that are members of OPEC.

The oil squeeze will be exacerbated by the fact that in many producing nations with expanding economies the prices of gasoline and other petroleum products are heavily subsidized. That's the view of Jeff Rubin, CIBC World

Markets chief economist and chief strategist: "The more oil consumption grows in countries like Venezuela, Iran and Saudi Arabia, the less they have to export to the rest of the world."

Concerns about access to oil and other resources will help make international relations tense in the next decade, according to Parag Khanna of the New America Foundation. He expects that the United States, Europe and China will compete for the markets and resources of "second world" countries including Brazil, India, Indonesia, Iran, Kazakhstan, Malaysia, Nigeria, Russia, Saudi Arabia and Turkey.

The Eastopia scenario thus captures an array of views that imply a difficult business environment for American firms. At home, they face an expanding and expensive public sector presiding over a chronically weak economy; abroad, their market access is limited by a welter of rules and exclusions imposed by rising powers with agendas that diverge from those of the West. Meanwhile, they must deal with pervasive uncertainty about energy security.

WESTOPIA

As the U.S. economy recovers, there's disillusionment with big government, and market capitalism stages a comeback. Many developing nations are weak and unstable, leaving the United States free to take the lead in repairing the frayed system of international trade and investment. The resulting model is widely criticized as favoring American interests. Russia, in particular, resists the upsurge of American power, alternately opposing U.S. geopolitical initiatives and making aggressive moves of its own. A lack of success in combating global warming by cutting emissions causes interest to shift to a controversial alternative — "geoengineering" interventions that would alter the world's climate.

Dartmouth professors Stephen Brooks and William Wohlforth contend it's premature to depict the United States as being overtaken by China, India or other rising powers: "A state that is rising should not be confused with one that has risen, just as a state that is declining should not be written off as having already declined."

George Friedman, head of the strategic advisory firm Stratfor, has a loftier expectation for the United States — he thinks this will be the "American Century." Friedman insists this conclusion is compelled by geostrategic realities: "The United States is economically, militarily and politically the most powerful country in the world, and there is no real challenger to that power."

Howard Baker, former U.S. senator and Reagan aide, recalls how the GOP was declared dead in 1964, yet rebounded in 1966, won the White House in 1968, and then took four of the next five presidential elections. "The core Republican beliefs in less government, lower taxes, more liberty, and greater security in a dangerous world still have power today," he maintains. A GOP comeback in the next few years isn't out of the question, he submits. "It's happened before."

Economist reporter Edward Lucas worries that "Russia is reverting to Soviet behavior at home and abroad, and in its contemptuous disregard for Western norms." He doesn't see Russia as a genuine military superpower, but he worries about strains and confrontations between Russia and the West.

What about China? Not everyone is convinced China will live up to current expectations. Some recall how Japan was touted as an unstoppable economic engine right up to the point when it stalled in the early 1990s.

For example, Minxin Pei of the Carnegie Endowment for World Peace is bearish on China, focusing on the limits imposed by the absence of democracy. "China's rise will fizzle if no fundamental political reforms are implemented," he says. "China may not only fail to fully realize its potential but also descend into long-term stagnation."

Terrorism is unlikely to be a major issue in the next decade, according to Ohio State University political science professor John Mueller. He asserts that warnings about terrorist attacks, especially those involving weapons of mass destruction, are based on "lurid, worst-case scenarios." They create a perception of risk that, in his view, is "overblown."

Mike Hulme thinks climate change does deserve attention. He is founding director of the climate change research center at the U.K.'s University of East Anglia. Hulme has little faith in current climate change policy, though. He doubts complex international programs with precise targets will work as advertised, and he cautions that characterizing climate change as "the mother of all issues" opens the door to unwise alternative solutions, such as geoengineering.

Geoengineering is the use of technology to manipulate the earth's climate. A leading example is spraying a sulfur dioxide gas into the upper stratosphere to reflect sunlight. "It's almost certainly the cheapest and most effective method we have for cooling the planet fast," observes Eli Kintisch, editor of the *Science* Insider blog.

The downside is that, as a group of scientists has conceded, "Fiddling with the climate to fix climate change strikes most people as a shockingly bad idea." Kintisch calls it "hacking the planet." Moreover, there could be adverse diplomatic repercussions if one nation launched a geoengineering project without advance consultation. Adding to the concern is the fact that some of the technology is within the reach of wealthy individuals and corporations.

But it is getting attention. In March 2009 the Obama administration's science adviser said geoengineering is being discussed in the White House as a last resort if climate change should worsen.

How likely is a serious worsening? Studies reported in the journal *Nature* question whether temperature increases can be held below the level at which the biosphere exudes rather than stores carbon dioxide. Stephen Salter, engineering professor at Edinburgh University, guesses that "The chances of reducing emissions fast enough now are very low."

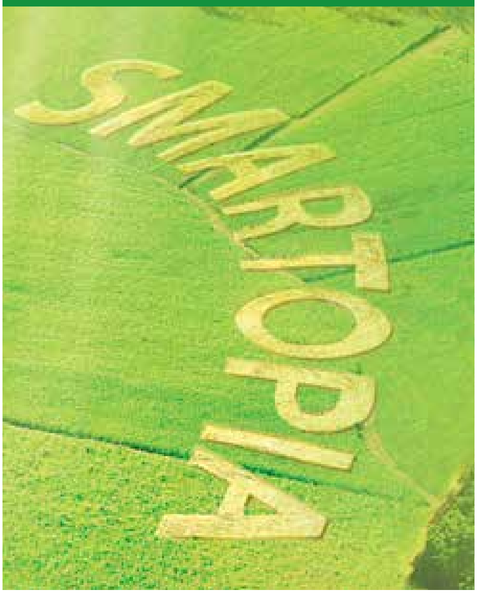
Westopia synthesizes predictions that are hopeful for U.S. companies on some counts. The U.S. economy is healthier and more open, and credit flows more freely. Foreign markets are more open and receptive to Americans, although lingering economic problems and Russia's assertiveness are concerns. However, energy and environmental policies are beset by controversy and uncertainty.

SMARTOPIA

The hallmark of the new decade is an emphasis on what works. Ideology, national interest, and competitive advantage are all muted. A chastened West and a magnanimous East cooperate to ensure that a new world order emerges smoothly. There's an era of cross-border coordination and compromise. Domestically, bipartisanship prevails. Government programs and policies speed the development of green technologies and promote greater efficiency in resource use. The United States and its allies yield influence on a number of fronts, business operations are subject to a welter of rules and controls, and economic growth is modest, but overall the stability is seen as worth the trade-offs.

In Smartopia, government is not the problem. To the contrary, government spurs effective solutions by being open-minded and facing facts. Domestically and internationally, pragmatism trumps geopolitics.

Unrealistic? Not according to Matt Miller, business consultant, author and National Public Radio commentator. He insists that accumulating problems will force the United States to turn a corner: "We're entering a period when the



ideological squabbling that's been so pointless and dispiriting will give way to a new pragmatic consensus because the stakes of getting economic policy right will be much higher."

For example, he cites interviews with Republican and Democratic insiders who agree that taxes are going to have to go up regardless of who is in power. Therefore, he argues, it's time to stop playing politics and debate "what's the best way to fund the government we want, consistent with strong economic growth and other vital goals such as saving the planet?" What we need, he contends, is a "smarter, growth-friendly brand of taxation."

Who will lead the way? "Business executives will form the vanguard of the new creed," Miller asserts. His reasoning: "By instinct and temperament the [business] sector is clear-eyed and unsentimental. It prefers pragmatic results to ideology."

Issuing the call for pragmatism in the international realm is Kishore Mahbubani, formerly Singapore's ambassador to the United Nations and now dean of the public policy school at Singapore National University. He is among those who believe Western global domination is fading.

Mahbubani seeks to defeat the fear that change represents a zero-sum game, and he deplores ideological and cultural baggage: "To achieve the optimistic outcomes we all desire, both the West and the rest of the world must rediscover the ancient virtue of pragmatism." He sees this as a natural choice for the United States: "America's strength has always been its down-to-earth and commonsensical approach to solving problems."

An example of a pragmatic approach with respect to "the rise of the rest" is the strategy advocated by Princeton professor G. John Ikenberry. He wants the United States and other Western countries to make room in the international system for new powers such as China. Give the up-and-coming countries more say in organizations devoted to collective problem solving, Ikenberry advises — the UN Security Council, the World Bank, the IMF. Better that than risk the spectacle of "an increasingly powerful China and a declining U.S. locked in an epic battle over the rules and leadership of the international system."

Regarding energy and the environment, *New York Times* columnist Thomas

Friedman thinks the United States is ready to back ambitious goals such as those the Obama administration favors: "I am convinced that the public is ready; they're ahead of the politicians." He does not begrudge government involvement — creating the right conditions for the requisite technology innovation requires "a system of government policies, regulations, research funding, and tax incentives."

In the Smartopia scenario companies have to adapt to life in an economy that is more government-driven than the current American model. Taxes are higher; regulation is more encompassing. Economic growth is tepid rather than torrid. Consumers have less disposable income and are less acquisitive. But the premise is that there are offsetting benefits in the form of greater stability, security and sustainability.

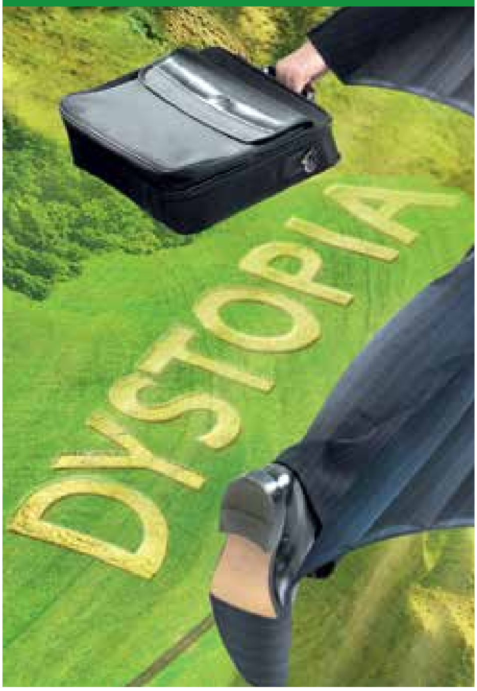
DYSTOPIA

Efforts to stimulate moribund economies work all too well. Inflation soars. Spikes are followed by hard landings as debate rages about what policy prescription will bring relief. Political leaders seeking to deflect public discontent foment disputes with other countries, making it ever more difficult to maintain open markets and international cooperation. Some of the worst confrontations are between developing nations. Terrorists exploit the disorder. The prices of energy and other commodities rise thanks to supply constraints, geopolitical upheaval, ill-conceived government measures, and general uncertainty.

Robert Samuelson, economics columnist for *Newsweek* and the *Washington Post*, thinks we could be in for a replay of the inflation the United States experienced from the mid-1960s to the early 1980s. "Like the early 1960s, the spirit of reform is in the air. Great projects of economic uplift seem to beckon. Protect the middle class. Provide universal health care. Exorcise corporate greed. Control globalization. And, more recently, curb global warming."

However, Samuelson fears that political leaders are underestimating the challenges and overestimating their ability to predict outcomes. He recommends caution: "As we weigh our economic prospects, we need to recall the lessons of the Great Inflation. It was a self-inflicted wound: something we did to ourselves with the best of intentions and the most impeccable of advice."

He is especially dubious about policies that hold out the promise of creating new green technologies and green jobs while cooling the planet. "For now, anything that would sharply reduce global warming requires shutting down large



parts of the economy that produce those gasses. Measures short of that may be economically costly as well as ineffective."

So Samuelson fears that a stretch of severe inflation could result when the government tries to finance new initiatives on top of the burdens assumed during the financial crisis, not to mention existing obligations to Baby Boomers.

Commodity prices are another potential contributor. When energy demand turns up, a failure to bring sufficient oil to market could boost inflationary pressures. The International Energy Agency estimates that investment in energy facilities at the rate of $1 trillion annually is required to meet the needs of the developing world. It warns that investment delays caused by the credit squeeze could set up an energy supply crunch once the economy recovers.

The Federal Reserve and other central bankers play a crucial role in controlling inflation. One of the risks is that politicians worried about constituents' reaction to high interest rates will keep central banks from raising or keeping interest rates high enough to prevent inflation.

Carnegie Mellon economics professor Allan Meltzer questions whether the Federal Reserve has the requisite independence given its involvement in a variety of rescue measures in coordination with political authorities. Meltzer worries that, "sooner or later, we will see the Fed, under pressure from Congress, the administration and business, try to prevent interest rates from increasing. The proponents of lower rates will point to the unemployment numbers and the slow recovery."

Russell Napier of Credit Lyonnais Securities Asia thinks that in about two years investors will develop doubts about the government's creditworthiness, the Fed will find it more and more difficult to purchase Treasuries, and a volatile era will ensue. One of the results: a "cataclysmic bear market."

Geopolitics is combustible in this scenario as well as national economies and markets. Support for the proposition that geopolitical hostility is plausible is offered by Robert Kagan. Based in Brussels, Kagan is a senior associate at the Carnegie Endowment for World Peace and a *Washington Post* columnist.

Kagan recalls that when the Cold War ended there was hope that all such confrontations were history. "But that was a mirage," he says. He believes that in the next decade world stability will be threatened by dangerous contests between (1) great powers seeking geopolitical advantage, (2) democracy and autocracy, and (3) radical Islam and modern secular cultures.

Bill Emmott, formerly editor of *The Economist*, highlights the possibility of conflict among Asian countries. "The rise of Asia is not just, or even mainly, going to pit Asia against the West, shifting power from the latter to the former," Emmott predicts. "It is going to pit Asians against Asians."

Elbow room is the issue. Says Emmott: "This is the first time in history when there have been three powerful countries in Asia, all at the same time: China, India and Japan. That might not matter if they liked one another or were somehow naturally compatible. But they are not. Far from it, in fact."

The U.S. Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism was more alarmed by the terrorist threat than is John Mueller. Its 2008 report declared that, "Without decisive action, a terrorist WMD attack somewhere in the world is more likely than not by the end of 2013."

Stability and security are in short supply in this scenario. Uncertainty is a fundamental characteristic of an inflationary economy, and the volatility interferes with everything from strategic planning and budgeting to procurement decisions. Getting pricing right is a constant challenge. Doing business across borders is difficult and risky. Security measures restrict operations both at home and abroad.

TRANSLATING THE SCENARIOS INTO STRATEGY

To move from these four scenarios to strategic decisions, it is necessary to think through the scenarios' implications for particular markets and products. Picturing the industry landscape associated with each scenario permits business unit heads to define how they would deal with the pertinent threats and opportunities. Having conducted that analysis, they can evaluate their current strategies and decide whether to continue on the same course, make modifications, or adopt a new plan.

But it's important to acknowledge the dilemma. The more a strategy achieves clarity and precision, the more it locks in on assumptions that, as the scenarios show, are simply debatable theories about how the world is going to behave. Yet the answer isn't to devise a strategy that's so generic it will apply across all plausible futures — that maximizes survivability but limits the opportunity to differentiate and excel.

The solution we suggest is strategic flexibility. This involves creating strategic options that equip businesses to modify strategies if they encounter obstacles or openings that are depicted in the scenarios but aren't part of the plan they're following.

The options are ownership positions in assets that have been identified as useful for responding to particular scenarios, such as raw materials, distribution channels, technologies or skill sets. Strategic options can take the form of minority stakes, joint ventures, alliances or licenses. Obtaining them is the job of top management, typically operating through the corporate development group.

Strategic options give an organization the flexibility to deal with new market conditions without a premature, irreversible commitment. Ideally a company will have the equivalent of a portfolio of these holdings. This ensures it has made some degree of advance preparation for several scenarios, thereby hedging the bets its businesses make on what lies ahead in their markets.

Following this approach frees business units to commit aggressively to specific plans while the corporate office arranges for the means to alter course if necessary. In an environment such as today's, it's essential to position for the future and yet mitigate the unavoidable risk that what emerges will be different from even the most well-educated guess as to how the "new normal" will look.

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CHINA:

In less than a generation, China evolved from a scrappy developing nation into the world's factory. Adding manufacturing in China, a strategy once reserved for the largest global players, has become the norm. China has attracted foreign direct manufacturing investment at a rate unprecedented in history, from companies of all sizes and industries, driven by its low production costs, a vast supply of labor, and preferential tax treatment for foreign investors. But China's manufacturing landscape is changing. Production costs have risen steadily, particularly in the highly concentrated manufacturing centers in China's coastal regions. And in an effort to spread the manufacturing wealth to more of the country and broadly extend the economic evolution enjoyed by its highly developed coastal cities, Beijing has eliminated or dramatically reduced preferential treatment for the majority of new manufacturing activities near the coast.

STILL MANUFACTURING'S SHINING STAR?

BY JOSH TIMBERLAKE, PHIL SCHNEIDER AND SHIRLEY DONG TERRY
> ILLUSTRATION BY ANTHONY FREDA

What does this mean for foreign manufacturers? Will they still flock to China's fertile promise? Will China be replaced as the world's low-cost manufacturing destination of choice? Or will a new class of manufacturers beat a path to China — while the previous class beats a path out?

Most likely, China's future appeal for manufacturers will rely less on its operating cost advantage (that is, labor) and more on its growing domestic market and talent base. China will still compete globally for low-cost manufacturing; but companies seeking the lowest-cost production locations will increasingly be forced to look outside of China, or further into China's interior, to maximize savings.

To understand the future for foreign manufacturers in China, it is important to first grasp the fundamental strategies and drivers behind why companies decide to deploy manufacturing operations offshore. Companies offshoring manufacturing and related operations typically fall into one of the following camps:

- **Cost Cutters** — aim to lower production costs by locating in areas with abundant, low-cost production inputs (typically meaning lower labor costs, but also including lower-cost taxes, utilities, transportation or even enhanced government incentives).
- **Market Builders** — aim to establish in areas where they can effectively penetrate a new or growing base of customers, driven by convenient market access, logistics and customer demographics.
- **Talent Seekers** — aim to attract and retain specific pools of knowledgeable, creative, technologically advanced talent for R&D or advanced manufacturing and are attracted to destinations with renowned educational institutions, incumbent companies with similarly high talent requirements, and living conditions conducive to attracting highly qualified, educated and mobile talent.

The continued evolution of China's economy and its corresponding policy changes are shifting the value proposition for manufacturing deployment in China and influencing the offshore deployment decisions of our Cost Cutters, Market Builders and Talent Seekers.

COST CUTTERS: ON THE MOVE

Low production costs have been the greatest driver in China's emergence as a global manufacturing powerhouse. However, the cost advantage that has lured companies for the past 20 years has gradually eroded, particularly in the coastal regions. Wage escalation is at the root of the problem; average wages in Shanghai rose at an 11.8 percent annual clip during the 10-year stretch from 1998-2007.[1] Foreign manufacturers we have interviewed throughout the Yangtze River Delta confirm similar increases in the range of 10 percent per year or higher. Real estate costs have followed a similar trend, as the demand for fully served industrial land has continued to outpace supply, driving up prices in many of the traditional foreign manufacturing investment hotbeds. China's central government propped up land costs still higher by enacting the PRC Property Law, which took effect in October 2007. Chinese law requires a public auction for all industrial land sales, and groups land into 15 classes (primarily by region of the country), each with a different minimum sales price. The impact is dramatic; land in one Yangtze River Delta investment zone, which sold for $5 per square meter as recently as 2005 (albeit, as a favored price for a sought-after U.S. company), now carries a mandated *minimum* price of $62 per square meter.

Shanghai Urban Average wage

Source: Shanghai Statistical Yearbook

In addition, recent fuel price volatility has hampered the Cost Cutters. Shipping costs, which already disadvantage a China solution for manufacturers serving North America or Europe, spiked dramatically in 2008. The cost to ship a standard 40-foot container from Shanghai to the East Coast of the United States peaked at around $8,000 in mid- 2008, up from just $3,000 in 2000 when oil was near $20 per barrel. Some experts predict costs could skyrocket to $15,000 per container if oil approaches $200 per barrel.[2] While shipping costs have come back down in response to oil priced below $50 per barrel, instability and unpredictability are challenges for manufacturers and have caused some companies to reconsider near-shore production alternatives, such as Mexico to serve North America, or Central/Eastern Europe to serve Western Europe.

While production costs have risen steadily, China's preferential investment attraction policies also have undergone a dramatic shift over the past two years. Until 2008, many incentives were awarded based on *who you are.* The *who* China wanted

CHANGING INCENTIVES FOR MANUFACTURERS

Unified Tax Law

Corporate income taxes are transitioning from 33 percent for domestic enterprises and 15-24 percent for most foreign-owned companies to a single rate of 25 percent. In addition, a tax incentive which formerly provided a two-year 100 percent tax exemption, followed by a three-year 50 percent rate reduction for foreign investors, has been revoked.

High/New Technology Status

A 15 percent corporate income tax rate is still available to companies qualifying for High/New Technology Enterprise ("HNTE") status. However, criteria have tightened to include factors such as industry orientation, intellectual property ownership, number of employees with university degrees, number engaged in R&D, and R&D expenditures (few of which favor Cost Cutters). According to officials in leading investment zones in the popular Yangtze River Delta region, only half of the currently HNTE-designated companies are expected to re-qualify under the new guidelines, and those who do may only see temporary benefits.

Encouraged Industry Status

Companies meeting "Encouraged Industry" requirements as defined by the Foreign Investment Catalogue have long qualified for import duty and VAT exemption on eligible imported capital equipment. However, the Catalogue can change frequently, often with little warning. Recent Catalogue changes have cost companies millions of dollars by removing substantial amounts of equipment formerly eligible for exemption.

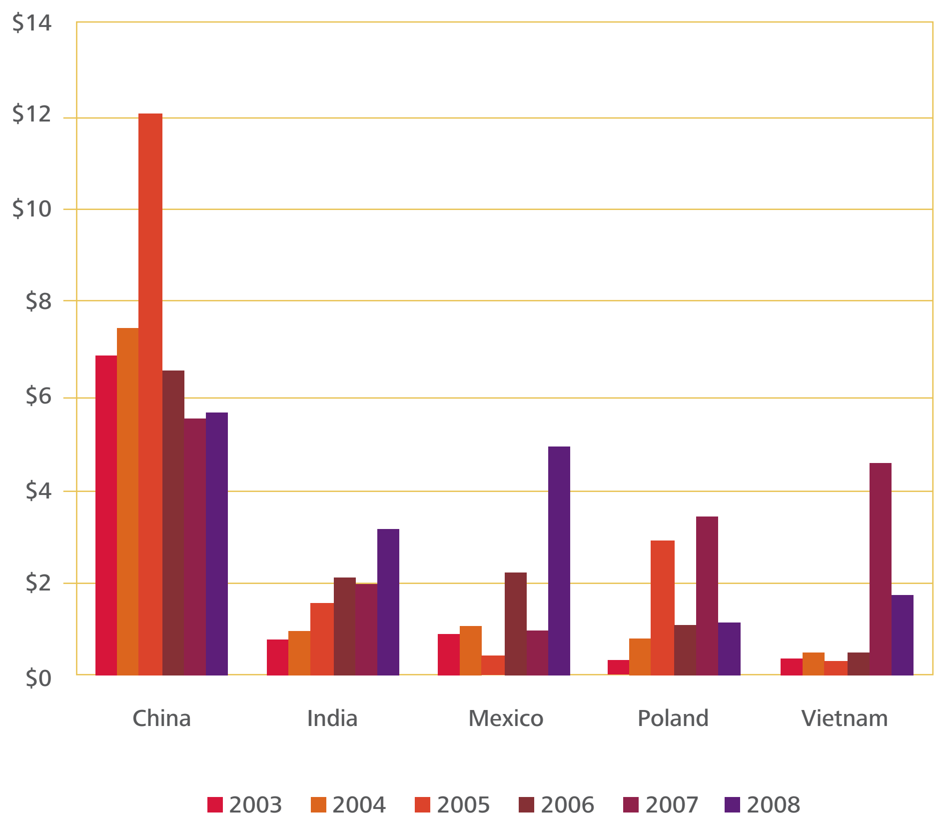
"Go West" Policies

As part of Beijing's quest for more dispersed development, effective January 1, 2009, Encouraged Industry benefits were actually expanded to additional companies locating in the central and western provinces. A separate initiative, "10,000 Businesses Going West", provides tax incentives, training and transportation benefits for companies locating in less developed regions.

was foreign companies that, as discussed, were mainly Cost Cutters viewing China as an export platform. However, more comprehensive and specific criteria have come into play, with China caring less about *who you are* and more about *what you do, how you do it*, and, increasingly, *where you do it*. The changes (*see inset box*) have had a substantial impact on China's case to attract the cost-cutting manufacturer.

There is a third major challenge to China's value proposition for Cost Cutters. In addition to rising costs in preferred areas and shifting government policies, China faces growing competition from other low-cost manufacturing destinations such as Vietnam, India, Mexico, Poland and others. None of these competitors can yet match the depth of China's labor pool and, in most cases, the robustness of its infrastructure to support manufacturing. However, many are developing rapidly in these areas, and some are offering attractive tax holidays. As China's production costs rise, particularly in the coastal regions, these countries are becoming increasingly viable alternatives.

Foreign Direct Investment Trends in Traditional "Cost Cutter" Industries 2003 — 2008 (U.S. Billions)



Data from fDi Intelligence by Financial Times. Includes announcements of planned capital investment in Electronic Components, Consumer Electronics, Consumer Products, and Textiles sectors.

So, has China lost its appeal for Cost Cutters? To some degree, it has. Many of the coastal regions, due to rising costs, evolving Central Government policy, or increased competition, are no longer preferred options for the most cost-sensitive production projects. China's interior, on the other hand, continues to offer lower costs, enhanced government support, and an improving infrastructure, which is easing the logistics challenges that have thus far hampered growth in the interior.

More accurately described, China's Cost Cutters are on the move. Some are moving to the interior. Some are moving to (or bypassing China for) other low-cost countries. But relatively few are moving to the formerly "hot" coastal region — at least not anymore.

COST CUTTER: "HOW FAR IS TOO FAR?"

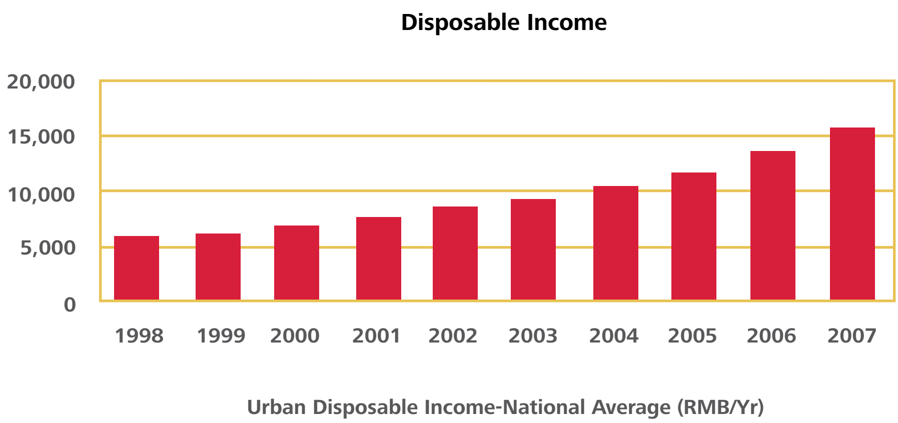
A leading apparel manufacturer was seeking a location in Asia for a new state-of-the-art textile facility to manufacture product for export to North America and Europe. After also investigating Thailand, the company decided China was a better fit for the new facility but faced a key challenge; most coastal zones were too expensive, while deep interior locations were too remote, creating both supply chain and management staffing concerns. The company found a "sweet spot" in Nanjing, approximately 175 miles northwest of Shanghai, providing significantly lower labor and utility costs than coastal investment zones and an Export Processing Zone offering substantial tax benefits.

MARKET BUILDERS: A BUILDING WAVE

Market Builders follow the money — and the people who have it. China has both, but while the people have always been there, the money is new. The speed at which China's disposable income has grown may be as remarkable as the country's dramatic emergence as a manufacturing powerhouse. Consider the following:

- Average disposable income in urban households grew by 170 percent from 1998 to 2007 (see chart below).[3]

- Middle class households (defined in this case by household income > RMB 40,000 or approximately $US 5,800) rose from roughly one percent of total households in 1995 to nearly eight percent in 2008.[4]



Data: China Statistical Yearbook

This newfound spending power translates into increased demand for automobiles, consumer electronics, enhanced medical care, and other conveniences perhaps taken for granted in the West, but which are now being sought at increasing rates by more of China's population each year. And the income growth wave is not expected to crest anytime soon. Middle class households are projected to double again in the period from 2005-2015 to approximately 16 percent of China's total households.[5] So while the average U.S. consumer still outspends their Chinese counterpart by a factor of 8:1,[6] growth rates in the United States and most other developed consumer markets are flat or declining while China's "adjusted" GDP growth goal remains a lofty eight percent for 2009.

Foreign manufacturers are keenly attuned to the power of the Chinese consumer and have been in a sustained sprint to obtain market share. Increasingly, this involves localizing production in China. In some sectors, such as China's rapidly growing medical device market, there are regulatory advantages to localization; companies manufacturing in China can receive preferential treatment in many regions of the country (in practice, if not in policy) by having their products reimbursed through the government sponsored healthcare system.

There are also supply chain reasons for producing in-country, particularly for products such as automobiles, furniture and household appliances, which are heavy, bulky and generally inefficient to ship long distances. This may help explain why General Motors announced the opening of its eighth Chinese auto plant in December 2008 in Shenyang (in northeast China, approximately 400 miles from Beijing), amid the closure of several U.S. plants. The large majority of the approximately one million GM cars per year produced in China are sold there, and GM's China sales are expected to rise by up to 10 percent in 2009 while U.S. sales are declining sharply.[7] And the same fuel price volatility that can unravel a Cost Cutter's business case for serving the United States or Europe from China has an opposite effect on Market Builders, creating increased incentive to shorten the supply chain and manufacture product closer to the end consumer.

Many of Beijing's economic and foreign direct investment policies aid the future growth of Market Builders. A key message from the 2009 annual twin meetings of the National People's Congress (NPC) and Chinese People's Political Consultative Conference (CPPCC) is that China must rely mainly on domestic demand to meet its 8 percent growth target for 2009. To help achieve this goal, the government plans to adjust several financial and currency policy levers, such as reducing taxes in some areas and enhancing access to credit for small to mid-size companies. The massive investments poured into China's infrastructure throughout the past decade have also bolstered the business case for Market Builders, which may be further buoyed by the Chinese government's $US 586 billion stimulus package announced in November 2008, some 45 percent of which is allocated for infrastructure development. Resulting improvements to the transportation network make it easier to distribute product throughout China, enhance access to the vast interior of the country, and ultimately help companies reach more consumers. Despite the upgrades, however, China's transportation network is today still far from ideal. The cost to transport goods by road in China is often inefficient and still roughly double the cost of that in the West. Therefore, continued infrastructure improvement will likely further build the China case for Market Builders.

There are also supply chain reasons for producing in-country, particularly for products such as automobiles, furniture and household appliances, which are heavy, bulky and generally inefficient to ship long distances. This may help explain why General Motors announced the opening of its eighth Chinese auto plant in December 2008 in Shenyang (in northeast China, approximately 400 miles from Beijing), amid the closure of several U.S. plants.

Money and a vast pool of consumers have lured Market Builders to China in droves, and have also influenced where they set up shop once they arrive. China's population and income distribution remain heavily skewed towards the coastal regions. As of

MARKET BUILDER: "LOCAL PRESENCE REQUIRED"

After evaluating product sales potential globally, a leading producer of medical devices was enticed by China's huge latent market — an aging population, growing wealth, and increasing discretionary spend on health care. A comprehensive analysis of market potential, China's health care reimbursement policies, various market entry strategies, and likely plant operating costs and conditions led the company to build a manufacturing plant to develop and distribute customized products for the China market, versus importing the products from its plants in the United States and Europe. Its chosen location in Suzhou offered central access to many of China's leading hospitals and critical suppliers, along with the technical skills and infrastructure required to produce highly precise devices.

2008, the three main economic hubs (Bohai Rim including Beijing, Yangtze River Delta including Shanghai, and Pearl River Delta including Guangzhou) accounted for 36 percent of China's population and 55 percent of consumer expenditures.[8] Over time, if China is successful in its efforts to redistribute income — and population — more equally throughout the country, Market Builders will increasingly follow consumer spending to the interior. For now, however, most remain focused on China's wealthier, more urban, and primarily coastal consumers.

The wave of manufacturers entering or expanding in China primarily for market building objectives continues to build. Demographics, supply chain considerations, and China's economic policies are aligned to support future expansion of Market Builders. With many of the Cost Cutters moving on to less expensive destinations, Market Builders are poised to take over as the growth engine for China's manufacturing sector.

TALENT SEEKERS: THE POOL DEEPENS

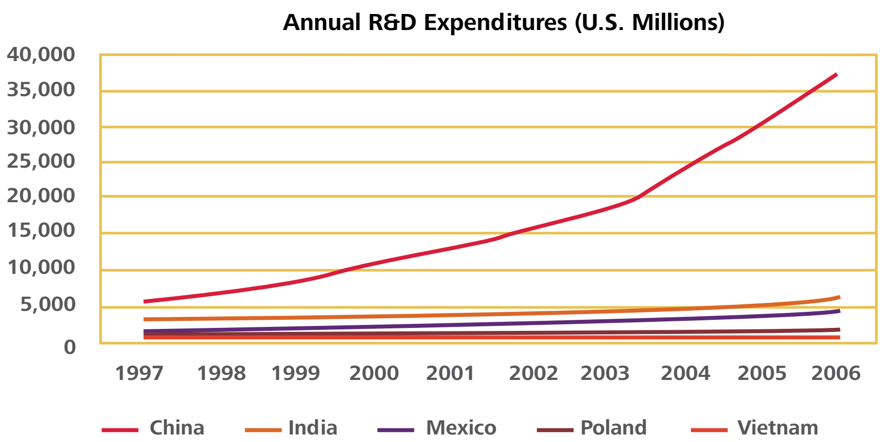
Talent Seekers are enticed less by China's manufacturing cost savings or market potential and more by the desire to tap a large, highly skilled pool of scientists, engineers, technicians and skilled production labor. China's talent pool is already deep and is expanding rapidly each year. In 1996, China had an estimated 5.7 million *total* students enrolled in higher education. By 2007, the country had *graduated* nearly that many — approximately 5.1 million, of which over 40 percent were science or engineering majors — and total enrollments had increased 3.5 times to over 20 million. Technical/vocational school enrollment also doubled over the same period, to roughly 20 million in 2007.[9] The increasing size of this pool has not gone unnoticed by the world's Talent Seekers.

China is working another angle to bolster both the quality and quantity of its talent pool — aggressive campaigns to lure back educated Chinese nationals currently living overseas. In 2008, a record 69,000 Chinese students who studied abroad returned to China, an increase of over 55 percent from 2007, according to Chinese government statistics.

Perhaps of greater importance, China's talent is also getting better. The *World Competitiveness Report* "science in school" indicator, which measures the degree to which science is sufficiently emphasized in the education curriculum, ranked China in the top 15 percent (9th out of 69 countries surveyed) in 2008. Considering this same indicator in 1996 placed China near the bottom 15 percent (38th out of 45 countries surveyed), the improvement in just 12 years is extraordinary.[10] And not only is educational content changing, the education method itself has been revamped. Traditional rote learning, which focuses on repetition and memorization, is giving way to more creative thinking techniques preferred by talent seeking companies from the West. The continued embrace of this fundamental shift in educational philosophy will help foster the large-scale research and development growth and attraction of the highest manufacturing technologies desired by Beijing.

China is working another angle to bolster both the quality and quantity of its talent pool — aggressive campaigns to lure back educated Chinese nationals currently living overseas. In 2008, a record 69,000 Chinese students who studied abroad returned to China, an increase of over 55 percent from 2007, according to Chinese government statistics.[11] Many individual regions are leading this charge; Guangzhou, for example, has created a US$30 million fund to attract professionals from overseas and, along with the nearby city of Shenzhen, is considering the launch of a multi-city U.S. recruitment tour during summer 2009 specifically aimed at luring Chinese nationals back home.[12]

China's foreign investment policies also reveal the extent to which it covets Talent Seekers. The revised requirements for foreign companies to qualify for the tax advantages that come with High and New Technology Enterprise status designation (*see inset box for a description of benefits*) emphasize a well-educated and R&D oriented workforce, significant spend on R&D, and intellectual property ownership within China. Similarly, each change in China's Foreign Investment Catalogue omits more lower-skilled manufacturers from Encouraged Industry benefits but retains talent-seeking industries such as advanced electronics, alternative energy, life sciences and nanotechnology.



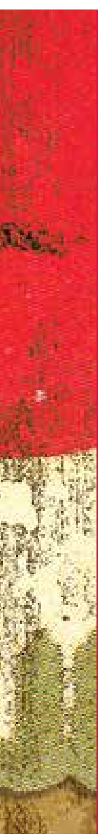
IMD World Competitiveness Report. Data for India (2005-2006) and Mexico (2006) have been extrapolated based on the growth rate for the latest available year. Data for Vietnam are poorly publicized but are believed to be under U$1billion.

Despite China's ambition to attract talent-dependent manufacturing and its related R&D functions, and increasing success in doing so (*see graph above showing growth in R&D expenditures*), significant obstacles remain. Intellectual property rights have been a steep barrier. China has taken several steps to address its rather dubious reputation in this area, and according to most measures, the IP climate has improved. However, threats to IP protection still substantially restrict the nature of R&D many companies are willing to conduct in China. And based on several of our own recent experiences, we can report that IP-related anxiety still causes many manufacturers in advanced technology or nascent industries, such as alternative energy, to steer clear of China when considering new global facility deployments that will employ new and proprietary technology.

China's talent pool continues to deepen and improve, but throughout the country, demand for top quality engineering and managerial talent continues to outpace supply. A well-educated, English speaking engineer or scientist from a top Chinese university, especially one with Western company experience, has virtually limitless opportunity to choose among competing foreign and domestic companies. This makes it difficult for a Talent Seeker not only to attract, but more importantly, to retain top talent. The global downturn has relieved some pressure in China's talent war by causing companies to scale back hiring and employees to place a premium on job stability. An economic recovery, however, will likely restore employee leverage. While a highly skilled employee in today's China has many choices, their suitors have few. They must choose locations where the talent wants to be, which today means China's most cosmopolitan coastal cities. A handful of established places — cities such as Shanghai, Beijing, Suzhou and Guangzhou, combined with a few up and comers such as Chengdu and Dalian — will likely continue to win China's war for Talent Seekers for the foreseeable future.

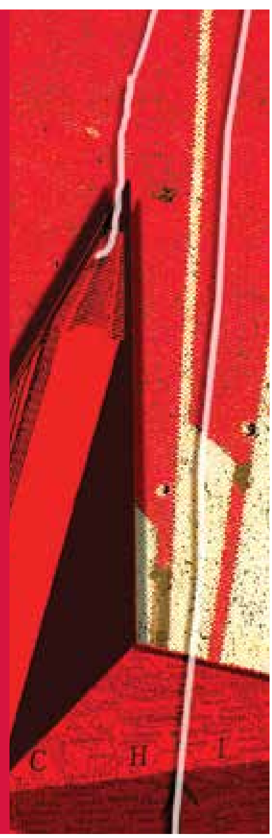
A CHANGING LANDSCAPE

The combination of China's success in attracting foreign manufacturers for the past 20 years with its ongoing FDI policy changes has transformed the coun-



TALENT SEEKER: "WILL PAY FOR QUALITY"

A pharmaceutical company was seeking to bolster product research and development of pharmaceutical products. After exploring both its own current global base of labs and other likely global talent pools, the company determined that China would provide not only a deep pool of qualified scientific and technical talent, but also a good location for product testing and pilot manufacturing. Additionally, the new China R&D base could work in tandem with its other global R&D centers, while also developing products specific to the burgeoning China market. The company selected Shanghai — despite its high cost structure — because it was the best location to source top R&D talent locally, from throughout China, and abroad.



try's manufacturing environment. A rapid ascent up the economic ladder along the coastal region has created a focus on higher technologies, new industries, and other corporate functions. Consequently, foreign manufacturers are now less likely to think of China solely as a low-cost export platform and more as a fertile new market for both customers and talent.

Rising costs for labor and land, less preferential tax and incentives policies, combined with China's focus on higher and more strategic technologies are forcing the initial waves of lower-technology manufacturers to adapt, move inward and, in some cases, move out. Cost Cutters seeking a very low-cost manufacturing platform are looking towards China's developing interior or to China's ever-growing competition for low-cost manufacturing in Southeast Asia, India, Latin America and, perhaps someday soon, Africa. This assumes, of course, that current China policy and cost pressures remain. If however, China begins to miss growth targets and unemployment rises substantially, it will be no surprise to see its policies adapted to refill the pipeline of Cost Cutters expanding or deploying new operations in China — even in the currently oversubscribed coastal region.

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It is a different story for Market Builders as they continue to be spurred on by China's rising income, growing middle class with discretionary wealth, and the continued migration from rural areas to the cities. China is quickly evolving from an economy driven almost solely by exports to one increasingly driven by domestic consumer spending. Although this transition is still in its early phases, and an extended global recession will no doubt have an impact, an increasing number of Market Builders will likely be persuaded by China's potential and implement their "follow the money" strategy, developing more production and distribution operations in China to serve a rapidly growing customer base.

Similarly, Talent Seekers will continue to be captivated by China's abundant and improving pool of technical talent; an educational system that continues to advance with curricula more closely matching manufacturer's needs; more managers, scientists and engineers gaining valuable experience working for foreign companies; steadily improving English language skills; and a steady flow of Chinese professionals and students returning to China from overseas. But in the near term, given the higher technology requirements of most Talent Seekers, they may also continue to struggle with concerns over China's intellectual property protection and with fierce competition for top talent (and the rising salaries that ensue) in the ever-growing cosmopolitan centers where much-sought talent congregates.

Finally, it is important to realize that the objectives of Cost Cutters, Market Builders and Talent Seekers are not always independent, but are increasingly intertwined. More companies are viewing China as a vehicle to lower production costs and access new markets, or to source new talent pools while *also* reducing R&D expenditures. The extent to which companies are driven by cost cutting, market building, or talent seeking objectives will not only impact how China fits into a global manufacturing strategy, but also where within China manufacturing and R&D deployment will be optimized.

Is China still the shining star for global manufacturing? Yes, but for different reasons than 10 or even five years ago. It may no longer be quite the happy hunting ground for pure Cost Cutters that it was then, but it is even more attractive to Market Builders and Talent Seekers. China has evolved and matured. Foreign manufacturers expanding or deploying there will need to do the same. The next generation of foreign manufacturers in China are more likely to employ a more holistic business model — one that embraces the principles of Cost Cutter, Market Builder and Talent Seeker, striking a balance between low operating costs, serving new customers, and gaining a competitive human resources edge — potentially all within a single geographic location in China. Their global competitiveness may depend on it.

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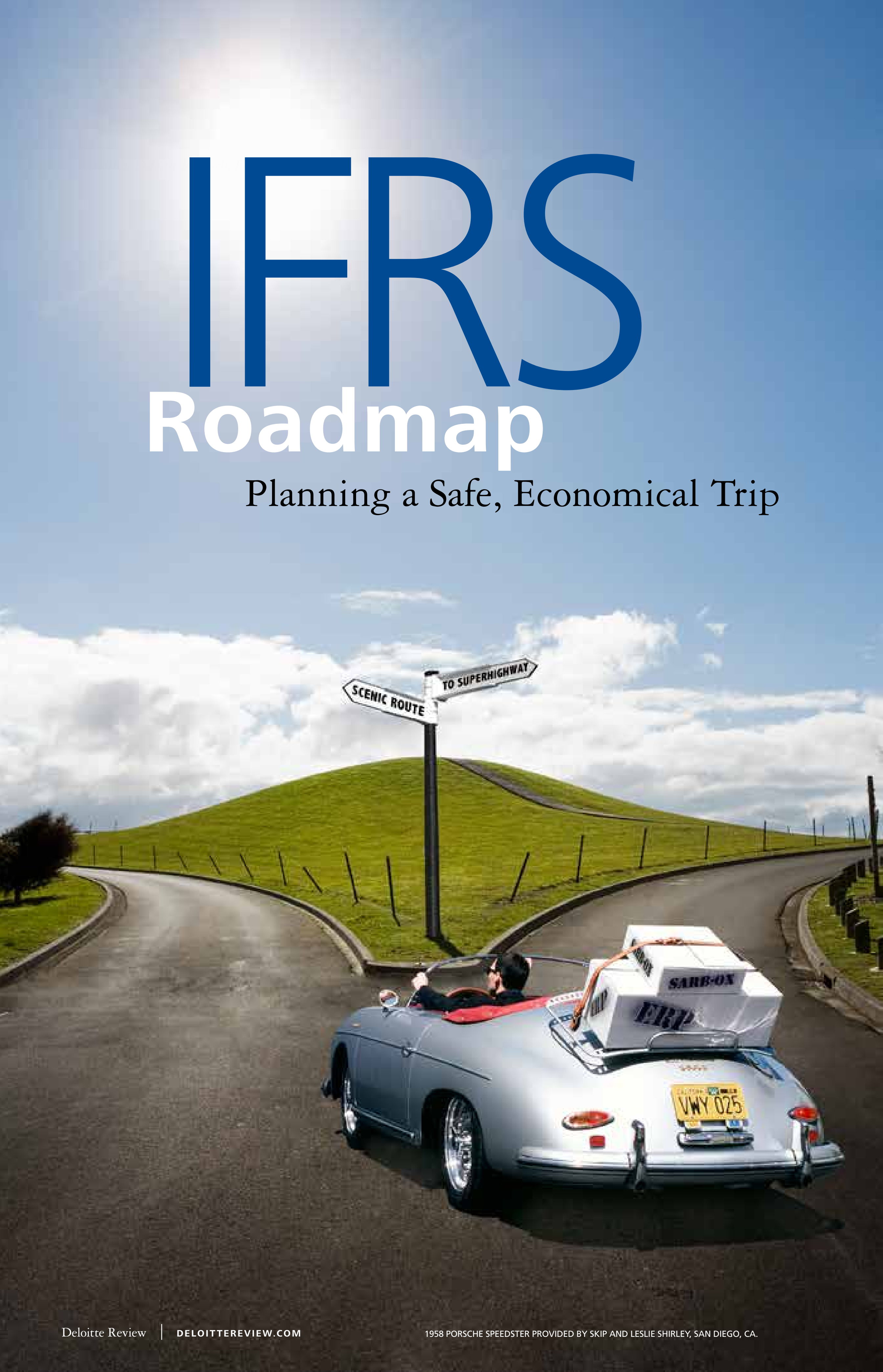
IFRS Roadmap

Planning a Safe, Economical Trip



1958 PORSCHE SPEEDSTER PROVIDED BY SKIP AND LESLIE SHIRLEY, SAN DIEGO, CA.

BY NICK DIFAZIO AND DJ GANNON > PHOTO ILLUSTRATION BY MATT LENNERT

Many U.S. executives don't have fond memories of the effort required to address the year 2000 issue or implement the Sarbanes-Oxley Act. For many, a significant expenditure of time and capital was necessary to deal with those issues. Today, with the conversion to International Financial Reporting Standards underway in many countries and pending in others, some executives are wondering if a déjà vu experience is in the offing.

Fortunately, IFRS conversion efforts need not follow the Y2K or SOX pathway. Those arduous routes can be avoided in favor of an IFRS journey that may not only be comparatively safe and economical, but may also yield some tangible benefits along the way.

But planning is paramount, and procrastination and passivity, likely counterproductive. Experiences in the dozens of countries that have completed the conversion process suggest unforeseen obstacles that can disrupt an IFRS journey in various ways:

- Expense: For many companies, IFRS conversion resulted in a major capital outlay and significant budget overruns.
- Scope: Unprepared organizations learned that conversion involved much more than shuffling the chart of accounts and ensnared many more functions than finance.
- Inefficiency: Companies that delayed conversion until the deadline was upon them often resorted to a "fire-drill" approach, which often led to inefficiency, complexity, distraction and redundancy.

In short, now may be the window of opportunity to get your IFRS roadmap drawn, before the pressures of mandatory conversion dates dictate a less advantageous path to compliance. Consider creating the itinerary now, take care of some maintenance issues, and then tuck away your roadmap in the glovebox until you are ready to embark, secure in the knowledge that your route has been planned.

UNCERTAINTY

While much of the world has converted, or soon will, uncertainty exists in the United States as of mid-2009. The changing of the White House guard in January also ushered in a new chairman of the U.S. Securities and Exchange Commission, Mary L. Schapiro. And the IFRS conversion milestones established by her predecessor are now uncertain.[1] Yet it should be noted that Ms. Schapiro's well-publicized concerns focused primarily on the implementation timetable, not on the overall suitability of IFRS as a reporting standard for U.S. exchange-listed companies. Indeed, the chairman has expressed her support for a high-quality set of international financial reporting standards.[2]

According to a recent Deloitte* IFRS Pulse Survey of more than 150 finance professionals from a cross-section of industries, 75 percent support or strongly support the movement toward a single set of high-quality global accounting standards such as IFRS.[3]

Meanwhile, while regulatory uncertainty may have slowed the preparation of finance departments across the United States, the rest of the world has moved inexorably toward IFRS. More than 100 countries across the globe, including those in Europe, currently require or permit IFRS reporting. Chile officially adopts the standard this year; Brazil in 2010; Argentina, Canada, India and Korea in 2011; Mexico has instituted and Japan is weighing mandatory use by 2012.[4]

Where does this leave U.S. companies? Stuck in neutral perhaps, a position many executives would rather avoid. According to the aforementioned Deloitte survey, 62 percent of respondents agreed or strongly agreed with the statement that, "The SEC should soon establish a 'date certain' for when IFRS would be required for U.S. issuers, as opposed to a timeline based on interim conditions and milestones."[5]

Despite the calendar uncertainty, it may be time to plan your trip.

A few other considerations:

- *IFRS will impact many areas:* There's simply no avoiding it. A successful IFRS conversion project will likely involve not only technical accounting and financial reporting, but also issues around internal processes and controls; regulatory, statutory and management reporting; technology infrastructure; tax; treasury; legal and contracts; compensation and human resources; and communication.

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* As used in this article, "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.

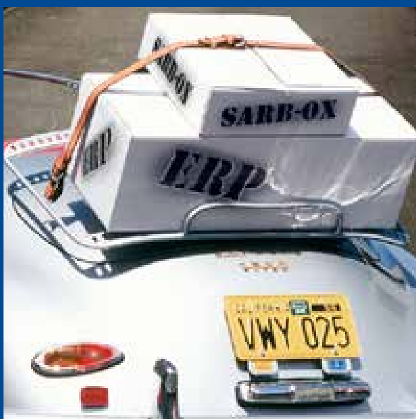
- *Some companies will underestimate the challenge:* The European experience, which involved a wholesale conversion within a compressed timeframe, overwhelmed many companies with the scope and complexity of the project.[6]
- *The disruption can be successfully minimized if not eliminated:* A key lies in taking full advantage of the runway in front of you: don't try to land this jumbo jet on the last 50 yards of tarmac. A conversion effort that is sane (in the sense of avoiding the fire-drill atmosphere that characterized SOX and Y2K), successful (able to withstand the scrutiny of regulators, analysts and your independent auditor), and economical (remaining within a reasonable budget) will likely require a long-term approach. The American Institute of Certified Public Accountants considers a three to five year timeline to be reasonable for transition to IFRS. Other organizations, including Deloitte, have made similar comments. Greater benefits and fewer disruptions will likely result from adopting the longer timeframe.

THE EUROPEAN EXPERIENCE

When the European Union converted to IFRS in 2005, it was, for many companies, an unpleasant trip driven by the tight timelines imposed by the European regulators. Without the luxury of time to convert on a staggered basis, many companies were forced to rush through the process, leading to inefficiencies and ineffectiveness. Among the lessons learned were the following:

- *The magnitude of the project was underestimated:* Some companies began the process with the misconception that conversion was primarily an accounting issue. That notion was replaced with a dawning realization of the true scope and complexity of the project.
- *Some projects were too narrowly focused:* Due to the tendency cited in the bullet above, some companies didn't pay proper attention to the nonfinancial impacts of conversion, including the effect on information technology, human resources, legal and tax.
- *Procrastination and delays were sometimes costly:* Some companies paid a price for waiting until the (already tight) deadline was imminent, in terms of higher costs and greater diversion of resources.
- *Manual processes were relied upon:* Some companies relied upon manual changes and spreadsheets, which led to errors, costly rework, and other unintended consequences.
- *The information systems implications were often underestimated:* Due to exhaustive disclosure requirements under IFRS, significant upgrades to software

THE ADDED COMPLEXITIES OF SOX



The systems of internal control over financial reporting that companies enhanced in response to the Sarbanes-Oxley Act of 2002 may be impacted by a conversion to IFRS.

Currently, most U.S. exchange-listed companies attest to the effectiveness of internal controls that are designed to support reporting under U.S. Generally Accepted Accounting Principles (GAAP). But a conversion to IFRS will create different information needs, which will require different processes to support them and thus, potentially, entail a different control configuration to facilitate accurate reporting.

To guard against falling out of SOX compliance during the IFRS conversion process, consider factoring this potential issue into planning from the start. Talk to your external auditor about the implications of an IFRS conversion on your system of internal controls over financial reporting.

applications were required to capture the additional information. Upfront planning to carry this out was not always implemented on a timely basis.

- *Some companies resorted to extraordinary measures:* These companies did not achieve "business as usual" state for IFRS reporting because they weren't able to fully integrate IFRS into their systems and processes. Instead, the first-year financials were produced using extraordinary, labor intensive and unsustainable measures.
- *Potential benefits were deferred:* In some cases, due to these cited factors, the first-year effort focused primarily on "getting it done." Potential benefits in terms of reducing complexity, increasing efficiency, decreasing costs, and improving transparency had to be delayed. Several years in, some companies are only now starting to realize benefits from IFRS implementation.

Yet it should not be implied that the conversion experience in the EU was uniformly negative. Many companies made great strides and derived tangible benefits from the conversion, and some best practices can be gleaned from their experiences. For example, many organizations perceived a weakness in terms of in-house knowledge of IFRS and therefore prioritized staff training early in the process to facilitate readiness by the transition date. Other companies made a concerted effort to reach out to investors to discuss potential impacts during the transition, focusing on some key measures such as operating income, net cash/debt, and other financial metrics that may be impacted by the conversion. And other organizations benefited from extensive, ongoing communications with their independent auditors as the process unfolded, particularly in terms of dealing with numerous options and alternative accounting treatments.

One significant lesson: It's never too early to start planning your transition.

SUPERHIGHWAY OR SCENIC ROUTE?

The destination is clear, but the arrival date is murky. Given these conditions, what is the best route?

The choice between a rapid conversion — the superhighway — and a more leisurely pace — the scenic route — will hinge on many factors, including your business size and footprint, strategy and plans, risk appetite, and corporate culture, along with regulatory measures and your competitors' actions. Both routes will get you there, albeit with the high speeds of the superhighway potentially impacting the efficiency and safety of the journey.

Global companies with aggressive competitors may wish to accelerate as quickly as regulations allow. Conversely, domestic organizations with a conservative philosophy may be content with a leisurely pace, bypassing any optional adoption dates to wait for a mandatory deadline.

Generally speaking, a superhighway approach is characterized by a relatively short timeframe, simultaneous conversion of all reporting entities, dedicated project teams, and commitment of significant resources. Conversely, a scenic route approach is conducted over a more extended period, with phased conversion of reporting entities, with at least some personnel retaining their "day job" duties, and with a spreading out of project costs.

Regardless of which road you choose, the primary objectives should be the same as they would be for any journey: arrive safely and on time, as efficiently as possible.

MAP YOUR ROUTE

While the pace and route may vary according to a company's needs and objectives, all should consider beginning the trip with the same navigation tool firmly in hand — an implementation roadmap.

A carefully drafted roadmap may allow a company to generate value from an exercise that otherwise could be solely reactive and compliance-driven. The map may lead to reduced implementation costs, standardization and centralization of statutory reporting activities and related controls, potential tax savings in certain areas, greater consistency of accounting policy application, and, if desired, even core finance transformation.

Conduct a safety check: The following items may help lead you through a safe journey.

Designate a sponsor and a project leader. Someone needs to take charge, so identify a leader with clout to sponsor the effort, such as your chief financial officer, chief accounting officer, or other C-suite executive. Also choose a project leader who will run the day-to-day aspects of the operation and report back to the sponsor. Because the effort will require the cooperation of many, your designees will likely need sophisticated people skills to persuade when possible and demand when necessary. These leaders should be able to exert influence across the organization when there are IFRS-related changes to implement, problems to solve, and decisions to be made. This role becomes especially important in larger, matrixed organizations that may have dozens of different IFRS work streams — from accounting and tax to systems and controls — working in parallel.

Create a PMO. A project management office provides a single point of coordination that can help you leverage project benefits; facilitate the consistent application of accounting policy and changes across a global enterprise; issue important communications and consistent nomenclature; deploy standard templates; and help all parties adhere to a single, unified plan.

Determine where you are. It's hard to reach your destination if you don't know your starting point. Find answers to these preliminary questions:

- What are our current and pending IFRS reporting requirements?
- How many local GAAPs do we currently report under?
- How many of our business units already prepare IFRS financial statements?
- How many of our competitors have converted?
- Do we have a major ERP or finance transformation project in the works?
- Are we involved in or considering a major acquisition?
- What is the level of IFRS knowledge within the company, both domestically and globally? Will training or hiring be required to augment it?

Prioritize your people needs. Many U.S.-based companies face a dearth of IFRS knowledge within their organizations. While over half (54 percent) of the respondents in the Deloitte survey indicated some or sufficient knowledge of IFRS in-house, 40 percent of the respondents admitted they had no

IFRS knowledge or experience in-house.[7] Only 27 percent of respondents indicated that the impact of IFRS on personnel has been evaluated.[8] You may need to employ a combination of training, hiring, and transfers to bridge the gap.

Engage your independent auditor. Consider getting assistance with your effort by drawing upon a well-informed source — your independent auditor. Larger accounting firms likely have participated in numerous conversion projects; tap into that knowledge early in the process.

Get your team aligned. Gather key members of your executive team to bring everyone up to speed and get thinking aligned. Consider asking your independent auditor to make a presentation. Make sure your agenda includes an IFRS primer and a regulatory update. Discuss your current reporting status across all entities. Explore the potential impacts across departments, divisions and geographies. And end up with a Q&A session to hear and address concerns.

Budget now, even if you plan to spend later. Despite heightened interest and strong support of IFRS, 64 percent of respondents to the Deloitte Pulse survey stated they had not yet allocated budget funds for IFRS conversion.[9] This is likely due, at least in part, to timeline uncertainty. Nonetheless, a significant number of other companies are taking action: 22 percent of survey participants have budgeted for assessment and readiness.[10] And a small minority (three percent) have budgeted for all aspects of conversion.[11]

Plan your trip: Gain a clear idea of your destination and the major milestones along the way.

Address accounting changes. Your first step is the most obvious: develop a full understanding of the accounting changes associated with a transition from U.S. GAAP to IFRS. Significant variability exists by industry; seek out guidance tailored to your sector.[12] Some multinationals can find in-house expertise in units already reporting under IFRS. Other organizations may need to develop their talent through training or hire professionals already versed in the standards.

Refresh your policies. Conversion to IFRS may facilitate a revisit of fixed asset componentization, inventories, derivatives, revenue recognition and other accounting policies. In other words, IFRS provides a refresh exercise for accounting policy implementation, with the aim of more transparent and timely financial reporting.

Forty-six percent of respondents in the Deloitte Pulse survey plan to rewrite or refresh their accounting policies as part of their conversion plan.[13]

Consider nonfinancial impacts. Expand your focus to include operational adjustments, including systems, people and process implications. Consider, for example, how an accounting change such as revenue recognition might impact the configuration of an ERP system.

Investigate presentation and disclosure requirements. IFRS rules for presentation and disclosure differ significantly from U.S. GAAP and may require data and information that you don't currently capture. The differences may necessitate changes in systems, processes and controls.

Communicate frequently. Be vocal with internal and external constituents regarding the changes around IFRS. Consider creating websites, blogs and road shows to educate employees, avoid confusion, and engage the larger organization in the effort. Investors and analysts will appreciate being kept informed, and such communications may even contribute to the perception that your company is forward-thinking and ahead of the pack.

Improve efficiency: If high mileage is your goal, consider some of these activities.

Leverage existing projects. If you have started — or are about to start — an enterprise resource planning (ERP) or finance transformation project, now is the time to factor in IFRS considerations. Recent versions of major ERP systems are designed to accommodate IFRS, which can be mapped in, usually with significant cost savings. A finance transformation project, conducted hand-in-hand with an IFRS conversion, can yield efficiencies for both. Thirteen percent of respondents in the Deloitte Pulse survey plan to leverage their conversion to complete a finance transformation project.

Consider shared services centers. IFRS provides a compelling reason to establish shared services centers, with the prospect of consolidating dozens of local GAAPs down to a single reporting standard. Geographically dispersed finance offices could be drastically reduced or even eliminated in favor of a central finance function, strategically located to take advantage of tax incentives, payroll savings and facilities cost reductions. Six percent of respondents in the Deloitte Pulse survey plan to establish a shared services center as part of their IFRS conversion.[14]

Conduct a trial run. Implementation might be easier if you take a bite-sized approach starting with a single country or reporting entity. Use existing reporting requirements and local country IFRS requirements to your advantage. For example, subsidiaries in countries adopting IFRS over the next three years may be good candidates for a trial run. Learn from this initial conversion exercise, and apply the lessons learned to the global rollout down the road.

FACING THE INEVITABLE

IFRS is neither Y2K nor SOX.

Some might say Y2K was characterized by fear of the unknown; although the predicament was perceived well in advance, nobody knew exactly what would happen at the stroke of midnight. IFRS, in contrast, has a well-documented implementation history in dozens of countries and thousands of companies.

SOX was notable for its tight timelines; although limited delays were granted, accelerated filers were nonetheless forced to move hastily. The IFRS conversion process in the United States, on the other hand, will likely take place over an extended timeframe that could allow for a methodical approach and a measured pace.

A key for a safe and efficient IFRS journey is to take advantage of the calendar. Start soon, and there will likely be no need for decisions under duress or for frantic mobilizations. Indicators suggest the inevitability of IFRS for U.S. exchange-listed companies. Many executives will gear up now.

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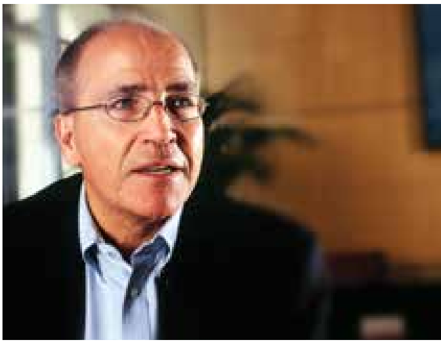
The Partial Monty: Nudging Toward More Transparency

IN THE QUEST TO ESCAPE THE CURRENT FINANCIAL MELTDOWN, pundits frequently suggest increased transparency. Transparency usually means that accurate, timely and understandable information is provided to the right people at the right time — no more, no less. With public trust in the financial system greatly diminished, the value of increased transparency is unambiguous. The real question is how to improve transparency to rebuild trust in financial markets.



Raising transparency requirements is expensive. Not only are there infrastructure and process investments required to bolster transparency, but oversight and monitoring consume scarce resources. Moreover, excessive transparency undermines the capacity to innovate — the lifeblood of our market system. The proper balance is elusive.

Getting to the right amount of transparency is all about focus. Information is like incandescent light — diffused, incoherent, and increasingly distorted the farther it gets from its source. This is similar to the growing mountains of information produced within corporations. More information, like light, does not ensure better illumination of distant or hidden objects. Too much information encumbers decision-makers into indecisiveness and possibly erroneous decision-making. Similarly, growing complexities, a byproduct of both growth and innovation, also undermine transparency. Consider the innovation of financial derivatives. Regulators attempted to provide more transparency around these new complex securities by requiring mark-to-market accounting. Unfortunately, with today's highly illiquid markets, it's unclear whether this additional information disclosure requirement improved transparency.

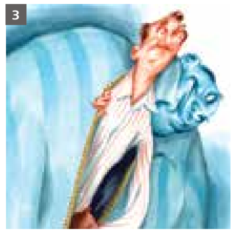
To push the light analogy further, researchers learned many years ago that by isolating segments of the light spectrum it was possible to focus light on specific objects, both nearby and far away. The value of focused light (i.e. lasers) became apparent and led to a stream of inventions from TVs to PCs to DVDs. The innovation of lasers drove significant efficiencies in the use of light, enabling focus on specific objects near or far using only the energy needed to light the object in question, not the surrounding objects.

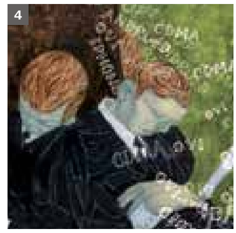
Similarly, we need innovations in how to focus transparency. Perhaps thinking of the risks associated with insufficient transparency will help in identifying where and how to focus transparency. Focused transparency is, for example, critical to keeping the interests of both agents and principals aligned. This in turn is the foundation of effective corporate and regulatory strategy execution. Pursuit of self interest without sufficient transparency will ultimately undermine both market and corporate performance as trust fractures. Both insufficient as well as excessive transparency, therefore, will impose a net burden on both markets and corporations. On the other hand, focused transparency can have a powerful effect of aligning interests within organizations.

Moving to more focused transparency within companies could involve the creation of a new leadership position, a CTO in addition to the chief technology officer: a chief transparency officer. This leader would be responsible for focused transparency within a company — for both activities and performance, ensuring that the right information is in the right place at the right time. This would help restore accountability for those responsible for setting the corporate strategy, as well as those responsible for executing the strategies.

Richard Woodward,
PRINCIPAL

PHOTO: MATT LENNERT





DAVID CLUGSTON produced and photographed our 'track shoes' shoot — his fifth appearance in five issues. He is based in Seattle.

ANTHONY FREDA returns with his third piece for *Deloitte Review*, the artwork for our China article. His collage style is immediately recognizable and can also be seen in publications such as *Rolling Stone*, *The New Yorker*, *Esquire*, and many others. He lives in the mountains of Pennsylvania.

TIM BOWER regularly graces the pages of *Fortune*, *Kiplingers* and *Esquire* with his humorous and distorted paintings. He provides a great example of his style in *The Great Transformation*. He lives in southeastern Pennsylvania.

STERLING HUNDLEY, a Richmond, Virginia-based artist and professor at Virginia Commonwealth University, makes his second appearance with us in *Platforms and the Open Door*.

Deloitte Review creative director **MATT LENNERT** photographed Professor Eric von Hippel with our custom-made 'OPEN' sign on the MIT campus in Boston. Matt resides in Tucson, Arizona. We let Eric keep our sign.

KEV JENKINS gave us the metal globe and top-producing solar countries artwork in *Solar's Push to Reach the Mainstream*. Kev is based in England.

RALPH VOLTZ has illustrated more than 200 science fiction and fantasy novel covers. In his first piece for us, he realized our vision for the Pizza-Pak 3000, an impressive piece of culinary technology. He lives in Charlotte, North Carolina.

IGOR MORSKI is based in Poznan, Poland, capital of the region known as Wielkopolska, frequently translated as "Great Poland." His rendition of our 'flying squirrel-suited executive' marks his second appearance in our pages.