

## Special Report



# What happens next?

Five crucibles of innovation that will shape the coming decade

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# Introduction

Consider: Twenty years ago, China had barely entered the global economy. The world's policy forum was the G-7. The World Wide Web didn't exist. Two decades and one historic financial meltdown later, China will enter the second decade of the new century as the world's second-largest economy. Policy is now being made—or at least attempted—in an expanded forum, the G-20. One-and-a-half-billion people are now online, and nearly four billion have cell phones tying them to an ever-expanding global communications grid.

The financial crisis has made us myopic. Yes, the strength and direction of the latest economic indicators matter. But what matters more are the long-term implications of an ongoing shift in global economic power—one that remains woefully underappreciated.

In all likelihood, the next decade will mark the first since the Industrial Revolution when emerging economies add more to global growth than all the developed countries combined. In some sectors—construction, agriculture, mining—the emerging economies' contribution to growth will be as high as 80 percent. As a result, between now and 2020, more people should escape poverty than have done so during any other period in history. Over the next ten years, GDP per capita will rise nearly five times faster in emerging economies than in OECD nations. All this represents not just a modulation of prior trends but also a geo-economic, geopolitical transformation of historic significance. We are racing into a new era.

We can be certain that this new era will not evolve smoothly. Future economic crises—quite likely, major ones—are inevitable. A toxic combination of nationalism, bad policy, and populist backlash could even halt progress for a time.

But the forces driving the emergence of this new world—juggernaut population trends; truly global markets for goods, services, labor, and capital; and unceasing innovation in fields ranging from cell phones to cell biology—are too powerful to be denied. The scale and ferocity of the recent financial crisis were possible only because of the extraordinary pace of the global integration that preceded it; yet its most lasting effect will be to further reinforce those trends. That emerging economies led the recovery should have surprised no one. Yet it did.

In this complex, multipolar, and interconnected world, the biggest challenge facing businesses isn't responding to their known competitors, but learning how to respond to a world in which the frame and basis of competition are always changing. To capture some of the ways these changes will play out, we have identified five crucibles of potential innovation that will shape the next decade and beyond.

# Crucible 1:

## The Great Rebalancing

The vibrancy of emerging-market growth will not be the only major disruption reshaping the global economy in the next decade, but it may prove the most profound.

This decade marks the tipping point in a fundamental long-term economic rebalancing that will likely leave traditional Western economies with a lower share of GDP in 2050 than they had in 1700. Short of a world war or major catastrophe, little could change the course. Two virtuous cycles are at play.

- **First, declining dependency ratios.** Virtually all major emerging markets are undergoing demographic shifts well-proven to unleash an economic miracle: simultaneous labor force growth and rapidly declining birth rates. Or, put simply, more workers plus fewer mouths to feed equals more disposable income.

- **Second, the largest urban migration in history.**

Nearly one-and-a-half-million people move to cities each week, almost all in developing markets. The economic impact: step-change gains in output per worker as people move off subsistence farms and into urban jobs. China and India are seeing labor productivity grow at more than five times the rate of most Western countries as traditionally agrarian economies become manufacturing and service powerhouses.

These same accelerators stoked the engines of Western economic growth for the better part of two centuries—the economic equivalent of jet fuel. (And they should last well into the next decade—at least until China’s population, finally seeing the full effects of the one-child policy, begins to go gray.)

In the next decade, emerging-market economies will morph from peripheral players, which largely reacted to events set in motion by rich Western nations, into powerful economic actors in their own right. They will shift from suppliers of low-cost goods and services—serving as the world’s factory—to major providers of capital, talent, and innovation at scale. (One hint of what’s to come: the number of “BRIC”

companies on the Fortune 500 has more than doubled in the last four years alone.)

Nor is this just about China and India. To varying degrees, ASEAN, Latin American, and Eastern European nations, as well as portions of the Middle East and North Africa, are taking part in this economic renaissance. Even pockets of sub-Saharan Africa, after decades of stagnation, are showing new vigor.

For all companies—both established multinationals and emerging-market challengers—this Great Rebalancing will force major adjustments in strategic focus. No longer can established companies treat emerging markets as a sideshow. Emerging markets will increasingly become the locus of growth in consumption, production, and—most of all—innovation. More and more, global leadership will depend on winning in the emerging markets first.

Opportunity and adversity are the mothers of invention—emerging markets will be the world’s next fount of innovation

A huge shift is under way in consumer markets: somewhere north of 70 million people are crossing the threshold to the middle class each year, virtually all in emerging economies. By the end of the decade, roughly 40 percent of the world’s population will have achieved middle-class status, by global standards—up from less than 20 percent today. And this means opportunity: Procter & Gamble, for example, hopes to add a billion new customers to its ranks in the next decade, adding to the nearly four billion the company touches today. In recent quarterly earnings reports, nearly every global consumer products company—from Kraft to Nestlé—noted upticks in profits, driven primarily by gains resulting from the robust economic recovery in emerging markets.

But seizing that opportunity won't be easy. These new consumers come in a bewildering array of ethnic and cultural backgrounds. They have little loyalty to—or even knowledge of—established global brands. Their tastes and preferences will evolve just as rapidly, if not more so, than those of consumers in developed markets, and they will demand products with every bit as much quality. Yet, on average, they will wield just 15 percent of the spending power, in real dollars, of their developed-world counterparts.

Companies that can innovate to reduce cost structures to 20 or 30 percent of developed-world levels, or lower, can unlock a tidal wave of unmet demand. While the Nano, Tata's \$2,200 car, has been a showcase of such innovation, the truth is that hundreds of products now being developed promise to reinvent price and cost structures radically—from Hindustan Lever's \$43 water purifier, in use in more than three million Indian homes, to the Zero, a proxy ATM that costs less than \$50 a month to operate (essentially a revamped cell phone with an attached fingerprint scanner, used by local merchants).

To extract fortunes from these new markets, established organizations must reinvent their business models from top to bottom. Hindustan Lever, for example, unable to find reliable distribution in large reaches of India, uses everything from bicycles to bullock carts to get products to market. When the Indian refrigerator manufacturer Godrej decided to release a refrigerator for the rural market, it worked with villagers to codesign a product that worked for their needs. The result: the ChotuKool, a \$69 fridge that not only shattered price barriers but also included features that allow it to work in an environment where the electricity cannot be trusted to stay on.

## Today's unit share leaders will be tomorrow's revenue winners—ignore them at your peril

Such innovations, because of their low price structure, capture massive unit share long before they generate meaningful revenue share. This distinction matters. CEOs

who miss it risk getting blindsided by low-cost innovators that will fly up the value chain below the radar until they have become too powerful to stop.

Caterpillar, for example, is the world's largest construction-equipment manufacturer, with almost twice the revenues of the next-largest player. No Chinese company makes the top ten by this measure, so they may appear a distant threat. But unit sales numbers tell a different story. Ranked by the number of vehicles sold, 9 of the industry's 12 largest manufacturers of wheel loaders—the second-largest-selling piece of construction equipment—are Chinese. Nor do these players have an advantage only in their home market: Chinese manufacturers now supply a third of the wheel-loader volume in emerging markets outside China and are beginning to take strides in developed markets too. No wonder traditional industry leaders, including Cat, have raced to get a piece of the action, resulting in a rush to forge joint ventures with Chinese competitors.

Significantly, while emerging-market upstarts often gain market share by trading away margin to build position, that is not always the case. The best, forced to innovate by the harsh conditions of their home markets, are developing leaner business models that both boost low-cost demand and deliver enviable financial returns.

Consider Bharti Airtel, India's leading wireless provider. In 2003, Bharti founder Sunil Mittal, facing explosive growth and racing to build out a network fast enough to keep pace with demand for mobile services, reinvented the business model to reduce network costs to well below industry average, by, among other things, outsourcing network management and radically redesigning the cost of base stations. The result: a fundamentally new approach to managing a mobile-services company that allows Bharti to reap profit margins comparable to those of many Western telecommunications companies—despite average revenues per user just 10 to 15 percent of those of their developed-world counterparts.

Even luxury companies are being touched by the allure of emerging-market consumers. The privately held French beauty products company L'Occitane, for example, is floating its upcoming IPO not on the Euronext, in Paris, but rather on the exchange in Hong Kong. The reason: emerging-market consumers are the fastest-growing growth segment for this affordable luxury brand.



## Don't assume that emerging markets are just a cost play – technological innovation will be the next frontier

Last year marked the first ever when an emerging-market company—the Chinese telecom manufacturer Huawei—led the world in patent applications. No US company made the top ten. That's only one, admittedly imperfect, measure, but it captures a deep underlying trend. Today, India is the largest supplier of technology workers of any country on the planet, and China is on track to pass the United States as the home of the world's largest R&D workforce. As emerging-market talent centers grow and skills deepen, new innovation ecosystems will emerge. Already more than 1,000 multinational companies operate R&D facilities in China, up fivefold from ten years ago.

In electronics, computing, and clean energy, among other fields, emerging-market companies increasingly define the future. Huawei, long dismissed as a perennially weak upstart to the likes of Cisco Systems or Ericsson, is now the world's third-largest telecom-equipment manufacturer and is increasingly regarded not simply as an emerging-market upstart, but a global competitor.

### Learn to manage multiple business models – or why the West still matters

For established Western multinationals, the biggest dilemma is figuring out how to thrive while competing across highly different types of markets. Since both developed and emerging markets require breakneck innovation, many companies may be tempted to underinvest in potential long-term revenue growth in new markets in order to pursue here-and-now profit gains in established ones. That's understandable: while more than 50 percent of future global growth will occur in emerging markets—and in many industries much more than that—the lion's share of profits so far remains in the OECD. But that's shortsighted. Companies need to figure out how to win in both.

The mobile-phone handset market epitomizes the paradox: cutting-edge smartphones make up just 6 percent of global handset volumes, yet Apple, Research in Motion (RIM), and HTC now earn more than 50 percent of total industry profits. On the lower end, ultra-low-cost handsets from OEM manufacturers such as TCL and ZTE are capturing significant volume share in emerging markets. Traditional players such as Nokia, Samsung, and Motorola find themselves squeezed in the middle, fending off assaults on both top and bottom—largely from competitors that barely registered less than five years ago. Managing multiple business models is hard.

### Blowback is real – so why not drive it yourself?

A few innovative companies are starting to get it right. GE, for example, has devised an electrocardiograph machine for the Indian market that can be sold profitably for \$1,500, less than a fifth of the price of traditional ECG monitors in Europe and the United States. The new model has helped GE not only to extend a new level of health care to millions of Indians but also to develop innovative new design approaches, which in turn helped the company to create a monitor for developed-world markets that sells for about \$2,500. Based on this experience and others like it, GE is now developing more than 25 percent of its new health care products in India—with explicit plans to deploy them both in emerging and advanced economies.

The prospect of this innovation wave unleashed by the Great Rebalancing should serve as a wake-up call to any CEO. Emerging markets are more than enormous growth opportunities; they are where tomorrow's champions will hone their long-term competitiveness. Pursuing incremental product line extensions in developed markets, though profitable in the short run, will not suffice to build the critical muscle required. Blowback is coming as lower-priced, high-quality products created for the mass markets of tomorrow move from the developing to the developed world. Buoyed by strengthening currencies and improved balance sheets, emerging-market challengers will move further up the value chain by acquiring more Western companies. Learning to win in low-cost, high-growth countries means winning not just there but everywhere.

# Crucible 2:

## The productivity imperative

Emerging markets are riding a virtuous growth cycle, propelled by larger and younger working populations. In the rich nations of the developed world, by contrast, low birth rates and graying workforces will make it enormously difficult to maintain what economist Adam Smith called “the natural progress of opulence.”

These countries’ best hope for keeping the wealth creation engine stoked is improved productivity—producing more with fewer workers. Paradoxically, doing that well across an economy is also the only way to generate lasting employment gains. In the United States, for example, every point of productivity-led GDP growth has historically generated an incremental 750,000 follow-on jobs.

The great tension here arises at the level of politics. Over time, the world’s rebalancing demands greater consumption and lower savings among the large developing countries, even as developed ones—the United States foremost among them—save, invest, and export more. Fostering policies that raise productivity, and avoiding or altering policies that impede it, will help ensure a smooth transition. Getting this wrong—failing to generate at least modest and broad-based continued income and employment gains in developed countries—raises the odds of a political backlash that will hurt the citizens of rich nations and soon-to-be-richer nations alike.

We call the productivity challenge an imperative because the need is so compelling. But to eke out even modest GDP increases, OECD nations must achieve nothing short of Herculean gains in productivity. In the 1970s, the United States could rely on labor force growth to generate roughly 80 cents of every \$1 gain in GDP. During the next decade, assuming no dramatic increase in hours worked, that ratio will roughly invert: labor force gains will contribute less than 30 cents to each additional dollar of economic growth. To maintain a GDP growth rate of 2 to 3 percent a year, productivity gains will have to make up the other 70 percent.

The challenge is even greater in Western Europe, where no growth in the workforce is expected. Here, in other words, 100 percent of GDP growth must come from productivity gains. And in Japan, the hurdle is higher still: because of a shrinking labor force, each worker will have to increase output by 160 yen to generate an additional 100 yen of growth.

To complicate things further, we are seeing a growing talent mismatch. The Western economies have built a workforce optimized for mid-20th-century national industries, yet the jobs now being created are for 21st-century global ones—we need knowledge workers, not factory workers. And there just aren’t enough of the former. Anywhere. Companies across the globe consistently cite talent as their top constraint to growth.

In the United States, for example, 85 percent of the new jobs created in the past decade required complex knowledge skills: analyzing information, problem solving, rendering judgment, and thinking creatively. And with good reason: by a number of estimates, intellectual property, brand value, process know-how, and other manifestations of brain power generated more than 70 percent of all US market value created over the past three decades.

Western economies can do many things to change the equation. Deregulation has often raised productivity in the past and can continue to do so. Changing the boundaries around the work–life balance—encouraging people to stay in the workforce longer or increasing the numbers of hours worked each week—could add a few points of absolute growth, too. Improving education is a no-brainer.

Businesses can and should advocate these and other policy changes that could have a long-term impact, such as easing immigration restrictions. But in the end, the real game changers will be breakthrough innovations created by companies: history shows that a majority of productivity growth—more than two-thirds—comes from product and process innovation.



## The productivity economy will reward ‘do it smarter’ companies that build a better business model

Besides providing powerful incentives for companies to deliver their traditional products and services more efficiently, the new environment may make selling “productivity”—finding marketable ways to “do it smarter”—the most transformative business model of the next decade.

This push is bound to have a “no pain, no gain” dynamic. Innovation is, by definition, a disruptive process. Think about the book-publishing industry. Only two years after the release of the Kindle, Amazon.com now sells half of its books electronically for the titles it offers customers in both bound and digital formats. The Kindle is short-circuiting the entire physical supply chain and Apple’s new iPad is sure to accelerate that process.

Something similar is shaking up the world of computing. It’s considered the poster child of productivity—for good reason. But probe further and it’s not hard to find evidence of waste. Companies spend, on average, 5 to 10 percent of their total revenues on IT. Yet reliable estimates suggest that upward of 70 percent of server capacity goes unused, and even more at midsize and small companies, since they can’t achieve scale. Advances in “cloud computing” (sharing computer resources remotely rather than storing software or data on a local server or PC) have vast potential to raise utilization rates and simultaneously help companies to increase their computing capacity, while slashing IT costs by 20 percent or more. Little wonder tech giants as divergent as IBM, Google, and India’s Wipro Technologies are investing furiously to win the battle for the cloud.

Health care is another arena where do-it-smarter businesses will thrive. On average, health care spending in OECD countries has outpaced GDP growth by nearly 2 points a year; even more in the United States. Still, in most

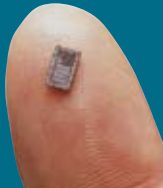
countries, increased health care spending actually creates a productivity drag on the economy overall, because the sector has lagged behind in adopting productivity measures. (To take just one indicator, health care organizations spend, on average, just 20 percent of what financial services companies do on IT.)

But multiple innovations promise to improve outcomes significantly while reducing costs. For example, some 75 percent of health care spending in many OECD countries pays for chronic-disease management.

France Telecom’s Orange is partnering with health care providers to offer services that constantly monitor diabetics and cardiac patients remotely. Low-cost mobile-monitoring devices ensure better compliance with treatments and reduce the number of high-cost, life-threatening events. Germany’s T-Systems has linked up with the health insurance provider Barmer to provide mobile systems that track and monitor exercise patterns, so patients—and doctors—can monitor progress and reduce risk more effectively.

A raft of industries and services are poised to benefit from productivity improvements. Huge gains could be extracted just by applying the insights learned over the past 15 years in the most productive sectors, such as telecoms and financial services, to less productive ones, such as health care, education, and government.

The best companies will learn how to maximize returns from people who think for a living



Just as the early 20th century saw the development of management theory for improving the productivity of factory workers, the 21st century will see the evolution of myriad better techniques for managing people who think for a living.

The potential stakes are enormous. Companies that have higher concentrations of knowledge workers (above 35 percent of the workforce) create, on average, returns per employee three times higher than those of companies with fewer knowledge workers (20 percent or less of the workforce). Yet companies with more knowledge workers also show more variable returns: differences between competitors in the same industry vary eight to nine times more than they do for companies with fewer knowledge workers.

Turning this gap into a key source of competitive advantage requires much more than reverting to the well-worn “attract, deploy, develop, and retain” talent wheel found in HR manuals everywhere. Yes, the road to success still starts with capturing more of the right talent. But to increase productivity dramatically, companies will then need to think aggressively about how to increase the pace of talent development, to deploy the best talent against the highest-value opportunities, and to improve the way such workers engage with their peers. Our analysis suggests that at many large multinationals, nearly half of all interactions between knowledge workers do not create the intended value—because people have to hunt for information, do not know where to find what they need, or get caught in the maws of inefficient bureaucracies.

## Companies will need to reinvent work – what, where, when, how, who, and why

Companies such as Best Buy have increasingly recognized that work is not a place where you go, but rather something you do. To get the most out of its corporate workforce, the company has adopted a “results-only work environment,” which gives workers big targets but lets them meet these goals any way they see fit. This approach has improved worker productivity by as much as 35 percent in departments that have deployed it.

Transforming process flows will also unlock new kinds of productivity. Companies such as IBM and Cisco are aggressively developing approaches—from social networks to videoconferencing—that tear down silos and reinvent how far-flung employees collaborate and exchange knowledge. What’s more, these approaches work: UK grocer Tesco, for example, saved up to 45 percent of the travel budgets of key departments by substituting videoconferencing for long-haul travel. The Hong Kong apparel supplier Li & Fung now uses videoconferencing to connect clothing designers with fabric and notions suppliers around the world, dramatically speeding the design process. That’s no small thing for a company known for its ability to turn around “fast fashion” in weeks, not months.

Although the demand for knowledge workers is sure to grow, the supply will not. Governments aren’t moving fast enough to educate workers with the skills needed to meet the productivity imperative, and businesses can’t afford to wait. That means companies must get much more innovative at sourcing talent, whether by tapping global labor markets, building part-time workforces, or making better use of older workers. Firms also will need to rethink work progressions in a world with much flatter age pyramids—young workers no longer outnumber old ones, which has been the premise for role advancement in most companies for decades. Retailers such as CVS and Home Depot, for example, are pioneering “snowbird” programs, which let retirees go to warm climates in the winter and work in stores there, returning to their original stores in the summer.

## Information streams are the infinite by-product of a knowledge economy – the best companies will turn this free good into gold

A final productivity driver will be something businesses are creating in digital bucket loads: information. Although the volume of data created is expected to quintuple in the next five years, best-guess estimates suggest that less than 10 percent of the information created is meaningfully organized or deployed. That number will only shrink as the rate of information production goes up.

Enter business analytics software, which increasingly allows companies to make sense of data “noise”—helping them “de-average” data to eliminate waste, more closely target customers, and identify new opportunities. In general, companies that are aggressive adopters of business analytics are proving twice as good at predicting outcomes and three times as good at predicting risk as those that aren’t.

The Swiss telecom operator Cablecom, for example, reduced customer churn nearly tenfold by better use of customer information. Both Google and Amazon have developed predictive models that use enormous amounts of data to figure out what products customers might like, based on past searches and clicks. IBM, Microsoft, Oracle, and SAP have spent a combined \$15 billion in the last several years snapping up companies that develop software for advanced data analytics. Expect a host of new offerings that help turn information into gold.

Further out, Web 3.0 technologies—which create “smart” data, or data that can be combined with other data intelligently, mostly without direct human involvement—should soon extend the power of information even further. We fully expect Web 3.0 to begin disrupting information networks within the decade.

In short, companies that deploy technology more successfully to get more from the higher-quality knowledge employees they attract will gain large business model advantages—and drive substantial growth and productivity gains.

# Crucible 3: The global grid



The last two decades have witnessed the rise of networks of unimaginable density and complexity. Money, goods, data, and people now cross borders in huge volumes and at unprecedented velocity. Since 1990, trade flows have grown 1.5 times faster than global GDP. Cross-border capital flows have expanded at three times the rate of GDP growth. Information flows have increased exponentially.

As significant as the breakneck growth of these networks is the way they have converged to form a global communications and information grid that enables real-time interactions at scale. Within this densely woven digital fabric, old lines blur. Cross-border capital flows are also information flows. Just-in-time supply chains are just-in-time information chains too. Case in point: just one in ten US dollars in circulation today is a physical note—the kind you can hold in your hand or put in your wallet. The other nine are virtual.

One by-product of the emergence of this highly integrated ecosystem, built upon trillions of microtransactions each year, is its almost terrifying synchronicity. The striking thing about the recent economic downturn wasn't just the rapidity of the decline but the fact that so many seemingly diverse markets plunged at once. By the end of 2008, the volume of trade had fallen by more than 10 percent in more than 90 percent of OECD economies. Why? The short answer is that trade declined everywhere because, increasingly, products are made everywhere. These days, a typical manufacturing company relies on more than 35 different contract manufacturers around the world. Auto and airplane manufacturers rely on tens of thousands. No wonder over the past 40 years, trade in intermediate goods as a percentage of total trade has doubled.

In capital markets, this interconnectedness is even more pronounced. Who would have imagined that Iceland's financial system might go down when mortgages in Las Vegas went belly up?

The counterbalance within this tension is that such complex adaptive systems create self-organizing dynamics all their own. Directed by no single center, they grow, evolve, interconnect, disrupt, and—quite important—heal themselves. Even as capital flows temporarily shut down during the dark days of the winter of 2008–09, for example, the global information grid kept growing. Estimates by Cisco suggest that in 2009, global data flows expanded by nearly 50 percent. In China alone, more than 150 million new people connected to the Internet last year, giving that country a digital population almost as large as the world's biggest social-networking site, Facebook. (Facebook, whose user base more than tripled last year, now has more than 400 million members—a population that would make it the world's third-largest country.)

Alongside this seemingly unstoppable advance in digital connectivity, the financial crisis has underscored the commitment by most countries to maintain market-based economies and free flows of capital and trade—though the precise shape of new regulations remains to be determined. On average, governments have passed three protectionist measures a day across the globe since the advent of the crisis, but they haven't added up to much: less than 1 percent of global trade has been affected.

Meanwhile, dense links are being formed in a host of new directions. Trade flows between China and Africa, for example, have been growing by 30 percent annually, creating robust commercial networks that barely existed a few years ago. Similarly, Asia has supplanted North America and Europe as the Middle East's largest trading partner. Emerging-market-to-emerging-market transactions are on the rise. The Indian wireless operator Bharti's recent bid to acquire Bahrain-based Zain's African assets would create a global wireless behemoth that will extend across more than 20 countries in South Asia and Africa.



Every company is now a global company – and the most innovative ones are building the global grid into their DNA

The most innovative businesses will be those that harness the interlocking power of these new grids. Some will be disruptive newcomers like Skype, a company started less than seven years ago that now ranks as the world's largest carrier of transnational telephone calls, despite having no network infrastructure. Even if companies don't adopt such radical business models, they need to think strategically about how to use these new networks to advance their existing business models. Techniques such as "near-shoring," "crowd sourcing," and sophisticated labor arbitrage help companies efficiently build products, source ideas, find employees, deliver services, and reach customers.

Similarly, companies that can figure out how to capture winning positions in the global supply chain are sure to win. Japanese companies mastered that as no others have. In 30 different technology sectors with revenues of more than a billion dollars, Japanese companies control 70 percent or more of global market share. They have done so by creating an array of "choke point" technologies on which much larger industries depend. Mabuchi Motor, for instance, makes 90 percent of the micromotors used to adjust car mirrors worldwide. Nidec makes 75 percent of the world's hard-disk drives. For the substrates and bonding chemicals used in microprocessors and integrated circuits, Japanese companies own nearly 100 percent of the worldwide market.

The information grid makes every company a global company, no matter how small. Even individual proprietors now sell to customers worldwide via sales platforms such as eBay or Alibaba. SnaProducts, a US-based product-development company with fewer than 40 employees worldwide, uses virtual sourcing to supply American retailers with an array of low-cost seasonal and basic products: summer flip flops, Christmas decorations, beauty products. And socks—more than 50 million pairs of them in the last three years alone. The company marries

a high-touch, customer-forward design process with a low-cost back end: collaborating with retailers to better predict fickle consumer trends and then designing and sourcing products in collaboration with a range of low-cost manufacturers across Southeast Asia. This approach has given retailers rapid sell-throughs on high-margin products and allows SnaProducts to deliver year-over-year growth rates as high as 400 percent, without ever taking ownership of inventory.

## Your customer is tweeting – how will you answer?

Disruptive changes in consumer behavior caused by the rise of the global grid may have the most important impact on business over the next decade. Despite what we've seen already—radical pricing transparency, ubiquitous information availability, massive new networks of engaged consumers—the changes ahead will be even more staggering. Recall that 15 years ago, less than 3 percent of the world's population had a cell phone and less than 1 percent was online. Today, those numbers are 50 percent and 25 percent, respectively.

Technological change is altering behavior once thought impossible to shift. For example: Americans now spend 30 percent more time reading than they did a decade ago, thanks to the explosion of text messaging, e-mail, and social networking. These avid readers are also writing.

More than 15 million Americans (10 percent of the US workforce) now post online product reviews each week. Aside from recommendations by friends, US buyers now rate online user reviews as the top influencer of their buying decisions—nearly twice as influential as old-style advertising. Traditional media companies know full well how much this behavior shift has blown a hole in their bottom lines.

But it's not just Big Media's problem. Companies everywhere are struggling both to capture the benefits of this always-on, user-driven world—and to contain the damage. Product problems can become global issues overnight, putting a premium on constant monitoring. Viral networks also help enflame nationalist passions around formerly isolated incidents. (The speed and magnitude of

such impacts can be quite unexpected—and often quite beyond the control of the targeted company. Carrefour, for example, found itself racing to respond to a sudden boycott of its Chinese stores in the run-up to the 2008 Beijing Olympics, when protestors in France, who had no relation to the company, upset the Olympic torch run, causing a subsequent anti-France backlash in China.) In such situations, both speed—and the lack of speed or agility when responding—can kill, or at least cause enormous economic harm.

providing much better access to credit and finance. The economic impact is tangible: every 10 percent increase of cell phone penetration in India corresponds to a nearly 0.6 percent rise in the national GDP.

Kenya shows how the future might unfold. Just four in ten Kenyans have cell phones, yet half of Kenya's cell phone users—or one in five Kenyans—now make purchases via mobile payment systems. Kenya's largest employer is TxtEagle, an SMS-messaging company. It provides jobs to more than 10,000 Kenyan citizens by doling out "microwork," small tasks that can be accomplished over mobile networks.

Imagine the power of four billion connected minds – are you prepared for the innovation about to be unleashed?

A world where not just everyone but also everything is connected opens up radically new possibilities

The challenges and, more important, the opportunities from this transformation will increase with the spread of mobile broadband. iPhone users surf the Internet 75 percent more than regular phone users do, and more than half use their phones to watch video. In just two years since the iPhone's launch, developers have created more than 140,000 applications for the app store. And this avalanche has barely begun: nearly 50 percent of all new mobile-phone purchases in developed markets are now Web-enabled smartphones. That rush of new Net surfers includes a growing number of emerging-market users too: in China last year, more than 100 million people logged on using the country's new 3G network. That's why global mobile data usage rose 2.5 times last year.

Emerging markets are where the information grid's influence may be most profound. The explosion of mobile networks is giving billions of people their first real entry point into the global economy, helping them become more informed consumers, connecting them with jobs, and

Increasingly, not just people but also inanimate objects will plug into the planet's digital nervous system—a phenomenon called "the Internet of Things." At present, more than 35 billion objects are connected to the Internet: sensors, routers, cameras, and the like. But this phenomenon is just getting started. More than two-thirds of new products feature some form of smart technology, which is being used in a dizzying array of ways. For example, John Deere tractors now deploy GPS guidance systems to apply fertilizers to crop land precisely, reducing farmers' costs and driving up annual yields. The Dutch company TomTom has created systems for precisely diagnosing traffic jams and helping reroute drivers to improve traffic flows. Nortura, Norway's largest food supplier, uses radio-frequency identification (RFID) technology to trace chickens from the farm to the store shelf, helping to monitor optimal refrigeration temperatures throughout the supply chain. Samsung and Kraft have just partnered to develop the Diji-Touch, a Web-enabled vending machine that allows real-time updates of rich-media images of products for sale. The stakes are high: as objects and devices connect online, some estimates suggest that at least \$3 trillion of current spending could be disrupted.



## Expect a bumpy ride – a connected world will be a volatile world

As noted, a profound tension remains at the core of this expanding global grid. In theory, all this interconnectedness was supposed to increase stability by helping to diversify risk. But while the ability to diversify risk has risen, so has the ability to instantaneously identify and channel resources toward or away from opportunities. The global financial crisis painfully underscored how interconnectedness can actually amplify the impact of a particular shock. The key will be to focus on building in greater redundancy and resilience. In the meantime, we should not be surprised if the years ahead bring long stretches of stability—the pay-off from a larger and more resilient system—that continue to be punctuated by bigger bubbles and possibly even more spectacular meltdowns.

The next few years, in particular, may well be bumpy as a massive deleveraging process rolls through many Western economies. The eurozone will prove especially tumultuous as structural imbalances get worked out between savers,

such as Germany, and debt-laden countries, such as Greece, Ireland, Portugal, and Spain. It's important to note that these bumps will occur across all markets—capital and currency markets, trade markets, and labor markets.

In response, businesses should strive to improve their peripheral vision by gaining a better understanding of the full range of areas where disruptions could emerge and by scanning the horizon for potential “black swan” events. Volatility is here to stay. Learn to recognize it, prepare for it, adapt to it, manage it, and profit from it. But don't ignore it.

# Crucible 4: Pricing the planet



The tension between rapidly rising resource consumption and environmental sustainability is sure to prove one of the next decade's critical pressure points. Natural resources and commodities account for roughly 10 percent of global GDP and underpin every single sector in the economy. No one will sit on the sidelines in this debate.

The interplay of three powerful forces will determine what resources we use, how we use them, and what we pay for them:

**1. Growing demand.** Even the most conservative projections for global economic growth over the next decade suggest that demand for oil, coal, iron ore, and other natural resources will rise by at least a third. About 90 percent of that increase will come from growth in emerging markets.

**2. Constrained supply.** As easy-to-tap and high-quality reserves are depleted, supply will come from harder-to-access, more costly, and more politically unstable environments.

**3. Increased regulatory and social scrutiny.** Around the world, political leaders, regulators, scientific experts, and consumers are gravitating to a new consensus based on fostering environmental sustainability. Climate change may be the most highly charged and visible battleground, but other issues loom: water scarcity, pollution, food safety, and the depletion of global fishing stocks, among other things. For businesses, this new sensibility will present itself in two ways: stricter environmental regulations and increasing demands from consumers—and employees—that companies demonstrate greater environmental responsibility.

To understand how the world is likely to change as these forces collide, start by distinguishing between resource stocks, which are not likely to change much over the next decade, and resource flows, which will change enormously.

Despite enormous investments in clean energy, in 2020 the ratio of fossil fuel consumption to renewable and nuclear power will remain largely as it is today—roughly 80 percent. No realistic scenario will move the needle: the embedded resource infrastructure is so large that any transition away from fossil fuels will take decades.

But the view changes dramatically when you look beneath the supply stock to the flows of new investment. Suddenly clean tech emerges as one of the next decade's biggest growth industries. Upward of \$2 trillion will probably be invested in building clean-energy capacity globally over the next ten years. In the United States, 90 percent of this expanded capacity will be in renewable or nuclear energy—66 percent in the European Union and China. Before 2020, this investment will probably create a clean-tech industry generating well over \$1 trillion a year in sales.

No country better epitomizes this contradictory dynamic than China, which in recent years has emerged as both the world's biggest carbon emitter and—if future actions speak louder than words—arguably its leading clean-energy champion. Buoyed by strong economic tailwinds, Chinese electricity demand is growing by 15 percent a year, creating the world's largest market for power generation equipment. To date, China has kept pace by adding a slew of coal-burning power plants that emit a lot of carbon. But motivated both by the huge costs of environmental degradation and by fears of overdependence on Middle Eastern oil, Beijing has moved decisively to support the development of clean-energy technologies. China may be the world's number-one polluter, but it is also the world's

largest consumer—and manufacturer—of wind turbines and solar panels. And it will soon take a commanding lead in the use of clean-coal and nuclear technology.

In fact, China is building the clean-energy businesses of the 21st century—not just locally but globally too. Suntech Power, China's largest manufacturer of solar panels, now commands 12 percent of the US solar market. The company, which will soon open its first factory in the United States, hopes to capture 20 percent of the US solar-panel market over the next two years.

As a result of this enormous shift in flows, some business models will be obliterated, others will thrive, and yet others, especially outside the resource sector, may barely change. For CEOs, understanding their true exposure to energy and environmental risk will require more sophistication than ever and will emerge for many as a—if not the—decisive factor determining the long-term viability of their companies.

traded on global exchanges each day exceeds the number of real barrels by an estimated ratio of 30 to 1. This “market effect,” enabled by the global grid, amplifies any market tremor—a key reason oil prices collapsed to just 20 percent of pre-crisis levels in the immediate wake of the financial crisis, falling from above \$150 to roughly \$30 a barrel. Few other industries could experience such pricing changes in just six months.

Yet oil isn't the only commodity susceptible to wild price swings. For example, more than half of the world's copper production is concentrated in a handful of countries with limited infrastructure and high extraction costs. Producers know that over the long term, demand for copper can only grow. At the same time, they're wary of investing in infrastructure ahead of the demand cycle—a strategy that practically guarantees future pricing volatility.

## In uncertain times, the need to plan for widely different outcomes is the one clear certainty

Regulation will prove another wild card. Virtually every major economy in the world is contemplating stricter rules, but there's little consensus over which regulatory schemes will be adopted, much less how they will be enforced. Some could dramatically transform business models. How, and if, carbon is priced, for example, could fundamentally alter many industries. The same is true with water.

Large regulatory changes are sure to disrupt entire value chains. Agriculture, for example, is one of the world's leading carbon emitters. If it becomes regulated under a carbon regime, that will affect not just farmers but also their suppliers—for example, equipment manufacturers, seed producers, and fertilizer providers—as farmers scramble to adopt emission-reducing agronomic techniques, such as no-till planting.

Consumer behavior may prove the great unknown. Although consumers are becoming much more environmentally aware, to date they have not shown much proclivity either to reduce their resource consumption or to pay for environmentally friendly products, and certainly not if such products cost more. (There are some notable exceptions, such as the Toyota Prius, which captured

## Commodity prices will rise higher – and fall harder

For most resource commodities, the question is not whether supply will be sufficient but rather what will happen to the price. And that depends in part on what it takes to gain access to them.

Just four countries—Iran, Iraq, Saudi Arabia, and Venezuela—hold some 50 percent of known oil and gas reserves. Nationally owned oil companies now control over 85 percent of them. Many of the key providers are highly exposed to broader geopolitical instability, making security of supply a major risk. Meanwhile, new supply is proving harder to find. Most new sources—such as deep-sea reserves or oil sands—require high-priced, environmentally controversial approaches to extraction.

These factors all suggest that oil prices will be both higher and more volatile. Adding to the complexity is the fickle nature of global commodities markets. The number of “virtual” barrels of oil, in the form of futures and derivatives,

more than 2 percent of the US market, despite being 20 percent more expensive.) That resistance could change dramatically as we have seen before: recall the backlash against chemical companies in the 1960s, following the publication of Rachel Carson's *Silent Spring*.

The implication: companies can no longer rely on business-as-usual scenarios when it comes to resources; they must factor in higher base-level prices and increased volatility. They also need to weigh any number of factors that are not yet—but may become—priced in the future, such as carbon and water. And they need to understand how customers might respond. Since these are huge uncertainties, companies will have to consider their options and outcomes under multiple scenarios.

## Business models that drive resource productivity will be just as important as those that drive labor productivity

Despite the hype over clean energy, the biggest impact from rising pressure to price the planet may well come from something much more mundane: conservation. Boosting resource productivity—like labor productivity—will become an increasingly important way for businesses to reduce both their costs and their pricing exposure. Many of these gains require low capital investments and are comparatively easy to adopt.

Advances in fields such as environmental product design and “green software” (which helps optimize resource usage) will become important ways for companies to reduce resource consumption. UPS, for example, has saved 2 percent on fuel costs by using software that helps plan delivery routes with fewer left turns (which use more fuel than right turns). Similarly, Apple has created approaches to reduce waste in its products: since it launched the iMac, it has reduced raw-material content by 50 percent and energy consumption by 40 percent. Boeing designed its new Dreamliner with both the environment and costs in mind: by using lightweight composite materials, the company improved fuel efficiency by more than 20 percent, reducing both a customer's lifetime ownership costs and potential future environmental exposures.

Regulatory decisions will foster clean-energy innovation as well. When Spanish regulators created a local market for wind energy, Spanish companies, Iberdrola Renewables and Gamesa, were able not only to create winning models for Spain, but build on that momentum to become two of the leading players in wind energy globally.

Customers, too, are pushing companies to become more environmentally friendly—and helping to spawn some great new businesses. Clorox, for example, captured 40 percent of the US natural-cleaning-products market within the first quarter of launching its GreenWorks line, increasing the size of the overall category substantially. Moreover, it did so by offering a suite of products that were up to 25 percent cheaper than other natural products.

Of course not all green investment is good investment, so companies need to assess the puts and takes on their options carefully. The future of some green businesses, such as carbon trading, depends hugely on still-murky regulatory environments. Other opportunities, particularly in clean energy, will take years to scale. Still others, such as smart building technologies, may have an immediate payoff today, both for customers adopting them and businesses selling them.



## Plan for regulatory change – but don't count on global consensus

Governments everywhere hear the clamor for sustainability, but most also know they will retain power only if they keep delivering economic growth. Couple that imperative with the high coordination costs and fundamental resource usage inequities that persist across countries—China, for example, emits less than a fifth of the carbon dioxide per capita that the United States does—and it's hard not to conclude that while broad agreements may be possible, they will more likely prove elusive, as first Kyoto and now Copenhagen have demonstrated.

Nonetheless, we should fully expect a flurry of environmental regulations at the regional and local level. Local environmental problems, especially those (such as water safety) with immediate health consequences, will be solved more easily than global ones. Companies should identify where regulation is most likely and get ahead of potential challenges—not always by taking action but, at least as a first step, by having a plan for what to do if laws change.

Without coordination, this likely future patchwork of varied global regulatory standards may create unexpected opportunities. The model example is hybrid-electric-motor technology. First commercialized in Japan in response to stricter emission guidelines there, it later proved a commercial hit with US consumers, even though US regulations did not require the same standards. Expect more such arbitrage plays in the years ahead.

Finally—and sadly for regions especially exposed to climate change and other forms of environmental degradation—we should prepare for the strong likelihood that an effective global regulatory regime will not appear in time. Look for the emergence of “adaptation” businesses, which develop in response to environmental disasters or challenges. New kinds of insurance products, building products, commercial fisheries, and other businesses designed to respond to tomorrow's environmental realities may well grow and thrive.

# Crucible 5:

## The market state



While we expect the steady advance of market capitalism to continue, the state—far from withering away—is likely to play an ever-larger role over the next decade, for three reasons.

First, even before the financial crisis hit, governments everywhere found themselves increasingly called upon to mitigate the sometimes negative impact of globalization on individual citizens.

Second, the crisis itself has prompted large-scale direct government intervention, both through fiscal stimulus and calls for increased regulation. That tilt in the power balance has been reinforced in much of the world by the perceived failings of the US-led free-market model and the success so far of a Chinese model that, while market-oriented, assumes that the state's guiding hand will stay firmly clasped around many levers of power.

Third, the spread and dispersal of economic power around the world is making it harder to reach consensus on multilateral approaches to setting the rules of the global game and fostering much more bilateral and regional deal making. These more local arrangements remain largely market-based. Yet for business, this continuing shift away from a single set of rules will inevitably make seizing opportunities globally more challenging. It will also require companies to engage across many fronts with many critical regional and national government actors.

Business executives, of course, face no shortage of challenges. But the tensions confronting policy makers in coming years are truly daunting. On the one hand, states

have been charged with driving prosperity by fostering economic growth and job creation. Most of them understand that this goal requires a strong role for the market rather than a reverse march toward command economies (hence our term, “market states”). On the other, governments must also ensure social stability and maintain social safety nets. What's more, they must accomplish these ends for citizens who continue to live within distinct national borders—even though those citizens' ultimate fortunes will be hugely influenced by transformative shifts in flows of capital, goods, labor, and information that recognize no borders. How governments respond to these pressures, both individually and collectively, will do more to shape outcomes over the next decade than the actions of any other single kind of economic actor.

Let's drill into the complications. In the developed world, virtually all major economies are struggling with expanded claims for government services, rising debt-to-GDP ratios, and looming entitlement time bombs. Debt levels in OECD countries, on average, will likely rise to 120 percent by 2014, up from less than 80 percent today. In emerging economies, governments may enjoy better demographics, but their aspiring citizens and growing economies demand huge investments in absent physical and social infrastructure—from roads to education to health care—if they are to avoid social disruptions and build thriving 21st-century economies.

Then there's this consideration: over the past 100 years, an income inequality gap split the world into two large camps—Western economies buoyed by an increasingly prosperous middle class and emerging nations caught in a seemingly endless cycle of poverty. Now, however, while inequality



among nations (and across this former divide) is thankfully shrinking, the gaps between rich and poor within individual nations are widening.

While overall standards of living have risen across the globe, the gap between rich and poor has grown in almost three-quarters of OECD countries over the past two decades. Inequality is rising even faster in emerging markets. In China, it is increasing more quickly than in any Western economy.

This shift is partly structural. As economies develop, living standards overall tend to rise but so does income inequality. Manufacturing economies tend to be less equal than agrarian ones, service-based economies less equal than manufacturing ones. (The Gini coefficient—the measure of the difference between top and bottom earners—is two-thirds higher for service sectors than manufacturing sectors and 150 percent higher for service sectors than agrarian sectors.)

Globalization further compounds the problem—and not in ways that are intuitive. Trade, though often blamed for aggravating income inequality, is not the key culprit. Instead, the rate of technology adoption is by far the biggest driver, accounting for more than three-quarters of the impact, mainly by automating away many low-skill jobs. The shortage of knowledge workers and capital deepening (which increases the productivity of top talent, hence raising its earning potential) accentuate the problem by causing salaries for top earners to soar.

The effect can be eye-popping. While a US unemployment rate that topped 10 percent has drawn headlines in the current recession, the reality is starker. The unemployment rate in the top income decile of the population is barely 3 percent. But in the bottom decile, it's ten times higher—more than 30 percent. Upward of a third of the US unemployed are now considered to be long-term (or structurally) unemployed and thus unlikely to rejoin the workforce anytime soon.

While the gaps in Europe and Japan are generally smaller—Spain is a notable exception, with unemployment now approaching 20 percent—these nations pay a price. Estimates suggest that Germany and Japan, for example, have given up over a point of GDP growth a year for at least the past decade as a result of labor and taxation structures designed to produce a more robust safety net. In other words, they give up a third of the potential growth they could achieve each year to ensure a more equal society.

Income volatility is another key issue. Despite the “Great Moderation”—the decline in overall economic volatility in the years preceding the recent downturn—the volatility of individual incomes has actually been increasing. In the United States, from the 1970s to 2008, it rose by as much as one-third. On average, each year 15 percent of US households



can now expect their incomes to fall by as much as 50 percent. This isn't just a US issue: more than 50 percent of middle-class Brazilians worry that they are at risk of losing their jobs or otherwise seeing their incomes plummet.

The bottom line: risk is shifting to individuals in a market-driven global economy—and *governments are increasingly responsible to help pick up the pieces.*

## Businesses need to recognize that governments bear the burden of legitimate challenges – and work in partnership to help solve them

In such a world, companies can no longer shrug off policy makers and legislators as interfering meddlers to be managed. Governments are facing legitimate and difficult decisions—and will be forced to make trade-offs. Business leaders would do well to acknowledge these problems and to work with governments to help solve them. The risk of a populist antibusiness backlash is high—and companies will need to continue to earn “the right to operate” in relatively unconstrained, probusiness environments.

Successful business leaders already recognize this reality. Wal-Mart Stores, for example, has worked alongside national and local governments, as well as other stakeholders, to help reshape US health policy. Innovative approaches born of the effort, such as the company’s \$4 prescription plans and in-store clinics, are helping to reduce the cost of health care delivery in the United States—and helping Wal-Mart’s customers and employees to pay less for care.

### Helping governments to improve the public sector’s productivity will not only save them money but also generate profits for the providers

Some of the most agile businesses will turn the ability to help solve the state’s challenge into an opportunity. As the tax base for many governments shrinks and burdens grow, states too face a productivity imperative—how to increase services and decrease costs. Governments have been notoriously bad at adopting the lean processes and IT improvements that have driven years of productivity gains in the private sector. Creative approaches by businesses to help solve the public sector’s problems will be part of the solution. For example, in Spain, the health insurance provider Adeslas is partnering with the state government of Valencia to run hospitals and clinics more efficiently. In the United Kingdom, when the British Airport Authority built Terminal 5 at Heathrow Airport, it created an incentive plan to get private suppliers to finish the project faster and under budget. (And that example showed both how these new approaches can

be successes and also hit bumps along the way—more than 50,000 pieces of luggage got hung up when the terminal opened, as baggage systems worked out kinks.)

### States will be competing for jobs and growth. Selecting the right nations to partner with can be a competitive advantage for companies

While politicians will continue to be pressured by—and may sometimes pander to—the antibusiness backlash, most governments will continue to see working well with business as the best way to resolve their biggest dilemmas. Just as businesses need to recognize the legitimate challenges facing governments, governments must recognize the legitimate role businesses must play in contributing to the solution. After all, only a strong, expanding private sector can provide the revenue required to meet the state’s burgeoning needs. More and more, countries will be competing for investment and wooing enterprises to generate jobs and growth.

Two cases in point: Poland has recently created special tax breaks for companies relocating operations there. Both HP and IBM have put centers in Wroclaw to take advantage of these provisions. Similarly, Singapore’s government has invested heavily in education and training in an effort to woo investment by leading multinational firms and also offers subsidies to companies locating there. As companies think about where to invest, build factories, locate offices, and source talent, they should actively explore these opportunities.

In an interesting twist, governments sometimes turn to private-sector businesses to enhance their prospects of attracting more private-sector business. For example, the city of Shanghai enlisted the employment-services firm Manpower to help it qualify entrepreneurs for government subsidies.



## Global companies need to learn to work within and across multiple – and often divergent – regulatory environments

As companies expand globally, they will need to become even more sophisticated about navigating an increasingly complex regulatory landscape. Take financial services. In the United States and Europe, they have traditionally been managed as a profit-maximizing industry—an approach that has generated no end of second-guessing given the tumultuous outcomes of the past two years. By contrast, in Asia banks have in effect been treated as capital-providing utilities. However these regulatory regimes evolve, they will not soon converge.

Google's recent challenges show just how hard it can be to drive a global business model while coping with widely different political and social cultures. In China, the company has strongly reasserted its own right to privacy, maintaining that data stored on its servers cannot be probed by the state. Meanwhile, in Italy, Google executives have been convicted for impinging on the privacy rights of others; several executives received suspended jail sentences for providing a platform, via YouTube, that allowed individuals to post videos with no oversight from the company.

Information standards, like safety and labor standards, will remain fragmented, varying across countries and regions. Continued globalization will not homogenize cultural norms and expectations. Still, as the global grid expands, the reaction and interaction from a single misstep in one country will

ripple at the speed of light to more and more places, in new ways that will make the earlier experiences of companies such as Nike and BP seem relatively simple. Companies will need to become even more proactive and dynamic to cope effectively.

Finally, if national governments feel challenged, the multinational institutions established under US leadership after World War II—the traditional enforcers of the “Washington consensus”—are doubly challenged. With little true authority, they struggle to gain agreement from an expanding group of key global players with divergent interests. That's why the Doha Development Round of trade talks has been in limbo since 2001, despite the ongoing struggle to revive it. Efforts at coordinated regulation on issues as diverse as intellectual property, environmental protection, and capital markets may well see important progress on some fronts, but achieving large-scale solutions will continue to be daunting.

## Business leaders must recognize their vested interest in the success of the state – perhaps the biggest risk of all is its failure to meet its challenges

Business executives should wish the leaders of aspiring market states well, wherever their leaders may fall on the light-versus-heavy-touch spectrum of government intervention. The reason is simple and compelling: no single factor is more likely to reverse the global economic expansion than a widespread failure by these states to meet the challenges that face them. This threat cannot be taken lightly. Suboptimal policy choices will dampen economic growth; bad choices could, in the worst-case scenarios, threaten geopolitical stability. This may well be the biggest macro-risk business faces in the decade ahead.



# Conclusion

Contemplate all the conflicting pressures and divergent possibilities building within these five crucibles over the next decade and it's only rational to worry about what could go wrong. Plenty will. But focusing too narrowly on the potential downside ignores a key lesson of history, and one that is likely to carry over from the last economic era to the next. "In this world, the optimists have it," argues economist David Landes in the closing paragraphs of *The Wealth and Poverty of Nations*, his brilliant survey of 500 years of economic development. They have it, he adds, "not because they are always right, but because they are positive. Even when wrong, they are positive, and that is the way of achievement, correction, improvement, and success."

The next decade will be one of enormous transformation. The places where the stressors of the global economy clash will also serve as the crucibles where innovation will be generated. We should expect step-changes across the spectrum: in mobile broadband, clean technology, business processes, bioscience, and more. We will invent entirely new ways of doing things we thought we already knew how to do well—from selling potato chips to doing brain surgery. A decade ago, it cost more than \$3 billion to sequence the human genome; today, a prototype being launched by Pacific Biosciences, a Silicon Valley start-up, promises to do so for less than \$100. At prices like that, why shouldn't the promise of personalized, genetics-based medicine become a reality?

This is a time to lead, not to follow. Companies will need to embrace continuous innovation—which means making more, bolder bets and learning to accept that success requires a few skinned knees along the way.

The management theory developed over the past hundred years was honed in 20th-century companies facing 20th-century problems and limitations. Icons like Taylor and (in his most influential works) Drucker wrote before a single employee in the world had a desktop computer, much less a BlackBerry.

When these giants were opining, most companies operating today weren't even around—at least not in their current form. In just over a decade, the number of companies operating in more than one country has doubled. In the same period, as global companies have become more global, the number of overseas subsidiaries has tripled. All these companies manage themselves using critical tools and systems that, in many cases, were developed within the same time frame—

just-in-time supply chains, business process offshoring, mobile e-mail, and wikis. That's how fast things are changing.

So what replaces Drucker and Taylor? The honest answer is that management theory for 21st-century organizations—the first generation of truly global enterprises—is still aborning. It is being invented in real time, in thousands upon thousands of companies, all making it up as they go. We do not know yet what techniques will prove game-changing. To take just one pain point: not a single company in the world can say that it has gotten managing and developing a diverse global talent pool right. Not one. Best practice does not yet exist. Within the decade, we predict that it will.

What we do know is this: the complexity of running a 21st-century company is exponentially higher than running a 20th-century one, of any size. Companies must pay attention to more stakeholders, more regulations, more risks, and still watch to see what their customers are tweeting about them. While the complexity is larger, we are confident that so is the opportunity.

We believe each of these five crucibles of innovation will provide opportunities for companies across the globe—both established and new ones. An opportunity to help the citizens of some of the world's poorest countries to live middle-class lives, by bringing new goods and services to limited-infrastructure environments. An opportunity to drive growth in the developed economies by inventing business models that can create prosperity despite a shrinking labor force. An opportunity to take advantage of globalization to bring markets, goods, and ideas to nearly everyone on earth, anytime, anywhere. An opportunity to transform the ways we live on this planet, creating a world that is both prosperous and sustainable. And, finally, an opportunity to help governments fulfill their obligations to their citizens more successfully.

Landes was right. Pessimists, even when they have the occasional satisfaction of seeing their fears realized, build nothing, but "educated, eyes-open optimism pays." In a world of dizzying change, that strikes us as the way to bet.

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*Sources available on request.*



