

Western brands would suddenly be an attainable status symbol.

In 2004, many Western fast-food brands were struggling in their home countries, where they faced highly competitive markets and shifting public food preferences. So McDonald's seized the Chinese market. The chain put in place subtle variations to its basic menu, such as locally popular sauces, and adopted a few tailored innovations, such as take-out windows for drinks, and of course the McWeddings. The chain also kept adjusting its offerings to reflect the responses it observed from its customers. In this way, the company gained a substantial foothold in the vital China market.

With a clear idea of the interactions among large-scale trends and how they will play out during the coming years, your company could gain a similarly strong advantage.

Change and Complexity

Business operates today in a world of accelerating change. In the United States, it took 76 years half the population to own a telephone. The smartphone achieved the same penetration in less than a decade. It took France 100 years to double the share of its over-60 population within the labor force, from 7 to 14 percent. China, India, and Brazil will make the same leap in less than 30 years. Due to the whirlwind pace of global forces, a phenomenal amount of value can be created or destroyed more quickly today than at any other point in history. (See "[How to Lead in Ambiguous Times](#)," by Ian Bremmer.)

In 2013, to shed light on changes in the global economy, PwC initiated a research project on megatrends and their implications for business and government leaders. A megatrend is a large-scale pattern or movement that has a major, long-lasting impact on business and society. (See "[A Brief History of Megatrend Thinking](#)".) Our goals were to tap into people's natural curiosity about external factors, to broaden and deepen the resulting conversation; and to translate the general understanding of megatrends into a more practical framework that companies could use to seek opportunities and reduce risks.

The megatrends framework can help any private- or public-sector leader think more clearly about complex external trends, and help develop an ordered, prudent, and proactive strategy for facing them. Its basic building blocks are five historical patterns active in the world today that have left their mark on all aspects of the world's economic and social fabric.

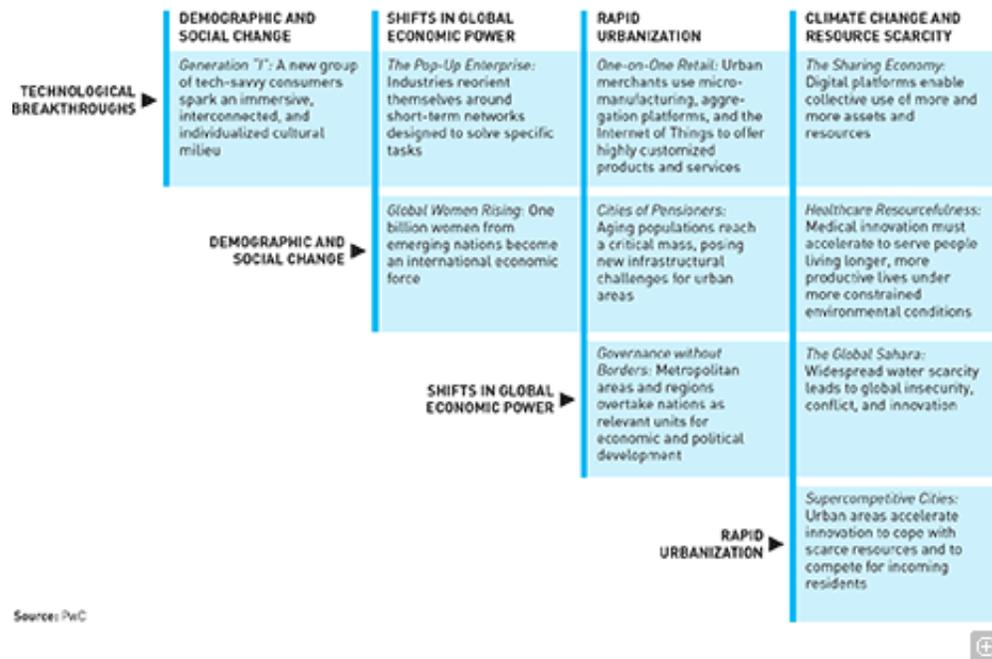
- 1. Demographic and social change:** the combination of greater life expectancy, declining birthrates in many parts of the world, and unprecedented rates of human migration, accompanied by a gradual increase in the status of women and greater ethnic and social diversity within most countries.
- 2. Shifts in global economic power:** in particular, the much-noted expansion of prosperity in emerging economies at faster rates than in the industrialized world, leading to momentous changes in consumption patterns and a rebalancing of international relations.
- 3. Rapid urbanization:** the massive expansion of cities around the world, through a combination of migration and childbirth, with major implications for infrastructure, land use, traffic, employment, quality of life, and culture.
- 4. Climate change and resource scarcity:** the rapidly increasing demand for energy, food, and water, in a finite world with limited natural resources and even more limited capacity for carbon dioxide and a wide variety of other effluents.
- 5. Technological breakthroughs:** the transformation of business and everyday life through the development and use of new kinds of digitally enabled innovations in fields such as biotechnology, nanotechnology, fabrication (including 3D printing), cloud computing, and the [Internet of Things](#).

Each megatrend has already happened to some extent. The aging of Western populations, the migration of economic activity toward Asia, the explosive growth of cities around the world, the depletion of forests and fisheries, and the continued march forward of high technology are already part of our experience. This means that they are also destined to interact. They will not just coincide; they will collide, with disruptive or transformative changes rippling out into nearly every industry around the world.

The exhibit below shows just 10 of the collisions that we foresee, one for every pair of megatrends. Dozens, maybe hundreds, more are possible. By looking proactively for collisions that will affect your industry, you can anticipate challenges and opportunities coming down the road, most of which are unseen by your competitors. You can use the collisions as starting points for rethinking your strategies. You can develop scenarios for how the collisions might affect you; think about the parts of your business that will be most affected; or consider how your fiercest competitors would react to the collisions. And then change your priorities accordingly.

Exhibit: Five Megatrends in 10 Collisions

These collisions are a representative sample. Many other collisions might occur, with great impact on just about every industry and government. As a brainstorming exercise, your own leadership team could try to fill in each section with collisions that will affect your industry and competitive environment.



These collisions are inevitable in some form, but the details are often unclear. It's impossible to predict exactly how two megatrends will interact. But one thing is certain: The collisions will take us across a threshold to a world that will be very different from today's.

Below, we examine four collisions in more detail: the global Sahara, the pop-up enterprise, supercompetitive cities, and global women rising. Like most of the collisions, they are just now beginning, and can still be influenced. If you are a leader in government or a company, you still have time to build the necessary strategies and capabilities for a robust and effective response.

The Global Sahara

Water scarcity is fast becoming one of the most crucial challenges of our time. This is a direct result of a collision between two megatrends: shifts in global economic power, and climate change and resource scarcity. The economic growth of emerging markets has multiplied the demand for fresh water. As communities become wealthier, they use more water for sanitation, they use more water-intensive industrial products, and they eat more meat. A pound of beef can require 20 to 50 times the water needed to produce a pound of potatoes or bananas, because of the large amounts of water consumed by cattle and the grass they graze on. Merely to feed larger and wealthier populations, a near-doubling of water for irrigation has been projected in many places.

This collision, compounded by the effects of climate change, is already limiting the ready supply of water around the globe. Currently more than a billion people live in areas where water scarcity is an issue, and a further 500 million people are swiftly approaching the same predicament. Another 1.6 billion people, or almost one-quarter of the world's population, live in countries that lack the infrastructure to transport water from rivers and aquifers. Even small increases in global temperatures could further constrain water availability. Among the regions at greatest immediate risk are northern India, the Amazon basin, major parts of China, and much of

California.

Water scarcity is not just a local problem. Failure to manage water use will ripple around the world—hence the name global Sahara. The consequences will include increased political tension over access to strategic water resources, which is already a major source of instability and conflict in regions such as the Middle East. A drought in 2010 in Russia, for example, precipitated restrictions on agricultural exports, and the price of staple grains rose in the Middle East and North Africa as a consequence. The resulting shortages and spiraling cost of foodstuffs aggravated the tensions that led to the Arab Spring. A drought that lasted from 2006 to 2011, which led to crop failure for 75 percent of Syrian farmers and forced them to migrate to urban cities that were already experiencing economic instability, was another cause of the devastating conflict in Syria.

Given projected rates of economic and population growth, reducing the overall demand for water is unlikely. So the already enormous pressure to find technological and managerial solutions will increase. We expect to see expanded research and development of technologies for water extraction (harvesting water from air), desalination, and water purification. Water efficiency will be the new energy efficiency. Catchment systems (to channel rainwater), digital metering, smart water networks (in which real-time data helps drive water flow) and low-water-use toilets and showers will all be popular. The institutions that manage and regulate water in local communities could become as influential and prestigious as energy companies. Arbitrageurs could make fortunes buying and selling water rights on spot markets.

Economics will fortify the ecological imperative; for example, reducing leakage rates by 5 percent and pipe bursts by 10 percent could save water utilities up to US\$4.6 billion annually. Smart water networks could account for another \$12.5 billion in yearly savings, just in the United States. Innovation in food pricing, meanwhile, could help arid regions plan their imports and exports more effectively: The virtual water concept suggests that food should be priced according to the water needed to produce it. Meanwhile, personal monitors might help individuals reduce their water footprint. Some forward-looking investors and private-equity firms see water management as a genuine growth prospect, and some industrial companies are eager to diversify into water-related products.

As a business leader, you may find it difficult to ignore the challenges and opportunities of the global Sahara. Disruptions in water supply could lead to more volatile prices for the many materials and commodities that need water to be produced. Companies that recognize the potential impact of the global Sahara, and act to handle water more responsibly and efficiently with the aid of technological innovation, could gain great first-mover advantage. Among the companies exploring these techniques is PepsiCo, which uses approximately 100 billion liters of water annually to make its drinks and potato snacks. It reduced its water consumption by 14 billion liters in 2012, saving \$15 million in the process.

The Pop-Up Enterprise

The megatrend of shifts in global economic power has also combined with technological breakthroughs. One of the most noteworthy results is the spread of pop-up companies—businesses that operate for only limited periods to complete specific tasks, and that reinforce (and benefit from) a looser, less draconian overall business environment. Just a decade ago, starting a business capable of serving a global market would have required a major investment and, on average, 50 days of application time and paperwork. Today, that average global wait has shrunk to 25 days, and the overall process is easier and more straightforward. Advancements in software, for example, allow legal contracts to be drawn up and completed online. National leaders increasingly covet a favorable score on the World Bank's Doing Business ranking and similar indexes that track the impediments to free enterprise.

Many pop-up retail stores and restaurants have already appeared, typically existing for just a few months and generating sales by creating a sense of urgency and scarcity, or by aligning with a holiday or special event. According to the Centre for Economics and Business Research, these ventures have generated £2.1 billion (US\$3.3 billion) per year in revenues in the U.K., and those revenues are expected to grow at more than 8 percent per annum over the next few years. Other pop-up businesses will emerge. Some may focus on launching new products and licensing them to manufacturers. Others may provide a training module, an IT installation, the resolution of a financial problem, or the execution of a marketing plan. Some pop-up companies may perform functional tasks that

were once handled by in-house staff or larger outsourcing providers.

The pop-up enterprise would not be possible without digitization. Short-lived restaurants find their customers online. Larger companies are flexible enough to work with them, after years of keeping their data on the cloud and letting employees telecommute from home. Micro-production techniques such as 3D printing and precision engineering are doing away with the need for many heavy assets, such as factories. And crowdsourcing sites such as Kickstarter enable individuals to raise millions in funding overnight by inspiring amateur online investors to buy into their ideas. Many of the new platforms that will enable pop-up enterprises are still in their infancy, and yet already reach massive numbers of people. For example, the task outsourcing platform Elance-oDesk has an online workforce estimated at 10 million people.

The growth of emerging markets also makes pop-up enterprises more viable, by boosting the supply of skilled workers. As educational quality and attainment rise in Africa, Asia, Eastern Europe, and Latin America, the reservoir of potential recruits will grow in those regions. Should current trends continue, China and India will account for 40 percent of young people with a tertiary education in all G20 and Organisation for Economic Cooperation and Development countries by the year 2020, while the United States and European Union countries combined will contribute just over a quarter. Emerging economies will also provide much of the demand for pop-up companies, which can draw in the full commitment of expatriates without requiring them to permanently relocate.

Just as the end of the studio system changed the motion picture industry in the 1960s, the shift to more flexible, project-by-project enterprises will affect every aspect of organizational design and corporate finance. Employers will use recommendation engines to judge and evaluate staff. Employees will gain stability through association with staffing platforms that compete for talent by providing good benefits. As companies become more interdependent, they will compensate each other more creatively. They will do the same thing Toyota did during the 2008 financial crisis; the automaker used its clout to borrow money for its suppliers when they could not do so themselves. Your own company may be able to experiment with pop-ups by sectioning off a portion of your enterprise with more fluid rules about contracts and agreements. The easier it is for you to find these temporary new businesses and work with them successfully, the more generally capable your company may become in the future.

Supercompetitive Cities

The year 2008 marked a watershed for civilization. For the first time in history, the majority of people in the world resided in cities. An estimated 180,000 people are added to the number of city residents every day. The megatrend of rapid urbanization has accelerated the spread of some social problems such as traffic, crowding, tensions between rich and poor, difficulties in raising children, food and water shortages, crime, and government corruption. But it has also improved the world's economic growth, environmental sustainability, and cultural viability. Cities that face their challenges effectively gain a high quality of life and strong social networks; they become hubs of prosperity. Cities that don't manage themselves well spiral down into social and economic decline.

A second megatrend, climate change and resource scarcity, makes high-quality urban governance all the more important. Cities on coastlines must anticipate and deal with floods; those in dry areas must worry about water supply. All of them must build and maintain the infrastructure that allows an ever more global population to gather and survive.

No wonder cities are becoming hubs of successful technological and political innovation. In the past, city authorities tried to attract businesses through tax breaks. In the future, their priority will be to attract and retain the people on whom those businesses depend. They will seek to build more livable cities than their competitors can offer. Every successful city will have its own version of the amenities that attract people: an agreeable and sustainable natural and built environment, a rich variety of cultural institutions, abundant opportunities to form social and business relationships with like-minded people (making the city a good locale for pop-up businesses), and a financial infrastructure that supports all this.

Already, the most vibrant cities in the world are inviting or building universities, revamping their airports and train systems, and

developing cultural innovations. To be sure, cities have always done these things, but there have never been so many in competition with each other before—if only because humanity has never had such a large, geographically widespread, cosmopolitan population. Some lucky city authorities have national governments that support these efforts. But when it comes to building quality of life, a national government is somewhat irrelevant.

Like their counterparts in business, the most successful cities will grow through bottom-up collaboration, innovation, and expansion of productivity. They may use tools like Brickstarter, an idea proposed by the Finnish innovation fund Sitra. This online platform would convene citizens in support of public projects—seeking funding, coordinating investment with citizen preferences, and helping the projects move forward. Sitra has suggested the acronym YIMBY (“Yes in My Backyard”) to signify participative, collaborative urban design.

Other innovations in urban planning and city management are emerging. The city of Austin, Texas, has joined with the nonprofit Environmental Defense Fund and a few companies (Intel, LG Electronics, and Whirlpool) to create a self-sufficient community—the Pecan Street Project—with integrated smart houses and the largest concentration of solar homes in the world. The Smart Environments Pilot in Manchester, U.K., uses a wireless sensor network to gather data about heat, humidity, noise, and pollution, providing regular updates on air quality for each neighborhood. The data is accessible online, and used by artists, scientists, technologists, researchers, and active citizens. Citymart is an online alternative to ordinary government procurement practices; local governments post their challenges and invite outsiders to propose innovative solutions. These innovations are all based, in part, on the assumption that online access leads to community transparency, making governments both more creative and more accountable. As wealth moves to cities, and their population becomes more sophisticated, the opportunities for forward-looking businesses will multiply.

Not all supercompetitive cities are in mature economies. For example, China has a number of cities seeking to gain world-class status by encouraging investment, innovation, and education. Dubai and Abu Dhabi are following a similar game plan. We expect to see more such locales in emerging and even frontier nations in the years to come. That’s how they might leapfrog to prosperity—and bring many of their surrounding countries along.

Global Women Rising

In 2010, using data from the International Labour Organization, a Strategy& research team estimated that in 2020, about 865 million women would be of working age (between 20 and 65), but would not have the education or freedom to work. The vast majority of these women, about 812 million, live in emerging and developing nations. “[Empowering the Third Billion](#),” as Strategy&’s 2012 report was called, claimed that if these women could find their way into the global workforce, the economic impact would be as significant as the economic resurgence of China and India. Millions of people in those two countries are joining the middle class; why couldn’t the same happen with impoverished women throughout the world?

Indeed, more and more women from emerging economies are moving into roles as employees, entrepreneurs, educators, and even executives. Global women rising is a natural result of the collision between shifts in economic and social power, and demographic change. This collision has immense social and economic benefits. Women are often drawn to flexible and fluid workplaces and are inclined to invest in families and communities. One outcome of their entering the workforce tends to be a rise in education levels and quality of life, especially for the local children.

There is a great deal of momentum behind global women rising. Women college graduates already outnumber their male counterparts worldwide, 100 to 93. The Grameen Bank projects, which finance small business in emerging economies, are well known for favoring women entrepreneurs, who are seen as better loan risks. Similar considerations underlie endeavors like Project Shakti, a Hindustan-based rural initiative where women set up small retail stores and sell Unilever products to people in nearby villages. This has helped create livelihood opportunities for 48,000 women and linked Unilever to 3 million households across India. The corporation has since launched similar projects in Kenya and Nigeria. Walmart’s global women’s economic empowerment project, introduced in 2011, is

another harbinger. It sources \$20 billion of products annually from women-owned enterprises around the world.

Social changes will speed the influx of women into the workplace. As emerging markets continue to globalize, they will be more exposed to Western norms. The role of women will become less rigidly associated with family and care responsibilities; paternity leave will become more common. In large mainstream companies, more women will move into senior positions; corporate culture is already changing accordingly. Some commentators believe that with more women leadership, organizational cultures and practices will become more inclusive and reflective.

To extract their full potential, and not be left behind by competitors, companies will need to adapt and empower women to thrive. They will need to answer the demands of women for equal pay and comparable promotions, in addition to extending benefits and perks such as day care, flexible scheduling, maternity leave, and child healthcare. Undoubtedly this will happen in creative ways, potentially making use of the sharing economy to deliver child care where it is most needed. These changes will lead many companies to shift their diversity-oriented practices, from a compliance-based system aimed at meeting regulatory requirements to a proactive approach that seeks to attract skilled women employees whose high potential might not have been fully realized in the past.

The Corporate Response

In a world buffeted by the megatrends and their collisions, short-term financial results are an inadequate guide to strategy. That does not mean, of course, that companies should ignore their quarterly earnings metrics. Rather, responsible executives must also look to a longer time horizon.

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The megatrends, and their collisions, can help you balance short- and long-term decisions. The first step is to look for your own collisions, aimed at your own industry. What might happen over the next 10 to 15 years when demographic and social change collides with technological breakthroughs—in healthcare, energy, automobiles, or consumer products? How might your company get out in front? What investment would be required? In what time frame?

Conceivably, every boardroom meeting should discuss at least one potential opportunity emerging from megatrend collisions. The board or executive team could encourage outward-facing curiosity, promoting preparation for impending collisions (even if some of them are discomfiting), testing and refining the company's strategy against them ("How would we compete with a group of pop-up companies in our industry?"), and thinking in advance about the dependencies and trade-offs that many collisions will bring with them.

As they prepare for collisions, leaders will need to develop new management skills. They will have to become better listeners, better interpreters of meaning, and better catalysts for change. This could mean stepping out of their comfort zone on a regular basis and encouraging others to do the same. It could also mean trying new business models or collaborating with other companies, seeking different ways of looking at the world. It almost certainly will mean experimentation, creativity, and modeling the open behavior that they want to encourage. The collisions may seem daunting at first, but they also represent new opportunities—and a chance to help shape the future for the better. 

A BRIEF HISTORY OF MEGATREND THINKING

The scanning of large-scale trends in order to make sense of the world's complexity has a long history, going back to mythology. In modern times, the “megatrend” story starts with Alvin and Heidi Toffler, who published *Future Shock* (Random House) in 1970. They wrote that civilization was evolving into a “super-industrial” society, characterized by a massive population transfer away from rural villages toward cities and knowledge-based work. This would leave many people disoriented. The Tofflers also foresaw the onset of today's “information overload,” as they called it.

Around the same time, Royal Dutch Shell's Group Planning Department refined a process known as scenario planning—telling stories of plausible alternative futures to enable more robust decisions that could withstand any future that came to pass. Shell's study of the trends affecting oil supply enabled it to weather the 1970s energy shortage crisis more effectively than the rest of the industry. Pierre Wack, one of the leaders of that effort, went on to help Anglo-American PLC, a major African mining company, develop scenarios that, in the mid-1980s, showed South Africa's business and political leaders that their apartheid regime could not be sustained.

John Naisbitt coined the word *megatrends* in his 1982 book of the same name (Warner Books). He anticipated the emergence of a “global village,” enabled by technology, replacing national economies. Like the Tofflers (and like us), he was struck by the accelerating pace of change. “While the shift from an agricultural society to an industrial society took 100 years, the present restructuring from an industrial to an information society took only two decades,” he wrote. To Naisbitt, this whirlwind speed made it essential for decision makers to become more capable at sensing the ebb and flow of events around them.

Many other writers have looked closely at major trends since then. Perhaps the most prescient was Peter Drucker, who articulated the nature of the emerging knowledge-based society in his 1989 book *The New Realities* (Heinemann). For these writers, the study of large-scale trends is a critical managerial capability: a way of seeing opportunities and risks more clearly.

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More thought leadership on this topic: strategy-business.com/global_perspective