

## BUSINESS AND ECONOMICS

● **Populations will shrink, and wealth will shrink with them.** By 2020, half of the human race will live in countries where the birthrates have fallen below the death rates; consequently, their populations will shrink. These countries will grapple with shrinking tax bases and workforces despite widening pools of retirees demanding social-security and health-care payouts. Society will survive, but GDPs will fall markedly throughout the world and probably never fully rise back up. —*Kenneth Taylor, "In Search of the 'Better Angels' of Our Future," Nov-Dec 2012, p. 24*

● **The old economy is dying, but a new, more equitable one is taking its place.** The reckless pursuit of profit has brought the world to economic disaster, but conscientious entrepreneurs and leaders are charting a better way. Marjorie Kelly, author of *Owning Our Future*, calls it the "generative economy." It takes many forms, including cooperatives, nonprofit-public partnerships, and local businesses that invest in the well-being of their employees and communities. All add up to a new economic model based on sustainable job creation, fair distribution of wealth, and private ownership that serves the common good. —*Marjorie Kelly, author of Owning Our Future, reviewed by Rick Docksai, Nov-Dec 2012, p. 59*

● **Women will have greater social and economic power in 2020.** Although gains in women's socio-economic development are not equally distributed around the world, women are, overall, gaining power and mobility. Education and technology will continue to play a large part in shaping women's lives. And as they experience increased agency and financial independence, many women will delay or even forgo marriage. —*The Futures Company, "Women 2020: Our Selves, Our Worlds, Our Futures," May-June 2013, p. 36*



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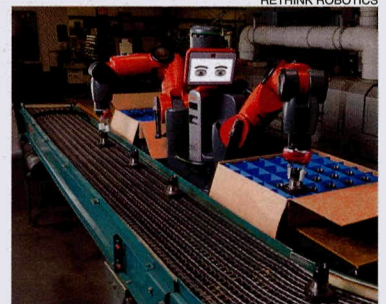
● **Megatrend promises a wealthier future for us all.** Incomes in the United States have tripled in the last three generations, and standards of living are rising in poor countries around the world. These two big trends bode well for future generations, according to macro-economist Charles Jones of the Stanford Graduate School of Business. "The overwhelming fact of economic history for the last 150 years is [that], on average, incomes were growing at 2% a year, and that growth is inexorable. As bad as the Great Depression was, it was

temporary," says Jones. —*Tomorrow in Brief, July-Aug 2013, p. 2*

## COMPUTERS AND AUTOMATION

● **Quantum computing could lead the way to true artificial intelligence.** Conventional computers cannot make decisions, as humans do, but quantum computers eventually might, says D-Wave One creator Geordie Rose. They use programs based on quantum mechanics to see multiple possible outcomes to any given problem and combine information from each to formulate solutions. Quantum computers are already solving problems that conventional computing algorithms cannot touch. With another 10 to 15 years of enhancement, they might cross the threshold to true machine consciousness, Rose predicts. —*Rick Docksai, "Dream, Design, Develop, Deliver: From Great Ideas to Better Outcomes," Nov-Dec 2012, p. 53*

● **Robots will become our co-workers rather than our replacements.** As baby boomers retire, demand for manufacturing workers will increase. Rather than replace human workers, robots will work side by side with us to fill this void. The robots will be people-friendly and will not require human workers to have a complex understanding of technology in order to work with them. —*Rodney Brooks, "Robots at Work: Toward a Smarter Factory," May-June 2013, p. 24*



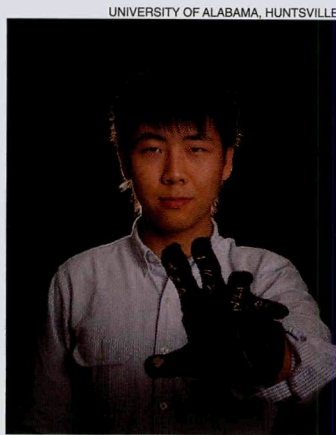
● **Tiny robotic eyes will always be on us.** Privacy watchdogs who protest when law-enforcement agencies deploy unmanned aerial drones to monitor neighborhoods may miss the drone era once law enforcement rolls out "micro dots." Tiny recording devices will be deployed throughout every corner of residential streets and city plazas and provide nonstop transmissions of all activity taking place around them. This ubiquitous recording could deter and help solve all types of crimes, and may provide the necessary evidence to exonerate those who are falsely accused of crimes. But in the meantime, we will have to get used to there being no more privacy when we're out in public. —*Gene Stephens, "Crime in the Year 2030," Jan-Feb 2013, p. 28*

● **Robots will become increasingly useful in rescues deemed too perilous for humans.** When it comes to rescuing people from natural and biological disaster, some rescue missions are just too risky. The U.S.

government's Defense Advanced Research Projects Agency is looking to develop robots that will be able to use complex equipment and navigate dangerous conditions in order to save human lives in the event of a disaster. —*Tomorrow in Brief, Mar-Apr 2013, p. 2*

● **Traditional computer keyboards will be replaced by an electronic glove.**

The "gauntlet keyboard" allows the user to type using only one hand, making it ideal for a wide range of applications. Designed by engineering students at the University of Alabama at Huntsville, the technology transmits signals about finger and thumb positions to a computer, cell phone, or other device. —*Tomorrow in Brief, Mar-Apr 2013, p. 2*



UNIVERSITY OF ALABAMA, HUNTSVILLE

**ENVIRONMENT AND RESOURCES**

● **When it comes to saving forests, economic solutions may trump technological ones.**

Deforestation has slowed considerably since the 1980s, but the world continues to lose 32 million acres of forests a year. One of the major impacts has been climate change, for which a number of technological megaprojects have been proposed as solutions. To encourage lower-tech approaches to reforestation, activist groups like the Rainforest Alliance offer certification for businesses that engage in sustainable farming and ranching practices. —*Rick Docksai, "Disappearing Forests? Actions to Save the World's Trees," Sep-Oct 2013, p. 45*



NASA

● **Protected forests will be less protective for many species.** Endangered plant and animal species are threatened by human hunters and developers even in legally protected forest reserves. Poaching,



COURTESY OF VIRGINIA TECH

**Extinction Might Not Be Forever!**

● **The passenger pigeon may be brought back after 100 years of extinction.** A geneticist (and bird lover) has developed a strategy for "de-extincting" the passenger pigeon, the last specimen of which died in 1914.

Ben J. Novak's "Great Comeback" project involves five research phases:

1. Sequencing and analyzing pigeon genomes to understand passenger pigeon biology.
  2. Producing cells that could be used to engineer a living passenger pigeon.
  3. Creating the genome from synthesized passenger pigeon DNA.
  4. Using altered cells to create breeding chimeras (combinations of rock and passenger pigeons) that would ultimately create pure passenger pigeons.
  5. Reintroducing new passenger pigeons back into the wild.
- "It was the most beautiful bird I'd ever seen," says Novak. "It was once the most numerous bird in the world, but this species succumbed to our activities. The last one died on September 1, 1914, her body found in her aviary at 1 p.m. The passenger pigeon was gone from the skies. I've made it my life's work to bring it back."



BEN J. NOVAK

Source: Ben J. Novak, "The Great Comeback: Bringing a Species Back from Extinction," *Sep-Oct 2013, p. 43*

logging, and other human incursions on wildlife are driving down biodiversity in many of the world's tropical forest preserves, according to researchers at Virginia Tech. Designating an area of land as protected isn't enough, they conclude: Wildlife won't be truly safe unless conservation efforts find and neutralize the threats that strike at it from beyond the land's boundaries. —*Tomorrow in Brief, Nov-Dec 2012, p. 2*

● **Fewer duck hunters could mean bad news for ducks.** The overwhelming majority of revenue from duck hunting licenses, or duck stamps, is used for wetland conservation efforts. Since the 1970s, the popularity of duck hunting has declined, and duck stamp sales have decreased by 36%. Efforts to preserve ducks' habitats could thus suffer if this decline continues, says a report published in the *Wildlife Society Bulletin*. —*Future Scope, May-June 2013, p. 4*

● **Increased efficiency will lead to resource exhaustion.** Rather than lead to decreased consumption, greater efficiency actually encourages more consump-

tion. In *The Efficiency Trap*, Steve Hallett claims that we will exhaust many of our resources by the 2030s, and violence and chaos will erupt as a result. Hallett proposes recycling and growing food locally as possible means of assuaging the damage. —*Steve Hallett, author of The Efficiency Trap, reviewed by Rick Docksai, May-June 2013, p. 53*

● **Phytoplankton death will further disrupt aquatic ecosystems.** The tiny marine plants are sensitive to temperature changes, so global warming poses a major threat to their populations.

A University of Michigan study projects that up to 40% of the world's phytoplankton will die out by this century's end. Because phytoplankton convert large amounts of carbon dioxide to oxygen, their decline will further exacerbate global warming. —*World Trends & Forecasts, Mar-Apr 2013, p. 12*

PACIFIC RING OF FIRE 2004 EXPEDITION / NOAA OFFICE OF OCEAN EXPLORATION / DR. BOB EMBLEY



## FOOD AND AGRICULTURE

● **Nanotechnology could lead to a new agricultural revolution.** Greenhouses, water pumps and filters, and other structures for large-scale enclosed agriculture could be built via atomically precise manufacturing processes. The rewards would include higher yields, improved quality of foods, and crops grown without pesticides. —*K. Eric Drexler, "A Radical Future for Nanotechnology," Sep-Oct 2013, p. 18*

● **"Land-grabbing" by wealthy nations for food grown in the developing world could increase.**

Swaths of farmland throughout the developing world are going up for sale or lease to outside businesses and governments. The buyers—of whom the foremost are China, India, Saudi Arabia, and South Korea—are trying to ensure stable food supplies for their own populations amid water shortages and falling domestic crop production. But they displace many of the lands' resident farmers in the process. Local opposition is growing in many places and may morph into widespread violence, absent

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a major sea change toward localized, community-centered farming and away from big corporate- and government-led land grabs. —*Lester R. Brown, "Food, Fuel, and the Global Land Grab," Jan-Feb 2013, p. 21*

● **The Americas will increasingly compete for farm workers.** Improved education and income levels in Mexico are leading to fewer workers available both for domestic work and for migrant labor on U.S. farms. Mexican farmers are now relying on workers from Guatemala. U.S. farmers will have to look further afield for workers, invest more in labor-reducing technology, switch to less-labor-intensive crops, or raise their wages to attract workers, says a report from the Migration Policy Institute. —*Future Scope, May-June 2013, p. 4*

● **Global grain race ahead?**

Food shortages and higher costs have prompted some countries to increase investment in agricultural R&D. As the private and public sectors increase their funding, farmers who can take advantage of new information will be able to lower their costs and increase production, potentially allowing them to better respond to food shortages. —*World Trends & Forecasts, Mar-Apr 2013, p. 8*

A. FLEURET / USAID



## HEALTH AND MEDICINE

● **More patients will face serious drug side effects.** As doctors prescribe stronger psychiatric drugs in greater quantities, more people are at risk for both short- and long-term side effects, warns Cornell University psychiatrist Richard Friedman, among others. Long-term impacts may include alterations to the brain that can continue years after the patient has stopped taking a drug. —*World Trends & Forecasts, May-June 2013, p. 12*

● **Software will look after our health in 2025.** While doctors and nurses will continue to treat patients for many years to come, software programs will take up a growing share of the work, as well. In one potential scenario described by Clem Bezold, chairman of the Institute for Alternative Futures, home-based software services will monitor patients nonstop and give each one daily personalized health advice. When patients are not feeling well, they will run their symptoms by the software and get automatic prognoses on what might be ailing them and whether an appointment with a human doctor will be necessary. —*Joyce L. Gioia, "Future Food*

and Health: A WorldFuture Sampler," Nov-Dec 2012, p. 52

● **Surgeons will be able to perform operations with even greater precision.** A smart instrument handle, designed by engineers at the Fraunhofer Institute, will

allow inexperienced surgeons to perform surgeries with skills similar to those of veteran doctors. The tool contains sensors that can, for instance, alert doctors when a screw is tight enough. —*Tomorrow in Brief*, May-June 2013, p. 2

## Medical Futuring

● **Doctors will see brain diseases many years before they arise.** Brain scans can warn doctors if a patient will suffer Alzheimer's, dementia, Lou Gehrig's, or a number of other brain disorders as many as 10–15 years ahead of physical symptoms. Researchers at the Washington University School of Medicine in St. Louis are learning to identify distinct chemical biomarkers within patients' body and brain functions. Doctors could then slow the progression of the diseases if they start administering treatments years earlier. —*World Trends & Forecasts*, Jan-Feb 2013, p. 11

● **Potential violence of mental-health patients will become easier to predict.** Although few people with mental-health disorders are violent, determining a patient's risk of becoming violent is crucial for psychiatrists. A clinical assessment tool known as the HCR-20-C scale allows mental-health professionals of varying experience levels to predict whether a patient is potentially violent. Other means of assessment have high rates of success among experienced mental-health professionals but are less suitable for those new to the field. —*World Trends & Forecasts*, Mar-Apr 2013, p. 6

● **We will be able to predict childhood obesity before it occurs.** A new, simple calculator that combines risk factors can predict an infant's risk of becoming obese later in life. The tool uses both genetic and nongenetic risk factors, such as birth weight and mother's professional status. Childhood obesity is difficult to combat, so researchers hope that this calculator can help parents of at-risk infants take steps toward prevention. —*World Trends & Forecasts*, Mar-Apr 2013, p. 12

● **The Internet will become increasingly useful in medical diagnoses.** Even when they have only a handful of vague symptoms to work with, algorithms are useful in remotely diagnosing infectious diseases. Though not yet as reliable as doctors and lab tests, algorithms can be extremely helpful in making diagnoses and tracking outbreaks in parts of the world where hospitals and sophisticated lab equipment are not easily available. —*World Trends & Forecasts*, May-June 2013, p. 8

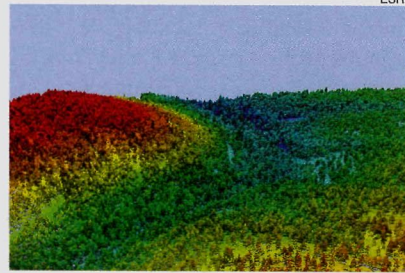
## INFORMATION SOCIETY

● **Thanks to big data, the environment around you will anticipate your next move.** Computerized sensing and broadcasting abilities are being in-

corporated into our physical environment, creating what is sometimes called an "Internet of Things." Data flowing from sensor networks, RFID tags, surveillance cameras, unmanned aerial vehicles, and geo-tagged social-media posts will telegraph where we've been and where we are going. In the future, these data streams will be integrated into services, platforms, and programs that will provide a window into the lives, and futures, of billions of people. —*Patrick Tucker*, "Mapping the Future with Big Data," July-Aug 2013, p. 16

● **Students will turn away from traditional forms of higher education.** Traditional institutions of higher education are falling short of many students' needs. The rising popularity of online degrees, the high cost of obtaining a traditional college degree, and changes to the workplace are causing many to seek alternative forms of education, such as online courses. —*Rob Bencini*, "Educating the Future: The End of Mediocrity," Mar-Apr 2013, p. 40

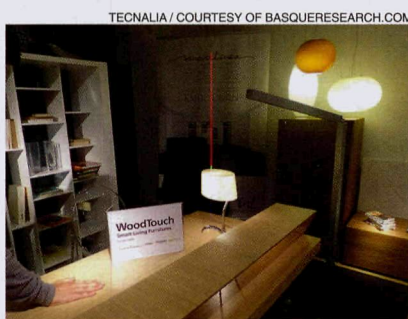
● **The future of science is in the hands of crowd-sourced amateurs.** So-called "citizen science," which uses networks of volunteers in scientific research, is on its way to becoming the favored twenty-first-century model for conducting large-scale scientific research. Some of the organizations in-



involved in citizen science include the Cornell University Ornithology Lab, the United States Rocket Academy, and NASA, among many others. —*Kathleen Toerpe, "The Rise of Citizen Science," July-Aug 2013, p. 25*

● **An over-surveyed society could bring new restrictions to researchers.** As more and more marketers and others are pestering consumers for feedback, many people are becoming less willing to participate in research surveys. The result may be compromised results in longitudinal studies. One researcher—political science professor Ottar Hellevik of the Norsk Monitor survey in Norway—has suggested regulating who is permitted to conduct surveys in the future. —*Tomorrow in Brief, Sep-Oct 2013, p. 2*

● **Rooms will respond to your touch.** Spanish technology research center TecNALIA and several home-furnishings and electronics manufacturers are aiming to



## Of Minds and Brains

● **We will be able to digitize our memories and ideas.** The brain's neocortex is responsible for our thoughts and ideas. A digital neocortex will serve the same purposes as a biological neocortex, but it will have benefits that our brains don't. The artificial neocortex will be faster, have greater storage capacity (thanks to cloud storage systems), and even allow us to "back up" our thoughts and share them with other users. —*Ray Kurzweil, "How to Make a Mind," Mar-Apr 2013, p. 14*

● **More minds will move more matter.** Among the objects that have been successfully controlled via brain-computer interfaces are small, four-blade helicopters, called quadcopters (University of Minnesota), and a variety of gaming devices (NeuroGaming Conference and Expo). As the links between technologies and the human mind grow more intricate and intimate, digital neuronal evolution will lead to what futurist Gray Scott terms a "neuronalverse." —*Tomorrow in Brief, Gray Scott, "The Neuro-technology Revolution Has Arrived," Sep-Oct 2013, pp. 2, 7*



make tomorrow's rooms both cozy and intelligent. The consortium is designing a room layout by which a person could control lighting, heat, and other interior systems simply by touching the wood panels on items such as a desk, a chair, or a bed's headboard. No more scrounging for a missing remote control or fumbling in the dark for a light switch. —*World Trends & Forecasts, Jan-Feb 2013, p. 11*

## LIFESTYLES AND VALUES

● **Buying and owning things will go out of style.** The markets for housing, automobiles, music, books, and many other products show a common trend: Younger consumers opting to rent or subscribe to pay-per-use arrangements instead of buying and owning the physical products. Saving money and living more sustainably are motivators, as is the desire to more easily pack up and move to new cities or towns on short notice. Shared facilities will overtake established offices, renting units will become more common than owning a home, and sales of books and music might never become popular again. —*Hugo Garcia, "Consumption 2.0," Jan-Feb 2013, p. 6*

● **A desire for sons over daughters means that India's population will continue to swell.** Parents who give birth to a girl are more likely to "try again." As a result, girls are more frequently being born into large families, where they receive a smaller fraction of resources and face higher educational and health disparities. —*Tomorrow in Brief, May-June 2013, p. 2*



● **Who will take care of the seniors?** As their populations of elderly retirees continue to surge, the world's developed countries will face difficult and divisive questions over how to provide for them. Hard decisions could ensue. Social-security and pension programs may reduce individual payouts to accommodate the growing numbers of recipients, while health-care systems resort to health-



care rationing, including limiting care for those who suffer cognitive disabilities or who are on artificial life support. Palliative care could become much more widespread, in turn, as more elderly patients accept their mortality instead of striving to keep extending their life spans. —James H. Lee, “Eldering: Aging with Resilience,” *Jan-Feb 2013*, pp. 34, 35

● **Workers with “highly human” skills will be sought after.** As technology advances, machines will replace a greater number of human workers, particularly in service and knowledge-based fields like medicine, computer programming, and advertising. But human workers can bring several uniquely human traits, abilities, and skills to the table that computers cannot, such as creativity, responsibility, and subjective reasoning. —Richard W. Samson, “Highly Human Jobs,” *May-June 2013*, p. 29

## SCIENCE AND TECHNOLOGY

● **Enhanced super-athletes will need their own Olympic Games.** Double-amputee runner Oscar Pistorius stunned audiences at the 2012 Summer Olympics when he ran on two prosthetic legs and far outpaced his “able-bodied” competition. As prosthetics, gene therapy, and nanomedicine progress, more athletes with enhanced bodies will emerge, and they, too, will have definitive edges over their non-enhanced counterparts. In time, the enhanced athletes might form their own separate Olympics, where they will go head to head in feats of strength, endurance, and speed that no “normal” human athlete could match. —Richard Yonck, “On Being Human in a Transhuman Future,” *Nov-Dec 2012*, p. 64

● **Plastics will go organic.** Some well-known businesses are replacing the plastics in their production lines with new lines of “bioplastics,” which look and feel just like conventional plastics but are based on organic ingredients instead of oil. They currently constitute a very small share of plastics sales, in part because they cost more than regular plastics. But more buyers could line up soon, as innovations in recycling and plastics production methods bring the costs down and as more businesses make sustainability a higher priority in their own manufacturing practices. —*World Trends & Forecasts*, *Nov-Dec 2012*, p. 9



## Gone Tomorrow?

Among the many things that futurists predict will disappear by the year 2030:

- **Two billion jobs in economic sectors disrupted by such technologies as driverless cars and 3-D printers.** But millions of new job opportunities will also emerge, so long as we prepare our systems and ourselves with new skill sets (*Thomas Frey*).
- **Smartphones, which will follow pagers into technoblivion sooner than we think.** We'll still be connected, but the devices will be worn or implanted (*Paul Saffo*).
- **Car crashes—and the jury trials that result.** Two technologies—connected vehicles and automated vehicles—will significantly reduce accidents (*Tom Schaffnit*). One outcome will be fewer injuries and, thus, fewer lawsuits requiring juries (*Clayton Rawlings*).
- **Grade point averages.** Grades assigned by different instructors for different students are often subjective and unreliable indicators of achievement. Badges for completion of work and endorsements of skills may increasingly replace grades (*Dan Tuuri*).
- **Local news on TV.** No longer a way to scoop the already-extinct afternoon newspaper, local television news stations are losing to social media at the micro level and redundancy at the macro level (*Rob Bencini*).
- **Retail stores.** They'll be replaced by “demo docks,” where you can try something out and order it to be delivered (*John P. Sagi*).
- **Circus animals.** Legal protections for animals will help drive more innovative (animal-free) alternative circus entertainment (*LuAnne Feik*).
- **Forest fires.** Improved sensing technologies and swarms of firefighting drones may put forest fires out for good (*Thomas Frey*).
- **Greeting cards—and post offices from which to mail them.** The dematerialization of communication has turned the ordinary greeting card into one of humanity's most wasteful forms of interpersonal exchange. As it (and other forms of physical mail) slips into oblivion, so, too, will the local post office (*Karl Albrecht*).
- **Bad moods.** Sensors in our environments will deflect our despair by surrounding us with soothing images, scents, and sounds (*Liz Leone and Jean Georges Perrin*).

Source: “Top 10 Disappearing Futures,” *Sep-Oct 2013*, pp. 22-39.

● **Machines, infrastructure, and other systems will become more productive and less expensive, thanks to atomically precise manufacturing.** What the term nanotechnology really refers to, according to K. Eric Drexler—the father of the concept—is atom-by-

atom production, which will allow for extraordinary improvements in manufacturing all things. One major benefit could be far cleaner energy, such as liquid hydrocarbon fuels produced using hydrogen from water and carbon from recycled CO<sub>2</sub>. —K. Eric Drexler, "A Radical Future for Nanotechnology," *Sep-Oct 2013*, p. 14

● **Green, intelligent vehicles will own the road in the 2020s.**

Electric and hybrid vehicles will go into mainstream use, and they won't need drivers. "Self-driving cars" have already passed numerous driving tests.

Meanwhile, design improvements continue to make electric and hybrid cars more cost-competitive with standard combustible-engine vehicles. —Laura B. Huhn, Kenneth W. Harris, and Dexter Snyder, "The Coming of Intelligent Green Vehicles," *Jan-Feb 2013*, p. 41



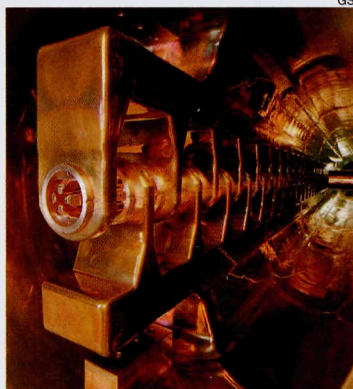
● **Fusion-fueled rockets could significantly reduce the potential time and cost of sending humans to Mars.**

Space exploration is limited to how much fuel our vehicles can bring with them, and fuel weighs too much to get us very far. That may soon change. A University of Washington team has devised a type of plasma encased in its own magnetic field. The magnetic field causes metal rings around the plasma to implode and converge to create a shell that ignites the fusion reaction.

—*Tomorrow in Brief, July-Aug 2013*, p. 2

● **Space crews will shield up to explore other planets.**

Outer space teems with radioactive particles that would be deadly to any human space crew daring enough to venture out toward Mars, the asteroids, or beyond. But experimental new "radiation shields" being



tested in Germany could keep those intrepid explorers safe. The shield components, incidentally, are fairly simple stuff: Water, polyethylene, and certain hydrogen-rich compounds all perform well in simulations. —*Tomorrow in Brief, Jan-Feb 2013*, p. 2

## SECURITY AND CRIME

● **China will replace the United States as the most surveilled country in the world.** By 2020, the state's homeland-security and public-safety expenditures will reach \$257 billion, up from \$111 billion in 2012, projects a report from Homeland Security Research Corporation. The increases can be partially explained by China's rapid commercial growth. But increased surveillance is also in the government's interest: In a country where protests regularly threaten political stability, the state is investing in increased surveillance to control dissident action. —*World Trends & Forecasts, Mar-Apr 2013*, p. 7

● **More precious than gold, water and its infrastructure will become more vulnerable to disruption.**

Drinkable water will grow scarcer and costlier

throughout the world, eventually becoming a more prized commodity than oil or gold. And like those other resources, water will increasingly be a target of thefts—individuals and communities will take to diverting water from their neighbors' pipelines and reservoirs, and law enforcement everywhere will struggle to deter them. At the global scale, governments will squabble over the rights to rivers and reservoirs, while consumer groups challenge corporations' bids to gain ownership of their communities' water. —Gene Stephens, "Crime in the Year 2030," *Jan-Feb 2013*, p. 29



● **As with water works, energy-related facilities will be targets of hackers, terrorists, and thieves.**

As energy prices rise further and stocks of fossil fuels grow scarcer, individuals and governments will resort to illegal means to obtain fuel and electricity. Incidents of people siphoning fuel from trucks and storage sites or filling up at gas stations without paying will become more frequent. So will covert government operations to steal oil or gas from neighbors' pipelines, or even destroy the pipelines altogether for competitive advantage. —Stephens, p. 29



● **The private security industry will experience steady growth.** An aging population looking for greater personal security and a recovering economy will both contribute to the boom. The industry's growth is expected to exceed 5% from 2011 to 2016. Compared with recent years' growth, this is a large increase. —*Tomorrow in Brief, Mar-Apr 2013, p. 2*

## WORLD AFFAIRS

● **The world will grow freer.** Human rights and individual freedoms are gaining ground even in societies that have long been authoritarian. Contributing to this positive trend is a confluence of changing societal values, rising education and income levels worldwide, and technological innovations, such as digital media, which empower democracy activists. China, for instance, now tolerates self-expression to a degree that would have been unthinkable a decade ago. If these trends continue, the world will evolve into a freer and more humane place. —*Josh Calder, "Who Will Be Free? The Battle for Human Rights to 2050," Nov-Dec 2012, p. 29*

● **A global competition for skilled workers will heat up.**

China, India, and the United States all have steep looming shortages of workers with the technical skills necessary to fill critically needed jobs. They will therefore compete aggressively to attract as many of the limited pool of skilled workers as possible to come work within their borders. Unfortunately, there is just not enough skilled talent to go around, nor will there be until all three countries improve education and job training to cultivate more skilled talent domestically. —*Edward Gordon, "The Global Talent Chase: China, India, and U.S. Vie for Skilled Workers," Nov-Dec 2012, p. 43*

● **Sub-state paramilitary groups are developing the military capabilities of nation-states at much less cost.** John Watts, a security consultant with



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the Australian firm Noetic Group, says that small groups like Hezbollah, the Liberation Tigers of Tamil Eelam, and others are taking emerging technologies and adapting them to their use a lot quicker than state actors. Drug cartels have homemade submarines. Organized crime syndicates in Mexico have developed make-shift armored vehicles. "Many of these groups are turning out technologies that are not as sophisticated as [what] a state player has, but they're not far from it," says Watts. —*John Watts [interview by Rick Docksai], "New Tools for War and Peace: Technology Game Changers," July-Aug 2013, p. 21*

● **Youth networked through social media will lead the future of African politics.** In Kenya, the volunteer youth organization Yes Youth Can



ANDREA LONG / MERCY CORPS

worked nonstop at the local, county, and national levels in the months leading up to Kenya's March 2013 presidential election. Their goal was to engage youth in the political process, get them all registered to vote, and defuse any tensions that might lead to outbreaks of political violence. Mobile phones and digital media in general played a very large role in Yes Youth Can's activities. While fiber-optic networks are still sparse, more than 70% of the country has mobile-phone subscriptions. Mercy Corps and partners adapted Facebook and Twitter's coding so that subscribers in Kenya could post directly to the sites via a free SMS short-code. The result was 380,000 Kenyans viewing Yes Youth Can's Facebook page within the three days encompassing the election. —*World Trends & Forecasts, July-Aug 2013, p. 11*

● **Intellectual-property theft and unscrupulous policies will hinder rather than help global innovation.** "Innovation mercantilism"—national policies that violate global trading laws—allow some nations to underinvest in their own creative resources. The result may boost short-term business interests but at the price of long-term development. All of the world's economies would gain if leaders could agree on an innovation policy that promotes innovation, productivity, and competition while discouraging currency manipulation and intellectual-property theft. —*Robert Atkinson and Stephen Ezell, "Building the Global Innovation Economy," Jan-Feb 2013, p. 14*



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