

OUTLOOK 2009

Recent Forecasts from World Future Society for 2009 and Beyond

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INTRODUCTION

More sex, fewer antidepressants; more religious influence in China, less religious influence in the Middle East and the United States; more truth and transparency online, but a totally recorded real life.

These are just a few of the forecasts in the latest edition of the World Future Society's annual **Outlook** report, a roundup of the past year's most thought-provoking ideas about the future, culled from news stories and articles appearing in **THE FUTURIST**.

The forecasts are not "predictions" of what the future will be like, but rather glimpses of what may happen or proposals for preferred futures.

The opinions and ideas offered here are those of their authors or sources cited and do not necessarily represent the views of the World Future Society. For more information, please refer to the original articles cited. Back issues of **THE FUTURIST** may be ordered using the coupon in this report or online at www.wfs.org/backiss.htm.

As always, your feedback is welcome. Please e-mail your comments to letters@wfs.org.

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THE EDITORS

BUSINESS AND ECONOMICS

● **China will most likely become the world's largest economy within the next three decades.** The Carnegie Endowment for International Peace believes China's economy will surpass that of the United States by 2035. There are debates about whether India's economic development will ultimately surpass China's, but it is clear that Asia's economies are growing. Overall, workers in Asia are becoming more skilled and educated. —*Andy Hines, "Consumer Trends in Three Different 'Worlds,'" July-Aug 2008, p. 22; Futurist Update, Aug 2008*

● **Tourism's future is bright.**

Tourism is expected to nearly double worldwide, from 842 million international tourist arrivals in 2006 to 1.6 billion in 2020. China will be the greatest source of tourists as well as the most popular tourist destination. —*Marvin J. Cetron and Owen Davies, "Trends Shaping Tomorrow's World, Part One," Mar-Apr 2008, p. 43*



● **Book publishers may need to hire movie directors.** Books are finally going multimedia and digital, and publishers are offering more content online for free. Textbooks will bring together a wide variety of talents to create a multimedia "book." The shift from print to multimedia means that the writers of the future will work with Web designers, software writers, and other professionals to create products. The next step for publishers will be involving the readers in the publishing process, using them to set prices and give input on what to publish. —*Patrick Tucker, "The 21st-Century Writer," July-Aug 2008, p. 25*

● **Retirees in the United States will increasingly return to the workforce.** One-third of Americans who retire are back on the job two years later, and growing numbers of retirees are choosing to start their own businesses. About one in five people, and 40% of seniors, say they plan to continue working until they die, and nearly two-thirds of Americans say they doubt that retirement is possible for the middle class. —*Marvin J. Cetron and Owen Davies, "Trends Shaping Tomorrow's World, Part Two," May-June 2008, p. 33*

● **Wealth trends favor the already-favored.** The wealthiest 2% of U.S. families saw their net worth double between 1984 and 2005, from \$1.07 million to more than \$2.1 million per household. The poorest 5% of U.S. households saw their negative net worth (i.e.,

more liabilities than assets) grow from \$1,000 in 1984 to nearly \$9,000 in 2005. Since much of the advantage for the wealthy comes from home equity, the current housing price bubble may slow down these trends in the short term. —*World Trends & Forecasts, Nov-Dec 2007, p. 12*

● **Consumers will gain CEO-like powers in the business world.**

The Internet is enabling consumers to readily share information and consult each other for product information instead of relying on professional critics. Companies will adapt by offering more customer-to-customer forums, asking customers to market to other consumers, and substituting average people for celebrities in product ads.

—*Arnold Brown, "The Consumer Is the Medium," Jan-Feb 2008, p. 29*

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● **Socioeconomic disparities will become more pronounced in aging societies.**

Frictions in many societies will rise as greater numbers of people approach old age. Policy makers will need to be more mindful of how inadequate resources early in life will leave many retirees in need. —*Richard A. Settersten Jr., "Navigating the New Adulthood," Mar-Apr 2008, p. 23*

● **Social safety nets will get cut.** Governments across the industrialized world will pare down or scrap altogether their pension and health-care programs for retirees. Younger workers will increasingly protest the higher taxes that those programs require due to greater numbers of retirees than ever before. Succeeding generations will have to work together to avert "age wars." —*Maddy Dychtwald, "Retiring Retirement," Mar-Apr 2008, p. 24*

COMPUTERS

● **Watch out! HAL from 2001 is on the way.** Self-aware machine intelligence could be achieved by mid-century. Machine computation to match humans' natural self-awareness (and realizing Arthur C. Clarke's science-fiction nemesis HAL 9000) would require calculations far more rapid than now possible, as well as the development of self-sustained thinking algorithms. So a real-life HAL is yet decades away, but may be achieved by 2061. —*Joseph N. Pelton, "HAL, Meet SAM" (Special Section, "Science Fiction vs. Reality"), Sep-Oct 2008, p. 36*

● **Search engines will become humanlike by 2050.**

With the “semantic” Web, AI-based search engines will comprehend users’ questions and queries just like a human assistant. Users will enter questions and get relevant machine-generated answers; users who give it search terms will get only articles relevant to their specific requests. —Patrick Tucker, *“The AI Chasers,”* Mar-Apr 2008, p. 18

KIYOSHI TAKAHASE SEGUNDO / ISTOCKPHOTO.COM



● **Rainbow traps may improve computing abilities.**

A technique to slow down or even capture light, called rainbow trapping, may enable computers to store memory using light rather than electrons. The result could increase operating capacity of computers by 1,000%, according to researchers at the University of Surrey and Salford University in the United Kingdom. —*Tomorrow in Brief*, May-June 2008, p. 2

● **Future data jockeys will be measuring digital capacity in yottabytes.**

Thanks to growing digital storage capacity, data will be measured in yottabytes (1 septillion bytes of data) by 2050. The prospect that no digital information ever need be thrown away will raise numerous possibilities, such as the ability to record and store every second of one’s life on a computer (and no doubt post it on Facebook). —Kelly “KJ” Kuchta, quoted in *“Thinking Globally, Acting Locally, Living Personally,”* Nov-Dec 2007, p. 57

● **“Mapping the mob” could make streets safer in emergencies.**

Paul M. Torrens of Arizona State University is developing an immersive 3-D computational model to simulate pedestrian behavior in the event of a sudden riot or other emergency. According to Torrens, the mob-mapping program allows him to identify deviations from normal pedestrian behavior, the better to understand what causes panic in certain situations. —Cynthia G. Wagner, *“Predicting Panic,”* Nov-Dec 2007, p. 68

PAUL TORRENS / ARIZONA STATE UNIVERSITY



● **“Serious gaming” will help train tomorrow’s health workers.** Health-related computer games represent 20% of the “serious game” market—video games

used for training and other no-nonsense purposes. The games could help train and evaluate new recruits faster, even in the field, and enable students to bypass classrooms. Another possibility is using video games to train patients to care for themselves. —Patrick Tucker, *“Virtual Health,”* Sep-Oct 2008, p. 61

DEMOGRAPHY

● **Urbanization will hit 60% by 2030.** As more of the world’s population lives in cities, rapid development to accommodate them will make existing environmental and socioeconomic problems worse. Epidemics will be more common due to crowded dwelling units and poor sanitation. Global warming may accelerate due to higher carbon dioxide output and loss of carbon-absorbing plants. —Marvin J. Cetron and Owen Davies, *“Trends Shaping Tomorrow’s World, Part One,”* Mar-Apr 2008, p. 52

● **Workforces on the move will exacerbate social conflicts.** Increased migrations of workers from developing countries to developed countries will help offset worker shortages in host countries. But many of the migrants will be impoverished. Social-security systems and urban infrastructures will strain to accommodate them. Nativist backlashes will become more common. —Cetron and Davies, p. 40

● **The United States is headed for a “demographic singularity.”** Management professor Nat Irvin II defines the demographic singularity as a pace of change so fast that the American identity as we know it will be irreversibly altered. He puts the year for the singularity at 2015, when minorities will make up 40% of the U.S. population. —Nat Irvin II, quoted in *“Thinking Globally, Acting Locally, Living Personally,”* Nov-Dec 2007, p. 57

● **Empowering girls through education will improve future communities.** Girls who have access to adequate secondary education are much more likely to practice family planning, according to a new report. The report also finds that education increases girls’ civic participation and makes them less likely to experience sexual harassment, to contract HIV/AIDS, or to fall victim to sexual or labor trafficking. —*World Trends & Forecasts*, Jan-Feb 2008, p. 8

ENERGY

● **Access to electricity will reach 83% of the world by 2030.** Electrification has expanded around the world, from 40% connected in 1970 to 73% in 2000, and may reach 83% of the world’s people by 2030. Electricity is fundamental to raising living standards and access to the world’s products and services. Impoverished areas

such as sub-Saharan Africa still have low rates of electrification; Uganda is just 3.7% electrified. —*Andy Hines, "Global Trends in Culture, Infrastructure, and Values," Sep-Oct 2008, p. 20*

● **Architects will harness energy from the movement of crowds.** MIT researchers have created a system of floor blocks that generate power when the blocks rub against one another as people walk over them. A crowd of 30,000 moving to and fro could create enough power to run a small electrical system or perhaps bring a subway train safely to a platform in the event of a blackout. —*World Trends & Forecasts, Nov-Dec 2007, p. 6*

● **Future cars may not fly in the air, but they might run on it.** Compressed-air engines are being tested to replace gas-powered engines, achieving speeds of 200 mph. So far, though, they run out of air quickly and still require power to compress the air, so we may not be riding on air anytime soon. —*Tomorrow in Brief, Sep-Oct 2008, p. 2*

● **Capturing carbon will make coal burning cleaner.** Carbon Capture and Storage (CCS) could reduce the carbon emitted from coal-fired power plants by as much as 90%. But questions remain as to who should shoulder the costs of implementing the technology (running CCS plants is anywhere from 10% to 40% more expensive than running a traditional coal power plant) and what to do with the sequestered carbon. —*World Trends & Forecasts, Nov-Dec 2007, p. 8*

● **Pursuit of alternatives to oil could help stabilize gas prices.** Increased oil production and competition from alternative energy could curtail rising oil prices. New refineries are scheduled to go online in several oil-producing countries by 2010. Meanwhile, the world will have 1,000 nuclear plants operating by 2025. Use of natural gas, wind power, and solar energy will also increase, though to a much lesser degree. —*Marvin J. Cetron and Owen Davies, "Trends Shaping Tomorrow's World, Part One," Mar-Apr 2008, p. 48*



ENVIRONMENT AND RESOURCES

● **Pollution will hit the world's emerging economies hardest.** Acid rain, deforestation, and other forms of pollution will become more common in China, India, and other developing countries due to rapid industrial-

ization and lax pollution controls. Rates of pollution-related disease will rise disproportionately among these populations: China's rate of pulmonary disease is five times higher than that of the United States. —*Marvin J. Cetron and Owen Davies, "Trends Shaping Tomorrow's World, Part One," Mar-Apr 2008, p. 51*

● **The desalination industry will expand greatly.** Thanks to looming freshwater shortages, desalination is likely to become one of the world's largest industries. Ultimately, inland cities are likely to face more problems than coastal areas, including the necessity of huge pipelines. —*McKinley Conway, "The Desalination Solution," May-June 2008, p. 23*

● **Climate change threatens freshwater supplies.** Rising sea levels will reduce freshwater supplies by 50% more than previous estimates have projected. As the supply decreases, global demand for freshwater will increase, endangering the environment, food and energy supplies, and local and international political stability. Cutting our energy consumption now could offset big reductions in available drinking water later. —*World Trends & Forecasts, Mar-Apr 2008, p. 10; Lester R. Brown, "Draining Our Future: The Growing Shortage of Freshwater," May-June 2008, p. 16*



● **Increases in the earth's temperature, no matter how slight, could trigger global mayhem and destruction.** A global temperature rise of 6°C would be enough to drastically alter the world as we know it, with catastrophic consequences for human beings. Conflict over scarce resources would most likely cause human civilization to collapse. A temperature rise of just 3°C could transform the Amazon rain forest into a desert, and with 4°C, the last Alpine glaciers would likely dis-

appear. —*World Trends & Forecasts*, May-June 2008, p. 14

● **Farmers will be the key to conservation.** Farming contributes more carbon dioxide to the earth's atmosphere than transportation does, according to the United Nations. But farmers could thrive in a low-carbon economy if they received compensation for making their tilling, planting, and livestock-raising practices more environmentally friendly. —*World Trends & Forecasts*, Jan-Feb 2008, p. 14

HEALTH AND MEDICINE

● **The race for biomedical and genetic enhancement will—in the twenty-first century—be what the space race was in the previous century.** Humanity is ready to pursue biomedical and genetic enhancements, says UCLA professor Gregory Stock. The money is already being invested, but, he says, "We'll also fret about these things—because we're human, and it's what we do." —*Gregory Stock, quoted in "Thinking Globally, Acting Locally, Living Personally,"* Nov-Dec 2007, p. 57

● **Genetic therapies' promises will tempt more people into tampering with their DNA.** New knowledge of human genetics may lead to cures for most of today's common diseases, say researchers. It may also lead to individuals altering their own DNA to enhance their appearances, athletic abilities, and mental capacities. Researchers demand strict guidelines on what constitutes proper—and improper—adaptation of the human genome. —*World Trends & Forecasts*, Jan-Feb 2008, p. 19



● **Americans may turn away from antidepressants.** According to anthropologist Helen Fisher, Americans are taking 100 million prescriptions for antidepressants. "We know these drugs kill the sex drive. I maintain that these drugs also kill your ability to love and your ability to stay in love," she says. As possible side effects become more apparent, fewer people may elect to take antidepressant drugs like Prozac and Paxil. —*Helen Fisher, quoted in "Thinking Globally, Acting Locally, Living Personally,"* Nov-Dec 2007, p. 56

● **Synthetic blood may alleviate donor blood shortages.** Researchers at the University of Sheffield in England have developed a sterile synthetic blood made of millions of plastic molecules resembling hemoglobin.

Unlike donated blood, which has a shelf life of just 35 days and must be refrigerated, the plastic blood can be stored for months on end at room temperature. —*Tomorrow in Brief*, Nov-Dec 2007, p. 2

● **Smokers are more likely to develop dementia.** Current smokers have a 50% greater risk of dementia and 70% higher risk of Alzheimer's disease than non-smokers. Researchers blame smoking for stressing blood vessels and raising the likelihood of contracting cerebrovascular disease, a disorder associated with dementia. —*Tomorrow in Brief*, Jan-Feb 2008, p. 2

● **Saving snakes may save ourselves.** The venom of the timber rattlesnake may have undiscovered medicinal properties, but habitat loss and human persecution have put the rattler on the endangered species list. Losing the snake means humanity will lose access to research that could yield cures for diabetes and other problems. —*Tomorrow in Brief*, Nov-Dec 2007, p. 2



● **Cancer treatments will be safer.** Radioimmunotherapy—the use of radioactive atoms to kill viruses that cause some unhealthy tumor growths—will enable doctors to fight cancer while causing less harm to patients' bodies. These therapies would have minimum impact on healthy tissues and would prevent much tumor growth before operations are needed. —*World Trends & Forecasts*, Mar-Apr 2008, p. 12

● **Better blood flow, more energy, thanks to high-tech underwear.** Compression tights can help those with potential health problems due to poor circulation. The high-tech undergarments (made by Skins USA) are body-hugging gradient tights that are engineered to accelerate blood flow, resulting in greater concentration and higher energy, enhanced performance, and less discomfort overall. —*World Trends & Forecasts*, July-Aug 2008, p. 10



● **Fungi may help fight disease.** Fungi may offer hope for new medicines that can combat drug-resistant microorganisms. Natural compounds harnessed from fungi may potentially be utilized in antibiotics and nu-

traceutical products. —*Tomorrow in Brief, May-June 2008, p. 2*

INFORMATION SOCIETY

● **Everything you say and do may be recorded.** By the late 2010s, ubiquitous unseen nanodevices will provide seamless communication and surveillance among all people everywhere. Humans will have nano-implants, facilitating interaction in an omnipresent network. Everyone will have a unique Internet Protocol (IP) address. Since nano storage capacity is almost limitless, all conversation and activity will be recorded and recoverable. —*Gene Stephens, "Cybercrime in the Year 2025," July-Aug 2008, p. 34*

● **Identity theft and other Internet crimes will increase at a faster pace.** Identity theft, already the number-one crime in the United States and rapidly expanding throughout the Internet world, can be expected to wreak havoc on the financial and social worlds of millions around the globe. Also, as wireless communications networks continue to become more prevalent, new cybercrimes will be invented. Designer nanobots may be loosed on the Web to engender types of mischief and destruction not yet contemplated. —*Stephens, p. 34*

● **You'll have more friends whom you'll never meet, and cyberfriends may outnumber real-life friends.** The generation of young people now ages 12 to 24 years old may have more friends whom they will have never met in person. Unlike older cohorts, Gen Yers (aka the millennial generation) are comfortable with befriending strangers virtually via social networking sites and other cyber options that connect people based on their interests rather than physical location. —*Andy Hines, "Global Trends in Culture, Infrastructure, and Values," Sep-Oct 2008, p. 20*

● **In the future, you'll listen to books and read your cell phone.** Half of Japan's top 10 best-selling books last year started out as cell phone-based text message novels. A Japanese author became a cross-continent media sensation when a novel he originally texted into his cell phone sold more than 3 million copies as a printed book. —*Patrick Tucker, "The 21st-Century Writer," July-Aug 2008, p. 25 et seq.*

● **Reach out and thwart a terrorist.** Networks of cell phones could one day be deployed to detect and track radiological weapons intended for use in a dirty-bomb terrorist attack. Since cell phones already have global positioning locators, equipping individual phones with highly sensitive radiation detectors would provide nearly ubiquitous monitoring. Because the most likely targets of a radiological attack would be congested cities

filled with gadget-dependent people, a cell phone-based detection system would make it difficult for a terrorist to go unnoticed. —*Tomorrow in Brief, May-June 2008, p. 2*

● **More girls may become victims of cyberbullying.**

As girls spend more time communicating with friends via cell phone and the Internet (chat rooms, message boards, instant messaging, etc.), they are increasingly at risk of attacks from cyberbullies—acquaintances and strangers alike. Unlike real-world bullying, harassment in cyberspace can be a 24/7, global phenomenon conducted anonymously. Options for combating cyberbullies include setting up blocks to messages from unfriendly sources and not responding to them, thus not rewarding the bullies with the attention they seek. —*World Trends & Forecasts, Sep-Oct 2008, p. 14*



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● **Hotel rooms will become interactive, anticipating your needs like a built-in butler.**

Tomorrow's hotel rooms will go out of their way to meet their guests' needs. Marriott's Teaching Hotel is testing alarm clocks that run away from you after they go off, digital peepholes that display visitors on wall-mounted LCD screens, lights that turn themselves off after you leave the room, and flameless electronic candles that make for convenient romantic ambience. —*World Trends & Forecasts, Mar-Apr 2008, p. 12*



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TECHNOLOGY AND SCIENCE

● **The Internet will become more factually reliable and more transparent.** Internet entrepreneur Andrew Keen believes that the anonymity of today's Internet 2.0 will give way to a more open Internet 3.0 in which third-party gatekeepers monitor the information posted on Web sites to verify its accuracy. Keen sees a growing trend toward sites requiring contributors to identify themselves and paying them for their submissions. —*Patrick Tucker, "Fighting the Cult of the Amateur," Jan-Feb 2008, p. 33*

● **Laser satellites will beam data faster.** Using lasers instead of radio waves could speed satellite-based data

exchange a hundredfold. As the amount of data sent around the world—and through space—proliferates, lasers will enable larger data packets to be transmitted using less bandwidth. One barrier is making the laser pump modules durable enough to withstand the forces of launches and harsh space environments. —*World Trends & Forecasts, Sep-Oct 2008, p. 13*

● **The technology race between Japan and South Korea will intensify.** South Korea has mandated a robot in every home by 2020. Japan is hoping to accomplish the same goal by 2015. —*Cecily Sommers, quoted in "Thinking Globally, Acting Locally, Living Personally," Nov-Dec 2007, p. 57*

● **Lunar habitation gets polar test.** NASA's Constellation Program is planning a year-long test-run of a potential lunar habitat at a site in Antarctica.

The program, whose goal is to send humans back to the Moon by 2020, judges the Antarctic's extreme climate to be the closest ecosystem that Earth has to lunar conditions. —*World Trends & Forecasts, Mar-Apr 2008, p. 10*

● **TV in 3-D.** Tomorrow's televisions may not need screens. Mathematicians in Finland have produced a blueprint for instruments that would project floating 3-D images by means of nanomaterials that bend light around objects. —*Tomorrow in Brief, Mar-Apr 2008, p. 2*

● **Optical clocks may enable us to measure time much more precisely.** Separate teams of researchers in Germany and the United States have succeeded in developing optical clocks that use lasers to capture strontium atoms and measure their frequencies. The new clocks have the ability to measure time much more precisely and in much smaller intervals than the standard atomic clocks used today, which measure the oscillation of the movement of cesium atoms. —*World Trends & Forecasts, May-June 2008, p. 10*

● **Silicon versus graphene.** Graphene, a form of carbon combining aspects of semiconductors and metals, could replace silicon in a variety of applications, including high-speed computer chips and biomedical sensors. Researchers have found that graphene conducts electricity with less resistance than any other known material. Graphene yields high-electron speed in near-room temperature conditions, which is critical to making the chips practical. —*Tomorrow in Brief, July-Aug 2008, p. 2*

TRANSPORTATION

● **The car's days as king of the road may soon be over.** If current trends continue, the world will have to make way for 200 million new cars a year by 2050, for a total of 3 billion vehicles on the road. That scenario could be altered with more powerful wireless communication that reduces demand for travel, flying delivery drones to replace trucks, and policies to restrict the number of vehicles owned in each household. —*Thomas J. Frey, "Disrupting the Automobile's Future," Sep-Oct 2008, p. 39 et seq.*



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● **Flying cars may be on the way at last.** Ever since *The Jetsons* made the daily aerial commute so attractive in the 1960s, people have been looking forward to a future full of flying cars. One reason it hasn't happened yet is the weight ratio of the propulsion system: A small aircraft with small propellers would need more thrust to fly, making it a very expensive proposition. But innovations such as the M400 Skycar by Paul Moller are gradually showing the way to the future of personalized human flight. —*Patrick Tucker, "Up, Up, and Away" (Special Section, "Science Fiction vs. Reality"), Sep-Oct 2008, p. 32*

● **Self-repairing spacecraft will make space travel more affordable.** The cost of space flight could be halved due to a new liquid that automatically deploys to cover damage on the spacecraft's surface. The Bristol University researchers who developed the material say that a spacecraft equipped with it could take more frequent space missions, stay in space longer, and require fewer repairs. —*Tomorrow in Brief, Jan-Feb 2008, p. 2*

● **Mobility is becoming a priority to more people in rising economies:** More people will travel farther faster. Personal mobility is increasing in rapidly expanding economies, thanks to small vehicles such as Tata Motors' "people's car." Better transportation opens more opportunities for shopping, employment, and social interaction beyond one's own neighborhood or village, but longer commutes decrease the amount of time available for such activities. —*Andy Hines, "Global Trends in Culture, Infrastructure, and Values," Sep-Oct 2008, p. 21*

● **Research labs are coming closer to "beaming" us up.** *Star Trek*-type transporters may soon be possible for data transmission, but not for sending people places. DARPA researchers are pursuing technologies that could reduce particles to a wave state, so the quantum

information about the particle is what would be transmitted rather than the particle itself. The original disappears in one place, and the quantum information recreates it in another place. —Marvin J. Cetron, “Beam Me Up, DARPA” (Special Section, “Science Fiction vs. Reality”), Sep-Oct 2008, p. 35

VALUES AND SOCIETY

● **People will have more sex.** With women’s growing economic power around the world, arranged marriages are becoming less likely. As a result, women will feel freer to express their sexuality. Rising trends in health also portend more sexual activity, according to sociologist Helen Fisher. People who are relatively healthy have more sex. —Helen Fisher, quoted in “Thinking Globally, Acting Locally, Living Personally,” Nov-Dec 2007, p. 56

● **U.S. cultural hegemony may be over.** The days of U.S. and First World dominance over the world’s culture and economy may soon be over. Useful ideas from less-developed countries, such as the three-wheeled “tuk-tuk” common in crowded megacities, are capturing the attention of highly developed places. —Andy Hines, “Global Trends in Culture, Infrastructure, and Values,” Sep-Oct 2008, p. 19

● **Capitalism in China could spur growth in religion.** China may experience a rapid growth in religions as the skyrocketing economy creates tumultuous changes and a yearning for stabilizing influences. Christianity is the fastest-growing faith in China, where the government recognizes just five religions: Buddhism, Taoism, Islam, Catholicism, and Protestantism. —Tomorrow in Brief, Sep-Oct 2008, p. 2

● **Organized religion’s appeal is declining in the United States.** U.S. religious congregations are currently facing slightly declining overall attendance numbers, despite a 40% population increase over the past 35 years. As a result, traditional Western religion’s influence over the mainstream will likely continue to wane. —World Trends & Forecasts, July-Aug 2008, p. 16

● **New generations, new values.** Self-reliance and cooperation will become prevalent societal values as Generation



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X and Generation Y replace the baby-boom generation. Gen Xers and Gen Yers are highly entrepreneurial. They are also very socially aware. Societies can expect more

small-business activity, more social activism, and greater outreach across cultures and political parties. —Marvin J. Cetron and Owen Davies, “Trends Shaping Tomorrow’s World, Part One,” Mar-Apr 2008, p. 42

● **Travelers might book their next flight to “Privacy Island.”** Communications technologies have enabled workers to be connected to their work 24/7/365. But perpetually increasing demands on people’s time may run up against a countertrend: increasing demand for free time. Places might offer “communication-free zones” to harried customers as a respite from their “always on” work lives. —Hines, p. 19

● **More people will consume ethically.** A recent trend toward “green” consumption is only the tip of the ethical iceberg: Corporations will increasingly lure customers by promoting their ethics in hiring practices (e.g., diversity in the boardroom, limited outsourcing), R&D standards (e.g., no animal testing), and philanthropic activity. —Hines, p. 22

● **Divorces may leave bigger environmental footprints.** Rising divorce rates cost energy, water, and other natural resources due to households breaking up and family members relegating to separate dwelling units, according to a Michigan State University study. The researchers note that cohabitation saves society building materials and utility costs. —Tomorrow in Brief, Mar-Apr 2008, p. 2

● **American adults are delaying the future.** Forty-one percent of U.S. adults say they are delaying major life decisions, such as buying a home, marrying, or even undergoing a medical procedure, according to a recent Harris Poll. The main reason cited is a lack of personal savings, along with concerns about the U.S. economy’s overall future. —Tomorrow in Brief, July-Aug 2008, p. 2

WORK AND CAREERS

● **Succeeding in future niche careers may mean choosing an unusual major.** An increase in unusual college majors may foretell the growth of unique new career specialties. Instead of simply majoring in business, more students are beginning to explore niche majors such as sustainable business, strategic intelligence, and entrepreneurship. Other unusual majors that are capturing students’ imaginations: neuroscience and nanotechnology, computer and digital forensics, and comic book art. Scoff not: The market for comic books and graphic novels in the United States has grown 12% since 2006. —World Trends & Forecasts, Sep-Oct 2008, p. 8

● **Employment in the United States will continue to rise.** Total employment in the United States will in-

crease by 15.6 million jobs between 2006 and 2016. However, this rate is slightly slower than that of the previous decade. "In-person" jobs such as health-care and other service workers will grow, while jobs that can be outsourced likely will be. Experts recommend that young people educate themselves now for more-global career opportunities in the future. —*World Trends & Forecasts*, May-June 2008, p. 6

● **Tomorrow's high-tech cowboys will tele-commute.** "Cow whispering" ranchers will be able to round up herds remotely, thanks to technologies like



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GPS and RFID. Livestock outfitted with tracking devices and earpieces will allow their herders to control their movement more cost-effectively and efficiently. —*Tomorrow in Brief*, Sep-Oct 2008, p. 2

● **Professional knowledge will become obsolete more quickly.** An individual's professional knowledge is becoming outdated at a much faster rate than ever before. Most professions will require continuous instruction and retraining. Rapid changes in the job market and work-related technologies will necessitate job education for almost every worker. At any given moment, a substantial portion of the labor force will be in job retraining programs. —*Marvin J. Cetron and Owen Davies*, "Trends Shaping Tomorrow's World, Part Two," May-June 2008, p. 41

WORLD AFFAIRS

● **The Middle East may become more secular.** Popular support for religious government is declining in places like Iraq, according to a University of Michigan study. The researchers report that in 2004 only one-fourth of respondents polled believed that Iraq would be a better place if religion and politics were separated. By 2007, that proportion was one-third. —*World Trends & Forecasts*, Nov-Dec 2007, p. 10

● **Bioviolence will become a greater threat as the technology becomes more accessible.** In the next decade, biological technologies that were once at the furthest frontiers of science will become available to anyone with a modicum of scientific training. Emerging scientific disciplines (notably genomics, nanotechnology, and other microsciences) could pave the way for a bioattack. Bacteria and viruses could be altered to increase their lethality or to evade antibiotic treatment.

Also, diseases once thought to be eradicated could be re-synthesized, enabling them to spread in new regions. —*Barry Kellman*, "Bioviolence: A Growing Threat," May-June 2008, p. 25 et seq.

● **Wars will extend their impact to innocent victims, including future generations.** Nanopollution from modern warfare represents a significant additional risk for both soldiers and civil societies. Nanoparticles could be defined as "invisible bullets," since no sensors have as yet been used to detect them in bombed territories. Nanoparticles could potentially cause new diseases with unusual and difficult-to-treat symptoms, and they will inflict damage far beyond the traditional battlefield. —*Antonietta M. Gatti and Stefano Montanari*, "Nanopollution: The Invisible Fog of Future Wars," May-June 2008, p. 32

● **Climate change is already spurring armed conflict.** A hotter planet may be a more war-torn one, says a Hong Kong study. The study found that sudden changes in temperature from 1400 CE to 1900 CE consistently disrupted world food and water supplies, which led to more populations going to war. The study's authors worry that rising temperatures today might similarly lead to strife. —*World Trends & Forecasts*, Mar-Apr 2008, p. 6

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● **The world's legal systems will be networked.** The Global Legal Information Network (GLIN), a database of local and national laws for more than 50 participating countries, will grow to include more than 100 countries by 2010. The database will lay the groundwork for a more universal understanding of the diversity of laws between nations and will create new opportunities for peace and international partnership. —*Joseph N. Pelton*, "Toward a Global Rule of Law: A Practical Step Toward World Peace," Nov-Dec 2007, p. 25

● **Militaries will use neuroscience breakthroughs to win future wars.** An advanced understanding of the mind and how it operates and responds to crises will be key to militaries seeking to secure competitive advantage over their adversaries, according to researchers at Sandia National Laboratories' Human Systems and Simulations Technologies Department. —*Tomorrow in Brief*, Nov-Dec 2007, p. 2



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