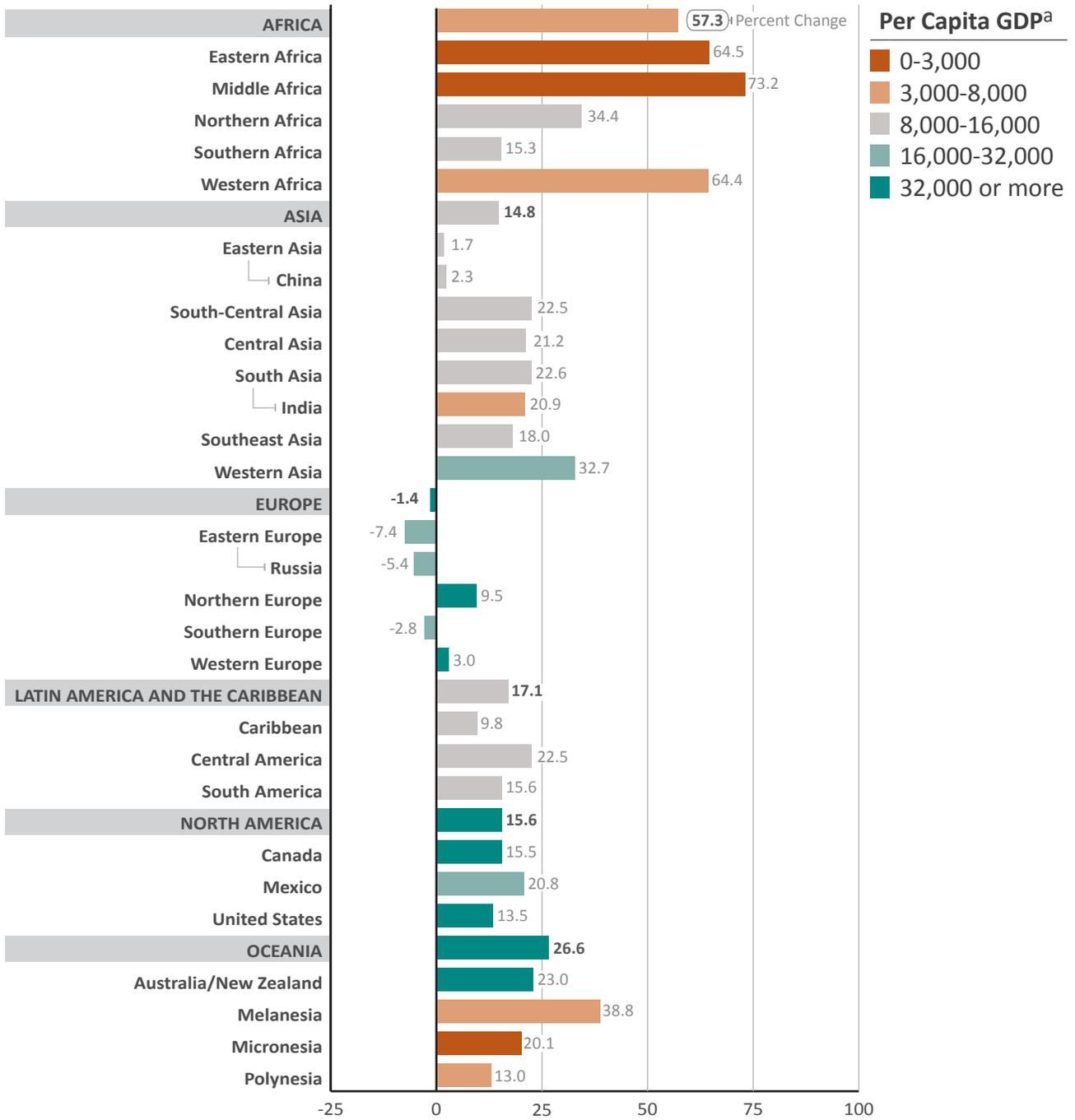




KEY GLOBAL TRENDS

Population Change by Region, 2015-35

The world's population will probably grow by about 20 percent between 2015 and 2035, according to UN projections. However, this growth will be unevenly distributed. The population of Africa, with a per capita income average of only about \$5,000—despite including a number of dynamic, growing economies—will grow by nearly three-fifths; by contrast, the population of Europe, with an average income more than six times as large as Africa's, will actually decline without substantial inflows of migrants from other regions.



^aPer capita GDP for 2015 in purchasing power parity (PPP) dollars.

Sources: UN population data (median projection); International Monetary Fund.



PEOPLE . . .

In 2035 the world's population will be larger, older and more urban than today, but change will progress unevenly across regions, with rapid growth in many promising but still-developing economies offset by stalled growth—or even shrinking populations—in many developed countries. These trends will challenge the former to provide infrastructure and opportunities for their growing populations and the latter to use technology to minimize their need for new workers and to smoothly integrate migrants from developing countries who seek improved prospects.

- By 2035, world population will have **increased by almost 20 percent to 8.8 billion**, while the global median age will have risen from 30 in 2015 to 34 years.
- By then, more **than three-fifths of the world's population will likely live in urban areas**, an approximate 7-percentage point increase from 2016.

Age Structure Changes of Key Countries, 2015-35

Age Structure (median Age)	Selected States							
	2015 PROJECTIONS				2035 PROJECTIONS			
YOUTHFUL (25 or less) 	Niger	14.8	Kenya	18.9	Niger	15.7	Afghanistan	24.3
	Uganda	15.9	Iraq	19.3	Uganda	18.9	Ethiopia	24.3
	Democratic Rep. of the Congo	16.9	Yemen	19.3	Democratic Rep. of the Congo	19.4	Yemen	24.5
	Afghanistan	17.5	Pakistan	22.5	Nigeria	20.0		
	Nigeria	17.9	Egypt	24.7	Iraq	21.9		
	Ethiopia	18.6			Kenya	22.6		
INTERMEDIATE (26 to 35) 	South Africa	25.7	Turkey	29.8	Pakistan	26.8	Venezuela	33.6
	India	26.6	Israel	30.3	Egypt	27.2	Mexico	35.1
	Mexico	27.4	Vietnam	30.4	South Africa	30.2		
	Venezuela	27.4	Tunisia	31.2	Israel	32.5		
	Indonesia	28.4	Brazil	31.3	India	32.8		
	Iran	29.5			Indonesia	33.2		
MATURE (36 TO 45) 	China	37.0	Canada	40.6	Turkey	37.0	New Zealand	41.0
	Australia	37.5	South Korea	40.6	Tunisia	38.0	UK	42.7
	New Zealand	38.0	Cuba	41.2	Vietnam	39.0	France	43.3
	US	38.0	France	41.2	Brazil	39.3	Russia	43.6
	Russia	38.7	Spain	43.2	Australia	40.6	Canada	44.4
	Poland	39.6			US	40.8	China	45.7
	UK	40.0			Iran	40.9		
POST-MATURE (46 or more) 	Germany	46.2		Cuba	48.0	Japan	52.4	
	Japan	46.5		Poland	48.2			
				South Korea	49.4			
				Germany	49.6			
				Spain	51.5			

Source: UN Population Division, World Population Prospects, 2015 revision (median age data).

Areas of Concern

Five demographic trends will potentially underpin domestic instability and interstate political frictions during the next two decades: chronically youthful states; mass interstate/interregional migrations; transitions through demographic phases; advanced population aging; and majority-minority differential growth. The dynamics of each are outlined below, with examples of regions/states where the trend is likely to be most relevant within the next five years and during the next 20 years.

Chronically Youthful States. Age-structurally *youthful* states have been the most vulnerable to intra-state political violence, whether perpetrated by state or nonstate actors, and many have patronage-based governments ill-equipped to meet the demands of sustained high fertility, rapid urban growth—typically without sufficient fiscal means to plan and accommodate it—and an underemployed young-adult population, potentially contributing to instability.

- Youthful states suffering from protracted political violence and institutional dysfunction risk drawing intervention from regional and extra-regional powers, as seen during the past 40 years.
- In the regions where youthful states are clustered—and where the governments involved have been unable to contain or suppress insurgencies—armed violence has periodically spilled over origin-state borders into the region and well beyond.

The US Census Bureau’s International Program Center (USCB-IPC) and the UN Population Division project that the current clusters of chronically youthful states—the Sahel region of Africa; Equatorial Africa; Iraq-Syria; Yemen, Somalia; and Afghanistan-Pakistan—will persist for the next five years—and nearly all will remain through 2035.

- The UN projections suggest that **Egypt will move out of the youthful category** by 2030 and **Pakistan** will follow by 2035, with **Yemen** projected to get closer to this category by 2040. However, past growth forecasts for all three countries were optimistically higher than they turned out to be—which may prove true again.

Mass Migration. Conflict-torn youthful-state clusters have frequently been the source of crisis-spurred migrations in recent decades, and their existence through 2035 suggests a continuation of political stress for population-receiving countries and the periodic disruption of more orderly—and more easily accommodated—flows of labor migrants and tourism to destination countries. Flows from conflict-torn youthful-state clusters will probably pose the greatest concern for migrant-receiving states, which must bear significant financial, social and political costs in having to accommodate and integrate new members of society—or deal with the stresses of poorly integrated populations.

- Even predictable flows of economic migrants can pose problems for source and destination countries. Migrant-source states face the loss of their most promising professionals and trained technicians, and beyond the above-mentioned integration costs, legitimate migrants evading or overwhelming receiving-state border controls—or traveling shared routes with unauthorized migrants—can help transform migration routes into conduits for contraband, trafficked individuals, and terrorist infiltration.

During the next five years, even relatively stable “front-line states” surrounding ongoing conflicts in the Middle East—including Turkey, Lebanon, and Jordan, with southern and central Europe as a second line of affected states—will have to deal with such stresses. The UNHCR warns that **the number of “protracted” refugee situations**—currently at 32 and with an average duration of 26 years—**has vastly increased** since the early 1990s. Their length makes it increasingly likely that the “temporary settlements” to accommodate refugees in front-line states will become permanent cities—but lacking the full complement of infrastructure, diversified economic activity, and governance institutions of well-planned and managed cities.

- During the next 20 years, without sufficient growth and development to maintain stability, the **Sahel youthful cluster could spark flows** that affect Algeria, Ghana, Kenya, Morocco, Senegal, and Tunisia, and conflicts in central equatorial Africa could send migrant to Botswana, Kenya, South Africa, and Tanzania. Iran would need to absorb more migrants if conflicts in the Iraq-Syria and Afghanistan-Pakistan clusters do not abate.

Large Working-Age Populations. States with relatively large working-age populations—called the “demographic window of opportunity”—typically enjoy improved maternal and child health, increased per-child educational investment and educational attainment, slowing workforce growth, and in some cases, the accumulation of household savings or assets to further support economic growth. China and South Korea, which recently left this window, vastly expanded human capital, created productive technology sectors, turned their cities into livable, functioning engines of growth, and amassed private and sovereign wealth.

- Since the 1970s, the demographic window has been associated with the **rise and stability of liberal democracies**, as seen in Brazil, Chile, South Korea, and Taiwan, during the late 1980s and 1990s, and more recently in Tunisia. This pattern suggests that in coming years, one or more of the major intermediate-phase countries—a group that includes Algeria, Colombia, Ecuador, Morocco, Myanmar, and Venezuela—could transition to greater democracy.
- Persistently high birthrates among the chronically youthful states mean that relatively few high-growth African countries will move into the intermediate category during the next five years, although several youthful clusters in Asia—including the five former Soviet republics in Central Asia—and in Latin America will make the transition, potentially setting the stage for strong economic performance in coming years.

Developed States’ Population Aging. USCB-IPC and UN projections suggest that by 2035, countries with “*post-mature*” age structures will expand from only Japan and Germany today, to a group that comprises states in eastern, central and southern Europe, much of East Asia, and Cuba—with China nearly qualifying as well. These states will be to adjust—but maintain—the institutional frameworks developed during their structurally favorable periods, including social safety nets, liberal democracy, and global capitalism, so that they remain sustainable amid challenges that unfold in their advanced post-maturity stages.

- In all regions, the **decline in the prime military recruitment pool** will press more governments to consider smaller, technologically sophisticated militaries, use of for-hire soldiers, and broader military alliances.

Post-mature state governments are already trying to adjust; declines in young working-age populations in Europe, Japan and South Korea have led governments to subsidize efforts to boost per-worker productivity with measures such as decentralized networked workplaces, increased use of robotics, and support for life-long learning. Efforts to increase workforce participation include incentives to attract women and under-represented groups into the skilled workforce, and subsidized childcare to retain them. Governments have boosted part-time senior work and increased retirement ages to keep people working longer and reduce rolls of older dependents, with mixed success.

- In Europe during the next five years, **efforts to roll back retirement ages** and liberalize workplace rules are likely to continue to be met with stiff resistance. While immigration was once thought of as a stop gap form for support to maintain the welfare state, it is now politically “off the table” as a solution. Residents of East Asian “aging states,” where benefits are typically less generous than in Europe, may be more willing to contribute more for pension and healthcare reforms, but they still expect government to ensure living standards.
- Countries where governments are **politically incapable of reining-in pension and healthcare benefits** will face difficult fiscal choices, potentially cutting education or other investment in their diminished youthful populations—and further undermining their economic prospects. Efforts to move from state-run, “pay-as-you-go” and employer-funded pensions to personal savings-based programs will alleviate pressure on government finances but will **leave individuals’ retirements at risk** of losses from financial market volatility, potentially leading to calls for government intervention after financial crises.

Majority-Minority Differential Growth. In multi-ethnic states, gaps in population growth rates can aggravate social and political disparities between often better-educated, more-prosperous urbanized majority-group members, and ethnoreligious minorities that typically retain higher fertility rates or whose population growth is augmented by immigration. Limiting the political and economic participation and educational opportunities of minority groups—and encouraging their residential segregation—can widen the population-growth and prosperity gaps and worsen tension—called a *minority demographic security dilemma* by political demographers.

- These growth gaps often become **instruments of political rhetoric**—by both sides—with the differences exaggerated. This can have inter-generational impact, since large gaps can cause visibly apparent changes in ethnic composition among the youngest school-age populations, whose education is subsidized by the taxpaying majority and could be jeopardized if targeted by hostile politicians.
- Because of this political dimension, the **effects of ethnic-composition shifts** during the next twenty years are potentially greatest on electoral democracies, particularly when the political leadership of the dominant group works to stave off the group’s loss of electoral power. Such shifts are occurring in Israel, where today’s majority of secular and traditionally religious Jews are projected to decline in voting power over the next two decades in the face of rapid growth among Ultra-Orthodox Jews, National Religious Jews, and Palestinian Israelis.
- Similarly, in southeast Turkey the rapidly growing **Kurdish population could gain electoral power** as it becomes larger and more efficiently organized. Shifts are also occurring in the central Andes, as indigenous populations make up a growing share of the electorate.

Continued Urbanization. The world's urban population first exceeded the rural population about a decade ago, and it continues to grow through natural causes and migration while rural-population growth has been flat in recent years. Urbanization will shape global social and political dynamics, but its effects are likely to be uneven and depend on states' capacity to manage the political, economic, and social stresses that urban growth causes.

With proper planning, urbanization can provide the setting, the underlying population base, and momentum for sustainable growth by enabling governments, businesses and individuals to reduce transaction costs; more efficient public infrastructure and services; and greater knowledge generation and diffusion. By some estimates, the world's "megaregions"—networks of metropolitan areas that share environmental systems and topography, infrastructure, economic links, settlement, and land-use patterns—account for 66 percent of the world's economic activity and are the breeding ground for 85 percent of all technological and scientific innovation. Poorly-managed cities and urban centers, however, can serve as incubators for poverty, inequality, crime, pollution, and disease. Near-term decisions on infrastructure for developing megacities will determine their vulnerability to extreme events and climate change.

- Increased **urbanization enables new social and political movements** by concentrating social stresses without adequate capacity to deal with demands on infrastructure. In particular, urbanization without sufficient economic development and consideration of environmental sustainability contributes to poverty and poor living conditions. Such stresses have spurred calls for social change and resource redistribution that adds to volatility at the local political level and causes regional spillover if people move elsewhere.
- Even if city development is efficient, **urban areas will challenge city planners and governments**, including some in Europe, to fund adequate infrastructure, transportation, energy, clean water and air, stable food systems, and healthcare.

The Emerging Gender Imbalance

During the next 20 years, higher rates of education for women, access to birth control, and more equal participation in labor markets suggest birth rates will continue to decline, although biotechnology advances will make it more likely that children survive to adulthood. The male to female ratio of children born in many Middle Eastern, East Asian, and South Asian countries is likely to continue to rise. In recent decades, unbalanced sex ratios have grown in favor of males in countries, such as Albania, Armenia, Azerbaijan, China, Georgia, India, Montenegro, South Korea and Vietnam because of sex-selective abortion, female infanticide, and female selective neglect.

- During the next 20 years, large **parts of China and India are projected to have 10 to 20 percent more men than women**. The two countries are already seeing significant numbers of men without prospects for marriage, and the imbalances, which would take decades to correct, have been linked to abnormal levels of crime and violence, as well as human rights violations such as abduction and trafficking of girls and women for marriage or sexual exploitation.
- The spread of **gender imbalances** appears linked to the influence **patrilineal systems** play in providing security when government capacity dwindles. As this mindset gains greater traction, groups that abide by this ideology are likely to depress the perceived value of women's lives even further.
- Limited economic opportunity in the Arab world is causing many men to delay marriage because they cannot amass the funds to start a household in patrilineal societies where paying a bride price is obligatory. **Escalating bride-price and wedding costs** place a regressive tax on all young men in the society and become a potent source of grievance. Marriage market obstruction—whether from escalating costs, abnormal sex ratios, or high prevalence of polygyny—facilitates recruitment of young men into rebel and terrorist groups.



HOW PEOPLE LIVE . . .

Natural and human-induced changes in many of Earth's ecosystems during the coming decades are likely to weaken the planet's resilience and expose humans to new health, food, water, energy, and infrastructure vulnerabilities and demands. With changes in climate, weather will become less predictable and suitable for the status quo. The oceans' biodiversity will plummet as they become warmer and more acidic, fragile, and polluted. Human and animal health will face threats from heatwaves, cold snaps, and the altered dynamics of pathogen spread. These risks will be distributed unequally in time and geography but have the potential to harm most of the world's populations and ecosystems—severely in some cases, and catastrophically in others.

Environmental and climate changes will challenge systems in different dimensions; heat waves, for example, stress infrastructure, energy, human and animal health, and agriculture. Climate change—observed or anticipated—almost certainly will become an increasingly integral component of how people view their world, especially as populations are projected to swell in those areas most vulnerable to extreme weather events and sea-level rise, including coastal megacities and regions already suffering from water scarcity. Many of the ecological and environmental stresses from climate change—and the infectious diseases it will affect—will cut across state borders, making coordination among governments and international institutions crucial to effective responses. Policies and programs to mitigate and adapt to these challenges will spur opportunities for those well-positioned to benefit.

Major Trends

Changes in Earth Systems. Climate change, sea level rise, and ocean acidification are likely to amplify stresses already felt from population growth, urbanization, inadequate environmental protection, and the use of energy and past natural resources. Although new climate policies could reduce the rate of greenhouse gas emissions over time, past emissions already have locked in a significant rise in global mean temperature, which will in turn drive more frequent and intense extreme weather events, such as heatwaves, droughts, and floods. The steady run of record-setting weather and growing frequency of extreme events suggest to many scientists that climate change is hitting harder and sooner than the gradual change often projected. The intensity of the disruptions could vary widely, spawning unpleasant surprises, particularly given that an increasingly significant fraction of the planet's species already are at increased extinction risk.

- Forecasting changes with greater regional and time precision becomes increasingly uncertain, but the stresses will probably disrupt the most vulnerable—or unlucky—populations in countries at all levels of development.
- Storm surges, augmented by sea level rise, are likely to threaten many coastal systems and low-lying areas, and this environmental volatility almost certainly will disrupt food production patterns and water availability, fueling broader economic, political and social stresses. Changes in the Arctic will exceed those felt in the middle latitudes, and reductions in summer sea-ice will make the Arctic more accessible than any time in human history.

Human and Animal Health Under Pressure. Changing environmental conditions and increasing global connectivity will affect precipitation patterns, biodiversity, and the geographic distribution of pathogens and their hosts, which will in turn affect the viability and vitality of crops and agricultural systems; the emergence, transmission, and spread of human and animal infectious diseases; and potential medical and pharmacological discoveries. The direct impact by environmental stressors to human health from increased heat stress, floods, drought, and increased frequency of intense storms will force difficult decisions on how and where to live, particularly in low-income countries in sub-Saharan Africa and South Asia.

- **Indirect environmental threats to population health** will emerge in the form of food insecurity, under-nutrition, and air and water quality declines as a result of pollution. Troubling trends in communicable diseases—in particular, emerging zoonotic diseases, antimicrobial resistant (AMR) pathogens—and noncommunicable diseases (NCDs)—including heart disease, stroke, diabetes, and mental illness—may be the result of these effects,
- These concerns will be **further intensified by demographic and cultural trends**, such as aging societies in Europe and Asia; inadequate nutrition and sanitation in Africa and India, urbanization and development in uninhabited areas and the rise of megacities; and a widening inequality gap. Perversely, increased longevity—an almost-universal goal—will reduce food and water security in places that are only marginally capable of supporting their populations.

Unaddressed disease-control deficiencies in national and global health systems will make outbreaks more difficult to detect and manage, increasing the potential for epidemics far beyond their points of origin. Increasing contact between people and the easier spread of diseases mean that chronic infectious diseases that are already widespread—such as tuberculosis, HIV/AIDS, and hepatitis—will

continue to pose heavy economic and human burdens on high-prevalence countries, despite the significant international resources that have been committed to combatting them. Many middle-income countries already struggle with the burden of increasing noncommunicable diseases on top of persistent infectious diseases.

Critical Human Systems at Risk. The increasing incidence of extreme weather events put all people at risk, although those concentrated in dense areas will be especially vulnerable. International organizations will be increasingly stretched to respond to the food, water, transportation, shelter, and health needs of those affected unless states and localities have made provisions to mitigate the risks, such as infrastructure improvements and early warning systems.

- **Soil and land degradation** during the next 20 years will diminish land available for food production, contributing to shortages and raising prices. Even more-affluent nations are at risk, to the extent that they rely on the highly efficient global agricultural trade that has developed under stable environmental conditions during peacetime.
- **Water shortages and pollution probably will undermine the economic performance** and health conditions of populations worldwide, including those of major developing countries. Economic output would suffer if countries do not have enough clean water to generate electrical power or to support manufacturing and resource extraction. Water problems—added to poverty, social tension, environmental degradation, ineffectual leadership, gender inequality, and weak political institutions—contribute to social disruptions that can prompt state failures.

Key Choices

How will political leaders and populations respond to a world less able to sustain life? Environmental and ecological degradation and climate change are likely to force governments and aid organizations at all levels to wrestle with how to divide their resources between crisis response—especially to the most vulnerable populations—and long-term investment to build more resilient and adaptive systems. Unprecedented weather events and ongoing desertification will hurt vulnerable populations in Africa, Asia, and the Middle East, with major droughts probably causing some water, food, and livestock systems to fail. More intense tropical storms will have a cumulative impact on infrastructure, health, and biodiversity in some coastal and low-lying areas that could overwhelm recovery and reconstruction efforts. Those struggling to survive such disruptions could, on the positive side, develop radical innovations for improvement or, more negatively, turn violent, migrate—if allowed by similarly struggling or less hospitable neighbors—or die.

- Some prominent voices will call for interventions involving **climate geoengineering**, although the governance and legal structures needed for these technologies to be deployed with minimal social disruption are almost certain to lag research and development.
- There are also likely to be calls to give the **victims of extreme levels of environmental degradation** some form of “asylum-like” right as refugees.

To what extent will individuals, governments, and private, civil, and international organizations employ new technologies to improve food, water, and energy security; air and ocean quality and biodiversity; human and animal health; and the resilience of transportation, information systems, and other critical infrastructure?

The inability to predict the timing or location of complex environmental and climatological events increases the need to develop information systems that would better enable officials to make near real-time assessment and policy decisions to minimize damages and casualties. Prevention is better than cure; the cost of building resilient infrastructure is generally much lower than disaster recovery, but mobilizing the political will and resources to take preventative action will be difficult without a dramatic crisis to realign priorities.

Even after a crisis, the will to prevent future harm is often overwhelmed by the breadth and complexity of investing in climate and public health research, monitoring and surveillance; financing climate-resilient health systems; developing a sustainable carbon budget; developing more energy-efficient buildings and transportation systems, applying “best practices” for industrial processes to reduce the risks to food, water, and health systems; improving water management through pricing allocations and “virtual water” trade; and investing in water-related sectors such as agriculture, power, and water treatment.

An increasingly important challenge for resource sustainability will be developing the capability to assess local population needs for power, fuel, and food in near real-time. Tracking the interactions between natural resources and people—and wildlife—would enable better understanding of resource needs, a key vulnerability in an era of increasingly scarce resources.

New investments in energy and technologies offer an important opportunity to reduce the risk of adverse climate change, although most of these will require substantial funding and years of effort to deliver benefits. These include clean-energy sources and enabling technologies, such as offshore wind energy, solar cells, distributed power generation, and energy storage; improvements in combustion sources such as biofuels and waste-to-energy; and mitigation through carbon-capture and sequestration.

- Reducing carbon output will **threaten entrenched economic interests** and disrupt longstanding communities built around hydrocarbon industries.
- Ocean energy, renewable synthetic fuels, next-generation nuclear power, methane hydrates, wireless energy transmission, and energy harvesting are promising but far from maturity. Industrialized biotechnology can contribute to the manufacturing and extraction sectors, food and health security, and defense.

Many new technologies hold great potential for addressing the complex challenges the world faces, but their impact will be blunted if available to only a few countries or elite segments of populations. Increased global connectivity makes populations more aware of new technologies and more eager to access them. Countries and regional and international organizations could be hamstrung by the differing rates at which national and international policies develop relative to those of technology developments.

- **Technological advances** in healthcare, synthetic biology and biotechnology, information, materials and manufacturing, and robotics are likely to improve disease prevention, surveillance, treatment, and management that will improve quality of life and lengthen lifespans.
- Automation could reduce pharmaceutical R&D costs by enabling computerized rational drug design and human-system modeling that reduce animal testing and failed products.

Advanced biotechnology alone cannot address a number of important public health threats, such as the rise of antimicrobial resistance (AMR). There is also a pressing need for relatively simple technologies that can be made affordable for a global population. To meet these needs, **business practices in generating new health technologies are likely to shift**. Pandemic and AMR research has already shifted toward public funds rather than private investment for product development; development funds are also likely to come from nontraditional sources, including other high-income countries, emerging economies, and philanthropic sources. In short, changes in innovation models will be as important as changes in the technologies themselves.

How much will individuals, governments, and private, civil, and international organizations partner in new ways to build resilience into critical human support systems? Making support providers more resilient will be critical to reducing the impact of climate-change related events—particularly in densely populated urban areas—and to improving the speed and quality of responses to those events. Many states and local governments will be unable to provide the capital needed for major infrastructure investments, making support from sources such as civil and international organizations, corporations, and individuals necessary for success. However, motivating donors and political interests—which may see little incentive to develop more-resilient, redundant infrastructure, rather than just more infrastructure—may prove difficult. An additional challenge will be to work with individuals, organizations such as researchers, NGOs, and corporations, states, and the international community to make technologies and capabilities available to both “haves” and “have nots.”



HOW PEOPLE CREATE AND INNOVATE . . .

Technology—from the wheel to the silicon chip—has greatly bent the arc of history, yet anticipating when, where and how technology will alter economic, social, political, and security dynamics is a hard game. Some high impact predictions—such as cold fusion—have not become realities long after first promised, while other changes have unfolded faster and farther than experts even imagined. For example, clustered regularly interspaced short palindromic repeats (CRISPR) gene-manipulation developments quickly transformed the biological sciences.

Technological development and deployment will be fast where the tools and techniques become widely accessible or are combined to achieve new breakthroughs. Advanced Information Communications Technologies (ICT), for example, are transforming everything from automobiles to manufacturing, and some technology experts argue that advances in biotechnologies and nanomaterials will have a similar catalytic effect during the coming decades. Combining new technologies will provide the greatest surprises and most exciting new capabilities, with some spawning developments in relatively unrelated areas. For example, biotechnologies and new materials technologies may spawn changes in energy technologies.

Major Trends

Advanced Information Communications Technologies (ICT)—Including Artificial Intelligence (AI), Automation, and Robotics. Development and deployment of ICT can improve labor productivity, business processes, and governance practices that support economic growth and political responsiveness. As a critical enabler, ICT will influence nearly every new and existing industry. The emerging Internet of Things (IoT) and artificial intelligence (AI) will ensure that analytics and Big Data processing enable new business insights, transforming industries and driving advanced machine-to-machine communication. People’s use of some technologies, such as augmented/virtual reality (AR/VR), will have a transformative effect on society—particularly media, entertainment, and daily life.

- New ICT is likely to have a significant effect on the **financial sector**. Digital currencies; “blockchain” technology for transactions; and the predictive analytics enabled by AI and Big Data will reshape financial services, potentially affecting systemic stability, security of critical financial infrastructures, and cyber vulnerabilities.
- New ICT is also transforming **transportation and energy** consumption in profound ways. Applications that combine data analytics, algorithms and real-time geophysical information, such as Uber and Waze, can optimize traffic patterns, improve energy consumption, and reduce urban smog. These augment the benefits of semi-automated and self-driving vehicles, which can reduce traffic density and accident rates while producing huge economic gains.

Potential Issues: Increased data reliance—the common thread among these emerging information technology technologies—will require establishing clear limits and standards on data ownership, data privacy and protection, cross-border data flows, and cyber security that could become increasingly important points of domestic and international policy conflict. Some nations’ attempts to stem the rapid spread of ICT technologies and control the flow of information might minimize labor dislocations and volatility, but would limit economic and social gains. Countries less ethically bound might deploy technologies that others oppose or loosen regulations to attract high technology firms and to build R&D capability.

States, businesses, activist groups, religious organizations, and citizens are all trying to manage information to their advantage, fueling an intense and evolving messaging competition that threatens to extend its reach into deeper and more sensitive areas of human cognition and emotion. The early days of social media fostered hopes that more and freer communication would usher in a new era of democratization, but authoritarian states have proven adept at controlling access to information to maintain social control and free-flowing information in open countries has fueled social divisions and political polarization. Social media also enable the rapid spread of dangerous misinformation; individuals disposed to believe it are more likely to accept the misinformation uncritically and pass it on to other, potentially naïve individuals.

- ICT may give rise to new occupations in fact-checking, error-reporting, privacy protection, and legal action against harassment. Standards of truth-telling in social media are increasingly ambiguous and negotiable—at the limit, every truth claim becomes a piece of propaganda without special epistemological status.

- It has taken decades or even centuries for people to develop somewhat shared standards by which to judge the veracity of claims, but technology has reframed many issues in interpersonal relations and is creating a new set of challenges for governments that want or need to establish ‘credibility’ for foreign policy or bargaining purposes.

Artificial intelligence (or enhanced autonomous systems) and **robotics** have the potential to increase the pace of technological change beyond any past experience, and some experts worry that the increasing pace of technological displacement may be outpacing the ability of economies, societies, and individuals to adapt. Historically, technological change has initially diminished but then later increased employment and living standards by enabling the emergence of new industries and sectors that create more and better jobs than the ones displaced. However, the increased pace of change is straining regulatory and education systems’ capacity to adapt, leaving societies struggling to find workers with relevant skills and training.

- Autonomous vehicles, which will eliminate the need for truck, taxi, and other mass-transit drivers, are likely to be the most dramatic near-term example of technology displacement.
- New technologies and the opportunities they create will require specialized expertise and complex management skills that may not be widely available to displaced workers. As a result, ICT advances may aggravate the economic divide between those whose skills are in demand with orphaned abilities.
- New technologies will also increase public awareness of the growing inequality in opportunity and wealth. To mitigate the adverse effects of this awareness, programmers seek to develop sympathetic virtual worlds often referred to as “empathy engines,” but social critics are concerned that misuse of ICT has already led to civil and social disengagement and that new developments like AR/VR will do likewise.

Biotechnologies and Advanced Human Health. Biotechnology, recently catalyzed by CRISPR¹ developments, is developing even faster than ICT and promises to improve the global food supply and human health. The application of biotechnology—to include gene editing—to food production, especially for lesser used crops, could boost agricultural productivity, expand growing ranges, and increase crop resistance to severe weather and plant diseases. Advancements in gene editing could also lead to potential breakthroughs in human health by eliminating malaria carrying mosquitosor altering genetic codes to cure diseases like cystic fibrosis. Reducing food insecurity and improving peoples’ health in the developing world will be especially critical as climate change alters agriculture production.

Genetic engineering and other biotechnologies will aid disease prevention by enabling better diagnostics and treatments, helping to overcome antimicrobial resistance, and halting the spread of disease through early detection of new or emerging pathogens with pandemic outbreak potential. The eradication of

¹ CRISPR is the acronym for “Clustered Regularly Interspaced Short Palindromic Repeats,” which refers to short segments of DNA, the molecule that carries genetic instructions for all living organisms. A few years ago, the discovery was made that one can apply CRISPR with a set of enzymes that accelerate or catalyze chemical reactions in order to modify specific DNA sequences. This capability is revolutionizing biological research, accelerating the rate at which biotech applications are developed to address medical, health, industrial, environmental, and agricultural challenges, while also posing significant ethical and security questions.

some genetic-based diseases and breakthroughs in genetic manipulation of the immune system would improve quality of life and global health and reduce healthcare costs.

- Nanomaterials are increasingly used for medical-device coatings, diagnostic contrast agents, sensing components in nanoscale diagnostics, and advanced drug delivery. Digital medicine and other new medical procedures will likely contribute to improved global health. Improved tools to characterize, control, and manipulate the structure and function of living matter at the nanoscale could inspire biology-based approaches for other technology development and new fabrication techniques.
- Advances in computation and high-throughput sequencing and culturing technologies will enable understanding and manipulation of the human microbiome that could lead to cures for autoimmune diseases like diabetes, rheumatoid arthritis, muscular dystrophy, multiple sclerosis, fibromyalgia, and perhaps some cancers. Certain microorganisms also could supplement treatments for depression, bipolar disorder, and other stress-related psychiatric disorders.
- Optical monitoring of neurons and optogenetic modulation of neural activity promise to help neuroscientists observe brains in action, with the aim to prevent or curing diseases like dementia, Parkinsonism, and schizophrenia. The procedures could also yield insights into the construction of brain-like systems for artificial intelligence.

Potential Issues: Many parts of the world still consider genetically modified (GM) food unsafe or inadequately tested and will not accept its development or deployment, which will erode its potential to expand food supplies, lower prices, or increase the nutritional benefits in foods. Some genetic technologies, like “gene drives” that can potentially alter the genome of whole species, may be difficult to contain if deployed, and species-level genetic manipulation—to render mosquitos incapable of carrying malaria or other virulent pathogens, for example,—may have unforeseen consequences. Regardless of their potential benefits, such technologies will inevitably attract domestic and international political opposition.

- By 2035 rapid, “step” changes in human longevity may be plausible, but improving the length and quality of life could increase financial costs to societies, especially where aging populations already burden government budgets. These costs could be potentially offset, however, by healthcare savings from breakthroughs in treating genetic-based diseases and advanced genomic therapies.
- Debates over the morality and efficacy of intellectual property rights regimes for life-and-death medical issues and broader technological issues are likely to become more contentious internationally.
- Technological advances to treat diseases or enhance human capabilities, such as human augmentation, are likely to raise divisive political debates over access—assuming that most early techniques will only be available to higher income people. Altering fundamental human capabilities to enhanced mental capacity or physical strength could prompt strident domestic and international battles over the ethics and implications of altering the human gene pool

- Advances in biotechnology, including automation and the development of standardized tools and “programming languages”—for synthetic biology—will give individuals the potential to fabricate virulent micro-organisms for bioterrorist attacks.

Energy: Advances in energy technologies and concerns about climate change will set the stage for disruptive changes in energy use, including expanded use of wind, solar, wave, waste-streams, or nuclear fusion for electrical power generation and the use of improved mobile- and fixed-energy storage technologies. “Green” energy systems—competitive with fossil fuels—are already being deployed, and the future will see more carbon- and noncarbon-based technologies. Innovations—such as small-scale distributed energy systems that do not require connection to a power grid, can include renewable energy sources, and can integrate power for homes and transport/farm equipment—are likely to transform current models for energy production and distribution by freeing citizens from reliance on state-provided energy. Distributed, networked systems for energy generation and storage could improve the resilience of power systems and critical energy infrastructure systems to natural disasters, which would be particularly valuable in areas vulnerable to climate change and severe weather events.

Potential Issues: During the next 20 years, the combination of fossil fuels, nuclear, and renewable sources can meet global energy demand, however, the large-scale, commercially successful deployment of nonfossil fuel **energy technologies** is plausible. This would reduce the value of fossil resources reserves for energy-supplier states dependent on energy revenue to fund their budget and provide for their citizens, many may find it hard to reorient their economies. The commercial impact will also be substantial for oil and gas companies, some of the world’s largest firms. Without major improvements in low-cost batteries or other forms of energy storage, new energy sources will continue to require substantial infrastructure, potentially slowing their adoption by poorer countries and limiting their mobility and flexibility.

Climate Intervention: Technologies to enable geoengineering—large-scale manipulation of the Earth’s climate—are in their infancy and largely live only in computer models. Effective geoengineering would probably require a range of technologies. One set, called solar radiation management, aims to cool the planet by limiting the amount of solar radiation reaching the Earth, possibly by injecting aerosols into the stratosphere, chemically brightening marine clouds, or installing space-mirrors in orbit. A more expensive—and likely longer to deploy—group of technologies focuses on removing carbon dioxide from the atmosphere through direct air capture, ocean iron fertilization, and afforestation, which is the creation of forests in areas previously lacking tree cover. Carbon capture and sequestration, or CCS, is a known technology that seeks to capture carbon dioxide at the point of emission and store it underground. Afforestation also is a known technology, and scientists have conducted limited ocean iron fertilization tests.

Potential Issues: Increasing climate disruptions will boost interest in geoengineering interventions well before the scientific community understands the impact and unintended consequences of such efforts. With continued research, the advanced industrial countries might be able to develop the technology for solar radiation management quickly and at a cost far smaller than the damages anticipated from climate change. Without time to assess, however, the research probably cannot evaluate the trade-offs associated with the distribution of surface solar radiation, variations in temperature patterns, and changes in rainfall and storm systems—or determine the appropriate international regulation of global temperatures.

- A critical shortcoming of geoengineering strategies is that they do not counter all of the effects of an increase in atmospheric carbon dioxide, such as unabated ocean acidification. Carbon-capture technologies also have economic and physical limitations that suggest their implementation would be expensive, slow, and ultimately ineffective if carbon escapes back into the atmosphere.
- Atmospheric carbon-removal technologies will require significant research and a break-through in nonfossil fuel energy sources.
- The unilateral deployment of geoengineering technologies—even in small-scale tests—would almost certainly aggravate geopolitical tension. The intentional unilateral manipulation of the entire global ecosystem will likely alter how people think about their relations to the natural world and to each other.

Advanced Materials and Manufacturing: Materials and manufacturing developments are directly or indirectly the core enablers of most technology advancements. The uses of nanomaterials and metamaterials are likely to expand given the novel properties of these materials. More electronics, and health, energy, transportation, construction, and consumer goods already have these materials than most people realize. Nanomaterials' ability to exhibit enhanced mechanical and electrical characteristics, as well as unique optical properties, suggest they will outperform conventional materials in many applications and revolutionize most industrial sectors.

Other advanced synthetic materials innovation will alter commodity markets if they prove useful in manufacturing and their relative cost declines. High strength composites and plastics can replace conventional metals and create new markets. Developed countries will have an initial economic advantage in producing and using these materials, but they will become more widely accessible over time. Additive manufacturing, or 3D printing, is becoming increasingly accessible, and will be used for things not even conceived of today. 4D printing—the construction of objects that can change their form or function over time or in reaction to the environment—will also provide an economic edge to developers of commercially viable applications.

Potential Issues: Advanced materials could disrupt the economies of some commodities-dependent exporting countries, while providing a competitive edge to developed and developing countries that develop the capacity to produce and use the new materials. New materials, such as nanomaterials, are often developed faster than their health and environmental effects can be assessed, and public concerns about the possible unknown side effects will hold back commercialization of some. Regulations to protect against such effects could inhibit the use or spread of these materials, particularly in fields such as medicine and personal-care products.

Advances in manufacturing, particularly the development of 3D-printing from novelty to a routine part of precision production will influence global trade relations by increasing the role of local production at the expense of more-diffuse supply chains. As a result, global labor arbitrage will have diminishing returns, as the margin saved through locating manufacturing in distant factories shrinks relative to the amount saved by using an efficient factory in an area with a lower cost of transportation. Advanced manufacturing technologies will add to the considerable cost pressure on low-cost manufacturers and their employees, and the technologies could create a new worldwide divide, between those who have resources and benefit from new techniques and those who do not. This bifurcation might redraw the traditional north-south divisions into new divisions based upon resource and technology availability. 3D

manufacturers, however, will still need access to raw materials, electricity and infrastructure, as well as the intellectual property rights to what they produce.

Space-based technologies. Heightened commercial interest in space and space-enabled services will improve efficiency and create new industrial applications with civil and military purposes. China is undertaking plans for a permanent manned presence in space similar to the International Space Station, and entrepreneurs plan for manned flights to Mars. Satellite systems—smaller, smarter, and cheaper than in the past—will bring new capabilities in remote sensing, communications, environmental monitoring, and global positioning. Low-altitude satellites could bring internet access to the two-thirds of the population that do not currently have online connectivity. Higher bandwidth will enable and increase availability of cloud-based services, telemedicine, and online education.

Potential Issues: Significant increases in data from remote sensors and space-based communications will challenge personal privacy and actors’ abilities to hide their actions. Some states will seek to block or control data from space to protect their perceived core national interest. Geopolitical tension will erupt over the use of highly sensitive remote sensors—once reserved to only a few states—and open transmission of data.

Key Choices

Expert opinion remains divided on new technologies’ impact on productivity and growth of measurable economic output. Some experts argue that the world is on the cusp of a technology-driven productivity revolution, while others believe new technologies will not have a much smaller impact than the second industrial revolution, from the 1870s to the early twentieth century. These skeptics argue the new digital technologies have had a minimal impact on transportation and energy so far and have failed to genuinely transform measured economic output for many decades.

Technology will unleash an array of positive and negative effects. As one expert wryly observes: “technology is the greatest cause for my optimism about the future...and my greatest cause for pessimism.” History shows the impact of technology varies significantly depending on the user, the purpose, and the local context: geography, economics, infrastructure, culture, security and politics. Each technological advance bears a cost—sometimes in natural resources, sometimes in social cohesion, and sometimes in hard-to-predict ways.

The ability to set international standards and protocols, define ethical limits for research, and protect intellectual property rights will devolve to states with technical leadership. Actions taken in the near term to preserve technical leadership will be especially critical for technologies that improve human health, change biological systems, and expand information and automation systems. Multilateral engagement early in the development cycle will reduce the risk of international tension as deployment approaches, but may be insufficient to avoid clashes as states pursue technologies and regulatory frameworks that work to their benefit.



HOW PEOPLE PROSPER . . .

Global Economies Under Stress

New and unexpected tests during the coming decades are likely to increase global economic and financial stress, instability, and uncertainty. Global growth will be driven more by the largest developing economies, especially India and China, whose economies will expand faster than advanced economies even if their pace slows from current levels. Greater globalization is not certain, however, and is vulnerable to geopolitical tension. Even with strong global growth, skepticism about the benefits of further integration and support for protectionism is likely to increase if the wealthiest economies continue to struggle to return to “normal” growth and income inequality rises across a range of countries.

- **Key sources of economic growth flagging.** Two of the world’s largest economies—China and the EU—are undergoing major transitions, with China the biggest wild card. Demographic trends that led to growing workforces—and helped boost both output and demand—in the post-World War II period have reversed for most of the world’s major economies. Many developing countries appear reluctant to pursue difficult economic reforms that would boost their growth rates over the longer term.
- **Global economic integration in play.** Momentum for further global trade liberalization is weakening after 70 years of progress, and a growing popular consensus against free trade could trigger spasms of protectionist sentiment and escalate into a broader retreat from integration.
- **The productivity challenge.** The productivity gains of the past 150 years have owed much to technology advances. Use of new technologies in the economy is impossible to predict—and

they may prove pivotal—but may fall short of the immense impact of electrification or the internal-combustion engine on economic output. New technologies will also introduce major social, political, and economic disruptions as they require different business processes and education to provide workers the skills needed to make use of them.

Major Trends

Sources of Economic Growth Flagging. The global economy faces serious stresses as two of the world’s three largest economies—China and the EU—undergo significant transitions, with China the biggest wild card as it shifts from an investment-driven to consumer- and service-based economy. This historic transformation, which is still not on a clear trajectory eight years after the global financial crisis, reflects the waning of an era dominated by China’s rural-to-urban migration and industrialization that drove the country’s building boom, raised living standards, and produced capital surpluses that help fund borrowing worldwide. China’s population will age rapidly because of decades of Beijing’s “one-child policy,” and its growth will be constrained by domestic overcapacity, high debt, and a vulnerable banking system. The rest of the world, particularly developing countries, will have to adjust to a China that is no longer a center of ever-growing commodity demand but is instead a more-balanced trading partner. Efforts by Beijing to forestall the inevitable difficulty and cost of this transition—as seen with Beijing’s latest round of officially-encouraged bank lending to state-owned enterprises (SOEs) in early 2016—will prolong the transition period, widen imbalances, and increase losses from the unproductive, debt-financed investments made.

Managing the transition and minimizing dislocation will be crucial. A dramatic slowdown that causes ordinary citizens to doubt Beijing’s ability to improve living standards could undermine social stability and the Chinese Communist Party’s hold on power, leaving Beijing unable to rely solely on its authority—even with increasingly centralized power—and aggressive social control to maintain stability.

- **Beijing probably can cushion the transition** by boosting spending and encouraging state-owned banks to finance projects to minimize the impact on the broader economy as investment declines—particularly on the part of large, inefficient SOEs. Improving retirement and healthcare benefits could boost private consumption and help speed the process.
- During its transition, **China will be at risk of sharper, short-term economic shocks** that emanate from external or domestic causes, such as a financial crisis affecting China’s largest trading partners or a domestic misstep that erodes public confidence.

A substantial disruption in China, the world’s second-largest economy, could cause a global slump and erode growth prospects for many of the country’s economic partners.

- **The end of China’s urbanization-industrialization boom** and its decelerating economic growth have already undermined market assessments of the prospects for global demand for commodities, contributing to sagging prices and reducing revenue for states that depend on oil and mineral exports. Further slowdown would tighten the squeeze on Russia, Saudi Arabia, Iran and other key countries.

- **A successful transition would be a boon to the rest of the world.** Strong Chinese consumer demand would offer the promise of new customers for a broad range of goods, from low value-added goods from other developing economies to luxury goods and cutting-edge personal technology gadgets.

European economies also are in transition—with many still trying to regain positive momentum since the Great Recession of 2008—as they struggle to manage high debt levels that provide less room for fiscal stimulus to appease aging populations and restive middle classes, and ease sharp divisions over economic policy. Their evolution—or lack thereof—could affect momentum for economic liberalization and perceptions of Western global leadership.

- **Europe’s economic future is tied to strains over its political future,** and uncertainty about the Britain’s political and financial relations with the EU will probably dampen investment and growth through the medium term. In addition, the EU’s ability to use free trade agreements to promote growth has been constrained by the precedent set when the European Commission decided national parliaments needed to approve the recently signed Comprehensive Economic Trade Agreement (CETA) with Canada—in response to German pressure and perceived EU overstepping expressed in the Brexit vote. Finally, the Schengen Agreement, which abolished passport and other border controls among the 26 EU states, is being undermined by controls set up by many member states trying to curb large-scale refugee cross-border movements.
- **Uneven growth rates in the EU** and debt challenges in Greece, Spain, and Italy are dividing the Union, and the EU’s inability to craft monetary and fiscal policies that foster growth throughout its territory could be its undoing. The rise of nativist and antiglobalization voices in the EU undermines global support for free trade and economic liberalism.

The world will also closely watch to see if US growth rebounds to historically more-typical levels, to confirm or repudiate the viability of US economic policies. Many countries appear more eager than a decade ago for US leadership on vexing economic and security challenges, but most are prepared to hedge their bets if they doubt Washington’s will or capacity to focus externally.

- Expectations have faded of strong bipartisan support to propel the Trans-Pacific Partnership and the Transatlantic Trade and Investment Partnership into being.

Developing countries lack the capacity to “fill the gap” in global growth amid the major economies’ weakness. Most have taken steps to integrate into the global economy, but many are reluctant during a period of economic and political uncertainty to take harder—but necessary—steps to boost growth by reducing the role of state-owned enterprises, cutting back consumer subsidies that distort markets, implementing legal and governance reforms to encourage foreign investment, and liberalizing labor markets, including mitigating high levels of gender inequality.

- **India probably has the greatest potential** to boost global growth because of its size and the success of its technology sector, but it would have to improve its energy, transportation and manufacturing infrastructure to sustain high rates of growth. Infrastructure has improved in some locales but not in wide swaths of the country. Unlike China, India will benefit from 10 million new working-age residents per year during the coming decades, yet harnessing such a massive labor pool increase in ways that increase productivity and boost output has proven difficult. The global success of India’s technology sector, in contrast with its lackluster

manufacturing success, underscores the imbalances between the country's relatively strong higher education and its poor basic education, which would need to be improved to generate higher employment.

- **Optimism about Africa's growth potential** has largely tracked commodity price swings in recent years, but it has been muted by uncertainty over generational political transitions in several countries and its cities' ability to absorb the continent's massive population surge. Demographers forecast that Africa will provide most of the growth in the world's working-age (15-64) population over the next two decades, which could either be an economic boon or a cause of major instability if governments cannot create economies that can harness the productive potential of these mostly urban job-seekers.

Political leaders and publics throughout the developing world appear worried about the reliability of any model for stable development, although public confidence in their countries' prospects is stronger than in the richer countries. The best path for them to follow to that prosperity is unclear for many. In this environment, countries seem to know they must engage with the global economy to reap benefits, but they fear disruptive forces and shocks will make it harder to gain stability and prosperity.

- Financial crises, an increased sense of vulnerability among the middle class, growing inequality, and political polarization have tarnished the Western model in the eyes of some.
- Beijing's state-capitalist approach is also showing serious signs of strain as China's growth slows, its financial and housing markets appear fragile, inefficient state enterprises sag under heavy debt, pollution worsens, and Communist Party ideology loses traction with the public.

The Challenge of Financial Adaptation

The financial sector has been one of the most adaptive over the years in creating new mechanisms to manage evolving markets, but even these networks are showing key limitations. In particular, the “non-system” patchwork of accepted practices, markets, and regulations around global currencies has empowered governments to use monetary and exchange rate policies as tools of global economic competition—even as the WTO prohibits efforts to affect competitiveness in trade. This tension is currently barely contained within the G-20 framework and could explode or give way to a new push for governance around currency relations.

Noteworthy successes in financial cooperation include establishment of the Basel Committee on Banking Supervision 40 years ago to help Central Bankers from more than 20 countries coordinate standards and communication. The Financial Action Task Force combat money laundering and the Global Forum on Transparency and Exchange of Information tackles tax evasion, although gains are continually challenged by new illicit tactics in an escalating “arms race.”

However, differences among major power and the declining ability of the United States to forge consensus may undermine attempts by regulatory institutions to secure agreements on—and ensure implementation of—emerging financial sector challenges, potentially setting the stage for a more fragmentary financial landscape.

Global Economic Integration at Risk. The historic, steady increase in economic integration during the past several decades is meeting with greater resistance, with a growing number of political leaders and movements pushing back against free trade and more open labor markets. After seven decades of major global and regional trade deals, most countries involved already have low barriers to trade in nonagricultural goods, and there is **little remaining room for major gains** in narrowly defined trade liberalization. There is limited appetite for universal WTO global deals in agriculture and services trade, where domestic political resistance to liberalization is strongest in most countries. As a result, contemporary trade negotiations have focused on ancillary issues, especially investment policy, and countries have looked to hybrid agreements—more-comprehensive regional “coalitions of the willing,” with the TPP and TTIP as prime examples.

- Financial market volatility, the erosion of the middle class, and greater awareness of inequality **feed the view that trade liberalization has gone too far.** Given that some of the loudest criticism of free trade comes from within the United States—a longstanding leader in pushing for more-open markets—other countries will be watching US leaders closely for signs of an economic retrenchment. Trade skepticism in the United States threatens an agricultural deal, while sharp trans-Atlantic differences will be hard to reconcile on a range of regulatory issues on services.
- The WTO sees **the risk of “creeping protectionism”** in some countries’ steps to restrict trade and opposition to new free trade agreements such as the TPP. More-restrictive regulations or more-overt efforts to use currency policy to boost export-competitiveness could create a

dangerous competitive cycle, with countries not wanting to be the last to counter such moves and leave their economies vulnerable.

The Productivity Challenge. With global productivity gains and workforce growth flattening in the largest economies, finding new ways to boost productivity will become more important—and more difficult to maintain—during the coming decades. The productivity challenge will be especially acute during a period when working-age population growth will slow in the United State and shrink in Europe, China, Japan and Russia, potentially eroding economic output. The same age cohort will be grow significantly in developing regions of Africa and South Asia, but leaders there will be hard-pressed to rapidly scale up their economies.

- **Technology has been a crucial driver of productivity gains**, and a source of anxiety for workers who perceive they are at risk of being displaced. Continued technological advances will be vital to maintaining economic growth for countries facing flat or shrinking workforces, but future technology-driven productivity gains in advanced countries may be modest or take longer to realize. Productivity in these economies has sagged or stagnated during the past several decades, even with major infusions of new information technology, possibly because the infusions have most affected activities done at no, or only indirect, cost to users or have helped eliminate for-cost business, such as social media, other on-line activities, gaming, and personal communications. However, poorer countries, where modern ICT is less ubiquitous, are likely to enjoy substantial productivity gains as hitherto underserved residents gain communication access.
- **Productivity in all countries could also be increased** through a broad range of more fundamental steps, such as improving education and training, infrastructure, research and development, and regulations and management practices, but these will require funding, expertise, and lead-time that may prove difficult for many developing—and even developed—countries to marshal.

Technology's Impact on Jobs: Fears Despite a Positive History

Recent ominous forecasts about the potential for new robotic technology to eliminate large numbers of jobs have echoed writings of economists and the anxieties of at-risk workers since industrialization began in the 19th Century. One study projects that automation and artificial intelligence could replace 45 percent of the activities people are now paid to perform, including relatively high-paid workers like financial managers, physicians and senior executives. The rate of advances may lead to short-term dislocations in some sectors, but fears of widespread displacement have proven unfounded. Nonetheless, the fears may lead some government leaders and publics to call for slowing the use of new technology to protect jobs, potentially slowing gains.

Key Choices

Economic Integration. Governments probably will be tempted to revert to protectionist measures as real, perceived, or anticipated challenges to their economies stir public fear and uncertainty. Holding the line on economic integration almost certainly will become politically difficult, and taking new steps to open and reform markets will take even greater courage. Hard choices will center on trying to forge policies that help retrain and sustain people displaced by market disruptions, particularly as tight budgets and rising debt limit fiscal options.

Technology. How countries manage the commercialization of new technology will bear directly on their economic success and social stability. Major technological breakthroughs will give companies significant leverage in seeking favorable business conditions in countries, and governments (and consumers) will have to decide how quickly they adopt new technology and how they cope with the repercussions.

Labor Force Participation. For most countries, the greatest opportunity for boosting economic output will be increasing the share of residents participating in the workforce—particularly for societies that have low female employment and large numbers of rural citizens not engaged in the formal economy. Longstanding cultural norms are likely to complicate moves to tap into an increasingly important talent pool by stirring social tension, but rising global economic competition will raise the cost of inaction. Graying developed countries could also make gains by boosting participation rates of able-bodied older workers as fixed retirement ages and increasing life expectancies mean longer nonworking lives for typical workers, but curtailing pension benefits to workers will face political opposition, even if it helps ease fiscal pressures.



HOW PEOPLE THINK . . .

Ideas and identities define who we are, reflecting individual beliefs about oneself and one's role in the world. Beliefs provide moral guidance and a lens through which to understand and navigate the future. They define who belongs to a community, group, society, state, culture, and civilization—and, critically, who does not. Although resilient, ideas and identities are not static. Discrete ideas and identities interact with one another—challenging or reinforcing beliefs about which values matter most and how people should be treated. Both are also influenced by economic, political, social, technological, and other developments. Expanding Internet access is likely to increase the salience of global and transnational identities and ideologies—such as religion or ethnic identities in some quarters, as well as secularism and liberalism in others.

People react more strongly to negative ideas than to positive. Although life expectancy, livelihoods, security, and overall health and wellbeing have improved for most people around the world during the past few decades, most people remain gloomy about the future. Across the globe a sense of alienation and injustice is fostered, based on real and perceived inequalities, lack of opportunities, and discrimination. Generations of economists have noted the plusses and minuses of technological and economic developments that have changed the way people work. Social theorists have highlighted the sense of worth and identity most people derive from work, and the lack of satisfaction—dating to Karl Marx's "alienation," if not earlier—that can result when people feel insufficiently engaged by their work.

- Recognizing that most people need to feel good about their production may help explain growing signs of rejection of the "globalized" economy, facilitated by improved connectivity that fosters on-line communities and constituencies.

- Even with greater access to more material benefits and technological entertainment and distractions, people may experience a loss of meaning and crave ideas that provide them with a sense of worth. As automation proceeds, one might expect such issues to come to fore in some advanced industrial societies.
- Everywhere, information and communication technology enables people to connect and develop communities with whom they can share frustrations and anxiety. However, these same technologies can foster polarization and lower the organizational costs of recruitment and collective action.

It is not clear that economic ideologies, such as socialism and neoliberalism, which had dominated much of the 20th Century until challenged by the collapse of communism and the 2008 financial crisis, will remain relevant in a world in which both low-growth and high levels of inequality dominate political agendas. Other forms of political thought remain viable alternatives—in particular, nationalism, political liberalism, and religiously-based political thought.

Looking forward, deepening connectivity and the increasing speed of communication will cause ideas and identities to evolve more quickly. Diasporas will play an increasing role in the shaping of ideas. Extreme views will more easily find likeminded followers. Especially as Internet access expands in the developing world, shared experiences and identities will likely increase the salience of global and transnational bonds—such as religion or ethnic identities in some quarters, as well as secularism and liberalism in others.

Old ideas and identities will continue to prove resilient. Nationalism will be prominent in those parts of the world where states or national communities seek to shore up their claims to power in specific geographies—especially as alternative ideas and identities become accessible through Internet connectivity and pose threats to national interests. Such dynamics will play directly into the geopolitical competition between Western liberalism and authoritarian nationalism in China and Russia. Conversely, nativism and populism will also rise in the West in response to mass immigration, growing economic inequality, and declining middle-class standards of living.

- Technology, the expansion of women’s participation in economic and political life, environmental changes, urbanization, migration, and disagreements over the interpretation of religious and other cultural norms will shape each of these trends in the next 20 years. Whether these drivers encourage exclusive or inclusive attitudes and actions is a key uncertainty.

Major Trends

Transnational Identities Will Become More Powerful. During the next 20 years, information and ideas will move easily across borders. Advances in information technologies—whether in the 15th century with the printing press and Gutenberg Bible, or in 1989 with the invention of the World Wide Web—usually facilitate the spread of religious ideas, in part because religions transcend borders and state authority. Migration and displacement has had similar effects. Religion has long proven a particularly potent source of tension, and we anticipate that frictions within and between religious groups and between religious and secular communities will increase in many parts of the world. The spread of information, propagation of ideas, and awareness of conflicting religious beliefs and interpretations contributed in important ways to the religious wars of the 16th and 17th century and to Islamic and other religiously claimed terrorism of today. The widespread accessibility of information technologies also provides a platform for extreme voices to find followers, support, and sympathizers in cyber space. Such dynamics are likely to intensify as Internet access deepens in the developing world and as new information technologies like Virtual Reality allow for more seemingly intense and personal experiences and interactions across time and space.

The role of religions. More than 80 percent of the world is religiously affiliated and high fertility rates in the developing world are increasing that proportion, according to the Pew research center. As some religious groups push more actively for governments to incorporate religion and its values into law and norms, social and political tension is likely to flare, whether the religious represent the majority or an active minority. These developments will also incite fears among secular and religious minorities in these countries, potentially fueling exit or rebellion. Many communities with growing religious affiliation—including in the Middle East and Africa—will expect their governments to incorporate religion and its principles into legislation and government policies. They often see secularism and disaffiliation as Western ideas that reject God and the value of faith and undermine social coherence.

- New avenues of religious influence will become geopolitically consequential in areas where traditional secular intermediary organizations—such as trade unions—weaken and other ideological options, such as liberalism, prove unsatisfactory as substitutes. Many religious organizations—including Catholic Relief Services, Compassion International, and World Vision—are already essential to the delivery of basic public services, humanitarian aid and development.
- The Catholic Church, with 1.25 billion followers, provides global leadership on issues ranging from peace and conflict to environmental stewardship. Recently, the Church has addressed issues as diffuse as non-fetal stem cell research and nutrition and food security. However, established religious organizations—similar to public institutions—will be increasingly scrutinized given the modern communications environment.
- Competition within and between religious groups is likely to intensify over defining and controlling the faith—much as battles to control political parties have become more personalized and divisive. In these disputes, radical minority religious activists will often push out moderate voices because dramatic action and anger tend to generate attention and mobilize dissatisfaction better than calls for compromise. Charismatic and extremist leaders can gain disruptive capabilities, although violent and extremist groups that lack technocratic skill will struggle to provide governance. Most religious people will not actively support extremism, but passive support or implicit acceptance of extremists will worsen tension between groups, and violent leaders will be acknowledged as actors on the world stage. Religious divisions will be

amplified when regional rivals or other outside patrons support competing sides. Examples include Iran's support for Alawites in Syria and Sunni regimes such as Qatar, Saudi Arabia, and Turkey backing their coreligionists.

The role of secularism. One possible response to intensifying religious violence could be a turn toward secularism or away from religious affiliation in general. Worldwide, those identifying themselves as religiously "unaffiliated" represent the third-largest grouping after Christians and Muslims, and polls suggest that the number of people not affiliated with religion, although not the percentage, is likely to grow worldwide—especially in the Asia-Pacific, Europe and North America.

- Even states with high levels of integration between religious and government structures could see moderate growth in disaffiliation and secular ideas. Opinion polls show a rise in Saudi Arabian citizens who identified as atheists. Tunisia's ruling Ennahda party recently announced it will identify as Muslim Democrats rather than Islamist, citing in part a sensitivity to the connotations of the latter term.

Geopolitical Competition Will Take a Stronger Ideological Turn. *Liberalism is likely to remain the benchmark model for economies and politics over the coming decades, but it will face stronger competition and demands from publics to address its shortfalls.* Western ideals of individual freedom and democratic action will exert enormous global influence, judging by the aspirations of migrants and dissidents worldwide who are drawn to these principles. Many developing countries will strive for modernization more or less along Western lines, but the allure of liberalism has taken some strong hits over the years as political polarization, financial volatility, and economic inequality in western countries have stoked populism and caused doubts about the price of political and economic openness. Governments having trouble meeting the needs of their citizens will be strongly tempted to turn to nationalism or nativism to transfer blame to external enemies and distract from problems at home, while publics fearful of loss of jobs to immigrants or economic hardship, are likely to be increasingly receptive to more exclusive ideologies and identities.

- The longstanding effects of the crushing of the Arab Spring uprisings include the de-legitimization of the institutions and norms of democracy and degradation of organized institutions for channeling political opposition. Some disenchanted and traumatized former protesters, many of whom believe the West controls world events and is responsible for their plight, will look for alternatives to the liberal ideals they once supported.
- Meanwhile, China's recent economic success and the emergence of other non-Western powers will encourage some countries to consider alternatives to the Western liberal model to achieve their goals of a strong, stable, and modern society, even though China's harsh repression, shocking levels of pollution, and rising public frustration have long been known. Evidence that China's government retains control of the country's economy and can maintain growth—particularly as Beijing attempts a difficult economic rebalancing—will bolster its appeal as a model.
- Russia's uptick in nationalism focuses on ethnic, religious, and linguistic bonds instead of state citizenship, manifested by its invasion of parts of Ukraine, branding of opposition as 'foreign agents,' and legislation banning "homosexual propaganda." Some regional experts attribute these actions to President Putin's efforts to create a common sense of purpose in response to loss of power on the world stage and domestic struggles. Putin lauds Russian culture as the last

bulwark of conservative Christian values against European decadence, saying Russia, with its great history, literature, and culture, will resist the tide of multiculturalism. Russian nationalist aggression is likely to increase under Putin, which will provoke sometimes violent nationalist responses among its neighbors—like in Ukraine and Georgia—and spark feelings of disenfranchisement among ethnic minorities.

Exclusionary Ideas and Identities in Democracies Threaten Liberalism. Without a return to secure and more-evenly-distributed living standards, economic and social pressures are likely to fuel nativism and populism in the West, risking a narrowing of political communities and exclusionary policies. A weakening of the rule of law, political tolerance, and political freedoms in the United States and Western Europe—the traditional strongholds of democracy—could delegitimize democratic ideas around the world. Just as the world is watching the United States and Europe grapple with divisive politics and often uncivil rhetoric in debates over immigration, racial justice, refugees, and the merits of globalization, the world will look to see how India tames its Hindu nationalist impulses, and how Israel balances its ultra-orthodox extremes. Such dynamics could result in democratic backsliding—as in Hungary and Poland—or a move toward authoritarianism, like in Turkey. Without a strong response from other stable democracies, this trend is likely to accelerate.

- Anti-immigrant and xenophobic politics among Western democracies will challenge established parties and complicate their ability to maintain popular appeal and implement inclusive policies that meet the needs of their increasingly diverse populations. The national and international visibility of divisive populist parties and social movements—and the tendencies of incumbent governments to seek to preempt them with exclusionary policies—could increasingly undermine the global prestige of the Western democracies and their credibility in standing up for liberal values.
- Racial tension is also likely to play a large role in politics in both developed and developing countries. With the emergence of information and communication technologies, structural disparities in protection for different groups are becoming more apparent, and perceived violence perpetuated by the state and law enforcement against minority groups is especially likely to incite protest and tension.

Key Choices

Developments in technology, growing gender equality, and urbanization—each manifestations of modernity—will shape the future of family, religion, secularism, nationalism, and especially liberalism. Each of these poses moral, legal, social, and political challenges that are likely to be navigated according to existing cultural norms that vary by country. Among the most consequential choices will be how diverse belief communities, societies, and states choose to deal with technology's potential to manipulate human biology and the environment. This is likely to generate intense disagreement over what is morally acceptable, and fundamentally challenge traditional definitions of what defines human beings, human groups, and definitions of “self” and “other.” Developments in technology that enable more people to voice opinions will also serve to highlight differences over societal notions of gender inclusion, urbanization, and changing political participation.

Technology and Life. How people think about the very nature of life and how people love and hate is likely to be challenged by major technological advances in understanding and efforts to manipulate human anatomy, which will spark strong divisions between people, country and regions. These

developments will spur debates within and between belief communities, potentially leading to even starker distinctions between the religious and secular worlds. Conflicting pressures on balancing privacy and security interests will have far-reaching consequences for governance, economic competitiveness, and social cohesion. Key choices in technology will become increasingly political and ideological.

- **Human enhancements.** Technological advances in communications, biology, cognitive science, and pharmacology will increasingly blur the line between natural and enhanced human performance for even basic functions such as memory, vision, hearing, attention, and strength. Many people probably will embrace such technical enhancements as critical to getting ahead in an increasingly competitive world, but some are likely to resist on moral or ethical grounds—because they are “unnatural,” or not available to the poor. Differential access to such technologies will reinforce the divide between haves and have-nots.
- **Genetic engineering.** Health experts forecast that biotechnology research could yield breakthroughs against some cancers and other diseases, but expensive and limited early iterations of such methods probably would spark heated disagreements on access to healthcare if the techniques mean the difference between life and death. Biotechnology is also propelling a broader trend toward personalized medicine, with customized approaches keyed to an individual’s biological and genetic makeup that hold high promise in transforming diagnosis, intervention, and prevention. Again, the ability of the wealthy to harness these technologies for elective procedures will contrast starkly with the developing world’s struggle to control diseases that already have known cures. Finally, advances in genome manipulation may create the potential for “designer babies,” human embryos that reflect a set of pre-selected characteristics based on social preferences—which will call attention to ideas about race and what constitutes an ‘ideal’ person.
- **End-of-life decisions.** As lifespans lengthen, millions more people worldwide will reach 80, 90, or even 100 years of age and beyond. In the United States, a significant portion of healthcare spending occurs in the last six months of life. In developing and emerging economies alike, caring for so many senior citizens could overwhelm personal and public budgets and health systems with current retirement ages and benefits.
 - Biotechnologies that extend life may also be made available to enhance the comfort of living, reduce pain, and extend basic human functions in ways that promote individual independence and reduce caregiver burdens. Housing and public facilities will be designed to incorporate technologies that reduce the risk of falls and facilitate daily tasks for the elderly. Trends that encourage home care create more options for elderly who choose die at home rather than in a hospital.
 - The demand for capabilities to improve humane choices in confronting death and dying will grow worldwide, including advances in hospice care that mitigates the pain and suffering of the terminally ill and provides psychological support to reduce fear and enable dying with dignity.

- **Privacy and security.** As monitoring and sensing devices become more affordable, ubiquitous and integrated, the line between what is technically possible and what is legally and socially acceptable will be tested. Tools that determine identity and location could radically alter how work and criminal behavior is tracked, or algorithms that highlight patterns of behavior could be used to “predict” individuals’ health issues, criminal activity, educational potential, or job aptitude.
 - The widespread use of drones in civilian life will also alter the possibilities for privacy and could potentially be harnessed by criminal groups, undermining a sense of security. Such technologies can also be used to stifle freedoms in authoritarian states.
 - Global governance of common-pool resources such as public health, water, food and other key resources will inevitably challenge current ideas of privacy, control and power.
- **Political participation.** Social media has radically lowered the transaction costs of mobilizing populations, but some social scientists worry that virtual activism will replace more concrete political participation—including voting—diluting the quality of the political process. Worse, some worry that that new technologies fracture and polarize populations; social media, in particular, typically passes information and ideas through narrow, existing networks to members who self-select, rather than traditional forms of media, which project ideas to a broader audience. This selective dissemination and receipt of information contributes to reinforcement and confirmation bias, segregation, and polarization.

Education. Education will be one of the most determinative factors of success for countries and individuals because it determines options for occupations, wages, innovation, and development. Rapid advances in science, technology, engineering, and mathematics, fields in which a large portion of future jobs will reside, require continuous maintenance of skills. As millions of youth seek education to match employment opportunities—and millions of adults look for continuing education and career training in rapidly evolving fields—alternative models are likely to emerge from a variety of sources. Large-scale improvements in education access for women and girls will be determinative in improving women’s rights and changing expectations for gender roles.

- Many states provide basic education to their citizens, but with politically determined—or censored—curricula. Some regimes use public schools as a way to spread progovernment propaganda and instill a sense of patriotism. Russia recently expanded efforts to spread pro-Moscow sentiment by building Russian language and cultural centers on campuses of elite universities in the United Kingdom.
- Companies have an interest in maintaining a highly skilled and current workforce to keep pace with changing technology, and employers seeking to be competitive will include education in benefits packages or require continued education as a condition for employment. The role of technology in the education process itself will also rise. Massive Open Online Classes (MOOCs) are increasingly being used by elite universities and influential companies to train students and employees on a variety of subjects, and AI technologies will make individually customized learning programs routine.

Gender. Demographic and economic forces are likely to make women’s roles and opportunities a more salient and contentious issue in nearly all countries. Women will increasingly be included in formal work sectors, public and private leadership, and security planning. Gender roles and expectations will increasingly be recognized as crucial to economic and security planning. The trend toward greater equality will continue—if only for economic productivity—but progress will be slow and accompanied by domestic violence and backsliding in some areas where women’s empowerment is not yet socialized. Some communities will probably revert to patriarchal value structures in the face of insecurity.

- In the West, businesses are likely to moderately narrow pay and opportunity gaps for women to overcome slowing productivity through inclusion. Increased visibility of women participating in social, governmental, and economic institutions around the world will provide models for communities where women are not as visible outside traditional gender roles.
- Increased support for reconciling productive work with reproductive work will open new opportunities for women, as will the movement towards recognizing unpaid family caregiving as a significant labor contribution to society. These developments will both drive and be driven by public policy and institutions.
- Improved technology and infrastructure will ease the daily burdens associated with traditional women’s roles, freeing women for formal sector work and education. However, climate change and associated challenges such as epidemics will affect women profoundly, given their traditional responsibilities for family care work, as would cuts by fiscally pressed governments to social safety-net programs that force elderly or other vulnerable groups to rely on family for support. States’ implementation of welfare programs and health care will have profound consequences for women’s participation in labor markets.
- Religious or cultural norms limiting the role of women in the economy are likely to come under pressure—from women seeking greater opportunities for social advancement and the economic need to expand the labor pool to boost productivity. Issues of family and personal-status law—which directly affect relations between men and women—are likely to be social flashpoints.

Urbanization. First-generation city dwellers tend to be more religious than the broader population, turning to faith communities for support in the absence of extended family. This is a dynamic that for Africa and Asia—the most rapidly urbanizing parts of the world—will represent both an opportunity for deepening organized religion and a potential source of religious tension. Cities also tend to be more diverse, bringing people into contact with one another across cultural lines, potentially becoming a source of conflict. Rapid city growth will strain infrastructure to support more people, while growing inequality and greater awareness of it within the confines of a city setting are likely to increase social frictions as well.

- In and around growing cities, religious groups are likely to provide support by “taking care of their own” during times of economic volatility and weak governance, which could alleviate some public needs, but could raise tension with governments and other citizens over authorities and norms. If religious groups demonstrate they are more effective than the state in meeting basic social needs and providing a sense of identity, justice and moral guidance, their membership and influence are likely to grow—sowing unease and potential resistance by those outside the group. In religiously plural societies such as Lebanon, this could become a source of further conflict.

- Urbanization will mix populations together, sharpening competition for jobs and resources and potentially increasing xenophobia against new groups in the short term—but typically promoting integration and acceptance in the long term. Cities can create peculiar combinations of tolerance and intolerance for diversity. Commingling groups can improve familiarity and tolerance, but working across cultural lines also has the potential to change perceptions of liberalism, including acceptance of human rights norms. Academic literature suggests migration can transfer norms on human rights issues when people move to a society with increased attention to human rights—leading those people to view standards in their home country as unacceptable. These views on what is acceptable behavior are often transferred back home even if migrants do not physically return.
- Rapid urbanization also will probably spur political mobilization by boosting resentment for the status quo in cities and spawning new social and political movements, as they long have done.
- Meanwhile, governments will reassess how to deal with minority demands for more rights and influence if those groups can raise the political costs of excluding them, or if political parties need to appeal across cultural lines for support. In countries with small minorities, ruling governments have had little incentive to cater to groups outside their core constituency. Governments also may be tempted to direct ire toward minorities to whip up their base. However, as minority groups grow or become more skilled at exerting influence—through political, social, economic, or violent means—government leaders will find it more difficult to calibrate the line between resisting or accommodating minority demands.

How leaders and media portray diversity and adapt policies to incorporate changing populations will greatly influence how inclusive or exclusive identities will become during the next 20 years. Influential groups, including the young and religious organizations, have the potential to shape the wider population. According to polls and studies, younger populations tend to be more exposed to diverse groups and think diversity is natural, including connectivity and ties to people who are not geographically close. Generations growing into maturity and political activity during the next 20 years are likely to redefine definitions of communities.

- Studies have shown that public perceptions and media portrayal of violence has a greater influence on fear than the actual risk or threat. Because of highly publicized terrorist attacks in places that have not recently seen violent conflict, international discrimination against Muslims and others from the Middle East and North Africa—who are largely perceived to be Muslim, whether they are or not—will continue in most non-Muslim majority countries.
- A fundamental aspect of a culture is its view of the proper relationship between men and women; this issue is likely to catalyze social conflict when groups with differing views on women’s status are combined.

Competing silos of information and perspectives of truth and fact among proliferating influential actors are poised to complicate governments’ ability to generate compromise. A combination of factors, including growing distrust of formal institutions and the proliferation and polarization of media outlets, are driving some academics and political observers to describe the current era as one of ‘post-truth’ or ‘post-factual’ politics. This results in part from the growing number of individuals and agencies providing information to consumers. Whether this atmosphere continues, or people and

political groups adjust to growing flows of communication and trend back toward more-balanced perspectives, will be crucial in coming years.

- As a result of this “post-factual” trend, individuals appear more likely to base their political views more on feelings than on fact and to seek out information that supports their opinions. Conflicting information actually reinforces views that the new information is from a biased or hostile source and further polarizes groups.
- To interpret the deluge of details, people turn to leaders who think like they do and trust them to interpret the ‘truth.’ According to the most recent Edelman Trust Barometer survey, a sizeable trust gap is widening between college-educated consumers of news and the mass population; the survey showed respondents are increasingly reliant on a “person like yourself,” and that these like-minded people are more trusted than CEOs or government officials.
- A Pew study from 2014 showed that the highest percentage of trust for any single news agency among US persons polled was only 54 percent. Instead, individuals gravitate to social media to obtain news and to respond to events.



HOW PEOPLE GOVERN . . .

Governments will face increasing difficulties in providing security and prosperity, which prompt questions on whether historical bargains negotiated between society and their government will hold. This uncertainty and the broad decline in trust in government could make it hard for established systems to meet public expectations and deal with problems that transcend national boundaries.

- Trust in government during the past decade varies among countries but has generally declined. In a 2015 OECD study using Gallup polling, confidence in national governments across all OECD countries declined 3.3 percentage points, from 45.2 to 41.8 percent during 2007-2014; with declines of more than 25 percentage points in Slovenia, Finland, and Spain—but increases of more than 20 points in Germany, Israel, and Iceland. According to a Gallup Poll survey released in September 2016, only 42 percent of Americans have a "great deal" or "fair amount" of trust in the country's political leaders—a drop of about 20 points since 2004 and a new low for Gallup trends.
- These dynamics are shaping government structures that have endured since World War II. Democracy is under stress in many parts of the world, with some academics pointing to a possible decline in support. While the number of democracies has remained stable during the past 10 years, global migration and economic stagnation—along with technology that empowers individuals as well as extremist groups—has weakened some previously stable democracies, such as Hungary and Poland. Many states are finding liberal and democratic institutions at odds with their desire to sustain control, and academics argue that several large, illiberal democracies will be unstable and face significant internal challenges. There are signs of polarization and decay even in long-established liberal democracies like the United Kingdom and the United States.

- For their part, China and Russia have shown they can use new technologies to double down on their control of opposition expressions and have used new technologies to exercise more sophisticated forms of repression as well. Russia has increasingly sought to undermine democracy, liberalism, and human rights through intensive propaganda and making common cause with other authoritarian regimes. In 2015, the Kremlin passed a law prohibiting the work of ‘undesirable’ foreign organizations, which is widely seen as a tool for cracking down on dissent.

Major Trends

Economic Change and Perceptions of Injustice Prompt Questions About Capacity. Slower rates and shifting sources of economic growth, increasing income inequality, and the perception of “losing out” to global competition will spark public demands to improve and protect living standards. This frustration with “globalization” is likely to build, as many of the factors causing wage growth to slow are also making it harder for governments to provide broad-based prosperity, such as intensifying competition among low-cost producers of low value-added manufactures, the emergence of technologies that disrupt and transform industries and sectors vital to many countries’ economies, and swings in global financial and commodity markets.

- Absent different policy choices, this volatility is likely to widen inequality between winners and losers—individual workers and countries alike—by contributing to a “winner take all” dynamic in many sectors, and further sharpen clashes over the role of the state in ensuring living standards and promoting prosperity. Some governments investing in human capital and infrastructure to promote growth may find they are forced to impose fiscal austerity measures because they are saddled with additional debt until the initiatives bear fruit.
- Economic instability will erode governments’ ability to deliver on promises of social welfare. In the developed world—where populations are expected to age and life expectancies will increase—we can anticipate a rise in health care costs while business profits and tax revenues shrink and government debt levels remain high. Public anger over the government’s inability to protect constituents’ interests probably will be aggravated as wealth, technology and social networks enable affluent citizens to opt out of many public goods, such as education and health care, undermining a sense of shared fortunes.
- Slower rates of economic growth and falling commodity prices are hitting middle classes that only recently emerged from poverty in Asia and Latin America. The global forces that enabled their prosperity during the past several decades are now fueling their anxieties by threatening to undo recent gains, as firms continue to pursue cheaper labor and greater use of automation, disrupting industries and labor markets in the affected countries. The result is a public that believes government is not serving their needs, which has contributed to high-profile mass protests in recent years in countries with newly expanded middle classes, such as Brazil and Turkey.

Similarly, perceptions of injustice stemming from mismanagement and sclerotic bureaucracies will fuel societies’ search for alternatives to the status quo. Corruption and impunity remain predominant concerns across the world; according to Transparency International, 68 percent of countries worldwide—including some G20 states—have serious corruption problems. Corruption is particularly

acute in some of the demographically youthful states that are poised to face the greatest employment challenges. Transparency International's Middle East and North Africa Corruption Survey found that 50 million adults in that region have to pay bribes to receive basic services. In these surveys, public officials and politicians are perceived as far more corrupt than religious leaders, potentially contributing to the tension between governments and religious groups that offer competing services and support.

- The view that established political actors fail to coordinate to resolve political and social concerns sharpens the perception that the existing forms of governance are inadequate. Academic studies suggest this coordination failure can aggravate persistent governance challenges. A review of local institutions in Afghanistan showed that a multiplicity of institutions with no clear hierarchy fueled competition among elites and hampered the quality of governance.

This flagging capacity to carry out even basic governance functions and the inability to develop mutually constructive relations with society threaten to add to the world's group of fragile states. In a 2013 report, the OECD highlights that, in addition to facilitating legal business, the effects of globalization also enable growth of illicit activity—such as transnational and organized crime—that risk weakening those states least capable of dealing with this challenges. In 2015, the OECD identified 50 countries and territories—home to one fifth of the world's people—as being fragile or in conflict. The OECD underscores that fragility occurs not just across states, but also within them, raising the prospect of growing areas of “alternately governed spaces,” and posing a serious challenge to reestablishing central authority in many weaker states.

Dissatisfaction and Expectations Gap. Frustration with government performance in the areas of security, education, and employment is likely to fuel public discontent and provide a foundation for greater political instability. In some cases, the frustration stems from a deterioration of lifestyles and standards of living—or a sense that standards of living are not keeping pace with those of other countries—as populations are buffeted by the effects of globalization. In other instances, increasingly wealthy, well-educated, and well-informed publics expect more from their governments at a time when the problems that governments must address—including climate change, terrorism, and increased migration—are increasingly complex and costly. The diffusion of power through technological, economic and social change also is making it more difficult for governments to implement effective policies by creating more potential veto players on issues, reinforcing a gap in expectations. Economic and social change is weakening traditional intermediary organizations, such as political parties, that once aggregated interests and represented them to the state, as public demands for direct participation clash with the multi-layered nature of the modern state.

- Governments will have to deal with an increasing number of actors—NGOs, corporations, and other entities—that can directly appeal to citizens and build their own coalitions, particularly online. A broad weakening of political parties and the ability of individuals and groups to use money and media to communicate directly with the public and mobilize support—if not necessarily sustain it—will personalize politics, making electoral outcomes and the policymaking process less predictable.
- Governments must also deal with technological changes and the growing leverage of individual players in financial markets, which can cause major, rapid disruptions across national boundaries, as occurred in the great recession. Financial experts warn these vulnerabilities will

grow as speculators seek new instruments that provide short-term profit and take advantage of gaps in regulation or develop new capabilities—using big-data analytics or automated trading using artificial intelligence—to capitalize on existing markets and instruments. On the other hand, technology will enable states and subnational entities with the leadership, public trust and infrastructure to better provide more efficient and transparent services, to challenge corruption, and to increase their ability to regulate activities.

- Waning public tolerance for crime and corruption will fuel pressure on governments to reform or lose power. Wide variation in how governments respond to such pressure will persist, with some moving to greater transparency and responsiveness, while others retreat to authoritarianism and less accountability. New access to detailed information on government operations and news of other governments forced out of office are likely to raise public expectations of government behavior.

Political entrepreneurs can tap this reservoir of frustration to shape new forms of political participation. Populist sentiment that is couched in the language of anti-corruption has become a staple of politics in South Asia. Political parties in India and Pakistan have witnessed a surge in “reform” politics, mass movements fueled by disgust with the established political elites and mainstream parties.

- Surveys show overwhelming majorities of populations in Eurasia reject the legitimacy of their governing institutions and show little trust in parliaments, presidents, police, judges, and other elites. Similarly, according to Pew, concerns about corruption and inequality are top concerns of citizens in China.

Enter Non-State Actors. The division of labor among service providers is evolving as governments increasingly compete with business and other nonstate actors poised to assume the functions of government. Many of these entities are not new but might find increased opportunity as confidence in national administrations declines:

- **Corporations.** Globalization has broadened multinationals’ reach, providing some with the opportunity to engage in public-private partnerships to provide services. Corporations, sometimes with governments, have chosen to address persistent social and environmental causes, assessing that responding to a public need will improve their standing and their financial performance. Coca Cola and USAID have partnered to support water treatment in Tanzania and other countries.
- **Religious-based entities.** Faith-based organizations historically have provided development and aid provision. Some NGOs note that their donors are more willing to contribute to them when governments are faltering.
- **Cities and their mayors.** As urbanization progresses and megacities develop, cities’ influence—and that of their leaders—will increase. During the past several years, leaders of the world’s largest cities have developed the C40—a collaborative network focused on addressing climate change. In 2014, the group held a widely publicized climate meeting in South Africa; their next in Mexico City in December 2016 will bring together C40 mayors from all over the world and hundreds of urban and sustainability leaders to advance urban solutions to climate change.

- **Criminal and terrorist organizations.** The proliferation of nefarious actors and virtual criminal networks that prey on digital-security gaps and exploit differences in national laws for profit will be a growing challenge for even strong states, as seen by the criminal groups' use of Facebook to connect with refugees and control migrant paths to Europe. In addition, terrorist organizations—most notably ISIL—have sought to provide governance to advance their cause and attract adherents.

Increasing Variation in Governance. During the next 20 years, governance will increasingly vary between and within states, in the forms that states take and their level of success, in response to differences in degree of urbanization, economic growth, basic social norms such as gender equality, and migration. The division of authority between national, regional, and local governments is likely to shift as some cities and regions become more important than existing administrative divisions.

- The number of states that mix democratic and autocratic elements is on the rise, with no apparent trend toward stable democracies. Some studies suggest these blended states are prone to instability. Many societies will suffer from chronically weak and unstable political institutions. The range of countries' degree of existing institutionalization and public political trust will mean substantial differences in states' ability to absorb political or environment shocks.
- Even within regions, variation in the quality of governance will increase. In Europe, the relatively high level of political trust in the Nordics allows those governments to use information technology to better provide services, while governments lacking the public's trust, such as Italy, will be hampered from taking such actions. Weak Central American states are foundering, while more-mature institutions in countries such as Chile or Uruguay can effectively cushion the impact of economic difficulties. Africa will also see increasing differentiation between the many failed or failing states and nations like Ghana or Kenya that are more likely to enact reforms.
- Successful states and subnational entities will use public-private partnerships, which can be transformative even if they do not guarantee greater democracy or accountability. Developing countries are increasingly open to such partnerships to jump-start construction of new infrastructure and to disseminate information to rural areas that the state could not easily serve. Reliance on parastatals, as in Singapore will probably gain renewed appeal as a model to emulate amid post-2008 skepticism that economic growth is best left to private bodies and a loosely regulated market.
- The center of gravity of government, particularly in the developing world, is likely to shift from the center to cities, and the regions where they are located—as localities seek to control their fiscal resources and exercise consensual decisionmaking with skilled bureaucracies, often by harnessing private expertise as well, according to a recent Brookings Institution report. Cities are emerging as key actors in advancing policies to mitigate climate change and are networking across national boundaries to do so.

Key Choices

The ability of developing states to progress economically and establish stable political systems will depend on how much governments and others invest in human capital and improved public service delivery. Investment in human capital, training, and organizational design will determine how fast capacity is built, or if it is built at all.

- It is unclear whether decentralization in the developed and developing world will shift power to cities that are frontrunners in innovation and public-private partnership—such as Lagos—and whether corporations will step in to perform formerly government functions. Some recent assessments suggest corporate firms that invest in areas traditionally thought of as the responsibility of the state, such as health care and renewable resources, provide stakeholders with greater returns, which suggests corporate roles could expand into these and other sectors.
- The degree to which states look to non-Western models of development remains unclear. Ultimately, government performance, especially on the economy, will determine citizens' assessment of its success. If citizens do not see an improvement in their well-being, they will lose confidence in their ruling elites—and will have modern communication and community-forming capabilities to express it. To that end, if Beijing can surmount China's economic challenges, escape the middle-income trap, and use technology to sway—or defuse—public opinion, other nations will probably try to follow its path.

Advanced industrial democracies and emerging powers also face key choices in how to respond to inequality, increasing debt burdens, and perceptions of less effective governance. The ability of leaders to manage these stresses will be severely tested because governments will find it hard to rebuild credibility with publics and maintain elite support at a time when hard choices are likely to alter the mix of winners and losers. With publics appearing more willing to take to the streets, political leaders may have less room to implement difficult policies and less time to show results. In this environment, leadership continuity could be rare, whether in industrial democracies or advanced autocracies like Russia and China, where power is bound to a single leader, increasing the potential for instability when an abrupt turnover in power does occur.

- Governments and leaders will probably adopt different strategies to address the challenges of slow growth and economic inequality. Turbulent times can produce transformative leaders who build new coalitions that reshape relations between governments and the public, but they may have few options for dealing with the durable technological factors that are slowing growth and generating inequality.
- Governments will also face difficult choices that come with aging populations and gender inequality. Leaders will have to balance the need for adjustments in welfare systems—long regarded as politically untouchable—with demands to invest in human capital and other initiatives to ensure greater opportunities and protections for women and other groups. Decisions that will have long-term repercussions for food security, health, child welfare, and environmental security.

International Institutions: Major Trends

Existing international institutions—especially the UN system of agencies—will struggle to adapt to the expanding range of actors and complexity of new issues that reach deeper into national sovereignty sensitivities and have a greater impact on domestic life than in the recent past, when international agreements could be negotiated by elites. As traditional organizations like the UN struggle to evolve, demands will rise for peacekeepers, humanitarian assistance, a forum for combatting climate change, and other shared concerns. A mix of forums that incorporate more nonstate actors, regional institutions, and informal consultation will emerge to address transnational issues underserved by traditional approaches. The creation of the Asian Infrastructure Investment Bank (AIIB) to pick up programming not supported by the World Bank is an example of one such regional approach.

A Rise in Veto Power. A lack of shared vision among major powers and competition among aspiring ones will impede major reforms in the international system. While everyone agrees that the UN Security Council (UNSC) must be reformed, there is little prospect for consensus among states on what that reform should look like, suggesting such change, while acknowledged by states to be needed, and while not impossible, will be slow in arriving if it does occur within the next two decades.

Some aspects of the international system will become more relevant as states begin to experience stress and governance difficulties in managing environmental and economic change, or internal conflict.

Demand for Multilateral Assistance To Grow. A cluster of environmental and demographic factors—global warming, energy shortages, unauthorized migration, resource scarcities, epidemics, ocean acidification, and bulging youth and aging populations—will increase strains on national governance efforts, especially where government competencies are fragile. As states face challenges to their domestic legitimacy, the need for multilateral resources to fill gaps in governments' capability will increase. Fragile national governments may require a range of multilateral assistance, including emergency IMF loans; UN peacekeeping; election assistance; international judicial investigations; technical assistance and policy advice; humanitarian aid; and guidance for containing or eradicating disease.

A Broader Mix of Development Instruments To Assist. At the same time that demands for multilateral approaches to assistance are growing among fragile states and those seeking to help them, a broader mix of instruments will be available, including loans and financing for middle income countries, which increasingly will bear the brunt of many humanitarian challenges. A true diversity is now rooted in the development community, with venture capitalists working with aid agency chiefs; corporate executives conferring with foreign policy advisers; and technologists consulting NGO leaders. This mix of diversity and experience will lead to experimentation—and both successes and failures—in an effort to better meet future needs. However, the biggest donor states, such as China and the United States, will provide most of their aid through bilateral channels.

No Alternative to Multilateralism on the Horizon

Although many formal intergovernmental institutions, such as the UN, will increasingly engage in new forms of partnership, these changes are unlikely to challenge the one-state-one-vote model of multilateralism during the next 20 years. The sovereign state has shown itself to be remarkably resilient as the cornerstone of international decisionmaking. Despite the changes of the past 500 years, the state has largely remained the key element of political order and is likely to continue to be dominant.

- The world will face international crises across a broad range of issues and theaters—some technical, and some societal—but it is unlikely that the next two decades will bring an inflection point resulting in a radically different approach to international governance. Nor is any state now championing a radically different alternative, despite the fact that nonstate entities, such as the Islamic State in Iraq and the Levant (ISIL) or the Baha’i faith—with the former attempting to impose a world caliphate through violent means, and the latter using peaceful activism to promote equality and a democratically-elected world government—are trying to do so. Although alternative models such as these have some support in certain parts of the world, the broad diversity of individual state interests will continue to prevent an alternate system from taking root at the global level, much as it currently inhibits UNSC expansion.
- To be clear, we expect the term “World Government” to remain seldom spoken aloud, even though two of what might be considered four “branches” of such governance have been augmented in recent years—international courts and the rising bureaucracy of agencies like the World Trade Organization. Notably, these are the two entities that vest legal standing in nations and, to some degree, in corporations and NGOs, rather than in private persons. As yet, no major or substantial movement has gathered to press for the two missing branches—executive and a legislature—in part because those would require standing elections on the part of global citizens. For now, at least, this appears to be a “concept too far” and nations are content to leave things that way.
- The UN of 2035, in terms of peace and security institutions, will probably look a lot like it does in 2016, even though its tools and agenda will evolve. The constitutional barriers to Charter amendment are high and, for all the complaints about the real inequities in the architecture of the UNSC, small states and aspiring powers have an enormous stake in maintaining the system and keeping the major military powers engaged in it.
- The majority of states will continue to value the UN and other multilateral institutions because of their ability to bestow legitimacy on a global, state-led agenda. Smaller states are also aware that multilateral institutions serve to protect their interests; without rules, major and regional powers would have more coercive power.

No Alternative to Multilateralism on the Horizon *(continued)*

- The role of international institutions will also be reinforced by the mutual embrace of these institutions by regional and subnational entities, international NGOs, philanthropic capitalists, multinational corporations, and individuals, which will ensure a certain continued centrality. Policy reforms and accommodations will occur when warranted, just as IMF voting practices have been reformed, and states with growing influence will renegotiate their roles.
- In pursuit of consequential action, multilateral institutions will deepen their engagement with companies, civil society organizations, local government offices and other authorities.

Harder Problems Ahead

Looking forward, the UN and its system of agencies will be less helpful in developing new standards for behavior on emerging issues, such as artificial intelligence, genome editing, or human enhancement, because of the diverging values and interests among states, private actors, and scientific and technological communities; because of the large knowledge gaps across technical and policy communities; and because technological change will continue to far outpace the ability of states, agencies, and international organizations to set standards, policies, regulations, and norms. All of these factors will serve as a brake on collective agenda setting. The challenge of future international governance will lie in the crossdisciplinary impact of these technologies and other challenges ahead, suggesting that coordination and strategic understanding of synergies across a range of issue areas—not depth in just one of them—is going to be needed for effective international governance to proceed.

- **Artificial intelligence, genome editing, and human enhancement.** Developments in artificial intelligence, genome editing, and human enhancement are examples of issues that are likely to pose some of the most contentious values questions in the coming decades by automating critical legal and security decisions affecting people’s lives and stretching the concept of what it means to be human. Developments in these technological areas will affect relations between states and between a state and its population. Given the potential promise and peril of these technologies, debate among states, private companies, publics, and religious actors at the global, regional, state, and local level will intensify. Proponents argue that major advances in these areas will cure diseases, reduce hunger, and increase longevity, but critics warn that such technologies risk permanently altering the human race—either accidentally or intentionally—and possibly leading to individual or group extinctions. Policies, laws, and treaties to manage such technologies will lag, because of the speed and distributed nature of their development.

Technological developments in cyber and space will also raise new normative challenges. We have only modest understanding as to what states, publics, and private actors will want to see as norms in these domains during the next two decades, but it is clear that private commercial actors will play a bigger role in shaping normative development across them.

- **Cyber.** Cyber attacks—encompassing the exfiltration, exploitation, and destruction of information—are likely to be more widely employed to advance state interests and punish adversaries during the next two decades, creating new challenges for the law on armed conflict and principles related to noninterference in a state’s internal affairs.
- **Space.** With more states and commercial firms stepping up their capabilities in space, traditional international approaches to govern these activities will be challenged, and developed countries will see their military and intelligence advantage ebb. Expanding use of space including from developing countries and private companies increase the importance of the international community retaining the ability to ensure safe operation in a more congested environment. But new technological capabilities will not be the only crossdisciplinary struggles. Many longstanding issues will increasingly appear together as elements of broader, complicated problems.
- **Ocean warming.** Ocean warming will cause fish to migrate to cooler waters and create resource challenges and local economic stress.
- **Climate.** Climate change will threaten agricultural output and increase fragility in rapidly growing poor countries.
- **Trade agreements.** Trade and economic agreements will require consensus on complex and contentious issues, such as genetically modified organisms, intellectual property rights, health and environmental standards, biodiversity, and labor standards, suggesting that global policy formulation will increasingly have meaningful domestic implications.

Coordination and synergy will be difficult for the UN when facets of a single issue are handled by different parts of the system.

- **Atrocity prevention.** Efforts to address atrocity prevention are scattered throughout the UN human rights and security bureaucracy. The UN is limited in its ability to address mass atrocities committed by nonstate actors, primarily because such situations often involve the absence of state authority and therefore lack a “valid” interlocutor. Tackling the problems associated with reinforcing sovereignty and governance are often essential to tackling the atrocities problem.
- **Countering terrorism.** On the criminal justice front, the International Criminal Court has difficulty exercising jurisdiction over active terror groups: most prosecutions are focused on state actors or militia groups, rather than “terrorist organizations,” in part because officials differ on how to define such a group. Despite these impediments, the ICC is likely to serve as a forum through which terror issues are debated and countered.
- **Human mobility.** The international mobility of people—primarily migrants, refugees, and internally displaced persons—is likely to stress state governance as population movements grow in scale, reach, and complexity, and as growing demographic disparities, economic inequality,

and the effects of environmental change among countries keep numbers of displaced and migrating people high. Environmental scientists' estimates of future environment-induced movement vary widely, from 25 million persons to 1 billion by 2050, with 200 million the most widely cited number. Debate over these numbers is heated: some migration experts argue they underestimate human resilience, the ability of people to endure hardships, and the share of future populations who will not be able to move. What is clear is that human movement is likely to increase substantially, prompting calls—similar to today's—for a review of state obligations to such populations.

An “a la carte” World

The increasing complexity of old and new challenges alike is generating new requirements for collective problem solving. How states approach issues is changing because of the increasing complexity of challenges, and because a greater number of states are needed to secure collective action at a time when there is a lack of consensus—particularly among major powers—on what the global goals should be.

Nevertheless, some remarkable recent landmark agreements suggest progress will continue to be possible in coming years:

- In June 2015, the General Assembly endorsed the Sendai Framework for Disaster Risk Reduction.
- In July 2015, UN member states adopted the Addis Ababa Action Agenda on financing for development.
- In September 2015, the UN General Assembly adopted the 2030 Agenda for Sustainable Development.
- In December 2015, the Twenty-First Conference of the Parties to the UN Framework Convention on Climate Change concluded with an agreement by 195 countries to strive to keep the global temperature rise below two degrees Celsius.
- And in 2016, the International Organization for Migration joined the UN.

A lack of overall shared strategic understanding continues, however, which has resulted in a prevailing mode of international cooperation that is problem-centered, ad hoc, and issue-specific rather than anticipatory, cross-disciplinary, or universal in scope. States, corporations, and activists line up behind their specific causes, and this ad hoc approach in the long term can potentially cause a loss of coherence and direction among international bodies—the UN and others—that make up the international system. The advantage, however, is that voluntary, informal approaches can help create trust, common language, and shared goals—benefits that can eventually lead to support for, or a rebalance, in agreement at an international level. Whether the current institutions can be effective in the future, or whether new institutions or parallel mechanisms are formed, will depend largely on how governments interact with a variety of actors and whether current institutions and major powers can help states negotiate mature bargains on core national interests that recognize the interests of others.

- **A greater number of states are necessary to secure collective, global action.** The number of states that matter—that is, states without whose cooperation a global problem cannot be adequately addressed—has grown. The aftermath of the 2008-09 financial crisis and the subsequent emergence of the G20 as a key group exemplify how a broader range of countries can lead to effective problem solving. The group, which had been in existence for almost 10 years before the 2008 global financial crisis, became the principal forum for global economic-crisis management, not because of a desire by major powers to be more inclusive, but because no state or small group of states could solve the impending problems alone. The UN Framework Convention on Climate Change is another example where, as a consequence of progress, more states—representing a diverse range of interests—need to act collectively to reach stated goals.
- **A growing number of actors are now solving and creating problems.** An increase in the number of private, regional, and subnational actors meaningfully involved in aid delivery, development and other economic issues, and human rights is likely to occur. This trend may diminish the role of state provision in these areas, but it could bolster overall goals put forward by international institutions. However, such networks cut in both directions: a more-interconnected “uncivilized” world—including groups as varied as ISIL and Anonymous—will challenge the fundamental basis of the system. And populism and xenophobia might grow, but new technologies may protect and possibly empower those who seek to enlarge the international human rights regime.
- **States are forum-building to create “shared” understanding on controversial issues.** States are building and participating in regional institutions, multi-stakeholder forums, and informal consultation processes to give greater visibility and voice to their interests and to solicit support for their views.
 - In formal settings, China and Russia have built new arrangements to assert what they see as their rightful dominance in their respective regions. China, for example, will promote the AIIB, and Russia, the Eurasian Union, as platforms for regional economic influence.
 - China and Russia together, with aspiring powers, Brazil, India, and South Africa, have also built a nonbinding summit platform known as the BRICS, to give themselves a transnational platform from which to promote their views. Mexico, Indonesia, South Korea, Turkey and Australia have also created a similar platform, MIKTA, based on shared values and interests.
 - These structures are emerging not because aspiring powers have new ideas about how to address global challenges or because they seek to change global rules and norms, but so they can project power—and because sometimes it is easier to get things done in smaller groups. However, these aspiring powers will continue to invest in traditional institutions—even as they create new ones—if only in recognition of the strength of today’s system.
 - Efforts to change the state hierarchy in existing institutions will continue, in an attempt to gain privileges. Structures that might seek to reorient the state hierarchy of power include the BRICS-led New Development Bank and the China-led AIIB (to complement the World Bank and IMF), the Universal Credit Rating Group (to complement the

private-sector Moody's and S&P ratings agencies), China Union Pay (to complement Mastercard and Visa), and CIPS (to complement the SWIFT payment-processing network).

- **Multi-stakeholder multilateralism will complement state efforts.** Government officials will dominate—but not monopolize—multilateral cooperation in the future. National regulators and technical experts will inform governance by engaging their counterparts abroad. This is already happening in the effort to ensure the safety and reliability of medicine in an age of complex supply chains. The US Food and Drug Administration, recognizing its own limitations, spearheaded the creation of an informal, “global coalition of medicine regulators,” to close drug-safety gaps worldwide, particularly with major producers like China and India. And a good model for how private authority might be involved in future global governance is the International Accounting Standards Board (IASB), which develops accounting standards for the 27 countries of the European Union, and about 90 other countries by drawing technical experts from large accounting firms who are organized by an independent foundation chartered in Delaware.

Key Choices

One way to address the future constellation of challenges is for national political leaders to generate strategic guidance calling for interdisciplinary relations across institutions. In finance, some actors are already experimenting with such a model. By better understanding the synergies embedded in multisectoral agendas, such as the Sustainable Development Goals, both states and institutions can better advise and support positive outcomes. Political leaders will be key as only heads of state have the authority to press crossministerial agendas within their states. Such an approach will be a necessary counterbalance to what is now a very siloed international system.

- A new, more broadly defined, more widely conceived definition of national interest, based on the concept of mutuality, might induce states to find far greater unity in deliberations at the international level. With the growing number of existential challenges facing humanity, “collective interest” could become “national interest.”

However, the following developments remain uncertain:

- **Whether adequate resources will be available to enable coalitions of states and international organizations to address and lead programmatically on common challenges.** This will depend in part on governments treating international commitments with the same importance as national demands—rather than viewing them as competing priorities—mobilizing coalitions to support these priorities, and enjoying their public's trust. It also depends on the role large-scale private partnerships and foundations take on—including organizations such as the Gates Foundation, the Global Alliance for Vaccines and Immunization (GAVI), the Global Fund to Fight Aids, Tuberculosis and Malaria, and the Global Education Fund—in developing an approach to funding and delivering critical programs on the ground.
- **Whether the monitoring and compliance tools of international organizations will serve as confidence-building measures to reduce geopolitical tension.** This will depend on state willingness to accept election monitors, weapon inspections, and other compliance agreements outlined in international agreements. For example, the UN mission to eliminate Syria's chemical

weapons program was marked by extraordinary international cooperation and represented the first time an entire arsenal of a category of weapons of mass destruction has been removed from a country experiencing internal armed conflict.

- **To what degree elites will be effective in guiding institutions and states through global transitions, and in promoting a strategic vision on crucial issues such as mitigating climate change and navigating global commons.** Leadership among international institutions will need to promote a long-term perspective and a global mentality—and be decisive in the short term—to overcome the temptation toward insularity and muddling through.
- **To what extent private actors will involve themselves in international rule making, enforcement, or dispute resolution—areas traditionally the responsibility of a state or public authority.** National and international laws are established and enforced differently in various state legal systems, but most—if not all—involve state authority. Rule-making, enforcement, and dispute resolution by private actors, however, is becoming more common. For example, the eBay/PayPal resolution center works in 16 different languages and solves roughly 60 million disagreements between buyers and sellers each year. Deepening internet penetration allows self-policing among online communities, which can now shame those whose behavior does not conform to the norms of the group. These mechanisms are not accessed and used to the same degree by societies across the world, but they do represent behavior that contributes to governance, and over time will provide a broader array of venues in which people might choose to act.



HOW PEOPLE FIGHT . . .

The risk of conflict, including inter-state conflict, will increase during the next two decades because of diverging interests among major powers, ongoing terrorist threats, continued instability in weak states, and the spread of lethal and disruptive technologies. The last 20 years' trend of decreasing numbers and intensities of conflicts appears to be reversing: current conflict levels are increasing and battle-related deaths and other human costs of conflict are up sharply, according to published institutional reports. Furthermore, the character of conflict is changing because of technology advances, new strategies, and the evolving global geopolitical context—challenging previous concepts of warfare. **Together these developments point to future conflicts that are more diffuse, diverse, and disruptive.**

- **“Diffuse” because the greater accessibility to instruments of war will enable a variety of actors, including states, nonstate and substate entities (terrorist groups, criminal networks, insurgent forces, mercenaries, and private corporations), and motivated individuals, to engage in conflict.** One example of the diffusion of conflict is the growth in the numbers of private military-security firms and organizations that provide personnel who complement and substitute for state militaries in conflict zones and potentially as peacekeeping forces. Conflicts will become more complex and the traditional distinctions between combatants and noncombatants less meaningful as the range of participants expands.
- **“Diverse” because the means of conflict will vary across a wider spectrum—ranging from “nonmilitary” capabilities, such as economic coercion, cyber attacks, and information operations, to advanced conventional weapons and weapons of mass destruction (WMD)—and occur in multiple domains, to include space and cyberspace.** The diversity of the potential forms of conflict that might arise will increasingly challenge the ability of governments to prepare effectively for the range of possible contingencies.

- **“Disruptive” because of an increasing emphasis by states and terrorist groups, on disrupting critical infrastructure, societal cohesion, and government functions rather than on defeating enemy forces on the battlefield through traditional military means.** Adversaries will almost certainly seek to exploit greater connectivity in societies and the ubiquitous nature of cyberspace to create disruption. Terrorists, for example, will continue to exploit social and other forms of media to spread fear and enhance the disruptive impact of their attacks on the psyche of the targeted societies.

Major Trends

Four overall trends are likely to exemplify the changing character of conflict during the next two decades regarding how people will fight:

The blurring of peacetime and wartime. Future conflicts will increasingly undermine concepts of war and peace as separate, distinct conditions. The presence of nuclear and advanced conventional weapons will contribute to deterring full-scale war among major powers, but lower levels of security competition will continue and may even increase. Such conflicts will feature the use of strong-arm diplomacy, cyber intrusions, media manipulation, covert operations and sabotage, political subversion, economic and psychological coercion, proxies and surrogates, and other indirect applications of military power.

- The goal of these approaches is to stay below the threshold of triggering a full-scale war by employing mostly noncombat tools, often backed by posturing of military power, to achieve political objectives over time. This trend is already occurring: China’s and Russia’s actions—in the South China Sea and Ukraine respectively—are contemporary examples of this approach.
- While such approaches to conflict are not new, states like China and Russia view these methods as an increasingly integral part of future conflicts compared to traditional military capabilities. Technology advances, such as cyber tools and social media, are also enabling new means for conducting conflicts and sowing instability, below the level of full-scale war. These capabilities also will often obfuscate the source of attacks impeding effective responses.

These strategies, combined with a continuing risk of periodic terrorist attacks, will probably lead to persistent, economic, political, and security competition—occurring in the “gray zone” between peacetime and full-scale war—as the new normal for the security environment during the coming decades.

- States’ employment of “gray zone” approaches seek to avoid general war but will probably increase the risk of inadvertent escalation, through miscalculation, accident, or misinterpretation of adversary “red lines.”
- States and nonstate entities alike will employ “nonmilitary” tools, such as information networks and multimedia capabilities, to exploit faith-based ideologies, nationalism, and other forms of identity politics to legitimize their cause, inspire followers, and motivate like-minded individuals to take actions. China, for example, views media, legal, and psychological forms of warfare—the “three warfares”—as important to ensuring international and domestic support for future Chinese military operations and for weakening an enemy’s resolve, according to Chinese military writings.

Nonstate groups capable of creating greater disruption. The spread of disruptive and lethal technologies and weapons will enhance the ability of nonstate and substate groups—such as terrorists, insurgents, activists, or criminal gangs—to challenge state authority. Such groups, motivated by religious fervor, political ideology, or greed, are likely to become more adept at imposing costs and undermining state governance. For example, activist groups, such as Anonymous, are likely to employ increasingly disruptive cyber attacks against government infrastructure to draw attention to their cause. Nonstate groups will also wield greater firepower. Terrorist groups, like Hizballah and ISIL, or insurgents in Ukraine are examples of nonstate and substate groups that have gained access to sophisticated weaponry during the last decade.

- This trend is likely to continue because of the ongoing proliferation of commercial technologies and weapons and the support from states that seek to use such groups as proxies in advancing their own interests. The proliferation of increasingly lethal and effective, advanced, man-portable weapons and technologies, such as antitank guided missiles, surface-to-air missiles, unmanned drones, and encrypted communications systems, will enhance the threats posed by terrorist and insurgent forces. Access to weaponry, such as precision-guided rockets and drones, will provide such forces new strike assets to attack key infrastructures, forward operating bases, and diplomatic facilities.

Such groups also will probably exploit commercial technologies—such as additive manufacturing, autonomous control systems, computer processors, and sensors—to create tailored weapons and “intelligent” improvised explosive devices, complicating the development of countermeasures. These groups will often seek to enhance their effectiveness and survivability by operating in urban environments.

- The spread of lethal and disruptive technologies will provide opportunities for insurgents, terrorists, and weak militaries to conduct “irregular” forms of warfare more effectively. The use of satellite navigation systems and mobile communications will enable more effective, coordinated, small-unit attacks and dispersed operations to impose casualties and wear down an opponent’s resources and political resolve while avoiding large-scale, direct engagements with superior military forces.
- A potential implication of an increasing privatization of violence and diversity of actors is the emergence of many small, but interconnected conflicts that overwhelm the ability of governments and international institutions to manage.

Increasing capabilities for stand-off and remote attacks. The proliferation of cyber capabilities, precision-guided weapons, robotic systems, long-range strike assets and unmanned-armed, air, land, sea, and submarine vehicles will shift warfare from direct clashes of opposing armies to more standoff and remote operations, especially in the initial phases of conflict. Precision weapons and unmanned systems have been a mainstay of the US arsenal, but the continuing proliferation of these capabilities increases the potential of both sides possessing these capabilities in a future conflict. Long-range, precision-guided, conventional ballistic and cruise missiles, unmanned vehicles, and air defense systems will enable advanced militaries to threaten rival forces seeking access to the air and maritime commons surrounding their territory. The development of scramjet engines and hypersonic vehicles will also significantly increase the speed at which targets are engaged. For example, developing long-range precision strike capabilities—including missiles, hypersonic vehicles, and manned strike assets—are

critical to China's strategy of increasing the risks to US naval and expeditionary forces operating in the western Pacific, according to US military experts.

In addition to countering foreign military intervention, long-range, standoff capabilities might enable some states to assert control over key maritime chokepoints and to establish local spheres of influence. Cyber attacks against critical infrastructures and information networks also will permit actors to impose costs directly on rivals from a distance, bypassing superior enemy military forces. Russian officials, for example, have noted publicly that initial attacks in future wars might be made through information networks to destroy critically important infrastructure and disrupt an enemy's political and military command and control.

- The increasing automation of strike systems, including unmanned, armed drones, and the spread of truly autonomous weapon systems potentially lowers the threshold for initiating conflict, because fewer lives would be at risk. Adversaries also might employ massed "swarms" of unmanned systems to overwhelm defenses.
- The proliferation of long-range, precision-guided weapons will probably promote cost-imposing strategies involving strikes on critical infrastructures, such as those related to a state's energy production, communications, diplomatic facilities, economy, and security.
- A future crisis involving militaries similarly equipped with long-range, precision-guided conventional weapons risks being unstable, because both sides would have an incentive to strike first, before their own systems are attacked. In addition, command, control, and targeting infrastructure—including satellites that provide navigation and targeting information—would probably become targets of attacks for forces seeking to disrupt an enemy's strike capabilities. Russia and China continue to pursue weapons systems capable of destroying satellites on orbit, placing US and others' satellites at greater risk in the future.
- Terrorist groups will almost certainly engage in a "poor man's" version of long-range strike by recruiting and inspiring like-minded individuals to carry out terrorist acts in the homelands of other countries.
- Cyber attacks against private sector networks and infrastructure could induce a response that draws corporations into future conflicts. This trend, combined with opportunistic cyber attacks by individuals and nonstate groups, will muddle the distinction between state-sanctioned and private actions. Protecting critical infrastructure, such as crucial energy, communication, and health systems, will become an increasingly important national security challenge.

New concerns about nuclear and other WMD. During the next two decades, the threat posed by nuclear and other forms of WMD will almost certainly remain and will probably increase as a result of technology advances and increasing asymmetry between rival military forces. Current nuclear states will almost certainly continue to maintain, if not modernize, their nuclear forces out to 2035. Russia, for example, will almost certainly remain committed to nuclear weapons as a deterrent, a counter to stronger conventional military forces, and its ticket to superpower status. Russian military doctrine purportedly includes the limited use of nuclear weapons in a situation where Russia's vital interests are at stake to "deescalate" a conflict by demonstrating that continued conventional conflict risks escalating the crisis to a large-scale nuclear exchange.

- Similarly, Pakistan has introduced short-range, “battlefield” nuclear weapons that it has threatened to use against Indian conventional incursions, which lower the threshold for nuclear use. Nuclear “saber-rattling” by North Korea—including its development of ICBMs—and the possibility that Iran might renege on its commitments under the Joint Comprehensive Plan of Action and the Non-Proliferation Treaty and develop nuclear weapons also will probably remain concerns during the next two decades.
- In addition, the proliferation of advanced technologies, especially biotechnologies, will potentially reduce the barriers to entry to WMD for some new actors. Internal collapse of weak states could open a path for terrorist WMD use resulting from unauthorized seizures of weapons.
- At-sea deployments of nuclear weapons by India, Pakistan, and perhaps China would nuclearize the Indian Ocean during the next two decades. These countries would view these developments as enhancing their strategic deterrence, but the presence of multiple nuclear powers with uncertain doctrine for managing at sea incidents between nuclear-armed vessels increases the risk of miscalculation and inadvertent escalation.
- The technical barriers to developing biological agents into weapons of societal disruption or terror probably will shrink as the costs of manufacturing decreases, DNA sequencing and synthesis improves, and genetic-editing technology become more accessible on a global basis.
- Some states are likely to continue to value chemical agents as a deterrent and for tactical use on the battlefield. The ease of manufacturing some chemical weapons will make their potential use of by terrorist or insurgent groups a concern.

Key Choices

The implications of how people fight in the future will depend heavily on the emerging geopolitical context and decisions made by major actors that increase or mitigate risks of conflict and escalation.

Although US relative advantages are decreasing in some areas, the United States will almost certainly retain key security and military advantages compared to other states as a result of the country's economic strength, favorable demographic profile, geographical position, technology edge, openness to information, and alliance systems, providing Washington opportunities to shape the emerging security environment. However, other states and nonstate groups will continue to view the US military as an object of competition—as well as for emulation—in developing their own concepts and capabilities for future war. Furthermore, key uncertainties remain about the future likelihood of major war, its costs, and potential for escalation. These uncertainties also suggest potential opportunities for the United States and its partners to mitigate worst outcomes through confidence-building measures, increasing resilience, and promoting international agreements to restrict the development and use of the most unstable escalatory capabilities.

How global and regional players respond to future geopolitical developments and security challenges, such as transnational terrorism, sectarian violence, intrastate conflict, and weak states will significantly shape inter-state competition and the potential for wider conflict during the next two decades.

China, Iran, and Russia will probably seek greater influence over their neighboring regions and will want the United States and other countries to refrain from interfering with their interests, a situation likely to perpetuate the ongoing geopolitical and security competition occurring around the periphery of Asia and in the Middle East, to include the major sea lanes. Tension between major and regional powers also could increase in response to the global redistribution of economic and military power and the rise of nationalism in state politics. The diversity of security threats and the potential for future, multiple, simultaneous regional contingencies risk overwhelming the capacity of the US military to manage, emphasizing the continuing need for competent military allies and multilateral approaches.

- The choices that major powers make in response to increasing competition will determine the likelihood of future conflicts. Constraints that inhibit full-scale war among major powers, such as nuclear deterrence and economic interdependence, will probably remain. However, changes in the character of conflict will probably introduce greater risk for miscalculation that would increase the likelihood of major-power conflict, unless competing states undertake mitigating confidence-building measures.
- The continuing threat of transnational terrorism and state use of “gray zone” strategies would probably increase the incidents of external powers intervening in future intrastate conflicts and engaging in proxy wars. Cooperation among major powers and international institutions in resolving intrastate conflicts could bring much needed stability. However, the involvement of a diversity of actors with competing objectives risks prolonging and expanding local conflicts, creating broader instability.

The proliferation of long-range strike systems and cyber attack capabilities and more sophisticated terrorist and insurgent operations suggests a trend toward increasingly costly but less decisive conflicts. The strategies of major powers and nonstate groups that emphasize disrupting critical infrastructures, societies, government functions, and leadership decisionmaking will exacerbate this

trend and increase the risk of future conflicts expanding to include homeland attacks. The character of future conflicts would change significantly if an unexpected advantage in cyber attack capabilities creates the ability to cripple advanced, information-dependent military systems found in most modern militaries.

- Future conflicts will probably be fought in multiple domains beyond traditional air, land, sea, and undersea domains to include computer networks, the electromagnetic spectrum, social media, outer space, and the environment—as adversaries seek competitive advantages and new means of imposing costs. Future conflicts in the environmental domain, for example, are likely to involve controlling access to water supplies or intentionally creating environmental damage to impose economic costs on rivals.
- Efforts to enhance resilience, by increasing the security and redundancy of critical infrastructure and networks, deploying defensive systems, and enhancing societal emergency preparedness levels, for example, would decrease the ability of adversaries to impose crippling costs.

Advances in military capabilities, such as unmanned, automated weapon systems and high-speed, long-range strike systems, which reduce response times, are likely to create new, but uncertain, escalation dynamics in times of crisis. Furthermore, the rapid pace of technology developments—in areas such as cyber, genetics, information systems, computer processing, nanotechnologies, directed-energy, and autonomous, robotic systems—increases the potential for surprise in future conflicts.

- Conflicts with an asymmetry of interests and capabilities among the combatants are probably most ripe for deliberate or inadvertent escalation, as some states might choose to threaten escalation against a superior conventional force—including WMD use—to deter a military intervention or to compel a cease-fire.

The Changing Character of Warfare

TRADITIONAL FORMS OF WARFARE	EMERGING FORMS OF WARFARE
Use of military force	Increasing use of nonmilitary and covert means
Targeting of enemy forces	Targeting of enemy perceptions, society
Direct clash of militaries	Remote strikes using standoff precision weapons, robotic systems, and information attacks
Destruction of military personnel and weaponry	Destruction of critically important military and civilian infrastructure
Deterrence by fear of retaliation	Deterrence by fear of escalation
Winning by defeating the enemy on the battlefield	Winning by disrupting the support systems (political, economic, information, etc.) on which the enemy military depends



TERRORISM

The means for states, nonstate, and substate actors to impose harm are diversifying, as are the motivations for doing so. These trends will further blur the lines between different forms of violence; governments will continue to debate which actions constitute “terrorism” versus “war,” “insurgency” or “criminal acts.” These developments suggest that how we fight terrorism will probably continue to evolve.

The trends shaping the future of terrorism during the next five years and beyond will depend heavily on how two ongoing developments are resolved. First, the resolution or continuation of the many intra- and inter-state conflicts currently under way—most important, the Syrian civil war, but also conflict in Afghanistan, Iraq, Libya and the Sahel, Somalia, Yemen, and elsewhere—will determine the intensity and geography of future violence. The spread of ungoverned space, particularly during the past five years, created an environment conducive to extremism and encouraged the enlistment of thousands of volunteers eager to fight. Until some semblance of security is established, militancy will continue to breed.

Second, today’s foreign fighters unless identified, deradicalized, and reintegrated back into society are likely to become the recruiting pool for tomorrow’s violent nonstate actors. Similarly, disaffected migrants, without better integration, education, and economic opportunity, could become an ideal recruiting pool for violent extremist groups.

- States or regions where governments lack the capacity or will to maintain security or provide political and economic stability, correspond with areas that experience high degrees of violence and where extremism flourishes. A lack of stability and responsive governance—especially in Africa, the Middle East, and South Asia—will continue to create conditions conducive to terrorism.

Extreme minority interpretations of religion will probably remain the most frequently cited justification for terrorism—certainly five years from now and, likely, also 20 years into the future. Three drivers are notable: 1) the likely continuing breakdown of state structures in much of the Middle East and the proxy war between Iran and Saudi Arabia fueling Shia-Sunni sectarianism; 2) tension between and within various forms of militants citing religion, and a continued perception of Western hegemony; and 3) retention of the “far enemy” ideology among extremist movements.

Although the location of religiously driven terrorism will fluctuate, the schism between Shia and Sunni, and between extremist Sunnis and who they regard as “nonbelievers” seem likely to worsen in the short term and are unlikely to abate by 2035. Violence becomes more likely when a powerful ideology like Salafi-jihadism, whether ISIL’s or al-Qa’ida’s, in a region undergoing vast and rapid political change combines with generations of autocratic government, gender inequality, and economic disparities.

A combination of psychological and situational factors will drive participation in terrorism and help terrorist groups attract resources and maintain cohesion. The relative weight of motivating factors for recruits and supporters is highly individualistic and situational, making it difficult to generalize. Nevertheless, some of the most important drivers of individual participation will be:

- **Disenfranchisement, repression, and humiliation** can drive people to seek power and control through violence. Some level of alienation, arising from disconnection from the sociocultural mainstream, inability to participate in the political process, coping with diminished opportunity for marriage, or inability to attain one’s perceived “deserved” economic benefits and status from society will remain consistent sources of grievance-driven violence. Such frustrations can affect any walk of life; the pool of potential terrorists is not limited by social class, economic status, or educational background. Additionally, perceived grievances against a common group, or ethnic and kinship bonds—to include peer, social or familial networks—will motivate retaliation or violence against alleged perpetrators. Individual desire for adventure, fame, and belonging will contribute to individual terrorist participation.
- The “denationalizing”—the loss of connection with their community of origin of young people in European cities, combined with the lack of effective incentives to assume a European national identity, will continue to generate potential recruits for extremist organizations.
- Ethnic and religious tension beyond today’s hotspots will cause eruptions of nationalist and communal violence and terrorism, such as between Chechens and Russians, the Malay and Thais in Thailand, Muslims and Buddhists in Burma, and Christians and Muslims in Central Africa. Such developments create conflict zones for transnational terror movements to exploit.
- Environmental change related to degraded soils, water resources, biodiversity and increased frequency of extreme and unusual weather, particularly the impact of climate change, is likely to amplify pressure on fragile and failing states to provide sufficient food and water to stressed populations. The interactions between chronic and acute stresses in local and regional food,

water, and energy systems has led to failure of some governments—especially in the Middle East and Central and South Asia—to meet popular demands or address perceptions of unequal distribution of scarce resources, which might prompt future violent behavior by populations seeking redress.

Technology will introduce a new set of tradeoffs, facilitating terrorist communications, recruitment, logistics, and lethality, but also giving authorities more sophisticated techniques to identify and characterize threats. Technology will enable nonstate actors to mask and obfuscate their activities and identities and will be key to their ability to talk to one another, recruit new members, and disseminate messages. Advancements in technology also raise the stakes for a high-impact, low-likelihood terrorist WMD scenario and enable the proliferation of more lethal, conventional weaponry to terrorist groups

- Technology will enable further decentralization of threats to devolve from the relatively organized and directed al-Qa’ida to an atomized jihadist militancy. This trend will pose challenges to counterterrorism efforts and change the nature of future terrorist plots and strategies.

Previous waves of terrorism have peaked and declined over the course of multiple generations. The current religiously motivated wave of terrorism—which, arguably has dominated global terrorism since the mid-1990s—is different from previous waves in terms of motivation, reach, mobilization, and justification and will probably last considerably longer. Current religious conflicts are intensifying rather than abating, as the Sunni–Shia schism and ISIL’s rise are increasing extremism and polarization worldwide. Just as Usama bin Ladin’s contemporaries who went to Afghanistan became the core of al-Qa’ida a decade or more later, the current generation of youth now being radicalized by ISIL (and other various extremist groups) are likely to dominate the Sunni extremist scene for the next 20 years.

- Despite the current intensification of terrorism, it is possible that significant reductions in the Middle East and North Africa could occur if states are able to address terrorism’s underlying drivers. The ability of governments to institute political and economic reforms that address many grievances and perceptions of disenfranchisement also would contribute to discrediting extremist ideologies as the only means for achieving reform.
- In the future, gender will probably play an increasing role in counterterrorism, especially related to countering narratives promoting violence as a prerequisite to political reform. Several international nongovernmental organizations are working on the issue. The McKinsey Institute’s study on mothers and wives, for example, concluded that women—and mothers in particular—possess the unique ability to recognize early warning signs of radicalization in their children enabling them to play a key role in curtailing violent extremism. Empowering women to express their perspectives within their households and their societies is a key counterterrorism investment. However, framing women exclusively as peaceful will cause policymakers to miss important opportunities for information gathering and prevention tools. Women also play an active role in promoting, recruiting, and committing violence. On 4 September 2016 French police discovered an abandoned car full of explosives parked near Notre Dame Cathedral in Paris. Discovery of the car led to the disruption of a female terrorist cell with ties to ISIL.
- Ideas about gender roles and masculinity are also likely to influence counterterrorism as information technology and the sharing of ideas broaden perceptions of acceptable ‘masculine’ behaviors. Studies show that violence is sometimes linked to feelings of injured masculinity;

when men cannot fulfill traditional roles of husbands, fathers, or providers, they may turn to violence to demonstrate their masculine power or ability to defend their people and values. Encouraging modification of concepts of gender norms, which has been undertaken by several NGOs, may also help ameliorate the link between masculinity and violence at all levels.