

UNCLASSIFIED

Be Careful What You Wish For...

Challenge to Nation State Power and Influence	Gap in Global Standard of Living	U.S. Economic Competitiveness	Perception of Serious Threat to U.S. Security and/or Quality of Life
Low	Decreasing	Strong	Low

*Summary*

Not without problems, 2030 is a world of excitement, opportunity, freedom, and technological wonders. Democratic governments have emerged and prospered in all regions of the globe. The global economy is growing and wealth is being distributed more evenly than ever before, although significant areas of poverty, and even desperation, remain. Nation-states still command the global political landscape, but conflicts are usually low level and typically resolved through peaceful means. The world economy is different than forecasters in the early 2000s might have envisioned it. Social turmoil in China added to nearly six years of on-again, off-again geological instability in the Pacific Ring of Fire (from the Solomon Islands to Japan and the Aleutians and down the Americas' West Coast to Chile) has brought about the near disappearance of fragile Just-In-Time supply chains. In place of these systems the investment portfolios of large organizations now emphasize resiliency, risk management, and geographic dispersion. The result, to a greater degree than ever before, has been manufacturing sites and transportation systems spread across the globe and new fast-growing middle classes in Asia, Africa, and Latin America. The world faces a globally acknowledged environmental crisis, with recently revived forecasts of rising sea levels, created by a combination of human and natural causes. There is a U.S.-initiated worldwide movement – Heal the Earth and Reach for the Stars – that exerts a strong influence on government, social, and technological agendas. The U.S. is well off and well regarded, but, as the policeman and global first responder, is stretched very thin, indeed. The U.S. is finding that participating and leading in a world made up of activist fellow democracies is more chaotic and challenging than might ever have been foreseen in the early 2000s.

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March 2030, U.S. and Over the Pacific

Once my decision is made, once the world knows it was me, competitors, real estate speculators, construction firms, my own damn neighbors (!) will never leave me alone, Chris Johnson thought, as he walked down the passenger ramp to the SST's first-class deck. What was that term? Stalking – that's it. I'll be stalked for decades to come, no matter where I travel, no matter what I do. Softbots will track every bloody cyber-search and purchase I make.

Of course, they knew I couldn't resist the challenge!

Chris shivered, but not from the fear of a life in a fishbowl after this trip (well, not entirely). It was the temperature in the jet way – 40 degrees at LAX in May. At least, this is just an unusual cold snap. Fifteen years ago this was almost normal, thought Chris, as he remembered the four years that followed the Solomon Eruptions of 2015. Volcanic ash from those eruptions had cooled the earth for nearly three years. The global community now refers to 2016 as the “year of no summer” – reminiscent of the same phenomenon in 1816 following the 1815 eruption of Tambora in Indonesia. 2015 to 2019 was a brief but terrible time of health crises, food shortages, and massive movements of panicked refugees across the globe. Beginning in 2015 the entire Ring of Fire (the fault lines running from the Solomon Islands to Japan, the Aleutians, and down the West Coast of the Americas) had become suddenly unstable with multiple volcanoes and earthquakes.

Plant geneticists jumped on that one right away, since no one knew just how long sustained cold weather might be around, if the eruptions continued. That made him smile. His daughter was so proud of her research work.

“We can feed the world, Dad. I don't care how cold it gets, if we get more ash in the future. And if it just keeps getting warmer and warmer, as it *certainly* is now, we can handle that, too. You should see what we can do. We are making awesome progress.” Thinking about the vidcall with his daughter last night (and the image of his four-year-old grandson) kept him smiling as he found his lounge seat. Her university had sent her to work with a partnering bio-genetics company in Brazil eight months ago and it had been that long since he had held his grandson – *too long!* Now it might be longer, since part of the reason for the last vidcall was to discuss the job offer (with stock options) that the Brazilians had just made to her – Director of Research.

“Ladies and Gentlemen. The Captain has just been informed that air traffic in Singapore is forecast to be very heavy at our scheduled arrival time. We have been placed on ground hold for 45 minutes. We apologize for this inconvenience and will inform you of any further changes. Your holo screens and all cyber-connections will remain active for the ground hold period, then will be re-established once airborne.”

Chris was an experienced traveler and air traffic congestion and delays anywhere in South Asia were so common that he was unfazed. The congestion resulted from the sheer volume of traffic. However, delays also occurred if active volcanoes were ejecting ash into flight paths. Ever since several emergencies in the 1980s over Indonesia, airlines have been willing to go to extraordinary

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lengths to avoid the acid-laden ash that can stall turbine engines. Chris had a lot of work to do, but...later. He passed his finger through the recline icon, and then the massage icon that hovered before him in holo. Next he “touched on” the news icon, selected the Indian network IBN (his final destination), and then selected commentary. Like the Indian government and business communities, IBN was unashamedly pro-American. The topic (as it often was these days) was the global fishing ban.

The world's most obnoxious nations are once again complaining about U.S. bullying. Yet more neophyte democracies are joining together with China to see if they can muster enough diplomatic and military power to force the U.S. to reconsider its activism. Those same nations, just two weeks ago, were praising the U.S. response to another series of earthquakes in the Kiribati atolls. The U.S. must wonder at what it has wrought.

Over the past 15 years the world has sought to remake itself for the better. Democracy has spread far and wide. The world economy is strong and wealth is slowly being shared with the poorest among us. We have all **finally** taken the problems of our environment seriously. All this and more would never have come to pass without U.S. leadership, energy, and toil. Now that U.S. resources seem stretched, naysayers would stab them in the back – trying to prevent the U.S. from doing what must be done, by claiming it is the will of their own people! The way democracy is being manipulated to serve the baser instincts should be a source of concern across the globe. It is also a cautionary tale for the U.S., which worked so hard for global democracy: Be Careful What You Wish For, You Might Get It.

That, thought Chris, is solid advice. We pushed so hard – worked so long – to see democracy take root globally. Oh, how we congratulated ourselves. Talk about unanticipated results! Not only do the new democracies lecture us over “appropriate democracy”; not only do they occasionally form anti-U.S. coalitions to contain American power (and then the next week call for American leadership!), but look at Egypt! The people of Egypt actually elected a radical anti-democratic government that now threatens Middle East stability. Not only can they claim the will of Allah, but also the democratically expressed will of the people!

On the other hand, for all its complexities, the world is doing quite well. Democracy and capitalism really do work rather well together. And, most nations are turning their attention to peaceful pursuits such as economic growth, education, and infrastructure development. Which is all the better for what I have in mind.

Indian local news and weather followed, but held nothing new or interesting, so he switched to global news.

...but Iran has agreed to curtail those activities. The Mozambique government today announced the tax reforms and new farmer mortgage program that investors had been hoping to see. Several markets, including the Carbon Credits Market, reacted favorably. In environmental news the Ice Watch Program has

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released its newest reports. After almost two decades of on-again, off-again ice sheet melting that led to claims and counter-claims concerning the extent of global warming effects, intensive recent research has led to disconcerting conclusions. Since the early 2000s, sea levels have risen 20 centimeters, 10 of those centimeters in the last decade. That modest increase is about to end. Melting at both the Greenland Ice Sheet and, to a lesser extent, at the Western Antarctic Ice Sheet has accelerated to what Dr. Malcolm Glynn, Chairman of the Ice Watch Program, describes as non-linear melting. Speaking for the conclusions of the over 200 scientists in the Ice Watch, “Summer surface run-off has increased quite dramatically, especially in the last decade, extending into spring and fall, and glaciers are calving at five times the rate and mass of ten years ago. Perhaps most alarming is the significant increase in flowing melt water between the ice sheets and the bed rock.” The Ice Watch Program report finds that alarming because ice sheet slippage over bedrock can lead to massive ice displacement into the ocean and an unpredictable sea-level increase potentially measured in tens of meters in the next century. Dr. Glynn continues, “We are paying for natural and man-made warming and we will now measure the time for ice melt in decades rather than centuries. We should be prepared for ½ to 1 meter sea-level rise in the next 15 years.” Ice Watch models and real-time sensor take can be found at site LLG.GLOBAL-ICEWATCH-2B882.UN.

As the engines fired up and Chris had to shut down the holo, he considered the implications of the ice melting. *None of my current site work will be affected, but headquarters has some serious things to worry about. Since some of my assumptions are based on local discretionary income, I had better look into how this might affect the economic conditions in my target areas.* Once up in the air, he wanted to get to work. Five years on the job had all been research and preparation. During that time, they had narrowed it down to two possible countries: India and Brazil. But India had three potential locations still on the list and he wanted to spend time familiarizing himself with all the data he could. He was faced with a dilemma. Singapore Air was owned by the government and the Singapore government of 2030 was not well known for its adherence to the privacy considerations of visiting businessmen and women. *For that matter, he looked around the cabin, who knew what corporate business intelligence systems might be operating in here from someone’s personal comp?* If any on-board net picked up his work (*a given*, he thought), then searches would connect him to his real employer – all easily possible in the two days before he touched down in Bangalore. That inside data would be sold to interests in the Bangalore area and he would fail to get what he needed.

He could activate his privacy shield. His company had purchased the finest on the market and spent a year making it better. He had not turned it on, yet – couldn’t, given airport perimeter and facilities sensor nets. It was actually designed for him to use in India and Brazil, when he would be acting under assumed names and false company affiliations. *No, better save it for when I really need it*, he decided.

Doing what he could, he set his holoscreen to private, disconnected the automatic cyber-connection for both comp and patch phone, and engaged the comp’s privacy program – itself very high-end, but still a standard commercial product. He set the display to show the same data on all

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three Indian sites side by side. So, for example, he could look at the ground-based economic infrastructure surrounding all three sites at the same time. The data was rich in text and graphics.

After a minute, he grinned internally. *I hate the fishbowl that modern sensor nets put me under, he thought, but I absolutely love the data I can access and synthesize from those same global nets. Well, I have to admit that suppressing the spread of disease, serious crime, terrorism, and truly awful things like slavery have been thanks to that sensor net I “hate” so much. And walking through airports and train terminals without ever seeing a line, but still knowing I’m safe and healthy, is nice, too. I didn’t really buy all that “Heal the Earth, Reach for the Stars” stuff that President Street pushed on the world. Well, not at first anyway – I guess I’m a convert now, despite the pain-in-the-butt regulations. However, I do surely like the take from all those environmental sensor nets that got established – satellites, Uncrewed Air Vehicles, Uncrewed Underwater Vehicles, micro-sensor swarms, you name it. It’s fantastic – time series, multi-spectral, linked databases. Except for prices and a few other things you can only get on the ground, this data takes so much of the risk out of my decision.*

March 2030, Bangalore, India

Three days later in India Chris was operating under the assumed identity of Todd Becker (privacy shield in place) scouting a location for a U.S. manufacturing company (rumored to be the new Foley Enterprises energy systems firm). No one in the Bangalore area was surprised by Chris’s (that is, Todd’s) scouting expedition. India had long been the happy recipient of the new supply chain and distributed manufacturing philosophy of the Americans and Europeans. The political turmoil in China in the mid-2010s immediately followed by the disastrous and continuing geological instabilities in the Ring of Fire had changed the face of modern industrial supply chains. Today robustness and redundancy are in style, even if it results in some inefficiency and some higher costs – the long-term risks have decreased and insurance rates are significantly lower. That means more plants in more diverse locations. That in turn has been a boon to the Indian economy (among others), which has spurred the growth of the middle class and strengthened democracy. The Indians like the Americans and U.S.-Indian business partnerships abound.

He had narrowed things down to two sites pretty quickly. (One had a holdover groundwater pollution problem, only recently discovered, but unlikely to be fixed any time soon.) It looked like he might get out of India a few days early. He called his wife, Stacey, to let her know of the likely change in plans.

“Toddy,” Stacey said (she loved doing that to him), “I just got off the phone with Julie and Miguel. Miguel’s company just won a \$25 million contract to train the South African Border Guard. Julie will move with him and I’ll miss her, but I am so happy for his success. Oh, remember to buy something cool and ‘Indian’ to take as a gift to your grandson – don’t leave that ‘til the last minute and make an airport purchase.” He grimaced, *that woman knows me too well!* He thought for a minute about what her request implied. *Fifteen years ago everyone thought that the whole world would be filled with Baby Gaps and Wal-Marts. But globalization has not turned*

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out to mean mediocrity or “sameness” wherever you go. There really is an up side to an emphasis on national distinctions – cool, unique stuff to waste money on. I love that!

He was really happy for Miguel. He and his partners had worked long and hard on that proposal. *Maybe it wasn't really that much of a risk*, thought Chris as he turned off his patch phone – the new one registered to Todd Becker. *There are a lot of government consulting opportunities these days and lots of private companies (some significantly less reputable than Miguel's) are stepping into that arena.*

Chris spun around from his desk in the hotel and voiced on the compuvision across the room. He set the news preference to “global-general.”

... and we are seeing strong equities performance in most of the markets over the past week. In related news the dollar's value has been steady with none of the spikes of a few years ago. The Libyan News Agency has announced that the World Health Organization's HIV/AIDS disease surveillance in Africa has continued to show a downward trend in new cases and, among those with some means, an upward trend in outright cures from the new therapies just entering the marketplace. To much fanfare last night, the EuroSpace-NASA consortium introduced the final list of Group 2 colonists for the moon base scheduled to join Group 1 eight weeks after the base is occupied. While Group 1 was mostly drawn from Europe and the U.S., Group 2 is much more international in composition. In other news, the Russian federal government announced yesterday its intention to call a constitutional convention (*again!*). The Russians took that opportunity to announce their support for the Iranian initiative to expand the UN Security Council to 20 members and to end the use of the veto. In Beijing, Shanghai, and Hong Kong there were announcements that China plans to begin modernizing the People's Liberation Army Navy. While once again, Southern and Southwestern China are experiencing torrential rains. After months of failed negotiation, Vietnamese and Cambodian military units have been deployed near the Laotian border in a long-running dispute over Laotian damming of the Mekong River. Locally, the U.S.-Indian energy research consortium, Proton, announced significant expansion plans near Bangalore....

If this were in the U.S., thought Chris, *the ratio of bad news to good news would be higher, but much of the world prefers to emphasize the good news.* Just as he thought that (*never fails*) the screen began flashing an American flag icon. He said, “U.S. news item” to the room's voicerec and, then came the bad news. For years geologists had been puzzling at the “pass” the North American continent had received from earthquakes and volcanoes. Most of their models indicated that the disruptions occurring all along the Ring of Fire should be affecting the plate intersections along North America. They finally did, although the effects might have been much worse:

There has been a 7.5 earthquake followed by a 7.1 aftershock and two small volcanic eruptions in the Aleutian Chain leaving devastation in both the Near and Rat Islands with effects felt as far away as Kodiak and Anchorage. Three hours later a 6.7 earthquake shook the Denali fault line. Within hours after that, the Cascadian subduction fault heaved and slipped, but only slightly – far less than

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predicted. The tsunami that hit the Washington and Oregon coasts did significant damage, but, while many are now homeless, loss of life was low, estimated at less than 400.

While it's great news that the Ring of Fire is not nearly so violently unstable as in the mid-2010s, I wish these problems would end. Geologists claim this has happened before – the Ring of Fire becoming active and unstable for long periods – but that knowledge gives little relief. At least the violence has subsided quite a bit and loss of life is substantially less than before. Of course, that doesn't seem to stop everyone in the world from expecting that the U.S. will always be ready with a rescue whenever the ground shakes.

Business for Chris/Todd had been good the last two days. He liked one site quite well and the price of the land was well below the budget. The local town (about 25 miles outside the Bangalore suburbs) was more cosmopolitan than he had anticipated. Two of the largest firms in the area were Indo-Pakistani partnerships. Even today, that was still a bit unusual, but it spoke well of the social climate in the area – one that suited his business needs. However, it was a subdued Chris Johnson (the Todd persona now destroyed, the privacy shield deactivated) that boarded the first of several flights to take him to Brazil. His best friend's son was at the USCG Boat Station at North Bend in Oregon. He was worried for his friend.

Indian airport security systems were still a bit more obvious than those in the U.S., but the only line was the healthscreen portal that he had to pass through slowly. Several people had been pulled aside there and it slowed things up a bit. In a less luxurious plane than the SST that brought him to Asia, Chris settled in next to a seatmate in first class. However, the Royal Navy Commander (bumped up by an accommodating airline) was a pleasant conversationalist and Chris did not begrudge the lost work time. On her way back to England for re-assignment, Commander Daugherty seemed happy to bend a sympathetic ear.

“It never fails, Mr. Johnson. I say it never fails. Bureaucrats, whether they hail from Britain, America, or from some busybody international organization, always assume military people are loafing, if they are not out mixing it up with some dictator's bully boys. Your Navy and mine – patrolling, training others, training ourselves, watching, and rescuing, as if our ships never need maintenance and our people never need sleep. Then some bloody ministry official says, ‘while you're out there, would you mind just looking into this problem, or stopping that little dispute, or seeing about that little problem’. I truly hope neither of our Services is called upon to actually fight someone. A rowboat full of seven-year-olds, slingshots in hand, could give us a very rough go of it.”

April 2030, Over the South Atlantic

The flight from Lisbon to Rio de Janeiro was mixed. The news out of China could yet become the world's worst combined natural and man-made disaster. A crack had appeared in the Three Gorges dam following a 7.8 earthquake with multiple severe aftershocks under the Three Gorges reservoir. Water was beginning to leak through, after weeks of torrential rain had strained the

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overflow sluice gates. The turbines were already shut down, leaving huge swaths of China without power. The local governments began evacuating everyone as far as Wuhan and those living right on the river as far as Nanjing. Panic was spreading all the way to Shanghai.

It seems, thought Chris, that just as China begins to get on its feet, another blow knocks them down again. Everything seemed to be coming up roses for China in the 2000s – strong economy, lots of foreign investment, growing middle class... how things can change! If someone had predicted my trip back then, they would have said that I must have been going to China. Well, in fairness, thought Chris, I still might look at China some day. They really have made good progress, although it is such a hard place to get any business done. A succession of floods and droughts in western China in the mid-2010s became a tipping point of sorts for internal social instability. Years of neglect (as the farmers saw it) and low investment in the western provinces came to a head when several years of droughts and floods caused disease, starvation, and a massive internal migration of peasants to the wealthy east coast cities. Among the sophisticated east coast citizens, they found no work, little shelter, and no welcome. From both sides came anger and protests that became riots that began to look like insurrection. Local authorities with the support of local army units put down the riots (often in a quick, brutal, and bloody manner). Many Westerners were invited to leave, and those who remained had their movements and contacts more and more tightly controlled. Over the next several years, foreign investors slowly began seeking new, more stable locations for factories and critical supply chain nodes. (The disruptions in supply chains from dislocations caused by Ring of Fire events only further encouraged this activity.)

The internal Chinese political compromises that spun out of those events produced a Chinese political system far more decentralized than before. While, the Chinese are careful to always **act** as if Beijing controls all, the truth is that (at least in terms of economic decision making) the provinces – especially the coastal regions – are the locus of political power. *If the Chinese want more foreign investment, thought Chris, then they must get all these layers of bureaucracy under control. As it stands now, I would need to get agreement from the locals, then from the central government. Then I would find myself waiting around for months while Beijing and the provincial leaders bargained over priorities and issues that are never made clear to me. Meanwhile, it is perfectly likely that a different province would try to strike a deal with me behind the backs of the others. What a mess – who would invest under those conditions!*

As bad as the Three Gorges news from China was, there was still a bit of party atmosphere in the first class cabin. Most of the section was filled with executives from an Indian pharmaceutical firm (one of the world's largest) and the foremost Brazilian genetics research firm. A merger had just been announced and everyone was speculating on how long it would take the new firm to eclipse Pfizer-Merck. Chris was made an honorary part of the cross-Atlantic party when it became known that his daughter was, in fact, working at the Brazilian firm. *If she took the job offer from them before this was announced, I can retire and she can support Stacey and me in the manner in which I intend to become accustomed,* thought Chris. He decided to relax and enjoy the party.

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The party atmosphere did not last long. The images across the globe for the next week and more were to be filled with the horror of the Yangtze Valley tragedy – the dam had collapsed. The devastation, the loss of life and property were truly incalculable.

Chris finished his business in Brazil in two weeks under a privacy shield and the improbable name of Alistair Floyd. (Chris intended to have a long talk with his boss about that one.) He also spent a vacation week with his grandson and, now, wealthy daughter.

May and June 2030, U.S.

Three weeks later back at corporate headquarters Chris made his recommendation to buy sites in both Brazil and India, but to launch and complete the Indian project first. Over 55 years ago his company had used the same tactics of false names, buyer-cutouts, and multiple real estate companies to buy up huge tracts of contiguous land in Orlando. In 2030 Virgin-Disney had pulled it off again. The land was purchased at fair market prices, making the investment practical. He foresaw the huge growing middle classes of India and Brazil pouring into new theme parks – mouse ears and all – and pouring money into Virgin-Disney coffers. (No one EVER used the acronym VD within the hearing of corporate officers.) *And just wait 'til they see what the cyber-genetic engineers in the Imagineering Department are coming up with for attractions*, thought Chris. Even he was awed. He tried to imagine the look on a child's face, as his roller coaster got swallowed by a live, but smiling (it was Disney, after all) sea serpent.

Within a month Chris got what he expected. First, he got his promotion – a significant one accompanying a significant bonus. (*He and Stacey were taking a long romantic cruise somewhere, maybe including an undersea hotel.*) Second, to his considerable chagrin, he was removed from the leadership of the Indian Park project team. He was given a new (and...uh...interesting) assignment.

*It's bad enough, he thought, that they want to turn me into James bloody Bond sneaking around in disguises looking for new site locations, but this...!! No shortage of ambition and chutzpuh, I'll say that for VD(!). Well, at least the research tools for this new Park site will be simple, **for a while**. A telescope and an astronomy textbook are all I'll need to start. Let's see – the Sea of Tranquility has a nice historical connection – I'll start looking (up) there.*

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Characteristics Matrix

Scenario Chronology

- 2012-16: After many fits and starts, stability and democracy began to emerge in the Middle East.
- 2013-15: Significant political instability in China followed years of flooding, drought and massive migrations. States of emergency were declared and life for foreigners became difficult. Foreign investors began shifting investments to other nations. The U.S. experienced a recession as global markets adjusted. Israeli relations with its neighbors began to benefit from increasingly moderate and democratic Arab governments.
- 2014: The Second Doha Round reached agreement with much-lowered manufacturing and agricultural tariffs and reforms of services trade. Markets for developing nations' products and services expand significantly, especially with one another.
- 2015: Earthquakes and massive volcanic eruptions took place in the Solomon Islands. Soon volcanoes and earthquakes erupted along the entire Ring of Fire creating an extra 4 million global refugees. The U.S. led the effective global relief that further reduced extremist anti-Americanism.
- 2020: A charismatic U.S. leader emerged with a vision that resonated across the globe: *Heal The Earth, Reach For The Stars*. As a populist movement, it offered a sense of direction. At a practical level, her emphasis on private-public partnership, science and technology, and accountability appealed to the more practical.
- 2020-30: The Ring of Fire instabilities moderated. The developing world benefited from the new supply-chain approach of industries. Many nations took substantial steps toward greater democracy. President Street was elected in the U.S. in 2024 and immediately moved to establish many international environmental committees and study teams such as Enviro-Health, Ice Watch, and Water Conservation.
- 2025-30: Overall global economic growth was strong, but never exuberant. Investors continued to follow hedging strategies by maintaining geographically dispersed supply chains leading to widespread growth, rapidly developing middle classes, and greater political stability. The potential for military conflict, while significantly diminished, had not gone away. U.S. military power remained the global guarantor of peace and was occasionally called upon to manage, contain, or intervene in regional military conflicts, and to enforce local stability or global environmental regulations. The key global political dynamic was one of shifting nation-state coalitions (some short-lived and issue-specific) among democracies whose foreign policies were often driven by their own domestic politics. Coalitions frequently revolved around attempting to constrain U.S. power and influence.

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Global Drivers

Level of Stability and Conflict in the World

The global political landscape is stable, yet still quite dynamic. There are few new permanent alliances. Democracy is the prevailing measure of legitimacy and diplomatic coalition building (both long- and short-term) is the prevailing approach to action in global politics. So, in terms of violence, the world is more stable. However, while military tools of foreign policy are seldom the first or preferred approach, no one eschews the right to use force in defense of national interests, such as access to life-giving resources like energy or water.

Global economic growth is both strong and more evenly distributed than ever before. In terms of economic and social inequities the world is a fairly stable place. There is a preference among most global actors that disputes among them are seldom worth the disruption of global trade and economic growth. Trade and business growth act as imperfect dampers on international dispute.

Sources of tension and conflict still exist, as do national armed forces. However, with the exception of the U.S. and a few other regional powers that retain respectable conventional force projection *within their regions*, there is a tendency for armed forces of smaller nations to begin to resemble well-armed national guards and coast guards. Conflict sources include: historic boundary disputes, cross-border population migration (often under climate or environmental stress), access to water and other natural resources, anti-globalism, anti-technology, religion (occasionally tied to the two previous), historic ethnic disputes, cross-border pollution, onerous global environmental regulations, and U.S. paternalism.

Democracy has spread across the globe and in doing so has created (1) new sources of conflict and tension, as well as (2) strong currents for peaceful negotiation. Most pronounced has been the tendency of domestic political parties in many nations to manipulate international issues for domestic political purposes. This has been a problem for the U.S. when elected governments turn (with popular assent) to more authoritarian policies with more belligerent foreign policies (Egypt being a startling example). U.S. resources are often strained in an effort to support or nurture these new democracies.

The U.S. military is typically viewed as the global guarantor of stability and many jokes abound about the U.S. as the global bobby (*"Here now, what's all this then?"*). The implication in those jokes – that the U.S. is something of a busybody – is intentional and not very warm-hearted.

Sources of global disruption and criminal activity still originate in ungoverned spaces. While there are far fewer of these than in past decades, they still exist in Asia, Africa, and South America. In some cases they exist within the borders of

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developing democracies that seem unwilling to make more than token efforts to control them.

Finally, as a potential stability problem in Asia, South Asia, Central Asia, and Africa, the world is awash in environmental refugees and this has become a front-of-mind issue since the Ring of Fire disruptions. Particularly, those early volcanoes and earthquakes created almost 4 million refugees in affected areas across the South Pacific. While a significant concentration, it was less than a 10 percent increase on the 50 million environmental refugees already fleeing droughts floods, starvation, and desertification at that time. They put huge pressures on nearby land borders, but increasingly they take to boats in an effort to reach Europe and the U.S. where they hope to find a less hostile reception. The problem of environmental refugees had a huge psychological impact on the world thanks to continuing media coverage and well-publicized U.S.-led rescue efforts, but only a modest economic one. (Indeed, it was noted the smaller global economy of the year 2000 was not significantly affected by the 20 million refugees of that time.) While not a problem to be dismissed in distressed regions (and the mega-cities that border them), the issue of global refugee assistance is probably being managed better in 2030 because of the Ring of Fire publicity, than it ever might have been under other circumstances. Multilateral organizations (especially health organizations) and individual nations pay considerable attention to this problem. The economic growth accompanying industrial dispersion has brought some resources to the nations affected. The new small nuclear power plants of Indian-U.S. design and new desalinization technologies are all playing their part.

**Global Security
& Geopolitics***Distribution of
military power*

The global distribution of military power is very uneven. Most nations keep small standing forces that tend to resemble national guards. There are important exceptions.

The U.S. is the world's largest and most efficacious military power with no single peer competitor. It has the world's only serious capability for sustained long-range operations – both peaceful and combat. The U.S. remains a nuclear power with appropriately balanced conventional forces in all potential mission venues.

The more significant regional powers have a variety of strengths dictated by their national strategies, including (all the following have some representation in all service areas, but only Russia, India and Brazil are independently active in space): **UK, France, Russia, China, Australia** (no nucs), **India, Pakistan, Iran, Israel, South Africa, Brazil**. When some of these are combined, with the right mix, their relative combat power in their regions equals that of the U.S.

The newest wrinkle in military systems is nanotechnology. Experts claim that the

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threat on the horizon is NOT mass killings with WMD, but assassination and infrastructure disruption with nano-bots or nanite swarms. The very technologies that allow close global monitoring of pollution (intelligent sensor swarms) have a darker side.

Military activities include: sporadic regional and local conflict, peacekeeping (especially concerning large migrations), disaster relief, and environmental regulation policing (such as global fishing bans). It is occasionally true that terrorist organizations and transnational criminal organizations overlap or engage in fluid alliances of convenience. Therefore some military missions, beyond historic piracy suppression, have a law-enforcement cast to them. Joint activities tend to follow shifting coalition patterns.

Global alliance structures (NATO, others)

There are few incentives to establish new formal alliance structures. Of all the older ones, several still exist (at least on paper) but only NATO has much operational relevance. That is because: (1) the U.S. and Europe still agree on many critical global issues, (2) established patterns of joint operations (such as the U.S. Navy and the Royal Navy) remain effective ways to manage stretched commitments, and (3) former NATO allies continue to share intelligence. Generally, the need for tightly aligned military alliances has been fading away and has been replaced by the global need for law-enforcement alliances focused on governance.

Nation states tend to cooperate to manage key issues, often under U.S. leadership (sometimes seriously straining U.S. resources). These are temporary coalitions with shifting memberships based on the specific issues. The U.S. tends to be in a “damned if you do, damned if you don’t” position. U.S. participation (and often leadership) seems necessary to get things done, but other nations then resent U.S. “meddling.” Many coalitions form and re-form to constrain U.S. power (but are careful not to disrupt trade and investment).

WMD (proliferation, use, cooperation on, perceived threat from)

There is an uneasy ambiguity about WMDs. Nuclear powers have proliferated – most notably Iran, South Africa, Brazil, and an openly acknowledged Israel. All of these nations have reasonably moderate governments or democracies and all have signed an enhanced proliferation control treaty that includes 100% tagging of all fissile material. In the Middle East the deterrent relationship between Israel and Iran has been credited with helping to stabilize the region (not by either Iran or Israel, of course). There have been no incidents of attempted or successful nuclear weapons use, but the mere fact that so many new nuclear powers exist increases potential use, and as more coalitions dispute U.S. leadership, there is concern in the U.S. over the spread of nuclear weapons.

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Neither chemical nor biological WMDs have been used for over a decade. However, the fear of their potential use has not abated and new delivery technologies such as nano-swarms leave all concerned about the future, should terrorism revive.

News weapons with mass effects include the potential use of nano-bot swarm attacks on industry and infrastructure.

*Comparative military expenditures/
'security dilemma'*

The security dilemma is diminishing for most (but not all) nations and there is generally a perceived low return on investment on military spending. While the U.S. and several regional powers spend significantly on their militaries, many smaller militaries have embraced a law-enforcement paradigm and a national guard/coast guard framework. However, there is ambiguity surrounding this. The world has been relatively stable politically and all nations embrace economic growth. On the other hand, mass migrations, historic animosities and border disagreements, and access to resources (esp. water and arable land) continue to exist as causes of conflict.

Willingness for collective action

Collective action is the preferred approach to activities across the globe. Sometimes this is done within the framework of International Organizations (IOs). In such cases the problems are identified among members and solutions are attempted by the IOs (which are reasonably well funded). However, over time, it has become more common for the actions to be taken by issue-specific coalitions of nations (coalitions that might contain IOs depending on expertise and need).

Over recent years such coalitions have tended to require U.S. participation and often leadership. However this has led to a considerable stretching of U.S. resources. Further, while U.S. participation is often expected, many nations continue to resent the U.S. presumption of leadership. Ironically, the U.S. would VERY much like to abdicate this constant leadership role, but often finds other nations just waiting for U.S. action. Often when the U.S. takes the lead in some global issue, it finds an "anti-U.S." coalition forming to curtail U.S. actions.

National Defense Strategy threats and challenges

<i>Irregular</i>	Decreasing – decreasing in likelihood, but increasing consequences
<i>Catastrophic</i>	Decreasing – likelihood decreases, but consequences increase. In 2030 nations often include natural disasters in their definition of catastrophic. If that concept is added, then this category is <i>increasing</i> .
<i>Traditional</i>	Decreasing – decreasing in likelihood, and decreasing consequences

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Disruptive Decreasing – decreasing in likelihood, but increasing consequences

Definitions of the threat types above:

- *Traditional* – Traditional challenges posed by states employing legacy and advanced military forces in long-established, well-known forms of military competition and conflict.
- *Irregular* – Irregular challenges from the adoption or employment by non-state and state actors to counter stronger state opponents – terrorism, insurgency, civil war, etc.
- *Catastrophic* – Catastrophic challenges including the surreptitious acquisition, possession, and possible terrorist or rogue employment of WMD or methods producing WMD-like effects.
- *Disruptive* – Disruptive future challenges emanating from competitors developing, possessing, and employing breakthrough technological capabilities intended to supplant our advantages in particular operational domains.

Multilateralism

Multilateralism is the norm in global affairs and the U.S. typically leads (but would like others to take charge on occasion). Continually forming and re-forming coalitions emerge for specific issues. A number of multilateral institutions remain active ('G-8', OECD, WTO, IMF, etc.) with dynamic coalitions within them.

Multilateralism in 2030 stands on four pillars:

- The strength of public-private partnerships.
- The democratization of much of the world and the attendant increase in rule of law.
- The improved distribution of wealth with an exploding global middle class.
- The range and complexity of global problems that cannot be addressed by any single nation.

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*Intelligence/
counterintelligence
(technology, sharing)*

Conflict avoidance (or intervention preparation, if avoidance fails), environmental/pollution threats, water availability, climate and weather, and natural disasters are all issues that are very top of mind for all nations. As a result, there is a very effective global surveillance system including traditional elements like satellites, Uncrewed Aerial Vehicles (UAVs) and Uncrewed Underwater Vehicles (UUVs), and “micro” elements like sensor swarms. Many of these systems feed into centralized data distribution systems that are shared globally. As a result, for example, industrial polluters who are breaking the law can be identified. The U.S. also maintains separate military systems at considerable expense.

There is a high level of global cooperation in law enforcement and surveillance systems in cities, ports and borders and in the cyber-ways. The “take” from such systems is frequently, but imperfectly, shared among nations. Additionally, holdover systems from the days of excessive terrorism are still in place and in some nations (like the U.S.) are kept updated. Finally, the private sector has become ever more sophisticated in tracking and forecasting consumer behavior and business intelligence. More and more these efforts are undetectable by the consumers.

The amount of data available from all these sensors is enormous and it is simply impossible for any nation or organization to know all that the sensors reveal. Data management systems employ very sophisticated data fusion and Artificial Intelligence software systems, but still cannot be thought of as a global knowledge system. The old saw that “you cannot watch everything all the time” still holds true.

Globally, citizens are more or less accepting of surveillance that targets health, weather, natural disasters, and pollution. Generally, they are accepting of military surveillance systems. However, in recent years very strong privacy laws have been enacted in the U.S., Europe, Japan, and other democracies to curtail the domestic and private sector use of these systems and technologies. There is a sense that there are lenses and cyber-bots everywhere and anger has emerged over what many see as far-too-intrusive looks into private lives. Privacy and civil rights concerns have grown to the point that a very large and booming market now exists in extremely sophisticated commercial anti-surveillance systems and technologies that can be installed in homes, offices, and cars, and carried with each individual as a mobile anti-surveillance bubble. There seems to be a very large market for anti-surveillance devices in the global ungoverned spaces. Of, course there is also a growing supply of / market for fraudulent surveillance systems.

World Economic System

*Levels of stability
and dynamism*

The structure of the current economic system spun out of the political instabilities in China in the mid-2010s **and** the geological instabilities in the Pacific. While markets showed volatility for several years and the U.S. had a recession after instability swept China, the strength of the global economy bounced back. Largely

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this was due to very agile capital markets, web-based business connectivity, and the ability of many unaffected (or less affected) counties to offer alternative production centers.

In 2030 the globe is enjoying strong, vital growth. Overall global trade and investment levels are high and continuing to rise. Consumers are confident and R&D spending is strong – especially in areas connected to sustainable industry and agriculture, environmental remediation, aerospace, cyber-technologies, smart materials, and bio-genetics. This is not as “hot” an economy as might have been predicted from the 1990s experiences. The lessons of the Chinese turmoil and the disruptions caused by natural disasters have driven planners to embrace redundant supply chains, markets, and manufacturing locations. In many industries reliance on “Just-In-Time” has been replaced by modest “just-in-case” inventory holdings. This efficiency trade-off has dampened economic growth a bit, but also made the global economy far more resilient to disruption.

There is nothing perfect or even uniform about the global economy in 2030. Because manufacturers are diversifying their investments globally, many nations are benefiting – some quite a lot. However, the ones that benefit the most tend to be those that initiated and sustained structural economic reforms (including trade, finance, investment, legal, etc.) earlier in the 2010s. In Africa, reformers like South Africa, Zimbabwe, Mozambique, Zambia, and Ghana (among others) were rewarded with both higher aid inflows (which they plowed into infrastructure, health care, education, and training) and, eventually, private foreign investment. This dynamic set in motion a self-reinforcing pattern of reform-investment-growth-and-development that put the reformers way out ahead of the laggards, many of which are in no better shape today than they were in the early 2000s.

Other losers are many of those Asia Pacific nations that were the success stories of the 1990-2000 decade. In Southeast Asia, for example, both Indonesia and Malaysia have suffered economic slowdowns due to the multiple effects of the Ring of Fire. The political instability that might have become quite volatile in those countries has been mitigated somewhat by the migration of large numbers of workers to Africa and the Middle East. They send money home and provide core skills for manufacturing abroad. They contribute to the retail, health, and educational infrastructures of the emerging economies.

The U.S. remains a dominant economic influence in the world. The U.S. consumer market is still among the richest and most dynamic. Global acceptance of U.S.-style management (which in truth has absorbed many best practices from global leaders like Toyota, India’s Tata Group, Virgin Airways, etc.) keeps U.S. schools and businesses at the heart of the economy. However, the explosive growth in the Asian (especially Indian) and Brazilian middle class in terms of sheer numbers and

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purchasing power has become a major driver of global economic growth and a major influence on the kinds of goods and services demanded.

Since this is not a frenzied or “out-of-control” global economy, nations (with regional differences) generally exert only a light to moderate regulatory hand. With some exceptions, such as pollution controls, global regulation tends to be of the sort that established stabilizing frameworks, such as contract law and transparency, intended to maintain dynamic growth. Much of the economic dynamism comes from the influence of the global media networks as fads and fancies sweep global consumers quite regularly. Nations have a large role in managing the global economy, with active monetary/fiscal policies to smooth out business cycles.

Reserve currencies

The U.S. dollar remains the global reserve currency, but that should not blind an observer to the strength of a basket of currencies that includes the Indian rupee, the Brazilian real, and the euro. Currency values fluctuate with the successes or failures of fiscal and monetary policies, as with trade balances and economic growth. Oil prices are benchmarked in dollars.

International financial institutions

International organizations continue to have a role to play in managing the global economy. However, policies are set by the largest and most successful economies and nations continue to manage their own economies via fiscal/monetary policies.

Dominant players, regions, centers of innovation

Both private sector firms and nations are key economic actors. There are many global firms with the economic power of small and medium sized nations. However, every company is still formed within and regulated by its parent nation’s laws. Of course, in many cases small countries offer “charters of convenience” to companies that wish to operate under the fewest restrictions. But the need to meet global standards for products, services, and accounting (if a country wants foreign investment) has mitigated the worst effects of that practice.

Therefore, nations tend to be the most consistent set of dominant economic actors. With some exceptions, the list of key military actors and key economic actors tends to be highly correlated. Dominant economic players: **Tier 1** – U.S., EU, Japan, UK, India, Brazil, China (just re-entering Tier 1 prior to the Three Gorges disaster); **Tier 2** – Iran, Korea, Venezuela, Russia, Canada, South Africa, Australia.

Some nations still can be identified as centers of innovation. Every year that passes makes this more problematic, however, as more and more research is on the cyberways and more science is done by international collaborative teams. No matter that research can be cyber-based, the U.S. continues to attract some of the best minds

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from overseas to its research campuses and universities.

Also see **Science and Technology** further into the matrix.

*Role/structure of
transnational business
and business
organizations*

Transnational businesses are important and active, but they are under the jurisdiction and regulations of their home country. The predominant business model is the Anglo-Saxon model that tends to include contracts-based negotiations and transparency. Redundancy and resiliency are now important attributes to build into the business processes. Global businesses tend to be run more and more by a cosmopolitan global management elite that move from company to company and country to country. Taking a page from the Asian model of business, it is also becoming more common for this management elite to have served in government or International Organizations more than once during their careers.

*Dynamics of
international debt*

The U.S. maintains a moderate trade deficit, but can afford it. Many developing countries have slowly improved their indebtedness position thanks to the revenues they receive from the dispersion of manufacturing around the world. Developing countries have in some cases been allowed to write off or slowly work off debts under generous terms. In some cases they have used their carbon sequestration credits to buy down their debt. Oil prices are moderate, and that has alleviated a large source of developing world debt.

A Carbon Exchange Market created by an international treaty that establishes quantity and holders ('supply') of carbon credits and limits for carbon polluters has become another source of credit and debt. Polluters can buy additional credits from credit holders and/or find ways of reducing their own carbon creation. A large futures market in credits has emerged.

*Unemployment/
social fabric*

Unemployment in the developing world is at all-time lows, even though there are large pockets of extreme unemployment and under-employment in areas not yet reached by the spread of manufacturing or filled with the world's refugees. While much unemployment remains structural, some is now due to normal business cycles and tends not to be a serious domestic political problem. As democracy spreads, there has been a marked tendency for governments to pay far more attention to employment generation. Cyber-schools (distance learning) have helped many in these countries to develop skills of value long before their own school systems have progressed to world standards.

The tendency of firms to decentralize their manufacturing has been a significant factor improving developing world employment. Middle classes are growing,

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producing more consumers. Manufacturing can now be found in all corners of the world. Large mass manufacturing and most materials extraction are still found in the developing world. However, advances in designer materials, cyber-systems, micro-miniaturization, new energy technologies, and cyber-genetics have been the foundation technologies for smaller-scale mass customization manufacturing staying closer to large markets in the developing countries.

Labor unions in the developing countries have been growing in parallel with democracy. Often coordinated across borders and often targeting service workers as well as manufacturing, they have been contributing to better living conditions and more robust democratic processes in countries once dominated by elites.

By any global measure, the average standard of living has been improving. However, that is not always true at every local level and this can be a source of significant conflict. This is particularly a problem in the huge mega-cities that are emerging all over Asia, some parts of Africa, and South America. In those locales massive and rapid urbanization has led to substandard living and (occasionally severe) social tensions as populations completely outstrip both the soft and hard infrastructures. In many countries these cities have become the source for political demagoguery (threatening nascent democracies), demands for high social safety net spending, and anti-globalization ideologies.

Globalization

Globalization has succeeded primarily on the Anglo-Saxon “contracts” and nation-state model. There is broad global agreement on the norms (laws, regulations, behavior, ethics, etc.) of international activities. However, globalization has emerged as more of an economic phenomenon than a cultural or political one. The strength of democratic movements has meant that national identities have been retained and reasserted. There is less concern for U.S. cultural dominance, as media-driven global fads are frequent and often begun in Asia, Africa, or Latin America. Globalization has not become as Darwinian – as brutal (“red in the claw”) – as once seemed possible. One dominant theme that means much to the success of globalization has been the emerging consensus on need for coordinated environmental action.

International Trade

The world thrives on and embraces international trade. The Second Doha round of World Trade Organization negotiations resulted in an agreement that was reached in the mid-2010s. There is a very high volume of trade based on a mix of bilaterals and multilaterals, facilitated by international financial institutions and a robust transparent global financial system. Trade routes are resilient and redundant. Regional trade groups have emerged for specific items when that makes economic sense. The WTO has been a successful forum for trade dispute resolution.

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Governance/ Quality of Governance

Predominant ideology

There are two predominant ideologies.

Democracy has become the globally accepted standard of government legitimacy. Democratic processes have spread across the globe following early success in the Middle East. However, the U.S. has, from its own perspective, lost “control” over defining what makes a “real” democracy. Many nations now feel quite comfortable debating with the U.S. the true nature of democracy or “appropriate democracy.” Additionally, several democracies have elected leaderships that have turned out (with popular support) to be authoritarian in practice, often modifying their constitutions. Finally, internal democratic processes across the globe have led to the phenomenon that domestic politics often intrude into foreign policy. More governments find themselves influenced by short-term domestic politics. The upshot of this has been the frequent formation of “anti-U.S.” coalitions as citizen demand that their governments “stand up” to the perceived dominance of the U.S. In 2030 the spread of democracy across the globe, for the U.S., has become “Be Careful What You Wish For... You Might Get It.”

The second ideology is the global movement: *Heal the Earth and Reach for the Stars*. Global environmental degradation, pollution, water shortages, and geological instabilities have all inspired a charismatic U.S. leader to launch a new popular movement, first in the U.S., then spreading globally. The movement picked up momentum after several years of volcanoes and earthquakes in the Ring of Fire. The movement had three original premises. **First**, if Mother Nature is going to throw these kinds of disasters at us, we had better clean up and control human environmental damage as best we can since we cannot afford two simultaneous sources of damage. **Second**, the horrible mistakes in environmental management that humans made (and continued to make) must be fixed. **Finally**, she realized that simply beating ourselves up over mistakes was no way to garner enthusiasm, so she added a pioneering spirit – space exploration. The movement attitude is one that, while human technology may be part of the problem, it is also large part of the solution. This is a positive approach to managing growth – sustainable growth, but growth nonetheless. The movement is also about reaching for new horizons.

The *Reach for the Stars* aspect of the movement has its practical side, just as the environmental thrust does. Clearly, President Street intended the “stars” to deliver the vision and pioneering elements so necessary to get Americans on board. However, space mining (the moon and, farther in the future, asteroids), micro-gravity manufacturing, and earth science all contributed a practical set of goals. The *Reach for the Stars* effort has actually devolved into multiple efforts, most as private-public partnerships.

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Role/influence of non-governmental/supra-governmental organizations e.g., UN, regional political blocs, I/Os, private NGOs

Generally, International Organizations play an active and important role. They are the forums for debate and often actively work to solve problems. While a few regional trading organizations have emerged, typically regional organizations, with the exception of the EU, have become less important in global affairs.

Standards-setting organizations play very important roles (ISO, IATA, IPTU, IMO, WTO, etc.) with very dynamic debates taking place. Many NGOs target the problems of development, health care, refugee assistance, and environmental and climate change. International law enforcement organizations have emerged as important global actors. The U.S. continues to set the global agenda in most areas and to be looked to often (but not always) for leadership.

Presence/absence of an architecture for global issues management

Multilateral agencies (including international law enforcement organizations) and coalitions of interested nations tend to be the two principal approaches to issues management. Both rely on the decision-making and authorities ultimately exercised by sovereign nations.

Failed states/Balkanization/ungoverned spaces/mutual separation

While failed states are not yet a thing of the past, they are now more unusual than 30 years ago. Multilateral agencies, NGOs, the industrial nations, and the more important regional powers all tend to work at supporting nation building. In some places this has turned out to be a long haul with setbacks, but the success stories outweigh the problems. In Africa, Southeast Asia, and Latin America there are still some ungoverned lawless spaces to be found. In most cases, where they still exist, local governments (which may profit financially from the co-location of outlaw elements) frequently tolerate their presence and block efforts to clean them up.

Ungoverned space has generally been a label assigned to geographic areas. There is a growing tendency in many countries to classify large mass movements of environmental refugees as “mobile ungoverned spaces.”

Non-traditional actors – new forms of influence, new affinity associations

2030 is dominated by the traditional sovereign nation-state. There are important non-state actors, but they are not “non-traditional” in any sense. Numerous environmental organizations and associations cluster around the *Heal the Earth and Reach for the Stars* movement. In the developing world labor unions have taken on a large scope of activities and coordinate well across borders. Multinational corporations continue to exercise influence over governments worldwide. There are numerous voluntary organizations and charity organizations abound. These groups tend to exercise what influence they can at national capitals (both donor and recipient countries), in multi-lateral organizations, in the world media, and in the formation of coalitions of like-minded organizations.

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*Borders: nature
and permeability*

Global movement of goods, services, and people is easy. Sovereignty remains a crucial foundation of international law and norms of behavior. While no systems are perfect and information overload remains a problem, borders are managed with high-technology non-intrusive sensor systems and databases on travelers and trade goods that are shared globally. Illegal movement and smuggling still exist due to uneven applications of technology, information mismanagement, and the lax attitudes of some nations (such as those who benefit from ungoverned spaces). Cyber-smuggling of stolen knowledge tends to be the hardest border issue to solve.

*Charismatic leadership
(source of)*

A charismatic leader (who became the U.S. President) launched a global movement – *Heal the Earth, Reach for the Stars* – based on better managing the world ecosystem and striving for new audacious goals.

Terrorism

Terrorism still exists in the world, but not as a global coordinated force. It is not typically a headline-grabbing activity, so it is not the approach of choice for most disaffected groups. Sources of terrorism tend to be local movements often with criminal ties. Some movements share grievances across borders, but actual coordination is difficult. Reasons for terrorism include anti-modernization, anti-Americanism, anti-democracy, historic ethnic animosities, and religious extremism. Eco-terrorism in the form of anti-fishing vigilantes has emerged as a recent but isolated phenomenon.

Sources of terrorism and criminal activity still often originate in ungoverned spaces and mega-cities. While there are far fewer of these than in past decades, they still exist in Asia, Africa, and South America. Cyber-terrorist incidents are the growth market of terrorism, but many dispute the term *terrorism*. The political motives seem less important than the financial ones, and other than the famous cyber-controlled explosion of a French chemical plant, few cyber-terror events have cost lives. Cyber-attacks, while often serious, tend to be targeted at economic disruption.

**International
Arms Trade**

There is a steady legitimate arms trade across the globe as nations modernize and maintain their national forces. The classic security dilemma (arming to ensure peace) is far less salient in 2030, but no one is completely willing to be that trustful. Additionally, most recognize that the centrality of cyber-systems to warfare and nearly ubiquitous global surveillance have made most classic conventional arms less efficacious. On the other hand, highly sophisticated anti-surveillance technologies are developing rapidly and finding a growing market. Some black-market arms trade still exists and failed states and ungoverned spaces tend to be at the heart of it.

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Nuclear weapons technologies and ballistic missile technologies are very tightly controlled under international agreement and close surveillance. Chemical and biological weapons, cruise missile technology and some nanotechnologies are proscribed in the same treaties, but are difficult to enforce.

**International
Crime/Illicit
Economy**

Counter-sensor technologies allow sophisticated malefactors occasionally to breach some of the best security regimes and there is a significant market for illegal surveillance shields. There is a large black market trade in substandard goods and services that do not meet international quality criteria. Designer illegal drugs targeted at performance enhancement and life extension therapies are developed locally and smuggled across borders. There are very high levels of trans-national cyber-crime. Much of this is accomplished through financial schemes that exploit a complex currency system and the intersection of the carbon credits market with currency and equities markets.

There is a strong market in false environmental compliance audits. There are very high levels of industrial espionage and knowledge cyber-smuggling. Intellectual property protection is a significant legal problem. Criminals often seek out the seams that emerge between nations as they successfully exploit the dynamic nature of shifting coalitions. For example, due to the global ban on fishing, there is a lucrative business in fish protein smuggling. While transnational criminal groups do exist (many seem to morph back and forth between criminals and extremist movements) and are frequently tied to failed states and ungoverned spaces, the reality is that most crime is an individual or small group activity.

**The Global
Commons**

One source of the *Heal the Earth and Reach for the Stars* movement was the recognition of the strain on resources that large middle classes (with American-style tastes in consumption) created by high growth rates as capitalism and democracy spread. This caused concern in two key areas of the commons: depletion of global resources and pollution levels.

Pollution has taken center stage most of the time and some solutions are in hand, many coming from the burgeoning bio-genetics industries. Many industrial wastes (both air and water) have proven amenable to bio-genetic solutions and the technology has become more affordable as it has spread worldwide. The carbon credits market has had measurable impacts. Tailored biological materials for injection into volcano plumes to control the poisons appear on the horizon.

Resource depletion controls have been far more controversial, since most see them as having a greater impact on economic growth. The argument that new economies have a right to pollute is slowly being solved with technology. The argument that

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developing economies have a right to extract is proving more contentious. Extraction controls are seen by many as attempts by the wealthy countries to remain in control of the global economy.

From the developing world perspective, the poster child for this policy debate is the global ban on fishing (in all but a very few areas). Pushed through by the U.S. in 2022 when amendments to the Law of the Sea were being debated at the UN GEC (Global Environmental Council), the ban recognized that global fish stocks might have already fallen so low that natural recovery may be impossible. Opinion of the U.S. was at a high point at the time and (in truth) many thought that the law would have no enforcement. They misunderstood the level of U.S. concern.

With the aid of a global sensor net, the U.S. very aggressively enforced the fishing bans. The holdover security representatives in foreign ports monitored port activities in this area. Three consequences unforeseen by the U.S. have emerged. First, within the first two years of the ban, developing world freshwater fish stocks were decimated. Two, this policy has been the rally point for several anti-U.S. coalitions to emerge globally – all with an interest in unrestricted extraction (Japan, Russia, China, and Brazil are all active members). Third, there had been two near-clashes of naval forces when China and Chile both sent out naval forces to protect fishing fleets from U.S. interference. Only overwhelming U.S. force presence prevented things from getting out of hand. This has led to China rethinking its military investment programs.

To alleviate the problem of reduced fish stocks, the U.S. has invested very heavily in aquaculture R&D. Unfortunately, the genetic, bio-diversity, disease, protein deficiencies, and pollution problems associated with aquaculture since the 1990s has proven a difficult problem to solve and have limited that ability of aquaculture to substitute for wild catch.

Energy

Despite solid global economic growth and the rise of significant middle classes in Asia, the global market price for oil ranges from \$25 to \$35 per barrel (in 2007 \$) after *significantly* higher peak prices between 2014 and 2020. This was not the result of one silver bullet breakthrough, but the confluence of many factors – a few political, but most technological.

Politically there were two critical events. The *Heal the Earth* movement yielded a new emphasis on conservation that led to behavior changes and new technologies. The second event was the significant stall of the Chinese growth engine in the mid-2010s. (Of course it should be noted that the policies of supply-chain distribution and multiple natural disasters both had significant energy use implications.)

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The technology story is equally varied. Beyond all but the most optimistic expectations, new exploration techniques, deep drilling technologies, and very advanced recovery techniques have expanded oil production very significantly across the globe. However, perhaps the most significant long-term technology was the India-U.S. joint breakthrough for spent nuclear fuel reprocessing and the successful mass-production of modular reactor technologies. New small-scale reactor technology is designed to accommodate the recycled fuel and is making a significant impact, particularly in the developing world. With the introduction of this technology, the design and development of this new, safe, reliable, and efficient energy alternative is replacing oil as an energy source in the building of new and refurbished electricity supply projects. Further, new nuclear reactor technologies have evolved such that even in the U.S., construction and licensing time is now measured in years rather than decades. Other dramatic breakthroughs developed in the U.S. included clean coal technology. These developments have made important contributions to both energy production and pollution prevention, particularly in the U.S. and China. Other contributions came from a long list of smaller-impact technologies (some are small-impact because they are so new) that, together, still made significant contributions: the recent technology breakthroughs in the undersea mining of methane hydrates, hybrid vehicles, offshore wind, energy storage, genetically tailored materials for biomass, ethanol, and superconducting materials. This combination of advanced energy technologies has vastly reduced developing world dependency on imported oil.

**Agriculture/Food
Aquaculture/
Fisheries**

At any given locale, food production might be a problem in any year (or set of years). Water access, climate, and weather patterns have been disrupted by volcanic activity and droughts and flooding are common problems in many regions. There is no preventing all the local human distress that this causes. However, much has been done on two fronts. First, global food distribution is better than ever, while still imperfect and subject to economic factors – donated foods cannot be allowed to distort market values too far, distribution systems are expensive and using them for relief efforts carries opportunity costs for owners, etc. Second, genetic engineering of plant stocks has made significant inroads into many of the disease and drought problems that used to reduce harvests. Meat-based protein is often the food product in shortest supply (especially in those countries that relied heavily on fish sources). To alleviate the problem of reduced fish stocks, the U.S. has invested very heavily in aquaculture R&D. Unfortunately, the genetic, biodiversity, disease, protein deficiencies, and pollution problems associated with aquaculture since the 1990s has proven a difficult problem to solve and have limited the ability of aquaculture to substitute for wild catch. Finally, and not without irony, global warming has increased the amount of arable land in many areas (to include Russia, northern U.S. and Canada) that have good soil, thus offering a potential long-term help to food shortages.

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Across the globe the calorie count available to the average person has gone up steadily. Starvation may still occur, but it is rare. Improved calorie intake (and enough electrical power for refrigeration) has had much to do with improving global health and well-being.

**Water, Minerals,
Other Critical
Resources**

2030 is a time in which the people of the globe are very sensitive to critical shortages in the resources they use. However, the most serious shortage is water. New drought cycles have enhanced this concern, but it has been multiplied by economic growth and the middle-class living standards expected in Asia, the Middle East, Africa, and Latin America. This is so serious an issue in some areas (especially the mega-cities), that conflict to acquire or guarantee access to water is considered a distinct possibility.

Much of the U.S., Europe, Russia, and especially Canada have been spared this problem. Partial solutions for the developing world have come from genetic modification of plants, and drip irrigation. Many industrial processes have been changed with technology advances to use less water – particularly in materials and chip manufacture. Advances in desalinization have enormous promise for water production, but distribution remains a difficult problem facing much of the world.

Natural energy resources are expanding. More oil is available with new deep drilling technologies and very effective recovery techniques. Coal has become a much-used resource with the advent of clean coal technologies, and newly invented recovery technologies have now made undersea mining of methane hydrates possible.

Most critical and rare minerals can be procured from Russia and Africa; hence deep seabed mining and space mining are not economically viable, yet.

Global Health

One of America's successes in the 2010s was in slowing the HIV/AIDS epidemic. In Africa and India, especially, the U.S. provided resources, management techniques, and public health support that began to slow the spread of the epidemic. Now in 2030, while the ultimate resolution to the global HIV/AIDS crisis is still beyond the horizon, infection rates have slowed, and a number of promising HIV/AIDS vaccines – though not widely available and not fully effective – hold significant promise for populations who can afford them.

In other areas of health the news is mixed. Economic development and food production and distribution have made huge strides in improving global health. Investments in public health infrastructures and education have also had substantial

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positive impacts. Simple killers like dehydration have decreased significantly. The average world's citizens are not as malnourished nor as far from medical care as they once were. They are far more likely to survive illnesses. Life expectancy is increasing due to advances in medical science and nutrition.

On the other hand, the political and economic problems in China have multiplied the potential for flu viruses. Large migrations of people fleeing natural disasters and climatic events have resulted in significant increases in diseases associated with such complex humanitarian emergencies, including cholera, typhus and diseases of malnutrition. Resistant strains of TB, including multi-drug-resistant TB, are common in refugee settings. In addition, these environmental refugees are experiencing high levels of stress and resulting mental health issues, with outbreaks of violence becoming more common. This is affecting the resilience of international aid workers. Also a problem are the diseases of climate, such as spreading malaria zones in Africa, Mexico, the southern U.S., and China (now that the world is on a fast-warming cycle again), weather, and pollution (such as upper respiratory diseases and the problems associated with chemicals that mimic estrogen). As economic activities expand into previously unused geographies, mankind is coming in contact with previously unknown viruses. Finally, as “western” style diets become more common across the globe, the illnesses of rich diets are spreading.

Environment

The bad news is that the environment is getting worse. The good news is, the world cares and is trying to do something about the problem. With U.S. and European leadership, a global monitoring system is in place. The sensors and the models that are emerging from the data have helped make huge strides in understanding the complexities of pollution and the global ecosystem. By 2030 there are a number of management schemes, investment incentives, and technologies in place to minimize the amount of new pollution from human sources. Indeed, these technologies have been quite successful and have been the source of considerable economic growth in their own right. Many industrial and agricultural wastes (both air and water) have proven amenable to bio-genetic solutions and, as the technology has spread worldwide, it has become affordable. The carbon credits market has had measurable impacts. However, none of these efforts have had a significant impact on the continued warming of the planet, nor will they for decades – the inertia of warming is simply too great to stop quickly and not all is from man-made sources. Ice melt in Greenland, the Arctic, and Antarctica continues. Glaciers continue to recede across the world. Tropical storms are increasing in severity.

Additionally, a very serious threat to the global environment comes from the earth itself. Beginning in 2015, the Ring of Fire (the ring of fault lines that extends from Chile up the West Coast of the U.S. to Alaska, across the Bering Straits, down past

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Japan and into the South Pacific island chains) began to show system-wide instability. Volcanoes (some thought long dormant) erupted. Earthquakes and tsunamis followed tectonic plate shifts. Islands were destroyed, coastal areas laid waste, cities devastated, and tons upon tons of volcanic ash thrown into the atmosphere. There were millions of environmental refugees running from threats. Initially they put huge pressure on nearby land borders throughout Asia and Latin America and some small boat migrations from Pacific Islands to the Asian mainland and a few to Australia.

Disease and hunger soon added to the fear and misery in the years 2015 to 2020. The U.S. led global responses to alleviate the suffering as best it could. It succeeded more often than anyone expected. Articles in journals soon informed all those who knew little or nothing about geology – most of the world – that geological history indicated previous sustained periods of instability – some lasting, perhaps, decades. Then in 2021 it all seemed to stop. However, the world only got a four-year hiatus. In 2025 it began again – not *nearly* so violent as before with far fewer deaths, but eruptions and earthquakes and slippages continue to this day. This time in the late 2020s refugees have been increasingly taking to boats (old freighters, mostly) in an effort to reach Europe, Australia, and the U.S. where they hope to find a less hostile reception.

**Global Climate
Change/Natural
Disasters**

Global warming has been a factor since the late 20th Century. In 2030 we are feeling the effects. The sea has risen 8½ inches (20 cm) making some Pacific Islands and parts of India, Bangladesh, the Netherlands, and the Guangdong Province of China (especially during storm seasons) nearly uninhabitable. Several important metropolitan areas will face serious ocean flooding soon. The New Jersey meadow lands and surrounding cities, Miami, New Orleans, the Hampton Roads area, the Sacramento basin, Guangzhou, Venice and many others are within a further ½ meter of serious threat. The Arctic ice cap has melted enough for the northern sea route over Russia to be open most of the year and the Northwest Passage over Canada to be open for difficult passage several months of the year. Tropical cyclones, while not much more frequent than 30 years ago, are much more violent.

Beginning in 2015, the Ring of Fire (the ring of fault lines that extends from Chile up the West Coast of the U.S. to Alaska, across the Bering Straits, down past Japan and into the South Pacific island chains) began to show system-wide instability. Volcanoes (some thought long dormant) erupted. Earthquakes and tsunamis followed tectonic plate shifts. Islands were destroyed, coastal areas laid waste, cities devastated, and tons upon tons of volcanic ash thrown into the atmosphere.

This created a host of large environmental problems. The ash destroyed some

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arable land. The ash clouds so cooled the earth for three years, that 2016 was a year without summer. However, the volcanoes sent out (and still do send out) large amounts of greenhouse gases so that, on balance, volcanoes add to global warming after the brief cool-down.

Then in 2021 it all seemed to stop. However, the world only got a four-year hiatus. In 2025 it began again, but not *nearly* so violently. Indeed many scientists are speculating that while the wind-down may be slow, in fact the worst is over. There have been far fewer deaths, but some eruptions, earthquakes and slippages continue to this day. The new eruptions have spread the area of destruction; however, while not as violent as the early years, now Hawaii, the Aleutians, Alaska, the U.S. Northwest, Mexico, much of Central America, and Chile also suffer varying degrees of damage.

**Demographics/
Migration**

The demographics of 2030 are not too different from what someone in the early 2000s might have predicted. Some things are different. The U.S. birth rate is up to just above replacement, but those of Europe, Russia, and Japan are not. The Indian birth rate has begun to drop as a result of economic development. The management of HIV/AIDS has begun to have a small impact on mortality rates in Africa. None of these changes have had dramatic impact, yet. However, the dependency ratios of workers to the retired in China, Japan, and Europe are becoming worse than expected due to the impact of improved longevity. In the U.S. increased birth rates and immigration have kept this problem from becoming quite as bad as was once forecast (at least for a while).

Immigration is a different matter. The spread of democracy has led to a drop-off in political migration. The improvement in global economics, however, has increased other migration. With education and wealth (and despite the growing opportunities in their own countries) have come the desire on the part of many to migrate to the U.S. or Europe – it is a migration of “aspiration rather than desperation.” As a result, the U.S. once again enjoys the benefits of a brain drain. On the despairing side, there are tens of millions of environmental refugees in the world (most in Asia, Southeast Asia, and the subcontinent, but some in North and South America) who desperately need shelter and food, and seek safer places to live. Many are now fleeing to the U.S. and Europe.

The earlier destruction along many of the world’s coasts may have had a side benefit. Since the danger of tsunamis has not ended, many people have begun to migrate away from close proximity to the oceans. With new data on sea-level rises just becoming public, this move from the coast may become permanent.

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Be Careful What You Wish For**Science and Technology***Leading sectors*

Basic science is back with a passion, supported by generally accepted global rules of intellectual property protection. Most of this is associated with universities, although there is a noted return of applied science in industry. Global teams do most of the research. Topics include genomics & biotechnology (human enhancement, industrial processes, agriculture, pollution mitigation); cyber-genetics; space, sensor & surveillance systems/networks; nano-technology, cyber-surveillance (nano-bots and micro-sensors); virtual reality; environmental remediation & waste management; distributed/green manufacturing; chaos and complexity math; materials science; optronics (e.g., optical computing); and energy systems.

Leading sectors

Across the world there is a mix in funding of public, private, and public-private partnership activity. Governments (sometimes in the form of multinational consortia) generally fund high-risk research independently and the private sector pursues development.

Leading nations/regions

In this cyber-connected world of cross-national research teams, it can be difficult to determine which nations truly succeed above others. In another decade it may be impossible. However, in 2030, some centers of excellence in S&T generally are still clear: **U.S.:** cyber-systems and theory, bio-genetics, cyber-genetics, nano-technology, chemicals, aerospace, optronics, materials, high-energy systems, pollution prevention and control, entertainment, pharmaceuticals; **EU:** precision machinery, chemicals, pollution prevention and control, fashion, aerospace, materials, cyber-systems, optronics; **India:** cyber-systems and theory, cyber-genetics, aerospace, entertainment, consumer goods, high-energy systems, pharmaceuticals; **Russia:** cyber-theory, aerospace, high-energy systems, optronics, materials; **China:** cyber-systems and theory, genetics, cyber-genetics, nano-technology, consumer goods; **Brazil:** genetics, aerospace, high-energy systems, pharmaceuticals.

Technological transformation

There are three sources of social transformation in 2030: democracy, management science, and technology. Of the three, most would put technology first. It is the spearhead of global economic growth (for example, the world is swarming with 'virtual arrays' that create combined sensor, processing, and communications networks of unprecedented power). Personal privacy is under attack by these nano-bots and sensor arrays. This in turn has produced societal defenses like surveillance "cloaking" technologies, and procedural, regulatory, and legal approaches. Technology is at the heart of cleaning up the environment. It is at the heart of feeding the globe. Technology drives competition, encouraging economic growth.

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*Attitudes, ethics, values
due to science and
technology investments*

S&T is seen as a major national resource to be developed and protected from ‘theft’ or loss to others. The world has re-embraced S&T as a ‘good thing’, but only when it is sustainable. “First, do no harm.”

There is a growing sense that it is ethical to avoid the multiple new forms of surveillance, even occasionally when conducted by legal authorities.

**Global Education/
Distribution of
Knowledge**

Education has been a major driver behind the global democratization process. U.S. and European educational models have been seen as the approach to emulate and U.S./European university-level academic standards are accepted globally. While not quite there yet, on a global scale, educational standards are becoming more universal. Education is a key to global mobility and career success; the world is becoming a meritocracy. Science and math, engineering, and management education are stressed since they add to national prestige and competitiveness. Public and corporate support and funding for education grows at all levels (local/state/national). Industry and trade associations have set up global universities focused on their own products and services. Cyber-learning is popular and available everywhere.

Knowledge distribution beyond formal education has become a complex phenomenon. Across the cyber-world, there are so many sources of information and knowledge that validating data and information sources has become a difficult job. A large number of firms have emerged with claims and guarantees that they will validate all data for their customers. These services have been less than overwhelmingly successful. Knowing “what is true” is a real problem.

Global Media

The global media is a powerful force. However, in 2030 the global media is not exactly a **Global Media**. Media networks and outlets continue to carry a lot of national content. There is no integrated (non-national) global media. Significant national prestige is associated with producing media in your nation that others around the world value, much like the national prestige associated with airlines in the 20th Century. In the end this approach seems to have actually enhanced the influence of media networks. All media maintain partnerships around the world (thus sharing significant amounts of content), but specialize in tailoring stories to local interests. This has had the effect of increasing the influence and speed of fads that sweep the globe. The global media suffers significantly from the information validity problem.

Blogs and other non-organizational media had suffered a signal-to-noise ratio problem. There are so many of those informal sources of information that no one source can rise above the muddle to be heard.

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Religion

On the surface, the world is a more secular place. Outwardly, religion is less of a dynamic force that it was in the 2000s. There seem to be numerous reasons for this. First, the religious extremism that swept both developed and developing regions in the early 2000s is largely blamed for much of that era's human conflict. Second, the embrace of democracy (and the impact of the U.S. Constitution as a model) has had an interesting side effect. A great many nations (perhaps fearing religious intervention in politics) have made separation of church and state a far greater hallmark of their constitutions than Americans might have anticipated. Third, enormous masses of people are moving into the middle class.

On the other hand, decades of "biblical" climate and geological upheaval, recent revivals of sea-level rise predictions, and the stress of life in the mega-cities, have led to a considerable revival of evangelical regions in many local settings. These tend to be split into the "end is near" and "we must protect God's earth" movements. There are some pockets of intense religious extremism – partly among those who do not like the modernization/globalization pressures – but religion, by and large, has become politically marginalized.

Global Transportation

Global transportation systems are still trying to catch up to global economic growth and distributed supply chains while accommodating past and continuing geologic instability. First, trade and commerce have been expanding very rapidly – more quickly than infrastructure improvements could manage (which gave a premium to transportation systems that were infrastructure-light). Second, the highly distributed nature of the new supply chains put even more pressure on transportation modes and inter-modal connections. Third, many ports and airfields have continued to suffer reduced services or even destruction from volcanoes, earthquakes, tsunamis, and rising sea levels. Fourth, global transportation systems are an acknowledged contributor to air pollution. Fifth, the great northern sea route has proven very helpful in avoiding dangerous passages through the Ring of Fire areas.

2030 witnesses a **very** complex maritime transportation environment that has not shaken out in terms of a favored approach. One school of thought favors new hull design and extremely fast and large vessels that can avoid many classic choke points. Another school of thought favors slower, very large and environmentally friendly vessels that essentially hold inventory at sea. Both can be found at sea in 2030 in large numbers. Additionally, serious congestion on land and environmental concerns surrounding trucks have led to a return of short-sea shipping. Finally, the potential for significant rising sea levels (½ to 1 meter in the next 15 years) is leading to new port designs and new port infrastructure technologies.

Pressure on land transportation from increased economic activity, greater personal wealth (many choosing mega-city living and many choosing the opposite – highly

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dispersed ex-urban living), and environmental concerns has led to numerous changes: more mass transit, automated highway lanes for commercial vehicles (and a few for personal autos – most of these in the U.S.), and high-speed trains.

In the air we see dirigibles for commercial use and a mix of huge 750-passenger aircraft, small supersonic trans-oceanic aircraft, and a large number of air taxis. Most air travel is point-to-point. Avoiding volcanic activity is a major new aviation safety concern.

New global models and sensor data are being used to develop a global system architecture for all transportation.

Infrastructure

*maritime, industrial/
manufacturing,
energy, undersea,
space-based)*

The increased demand for transportation of goods and people is being met through a very complex global system-of-systems approach. However, that ultimate system is in no way fully implemented and, in fact, many schools of thought across the globe argue about its fundamental characteristics.

The maritime infrastructure is a chaotic mixture of the new and the old; the experimental and the old-school. Much coastal infrastructure (commercial and residential) across the globe, but mostly in Asia and recently in the Americas, is being destroyed or damaged by volcanic and tsunami activity. Recent forecasts of sea-level rise are adding to the complexity. The insurance market's unwillingness to back private coastal infrastructure in the U.S. has led to state-level risk assumption involvement in places, and voids in new infrastructure construction where no insurance is available. Where people are still living on the coast, you often see a mix of the insured very wealthy in storm-proof homes, and impoverished squatters living in shacks.

Commercially, there is much experimental work with on- and offshore floating ports of varying sizes. Significant strengthening work is being done on breakwaters, shore facilities, and dikes. There is a constant beehive of activity in most major ports – new dredging for larger vessels, lots of new port infrastructure (designed to be disaster proof and accommodate sea-level increases), new and deeper channels and canals. All the seaside activity has led to new land-based infrastructure and inter-modal connections (air, roads, rail); yet all that might be called into question if sea levels rise dramatically. Underwater commercial building is exploding with new drilling technologies, and an increased use of undersea pipelines and cables (e.g., Venezuela and the U.S.). Finally a number of countries, including the U.S., are permitting the development of floating factories and offshore wind farms.

The tourist infrastructure is perhaps the most interesting. There are, of course, huge

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floating cities (*cruise ship* does not even come close to describing them) for vacations and retirement living. They are very popular timeshares. Undersea in 2030 is the new tourist “happening place” – submarines, hotels, casinos, and eco-tourism are all part of enormous new investments.

Perhaps the most daunting in terms of infrastructure is the passion that has developed across the globe for “personal freedom leisure” – expressed in motorcycles (with many new propulsion technologies), ultra-lights and numerous other small personal air vehicles with significant range, and boats (ocean, rivers, and lakes) in myriad configurations and capabilities. Indeed, it is the boats that offer the greatest and most complex range of options – two- and three-person submersibles, foil-born “ski-doo,” sport yachts that come in a wide range of sizes (some quite large with a stunning array of technologies including foil-capable yachts), wing-in-ground effect sport boats and ferries, sailing boats whose sails double as photovoltaics for boat motors, etc. The boating community seems to have taken it as an industry challenge to blend the most unlikely materials, technologies, and propulsion systems into new products. All of this interest in personal freedom leisure has become all the more dangerous and complex from a badly misplaced reliance on cyber-implant learning that leads far too many tourists into thinking they can take on any recreational activity after a 15-minute cyber-indoctrination course.

Finally, both the Arctic and Antarctic (but mostly the Arctic) have seen the development of (environmentally sensitive) tourist infrastructures. “See it before it melts.”

**Strength/Weakness
of Maritime
Legal Regime**

The nations have all agreed on the need to have a well-codified set of rules. However, the dynamic nature of the global political environment and the complexities of the maritime setting make this a very challenging endeavor. This is being further complicated by the pace of technology change. Rule-making struggles to keep up with changes in technology involved in maritime exploitation. The ability to enforce rules often rests on only a few nations or on coalitions, and typically lags significantly.

Global Culture

Global culture is an amalgamation of national cultures and driven by massive global inter-connectivity. There is no doubt that some cultures tend to have more influence (the U.S., India, China, Brazil, the EU), but national pride runs strong in 2030. American-style consumerism certainly is a dominant force with rising middle classes, but it has taken on such a tapestry of national inputs from around the world, that few see it as neo-imperialism. There is little ideological conflict by historical standards. If there are common threads to global culture they tend to represent (1)

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the *Heal the Earth, Reach for the Stars* movement, (2) democracy, (3) management meritocracy, and (4) the Electric Slide (who knew!).

Poverty & Development

In 2030 most of the globe is experiencing a strong, vital, and robust economy. Global trade and investment are high and consumers are generally confident. The tendency of firms is to decentralize their supply chains, and manufacturing has been a significant factor in improving developing world employment. This has led to a growing middle class in those countries, producing more consumers. Manufacturing can now be found in all corners of the world. However, this progress is anything but uniform. Many countries, especially those in Africa who have been slow to reform, remain in difficult economic and social straits. Unemployment in developing world is at all-time lows, even though there are large pockets of extreme unemployment and underemployment in areas not yet reached by the spread of manufacturing and services.

The rich-poor gap in 2030 is decreasing but, of course, large pockets of poverty and need (even desperation) remain. In many cases these pockets are in hard-to-reach areas of countries generally doing well (particularly with indigenous or tribal cultures) and in the burgeoning mega-cities. In many cases development needs are greatest in those areas that suffer devastation from natural disasters or areas that are destinations for environmental refugees. Health and nutrition problems are not gone and, particularly in places like failed states, the problems seem all the greater for the relative improvement of neighbors. While multi-national organizations do have programs for help, most aid comes from nations independently or from coalitions.

**Telecommunications/
“Virtuality”**

The world of 2030 is a place fully connected. The stand-alone computer has all but disappeared following incredible reduction in size and its seamless integration into other devices. 2030 is a world of “smart” everything: clothing, automobiles, home appliances, physical security, and navigation. The world is heavily dependent on the cyber-ways for media, information, education, sensor data, communication, entertainment – whatever is desired. However, like transportation systems and supply chains, there is significant redundancy. Much of that redundancy is due to the national character of cyber-way investments. No nation willingly leaves itself completely dependent on cyber-systems designed and run by others.

The cyber-ways are a realm for considerable criminal behavior – knowledge smuggling, scams, and personal stalking are just some of them. As a result most nations heavily monitor and police the cyber-ways. As a result of that, there is a very high level of concern for privacy violations. Most nations – the U.S., Japan, and Europe in particular – have very strict privacy laws and government surveillance has strict oversight. Other nations are less diligent about privacy rights

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and Americans continue to wonder if their own government uses the lax attitudes of others to spy on its own citizens.

For those across the globe who elect a business life of telecommuting (which are many for reasons of congestion or simply lifestyle), they connect through a virtual office experience, if they choose. This technology has mitigated the loss of social contact for many that had been a constraining factor in the past.

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U.S. Drivers**U.S. National
Security Position
Investment Priority**

The U.S. enjoys a very secure position. No one with any influence or power points to the U.S. as a main enemy. No nation or coalition of nations matches total U.S. military power – especially in conventional arms global force projection. It is worth noting, of course, that there are other nuclear powers (the UK, France, Russia, China, Iran, Israel, South Africa, and Brazil). This causes the U.S. some unease, but all are either democracies or at least countries with (presently) moderate and peaceful governments. So far, these nations have either maintained or developed nuclear weapons to solidify their positions as first-tier regional powers. Other emerging areas of military power, particularly cyber-war and nano-weapons, are a bit more problematic.

The U.S. is the global policeman and the world's first responder. It is more comfortable in this role than in the past. However, the U.S. government is stretched thin. It never seems to have the resources to meet all its commitments, nationally or internationally. In such a healthy economy, it is difficult for the military to recruit into the traditional services. The Cyber Defense Service has all the volunteers it can handle.

The U.S. has not converted its pre-eminence in military power into a commanding diplomatic position. The U.S. cannot assume it will get its way in global negotiations. Other nations – democracies, mostly – form coalitions to constrain U.S. power and influence.

The U.S. has the world's largest military. It is adequately funded but can never take that funding for granted. In a world where few threats are imminent (but many are "potential") the defense establish must always concern itself with justification. U.S. forces are globally deployed in bases, on and under the ocean, in the air, and in space. Presence includes crewed and un-crewed platforms, bases, and sensor swarms. The U.S. forces have the capability for one Major Combat Operation (win decisively & occupation) plus multiple sustained simultaneous natural disaster/humanitarian responses.

Services:

Navy: aviation, surface and subsurface platforms, many are UUVs and UAVs. Missions include: deterrence, littoral combat, SLOC patrol, disaster relief, and training.

Army: mix of light and heavy forces, much of it heavily automated, forward deployed (Central/South America, Asia, Europe). Missions include: combat operations against large regional armies, occupation, constabulary duties, nation building, civil affairs, disaster relief, and refugee protection.

Marines: fewer heavy units than previous, less automated, rapid-deployment force

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(first wave). Missions: opposed landings, disaster and humanitarian missions, often deployed afloat.

Air Force: heavily automated with UAVs and UACVs, significant global lift, extensive aerial refueling, and all military space assets. Missions: deterrence, lift, precision strike, space support.

National Guard: almost a full-time job responding to national events *and* international deployment (mostly humanitarian events).

Reserves: traditional reserve force, but op-tempo leads to difficult recruiting and retention.

SOCOM: small and focused on known trouble spots in ungoverned spaces.

Other: cyber force: national infrastructure defense.

Security/Defense Organization Structure: The early 2000s structure of the DOD has not been changed substantially, although the addition of the Cyber Service and the heavy emphasis on humanitarian needs has impacted the warrior culture a bit. There are, however, several re-structuring ideas making the rounds on the Hill and within the defense establishment. One idea is to rename the department as the “Department of Defense and Global Response” to capture its more complex missions and reorganize funding streams to be more in line with expenditures. A second idea (commonly called Goldwater-Nichols 25) is to develop a joint staff system with the Department of Homeland Security. And finally, the most ambitious is to simply combine DOD and DHS into one super-department.

Funding Support: It is substantial, but seldom enough for all the missions, plus maintenance, training, recruiting and retention, and re-capitalization. Not all funding is from the U.S. government. Other sporadic sources include: other countries, international organizations, private organizations, and the global environmental fund.

HLD/HLS Investment Priority: Natural disasters plus normal defense and security activities yield plenty of work for everyone with a decreasing distinction between HLD/HLS. U.S. homeland disaster response remains a combined state and DHS job.

Posse Comitatus

As of 2030, there is no change from earlier years. However, along with Congressional consideration of a single department attending to defense and global response missions, Congress is reexamining the entire doctrine of posse comitatus, especially since the last decade or more has witnessed an increasing overlap of defense and security missions.



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Be Careful What You Wish For**Global Perception of the U.S.**

The U.S. has had many well-regarded successes in spreading democracy and responding to global health issues and natural disasters. When the U.S. “shows up,” people generally think the solution is in hand. The U.S. is a popular immigration destination. The U.S. is both respected and occasionally resented as the leading ‘global power’. There is much behind-the-scenes activity among other nations on single-issues (‘standing up’ to the U.S., often for domestic audiences), mixed with accepting U.S. lead on other issues. It is a very complex, dynamic, and confusing situation, and many nations seek to contain U.S. power and influence.

U.S. Economy

*GDP growth;
key growth sectors*

After some early dislocations, volatility and a moderately severe recession that followed the troubles in China and geologic disruptions, U.S. economic growth is healthy and sustained at 3 to 4 percent per year. Key growth sectors include education, health care, environmental products and services, biogenetics/biotech, IT, sensors/surveillance, aerospace, materials, nanotechnology, energy, and entertainment.

*Government
economic policy/
business regulation*

The U.S. pursues a modified *laissez faire* philosophy. Generally the government prefers to establish minimalist regulatory standards – guaranteeing a level playing field for all and setting safety and security standards – and then standing aside. In both international and national forums, the U.S. prefers a regulatory approach that establishes frameworks for laws and transparency, for example, and uses incentives, but does not micro-manage industrial relations. (The environment is the exception to this.) With transnational industries and trade associations feeding heavily into the process, the U.S. government takes a very strong hand in setting global standards.

*Availability of capital/
investment climate*

The investment climate is bullish. Capital is readily available in a variety of old and new financial instruments, including carbon trading and other innovative derivatives. Much capital that would have gone to China, if it had flourished, is now going to the U.S. or heading for India, Brazil, and other developing economies.

Employment

Employment is strong in the U.S., and there is relatively free movement of legal labor across the border to meet key shortages. Additionally, many Americans, of all ages, spend significant work time abroad. Frequent retraining to adapt the workforce to the latest technological innovations is a booming services industry. Lifelong learning is the norm and taking a year off for travel is not at all uncommon.

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*U.S. infrastructure
(maritime, industrial/
manufacturing,
energy, undersea,
space-based)*

The U.S. maritime infrastructure is a chaotic mixture of the new and the old; the experimental and the old-school. Some coastal infrastructure (commercial and residential) along the U.S. West Coast has been damaged by earthquake and tsunami activity and there is renewed concern for the implications of a rise in ocean level. The insurance market's unwillingness to back coastal infrastructure in the U.S. has led to state-level risk assumption involvement in places, and voids in new infrastructure construction where no insurance is available. Where people are still living on the coast, you often see a mix of the insured very wealthy, and impoverished squatters living in shacks.

Commercially, there is much experimental work with on- and offshore floating ports of varying sizes. Significant strengthening work is being done on breakwaters, shore facilities, and dikes. There is a constant beehive of activity in most major ports – new dredging for larger vessels, lots of new port infrastructure (designed to be disaster proof and accommodate rising sea levels), new and deeper channels and canals. All the seaside activity has led to new land-based infrastructure and inter-modal connections (air, roads, rail) and concern about the impact of rising sea levels on that construction. Underwater commercial building is exploding with new drilling technologies, and an increased use of undersea pipelines and cables (e.g., Venezuela and the U.S.). Finally a number of countries, including the U.S., are permitting the development of floating factories and offshore wind farms.

The U.S. tourist infrastructure is perhaps the most interesting. There are, of course, huge floating cities (*cruise ship* does not even come close to describing them) for vacations and retirement living. They are very popular timeshares. Undersea in 2030 is the new tourist “happening place” – submarines, hotels, casinos, and eco-tourism. What is missing from 30 years ago is the expected growth in small boat ownership on the coasts. Tsunamis, earthquakes, and more violent cyclones have placed property and life insurance costs beyond the reach of all but the most wealthy.

*Trade and investment
(FDI) relationships*

There is a strong two-way street in trade and foreign direct investment (FDI). The U.S. is attractive for foreign investments, but over the years this has shifted from the over-emphasis on bonds and government securities of the early 2000s “high debt” era, to more investment in equities. Much U.S. investment capital flows to developing economies, particularly India and Brazil. China, however, remains less attractive. Trade in all its forms is a staple of 2030. The U.S. maintains a slight imbalance in its trade accounts, but has healthy and robust bilateral and multilateral relationships across the globe.

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*Fiscal and monetary
policies and status*

Many economists now credit the shock value of the early dislocations produced by China and the Ring of Fire as having saved the U.S. fiscal position. Prior to the recession of 2016-17 some modest reforms in entitlement spending, the ending of combat operations, and savings being seen from e-government initiatives had helped to end deficit growth, but had done nothing for the continuing deficit or debt. When China began selling off some of its U.S. paper, it temporarily cooled enthusiasm for U.S. debt instruments just as the private sector was finding itself crowded out of the debt market by the U.S. government. Interest rates were climbing, housing sales falling off, consumer spending declining, the dollar was weakening, and the recession brought with it a spike in unemployment, among other ills.

The pressure on Washington for serious fiscal reform finally hit critical mass. Tax reforms (increased rates, caps on the mortgage deduction, etc.) were to be phased in and promised improved revenues as the economy improved. Further entitlement reforms (such as pushing back age eligibility in Social Security), sharp cuts in various “corporate welfare” programs, and some reductions in defense spending, combined with the tax reform, returned confidence to the financial markets. Within three years, revenues were matching (and occasionally outpacing) government spending and the economy was growing strong.

However, the debt was huge and the U.S. in 2030 is still growing out of those debts of the early 2000s. While still not completely resolved, U.S. government debt no longer crowds out private sector borrowing. The government no longer operates in deficit, although everyone remains concerned about the retirement overhang that is looming (but currently postponed by strong growth). The dollar is strong with a stable monetary policy, and is the globe’s reserve currency. The U.S. federal government is stretched thin, it never seems to have the resources to meet all its commitments, domestically or internationally.

Resource dependency

The U.S. continues to buy resources from abroad. 2030 is a time of general peace and expanding global economic activity. The U.S. finds access to the resources it needs and does not concern itself over dependencies. Oil is still imported, but there are significant new deep well reserves that the U.S. controls plus new substitutes, and the imports are less than the previous decade. New nuclear technology, new coal technologies, and conservation measures have reduced, but not eliminated, dependency. The natural disasters of recent years have encouraged U.S. corporations to take a more diversified approach to supply-chain management.

There are significant new resource extraction opportunities in the arctic; although with substantial environmental regulations. Additionally, the near-year-round opening of the northern sea route has expanded Siberian resources

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extraction significantly.

U.S. Political Landscape

Political trends in U.S. (fragmentation, unity, third parties, civic engagement) and campaign finance reform

The American dream is alive and well. Further, the American dream has become a global dream: stable families, middle-class lifestyle, democracy, and reasonable safety and security. Americans are justifiably proud. The U.S. has a two-term President who began life as a college professor and two-term Congresswoman. She was also founder of the environmental movement that became *Heal the Earth*. As political ambition increased she added *Reach for the Stars* in a deliberate (and very successful) bid to appeal to both the American sense of optimism and its long-standing pioneer spirit. As a populist movement, it offered many a sense of direction. At a practical level, her emphasis on private-public partnership, science and technology, management approaches, and accountability appealed to the more practical. The *Heal the Earth* and *Reach for the Stars* movement has, since its inception been a grassroots movement. It has spun off numerous local and community groups, and volunteerism and community spirit are important features of the local political landscape.

As has so often happened in U.S. politics, the movement did not spawn a new Party. First one then the other Party essentially adopted the platform – their differences were in methods, not goals. The U.S. political landscape has cycled (as so often in the past) from the extremes of right, then left. At the moment, one party holds the executive and the other the legislative. The voters seem pleased with the balance.

The global private sector in 2030 is a tapestry of opportunities. As a result, men and women do not typically see politics as a long-term job. While strict revolving-door legislation has accompanied campaign finance reform, the Asian model of moving from government (and international organizations) to the private sector and back again is common. It is carefully watched, but is done all over the world.

Civil liberties vs. security

The world is swept by sensor nets (both government and private) attached to advanced database architectures that can provide a user with almost any piece of information. This has led to better border security, law enforcement, management of environmental programs, and vastly improved health and social services. On the other hand, the amount of data available from all these sensors is enormous and it is simply impossible for any nation or organization to know all that the sensors reveal. The old saw that “you cannot watch everything all the time” still holds true. In the U.S. and Europe the establishment of these sensor nets has led to overwhelming popular concern for potential privacy and civil rights abuses.

For the private sector, the regulation of data use and storage is extremely strict, and

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punishments can be so extreme that companies may end up in bankruptcy (partially due to market forces – once illegalities are proven, no consumer will trust them). In the public sector both government and civil-government oversight is actively used in conjunction with judicial approval and oversight. Even with all that, American voters remain skeptical of so much data in the hands of others. As a result, a very large and booming market now exists in extremely sophisticated commercial anti-surveillance systems and technologies that can be installed in homes, offices, and cars, and carried with each individual as a mobile anti-surveillance bubble.

*Balance between
federal/state/local/
private sector/
NGO's and non-profit
organizations*

In those areas of federal government concern, the states acquiesce to Washington. However, federalism is a mixed bag – neither clearly state's rights, nor predominantly centralized in Washington. First, the era of unfunded mandates is over. If the federal government wants a program, it funds that program through the states. The states happily go along. In many areas, however, the states remain the power – such as in education. Like so much else in the world today, problems are managed typically by partnerships – federal and state governments, NGOs, non-profits, and the private sector. So in the end, the “state” of federalism is hard to pin down – shared responsibilities and authorities in a partnership setting predominate.

One of the benefits of this federal/state/local partnership system has been the establishment of a multi-tiered access database across the nation for law enforcement. Law enforcement officials can access this database according to authorities that determine their need to know.

*Isolationism
vs. engagement
in the world*

The U.S. is an engaged society across the globe. The U.S. government is very active in all venues (despite stretched resources). U.S. citizens travel, learn, teach, live, and work almost everywhere. U.S. businesses invest, trade, manufacture, sell, and partner all over the globe.

Locus of political power

When all is said and done, the federal government still has the most money and prestige. However, the dynamic nature of the private-public partnerships that often solve problems leads to shifting patterns of power and influence across different issue areas.

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Be Careful What You Wish For**U.S. Society**

*Public perception
of military careers and
the government*

The U.S. public has a favorable impression of the U.S. government. Public service is a popular, but rarely a permanent career choice.

The military is seen in a similar way. U.S. military experience is considered an excellent resume builder at both enlisted and officer ranks. It is, therefore, easy to attract some of the best (even in middle age). However, it is hard to keep them for more than a few years because of civilian opportunities and the stressful high-operations tempo of the services. The National Military Strategy (NMS) is now a 250-page document (not including appendices).

*National loyalty and
identifications*

Americans identify strongly with their nation and feel loyal to the principles embodied in its Constitution and the American “brand.” Additionally there is a fairly strong identification with the *Heal the Earth* movement. However, such a dynamic and complex world, with so many opportunities, encourages overlapping and blended loyalties.

*Integration/
fragmentation
of U.S. society &
tendency toward
violence*

The U.S. public feels good about itself. There are no issues that create permanent political animosity. As a general rule, single-issue voting is a thing of the past.

However, for all that, one issue (predicted decades ago) does form the central component of much political debate and electioneering: an aging population. The U.S. economy is strong and the budget is in good shape, but that does not mean that spending priorities find common agreement across the nation. For all its success, the U.S. federal government is stretched thin. At the moment, the Social Security/Medicare/Medicaid spending dilemma is not a crisis. The U.S. economy is strong and there are economic rewards for not retiring, or for working part time.

Generally, there is the decrease in social violence that normally accompanies an increase in shared prosperity.

Education

Private and public (primary, secondary, and university) schools are well funded (some of it is government R&D money) and make heavy use of the cyber-ways. Formal degrees are still granted and attending a physical campus for college remains a popular choice, but lifelong learning and cyber-learning are important elements of the world. Cyber-learning is leveling access to skill development and career choices, but real differences exist in personal networking and experiential learning across a variety of educational institutions.

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Health care

While there is no health crisis, several developments in the world keep health issues at the forefront of public policy and private sector thinking. First, the global environment is getting worse, and that degradation brings with it associated health concerns. Global warming, volcanoes, floods, droughts, and air and water pollution all contribute to problems such as an expanding malaria zone, serious upper respiratory ailments, dysentery, hanta virus, and cancer. Second, as economic activities expand into previously unused geographies, mankind is coming in contact with heretofore unknown viruses. Third, as “Western” style diets become more common across the globe, the illnesses of rich diets are spreading. Fourth, malaria is now to be found in the southern U.S. (and Mexico) as a result of a warmer climate. Finally, many previously managed diseases are now, once again, becoming serious concerns as therapy-resistant strains continue to evolve.

There has been and continues to be heavy investment in the U.S. public health infrastructure. Health care continues to be funded by a mix of private and public programs. Private health insurance is the most common and carried with the consumers as they move about or change jobs. The poorest continue to have uneven access to health insurance. Public programs support the needy at a basic level. The U.S. continues to lead the world in health-care technology, including some remarkable advances in the arena of bio-genetic-cyber applications for nano-based therapies. However, the non-U.S. global pharmaceutical industry is rapidly catching up (some would say, surpassing). There is a move afoot to begin to base health insurance premiums on risks and DNA screening. Diagnostic and preventive technologies are vastly improved and thereby extend life expectancies.

Aging population of U.S.; societal and political effects

The human enhancement research has been showing early successes; some (very wealthy) can live to over 100 with better health. This has, of course, raised ethical issues over equitable access to the products. At the moment, the Social Security/Medicare/Medicaid spending dilemma is not a crisis – not even a problem. The U.S. economy is strong, the budget is healthy, and there are rewards for not retiring or for working part time (global consulting, teaching, mentoring, job sharing, etc., that pay very well and encourage retirement postponement). However, resource priorities are an area of public debate. Most believe that the problem has only been postponed.

Religious or cultural affinities

Cultural affinities are important in 2030. The process of globalization has not produced a homogenized (boring) world. Instead, the celebration of national and cultural distinctions has become an important feature of identity. So far, this has been a positive movement and many American citizens proudly display past national and ethnic identity without diminishing patriotism.

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The U.S. political system is a more secular place. Outwardly, religion is less of a dynamic force than it was in the 2000s. There seem to be numerous reasons for this. First, the religious extremism that swept both developed and developing regions in the early 2000s is largely blamed for much of that era's human conflict. Second, the embrace of democracy (and the impact of the U.S. Constitution as a model) has had an interesting side effect. A great many nations (perhaps fearing religious intervention in politics) have made separation of church and state a far greater hallmark of their constitutions than Americans might have anticipated and this has had an effect back in the U.S. Third, the middle class is growing fast again.

On the other hand, decades of "biblical" climate and geological upheaval, revived forecasts of sea levels rising, and the stress of life in the mega-cities have led to a considerable revival of evangelical regions in many locales. These tend to be split into the "end is near" and "we must protect God's earth" movements. There are some pockets of intense religious extremism – partly among those who do not like the modernization/globalization pressures – but religion, by and large, has become politically marginalized.

*Leisure activities
/tourism*

Leisure activities, as a part of everyone's life, have increased, both in in-person activities and virtual experiences. Activities range from beach day trips, to excursions to space. Tourists enjoy significant flexibility in these activities stemming from a large growth in shared ownership homes, boats, airplanes, submarines, and condo cruise-liners.

While the world's affluent have taken to "personal freedom leisure" activities with a passion, Americans seem to have raised it to a national calling. This form of leisure finds expression in anything that produces a feeling of speed, independence, and a touch of danger. It is expressed in motorcycles (with many new propulsion technologies), ultra-lights and numerous other small personal air vehicles with significant range, and boats (ocean, rivers, and lakes) in myriad configurations and capabilities. Indeed, it is the boats that offer the greatest and most complex range of options – two- and three-person submersibles, foil-born "ski-doo's," sport yachts that come in a wide range of sizes (some quite large with a stunning array of technologies including foil-capable yachts), wing-in-ground effect sport boats and ferries, sailing boats whose sails double as photovoltaics for boat motors, etc. The boating community seems to have taken it as an industry challenge to blend the most unlikely materials, technologies, and propulsion systems into new products. All of this interest in personal freedom leisure has become all the more dangerous and complex from a badly misplaced reliance on cyber-implant learning that leads far too many tourists into thinking they can take on any recreational activity after a 15-minute cyber-indoctrination course.

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Regions and Key Countries

Canada

Canada is doing well, benefiting from a rich resource base, especially water, and close ties to the U.S. economy. However, politically it does not always agree with U.S. positions and is one of the highly active democracies joining constantly shifting coalitions as issues arise. Free trade with the U.S. flourishes and Canada is enjoying significant immigration.

Mexico

Proximity to the U.S. market benefits Mexico as the economies and transportation linkages continue to merge. Labor (skilled or unskilled) is allowed to enter U.S. more easily via work permit/guest worker programs. Mexico enjoys significant foreign investment as global firms seek easy access to the U.S. markets, and this has helped offset the decreasing income from oil exports. Mexican politics is not a perfect democracy and social tensions remain due to continued misery of the very poorest sectors of Mexican society, especially indigenous communities. . Additionally, there is significant illegal immigration pressure on Mexico from the impoverished migrants exiting the Caribbean and Central America.

**Central America
& Caribbean**

Most of the democracies in the region tend to be on the left side of the political spectrum and frequently find themselves at odds with the U.S. in global negotiations. The fishing ban has been a particular sore point and there is some reverse U.S. resentment at the apparent lack of ‘regional loyalty’ among Latin American democracies toward the U.S. Countries that began the 2010s with good economic infrastructures (such as Panama and Costa Rica) are benefiting from the distribution of manufacturing that followed both the China troubles and the string of natural disasters. The expansion of the Panama Canal proved to be a well-conceived idea, but it is not clear if the prevailing routes of commercial trade will favor further expansion.

Many locations in Central America are becoming popular retirement sites for Europeans and Americans. These successes have had the unexpected reaction of spurring outbreaks of nationalism among certain local elites (often expressed in populist jargon) who see themselves losing their position within their societies. The misery index remains high among the very poorest groups in Central America, especially indigenous communities. This often coincides with the several ungoverned spaces in a number of countries.

The Caribbean tends to swing to two extremes. Those nations with excellent tourist facilities and/or natural resources and reasonably good governments have done extremely well. Those with few resources or corrupt governments are in very serious condition. The Caribbean is the major source of economic refugees. Border

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security is tight enough to provide deterrence, limiting successful attempts to enter into the U.S., so they often target neighboring countries. It is a serious regional problem: political, economic, and health. Cuba is one of the great democratic success stories, an example of a country that has rapidly embraced a democratic approach. Within ten years of Castro's death the Cubans had called a constitutional convention and set up a parliamentary democracy with Elian Gonzalez as the first Prime Minister. Cuban trade (especially tourism) with the U.S. and Europe, South America, and Asia is very strong and the economy is beginning to flourish. Relations with the U.S. are very good.

South America

As in Central America, most of the democracies in South America tend to be on the left side of the political spectrum and frequently find themselves at odds with the U.S. in global negotiations. The fishing ban has been a particular sore point and there is some reverse U.S. resentment at the apparent lack of 'regional loyalty' among Latin American democracies toward the U.S.

Countries that began the 2010s with good economic infrastructures (such as Brazil, Argentina, Chile, and Venezuela) are benefiting from the distribution of manufacturing that followed both the China troubles and the string of natural disasters. Trade within the Americas and with Europe is strong. Brazil, now a nuclear power, is becoming a powerhouse nation with advanced R&D in energy, aerospace, and genetics. Its military is small but very well respected by the Americans. Argentina shows great promise to return to its breadbasket status of old and has a strong energy sector specializing in small reactors. Chile's economy is well balanced and growing rapidly (but unfortunately suffers from the Ring of Fire instability). The misery index remains high among the very poorest groups in South America, especially indigenous communities. This often coincides with the several ungoverned spaces in a number of countries.

**North Africa
& Middle East**

The Middle East is at peace, and, if the area still has its share of tensions, they do not exceed the ability of the political systems to control them (at the moment – with the Middle East, you never know!). Democracy (an imperfect set of processes, but all on a trajectory toward greater citizen participation, legal reforms, and greater individual liberties) began to succeed in the Middle East in the mid-2010s – particularly Iraq, Kuwait, Lebanon, Jordan, at the local level in Saudi Arabia, and with some stirrings of greater citizen participation in Iran, Syria, and Egypt. The reasons? – to this day there is no agreement. However, the list of potential causes for the "outbreak" of democracy are typically about the same: the perseverance of the U.S., terror-weariness (especially the bloody terrorist attack killing [probably accidentally] hundreds of children in Pakistan in late 2013), U.S. drought aid in North Africa, U.S. HIV/AIDS efforts, the women's vote, lack of extremist

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successes, and the slow but steady success of the Palestinians. This enhanced the growing political and social power of Islamic moderates (except in Egypt) at the same time that it slowly dried up the broad base of economic support given to extremists. A small U.S. troop presence was invited to remain in the Persian Gulf region to promote stability in a ‘behind-the-scenes’ manner, despite occasional protests against the U.S. presence. The U.S. gained the grudging respect of many who saw the near-impossible begin to be achieved. Israeli relations with its neighbors benefited from the spread of democracy in the Middle East. First, the Arab states and businesses in the region were less intimidated by extremist groups and began to explore common economic interests with Israeli businesses. Second, Israeli confrontational elements found they had lost their ability to manipulate and mobilize U.S. political interests, when the “Arab threat” took on a democratic cast. Finally, weather patterns had increased water shortages in the Middle East, as well, and all agreed that regional cooperation (including Israeli technology) was essential to the solution. A Palestinian state now exists and is succeeding with much continued Western economic assistance. Tensions with Israel have eased. Both find that they have a mutual security interest in the animosity of Egypt.

The Egyptian voters elected a radical Islamic leadership with little to recommend it to the outside world. It is now heavily influenced by Wahabist ideology and broadcasts sermons of hatred to any and all who do not follow their creed. They see the main enemy as uncooperative Muslims. Much of their hatred is focused on the relations between the Palestinians and the Israelis.

Iran and Israel are nuclear powers. Ironically, both the poor economic management by the *mullahs* and the development of nuclear weapons seem to have encouraged moderation in Iranian politics. If their relations with the U.S. and Israel are not friendly, they are cordial. Iran enjoys joining anti-U.S. diplomatic coalitions for any reason they can think of. Jordan continues to be a well-run constitutional monarchy, Saudi Arabia is moving at a glacial pace toward more democratic procedures (there are now true local elections). Afghanistan is run by warlords and no constitutional patina can alter that reality.

In 2030 the U.S. seldom calls quite so much attention to the democracies of the region. It is not that democracy has failed. Indeed, elections are still held, parties change leadership without civil war, and the economies are growing. However, over the decade the processes of democracy, as the U.S. defines them, have slowly altered to accommodate local traditions, cultures, religions, and prejudices. Much to U.S. frustration, these countries now lecture the world on how to adapt Western notions of democracy to local traditions: saying, for example, that a strong religious code mitigates the need for an elaborate Bill of Rights, or that thousands of years of tradition obviate the need for judicial review. This is “appropriate democracy.”

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Sub-Saharan Africa

The global economy is beginning to reach into Africa in 2030, but tends to take hold, for now, in those countries that had already made some progress toward legal, economic, and educational reforms. The rich mineral resources are again in demand and some manufacturing is being located (on the coasts for now) as multinational companies decentralize their manufacturing and supply chains. Africa, it turns out, has a resource it did not appreciate – a fairly stable geologic position. With improved economics has come infrastructure and employment – again mostly at the coast for now. Already, large numbers of migrants are moving to the cities and Africa may be repeating the Indian and Asian problem of mega-city explosion. This economic success has a further downside. The combination of climate change and increasing contact with previously undisturbed areas has multiplied the emergence of new and extremely virulent pathogens. By their nature, they do not impact large numbers of individuals, but their appearance is often extremely disruptive with high mortality within confined regions.

But Africa still lags the rest of the world. Starvation is rare, but it still happens, and in Africa more than any other place. Disease has not been conquered here, but illnesses such as dysentery, dehydration, and malnutrition take fewer lives each year. The U.S. and Europe provided resources, management techniques, and public health support that began to slow the spread of the HIV/AIDS epidemic. In 2030, while the ultimate resolution to the global HIV/AIDS crisis is still beyond the horizon, infection rates have slowed, and a number of promising HIV/AIDS vaccines – though not widely available and not fully effective – hold significant promise for populations who can afford them. The human cost – especially to orphans – will go on for a generation or more, but there is hope. On the other hand, malaria spreads to new locations every year, and therapy-resistant tuberculosis and cholera are increasingly serious problems.

South Africa has emerged as a major power in the region. Its economy is among the strongest and its military is quite respectable. Interestingly, unlike so many newly risen economies, the South Africans do not seem to relish tweaking the U.S. nose in global affairs. Nigeria, too, is a serious power in the region, although the government has not been so quick to democratize and wealth is not shared fairly throughout the country.

Throughout Africa, genetically altered plants have formed the basis of a green revolution and the new Indian power plant technology has brought the 21st century to many locations. Most importantly, it has delivered refrigeration.

Europe

The EU economy, based on high-end leading-edge automated manufacturing, biotechnology, nanotechnology, services, entertainment, energy, and tourism, is strong but not surging. The negotiations that eventually led to greater labor

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mobility have helped the EU sustain its economic position. But the social safety network is still quite rich and is showing the severe strains brought on by an aging population. Immigrants continue to move to Europe, and are becoming a more central feature of the economy all the time. However, they are still not assimilated, as would have been the case in the U.S. This still causes civil tensions.

The continuing challenge of incorporating Eastern European members has slowed the drive to continental unity and there is less enthusiasm for expansion every year. Indeed, while Europeans firmly believe they are better off in the EU, there has been a marked increase in national feelings. Looking back, many historians now see that the high water mark for ‘union’ was 2004 (before the French and Dutch referendums). The next discussion with Turkey over EU membership is in 2032.

The U.S. and EU continue to be close political and economically. The common environmental agenda certainly had a lot to do with that. NATO also remains important. That is because (1) the U.S. and Europe still agree on many global issues, (2) established patterns of joint operations (such as the USN and the RN) are effective in managing stretched commitments, and (3) NATO allies continue to share intelligence. The EU and the U.S. partner in nation-building activities, but less so in peacekeeping and disaster assistance due to European manpower shortages. EU financial contributions to overseas development continue to be moderately high.

**Former
Soviet Union**

By 2030, Russia remains something of a political enigma. It is neither a democracy nor an autocracy. Its economy is neither capitalism nor command-style. Russia stands among the great powers in 2030, although many would say, “just recently re-arrived.” Much of Russia’s economic revival has been laid to finally adopting Western business practices (at which they now flourish – especially very “edgy” financial instruments) and the opening of the northern sea route, which has proven a boon to mining in Siberia.

Russia and most of the former Soviet Republics are one-party democracies. At the local levels, democratic governance actually seems to mean something. At the national levels that is less clear. Powerful economic interests tend to dominate national deliberations – particularly those who run the state-owned enterprises. Belarus, Georgia, and Moldova still celebrate Stalin’s birthday. The Russian economy is slowly growing much stronger, the largest drag being the very poor demographics of the country, since it is still suffering the results of past years of poor public health. Strategic minerals are sold to the world and oil and gas to Europe. They excel in financial services, energy, materials, aerospace, optronics, and some cyber-technologies.

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Russia still has a serious demographic and population problem. By global standards, the health-care system has only recently emerged from a seriously backward condition. Until 15 years ago, alcoholism, pneumonia, TB, HIV/AIDS, and influenza took far more lives than they should and infant mortality was the worst of all “developed” countries. Russia has worked some near miracles in repairing its society, but will suffer ill effects for decades to come.

All in all, Russia looks very promising, but has a way to go yet before it confidently matches European wealth and income standards.

**China
(including Taiwan,
Hong Kong, etc.)**

It has not been a good 20 years for China. Beginning in 2013 three years of cyclically extreme weather patterns in Central Asia created severe flooding and drought principally in western and central coastal China. It is plagued by multiple public health problems, and the flooding caused significant levels of starvation. By the next year, the Chinese economy was in recession with “coastal” unemployment in the 10-12 percent range and interior unemployment in the 25 percent range as whole villages began a massive migration to the coast. They were fleeing impacts of the flooding and droughts, fleeing in panic from disease, starvation, and rumors of poisonous spills, and moving to the only place they believed they could find work and shelter. Since the coastal areas remained more connected to global economy than the interior, this was not unreasonable. The Chinese government started selling off U.S. debt to feed itself.

By year three, China was experiencing millions of environmental refugees all pushing for the coast and the wealth and shelter they all believed to be there. Additionally, many Chinese were fleeing to neighboring nations (Russia, North Korea, and into Central Asia) in search of better lives.

In 2014 trouble began in Guangzhou, while Western news media still had access to China. A local PLA unit was called out (seemingly under the authority of the city council) to close the city and its environs to further internal migration. The repulse of the hordes of refugees became a bloody massacre. As the news spread, earlier refugees into the city began rioting in the streets in protest. More People Liberation Army (PLA) units were called out – under whose authority they acted has never been clear. A State of Emergency was declared and all unofficial residents were driven from the city. Like a contagion, similar events sprang up all along the coast. As Western news media were forced out of these locales under stringent news and information blackouts, they all agreed that little central control of these crackdowns seemed evident. Local authorities and local PLA commanders seemed in control.

There was little Western presence reporting out of China. Major ports closed for several weeks and crews on board anchored ships heard gunfire and saw smoke in

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most major Chinese industrial port cities. By weeks three and four a rigid quiet accompanied a limited reopening of the ports and factories. However, Westerners were kept strictly within the port facilities, airports, and specific hotels, and all communications with Chinese nationals were overseen. It became difficult to do business or even to visit factories. Deliveries became sporadic.

China's (and to lesser extent the entire region's) economic growth temporarily stalled. However, while the global economy slowed and markets showed skittishness for six to nine months, the strength of the global economy bounced back. This was due partly to China's limited re-emergence. However, largely it was due to very agile capital markets, web-based business connectivity, and the ability of many unaffected (or less affected) counties in Asia, Southeast Asia, Southwest Asia, and Latin America to quickly begin offering alternative production centers.

By 2019, economic stagnation and political instability began to moderate in China. While investors had become settled in other regions, some foreign investment did return to China. What investors found was an extremely complex political and commercial setting. That complexity had been hinted at in U.S. Government and media reports previously, but given little credence. As was often the case in China, nothing was exactly as it seemed. Investors seemed to agree that decision making – certainly in economic areas – seemed to have become much more decentralized into the key Provinces. For example, it was clear that regions and cities felt comfortable openly bidding against one another with incentive packages. While Beijing Ministries were always involved in all discussions (and signed all formal documents), it seemed as though final decisions were negotiated between local and central authorities (sometimes taking months). This slowed down negotiations with investors, left everyone a bit confused as to where authority really sat, and tended to inhibit the enthusiasm with which the “West” re-invested in China. Some said China was dividing into two sections – the coast region and the interior. Some said China was becoming more like five mega-provinces. Others insisted it was closer to 50 significant regional authorities. The Chinese all insisted that no change in the total unity of the county under the leadership of Beijing was conceivable. Foreign investors, however, had no doubts that they had to focus on the coastal cities and Provinces.

China has recently announced its intention to expand significantly its Navy. It says this is in response to U.S. bullying of its and others' fishing fleets.

Taiwan has remained independent through all this turmoil and partial re-emergence, but economic links to the coast continue to grow. Many would say that a de facto economic federalism has emerged with the mainland.

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Be Careful What You Wish For**South Asia
(India, Pakistan,
Bangladesh,
Sri Lanka)**

India is one of the great success stories of our time. Peaceful relations with Pakistan (that began with the collapse of extremist Islamic movements), the flowering of democracy worldwide, labor reform legislation in India, the turmoil in China, and U.S. support in slowing the spread of HIV/AIDS all contributed to launching India into world power status. Probably no other country benefited quite so much as India from the shift in global investment when China descended into turmoil. Perhaps the most significant events were the India-U.S. joint technology breakthrough for the successful mass-production conversion of nuclear waste into a renewable energy source. Capable of being used in micro (community-sized) or macro applications, this technology made a huge impact, particularly in the developing world. The new accompanying reactor technologies that use this material are so safe and reliable that even in the U.S., construction and licensing time is now measured in a few years rather than decades.

India is a regional military power with nuclear weapons and a modestly strong navy. The Indian economy is based on deep expertise in cyber-systems and theory, cyber-genetics, aerospace, entertainment, and consumer goods. Of critical importance to the Indian economy is the growth of its own middle class. Its internal consumer economy is very robust.

Like South Africa, one of the surprises of 2030 is the strength and endurance of the U.S.-Indian partnership. While they would seem on the surface to be natural competitors economically, in fact Indian firms and U.S. firms make a habit of successfully working in concert. India is frequently to be found supporting U.S. positions in the diplomatic sphere.

Pakistan, also still a nuclear power, lags India in economic development, but not, perhaps, as much as one might have forecast. India-Pakistani company partnerships are not uncommon (often with a U.S. presence). The U.S. takes a strong interest in the stability and development in Pakistan.

**North Asia
(Japan, Korea)**

Japan is one of the key trade and financial centers of the globe and the U.S. and Japan remained closely aligned. Japan's economy, as always, is based on consumer products, aerospace, automotive, electronics and cyber-systems, banking and trading houses, and the strength of its internal market. Additionally both Japan and Korea benefited from Chinese economic stagnation and, like India, assumed much of the investment that would have gone to China. Japan's greatest weakness remains its aging population and its reluctance to import labor.

The Chinese social and economic crash of 2015 had a huge impact on North Korea. Kim Jung-Il died tragically in 2015 (some say he was adulated to death) and was replaced by a military leader who immediately signaled a willingness to completely

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normalize all relations, well beyond the modest improvements sanctioned by the late (and deeply mourned!) Kim Jung-Il. By 2030 the Koreans are on the slow path to integration. South Korean economic growth has slowed as a result of the reunification burdens it has undertaken, but not as much as it might have without U.S. and Japanese long-term assistance.

**Southeast Asia,
Australia,
New Zealand**

Like India, Korea, and others, Southeast Asian nations have reaped some benefits from the re-directed investment out of China – particularly Vietnam and Thailand. Many have also been part of the sweep of enthusiasm for democracy. On the downside, the Ring of Fire has caused local devastation in much of the region and the net effect has been less economic growth than might otherwise have been anticipated. Particularly, the effects of earthquakes and volcanoes have hit Indonesia and Malaysia rather hard. Their economies are slow-growth, at best, and they face the potential for political instability. That might have happened already but for the fact that many middle management and skilled factory workers have moved to Africa where they form the backbone of many industries, retail systems, and educational systems.

Significant investments have flowed into Australia with a more liberal immigration policy, and the Australian economy is booming as it takes advantage of its American connections and its rich resource base. New Zealand hosts Tolkien, Xena, and large ape conventions.

Arctic/Antarctic

Global warming and the *Heal the Earth* movement have increased interest in the Poles enormously. Economic activity has surged, but not as much as one might have expected. There is too much concern for environmental damage. The UN's Global Ice Watch has recently released a study indicating a very considerable acceleration of ice melt at both Poles and Greenland to include surface melt, glacier calving, and increased melt water between the ice sheets and bedrock. Oceans have already risen 20 cm since the early 2000s and are anticipated to increase another ½ to 1 meter in the next 15 years.

Transportation routes in the north have multiplied, particularly in the Northern Sea Route, in an effort to avoid passage through the Ring of Fire area. There are modest resource extraction activities (minerals, oil, and methane hydrates), although they are tightly regulated. An increase in tourism (both "adventure" and "eco") is the most noticeable addition. "See it before it melts." All of these activities have led to an increased presence of safety, security, and business infrastructures.

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