

The Future Has Arrived

Forecasts of the 2015 Economic Boom

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The financial collapse of 2008 and its cascading business failures is certainly daunting, but the truly frightening thing is that the financial meltdown is part of a larger "global crisis of maturity" – energy shortages, climate change, weapons of mass destruction, terrorism, and other yet unforeseen threats that are escalating as accelerating technological change and globalization strain old systems to the breaking point. These mega-crises are interrelated elements of a failing global order that looks like a train wreck in slow motion. If not sub-prime mortgages, some other flaw in today's aging economic system would likely have caused roughly the same failures. Just as the collapse of Communism resulted from an over-controlled planned economy, today's "collapse of Capitalism" is the result of an under-controlled market economy.

The failures cut across all sectors of society to announce the end of the Reagan Revolution that began with his election in 1980. The Iraq war demonstrated the limits of military power, and the financial crisis the limits of free markets single-mindedly focused on profit-making. Bush's response to the Katrina disaster in New Orleans highlighted the problem of unresponsive government run by the old boy network. The sacred trust that banks depend on was shattered when a flood of shoddy mortgages brought down the financial markets, while the corrupting money of corporate lobbyists greased the palms of politicians to avert their eyes. And the reigning culture of consumerism was dealt a symbolic blow when shoppers rushing into K-Mart for bargains trampled an employee to death. Even that most revered symbol of success – multimillion dollar incomes – is being questioned for the first time I can recall.

We are likely to see more failures as the old system topples slowly over the next few years. With the constraints of a collapsing world order and Nature's hard reality pressing in, the excesses of the industrial age will be sloughed off like an animal shedding its outworn skin. The middle class seems to be in charge now, quietly threatening to revolt against outmoded practices that have left them out of the enormous wealth the rich have gained, so anything is possible. The recovery may be long and difficult, but this pivotal event could serve to address these profound institutional shortcomings.

Warnings of massive transformations have been anticipated for decades by the Club of Rome and many other futurists. Now, however, all of the concerns that we were forewarned of over the past few decades are at hand. The future has finally arrived – with a vengeance.

The great challenge facing Americans today – and the world as a whole – is to understand this historic transition in order to find our way through it with minimal pain and maximum success. Trillions of dollars are being poured into reviving economic life and President Obama shows the needed temperament to lead. In the rush to be practical, I'm afraid we have slighted the need for a guiding vision, powerful new strategies, or even a clear understanding of what is taking place and what it all means. We lack a sense of what would constitute a good society beyond the present one that is now failing.

Mapping the Path to the Next Economic Boom

I lead a small research team that forecasts the evolution of technology and its massive impacts that are changing the world. We have developed an intelligent website (www.TechCast.org) that pools the knowledge of 100 experts around the globe to forecast breakthroughs in all fields. Technology forecasts are especially useful because our collective "tools" and scientific knowledge form the foundations of society, the anchors of the social order. The relentless power of technology can be seen in the fact that the dot-com bust of 2000 didn't faze advances in the Internet, which has now entered a far more sophisticated "participative" stage, as seen in the explosion of Web 2.0 sites like Facebook and YouTube, and even the election of Barack Obama. As Andy Grove, Chairman of Intel, put it so well "Technology always wins in the end."

Our results show how the Technology Revolution is accelerating as ever more sophisticated information systems create unprecedented gains in knowledge, and producing breakthroughs everywhere. Modern societies can realistically envision renewable energy replacing oil, medical control over the genetic process of life, computer power becoming cheap and infinite, mobile communications at lightening speeds, robots serving as helpers and caregivers, and much more to come.

Issues of this magnitude are hard to grasp within existing worldviews, so I draw on previous studies to suggest that the crisis of maturity can be best understood as part of a "life cycle of evolution" (LCE). The LCE defines that path of global development driven by successive waves of increasingly powerful technology frontiers – agriculture, mass production, services, information, and now knowledge. This broader analysis reveals a life cycle of the entire planet, similar to but vastly larger than the life cycle of all organisms, culminating in a phase of maturity that transcends early stages.

One of the most striking conclusions of this work is that a green revolution is imminent that promises to pull the global economy out of today's deepening recession at about 2015, leading to a new wave of sustainable economic growth. Our forecasts suggest that today's surging interest in green business practices should reach mainstream use about that time, and governments are likely to take serious steps to curb global warming and climate change. Alternative energy sources – largely wind turbines, biofuels, and solar cells – are growing 30-50% per year, roughly like the way Moore's Law has accelerated advances in information technology. We estimate that 30% of all energy use is likely to come from alternative sources about 2020, initiating the serious beginning of sustainable economic systems. Green technology was a \$500 billion market in 2000 and is expected to reach \$10 trillion in 2020, larger than auto,

health care, and defense. The present mess in energy and environment policy actually offers a great opportunity to convert a potential crisis into sustainable, unifying growth.

The Obama presidency is planning to support this green revolution, but it should be a unified global effort to be more productive. The key to making this transition to some new form of global order will involve collaboration among all parties involved. Strobe Talcott, former U.S. Ambassador to the UN, Deputy Secretary of State, and now President of the Brookings Institution, thinks global collaboration is coming: "Individual states will increasingly see it in their interest to form an international system." And the recent report of the Millennium Project notes: "Ours is the first generation with the means for many to know the world as a whole... and seek to improve global systems... This does not mean world government; it means world governance."

The U.S. Government should invite major corporations and other governments to work together on improving environmental management, alternative energy, and other sustainable technologies. These same groups should agree on a system of carbon taxes, ideally, to internalize the costs of producing greenhouse gases and allow the market to solve environmental problems more efficiently. We also need to encourage innovative solutions, like sequestering CO₂, advanced biofuels, planting trees, and using industrial ecology. The problems facing corporations and governments are so intertwined that they encourage the type of collaboration badly needed today, and there is a unifying purpose to serving this higher calling of protecting the Earth.

Almost all sectors of the economy are likely to be rejuvenated with high-tech advances in roughly the same time framework. A new wave of green autos powered by hybrid, electric, and fuel cell engines should enter the mainstream about 2015, and we are likely to see "intelligent cars" that even drive themselves a bit later. So there are growth opportunities for automakers if Detroit can get its act together. Medicine is being reinvented even now with serious moves toward some form of universal health care for Americans at long last, and we are likely to see telemedicine vastly improve medical practices about 2015 while saving hundreds of billions of dollars.

The information technologies driving globalization are gaining momentum as publishing, entertainment, virtual education, and other forms of e-commerce reach the critical 30% adoption level where new businesses usually take off, creating enormous new markets totaling several trillion dollars over the next 10 years. And the huge populations of China, India, Brazil, and other developing countries are moving in droves to PCs, the Internet, smart phones, and global media, for better or for worse. Our forecasts show that three-four billion people will soon inhabit a digital world that is smarter, faster, and interactive, creating online markets of several trillion dollars and forming a fine web of global consciousness.

The year 2015 seems to mark the serious beginning of all this innovation because it is the next inflection point in the 35 year cycles that govern U.S. markets. The roaring twenties were the peak of a 35 year cycle that ended with the Great Crash of 1929 and the subsequent depression, while the Eisenhower boom of the sixties started in 1945 and was followed by the Reagan boom that started in 1980. Today's collapse is the end of the Reagan 35 year cycle, and it is likely be followed by the next boom outlined above starting about 2015. There will probably be a lot of backing and filling

over the next years of the Obama administration, therefore, building the foundation for a green tech boom that will lead the U.S., and hopefully the world as a whole, out of today's recession.

Collectively, these historic advances in energy and the environment, transportation, e-commerce, medicine, and other emerging business sectors promise to move modern societies into a new era of sustainable growth and more sophisticated global systems over the next ten years. It may even be that this coming global boom could serve to defuse the race toward weapons of mass destruction, terrorism, and conflict generally as diverse cultures are more closely integrated into the fabric of a global community.

Creating a World That Works

Nobody doubts the enormity of the problems that are certain to emerge along the way. And it's hard to imagine how this can be achieved in a world that celebrates power politics, money, glamour, consumerism, and self-interest. The 2008 financial crisis, however, is widely understood to mark an end to that era, and the outpouring of support around the world for the Obama presidency signals the possibility of global unity. Polls show that a majority of Americans are also united behind his proposed plans to solve the energy and environment problems, revamp health care, promote global collaboration, and restructure financial corporations to solve the structural problems that caused the financial meltdown in the first place.

Beneath the surface, deep rivers of fresh thought are bubbling up. Pollster John Zogby analyzed his data over the past 20 years to conclude "We are in the midst of a fundamental reorientation of the American character... Away from wanton consumption and toward a new global citizenry in an age of limited resources." It is especially noteworthy that young people lead in embracing this global view, despite our common image of disheveled youngsters oblivious to all but their cell-phones and iPods. Zogby finds that young adults 18 to 29 years old constitute the "First Globals." This "digital generation" accepts all races, sexual orientations, national cultures, and other differences equally, and they are intent on living sustainable lives in a unified world (Zogby, 2008)

The crisis of maturity may not prove catastrophic if acted on in time, but a major turning point seems inevitable as the multiple threats of world-wide industrialization, energy shortages, climate change, environment collapse, nuclear holocaust, spreading terrorism, global conflict, and other unknown crises reach critical levels over the next next decade. The World Bank forecasts Global GDP to double by 2020, exacerbating all these mega-crises proportionally. And unlike other crises, the crisis of maturity does not seem to tolerate the usual muddling through. The broad path of global development is moved rapidly into a more powerful frontier of knowledge to create an advanced stage of global intelligence and heightened awareness, similar to but vastly larger than the life cycle of every human. Whether a teenager shedding the baggage of youth to become a responsible adult or a civilization facing the crisis of maturity, the imperative is much the same – grow up or perish.

From this perspective, the world seems poised at the cusp of a great discontinuity, much like the life of a teenager when trust into the passage to adulthood. Common sense is not very useful in such transitions because the world is likely to change abruptly and dramatically, and things look bleak because that's the normal situation facing any system struggling through maturity, whether a teenager or an entire global civilization. The emerging global order seems to possess a life cycle all its own that is unfolding rapidly, provoking a series of mental shifts to address this crisis. The obstacles are enormous, but it is precisely because so many people are so deeply concerned that a change in consciousness is underway. We have accepted women in power, transformed planned economies into free markets, begun to protect the environment, and the U.S. has elected a black president. Now the tough challenge of shaping awareness lies ahead to complete the historic passage to a world that works.

Hardly a perfect world, of course, but a functioning global order.

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