

# Climate Change, Demographics, Technology, and Globalization

## Their Impact on the Acquisition Community

*Jerry Emke*

**T**rends and shocks subjects continue to receive a lot of attention. In October 2007, Al Gore and the Intergovernmental Panel on Climate Change (IPCC) received the Nobel Prize for their work on climate change. On Nov. 17, 2007, the IPCC released its latest report conclusively documenting climate change. In the last issue of *Defense AT&L*, I presented a variety of cyberspace, energy, and resources trends and shocks that will impact the acquisition community. In this article, I address further future impacts to acquisition arising from trends and shocks emanating from changes in climate, demographics, technology, and globalization. History is replete with examples of unexpected events that startled and surprised people and countries and that drove change throughout time. Our goals are to keep from being surprised and to take note of today's trends in order to avoid or mitigate any adverse impacts to acquisition.

Let's review the terms I used in my first article. Consider a **trend** to be a prevailing direction that people will go in and a **shock** to be an event affecting people much like the first jolt of an earthquake. When you look back at a shock, the long-term trend that resulted in the shock is readily apparent.

### Climate Change

Climate change will affect us all. To some it will be life-changing; to others it will simply be an ongoing aggravation and inconvenience. Some parts of the world will turn into deserts while others will become inundated by rising sea levels. The majority of the world's population lives near a coastline, and we conduct much of our business and manufacturing in these coastal areas. Government centers, business and industrial facilities, transportation networks and facilities, and energy production and distribution facilities are close to the coastline. The destruction resulting from Hurricane Katrina in August 2005 and the July 2007 inundation of Bangladesh are examples of recent warnings of things to come for low-lying coastal and tidal areas. Storm surges will also take a greater toll on coastal communities and infrastructure as sea levels rise. The U.S. power grid and energy distribution systems are increasingly vulnerable to damage by extreme weather. At



the same time, much of the Middle East, Western China, and larger portions of sub-Saharan Africa are threatened by drought.

Climate change will impact acquisition. Software, parts, subsystems, services, and weapons manufacturing and testing sourced from organizations located in low-lying coastal and other water-stressed areas will pose greater

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risks for acquisition schedules and costs. Storm surges and extreme weather events will increasingly interrupt schedules and production for programs, driving up costs. The disruptive effects of extreme weather events on critical infrastructure will pose even greater risks for acquisition. Problems with energy and resource distribution and flow will be exacerbated by climate change and extreme weather, posing greater risks to the resources required by acquisition for manufacture, test, and continued support of weapon systems.

### Demographics

The world's population will increase to 8.5 billion in the next 30 years. Life for the "haves" will get materially better, but many will fall into the "have not" category and will live in dire hardship. The disparity between rich and poor will worsen. Most oil is produced by countries that are autocratic or run as dictatorships, and one cannot readily identify how oil revenues are spent. Misuse of oil revenues in these states will increase the discontent of the people and provoke political violence. Drought will force the migration of millions of people in areas that rely on subsistence farming. Millions more will migrate from inundated coastal areas. Administration, control, and the rule of law will be lost in failed states, regions, and cities around the world. Many other developmental areas will become increasingly unstable, and this instability will make access to needed resources more problematic. New social communities will develop that are poorly structured political, cultural, and economic virtual communities of interest. These groups will use their new associations for competitive advantage. Some groups will take whatever action they deem necessary in response to trends and shocks in order to survive, maintain control, or carry on a chosen way of life. Acquisition will be impacted as access to critical minerals and resources becomes more precarious and uncertain.

### Technology

The pace of technology breakthroughs will accelerate faster than ever before. Existing technologies will become obsolete more quickly, challenging procurement cycles. The technological breakthroughs will help our adversaries and competitors—whether nation states, groups, or rogue individuals—to leapfrog dated technology and more quickly close the technology gap with the United States. These adversaries and competitors will be able to embrace new technology, avoiding significant costs and avoiding concerns about upgrading dated legacy systems. Maintaining legacy systems is now prohibitively expensive and will limit investment in new breakthroughs as they materialize. Civilian and military technologies and users are increasingly commingling, and at some point, it will be impossible to disentangle them. That will result in loss of our ability to control access to design-related information and availability of technology, and it will raise grave security considerations.

By necessity, the Department of Defense is increasingly relying on procuring commercial off-the-shelf software that has dual usage and was developed using open systems architectures. Today's reality is that hardware is cheap and software is expensive. More and more research and development is taking place outside the traditional centers for R&D, in rising powers and developing regions that are not controlled by and only marginally influenced by the United States. Deliberate and accidental technology leakage, through the Internet and other digital devices as well as telecommunications and the media, will lead to a widening number of state and non-state actors accessing advanced and sensitive technologies.

Acquisition will be impacted in different ways. Existing weapon systems development and procurement cycles will not keep up with the pace of innovation and technological breakthroughs. Legacy-laden weapon systems that are not easily upgraded will be too costly to maintain and use. Proprietary, sensitive, and advanced technology will become more difficult to keep secure and shared only as intended by the United States.

### **Globalization**

Local markets are being replaced by global markets for goods, services, and labor. This will speed up economic growth while exposing us all to the disturbing effects of never-ending fluctuations in the wider global economy. Life will become increasingly competitive with winners and losers. Our lives will be driven by the laws of supply and demand. The world will keep getting smaller as we become more tightly integrated, interdependent, and linked around the globe. Key consumer nations like the United States will trust neither the security of supply to market forces nor the integrity of an international system over which they have less and less influence. International organized crime will grow in volume, reach, and profitability as perpetrators learn to use the latest off-the-shelf technology to accomplish their ends. The Internet will fuel the aspirations and expectations of everyone who is online, showcase global inequalities, and act as a means of attack for those who opt out of the global community.

Acquisition will become more and more globalized and less subject to the direct control of the Defense Department. The key players in acquisition will be targeted more and more by adversaries and competitors, whether they be nations, groups, crime organizations, or rogue individuals. The United States will not be able to trust the access and supply of energy and critical resources to market forces.

### **Now is the Time to Respond**

As we begin to shape the DoD's next round of strategic planning guidance, we need to consider the steps we must begin to take today to help shape acquisition in a manner that will enable us to have as successful a future as we



have had a successful past. Reasoned thought needs to take place in order to weigh the likely trends and upcoming shocks in order to identify those that are most critical for us to act upon now.

A recent report by the CNA Corporation on National Security and the Threat of Climate Change recommended that the Defense Department review the future risk faced by the United States as a result of the great number of military bases, facilities, and ports located in low-lying coastal areas. A similar review should be undertaken to identify the risk to acquisition from the amount of weapons, spares, sub-tier suppliers, and testing that is sourced from organizations with production, test, storage, and distribution facilities located in low-lying coastal areas. Further we need to separate those trends that we have the greatest ability to influence from those that we will not be able to influence. Overall, a comprehensive review of the impact of trends and shocks on acquisition is needed so that we can create the policy that we will require in a more uncertain future.

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