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Go Bold or Go Old: At the Nexus of Opportunity and Need

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As the U.S. draws two major conflicts to a close and a national budget crisis looms, President Obama and Chairman, Joint Chiefs of Staff, General Dempsey are seeking new ways of operating and partnering in emerging and proven capabilities. To remain the world's pre-eminent military, the U.S. must seek ways for innovation as a massive recapitalization of military hardware and other capital assets and resources must be undertaken. In most circumstances, this would be cause for alarm, especially as legacy weapon systems and their proposed replacements have price tags that are adding to the nation's insolvency. The U.S. government and the military, however, are in a position to make a bold move into the future capitalizing on the global strategic environment of the next few decades. Strategic thinking, leveraging insight and foresight, will maintain U.S. military capabilities unmatched in the world for decades to come. Over the next decade, the U.S. military must focus its efforts on the five strategic trends of multiculturalism, urbanization, nanotechnology, biotechnology, and cyberspace to chart a bold, new course. This new course will shield the U.S. from the unintended consequences of ceding the future to potential adversaries by investing in the "old" way of operating.

This past January, President Obama stated, "…the United States will be able to ensure its security with smaller conventional ground forces and by investing in capabilities that include intelligence, surveillance and reconnaissance and the ability to operate in environments where adversaries try to deny access."[1] The President plans to implement his vision by continuing investments in special operations forces, new technologies such as ISR and unmanned systems, and in space, and especially cyberspace capabilities. Expanding on this vision, Secretary of Defense Panetta added that ground forces will be reduced in a way that ensures surge and mobilization capabilities are available for any contingency. Chairman, Joint Chiefs of Staff, Gen Martin Dempsey stated that the strategy is sound and, "It ensures we remain the pre-eminent military in the world."[2] The Obama strategy calls for innovation—new ways of operating and partnering, and makes important investments in emerging and proven capabilities such as cyber and special operations.[3]

Although needed from a fiscal perspective, these changes stop well short of the grand strategic vision that this country urgently needs. Unfortunately, a grand strategy based solely upon fiscal

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considerations is doomed to failure. In the coming decade, the U.S. will face multiple threats from state and non-state actors, and these complex threats will transcend geographic borders and organizational boundaries.[4] The U.S. currently finds itself in a uniquely transformed world with novel geopolitical and security environments. Just as unique, as the U.S. military draws two major conflicts to a close, national and global budget crises also loom. After a decade-plus of war, a massive recapitalization of hardware and other capital assets and resources must be undertaken.[5] In most circumstances this would be cause for alarm, especially as legacy weapon systems and their proposed replacements have price tags that are adding to the insolvency of the nation. However, the U.S. government, or more specifically, the military, is in a position to make a bold move into the future capitalizing on the global strategic environment of the next few decades.[6]

Why should the world's best military reorient itself? The U.S. must adapt to maintain its competitive position in the world and meet the threats changing in substantial and fundamental ways. Fiscal considerations are paramount to any defense discussion, but it must be part of a broader long-term strategy that looks across the strategic environment holistically.[7] Using the tools of strategic thinking, insight and foresight, a bold way ahead can be charted for the U.S. that will facilitate and enhance its role as the world's sole superpower. This new way ahead will provide untold benefits for American manufacturing, defense, and health care and make it the world's leader of innovation for the next century. Over the next decade, the U.S. military must focus its efforts on the five strategic trends of multiculturalism, urbanization, nanotechnology, biotechnology, and cyberspace to chart a bold, new course. This new course will restrain the U.S. from the unintended consequences of ceding the future to potential adversaries or competitors by investing in the "old" way of operating.

Strategic Thinking

Insight and Foresight

Strategic thinking is defined as the precursor to the development of a strategy or plan.[8] Strategic thinking is an examination of the environment and is an intuitive and creative process that results in the fusion of issues, patterns, interrelationships, and opportunities. Insight and foresight are the two major components of strategic thinking. Closely related to intuition, insight is the ability to see beyond the facts and understand the deeper meaning of the whole.[9] Foresight is the ability to comprehend the larger context of a specific situation and the ability to recognize emerging conditions and associated trends along with their implications.[10] The ultimate goal of foresight is to provide actionable guidance for decision makers.[11] Foresight is the "process or set of analytical activities that creates and improves on the understanding and appreciation of information generated by looking ahead."[12]

Whereas the future will be fundamentally different from the past, America will still be the preeminent global actor. U.S. global influence, however, will decline relatively and be dependent upon regional partnerships and alliances for support.[13] Despite recent recessions and slow growth, in economic terms America's position in the world remains unchanged. The U.S. still produces approximately one-quarter of the world's economic output with little or no decline in relative capacity. It spends more on defense per year, about $525 billion, than all of the other

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great military powers combined. Combat experienced land, sea, and air forces are equipped with the most advanced weaponry and remain predominant in every corner of the world.[14]

Despite the obvious strength of the U.S. military, the national strategic instrument of choice will be "soft" power to facilitate the achievement of national objectives. The economic prosperity of many nations will depend on functioning global economies and access to the global commons. The security environment will continue to see a delicate ideological struggle between shifting power blocs and competition for allies. The changing nature of competition, the need for access to secure energy supplies, and the realization that local or regional "flare ups" will include the use of chemical, biological, cyber, and unconventional methods will challenge conventional and traditionally educated thinkers.[15] Multilateral military activity is necessary to protect globalization, including protection of global supply chains and space-based infrastructure, from physical and virtual disruption. Successful military operations will depend upon culturally savvy senior leaders who understand the effects of actions at the local, regional, and strategic levels.

Shifting alliances are likely to deter military intervention by major powers outside of their sphere of influence, without widespread multilateral agreement, which is likely to reduce the latitude for discretion. When intervention becomes unavoidable, actors will seek to distance themselves by use of proxy forces, cyber attack, as well as covert and clandestine methods. The question of nuclear proliferation, biological and chemical warfare, natural resource competition, terrorism, crime, drugs, urbanization, pandemics, and piracy, among other undesirable conditions, require new capabilities and resources.[16] Unfortunately, budgetary considerations and the unsustainable escalation of costs in developing legacy capabilities calls for a new approach.

The following five trends are signals from the current environment that have "hard" trend lines with immediate payoffs or "medium" trend lines that have potentially revolutionary payoffs. The first three trends, multiculturalism, urbanization, and cyberspace, are current hard trends that will continue for decades and will shape the pursuit, development, and application of the other two trends. The trends of nanotechnology and biotechnology are relatively less mature, but given Moore's Law (the number of transistors that can be placed inexpensively on an integrated circuit doubles approximately every two years) and the Law of Accelerating Returns (the rate of change in a wide variety of evolutionary systems tends to increase exponentially), the potential for significant advances within the next 10 years are very good.[17]

Multiculturalism

By 2025, the current wide range of national population age structures will vary more than ever. European minority populations are 15% or more and increasing changing the dynamics of those countries. A youth bulge will continue across the Middle East and Caucasus, Latin America, the northern parts of South Asia, and with the preponderance in Sub-Saharan Africa.[18] Although one cannot dismiss conflicts between nation states, the preponderance of future conflicts can be described as "community" conflicts, with some concrete factor such as religion, ethnicity, or language as the root causes.[19] The relative power of non-state actors—businesses, tribes, religious organizations, and criminal networks--will also increase. Geopolitical rivalries trigger discontinuities more than does technological change, and failure to understand these dynamics undermines a nation's ability to assess risk and seize opportunities.[20]

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The concept of comprehensive engagement seeks the active participation of nations, institutions, and peoples from around the world and is the cornerstone of U.S. national security. Unfortunately, the U.S. does not currently enjoy the kind of expertise regarding its rivals' thinking and operations resident during the Cold War. Developing a cadre of experts on key states and issues of concern is essential for any serious effort at successful strategy formulation.[21] Graduate education focused on multidisciplinary and regional studies is essential for any senior field grade officer in the future. The Services and Joint Staff must make concerted efforts to facilitate regional or country expertise in officers and develop career paths accordingly.[22] Developing regional centers of excellence in key countries would facilitate U.S. cultural understanding and position itself as a regional professional military education provider. If nothing else, increasing faculty exchanges with key countries would serve a similar purpose.

Comprehensive engagement begins with understanding the environment. A cross-sector approach is essential, where political, social, economic, technological, environmental, and military expertise informs both the decision-making process and the implementation of decisions.[23] Given the dynamics of globalization and technology, the trend for considerable cultural interaction significantly increases in the future. Strategic thinkers possessing multidisciplinary, cross-cultural perspectives are most likely to produce significant positive results, and thus lead to a better, more fully considered future.[24]

Urbanization

Throughout history, armies have been reluctant to fight in cities and conduct siege operations. Fighting in such conditions is generally devastating and costly. In 2015, approximately 53% of the world's population will reside in cities and this number will increase to 60% by 2030. Over the next decade, estimates are that up to one billion people will live in slums suffering from poor governance, centers of crime, and disaffection.[25] The majority of these slum cities will be in the Middle East, Africa, and Asia, and lie along the coasts.[26] Virtually all of the world's expected population growth in the next 15 years will concentrate in urban areas—95% of this growth will be in less developed regions, primarily in Africa. Food and basic services can sustain interruptions for short periods before cities will collapse. Future megacities will lack the basic infrastructure and administrative infrastructure to facilitate stability operations.[27]

Urban areas and their surrounding areas will find much of the world's population crammed into them, and the Joint Force will have no recourse but to operate in these dense environments. These cities of the world, teeming with younger populations and living in slums, will be physically and culturally complex and confusing.[28] These areas will be prime locations for diseases and pandemics, and the increased probability of urban, rather than rural, insurgency. To execute urban operations successfully, the joint force will require in-depth cultural and urban expertise. In execution, a delicate balance of destructive and disruptive firepower and non-kinetic options that support humanitarian, security, and reconstruction operations is necessary. Operations in urban environments will require decentralized command and control systems, intelligence, surveillance, and reconnaissance (ISR), agile fire support, and aerial mobility.[29] Flexible, inexpensive, and energy-neutral sophisticated technologies, such as drones and robots, will leverage nano- and biotechnologies suitable for urban operations.

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Nanotechnology

Nanotechnologies will have profound implications for types and properties of materials used by the Defense Department and will affect operations as much as the computer. Potential applications span nearly every material area of defense including sensors, armor, weapons, ground transportation, avionics, computing, energy, medicine, environment, and emergency management.[30] The result will be the precise, inexpensive control of matter – the consequences of which are game-changing opportunities and risk. If the U.S. could produce large-scale products with high flexibility and quality using extremely low material costs, it would possess defense and economic drivers far greater than the entire computing technology industry in the previous 35 years.[31]

Nanotechnology will create new and unique properties with profound and diverse applications. Products will be smaller and more energy-efficient, designed and manufactured with atomic precision and less waste production.[32] In the next five to seven years, most advances will occur in sensors, electro-optics, including biologically active agents and surfaced engineered materials. Integrated nano-devices will lead to the emergence of small, swarmed, and autonomous systems and will become pervasive and diverse, particularly in manufacturing, synthetic reproduction, novel power (battery) sources, and health care.[33] Nanotechnology may also provide the physical and chemical means to produce or have ready access to miniaturized undetectable materials to conceal or protect the degradation of dangerous biological-chemical agents. The application of nanotechnologies will be the ability to manufacture almost any mechanical device cheaply and in large quantities, which could result in new classes of armor, sensors, explosives, computing means, and energy generation and storage.[34]

Biotechnology/Biofuels

Biotechnology has applications far beyond medicine, pharmacology, and genetics. Future military influences intersect with materials science and manufacturing toward a bio-based economy.[35] For the last 10 years, petroleum-based products have been the primary raw material for the world's economy. Prominent among replacement products are biological sources obtained from plants and animals. The National Agricultural Biotechnology Council forecasts agriculture to be the primary source of chemicals, energy, and materials. In a bio-based economy, the primary raw materials will be genes, and new genes will be the source of innovative products. In the near-future, the U.S. requires assured access to a broad-based, diverse supply of genes. Whereas petroleum is found worldwide, genes concentrate in equatorial regions for physical and biological reasons that give rise to what biologists call the latitudinal density gradient. As a consequence, equatorial regions may become more important to our nation's energy security.[36]

The 2010 Quadrennial Defense Review identified energy as a strategic issue. The DoD currently spends over $13 billion a year on energy, but meaningful change that addresses operational energy and not institutional energy savings has been mostly rhetoric.[37] Energy storage technology is a necessity for a viable alternative to fossil fuel sources. The first commercializers will gain a significant global, military, and economic advantage, developing the ability to store and use energy on demand from a combination of alternative sources.[38] A recent study found

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that, in the energy sector, the need for new infrastructure extends the time frame needed to widely adopt a new production technology is about 25 years. Any new form of energy is highly unlikely to use the current infrastructure without major modifications, so any innovative developments will demand a massive investment.[39] A massive outlay in infrastructure development may appear contrary to the current fiscal realities, but considering the expense from 1976 to 2007 of over $7 trillion to keep aircraft carriers alone in the Persian Gulf,[40] the investment spread over several decades seems reasonable.

Cyberspace

The 2011 National Military Strategy states that cyberspace capabilities enable combatant commanders to operate effectively across all domains. Should a large-scale cyber intrusion or debilitating cyber attack occur, a broad range of options are necessary to ensure access to the cyberspace domain and to hold malicious actors accountable. Many threats will operate transnationally requiring ongoing cooperation and multinational interoperability between security services.[41] Advances in robotics, cognitive science coupled with powerful computing, sensors, energy efficiency, and nanotechnology will combine to produce rapid improvements in capabilities of combat systems. Cyberspace will likely be exploited by all types of actors, but their effects are likely to vary, and disputes regarding attribution, intent, and legitimacy of cyber attacks will occur.[42]

Offensive cyber attacks will be used to penetrate and attack electronic-rich systems, networks, and infrastructure.[43] Containment is the new protection – for years, cyber security defenses have focused on keeping cybercrime and malware out. Outbound inspection will focus on technologies to be more about containment after initial penetration. If the pace of technological change continues, greater change will occur over the next 20 years than over the previous century.[44]

The complexity of interactions between individual actors and the community means that cyberspace is best described as an ecosystem. Understanding outcomes means understanding many factors in the environment and a multitude of actors in complex nonlinear interactions.[45] Driven by cooperation and competition, as a manmade system the characteristics of cyberspace are manageable. The challenge is to develop the capacity to understand the behavior and leverage points in this complex system.[46] The ability to adapt to any system shocks requires a highly capable cadre of people at all levels. The DoD must develop and nurture a strong cadre of cyber experts similar to the naval, air, and space operators who have enabled access into other realms. The issue is one of vision and will to put limited resources into the mission and away from traditional missions. The intellectual challenges are interdisciplinary.

Conclusion

A fiscally conscious Joint Force of 2020 will operate in a competitive and complex global security environment. Strategic thinking, leveraging insight and foresight, will maintain U.S. military capabilities unmatched in the world for decades to come. Early adoption of nano- and biotechnologies, coupled with increased efforts in cyberspace, will provide considerable economic and military advantages to those who make a significant commitment. Unburdened by

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existing infrastructure and historical patterns of development, competitors such as India, China, and other developing countries may have the opportunity to be the first to develop a host of these emerging technologies. However, current U.S. budgetary concerns and the need to undertake large-scale investments, in infrastructure and capital assets after a decade of war, places the U.S. in a unique situation to invest in and mature these technologies to take advantage of its early lead in these areas. Officers educated in world cultures who have an understanding of key strategic factors such as urbanization will form the vanguard of strategic thinkers necessary to see these technologies developed for future operations.

Although future environmental changes hold the potential for conflict and will create new security risks, global and national conditions are currently such that the opportunity for fundamental change exists. It is time for national decision makers to develop a sense of urgency in addressing the problems of the current and future security environment. The costs over the next decade will be trillions of dollars that the nation can ill-afford to spend unwisely. Substantial change takes decades or more to fully implement and senior officers cannot be preoccupied with their "in-boxes" at the expense of more important and far more difficult challenges and choices. The risks are debatable, but the opportunity is here to go bold or to go old.

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[1] Pellerin, C. (2012). Obama: Future force will be smaller, agile, ready. *American Forces Press Services*. Retrieved from: http://www.jcs.mil/newsarticle.aspx?id=785 (para. 5).

[2] Pellerin. (2012). para. 20.

[3] Pellerin. (2012).

[4] Office of the Director of National Intelligence (ODNI). (2009). *Quadrennial intelligence community review.* Scenarios: Alternative futures the IC I could face, Washington, DC. Retrieved from: http://www.au.af.mil/au/awc/awcgate/dni/qicr-scenarios.pdf

[5] Krepinevich, A. (2009). *7 deadly scenarios: A military futurist explores war in the 21st Century*. New York, NY: Bantam Books.

[6] Moran, D. (2011). Envisioning future war. *Strategic Insights, 10(Special Issue).*

[7] Krepinevich. (2009).

[8] Sanders, T. (1998). *Strategic thinking and the new science*. New York, NY: The Free Press.

[9] Mintezberg, H., Ahlstrand, B., & Lampel, J. (1998). *Strategy safari*. New York, NY: Free Press.

[10] Sanders. (1998).

© 2012 School of Global Leadership & Entrepreneurship, Regent University
ISSN 1941-4668

[11] Einhorn, H. J., & Hogarth, R. M. (1987 Jan.-Feb.). Decision making: Going forward in reverse. *Harvard Business Review, 87*(1), 66-70.

[12] Solem, K. (2011). Integrating foresight into government. Is it possible? Is it likely? *Foresight, 13*(2), 18-30. (p. 26).

[13] ODNI (2009).

[14] Kagan, R. (2011). Not fade away: The myth of American decline. *The New Republic*. Retrieved from:t http://www.tnr.com/article/politics/magazine/99521/america-world-power-declinism

[15] ODNI (2009).

[16] United Kingdom, Ministry of Defence [UK MOD]. (2012). *Global Strategic Trends - Out to 2040, Fourth Edition, Development Concepts and Doctrine Centre*. Retrieved from: http://www.mod.uk/DefenceInternet/MicroSite/DCDC/OurTeams/StrategicTren ds.htm

[17] Jacobstein, N. (2009). Nanotechnology. In N. Arnas (Ed.), *Fighting chance: Global trends and shocks in the international security environment, Center for Technology and National Security Policy*. Washington, DC: Potomac Books, Inc.

[18] National Intelligence Council [NIC]. (2008). *Global trends 2025: A transformed world*. Washington, DC: U.S. Government Printing Office. Retrieved from: www.dni.gov/ nic/NIC_2025_project.html.

[19] Moodie, M. (2009). Conflict. In N. Arnas (Ed.) *Fighting chance: Global trends and shocks in the international security environment, Center for Technology and National Security Policy*. Washington, DC: Potomac Books, Inc.

[20] NIC. (2008).

[21] Arnas, N. (2011). *Challenges for national security organizations and leadership development: Trends and shocks in complex adaptive systems. Chapter in Fighting chance: Global trends and shocks in the international security environment, Center for Technology and National Security Policy*. Washington, DC: Potomac Books, Inc.

[22] Godet, M., & Mack, T. (2011). On foresight, prospective, and the affairs of nations. *World Future Review, 3*(2), 72-75.

[23] Arnas. (2011).

[24] Krepinevich. (2009).

[25] UK MOD. (2012).

[26] Canton, J. (2006). *The extreme future*. New York, NY: Dutton.

[27] United States Joint Forces Command [USJFC]. (2010). The JOE 2010: Joint operating environment. *Joint Futures Group (J59)*, Suffolk, VA.

[28] Friedman, G. (2009). *The next 100 years: A forecast for the 21st century*. New York, NY: Anchor Books.

[29] USJFC. (2010).

[30] UK MOD. (2012).

[31] Jacobstein. (2009).

[32] USJFC. (2010).

[33] UK MOD. (2012).

[34] Jacobstein. (2009).

[35] NIC. (2008).

© 2012 School of Global Leadership & Entrepreneurship, Regent University
ISSN 1941-4668

[36] Armstrong R., & Drapeau, M. (2011). *Life sciences. Chapter in Fighting chance: Global trends and shocks in the international security environment, Center for Technology and National Security Policy*. Washington, DC: Potomac Books, Inc.

[37] Department of Defense. (2010). *Quadrennial Defense Review*. Washington, DC: U.S. Government Printing Office.

[38] Armstrong & Drapeau. (2011).

[39] NIC. (2008).

[40] Bennett, J. (2011). U.S. military to cut oil consumption. *Geopolitical Monitor*. Available at: http://www.geopoliticalmonitor.com/us-military-to-cut-oil-consumption-4292/

[41] USJFC. (2010).

[42] Rattray, G. (2011). Cyberspace. In N. Arnas (Ed.*) Fighting chance: Global trends and shocks in the international security environment, Center for Technology and National Security Policy*. Washington, DC: Potomac Books, Inc.

[43] UK MOD. (2012).

[44] Rattray. (2011).

[45] USJFC. (2010).

[46] Rattray. (2011).

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