National Intelligence Council

Buck Rogers or Rock Throwers?

Conference Report
14 October 1999

This conference was sponsored by the National Intelligence Council (NIC) with Armed Forces Journal International and the National Security Studies Program at the Edmund A. Walsh School of Foreign Service, Georgetown University. The views expressed in this conference summary are those of individuals and do not represent official US intelligence or policy positions. The NIC routinely sponsors such unclassified conferences with outside experts to gain knowledge and insight to sharpen the level of debate on critical issues.

Agenda Summary Report

The DCI's Strategic Estimates Program

In 1999, the NIC began undertaking a systematic research and development program on broad crosscutting issues for the new millennium, which constitute the DCI's Strategic Estimates Program. We envision engaging with experts outside the Intelligence Community in understanding these issues. The program includes a series of conferences, gaming exercises, and other activities to expand on analytic capabilities in these areas:

Warning in a Changing Security Environment
This project is exploring alternative scenarios for several of the more immediate warning concerns and seeks to expand warning competence on newly emerging security issues.

The Future of Military Conflict
We are assessing the nature and character of future conflicts that affect the United States, both directly and from a distance.

The Information Revolution
This project is considering how effectively various regions, countries, and sectors of society can cope with the information revolution and related issues.

Declining Authority of the Nation-State
This project examines how globalization, ethnic particularism, and the permeability of borders are challenging the ability of states to remain the guarantor of the security and well-being of their populations.

Global Economic Threats
We are considering how unprecedented market volatility is threatening the economies of various countries and the "Washington Consensus" on such issues as the liberalization of trade and capital flows.

Challenges to the Surviving Superpower
The United States is having increasing difficulty translating its unparalleled power into influence on key developments in the international community; this project focuses on understanding the factors affecting this issue.
Global Trends 2015. The above issues will serve as building blocks as the NIC produces a follow-on to our 1996 study, Global Trends 2010, which identified population growth, economic progress, food, communications, energy, and military technology as key factors in shaping the world.

The event, co-hosted by the Georgetown University National Security Studies Program, the National Intelligence Council, and Armed Forces Journal International, will examine the role technology plays in the modernization and doctrinal developments of militaries around the world. The goal is to present analyses that shed light on the international response to the revolution in military affairs so that scholars and analysts might better understand the role technology will play in the development and use of armed forces in the early decades of the 21st century. The first three panels will examine the military modernization plans of various countries critical to international security and US foreign policy. Panelists will consider the following issues: strategic thinking, declared intentions, procurement, and expected results of modernization of the country in question. The fourth panel will provide a broad assessment of the consequences for American policy as a result of international trends in technology diffusion and the revolution in military affairs.

Agenda

8:15 am - 8:45 am Check in and registration

8:45 am - 9:00 am Opening remarks Stephen P. Gibert, Director, NSS
John Gannon, Chairman, National Intelligence Council
Robert Gallucci, Dean, SFS

9:00 am - 10:30 am Panel 1: Asia China: Michael Pillsbury (National Defense University) India: Timothy D. Hoyt (Georgetown University) Korea: Victor Cha (Georgetown University) Taiwan: John Copper (Rhodes College)

10:30 am - 10:45 am Break

10:45 am -12:15 pm Panel 2: Europe Britain: Robbin Laird (ICSA) and Timothy D. Kilvert-Jones (UNITECH) Germany: Holger Mey (Institute for Strategic Analysis, Bonn) France: Yves Boyer (Fondation pour la Recherche Strategique) Russia: Stephen Blank (Army War College)

12:15 pm - 1:30 pm Keynote Speaker Luncheon Andrew Marshall (US Department of Defense, Office of Net Assessment)
Location: Copley Formal Lounge

1:45 pm - 3:15 pm Panel 3: Second- and Third-Tier States Australia: Michael Evans (Land Warfare Studies Centre, Duntroon Australia) Case Studies Among Third-Tier States: Chris Demchak (University of Arizona) Israel: Shimon Naveh (Tel Aviv University) Persian Gulf: Anthony Cordesman (CSIS)

3:15 pm - 3:30 pm Break

3:30 pm - 5:00 pm Panel 4: Implications Paul Bracken (Yale University) Dan Gouré (CSIS) Williamson Murray (Institute for Defense Analyses) Joseph Nye (Harvard University)

5:00 pm - 5:10 pm Concluding Remarks Don Fruehling, Chairman and Publisher, AFJI Participants

Summary

About 150 participants, including an international gathering of experts, examined whether and how technology may be leading to a paradigm shift in the nature and conduct of warfare, a shift that has been generally categorized as a “revolution in military affairs” (RMA).They concluded:

- The United States is the far-and-away leader in this drive. In fact, the United States is the only country intent on achieving a high technology RMA. No country is likely to match the United States in the broad-based technological sophistication of its military capabilitiesor even to try.

- US successes in developing RMA capabilities will drive potential adversaries toward asymmetric responses including weapons of mass destruction and information warfare. Some countries probably would be able to pose serious operational and strategic challenges to the United States by acquiring military technologies and capabilities that were in their eyes, “good enough.”

- Also, countries can exploit “sidewise” technologies—old by US standards but still new to many other countries—to pose significant security threats and complicate US military operations. These technologies, if employed in a “novel” operational manner rather than high-end technologies, could drive development of the next RMA.

- Participants believe that—of the countries considered for discussion—China, Russia, India, and Australia have the greatest potential to achieve an RMA, should they decide to pursue the option.

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What Constitutes a Revolution in Military Affairs?

History demonstrates that military revolutions are complex events in which technological change is often a key enabler but not necessarily the major driver. Panelists identified necessary drivers as the presence of a clearly defined opponent, a strategic purpose, and the ability to integrate technological capabilities into warfighting doctrine, training, and professional military education; without this combination, technological breakthroughs will do little more than facilitate defense modernization.

Is an RMA Underway?

Based on this definition of an RMA, some experts question whether the activities we see underway are more along the lines of a high technology modernization rather than an RMA, even in the United States. Joint Vision: 2010 is the JCS concept of how to leverage technology to achieve new levels of effectiveness in joint operations. One panelist argued that JV 2010 lacks the fundamental elements of identifying who the United States might fight, for what purpose, or when. Another argued that current US military culture minimizes the importance of both doctrine and professional education—particularly knowledge of foreign languages, culture, and history. A "genuine" revolution, instead, would require profound changes in the intellectual foundation of military doctrine, personnel, and training.

One speaker cautioned against mistaking the expanding body of RMA writings coming out of US and foreign think tanks as a commitment to implementing the concept. Theorizing about an RMA is much easier than putting it into practice, particularly if the theory is based on technologies that are just emerging.

Rock Throwers or Buck Rogers: Which Future is More Likely?

Panelists were skeptical that any country other than the United States is intent on achieving a high-technology RMA.

Most countries lack the resources to make the necessary investment, the political determination to pursue the associated advanced technologies, and the perceived need or the industrial capacity to support a high-technology military. In addition, decisions about high-technology research, development, and production are being dominated by the private sector, not military establishments. Consequently a state's drive to acquire breakthrough military capabilities is increasingly constrained by a skeptical private sector. This sector is attentive to commercial and market imperatives rather than government needs for products that respond to unique military requirements.

No country is likely to match the United States in the broad-based technological sophistication of its military capabilities—or even to try. Nonetheless, conference participants expect to see growing interest in alternative strategies for integrating advanced technology into defense planning. Several countries are pursuing "niche modernization" and will procure pieces of the RMA suitable to their own security needs. Others will look to older technologies and perhaps asymmetric warfighting strategies to counter US superiority.

Panelists also cautioned that we should be careful about how to visualize military revolutions. The current RMA is generally portrayed as linear progression of technological change driven by the United States. Focusing on the highest end of the technology spectrum could overlook the possibilities that other states could exploit "sidewise" technologies—old by US standards but still new to many other countries. A prime example is the diffusion in the Middle East and Asia of the 1950s-1960s era nuclear weapon and ballistic missile technologies. Older technologies such as these can still pose significant security threats and complicate military operations, and these technologies, rather than those at the "cutting edge," could drive development of an RMA if employed in a "novel" manner.

Where is an RMA possible?

In addition to the United States, panel members identified **China, Russia, India,** and **Australia** as having the potential to achieve an RMA. Japan was not a subject of the conference, but panel members assessed that Japan merited further study.

China

The expert on military affairs in China argued that the RMA school in China is a small but vocal group within the Chinese strategic community. Although some analysts believe that China will be the first to seize the full potential of RMA capabilities, others note numerous challenges that will obstruct China's pursuit.

Advocates of an RMA-based modernization strategy in the Chinese armed forces are heavily outnumbered by those defending Mao's concept of a "People's" war and by those proposing preparations for a "local war." Current doctrine is built around the concept of a People's war, and advocates of this strategy have considerable influence within China's political leadership, which is willing to overlook the potential drawbacks of fighting the "last war" in order to preserve the country's ideological legacy. There is no senior political sponsor for the RMA school in the armed forces, and no one appears likely to emerge from the current regime. Although China could incorporate selected elements of a high-technology military, the doctrinal changes and force reorganization necessary to achieve a genuine RMA would place significant stresses on the Communist system.

Some participants also noted that most Chinese depictions of a future RMA adversary resemble the forces of the United States and its allies. Chinese RMA advocates, however, believe their country, not the United States, will be the first to exploit the RMA in two or three decades. These advocates, both civilian and military believe this situation will provide an opportunity for China, and other countries that follow suit, to confront the United States.

A follow-on discussion raised the possibility that China might develop an asymmetric strategy for fighting the West. Elements of such a strategy could include a launch of preemptive strikes with antisatellite weapons and the use of computer viruses designed to paralyze the enemy's nerve centers and upset logistics.

Russia
Russia has key fundamentals in place to produce an RMA. They are: (a) the intellectual foundation; (b) a demonstrated capability to field world-class military systems; (c) an advanced military industrial infrastructure and scientific and technical experts; and (d) the desire to remain a world power.

One expert on Russian military affairs estimated, however, that chances are small that Russia will achieve this potential—mainly because of economic, political, military, and cultural chaos. He also argued that Russian national security assessments tend to be wildly inflated and link NATO—"subjugated" to US dictates—to threats ranging from support of ethno-separatist movements in local wars to enemies at the theater and global levels. The unwillingness of the Russians to see the modern world beyond "antiquated old-regime categories" encumbers them with unaffordable military requirements. In the end, a lack of resources, discipline, and organizational structures would stymie Moscow's pursuit of an RMA, according to this expert, who did not foresee dire economic constraints serving as a catalyst to spur development of breakthrough capabilities.

The panelist concluded that Russia will continue to place greater reliance on nuclear deterrence as a result of the decline in its conventional forces and capabilities. This Russian response is one of the few clear asymmetric strategies adopted by an important power. Unlike the United Kingdom, France, and Germany, Russia is not constrained by the issue of interoperability with the forces of the United States and has the—flexibility to pursue broad innovation, niche capabilities, or asymmetrical responses.

India
According to an expert on Indian military affairs, India has a large and modern commercial high-technology base and has begun to experiment with both offensive and defensive information operations. Its military and strategic thinkers have paid considerable attention to the writings of experts in the United States and China on the RMA. Some of them cite the experience of the colonial period to argue that India must keep pace with RMA developments or become a servile state. These writers are especially concerned over US military preeminence and long-term US intent toward India. The speaker argued that near-term obstacles to India's pursuit of an RMA—namely lack of a strategy consensus, bureaucratic obstacles, and budget constraints—will be too significant for India to overcome and achieve an RMA.

The expert noted that India's strategic community must balance several competing security interests including concern over national unity and insurgencies, threats from Pakistan and China, and India's aspirations for a global leadership role. These competing interests pull Indian force planning and strategy in different directions. For example, some missions such as patrol of the Himalayas are manpower-intensive, while a refocus of Indian security to extra-regional threats is regarded as necessitating severe manpower cuts to release funds to acquire world-class capabilities. This particular divergence is far from resolved.

The specialist also pointed out that India is hamstrung by the nature of its indigenous defense research and production. India has a significant high technology commercial sector, a large pool of information-technology talent from which it can draw, and a substantial software industry. Indian defense research, development, and production efforts, however, remain reliant on state-owned ventures and thus lack dynamic input from the private sector, one of the key contributing elements to the ongoing RMA in the United States. In addition, some within the Indian strategic community argue that for India to engage in high-technology warfare is to fall ultimately into a Western trap that would force India to fight on foreign terms.

Australia

The conference cited Australia as the only country that has institutionally embraced the concept of an RMA and is attempting to use it to guide a transformation of its defense strategy and capabilities.

Discussions described how Australia embraced RMA thinking because of strategic policy changes. In the mid-1990s Australia moved from a strategy of continental defense to a maritime strategy that reflected a greater willingness to project force in defense of national interests in the Asia Pacific region. Defense planners see the RMA as providing the enabling capabilities Australia will need to execute its military strategy.

The Australian Ministry of Defence has created an Office of the Revolution in Military Affairs to review technological developments and develop a strategy for adopting RMA technology from the United States. The Ministry has increased spending on research and development, has expanded military cooperation with the US Army's battle laboratories, has held conferences, and has conducted experiments and exercises in a comprehensive effort to provide a deeper understanding of the revolution. In each of these endeavors, the Australians have sought to formalize and institutionalize developments across its three armed services. They also appear to view the RMA in a "holistic" context, seeing the RMA as ultimately evolving from an as yet undetermined blending of technologies, doctrines, and organizational changes.

The Australians have identified four key components of the RMA—weapon lethality, force projection, information processing, and intelligence collection. They consider the country's labor force well suited to take advantage of emerging information technologies.

There are, however, impediments to Australia's pursuit of the RMA. Money is the most significant. With limited defense resources and increased operational expenses, acquisition funds are strained. A 1997 review outlined a modernization strategy that would apply information and communication technologies to existing platforms. Australia also plans to exploit off-the-shelf commercial technology. This "middle way" is envisioned to allow Australia to hold down defense spending, retain a competitive edge in the Pacific region, and ensure necessary interoperability with US forces.

The View From Western Europe

European governments and military leaders were described by panelists as skeptical of the concept of an RMA and as believing that the United States has exaggerated the benefits of high-technology warfare. They characterized European states as generally wary about proclamations that technology will eliminate the fog and friction of warfare; the European riposte tends to be that technology cannot overcome deficits in human leadership and sound strategy. Other European concerns according to the panelists include the following.

Fiscal pressures

Competing budget priorities—primarily social welfare costs—have severely limited the funding available for defense modernization. Technology offers, however, both a solution and a formidable challenge. A high-technology fighting force could reduce the demand for manpower in states with unfavorable demographic trends. On the other hand, a high-technology force is expensive to outfit and sustain, particularly if the Europeans attempt to keep pace with the United States.

Sensitivities over industrial production

Because commercial technologies play a critical role in the RMA, the issue of who will benefit economically from defense modernization is contentious among both the European governments and between Europe and the United States. Furthermore, the Europeans fear that the RMA could be a vehicle for the United States to hold Europe hostage to US proprietary standards and make it impossible for them to compete successfully for defense contracts.

Preserving a role for diplomacy

Europeans are wary of the impact of the RMA on overall security policy. They worry that breakthroughs in military capabilities will weaken the inclination to use diplomatic tools to resolve conflicts. They tend to downplay the significance of the RMA by arguing that technology can only shape, but not control, what remains fundamentally a political world.

Preventing US dominance of the Alliance

The French, in particular, were said by the panelists to want to ensure that a focus on defense modernization does not undermine or deflect Europe's efforts to define its own identity distinct from the United States. Nor do Europeans want the transatlantic defense relationship to become structured in such a way that the United States provides an information umbrella while Europe supplies the personnel. The UK, France, and Germany have strong defense and high-technology industries that are positioned to exploit commercial spinoffs that also have military applications. They resent, to varying degrees, both the reliance on the United States for key technologies and the restrictive access the United States places over these technologies.

Ensuring interoperability

A key question raised in the UK's recently completed Strategic Defence Review was whether the Europeans will be able to retain interoperability with US forces if the gap in

defense planning and resource allocations continues to widen. Operation Allied Force provided proof of a widening technological and operational gap between the United States and its allies. The Operation left many Europeans wondering how they would retain interoperability with US forces given the even greater advances being contemplated by the US. Panelists agreed that the United States could take two potential paths to the RMA—each one would have major implications for the future of interoperability between the US and its European allies.

If the United States insists on restrictive handling of technologies and systems that it develops in pursuit of the RMA, the Europeans would have to acquiesce to American "dictates" in order to achieve interoperability.

Conversely, if the United States tailors its RMA technologies and operations on more widely available commercial systems, the Europeans would have easier access to these systems to achieve interoperability with the US.

Other Perspectives

The panelists indicated that, for the majority of the world, the RMA is viewed primarily as the incorporation of advanced information technologies rather than affording quantum improvements to military capabilities. Countries, however, increasingly perceive that a small, information-intensive, professional armed force is the model for a 21st-century military. Moreover, according to one expert, information warfare represents a less expensive and less risky way to "level the playing field," particularly against adversaries with large-scale conventional capabilities. Many countries will be able to develop information warfare capabilities with modest investments in the procurement of technology and equipment. Few, however, are likely to be able to organize and train their militaries in ways that will take full advantages of these capabilities.

Iraq and **Iran** are examples of states that will likely explore the usefulness of information technology in the pursuit of asymmetric conflict. According to one expert, both states are more impressed with the overall military capabilities of the United States than with US potential for achieving an RMA. To counter US military capabilities—current or those that emerge from the RMA—these states will explore ways to exploit US vulnerabilities, including through the employment of information warfare and cyberterrorism.

Israel according to one of the panelists is not driving development of an RMA, a surprising finding for a country that largely has the reputation for operational innovation and for producing state-of-the-art weapons. Although Israel explored the concept of an RMA prior to the Gulf war, the security community in Israel was said to advance leaders who have demonstrated tactical success. This system of merit and promotion favors those with narrow technical skills and has inhibited broad strategic thinking. The panelist contended that even if Israel did not develop an RMA, it would still retain significant advantages in conventional warfare, especially because its enemies are also unlikely to be making progress toward an RMA.

Defense modernization in some states—such as **Thailand** and **Chile**—was said to be a mechanism by which civilians can ensure support from military leaders and discourage their intervention into domestic politics. In **Saudi Arabia** and some other Gulf states, the acquisition of advanced-technology systems has not been part of any coherent effort to improve military cooperation and effectiveness but is valued, in the words of a panelist, for its "glitter factor."

Defense modernization in **South Korea** and **Taiwan** has been evolutionary rather than revolutionary, largely because of unremitting security threats and a dependence on the US security umbrella. Both countries reportedly conducted a calculated expansion of their sources of military technology and equipment to reduce their reliance on the United States. Capital expenditures for capabilities that would free them from the US security umbrella, however, were said to be prohibitive. In addition, neither Taiwan nor South Korea would want to lose the US security umbrella in view of ongoing security threats. The expert argued that these defense planners may express interest in the RMA—under the guise of advancing interoperability—as a way to leverage access to US advanced armaments.

The Impact of US Pursuit of the RMA

Establishing the standard of the art

As the leader of the field, the United States is driving the pace and nature of the RMA. The performance of US forces in the Gulf war and in the Balkans has highlighted the growing gap in technological capabilities between the United States and the rest of the world; perceptions of this gap are shaping the responses of both allies and potential enemies of the US.

Driving the development of the operational counter

US successes in developing and fielding RMA operations also will drive development of asymmetric responses—including cyberterrorism, WMD use, or information warfare—by potential adversaries, both state and nonstate.

Alliance relations

US export policies, particularly with regard to "proprietary" systems, will play a major role in shaping alliance relations and establishing the parameters for combined military operations.

Insight into US intent

In a period with only a single global superpower, countries will be closely watching trends in US defense technology, strategy, and operational concepts to gauge whether the United States could become their strategic adversary. These perceptions will spur countries to develop their own RMA breakthroughs or asymmetric responses.