



TRANSFORMATION TRENDS—3 JULY ISSUE

Despite the natural human resistance to change, transformation is coming. It is happening. And the key question is will we stay ahead of those who wish us ill?

Defense Secretary Donald Rumsfeld, May 2002

Defense Trends:

Changing DoD Approach to Information—The Pentagon should begin thinking about whether combining disparate information “elements across DoD into a single department-wide information element” makes sense, Paul Wolfowitz, said in a 25 June speech to defense CIO’s. While such an effort is “a formidable challenge” the end result “might enhance jointness and might accelerate the adoption of network centric operations.” Wolfowitz also said that there is no longer any debate over whether network centric operations “makes sense but rather how best to achieve them.”

Foreign Military Innovation—Important future lessons for the U.S. military can be drawn from studying historic foreign military innovations, argues Thomas Mahnken, in his new book *Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941*. While a historical study, the book nevertheless devotes a concluding chapter that lays out a “set of indicators of innovation” that all militaries seem to employ. Despite U.S. advantages today, now is the time to intensively study foreign military innovations, which is undoubtedly taking place. Not realizing this “could breed disaster in a future conflict,” Mahnken concludes.

DoD Role in Homeland Security—Sen. Joe Lieberman, D-Conn., is detailing a much larger role for the military in defending the homeland from terrorist attack. Lieberman wants the National Guard to focus less on responding to overseas missions and more on improving homeland defense, the senator said in a 26 June speech. “For homeland security to be all it can be, the National Guard needs to be all it can be,” Lieberman said. The Guard should “focus more mind and muscle on domestic defense.” Legislation being crafted by Lieberman in the Senate also calls for creating a new Security Advanced Research Projects Agency, modeled after DARPA, to push future technologies for homeland defense.

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Future Stealth—There are certain lessons for stealthy aircraft that can be derived from submarines and anti-submarine warfare, according to a new paper from Northrop Grumman’s Analysis Center. Northrop builds both the B-2 and nuclear-powered submarines, it should be noted. The paper contends that some new technique has long promised to shatter submarine stealthiness, but continued improvements to the system continue to exploit the submarine’s covert advantages. The same analogy can be made concerning stealthy aircraft, contend Robert Haffa and James Patton. “Stealth, to survive, must be accorded the attention and the resources it deserves,” the authors said.

Stealthy Swedish Ship—The Swedish Navy’s stealthy Visby corvette is ready to begin sea trails, for the remainder of 2002. The ship, one of five to be built, is designed from the ground up to emphasis stealth and signature reduction. The ship also is built almost entirely of composite materials. It will undergo sea trials this year, combat system tests in 2003 and entire the Swedish fleet in 2005.

New Navy Network Command—The Navy is poised to establish a new Naval Network Warfare Command that will become the single point for IT, information operations, and space requirements for the entire service. Located in Dam Neck, Va., it will report to the service’s Fleet Forces Command and be the key organization in developing the evolving FORCEnet concept. Vice Adm. Dick Mayo will lead the new command, which is to be officially established the week of 8 July.

Future Air/Missile Threats—The Army could face greater air and missile threats in coming decades as the pace of technology becomes more widespread, according to a new RAND study. The report, *Army Air and Missile Defenses: Future Challenges*, came to four major conclusions. The Army should invest more in cruise missile defenses; it should retain and improve its short-range missile defenses against aircraft; laser weapons to target rockets and artillery may be too costly; and planned defenses against tactical ballistic missiles seem adequate

Commercial Trends:

Borderless Biotechnology—Biotechnology is now a global industry with information technologies underlying and fueling its worldwide growth, according to a new report from the consulting firm Deloitte, Touche and Tohmatsu. “Essentially there are no boundaries and the centers of incubation, discovery, and development are in virtually every geography,” according to the report “Borderless Biotechnology.”

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Network Immune Systems—A new generation of network security firms are developing whose technologies more closely model the human immune system rather than walling networks off from the outside, according to an article in the 22 June Economist. Key technologies include artificial intelligence, data mining, and computer modeling and simulation. Sales of intrusion detection systems should top \$2 billion by 2005. Company 51, Okena and IntruVert Networks are companies developing network protection systems modeled after human immune system responses.

Military Spider Silk—Researchers at Nexia Biotechnologies, a Canadian biotech firm, are developing a new, super strong material by injecting a spider gene into a goat egg so the offspring goat produces spider silk in its milk, according to an article in the 16 June New York Times Magazine. Called BioSteel, the material is the “first transgenic material” to be developed, and Pentagon officials are eyeing its use for extremely lightweight, but stronger body armor.

Innovation Rules of the Road—Innovation isn’t a random occurrence, but can be seen taking place within the context of a common set of variables, says Clayton Christensen, author of the seminal work *The Innovator’s Dilemma*. Writing in the June issue of Technology Review, Christensen says the four sets of variables guiding the risk of innovation are: take root in disruptive technologies that industry giants are not concerned about; pick the scope of integration required to succeed; leverage the right capabilities of managers and money; disrupt competitors and not consumers of the new innovation.

AI Returns—While the promises of artificial intelligence have been long ballyhooed, but with limited results, a combination of new technologies could soon change that assessment, according to an analysis by researchers at McKinsey & Co. What has changed is that the massive investment infrastructure investment in the Internet “creates unprecedented scope for collecting massive amounts of information and for using it to automate business functions.” Three types of AI systems are identified. These include: numerical analytics systems; rule-based decision systems; and autonomous execution systems.

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