"Strengthening the Core" Phase 2 - Working Group 3
"The Technology Challenge"

Terms of Reference

Phase 1 conclusions

U.S. military superiority is based on a well trained, professional armed force and an overwhelming technological advantage over its adversaries. The ability to access and develop the best ideas and technology is therefore critical to sustaining this dominance. The U.S. defense industry went through a "perfect storm" in the 1990s, composed of a combination of cyclical events (declining defense budgets) and dramatic structural changes (the emergence of an undefined post-Cost War security environment; the rise of information technology in weapon systems; ever shortening technology life cycles; globalization of the economy, technology and labor; the development of more sophisticated capital markets and changes in business philosophy towards conglomerates and diversification). The changing technological landscape, the diffusion of technology on a global scale and the shortening of technological life cycles represent opportunity and risk for the Pentagon. Policies and strategies used to maintain a technological advantage in the Cold War may no longer work in this new environment.

Investment in basic defense research by both Government and companies has fallen and many critical breakthroughs, particularly in networking and IT, are now made in the civil sector. This has prompted a strategy of harvesting some critical transformational technologies from the civil sector. The central questions are how effective is the U.S. government in tapping technologies from the commercial world; how should the government cope with a globalizing technology base; and, fundamentally, can a sustainable competitive advantage be gained by harvesting commercial technologies (or does government have to return to the business of basic research).

Issues to be addressed

- In a global economy the best commercial technologies may not be in the United States **BUT** the institutional preference for domestic firms (export control regulations, domestic sourcing requirements) may limit the ability to access world class technologies.

- The government wants to harvest commercial technologies **BUT** civil industries are under pressure to generate shareholder value and stick to core competencies.

Does the government provide enough of a business incentive to attract the civil sector? (see Working Group 1)

- What impact does a 'bar bell' shaped industry (a decimated second tier of the industry after a decade of consolidation) have on the technology transmission mechanism from the lower tiers of the industry up to the top – the underlying question is which tiers of industry generate the most innovative technologies and how are they brought into new weapon systems.

- Are moves to centralize requirements and introduce jointness reducing the competition for solutions and (unintentionally) inhibiting innovation?

Questions to be answered

- Does government have the correct mechanisms for identifying and pulling in the latest technologies?
- Does DoD have the right business models and incentives in order to effectively harvest technologies?
- What impact does export controls, technology transfer rules and intellectual property policies have on the ability to harvest technologies?
- Are the mechanisms used to move technologies from development into production working?
- When should DoD harvest commercial technology versus invest in original science and technology research?
- Is a strategy of harvesting commercial technology fundamentally bankrupt (if everyone can do it, how do you gain a competitive advantage)?
- What is the impact of falling levels of spending on basic research?
- What are the sources of innovative developments in the defense industry? What incentives do they react to?