September 2006

BEST PRACTICES

Stronger Practices Needed to Improve DOD Technology Transition Processes

GAO Accountability·Integrity·Reliability

Highlights

Highlights of GAO-06-883, a report to congressional committees

Why GAO Did This Study

The Department of Defense (DOD) relies on its science and technology community to develop innovative technologies for weapon systems, spending $13 billion on basic, applied, and advanced technology research. Several GAO reports have addressed problems in transitioning technologies to the acquisition community. This report, which was prepared under the Comptroller General's authority to conduct evaluations, compares DOD's technology transition processes with commercial best practices. Specifically, GAO identifies technology transition techniques used by leading companies and assesses the extent to which DOD uses the techniques.

What GAO Recommends

GAO recommends that DOD strengthen its technology transition processes by developing a gated process with criteria to support funding decisions; expanding the use of transition agreements, relationship managers, and metrics; and setting aside funding for transition activities. DOD generally agreed with GAO's recommendations with the exception of adopting process-oriented metrics and setting aside funding for transition. It cited ongoing initiatives it believes address several of the recommendations. GAO believes DOD's actions to date are incomplete and all recommendations warrant further attention.

www.gao.gov/cgi-bin/getrpt?GAO-06-883.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Michael J. Sullivan at (202) 512-4841 or sullivanm@gao.gov.

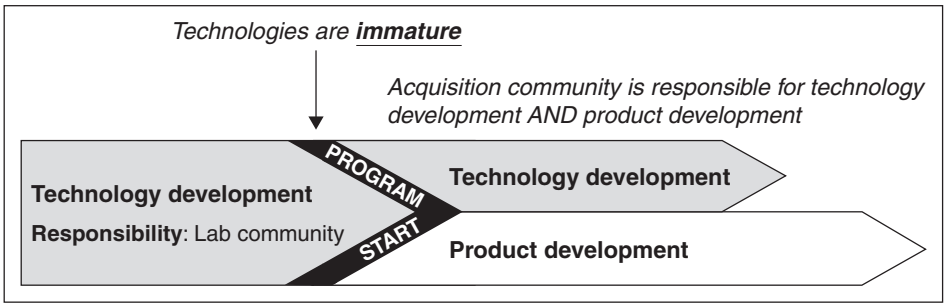
What GAO Found

Leading commercial companies use three key techniques for successfully developing and transitioning technologies, with the basic premise being that technologies must be mature before transitioning to the product line side.

- **Strategic planning at the corporate level**: Strategic planning precedes technology development so managers can gauge market needs, identify the most desirable technologies, and prioritize resources.
- **Gated management reviews**: A rigorous process is used to ensure a technology's relevancy and feasibility and enlist product line commitment to use the technologies once the labs are finished maturing them.
- **Corroborating tools**: To secure commitment, technology transition agreements solidify and document specific cost, schedule, and performance metrics labs need to meet for transition to occur. Relationship managers address transition issues within the labs and product line teams and across both communities. Meaningful metrics gauge project progress and process effectiveness.

Not only does DOD lack the breadth and depth of these techniques, the department routinely accepts high levels of technology risk at the start of major weapon acquisition programs. The acquisition community works with technologies before they are ready to be transitioned and takes on responsibility for technology development and product development concurrently, as shown in the following figure. A defined phase for technology transition is not evident. These shortcomings contribute significantly to DOD's poor cost and schedule outcomes.

Path That DOD Follows for Technology Development and Product Development



Source: DOD (data); GAO (analysis and presentation).

A stark contrast exists between DOD's and private industry's environments for developing technology. The numerous examples of DOD programs that have incurred cost overruns, schedule delays, and reduced performance serve as reminders that inserting a few best practices and changing the mechanics of technology transition processes without changing the environment that determines incentives may not produce better outcomes.