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Leading Practices: Agency Acquisition Policies Could Better Implement Key Product Development Principles

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Abstract

Each year, the Department of Defense (DoD), the Department of Homeland Security (DHS), and the National Aeronautics and Space Administration (NASA) together invest billions of dollars to acquire complex, hardware- and software-centric systems to provide critical defense, security, and space capabilities. Given the amount of federal funds spent and the critical missions these agencies support, Congress and agencies have consistently underscored the importance of achieving efficiencies and effectiveness across these acquisition activities. The GAO has also contributed to these efforts, and agencies and Congress have acted on many of the GAO's recommendations, including taking steps toward implementing knowledge-based acquisition frameworks, which the GAO's prior work found is essential to improving performance. Nonetheless, the GAO's annual assessments of major acquisition programs at each agency continue to find that programs often take significantly longer, cost more than initially estimated, and in some cases deliver final products with less capability than anticipated. Leading companies would not be able to sustain such outcomes without potentially going out of business. This dynamic correspondingly drives leading companies to undertake a disciplined approach to product development—one that is instructive to government acquisition, despite environmental differences. Throughout an individual product's development, leading companies often confront difficult tradeoff decisions, such as options about design requirements, technical solutions, and where and when to launch a promised solution. These decisions are largely informed by the incentive to be first to market within a globalized marketplace and win enduring customer support.

Why This Matters

Each year, the Departments of Defense (DoD) and Homeland Security (DHS) and the National Aeronautics and Space Administration (NASA) together invest hundreds of billions of dollars to buy stealth jets, cutters and ships, and lunar rovers, among other things, all with complex software. However, the Government Accountability Office's (GAO's) annual reviews of these agencies' major acquisitions find they often take longer and spend more money than planned to deliver capabilities to users.

Key Takeaways

Leading companies take a disciplined approach to develop innovative products that satisfy their customers' needs and to deliver them to market on time and within planned costs. The 13 leading companies the GAO interviewed perform similar activities when developing new products, such as iterative design in hardware and software development. These activities in the development process align with the four key principles that help project teams deliver innovative products to market quickly and efficiently (see Figure 1). The GAO found that the department-wide acquisition policies of the DoD, the DHS, and NASA implement some key product development principles. But they have yet to fully implement others. This gap limits agencies from ensuring a consistent approach to developing and delivering products with speed and efficiency.

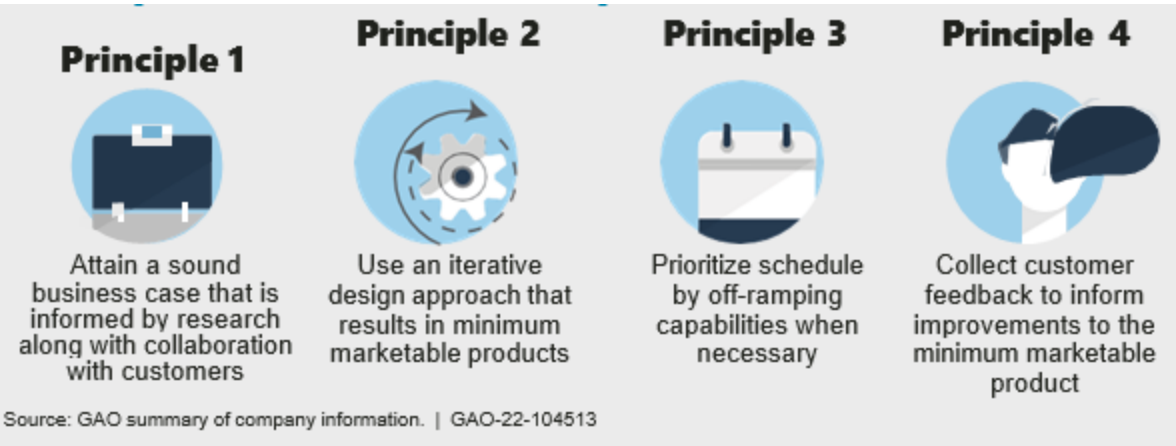

Figure 1. Leading Companies Use Four Key Principles for Product Development

For example, leading companies focus on designing a minimum marketable product—one with the minimum capabilities needed for customers to recognize value. Leading companies also prioritize a project's schedule: they release the features most critical to the customer and will off-ramp non-critical product features—an industry term for removing them from the current release—as necessary, in order to maintain schedule. Leading companies have mechanisms to solicit and implement feedback from customers early and often throughout development to ensure the product is relevant to customer needs, among other things.

What the GAO Recommends

The GAO is making nine recommendations to the DoD, the DHS, and NASA to update acquisition policies to fully implement key principles of product development. All three agencies concurred with our recommendations.

Primary DoD, DHS, and NASA acquisition policies incorporate many aspects of the four key principles, to varying degrees. However, agencies miss opportunities for positive outcomes by not addressing some sub-principles in their policies.

- The DoD's policies do not require all programs to consider off-ramping non-critical capabilities in order to achieve schedule, hindering programs' best chance of maintaining time frames.
- The DHS's policies do not require all programs to utilize modern design tools during hardware and software development, limiting consistent opportunities for programs to successfully improve revisions to the design.
- NASA's policies do not include mechanisms for programs to obtain and utilize product feedback from stakeholders or end users—such as astronauts using spacecraft or the science community benefiting from NASA projects—in order to identify challenges or new features to include in subsequent projects.

The GAO previously found that other factors beyond policies can affect agency outcomes, including structural differences between government and private industry. However, the GAO's prior work also demonstrates that key principles from private industry can be thoughtfully applied to government acquisition to improve outcomes, even with the different cultures and incentives.

How the GAO Did This Study

This report examines principles that guide leading companies' product development efforts and the extent to which primary, department-wide DoD, DHS, and NASA acquisition policies reflect the companies' key principles and result in similar outcomes. The GAO identified the 13 leading product development companies based on rankings in well-recognized lists; interviewed company representatives; analyzed department-wide acquisition policies from the DoD, the DHS, and NASA; and interviewed agency officials. The report is the first product in a planned body of work. In future work, the GAO will explore how government agencies can apply some of the key principles outlined in this report.

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