DEFENSE SCIENCE AND TECHNOLOGY: Opportunities to Better Integrate Industry Independent Research and Development into DOD Planning

Why This Matters

Research and development (R&D) projects in high-tech areas like cybersecurity and biotechnology can help the U.S. military reassert its technological edge.

Contractors decide what independent R&D projects to conduct and the Department of Defense (DOD) reimburses them about $4 billion-$5 billion annually.

More information about those projects could help DOD guide its own R&D investments.
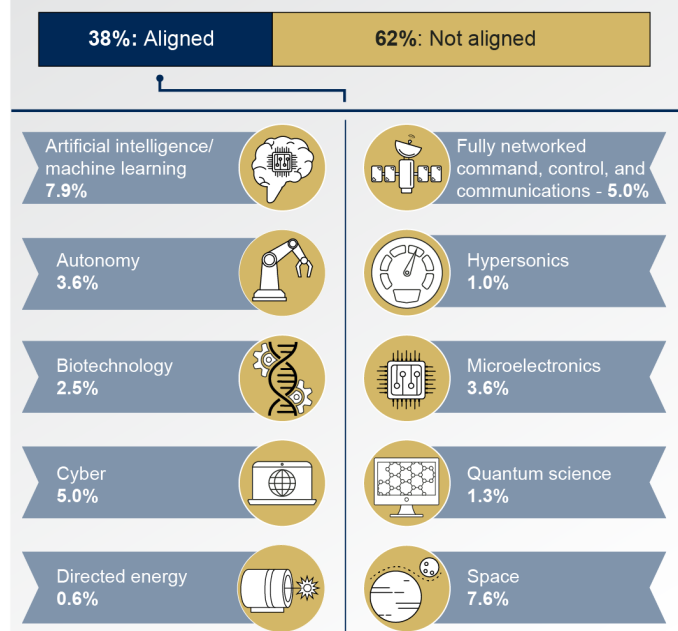
Key Takeaways

DOD does not know how contractors' independent R&D projects fit into the department's technology goals. As a result, DOD risks making decisions about its multi-billion dollar science and tech investments that could duplicate work or miss opportunities to fill in gaps that the contributions of private industry do not cover.

DOD has a database of independent R&D projects, but it is not very useful for informing investment decisions because DOD does not obtain information in these and other areas:

- **Priority.** Contractors do not identify whether a project aligns with any of 10 modernization priorities. The department uses those priorities to make decisions about R&D investments.

- **Cost.** The database does not capture a project's complete cost, which could help DOD understand cost implications of future related work.

- **Innovation.** The database does not include whether a project is a lower-risk, incremental development or a more innovative "disruptive" technology. Disruptive projects carry higher risk of failure but offer possible significant rewards in the long term.

While DOD is not required to review independent R&D projects to understand how they support DOD's priorities, GAO analysis showed 38 percent of industry projects aligned with DOD's priorities.

Relationship of Independent Research and Development Projects Completed in 2018 to the Department of Defense's Modernization Priorities

38%: Aligned	62%: Not aligned

Artificial intelligence/ machine learning 7.9%	Fully networked command, control, and communications - 5.0%
Autonomy 3.6%	Hypersonics 1.0%
Biotechnology 2.5%	Microelectronics 3.6%
Cyber 5.0%	Quantum science 1.3%
Directed energy 0.6%	Space 7.6%

Source: GAO analysis of Department of Defense data. | GAO-20-578

What GAO Recommends

To help DOD better understand the scope and nature of independent projects, we recommend DOD determine whether to require additional information in the project database and review projects annually as part of its strategic planning process. DOD agreed with both recommendations.

How GAO Did This Study

We categorized a sample of completed projects from 2014–2018 by innovation type and analyzed projects completed in 2018 for alignment with DOD's modernization priorities. We also reviewed DOD policies on independent R&D and interviewed representatives from 10 defense contractors.