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# Meeting Warfighter Needs through Innovation

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**U.S. Government Accountability Office**


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## Opportunities Exist to Better Leverage Technologies to Meet Warfighter Needs

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A decorative graphic on the left side of the slide, consisting of three concentric, semi-circular shapes in shades of blue, resembling a stylized 'C' or a partial circle.

Addressing challenges faced by non-traditional companies that want to do business with DOD  
(GAO-17-644)

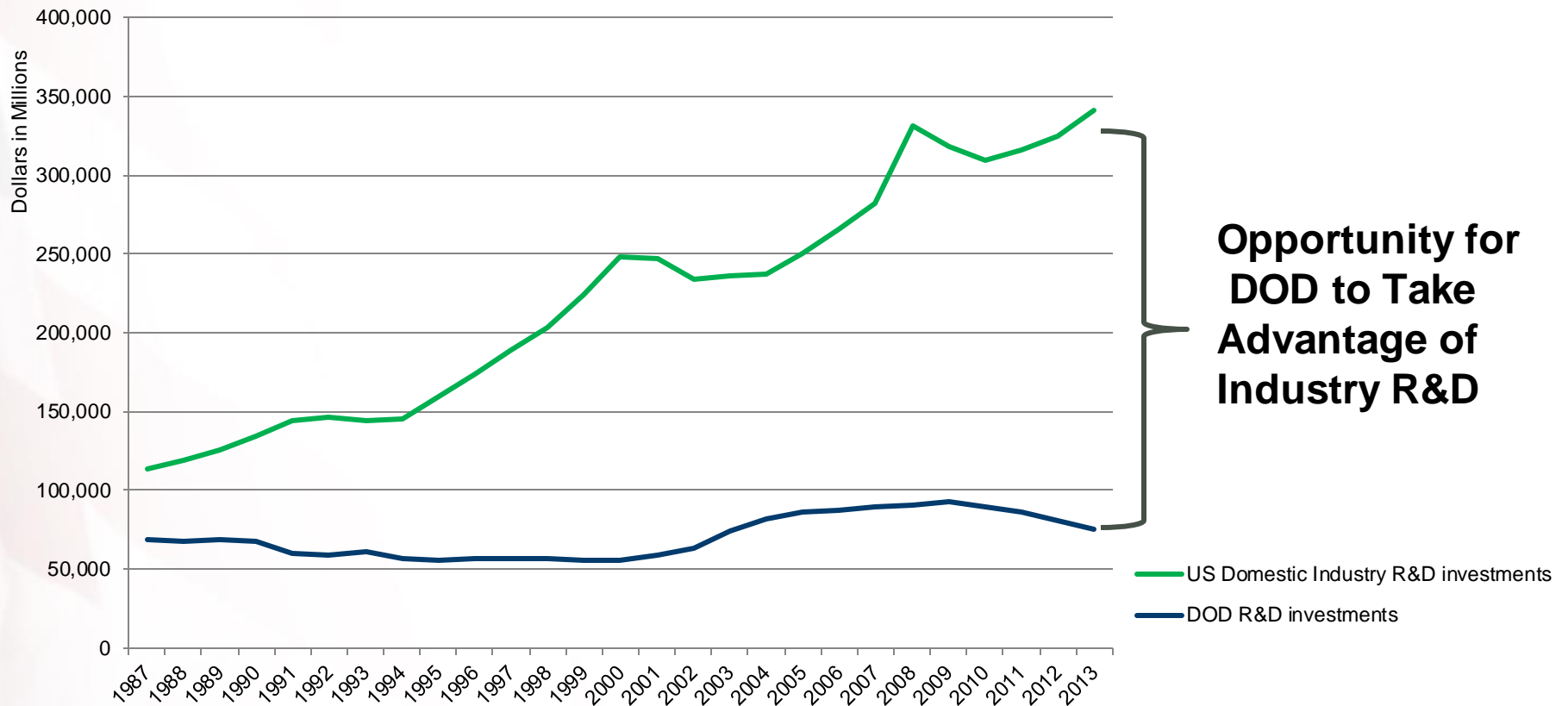
Taking a more strategic approach for prototyping efforts  
(GAO-17-309)

Adopting leading commercial practices for S&T investments and management  
(GAO-17-499)

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# Background

## DOD and Private Industry R&D Spending has Grown to About \$425 Billion



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# **Adopting Leading Commercial Practices for Science and Technology Investments and Management**

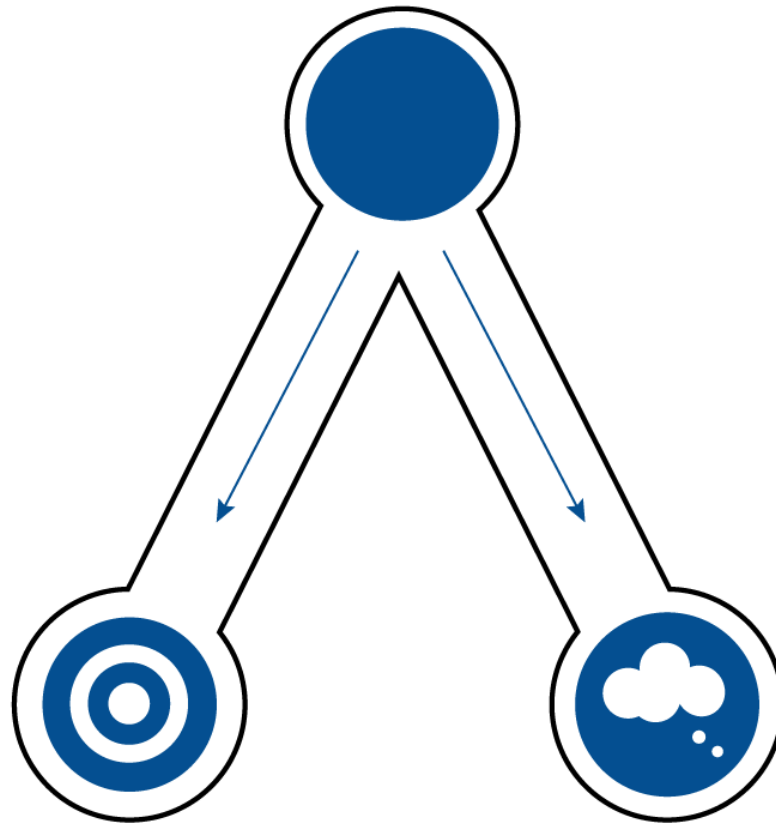
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**GAO-17-499**

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# Leading Companies Organize R&D Investments around 2 Types of Portfolios

Technology Development



Incremental Technology

Disruptive Technology

# Leading Companies Fund and Manage Incremental and Disruptive Technology Portfolios Differently



## Incremental Technologies

~ 80% of funding  
Largely funded by business units

Business managers use roadmaps to determine when to incorporate new technologies on a product

Generally a 5-year horizon

Obtain feedback through technology demonstrations

## Disruptive Technologies

~ 20% of funding  
Funded at corporate level

Managed by corporate research organization

No defined timeframes

Use prototypes to create demand



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## Some DOD S&T Practices Closely Resemble Those Used by Leading Companies

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- DARPA closely resembles a corporate research organization focused on disruptive innovation.
- DOD's market research, which informs an overarching S&T strategy, is based on near and far-term adversarial threats, capability needs, and warfighter requirements.
- DOD scales the scope of their project reviews based on the maturity of the technology and dollar investment.

## Key Differences Between DOD and Leading Company Practices

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- Military departments do not define in strategy or assess an annual mix of investments in incremental and disruptive innovation.
  - DOD labs face pressures to prioritize near-term requirements at the expense of potentially disruptive technologies.
- DOD's process for prioritizing and funding projects takes longer—almost two years to complete—which we found can slow innovation.
- DOD has processes to help its research labs and centers collaborate on S&T work, but these processes do not emphasize collaboration between the S&T and acquisition communities.
- DOD has only recently begun to fund advanced prototyping efforts within its labs.



# **Taking a More Strategic Approach for Prototyping Efforts**

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**GAO-17-309**


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# Acquisition Programs Are Getting Benefits From Prototyping Efforts

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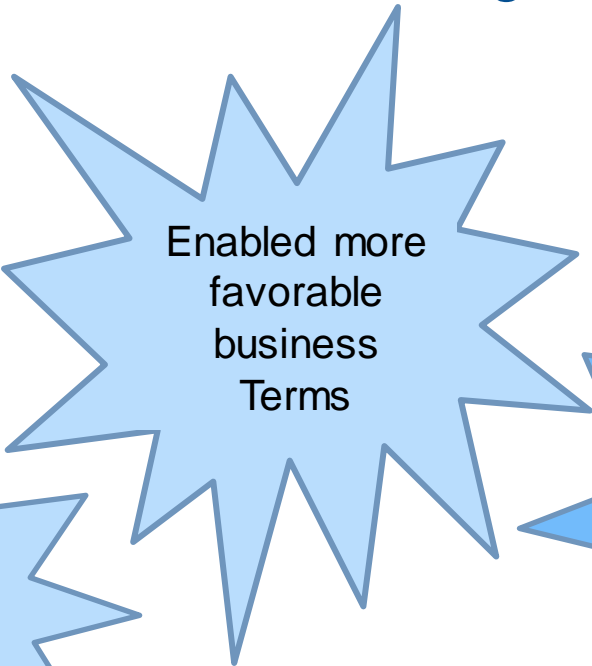
- 17 of 22 major defense acquisition programs started since 2009 used prototyping and identified the following benefits



Helped mature technologies



Informed cost estimates



Enabled more favorable business Terms



Informed tradeoff Discussions

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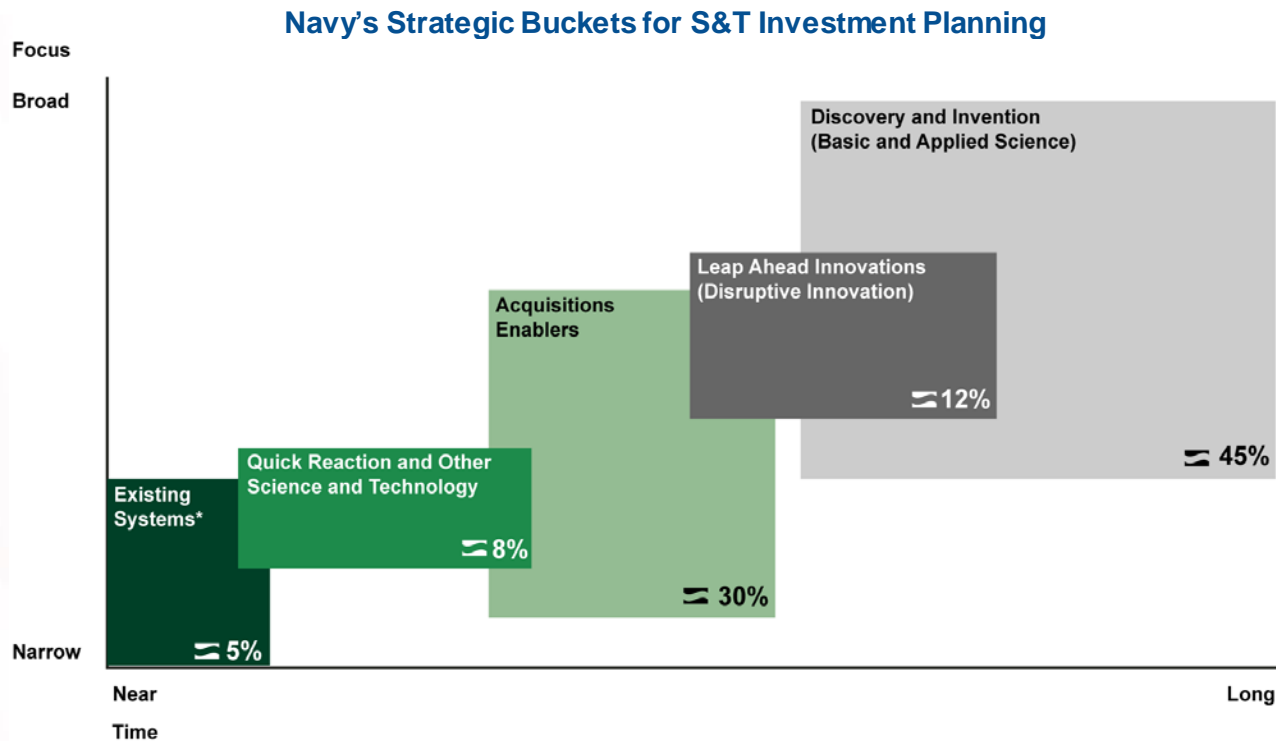
## **New Prototyping Initiatives Face Some Implementation Barriers**

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- Long budget timeframes
- Competing priorities
- Risk averse culture
- Synchronization with acquisition programs

# Strategic Approach for Funding Prototyping and Innovation

- One approach to help ensure prototyping and innovative receives sufficient funding, in the face of competing priorities and a risk averse culture, is called a “strategic buckets” approach.



Source: Navy. | GAO-17-499

\*Includes concepts of operation

# Addressing Challenges Faced by Non-Traditional Companies

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**GAO-17-644**

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## Some Innovative Commercial Companies are Reluctant to Do Business with DOD



Complex Acquisition Environment



Budget Uncertainty



Contracting timelines



Inexperienced Workforce



Intellectual property rights



Contract terms and conditions



Government-specific business systems



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