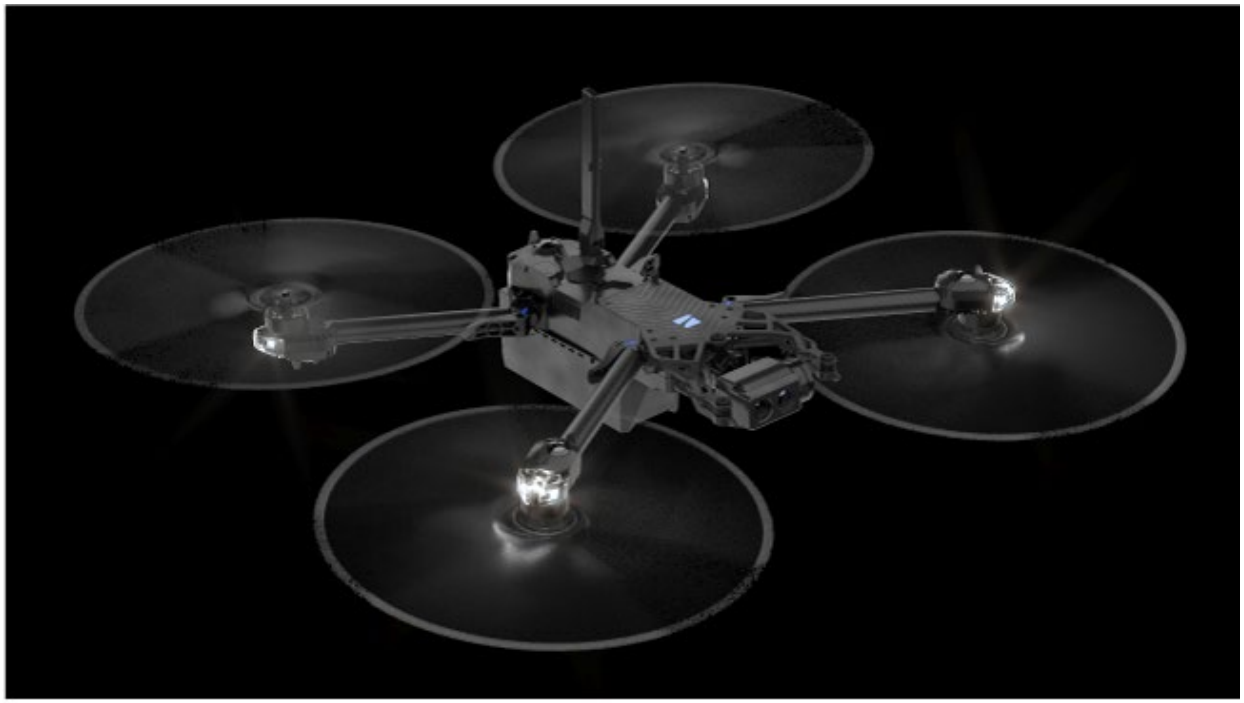
DOD's Middle-Tier Acquisitions (MTA): Rapid Prototyping and Fielding Requires Changes to Oversight and Development Approaches (GAO-23-105008)



Source: Skydio Inc. | GAO-23-105008

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Research Objectives

1) To what extent have military components' MTA policies and selected programs implemented leading principles for product development?

2) To what extent has DOD effectively implemented policies, guidance, and processes that provide reliable data to inform MTA oversight?

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Background: DOD Policy on MTAs (Instruction 5000.80, December 2019)

- "for those capabilities that have a level of maturity to allow them to be **rapidly prototyped…or fielded, within 5 years**"
- Rapid Prototyping: "use of **innovative technologies** to rapidly develop fieldable prototypes to demonstrate new capabilities and **meet emerging military needs**"
- Rapid Fielding: "use of **proven technologies** to field production quantities of **new or upgraded systems with minimal development** required"
- "**Not all programs are appropriate for the MTA pathway.** Major systems…primarily focused on technology development…are discouraged from using the MTA pathway."

Leading Principles Enable Companies to Deliver Innovative Products to Market with Speed

Leading Companies Use Four Key Principles for Product Development

Principle 1

Attain a sound business case that is informed by research along with collaboration with customers

Principle 2

Use an iterative design approach that results in minimum marketable products

Principle 3

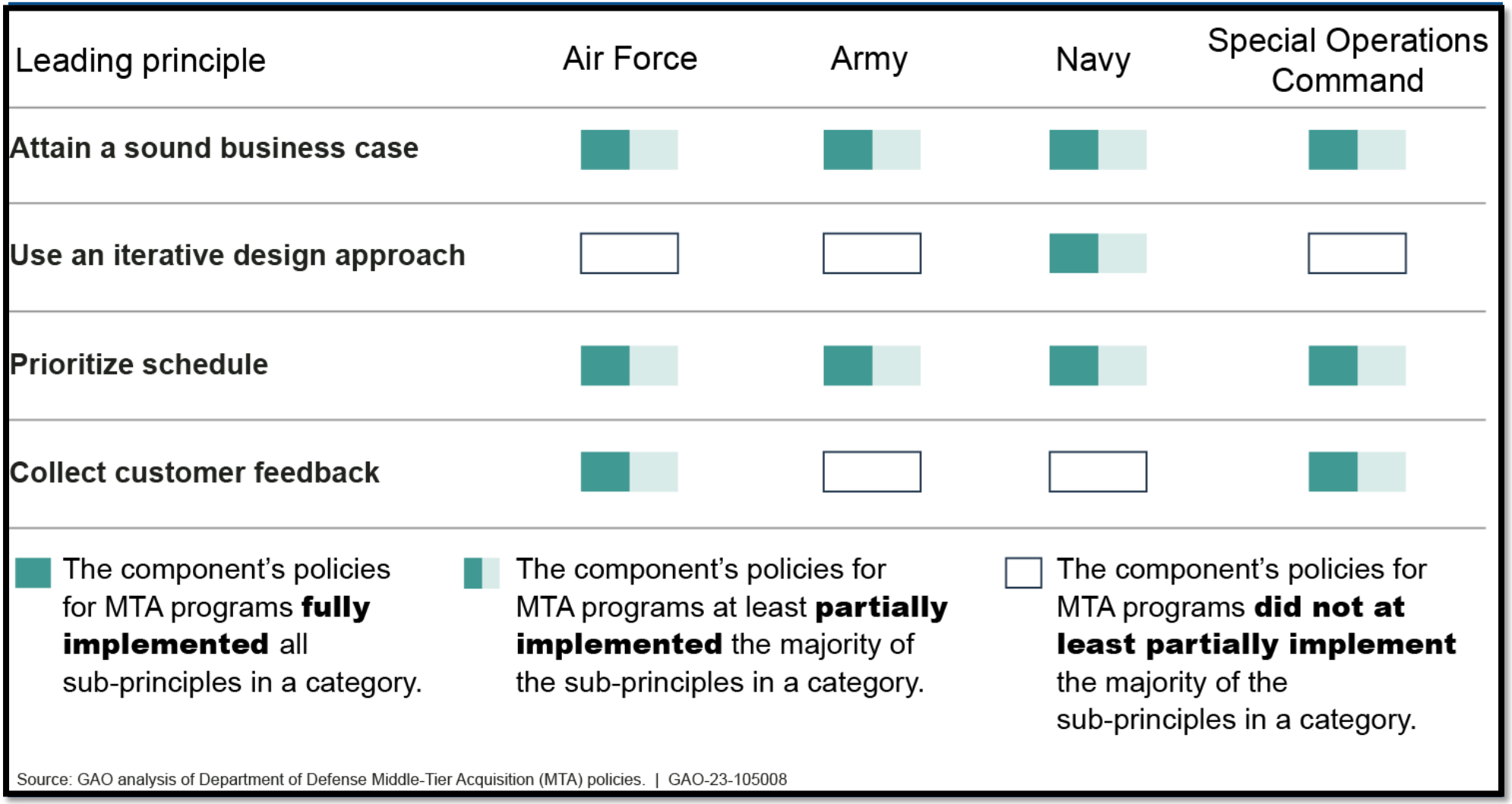
Prioritize schedule by off-ramping capabilities when necessary

Principle 4

Collect customer feedback to inform improvements to the minimum marketable product

Source: GAO summary of company information. | GAO-22-104513

Components' MTA Policies Do Not Fully Reflect Leading Principles



Source: GAO analysis of Department of Defense Middle-Tier Acquisition (MTA) policies. | GAO-23-105008

Components' MTA Programs Do Not Fully Incorporate Leading Principles

Component	Program	MTA path
Air Force	Angry Kitten Combat Pod	Rapid prototyping
	F-22 Rapid Fielding	Rapid fielding
	F-22 Rapid Prototyping	Rapid prototyping
	Future Operationally Resilient Ground Evolution Rapid Prototype	Rapid prototyping
	Mission Planning – Agile Global Mobility Rapid Fielding	Rapid fielding
Army	Extended Range Cannon Artillery	Rapid prototyping
	Integrated Tactical Network – Rapid Prototyping	Rapid prototyping
	Integrated Visual Augmentation System Rapid Fielding	Rapid fielding
	Short Range Reconnaissance	Rapid prototyping
Navy	Deployable Surveillance Systems – Deep Water Passive	Rapid fielding
	Navy Conventional Prompt Strike	Rapid prototyping
	Standard Missile – 2 Block IIIC	Rapid prototyping
Special Operations Command	Fire Support – Mission Training and Preparation System	Rapid fielding
	Precision Strike System – Ground Precision Engagement	Rapid prototyping
	Special Operations Forces – Combat Diving Navigation	Rapid prototyping

Principle 1: MTAs Do Not Consistently Attain Sound Business Cases

- Components approved funding of programs despite significant disconnects among stakeholders in cost and schedule estimates.
- Acquisition strategies frequently lacked identified known technology and design risks, but lacked corresponding triggers to enable efforts to fail fast.

Source: SAIC. | GAO-23-105008

Source: U.S. Army. | GAO-23-105008

Principle 2: MTAs Do Not Consistently Employ Iterative Design Approaches

- Iterative design approaches proved the exception rather than the rule.
- Some programs were structured with the expectation that they deliver full performance.

Source: U.S. Navy. | GAO-23-105008

Principle 3: MTAs Do Not Consistently Prioritize Schedule Over Capability Goals

- Component decisions to off-ramp capabilities sometimes occurred late, after optimistic assumptions about the pace of development faltered.

Source: U.S. Army. | GAO-23-105008

Principle 4: MTAs Do Not Consistently Collect User Feedback to Improve Minimum Viable Products

- Program acquisition strategies generally emphasized obtaining user feedback throughout development.
- However, these documents did not identify processes for using that feedback to inform capability trades and follow-on efforts.

Source: Special Operations Command. | GAO-23-105008

Source: U.S. Navy. | GAO-23-105008

Data Reliability Issues Hinder DOD's Ability to Conduct Data Driven Oversight

- DOD components established MTA policies and guidance, but have yet to fully establish processes required under DOD's MTA policy for the implementation of the MTA pathway.
- DOD established a data framework and corresponding guidance to aid in its oversight of the MTA pathway.
- DOD and its components share responsibility in improving accuracy of the data.
  - ✓ DOD has yet to clearly defined requirements for key fields related to program structure, scope, and technical status.
  - ✓ Components have yet to fully implement data reliability measures.

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Conclusions and Recommendations

- The MTA pathway has the potential to be a powerful tool to develop and deliver innovative capabilities quickly.
- Successfully capitalizing on the potential of the MTA pathway requires DOD to be more thoughtful in the types of programs it pursues.
- Policies that require MTA programs to incorporate the leading principles of product development are necessary to position DOD to achieve the goals it outlined in its MTA policies.
- GAO made 26 recommendations aimed at improving oversight and development through policy and process changes. DOD concurred with 25 recommendations and partially concurred with one.

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Questions?

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Backup

Criteria We Have Developed to Assess Complex Acquisitions

	Legacy Best Practices (completed early 2000s)	New Leading Practices (initiated 2020)
Goals of the work	Provide independent, forward-looking criteria for evaluating DOD acquisition programs	Refresh methodology for new product types and tools and develop criteria applicable to any acquisition program
Types of products	Hardware-centric	Hardware and software hybrid (“Cyber-physical”)
Emergent priorities	Capability and cost	Schedule
Predominant models	Linear, incremental development	Iterative, agile development
Key theme of findings	Knowledge attainment	Speed to market

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