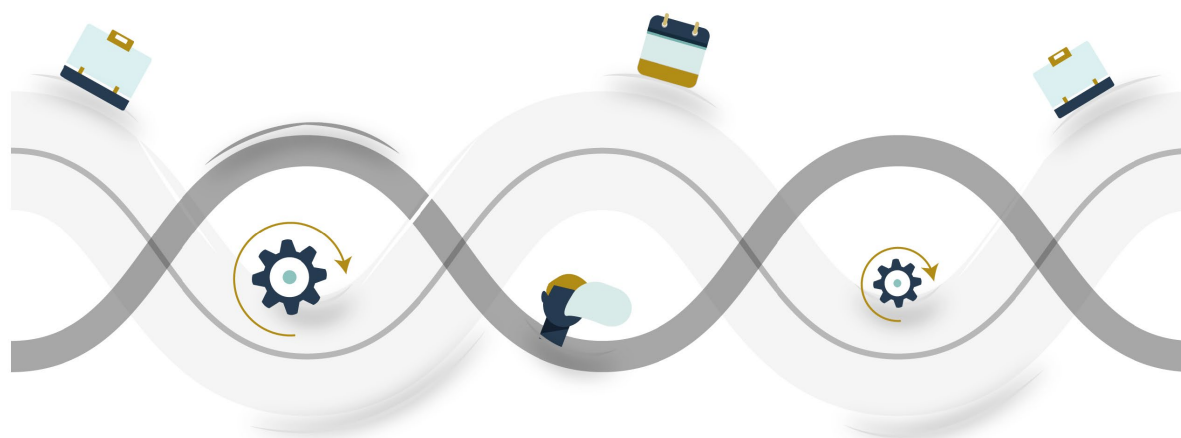


**GAO-23-106222**

# **Leading Practices: Iterative Cycles Enable Rapid Delivery of Complex Innovative Products**

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Source: GAO. | GAO-23-106222

**May 2024**

# Criteria for Assessing Acquisition Programs are Evolving

|                              | Traditional Best Practices                                                            | New Leading Practices                                                                                          |
|------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Goals of the work</b>     | 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 |
| <b>Types of products</b>     | Hardware-centric                                                                      | Hardware and software hybrid (Cyber-physical)                                                                  |
| <b>Emergent priorities</b>   | Capability and cost                                                                   | Schedule                                                                                                       |
| <b>Predominant models</b>    | Linear, incremental development                                                       | Iterative, agile development                                                                                   |
| <b>Key theme of findings</b> | Knowledge attainment                                                                  | Speed to market                                                                                                |

# Objectives, Scope, and Methodology

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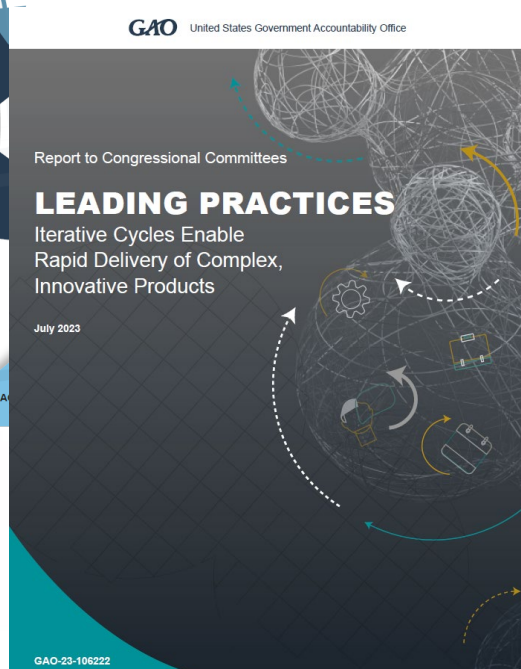
- Examined (1) how selected leading companies structure the development of complex, cyber-physical products and (2) the specific practices that enable this structure to function effectively.
- Identified 14 leading product development companies based on:
  - Recognition for excellence in performance, business achievements, and innovation; and
  - Demonstration of financial success.
- Interviewed company representatives, conducted site visits, analyzed available documentation, organized information by common themes, and developed company summaries.
- Interviewed cognizant product development experts in academia and industry consultants for contextual understanding of certain product development processes.

# Recent Work on Leading Practices in Product Development

## GAO-22-104513



## GAO-23-106222



## GAO-23-105008



United States Government Accountability Office  
Report to the Committee on Armed Services, House of Representatives

February 2023

### MIDDLE-TIER DEFENSE ACQUISITIONS

Rapid Prototyping and Fielding Requires Changes to Oversight and Development Approaches

23-105008

## GAO-23-106059



United States Government Accountability Office

Report to Congressional Committees

JUNE 2023

### Weapon Systems Annual Assessment

Programs Are Not Consistently Implementing Practices That Can Help Accelerate Acquisitions

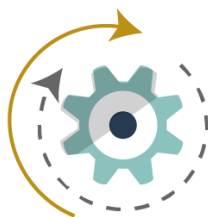


# Leading Principles Enable Iterative Cycles



## Principle 1

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



## Principle 2

Use an iterative design approach that results in minimum viable products



## Principle 3

Prioritize schedule by off-ramping capabilities when necessary

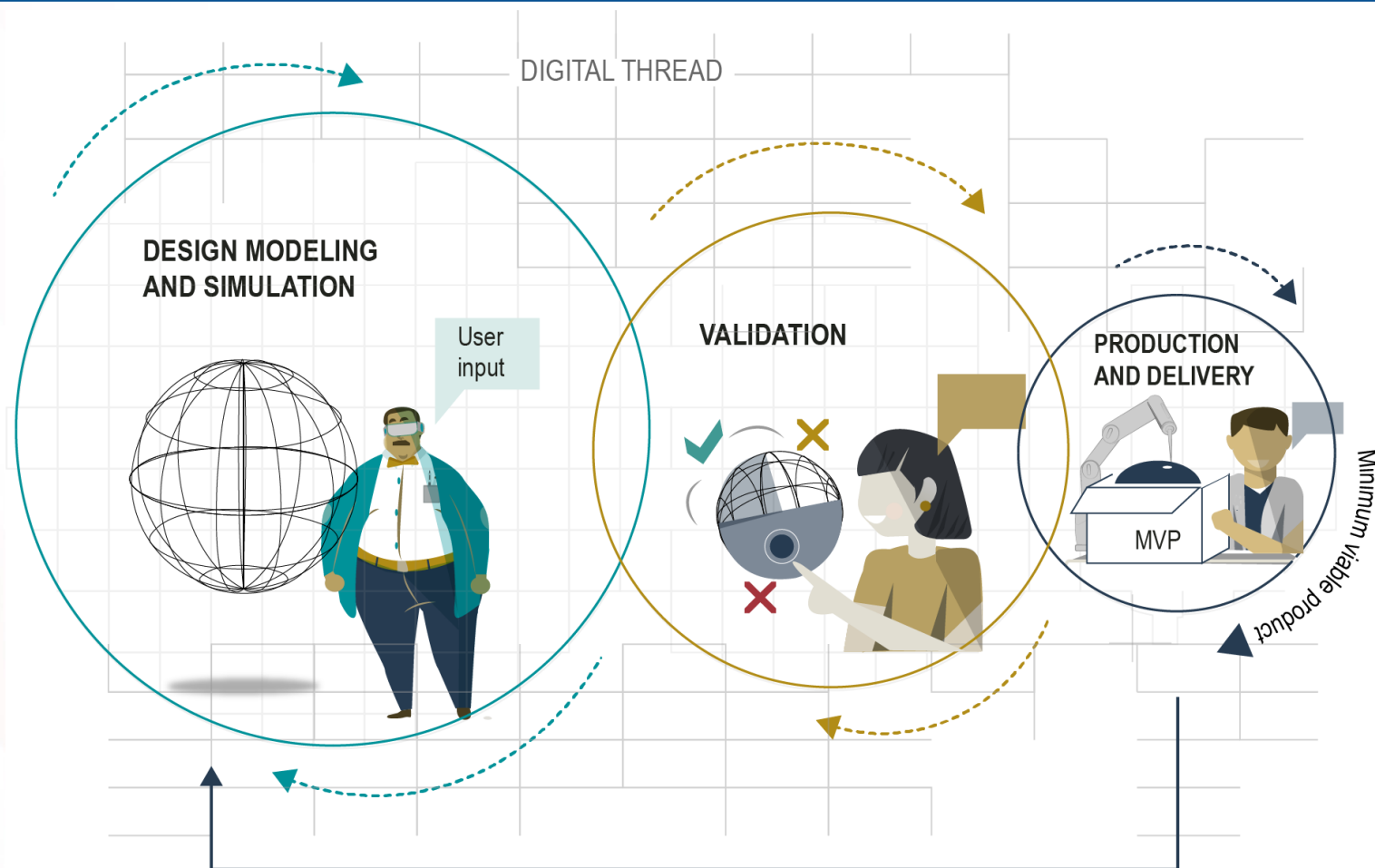


## Principle 4

Collect user feedback to inform improvements to the minimum viable product

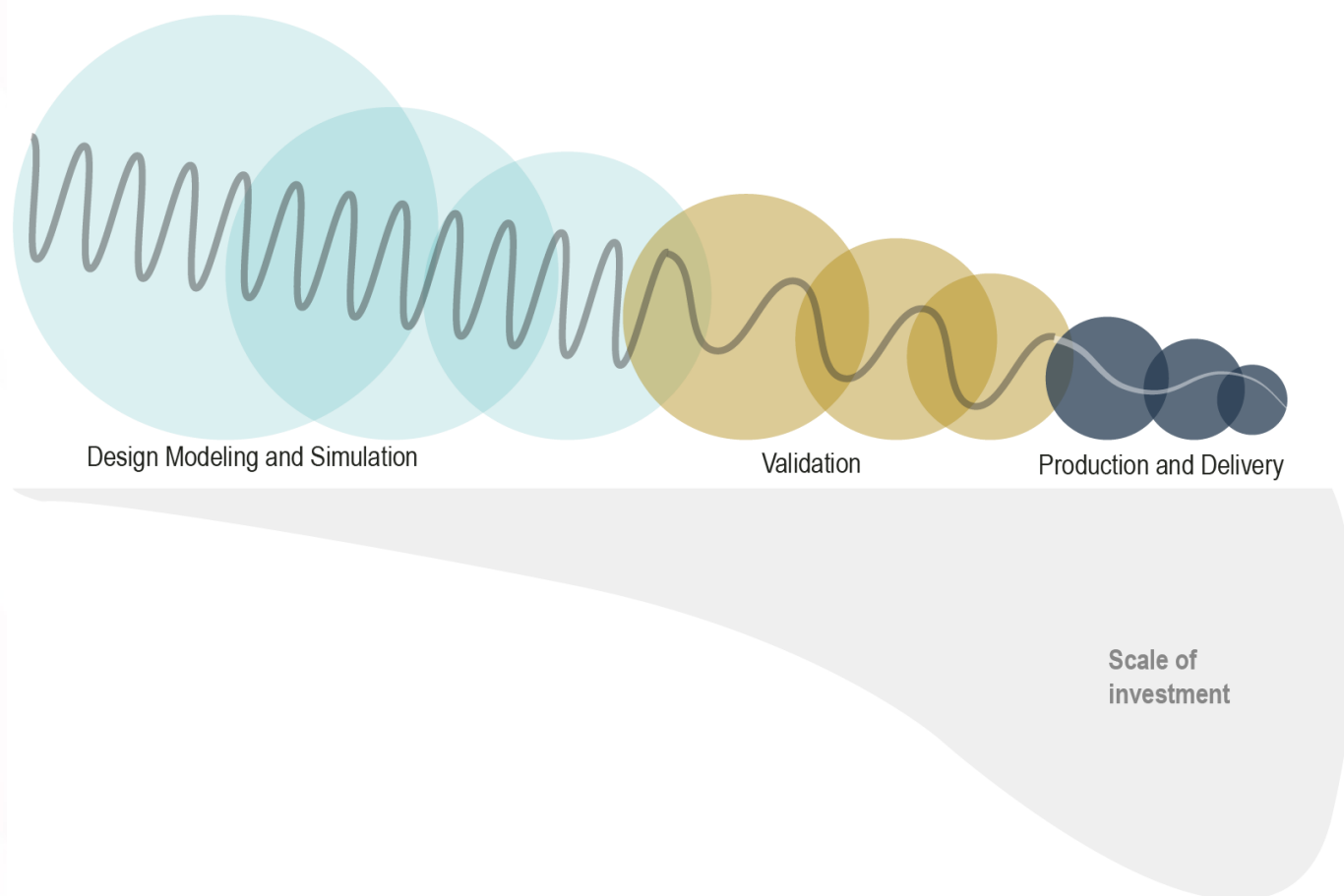
Source: GAO analysis of company information; GAO (icons). | GAO-23-106222

# Iterative Cycles Drive Rapid Development of Complex, Innovative Products



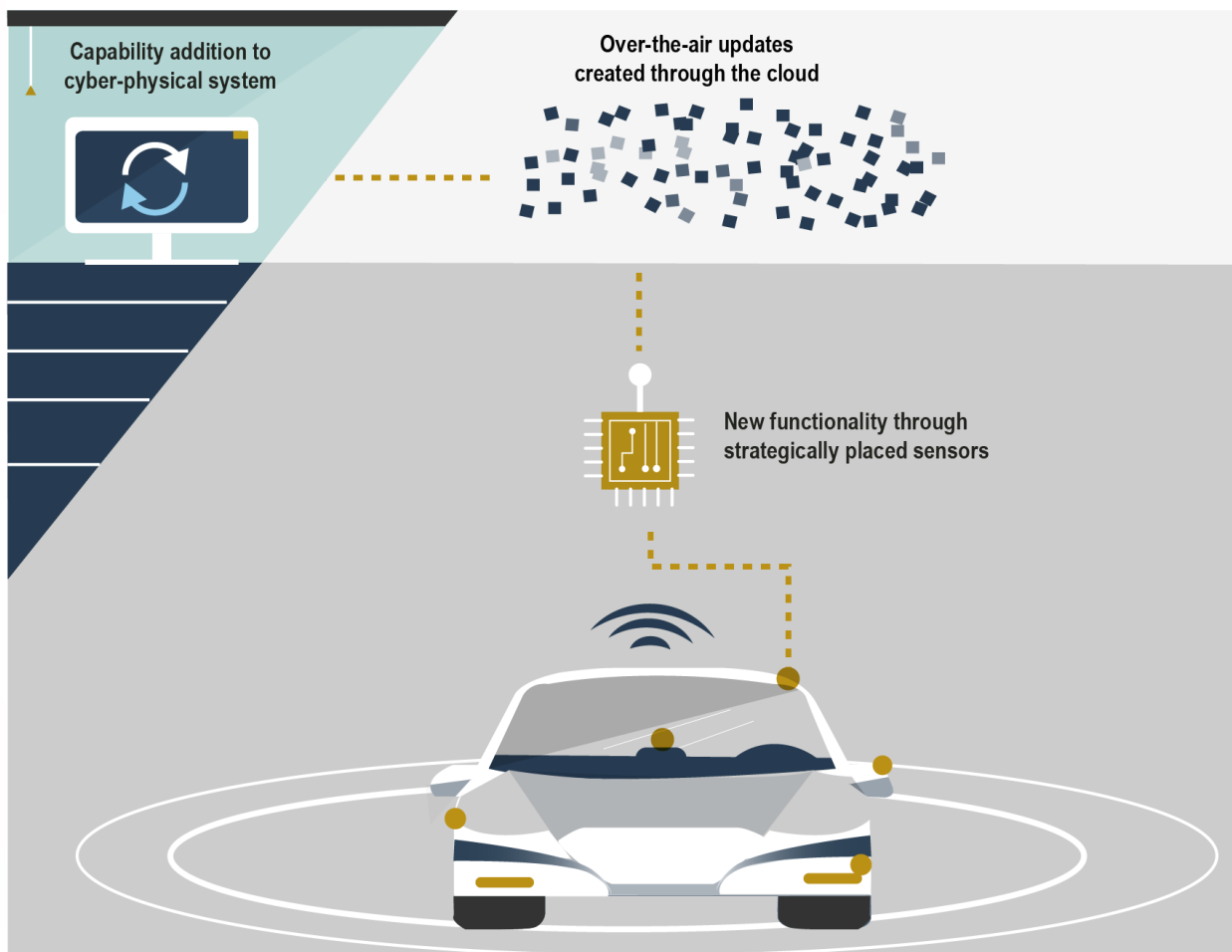
Source: GAO analysis of leading company information; GAO (illustration). | GAO-23-106222

# Leading Companies Scale Investments In Response to Design Progress



Source: GAO analysis of company information; GAO (illustration). | GAO-23-106222

# Cyber-Physical Systems Necessitate Iterative Development



Source: HP and GAO (analysis); GAO (illustration). | GAO-23-106222



# Ongoing Work:

## GAO Annual Weapon Systems Assessments



Integrated Visual Augmentation System (IVAS) Source: U.S. Army.



Air and Missile Defense Radar (AMDR) Source: Raytheon Company.



F-35 Lightning II (F-35) Source: U.S. Navy photo courtesy Lockheed Martin/Dane Wiedmann, respectively.

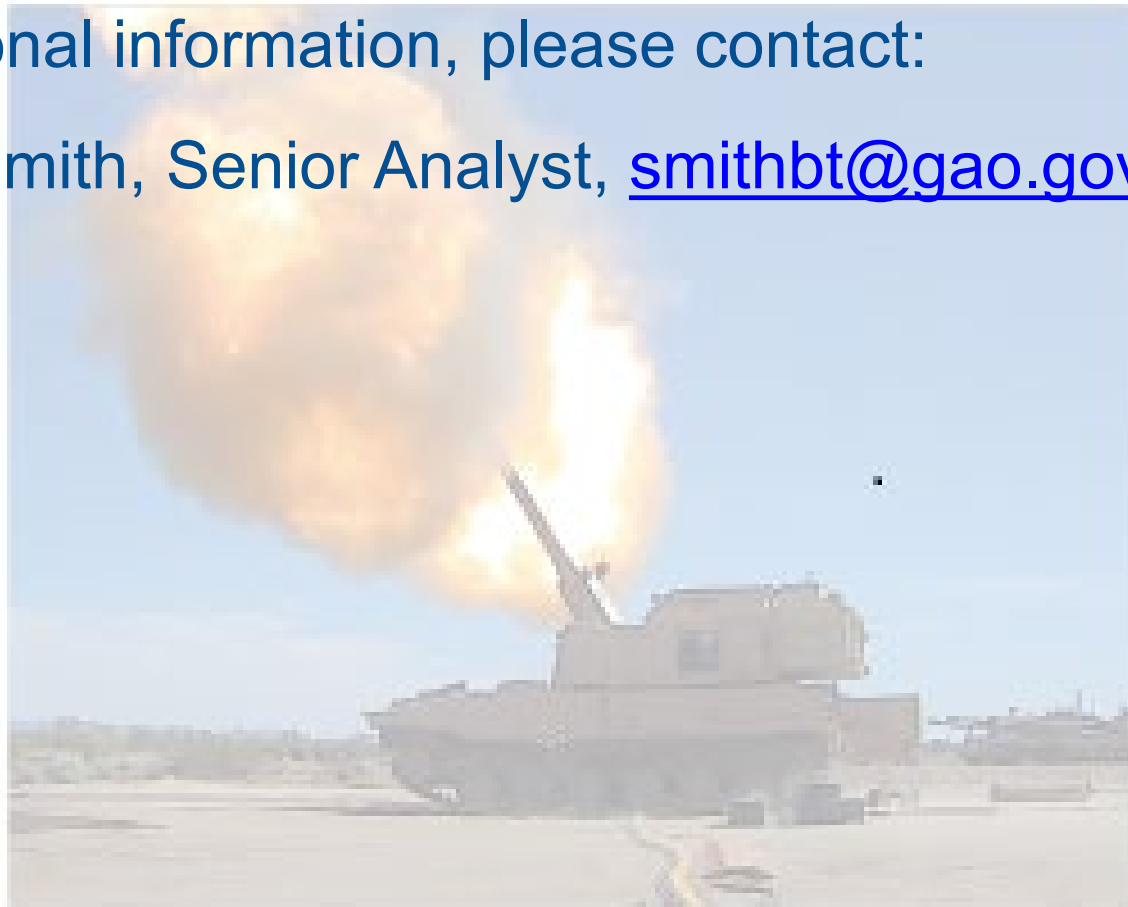


T-AO 205 John Lewis Class Fleet Replenishment Oiler Source: General Dynamics NASSCO.

## Questions?

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- For additional information, please contact:
  - Brian Smith, Senior Analyst, [smithbt@gao.gov](mailto:smithbt@gao.gov)



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



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