Creating a Digital Ecosystem

February 29, 2024

Meeting Agenda

THURSDAY, FEBRUARY 29, 2024

Virtual – Zoom

OPEN SESSION

3:00 – 3:05 PM	Begin Open Session – Ms. Cara Allison Marshall, DFO
3:05 – 3:10 PM	Chair's Welcome – Hon. Deborah James
3:10 – 4:30 PM	Presentation, Deliberation, and Vote on Creating a Digital Ecosystem Study – Mr. Stan Soloway, Chair, Business Transformation Advisory Subcommittee

During this session, the Subcommittee will brief the Board, for its consideration, deliberation, and vote, on the findings, observations, and recommendations it compiled as part of a recent study on ways to leverage digital ecosystems to harness the power of data to aid decision-making and risk analysis through simulation and advanced computing.

4:30 – 4:35 PM	Adjourn Open Session – Ms. Cara Allison Marshall, DFO

Begin Open Session

Ms. Cara Allison Marshall

Designated Federal Officer

Chair's Welcome

Hon. Deborah James
Chair, Defense Business Board

SLIDES ONLY

NO SCRIPT PROVIDED

FY 2024 Assessment of the Department of Defense

Creating a Digital Ecosystem

Business Transformation Advisory Subcommittee

February 29, 2024

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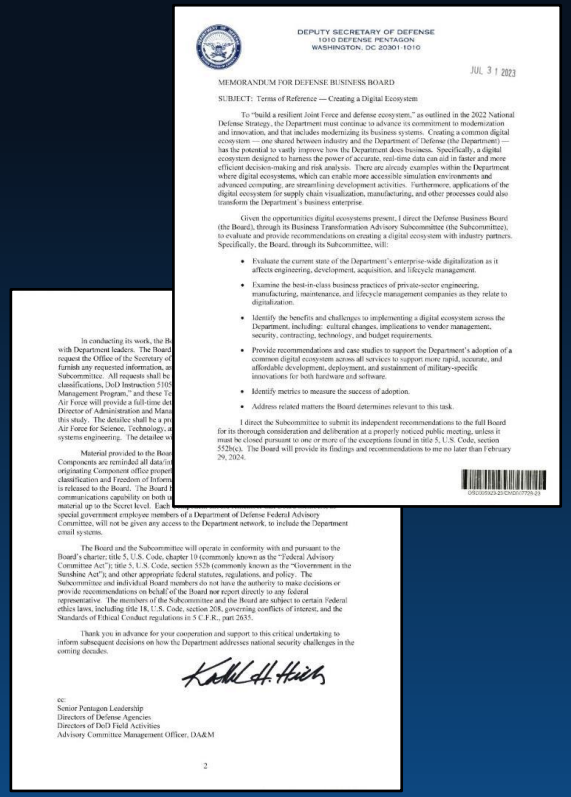
- Findings and Recommendations
- Conclusion & Closing Comments

Terms of Reference

- **Evaluate the current state** of DoD enterprise-wide digitalization as it affects engineering, development, acquisition, and lifecycle management.
- **Examine the best-in-class business practices** of private-sector engineering, manufacturing, maintenance, and lifecycle management companies as they relate to digitalization.
- **Identify the benefits and challenges** to implementing a digital ecosystem across the Department, including cultural changes, implications to vendor management, security, contracting, technology, and budget requirements.
- **Provide recommendations** and case studies to support DoD adoption of a common digital ecosystem.
- **Identify metrics** to measure the success of adoption.
- **Address related matters** the Board determines relevant to this task.

Based on the enormous complexity of this topic, the subcommittee decided to limit their investigation to acquisition and lifecycle management of military capability.



DEPUTY SECRETARY OF DEFENSE
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WASHINGTON, DC 20301-1010

JUL 31 2023

MEMORANDUM FOR DEFENSE BUSINESS BOARD

SUBJECT: Terms of Reference — Creating a Digital Ecosystem

To "build a resilient Joint Force and defense ecosystem," as outlined in the 2022 National Defense Strategy, the Department must continue to advance its commitment to modernization and innovation, and that includes modernizing its business systems. Creating a common digital ecosystem — one shared between industry and the Department of Defense (the Department) — has the potential to vastly improve how the Department does business. Specifically, a digital ecosystem designed to harness the power of accurate, real-time data can aid in faster and more efficient decision-making and risk analysis. There are already examples within the Department where digital ecosystems, which can enable more accessible simulation environments and advanced computing, are streamlining development activities. Furthermore, applications of the digital ecosystem for supply chain visualization, manufacturing, and other processes could also transform the Department's business enterprise.

Given the opportunities digital ecosystems present, I direct the Defense Business Board (the Board), through its Business Transformation Advisory Subcommittee (the Subcommittee), to evaluate and provide recommendations on creating a digital ecosystem with industry partners. Specifically, the Board, through its Subcommittee, will:

- Evaluate the current state of the Department's enterprise-wide digitalization as it affects engineering, development, acquisition, and lifecycle management.
- Examine the best-in-class business practices of private-sector engineering, manufacturing, maintenance, and lifecycle management companies as they relate to digitalization.
- Identify the benefits and challenges to implementing a digital ecosystem across the Department, including: cultural changes, implications to vendor management, security, contracting, technology, and budget requirements.
- Provide recommendations and case studies to support the Department's adoption of a common digital ecosystem across all services to support more rapid, scenario, and affordable development, deployment, and sustainment of military-specific innovations for both hardware and software.
- Identify metrics to measure the success of adoption.
- Address related matters the Board determines relevant to this task.

I direct the Subcommittee to submit its independent recommendations to the full Board for its thorough consideration and deliberation at a properly noticed public meeting, unless it must be closed pursuant to one or more of the exceptions found in title 5, U.S. Code, section 552b(c). The Board will provide its findings and recommendations to me no later than February 29, 2024.

Business Transformation Advisory Subcommittee

Stan Soloway

Suzanne Leopoldi-Nichols

Marachel Knight

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Joe Anderson

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Research Lead and Editor

Background
The Digital Ecosystem

What is a Digital Ecosystem?

- The injection of digital technologies into every phase of a program's lifecycle, enabling innovation at "the speed of relevance"
- All stakeholders see, iterate on/analyze same data ("single source of truth")

The Digital Twin

- Integrated into requirements, development, manufacture, engineering, test, and lifecycle management
- Post fields, the "twin" reflects actual product performance and enables rapid innovation, predictive maintenance, AI applications, etc.

Multiple "twins" linked together (e.g., product performance and processes) is called the Digital Thread

Background
A National Security Imperative

Digitalization is transforming every industrial sector

- Many consider it the most significant technological evolution since cloud
- Gartner estimates 90% of companies engaged in some degree of "digitalization." 87% of top execs call it a top priority

It is the new Space Race–and a National Security Imperative

- THE pacing threat is the PRC: investing massive sums in digital capabilities; also fielding new systems in 7yrs vs 16yr avg in U.S.
- PRC has the advantage of not being "burdened" by the bureaucratic layers inherent (and often appropriate) in a democracy

This places an even greater premium on DoD's ability to transform process, culture and people

"Whoever achieves symbiosis on the battlefield, controls the battle."

Impact
The BLUF

Superior Capabilities, Better Decisions, and Better, More Efficient System Performance

- Battlefield Superiority
- Reduced Program Cost, Risk, and Cycle Times
- Enhanced Sustainment Performance
- Workforce and Culture Transformation
- Expand Competition

Background

The Transformation Has Begun, but…

The DoD has begun the transition

- First digital directives issued in 2018; followed by additional USD/R&E guidance, Service-specific plans and policies
- Numerous promising experiments and pilots

However:

- The pace is not adequate to meet the threat
- There is no common understanding/vision/taxonomy across the Dept.
- The risk averse nature of the DoD culture inhibits rapid forward movement
- Pilots, planning remains siloed, limited
- Workforce gaps are known/recognized, but strategies to address are lacking
- Funding lacking for critical initiatives
- Continued focus on “experimentation” risks ignoring lessons/insights already learned
- Significant tech questions–capabilities, processes–remain unaddressed

Findings and Recommendations
Governance & Organization

Finding

DoD Requires Centralized Authority to Advance Digitalization

Observations

- Acquisition leaders are not incentivized to adopt long-term transformation efforts, nor promote continuity
- Leaders do not have a common vision for digitalization and are inconsistent in how they communicate
- The Department does not have a centralized authority, empowered with resources, to adroitly enable digital initiatives

Recommendations

- Assign DMAG (or similar) as the authority for developing the Digital Ecosystem
- Convene an Exec Action Group to remove barriers to change
- Expand and formalize Industry participation in the development of solutions

Findings and Recommendations
Planning & IT Infrastructure

Finding

DoD's Lack of an Integrated Digital Ecosystem Creates Inefficiencies

Observations

- Outdated data-exchange practices to communicate with suppliers further drives risk
- Lack of end-to-end digital environment to collaborate negatively impacts time to market and sustainment
- Lagging behind industry in the prioritization and investment in modern digital tools, processes and practices

Recommendations

- Develop a set of collaboration and data exchange platforms to enable real time interaction with DoD suppliers
- Require use of the platforms to ensure data is available through full lifecycle of the program from ideation to sustainment

Findings and Recommendations
Planning & IT Infrastructure

Finding

DoD Lacks Digital Taxonomy to create an Interoperable Digital Strategy

Observations

- A lack of common taxonomy has stalled the development of data interface requirements and tool integration
- No common understanding of what is meant by "digital transformation" and other key enabling terms and definitions

Recommendations

- Establish a common vision and taxonomy including a schedule to routinely review and update

Findings and Recommendations
Planning & IT Infrastructure

Finding

DoD's Ability to Best Utilize Data is Constrained

Observations

- No standards that define data format and interfaces to adequately access, store, or share their data
- Not invested in enabling a federated, yet integrated data management strategy to support data-driven decisions
- Data owners do not have an incentive or means to share, interconnect, or curate their data, nor do they trust each other to use it properly

Recommendations

- Require all functional stakeholders across the product lifecycle to participate in planning to identify data needs
- Develop standards for data format and interfaces, standards must be designed to facilitate interoperability

Findings and Recommendations
Cultural Environment

Finding

DoD Culture is Risk Averse & Resistant to Change

Observations

- Personnel held to account for failures and resistant to take on calculated innovation risks
- The “Frozen Middle” is obstructing progress toward the adoption of digital tools and technologies
- Personnel are not incentivized to adapt their skills, processes, or practices to successfully participate in a digital ecosystem

Recommendations

- Establish a deliberate change management process and plan
- Address the institutional resistance to risk in the plan
- Incentivize and reward personnel to adopt digital skills
- All include digital skills objectives in performance evaluations

Findings and Recommendations
Talent & Training

Finding

DoD Workforce is Not Adequately Prepared for a Digital Ecosystem

Observations

- Lacks the full scope and depth of workforce skills to accelerate transition to a digital ecosystem
- Civilian and military job classifications, career paths, and recruitment have not kept pace with new technical disciplines and specializations
- Digital training and education opportunities lack the ability to ensure the training is utilized and applied as broadly as needed

Recommendations

- Establish distinct pathways for both military and civilian for advancement and leadership
- Develop a strategy to rapidly recruit highly specialized and in-demand technical disciplines
- Close the skills gap between experienced professionals and skilled “digital-doers"

Findings and Recommendations
Intellectual Property

Finding

IP and Technical Data Rights Remain a Critical Concern

Observations

- Conflicts over the ownership and sharing of Intellectual Property is a key barrier to a digital strategy
- A proactive IP planning approach can result in significant cost savings and prevent delays in spares procurement
- Digital IP can and should center on performance and interface standards

Recommendations

- Mandate regular progress reports from the Intellectual Property Cadre to the DepSecDef through the DMAG

Findings and Recommendations
Digital Ecosystem Funding

Finding

PPBE Process Obstructs an Ability to Fund Foundational Initiatives

Observations

- Budget process does not support end-to-end (enterprise wide) horizontal requirements and lacks the ability to rapidly adjust
- Investments in digital capabilities are typically on a program-by-program basis and ignore sustainment and legacy systems
- Digital investments are more likely in big or new programs than in small or legacy programs
- Current funding requests often lack sufficient detail on cost savings, return on investment and the risk of failing to act

Recommendations

- Work with USD (Comptroller) to establish digital ecosystem as an investment priority.
- Establish a centralized fund and modify PPBE process to remove budget restrictions
  - *Near-term*: use current DoD authority to recover / reallocate funds
  - *FY 25-26*: pursue legislative action for a centralized DoD fund

Key Performance Indicators

	KPI	Measurement
Governance & Organization -- to promote inclusion and accelerate change.		
	1 **Digital Ecosystem Progress Review Frequency**	# of instances reviewed and discussed (DMAG and EAG)
	2 **Industry Partner Participation**	# of industry partners involved in development
	3 **Digital Native Programs**	% of new programs designed as digital native
★	4 **Digital Transformation of Legacy Programs**	% of legacy programs transformed to digital
Planning & IT Infrastructure -- to establish an ecosystem necessary to share data across the supply chain.		
	1 **Supplier Certification and Alignment**	% of suppliers certified and aligned to DoD platforms - in total and by Prime Tier 1-3
	2 **Electronic Program Requirements**	% of requirements loaded into a management platform
	3 **Bills of Materials (BOMs) Management**	% of BOMs loaded into a PLM environment
	4 **Digital Twin Systems Deployment**	Number of Digital Twin systems in use
	5 **New Program Development Cycle Time**	Average time for new program development
Cultural Environment -- to increase risk tolerance and speed.		
★	1 **Leaders' Time Devoted to Transformation**	Percentage of leaders' time or resources
	2 **Digital Skills Development Objectives**	% of performance plans focusing on personal digital skills
Talent & Training -- to increase workforce readiness.		
★	1 **Top Technical Talent Attraction, Promotion, and Retention**	# of data scientists and specialists retained
	2 **Training Completion for New ACAT 1 Programs**	% of resources completing training within 90 days of program establishment
	3 **Training Completion for High-Priority Legacy Programs**	% of resources trained for programs with components at risk
Funding & Resourcing -- to commit and deploy necessary resources.		
★	1 **Budgetary Resources for Digital Ecosystem**	Amount of budgetary resources defined/committed
	2 **Projected Cost Growth Variance**	Variance from approved business case
★	3 **Return on Digital Ecosystem Investment (ROI)**	ROI = (Project Benefit / Project Cost) × 100

★ **Top C-Level Metrics**

Conclusions

- Digital transformation is complicated
- “Going Digital” needs to be a National Security Priority
- Cross-cutting leadership is required
- Notable progress is being made
- Time to scale-up is now

Comments, Deliberation, and Vote on Creating A Digital Ecosystem Study

Comments on the study can be sent to:
osd.pentagon.odam.mbx.defense-business-board@mail.mil

Adjourn Public Session

Ms. Cara Allison Marshall
Designated Federal Officer


DEFENSE BUSINESS BOARD
OFFICE OF THE SECRETARY OF DEFENSE