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June 13, 2024

The Honorable William La Plante USD(A&S)
1010 Defense Pentagon
Washington, DC 20301-1010

Subj: NDAA for FY 2025, Digital Engineering and Digital Twins

Dear USD La Plante:

The H.R. 8070, the House version of NDAA for FY 2025 includes a provision that the Sec. of Defense ... “developed and will implement an acquisition strategy, with appropriate actions and milestones, to develop and field F–35 aircraft and mission systems digital twin models across the F–35 enterprise.” Please consider my recommendations to improve program management of the F-35 program and all software-intensive weapon systems.

Per DOD INSTRUCTION 5000.97 DIGITAL ENGINEERING (DE), digital twins are a component of the DE Ecosystem. The revised, attached white paper, *Integrating the Embedded Software Path, Model-Based Systems Engineering (SE), MOSA, and DE with Program Management (Embedded)*, dated June 12, 2024, includes appropriate actions that meet Congress’s intent and should be implemented to support the National Defense Industrial Strategy (NDIS). This is a follow-up to my letter dated Dec. 18, 2023, Subj: NDAA for FY 2024, Earned Value Devalued. In that letter, I requested that you enable contract oversight through data from the program’s DE artifacts.

This letter augments the attached letter to Vice Chair Wittman, Subj: *More Lessons Learned: Today’s hearing: Your Comments on F-35 Digital Engineering and Lessons Learned*, dated Dec. 12, 2023.

Excerpts:

“In today’s F-35 hearing, you and Dr. LaPlante expressed concerns and objectives concerning good SE, the future use of digital twin technology, and applying lessons learned going forward.

The lessons learned have not yet been applied to fix shortcomings in program management of the F-35 program and in our acquisition regulations and policies.

Remedies are in the previously cited article in *Defense Acquisition Magazine*, “Better Program Management Through Digital Engineering,” May/June 2022.

I would appreciate your oversight of DoD’s implementation of those recommendations going forward.”

Appendix D of the *Embedded* white paper covers the use of digital threads and digital artifacts for cost estimating and scheduling. The DE artifacts should be the Authoritative Sources of Truth for cost, schedule, and technical performance to meet Congress’s intent, achieve NDIS objectives, respond to GAO recommendations, and preclude botched metrics.

The other, attached white paper, *Outcome-based Metrics Plus SE = Integrated Program Management, Rev. 6*, was also revised to expand coverage of DE and digital twins.

Paul J. Solomon

A handwritten signature in blue ink that reads "Paul J. Solomon". The signature is written in a cursive style and is positioned above a light pink rectangular highlight.

CC:

Hon. Andrew Hunter, AF Asst. Sec. for AT&L

Hon. Adam Smith, HASC

Hon. Carlos Del Toro, Secretary of the Navy

Nickolas Guertin (ASN RD&A)

Honorable David L. Norquist, NDIA

Anthony Capaccio, Bloomberg News

Shelby Oakley, GAO

Jon Ludwigson, GAO