

Paul Solomon
3307 Meadow Oak Drive
Westlake Village, CA 91361
Paul.solomon@pb-ev.com

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The Honorable Emil Michael
Office of the Under Secretary of Defense, Research and Engineering (USD(R&E))
The Pentagon, Washington, DC 20301

Subj: Requirements Management and Traceability in Plan to Institutionalize Digital Engineering

Dear Hon. (USD(R&E) Emil Michael:

This letter augments my letters dated October 6 and 7, 2026, regarding the recommendation to establish a commercial tool to integrate disparate vendor's product life-cycle management (PLM) data-management platforms.

I also recommend that you include a requirements management and traceability tool such as DOORS in the set of standardized tools for PLM. SAF/AQ cited DOORS in its MEMORANDUM FOR THE ACQUISITION ENTERPRISE, SUBJ: *Digital Building Code for the Transformation of Acquisition and Sustainment*, dated approximately January 2022. An excerpt from the memorandum follows.

3. Implement an integrated digital environment

- 3.1. Use an integrated digital environment (IDE). An IDE is a compilation of data, models, and tools for collaboration, analysis, and visualization across functional domains. An IDE includes the methodology and specification for data, models, and tools arrangement with processes and procedures to exploit informational results.
- 3.2. An ideal IDE would include the following:
 - 3.2.1. Development Platform: CloudONE, PlatformONE, and DataONE.
 - 3.2.2. Architectural Modeling: COTS software such as CAMEO Systems Modeler, Sparx Enterprise Architect, or IBM Rhapsody.
 - 3.2.3. Product Lifecycle Management (PLM): Siemens Teamcenter or approved alternative. For additional information: AF-PLM-CSO@us.af.mil.
 - 3.2.4. System Performance Modeling and Operational Analysis: AFSIM or other M&S environments.
 - 3.2.5. Requirements Management: COTS software such as **DOORS** or CAMEO Systems Modeler.
 - 3.2.6. Data analyses and visualization: Tableau, Power BI, MATLAB, Python or other visualization tools

When I worked on the B-2 program, we used DOORS as the requirements management data base. It was also the Authoritative Source of Truth for schedule performance. The process and metrics were described as a success story in *Aerospace Acquisition 2000*. Excerpts follow:

Success Stories

B-2 Bomber Team's EVM Innovations Make Program Soar

These changes paid off during upgrades of the B-2 weapon system. One of those upgrades was the development of the Joint Standoff Weapon/Generic Weapon Interface System (JSOW/GWIS), a software-intensive effort. The new metrics helped to make it a very successful program. The PBEV methodology was used to ensure that the warfighter received the most functionality from software development efforts. On JSOW, we provided 85% more capability than originally planned, on schedule and under budget.

The techniques and outcome-based metrics used are described in my article in *CrossTalk, The Journal of Defense Software Engineering*, September 2001. Excerpts follow:



Best Practices

Practical Software Measurement, Performance-Based Earned Value

This article discusses a set of integrated, performance measurement techniques that increased Northrop Grumman Corporation's software success. These techniques can enable excellent project management in the following ways:

- Defining effective metrics for sizing the project and measuring progress.

I recommend that you use the Air Force approach to digital transformation, including its requirements management approach and tools, as part of the Department's plan to institutionalize digital engineering across all current and future weapon system and platform programs.

Yours truly,

Paul J. Solomon

CC:

Hon. Adam Smith, HASC
Hon. Roger Wicker, SASC
Hon. SecAF Meink
Hon. Russell Vought, Director, OMB
Hon. Acting SECNAV Cao
Hon. Gen. Saltzman, U.S. Space Force
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