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September 24, 2021

The Honorable Adam Smith  
Chairman, HASC  
2216 Rayburn House Office Building  
Washington, D.C. 20515

Subject: Proposed NDAA Conference Committee Action on Sec. 852 Technical Debt and Agile Methods

Dear Chairman Smith:

The Senate version of the NDAA for FY 2022 includes Sec. 852. *Independent study on technical debt in software-intensive systems*. However, Sec. 852 omits or insufficiently covers specific problems that I had cited in my letter to you dated February 6, 2020, and in subsequent letters. There are gaps that, if not closed, will enable contractors to avoid transparency and accountability when Agile methods are used in the acquisition of:

1. Artificial Intelligence
2. Information Technology
3. Cybersecurity capabilities
4. Software that is embedded in weapon systems and other military-unique hardware systems.

Sec. 852 is deficient regarding:

1. Best practices and metrics for managing technical debt when using Agile methods.
2. Performance incentives when Agile methods are employed.

Please provide remedies during Conference Committee reconciliations.

**Key Excerpts from Sec. 852**

(a) STUDY REQUIRED.—Not later than July 1, 2022, the Secretary of Defense (Sec.) shall enter into an agreement with a FFRDC to study technical debt in software-intensive systems.

(b) STUDY ELEMENTS.—The study required under subsection

(a) shall include analyses and recommendations on the following elements:

- (9) Best practices to monitor the accumulating costs of technical debt.
- (2) Qualitative and quantitative measures that can be used to assess technical debt.

**Best practices and metrics for managing technical debt when using Agile methods**

Please amend Sec. 852, as follows:

1. *Specify that the FFRDC include the report, GAO-20-590G GAO Agile Assessment Guide (Agile Guide), in the scope of its analyses and recommendations on best practices.*

2. Add a study element to specify that the FFRDC consider the follow Agile metric categories (from Agile Guide) in its analyses and recommendations: technical management, program management, and Agile methods.

The rationale for these amendments was provided in the following letters:

1. To USD(A&S) Kausner (copy to you), subj: , Recommendations to Amend NDAA and DoD Policy; Agile Methods, Technical Debt, and Award/Incentive Fees, dated August 6.
2. To you, subj: Request to Revise H.R. 4350 Report 117–118 regarding Agile Contracting Mechanism, dated September 19.

### **Performance incentives when Agile methods are employed**

Sec. 852 is silent on financial incentives to contractors, such as award or incentive fees, to minimize the costs of technical debt and to manage technical debt. I covered these objectives in the letter dated August 6.

That letter included the following excerpts:

1. Request the Software Engineering Institute (SEI) to assess the following when Agile practices are used on the F-35 program and other programs to acquire SW that is embedded in weapon systems and other military-unique hardware systems:
  - Does the contractor maintain traceability in requirements decomposition from the source requirement (e.g., feature) to lower-level requirements (e.g., user story) as well as from the road map to the prioritized backlog?
  - Are metrics identified and tracked that are used to impact decision making? Do the metrics allow traceability from the road map through releases and items in the product backlog?
  - The extent to which award/incentive fee criteria are used that are dependent on:
    - a. Achieving the goals and features of each software iteration and increment in the Product Roadmap (or backlog) on a timely basis and
    - b. Reducing the total open deficiencies in the technical debt, especially Type I or critical deficiencies.

Please amend Sec. 852 to add the following study element:

*Qualitative and quantitative measures that can be used as criteria for financial incentives on contracts in which technical debt is managed.*

This letter and the cited letters may be downloaded from my website.



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