

## **Incorporating Non-Traditional Cost Factors Into DoD Life Cycle Costing**

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**Author Note:** Cadets Cosner, Matos, Merrick, and Reuschlein are seniors at the United States Military Academy studying in the Department of Systems Engineering. Upon graduation, they will commission as Second Lieutenants in the United States Army. Lieutenant Colonel John Richards is an instructor in the Department of Systems Engineering and served as the advisor for the cadets' research. Mr. James Richards, the cadets' client who also advised the cadets and provided all funding, is an analyst for the Engineer Research and Development Center, US Army Corps of Engineers.

**Abstract:** Systems life cycle cost estimates are a critical component of early project decision making. Within U.S. Defense Acquisition, costing a system across all life cycle phases informs requirements generation, design decisions, milestone reviews, and production decisions. In addition to cost drivers captured in historical data, non-traditional factors play a significant role in project cost and should be incorporated into an expansive cost-estimating module. In this research, the researchers identify and analyze, quantify, and apply the effects of continuing resolution agreements, one of many non-traditional factors the researchers considered, and integrate the impacts into the Office of the Secretary of Defense's (OSD) Engineered Resilient Systems (ERS) framework. In doing so, the researchers help engineers and cost analysts integrate these models in a single executable framework, thereby allowing for integrated design of experiment (DOE) and tradespace exploration to support more effective and informed systems decision making.

**Keywords:** Life cycle cost analysis, Defense acquisition, Tradespace exploration