

Engineered Resilient Systems Phase II Life Cycle Cost Model Development

have significantly more data than others, and would skew the factors; we wanted each program represented equally. The result is a set of factors for each program's family of vehicles, with each viewed as a single data point into the overall model. These factors are applied to their respective estimated values in order to fill our costs for the remainder of the CES.

4.0 Summary and Conclusion

This paper describes a research effort to develop a LCC model that could be integrated into the USACE toolset for conducting Pre-MS A tradeoff analysis. We achieved the overriding objective of developing a set of parametric CERs that use design model outputs (e.g. curb weight, payload weight, survivability weight, engine horsepower, etc.) as direct inputs for estimating LCC. We combined these parametric CERs and other cost estimating methodologies to create a life cycle cost model for estimating the cost of any ground wheeled vehicle concept developed from capability requirements.

Frank Kendall, former Under Secretary for Acquisition, Technology, and Logistics (2012-2017), wrote about dispelling five acquisition myths. Myth #5 (*There is some new form of undiscovered "acquisition magic" that will fundamentally improve results*) prompted the following comment from Kendall --: "After decades of searching for some new form of acquisition magic, it may be time to accept that the basics of fostering professionalism in both government and industry, **developing sound requirements through close operator and acquirer cooperation,...**"¹

His comment aligns with the Army's plan for a new Futures Command that will bring together the Army user (i.e. operators) and acquisition (i.e. acquirer) communities under "one roof" to work together. This plan seems to align with the OSD goal for creating the ERS "Community of Interest" with the mission of solving the problem that "Acquisition is driven by a linear, process-heavy engineering environment." By bringing both groups together, the Army intends to develop systems concurrently instead of linearly.

Incorporation of a LCC model in the USACE toolset provides the Army with a new, robust tool for developing ground wheeled vehicles smarter. It allows for cost-capability trades to happen much earlier (Pre-MS A) in the acquisition process. By moving engineering to the left of the Milestone A decision point, more rigor is introduced into the acquisition process at a point where the influence on life cycle costs can have the greatest impact relative to program success.

Additionally and significantly, this new early tradeoff analysis capability is broadly applicable to all Services and defense commodities. It provides a data-driven platform for the material developer (i.e. acquisition) and user communities to thoughtfully explore the impact requirements have on vehicle design, cost, and performance when tradespace analysis matters most ... early in the acquisition process!

¹ Frank Kendall, Defense One Article, March 20, 2018.