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Executive Connect 2020

Breakout Summaries

Digital Engineering and the Transformation of Test and Evaluation

Improving engineering practices and decision making under risk with digital engineering

Session Abstract

Digital engineering (DE) is an important component of many digital transformation initiatives. Successfully applying DE to transform test and evaluation (T&E) requires a shift—from an inward focus to an outward view of T&E in optimizing the system life cycle. In this breakout session, Ed Kraft, PhD, a nationally recognized leader in his field, will lead discussions around integrating validation and calibration, using authoritative digital truth to minimize risk and improve decision making, and ultimately redefining the value of test through digital engineering.

Discussion Topics

- Evolving from just providing test data to validate models to an integrated validation/calibration process to develop authoritative digital surrogate truth sources
- Redefining the value of testing from potential avoidance of risks to quantifiable and predictable progression toward meeting key technical performance measures (TPMs)
- Providing knowledge to master risk at critical decision points through quantified margins and uncertainty analyses

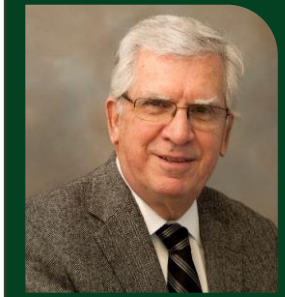
Expected Learnings and Takeaways

- Extend your professional network with additional senior leaders with whom you can collaborate
- Share experiences, best practices, and lessons learned by participating in a group discussion
- Gain ideas about current and future approaches leveraging data to reduce time to market
- Learn from a recognized leader innovative concepts for transforming systems engineering and testing to master risk

About Edward M. Kraft, PhD

Ed Kraft, PhD, is an independent consultant to the aerospace and defense industry with over 50 years' experience in testing and evaluation in government, industry, and academia. He is one of the initiators and principal architects for the Air Force Digital Thread/Digital Twin initiative and a strong advocate for the applications of uncertainty quantification in developing the digital authoritative truth source in support of decision making.

Meet Your Moderators



Dr. Ed Kraft
Industry Leader and Former Chief Technologist, US Air Force

Chris Solan
Chief Offering Manager Aerospace/Defense/ Government, NI

EXECUTIVE SUMMARY

Digital Engineering and the Transformation of Test and Evaluation

Improving engineering practices and decision making under risk with digital engineering

Key Discussion Topics

- Digital engineering uses digital technologies to improve decision making and dominance in the market
- Digital thread is the life-cycle architecture to develop, manage, and communicate digital authoritative truth sources that can access, integrate, and transform disparate data into actionable information
- Digital twins comprise three parts: a physical product, a virtual product, and bi-directional connected data tying the physical and virtual products together. They allow a shift from the design-build-test-fix paradigm to a system where digital surrogates can replace linear paper-driven processes with model-enabled digital processes

Requirements for Success

- Need to identify a value model for targeted benefits before you start the journey
- Cultural challenges are likely the largest impediment to a digital engineering transformation
- Digital engineering transformation will affect every part of your enterprise; it requires leadership commitment and staying the course

Next Steps

- Reach out for a personal discussion with chris.solan@ni.com and nick.butler@ni.com
- Connect with Chris Solan, Nick Butler, and Ed Kraft on LinkedIn
- Watch for virtual events focused on aerospace and defense topics in Q4 that your leaders and engineers can attend
- Visit our website for info on digital transformation in aerospace and defense
- Follow us on LinkedIn

For full session recap, please see slide notes