



ACQUISITION INNOVATION
RESEARCH CENTER

Training In Innovation and Emerging Technology Adoption

EXECUTIVE SUMMARY
MARCH 2023

PRINCIPAL INVESTIGATOR:

Dr. Maegen Nix, *Virginia Tech Applied Research Corporation (VT-ARC)*

PRINCIPAL INVESTIGATOR:

Ms. Christina Houfek, *Virginia Tech Applied Research Corporation (VT-ARC)*

SPONSOR:

Mr. David Pearson, Director, Engineering and Technology Center,
Defense Acquisition University (DAU)



DISTRIBUTION STATEMENT A.
Approved for public release:
distribution unlimited.

EXECUTIVE SUMMARY

Innovation is the development of a new or significantly changed service, product, process, structure, or policy. Adoption occurs when change agents have identified, developed or acquired, integrated, and leveraged the value of a new innovation. Change agents include innovators, facilitators, leaders, and users.

In response to Congressional tasking, the Defense Acquisition University (DAU) contracted with the Acquisition Innovation Research Center (AIRC) through the Systems Engineering Research Center (SERC), a Department of Defense sponsored University Affiliated Research Center, to conduct a study and report on the status of innovation and emerging technology adoption training programs available to Department employees (government civilians, contractors, and active duty). AIRC researchers from the Virginia Tech Applied Research Corporation (VT-ARC) prepared a comprehensive review of the topic through literature reviews, interviews, and surveys. Drawing from the broader study, this report presents the status of the Department, academia, and industry innovation and emerging technology adoption training programs while specifically addressing the five enumerated items requested by Congress.

Academic literature offers that innovation is an effort to recognize and implement ideas to “create something of value” during a knowledge-centric process across multiple systems.¹¹ To ensure this report is aligned with the literature, innovation is defined as the development of a new or significantly changed service, product, process, structure, or policy. Based on additional literature review findings, the team developed a study framework to identify and assess innovation and technology adoption training programs across the Department, academia, and industry. The team applied a three-part data collection approach: open-source search, targeted interviews, and survey. Analysis was then conducted on the following categorical variables: Training Type (DAU, DoD, non-government), Innovation Phase (identification, acquisition, integration), Functional Area (the DAU taxonomy), and four of the five categories of Change Agent¹ (innovator, facilitator, leader, and user). VT-ARC then summarized this data to identify potential gaps in the curriculum identified as relevant to the study.

Results suggest that the three functional areas that have the fewest traditional learning opportunities include contracting, life-cycle logistics, and test and evaluation. Each of these functions play a critical role in the innovation and technology adoption journey. DoD staff performing these functions have limited opportunities to understand their role in the adoption process and the agility required to facilitate critical innovation and emerging technology integration and operationalization.

A detailed description of the types of training programs already underway that support innovation and emerging technology as well as a list of the Department and private sector organizations providing the training programs are included in Appendix A. Metrics are not collected regarding workforce performance following participation in any training program. Also, no data were identified that support the analysis of the relationship between the adoption and innovative contracting methods to a given training program.

One of the most interesting study findings is that there are no training opportunities that integrate the necessary interconnection between relevant career fields to provide a unified understanding of the overarching innovation in emerging technology pathway or process. This lack of knowledge impacts acquisition effectiveness and was identified during interviews as critical. Providing cross-organization and cross-functional learning opportunities will enhance the understanding of roles and responsibilities and will improve information flow across stovepipes, combating “cylindrical thinking”. In depth interviews also identified five other key points: processes and policies have great impact on adoption; tailored training to target specific gaps is necessary; workforce development is a critical enabler; culture has an outsized impact on adoption; and seams between organizations create boundaries to innovation and emerging technology adoption.

While two organizations are actively building new curriculum related to innovation and emerging technology adoption, neither is resourced to address additional gaps identified in this study. No data on other organizations’ program expansion was available to the study team. Based on the rolling nature of course development, it is likely that there will be additional traditional learning opportunities available. This also implies that some curriculum will no longer be offered with little to no warning.

The study concludes that the lack of an overarching Department emerging technology innovation training strategy encourages systemic cylinders of excellence. As a result, numerous independent organizations take isolated initiatives to develop their own distribution of training resources in alignment with Department operational challenges, some more effective than others. While important at the tactical edge, these cylinders of excellence do not translate into a Department-wide staff capability as the seams between organizations create barriers to critical knowledge transfer. It is recommended that a Department Training Strategy for Emerging Technology Transition be developed and championed by senior leaders with support across the Department at all echelons.

DISCLAIMER

Copyright © 2023 Stevens Institute of Technology and Virginia Tech Applied Research Center (VT-ARC). All rights reserved.

The Acquisition Innovation Research Center is a multi-university partnership led and managed by Stevens Institute of Technology and sponsored by the U.S. Department of Defense (DoD) through the Systems Engineering Research Center (SERC)—a DoD University-Affiliated Research Center (UARC).

This material is based upon work supported, in whole or in part, by the U.S. Department of Defense through the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD(A&S)) and the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) under Contract HQ0034-19-D-0003, TO#0238.

The views, findings, conclusions, and recommendations expressed in this material are solely those of the authors and do not necessarily reflect the views or positions of the United States Government (including the DoD and any government personnel) Virginia Tech Applied Research Corporation (VT-ARC) or Stevens Institute of Technology.

No Warranty.

This Material is furnished on an "as-is" basis. Virginia Tech Applied Research Corporation (VT-ARC) and Stevens Institute of Technology make no warranties of any kind—either expressed or implied—as to any matter, including (but not limited to) warranty of fitness for purpose or merchantability, exclusivity, or results obtained from use of the material.

Virginia Tech Applied Research Corporation (VT-ARC) and Stevens Institute of Technology do not make any warranty of any kind with respect to freedom from patent, trademark, or copyright infringement.

