Virtual Training Technologies
Abstract

The Virtual Training Technologies (VTT) study was chartered to assess the state of the art in modeling, simulation, and virtual training methods; identify areas within Air Force training where VTT could make a significant impact, specifically in regards to coupling virtual with live training; and identify near-, mid-, and far- term technology options for improving aircraft system virtual training.

The study was motivated by several considerations: i) increased challenges in creating a realistic training environment to maintain operational readiness; ii) the need to integrate new weapon systems into the integrated training mix; and iii) the perceived availability of advanced commercial and consumer virtual technologies that could impact weapon system and Distributed Mission Operation (DMO) training events.

The panel visited a representative cross section of both military and commercial organizations and assessed the state of the art in modeling, simulation and virtual training technologies and methods and the extent of use in industry and other services. Based on this assessment the study identified gaps in Air Force programs where VTT could make a significant impact.

The study resulted in the following findings and recommendations:

The panel concluded that while VTT are integral to current training and critical to future warfighter success, they currently play a limited role in live aircraft training. Furthermore, emerging technologies should be better exploited to address identified training gaps. Towards this end, the panel identified ten high pay-off technologies relevant to VTT and prioritized and categorized these technologies in terms of their near-, mid- and far-term feasibility. Finally, the panel concluded that deriving the full benefits of VTT will require an integrated systems engineering approach to development and acquisition, and that these processes must overcome barriers due to security considerations in distributed training operations.

The panel recommended developing the organizational structures necessary to effectively implement virtual training technologies and ensure that systems development and acquisitions processes fulfill requirements for future virtual training needs and distributed mission security. The panel also outlined actions towards developing capabilities to provide an integrated live/virtual/constructive (LVC) training environment and developing and implementing the identified high-payoff technologies.