

# NAVY Transition Assistance Program

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## NEED & CUSTOMER REQUIREMENT

**Need:** A physiological based sensor system that can measure human physiological and cognitive states to assess the effectiveness of training and enhance the training experience with adjustable levels of difficulty tailored to the individual based on real time cognitive and physiological state data, objective, and subjective performance.

**Value to the Warfighter:** Validate the fidelity of simulators, laptop to full scale flight simulators. Training scenarios that are optimally adapted to warfighter level of skill and training objectives. Improved training effectiveness.

**Operational Gap:** Trainers need to know the cognitive loading of trainees in real-time. Direct quantitative real-time assessment of trainee's cognitive training effectiveness is needed. Need to ensure simulator fidelity to ensure future requirements are not over or under specified.

**Customer Specifications:** Must provide detailed real-time information about trainee's cognitive loading. Must be easy to deploy and use and not interfere with training. Must be reliable, consistent, and tied in with mission and flight state data. Must interconnect with simulators and trainer stations.

**Technology Description:** The Quality of Training Effectiveness (QTEA) Tool consists of a network of physiological sensors (e.g., Electrocardiogram; respiration; eye and head tracking), that monitor neural and physiological behavior of trainee. Sensors connect at a central point for data synchronization, signal conditioning, data integration, and state classification.

## TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
QTEA concept prototype	5	Low	Preliminary concept test passed	December 2007
Updated QTEA Initial prototype with large database	6	Low	Prototype demonstration passed	November 2009
Results of human factor testing	7	Moderate	Demonstration of updated prototype	March 2011
QTEA final prototype	7	Moderate	Analysis demonstrating Skilled Participants in Large Scale Training Exercises (SKATE) improved training quality	March 2011
QTEA in Reduced Oxygen Breathing Device simulator	7	Moderate	Demonstration of QTEA in simulator	March 2011

**Open contract:** N00014-09-C0598 ending March 16, 2011

N07-T028 - Advanced Infoneering, Inc.

Quality of Training Effectiveness Assessment (QTEA) Tool

## SPONSORSHIP of original SBIR/STTR Topic

**SYSCOM:** Office of Naval Research (ONR)

**Transition Target:** T-45 Weapons System Trainer

**Original Sponsoring Program:** ONR

**TPOC Phone Number:** 703-696-0364



## TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

### Other Potential Applications:

T-6A training system  
Unmanned Aerial Systems (UAS) training  
F/A-18 training system

### Business Model:

Integrate with existing and future training assessment technologies across aviation platforms. Make QTEA available to acquisition managers at Naval Aviation Training Systems (PMA 205) and other Department of Defense (DoD) agencies. License QTEA software such that it becomes an integral facet of numerous aviation simulators.

### Objective:

Actively seeks transition of the training assessment technology, including integration and demonstration, within various aviation training platforms, partnering with DoD and other government agencies, and commercial producers of aviation simulators.