

Sometimes, the Transportation Security Administration needs to screen itself

Human performance is fundamental to the Transportation Security Administration (TSA) mission to protect the nation's transportation systems while ensuring freedom of movement for people and commerce. The TSA Security Operations, Standards and Effectiveness Branch works to improve Transportation Security Officer (TSO) performance in screening passengers and their carry-on bags and checked baggage.

To help assess TSO screening performance at checkpoints, TSA sponsored the development of the Task Process Factor (TPF) Tool and an associated guidebook. When TSO screeners fail to detect threats at the checkpoint, the TPF Tool identifies why it happened. The tool supports continuous improvement in security effectiveness by providing a basis for individual training remediation.

Regardless of what unique and varied items a TSO might fail to identify at either the checkpoint or checked baggage screening locations, that failure stems from three main factors: knowledge, skills and values. Data from the tool provides a foundation for the Practical Skills Observations and other TSA assessment tests that evaluate and can help improve a TSO's performance.

Independent Verification and Validation tests the Task Process Factor Tool

TSA requested that the Department of Homeland Security Science and Technology Directorate (S&T) Capability Development Support Group conduct an independent verification and validation (IV&V) of the TPF Tool, its associated guidebook and overarching process improvement framework.

The S&T IV&V team included subject matter experts in human performance from the Office of Systems Engineering Human Systems Integration Branch, and data analytics experts from the Operations and Requirements Analysis Division. This S&T study team assessed the TPF Tool's alignment to the Security Effectiveness Performance Improvement Framework;

tool validity, reliability and usability; adequacy of training provided to tool users; and the Security Effectiveness Performance Improvement Guide that accompanied the tool by:

- Observing TSA Headquarters Evaluation Teams at three airports perform covert testing activities
- Conducting interviews with design team and TPF Tool users, preliminary task analysis, cognitive walkthroughs and usability evaluations
- Analyzing test results for 14,000 TSOs over the six-month study period
- Assessing the tool using applied statistical techniques such as analysis of variance, Bayesian networks and analysis of means



A TSO evaluates passenger documentation at an airport checkpoint.

TSA is committed to improving TSO training and checkpoint security

The S&T independent assessment demonstrated that TSA takes human performance improvement principles into account and employs a sound methodology to assess TSO performance. By using a tool that has undergone IV&V, TSA demonstrates its strong commitment to continuous, data-driven TSO performance improvement and strengthened checkpoint security.

Project Partners

- TSA Office of Security Operations
- Carlow International, Inc. Sterling, VA