DHS Science and Technology Directorate

Behavioral, Economic, and Social Science Engine

Technology Engine Context

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) has created a matrixed organization of Apex Programs and Technology Engines. The Apex Programs target specific questions around some of the DHS S&T's key mission areas for the Homeland Security Enterprise. Apex Technology Engines provide technical resources and subject matter expertise to the Apex Programs and the S&T Enterprise. The Engines' core technical functions provide best practices, technical services, expertise, lessons learned, products, and solutions.

Problem

Government-developed technologies risk failure in transition due to an insufficient understanding of the ways in which new solutions impact customers' missions before, during, and after implementation.

Solution

The Behavioral, Economic, and Social Science Engine (BESS-E) was created to help DHS S&T programs bridge the technology "valley of death" by providing independent and objective support prior to and during technology transition. Using social science methodologies such as focus groups, interviews, quantitative and qualitative data analysis, organizational assessments, logic models, and metrics development and evaluations, BESS-E helps S&T programs anticipate and mitigate barriers to adoption.

Impact

BESS-E provides programs with actionable recommendations based on measures of short and long term success in process, impacts, outcomes, and unintended consequences of technology implementation. This research increases the likelihood of successful technology transition.

Key Successes

- **JamX** - BESS-E supported the 2017 First Responder Electronic Jamming Exercise (JamX). The exercise enabled first responders to better identify, locate and mitigate the impact of electronic jamming on public safety communications. The BESS-E team developed detailed test scenarios, and the data collection methodologies and protocols for the exercise. Analyses will be used to educate federal, state, and local first responders nationwide to better understand how to recognize and mitigate electronic jamming.
- **Gap Identification –** BESS-E has worked with Border Situational Awareness Apex and CBP to streamline CBPs CGAP process for identifying operational gaps. The BESS-E products allow CBP to standardize gap collection across sectors and stations, identify patterns in gaps, train CGAP facilitators, and communicate the effectiveness of this process to leadership.
- **CIMTA** - BESS-E supported the Critical Incident Management Technology Assessment (CIMTA) by working with NYPD, FDNY, and MTA to determine workforce facilitators or barriers to implementing the technologies demonstrated at the October 2017 exercise. This report will aid these agencies in successfully transitioning desired technologies into operational use.

Upcoming Actions

- In support of the Flood Apex Program and FEMA, identify why homeowners in flood prone areas of Virginia do or do not purchase flood insurance. This research will produce actionable recommendations to FEMA to induce or encourage flood insurance uptake.
- Support the Next Generation First Responder (NGFR) Spiral 3 technology demonstration by helping exercise participants better understand potential barriers to "on-body sensor" technology adoption and how to mitigate those barriers.
- Understand the public perceptions of the use of Unmanned Aerial Systems (UAS) by law enforcement through focus groups, surveys, and news and social media scans. BESS-E will develop communications strategies and guides for first responder organizations who would like to use UAS while mitigating public concerns.

To learn more about the S&T Behavioral, Economic, and Social Science Engine, contact technologyengines@hq.dhs.gov.

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