

# 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) launched a series of high-profile, high-impact Apex programs to look strategically at the nation's security and address future challenges while supporting today's operational needs. S&T Engines were created to meet cross-cutting needs for all Apex programs.

### Impact and Vision

Through the Behavioral, Economic, and Social Science Engine (BESS-E), Apex programs will examine the human impact of their programs and technologies early in the planning stages, increasing the probability of successful implementation and transition. BESS-E provides Apex programs, S&T programs and DHS components with subject matter expertise to develop success metrics, conduct program impact assessments, overcome cultural barriers to technology acceptance, and understanding individual decision making.

### Description and Approach

BESS-E analyzes the social, economic, and behavioral implications of an Apex program's research, implementation, and diffusion of new technologies, programs, and policies. BESS-E will provide Apex programs with broad research support on technology acceptance and program evaluation. By matching social science capabilities to Apex program needs, BESS-E is able to provide basic and applied research support to the Apex programs that addresses their human impact.



Applied Tools and Techniques.

### Key Activities

#### Program Evaluation

- Success metrics can be developed into quantifiable metrics used to measure program performance
- Program evaluation will determine the impact the program has on operations, how well a program meets its success metrics, and any unintended consequences
- Cost-benefit analysis can help to quantify non-monetary benefits that may accrue far into the future

#### Technology Acceptance

- Organizational assessments can help identify facilitators and roadblocks to implementation and diffusion of new technologies or policies
- Identification of perceptions of the end-user community can assist with use case selection and messaging

#### Individual Decision Making

- Research can help Apex program managers better understand why customers make the decisions they do and tailor solutions to those actions.

### Key Successes

- **Developed metrics to quantify Apex programs success.** BESS-E is helping Next Generation First Responder, Border Situational Awareness and Screening at Speed programs to measure performance by assisting managers and leaders in making informed decisions on how to best achieve the mission and deliver results. Starting with a performance logic model that details planned work, they map that work through outputs, out-comes, and impact. Developing metrics early makes programs better equipped to quantify goals, measure progress, and justify continued work/ budget.
- **Enhanced active shooter and missile range jamming exercises.** BESS-E members attended a November 2015 NY active shooter exercise and provided recommendations for improving future exercises. These recommendations were tailored and leveraged for the 2016 White Sands Missile Range Jamming exercise. BESS-E provided feedback on best practices for these exercises based on previous analysis conducted for the NY exercise. In 2017, BESS-E is identifying and testing mitigation strategies at the First Responder Electronic Jamming Exercise (JamEx). Recommendations for recognizing and mitigating electronic jamming will be provided to first responders. This exercise will build on the White Sands exercise in July 2017.



Homeland  
Security

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To learn more about the S&T Behavioral, Economic, and Social Science Engine, contact [first.responder@hq.dhs.gov](mailto:first.responder@hq.dhs.gov).