# SAFETY Act: Adding Value through Strategic Deployment


**Thomas A. Cellucci**
**Director (Acting), R&D Partnerships Group**
**Science & Technology Directorate**
**U.S. Department of Homeland Security**

**Bruce Davidson**
**Director, Office of SAFETY Act Implementation**
**Science & Technology Directorate**
**U.S. Department of Homeland Security**



**April 2011**


Homeland Security
Science and Technology

# *SAFETY Act: Adding Value through Strategic Deployment*

Bruce B. Davidson and Thomas A. Cellucci of the U.S. Department of Homeland Security: Science and Technology Directorate, Washington, D.C.

The attacks that occurred on September 11, 2001 catalyzed a number of precautionary measures initiated by the U.S. Government in order to significantly improve our Nation's anti-terrorism readiness. In the aftermath of these attacks, several legal battles ensued as to whom was responsible for the damages and countless lives lost. The intense litigation that followed was seen by experts as a source of immense trepidation amongst providers of anti-terrorism technologies; many later resisted deploying their products or services for fear of being held liable for damages from potential future attacks.

In order to mitigate this barrier to the use of anti-terrorism technologies, Congress enacted the Support Anti-Terrorism by Fostering Effective Technologies Act (SAFETY Act) as part of the Homeland Security Act of 2002, Public Law 107-296. This program, which is administered by the Office of SAFETY Act Implementation (OSAI), reporting to the Director of the Office of Public-Private Partnerships within the Research and Development Partnerships Group at the Department of Homeland Security Science & Technology Directorate (DHS S&T), provides incentives for the development and deployment of anti-terrorism technologies by creating a system of risk management and a system of litigation management. The purpose of the Act is to ensure that liability concerns do not deter potential manufacturers or sellers of anti-terrorism technologies from developing and commercializing technologies that could save lives. The Act creates certain liability limitations for claims arising out of, relating to, or resulting from an Act of Terrorism (as defined in § 444(2) of the SAFETY Act) where qualified anti-terrorism technologies (QATT) have been deployed.

The SAFETY Act liability protections apply to a wide range of technologies, including products, services, software and other forms of intellectual property (e.g., sensors, detection systems, cyber security technologies, decision support software, blast mitigation materials, anti-terrorism security services, etc.). SAFETY Act protections apply only to claims arising out of, relating to, or resulting from an Act of Terrorism where approved technologies or services have been deployed. The Secretary of the U.S. Department of Homeland Security determines whether an Act of Terrorism has occurred; this determination is required to employ the protections of the SAFETY Act. Two levels of protection are available: *Designation*, which generally requires evidence of proven effectiveness, and *Certification* which generally requires evidence of consistently confirmed or enduring effectiveness. *Designation* can also be obtained for promising anti-terrorism technologies that are currently undergoing testing and evaluation in a developmental environment. Evidence of high reliability, availability and consistent positive

results is generally required for *Certification*. The principal benefit for *Designation* is that liability for the seller is capped at the amount of liability insurance that DHS requires the seller to obtain and maintain, while *Certification* creates a rebuttable presumption that the government contractor defense (GCD) would apply. The GCD is an affirmative defense that immunizes sellers from liability for certain claims. An additional benefit of Designation or Certification is that SAFETY Act protections extend to users, as claims against SAFETY Act covered products and services (whether Designated or Certified) can be brought only against the seller.

The SAFETY Act has had a prominent role in providing incentives for the deployment of effective anti-terrorism technologies and services throughout the United States. The program continues to be popular with the private sector and the Department has continued its steadfast support for the program. Since the first applications were received in 2004, more than 425 approvals for "Qualified Anti-Terrorism Technologies" have been awarded. Applications have more than doubled since 2006; DHS is expecting this trend to continue into FY 11 with an estimated 200 - 250 applications to be submitted. Technologies and services receiving SAFETY Act approval have been widely deployed to protect commercial facilities, critical infrastructure, transportation hubs, ports, borders, sports venues, and commercial aviation. A listing of SAFETY Act approved technologies and services can be found on the program web site at https://www.safetyact.gov. Those considering purchasing or contracting for anti-terrorism technologies and services may wish to consult this list, so they can avail themselves of the substantial SAFETY Act protections that could apply for them.

In order to evaluate the impact of pursuing the deployment and commercialization of a technology, OSAI has been reviewing the applicability of different valuation models that consider the potential protection offered by a given solution in terms of assets potentially protected or saved in the event of an Act of Terrorism. One such model that has shown promise is an adaptation of the familiar Net Present Value (NPV) model, used widely in business. This type of cost-benefit analysis weighs the impact that a solution provides on its own or as part of the multi-faceted security approach over the lifetime of its SAFETY Act *Designation*/*Certification*. OSAI is piloting this approach for its utility in developing a conservative estimate of the benefits a given technology would yield when deployed in the Homeland Security Enterprise. The purpose of this analysis is to determine whether there exists a net benefit in deploying an approved SAFETY Act technology – that is, whether a reduction in potential losses due to the technology being deployed would likely exceed the cost to society if the technology was never deployed.

A representative calculation for the Net Benefit used in this analysis is:

$$\text{Net Benefit} = \text{Avoided Loss} - \text{Cost} = [P_a * (1-P_p) * L - P_a *(1-P_{pt)} * L] - C_{dt} \quad (1)$$

where:

$P_a$ = Probability of an act of terrorism
$P_p$ = Probability of prevention without specified technology
L = Loss of assets in the event of a successful act of terrorism
$P_{pt}$ = Probability of prevention with specified technology
$C_{dt}$ = Cost to society of the deployment. Includes the cost to procure and maintain the specified technology, the cost to gain technology protection and the cost of delays due to use.

or simplified:

Net Benefit = (Probability of an act of terrorism * Loss) * (Probability of prevention with technology – probability of prevention without technology) – societal costs of deployment

Once the probabilities and costs are computed, the following decision criteria are used:

$$\text{Net Benefit} = (P_a * L) * (P_{pt} - P_p) - C_{dt}$$

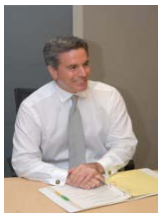
- If Net Benefit is a positive value then deployment of the specified technology is cost effective
- If Net Benefit is a negative value then deployment of the specified technology is not cost effective

The value of the SAFETY Act Program itself can be supported by calculating the net benefit individually or in the aggregate for various Qualified Anti-Terrorism Technologies. By illustrating that the avoided loss of a QATT that was never deployed outweighs the societal costs incurred to develop and deploy the QATT, the net benefit calculation is a means to demonstrate the value added to the nation of the SAFETY Act Program. The SAFETY Act program provides a tool to facilitate the private sectors' continued development and deployment of products and services that can serve a homeland security function. OSAI will continue its work in this area, and will evaluate other potential measures of value as well.

The SAFETY Act Program is one of the many partnership opportunities in the Research and Development Partnership Group portfolio. The Office of SAFETY Act Implementation is accessible, customer oriented, and open for business. Program and contact information can be found at www.safetyact.gov.

**Acknowledgment:**
We would like to acknowledge the valuable assistance of Mark Protacio, Caroline Greenwood, Akmal Ali and Mackenzie Kielman in the preparation of this document.

Bruce B. Davidson is the Director of the Office of SAFETY Act Implementation, Science and Technology Directorate, Department of Homeland Security. Mr. Davidson draws on his background in law, economics, and engineering in contributing to the activities of this multi-disciplinary office.



Thomas A. Cellucci, Ph.D., MBA is the U.S. Department of Homeland Security's Director of Research & Development Partnerships Group (Acting) and the first Chief Commercialization Officer in the Department. He leads the private sector outreach initiatives for DHS S&T has written a series of resource guides to facilitate the development and articulation of operational requirements for DHS stakeholders.