Analysis of TSA’s Explosives Detection Canines in the Aviation Security Program: Can Privatization Enhance Air Cargo Screening?

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BACKGROUND

The 9/11 Commission mandated that TSA screen 100 percent of all cargo on passenger flights. This is the first policy to establish stringent regulations for air cargo screening. The challenge of this mandate is to screen each piece of cargo while mitigating the adverse economic impacts.

The Government Accountability Office proposed this study to investigate how canines perform as a screening method, and to learn if TSA’s canine program could benefit from including privately trained canines. TSA’s National Explosives Detection Canine Team Program (NEDCTP) supplies 143 canine teams to provide security at 20 major airports in the U.S. TSA will continue to increase the amount of canine teams at major U.S. airports to increase screening efficiency.

TSA placed responsibility to screen cargo on the airline industry, which countered that screening 100 percent of cargo was not possible. TSA then created the Certified Cargo Screening Program (CCSP), which gives certified freight companies the ability to screen and certify cargo onsite; and takes the burden away from airlines. The CCSP has successfully spread screening responsibility throughout the supply chain.

However, airlines and Certified Cargo Screening Facilities (CCSFs) maintain that TSA has yet to approve a screening method for cargo pallets, which inhibits screening efficiency. Airlines and CCSFs have consistently argued in favor of using canines to screen cargo pallets, but canines are not yet approved by TSA as a primary screening method. Moreover, the amount of TSA canines available for cargo screening at the airport is limited, since TSA canines screen cargo 25 percent of the time while on duty. Researchers believe that canines are an effective security tool because of their sniffing mechanism. In fact, canines are deemed 95 percent effective because of their sniffing capabilities. Scientific evidence proves that the anatomy of the olfactory system of the dog, specific odorant binding proteins, is what makes the canine explosives-sniffing system effective. Moreover, when canines are properly trained, they very rarely give false positive alerts for explosives.

LAYERS OF SECURITY: RISK MINIMIZATION

TSA has developed a “layered approach” to aviation security, which includes the following methods of screening: x-ray, explosives detection systems, explosive trace detection, TSA-certified explosives detection canine teams, and physical searches. If preventative efforts

“Dogs have the ability to locate the edge of a vapor plume and follow it to its source.”

Michael Herstik
International K-9 Company
are only focused on one security method, then the risk of an attack is not diminished but diverted. Thus, it is imperative to enable the security layers to work cohesively. Although there is a “layered approach” to security, an attack on air cargo is recognized as a threat to national security. Loopholes in the cargo transportation process escalate that threat. The myriad of cargo screening methods amplifies opportunities for failure.

Additionally, the sheer volume of cargo, nearly 8 billion pounds, that is transported on United States air carriers daily, augments the security threat. The wide range of cargo types creates a challenge, in terms of enforcing industry-wide security standards. Moreover, cargo can travel on a number of typical routes depending on its origin, final destination, and method of delivery, also causing difficulty for screening.

**Research Objectives**

- Could the cargo screening process be more efficient or accurate by increasing reliance on canines?
- What are the implementation issues with canine expansion, specifically regarding private companies?

**Mixed-Methodology Design**

Our research consisted of a mixed methodology approach that relied on interviews with a sample of industry experts, site visits, and quantitative data analysis. The goals of the study were to understand the issues related to canines and cargo screening, specifically the potential to use privately trained canines to improve TSA’s canine program.

Our study provides GAO with the necessary background knowledge to pursue additional targeted research into the issues surrounding the utilization of private canines for air cargo screening. A serious limitation to our analysis was the fact that TSA opted not to participate in our study, thus creating gaps throughout our analysis.

**FINDINGS**

**Cost Effectiveness Analysis**

The cost effectiveness analysis compares TSA’s canines and privately trained canines to other screening methods. Our findings provide the cost per parcel of each method of screening. This analysis provides critical data to justify holding NEDCTP numbers constant or expanding the program through private canine acquisition. We have found that canines are a cost effective alternative among alternative screening methods.

The difference in cost resulting from the current method of TSA canine acquisition to canines...
purchased from private sources was negligible; therefore we believe these cost findings suggest that private canine cost should not negatively influence a decision to acquire dogs trained at private companies. However our findings show that the ETD cost per parcel screened is more than double the canine cost in a ten-year period.

This finding is due to the fact that our research shows ETDs can operate 24 hours/day using three different operators, while canines can only work a single shift each day, therefore the ETD will likely screen more bags in a ten-year period than canines, even though canines screen at a faster rate.

Determining whether private company training was compatible with TSA standards was a challenging task, since TSA does not disclose its standards. However, we still examined the nature of training and certification standards of the private canine training industry.

Certification and Training Standards

We focused our analysis on learning how canines are trained by surveying publicly available standards. Our study has found that there is no single standard that guides or governs canine training methods for private companies and government agencies. Each organization follows its own standards, but certain requirements were found to be common throughout the industry. One such requirement is that in order to be certified, canines are trained to successfully identify real explosives at a 95 percent accuracy rate.

For example, canines are required identify explosives in two separate areas, indoors and an exterior area. Canines need to be able to locate explosives in temperature-controlled areas as well as locate explosives in an area where outside elements (heat, cold, calm, windy, etc.) come into play. Regardless, training must always be challenging to both the canine handler and the canine as a team.

From a security expert interview, our study found that the Scientific Working Group on Dog and Orthogonal Detector Guidelines (SWGDOG) are similar to TSA standards. Most of the interviewed companies’ standards do not differ much from the SWGDOG standard. This similarity suggests that private companies and TSA might share common training methods. Another finding is that complex cargo, such as pallets and closed parcels, are not required or even recommended by any of the reviewed training standards. However, it is very likely that TSA canines for the purpose of meeting the air cargo mandate have trained and tested for screening complex cargo. Inexperience with cargo screening may pose a challenge for some
private companies if TSA decides to use privately trained canines.

**Private Capacity for Canine Team Expansion**

The range of interviewed companies’ annual canine capacity varies, but the average capacity for 2010 was 64 explosive detection dogs. The current capacity is an indicator for a company’s size of operation and ability to meet TSA’s demand. According to its fiscal year 2010-11 budget, TSA is currently in the process of adding 100 proprietary teams to its canine program. Based on the average capacity per company, only two private companies would be needed to provide a sufficient number of canines for NEDCTP expansion. Even though private companies have the capacity to support TSA’s canine team expansion, it is also important that there are enough handlers to guide canine teams. In other words, canine capacity is only as relevant as the capacity of handlers.

**RESEARCH IMPLICATIONS**

We believe that privately trained canines are capable of being used as a primary screening method on a wide scale. Our findings suggest that it is feasible for TSA to contract with private canine companies in a similar method as with CCSFs. Private training companies should first prove to be capable of meeting certain criteria such as capacity, training methods, certification standards, and cost. After these standards are developed, TSA would need to adopt procedures for oversight of private canine companies, which could be a challenge for similar reasons that we identify in the CCSP—mainly, ensuring accuracy of data reported from private companies.

“The explosive detection canine has over the years been unbeatable in comparison to any machine that has been built to replace the canine. [Canines are] the most versatile, effective, and efficient detection method available. Whereas other detection capabilities are limited in use...a canine team can be moved anywhere, and trained in a short period of time to detect additional odors.”

Megan Kelley

Explosive Countermeasures, International

We also suggest further research is needed to determine how intelligence can be applied to estimate which cargo is classified as ‘risky’ and should be screened in more detail than the majority of cargo, which is not of ‘risk’ to airline passengers. Utilizing a risk-based screening method would be more cost-effective than any other screening method we researched throughout the study. The need to make these reforms of our screening process is justified by the ongoing debate of ensuring public safety at the expense of our national economy. Canines could be the solution that provides the desired balance between security and economic sustainability.