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Agenda Item 4: Aviation Security (AVSEC) Matters

LOW COST SECURITY MECHANISMS FOR THE LAYERED SECURITY REGIME

(Presented by United States)

SUMMARY

Threats to aviation continue to evolve as terrorists seek to defeat existing countermeasures and create new methods of targeting aircraft, passengers, and other aviation facilities. Various techniques exist that can be of assistance to States in countering threats. These techniques range from sophisticated and expensive technologies for screening passengers, baggage, and cargo, to less expensive approaches used as a way to enhance a layered security regime. States can tailor their security systems based on the size of their aviation network and resources available, while still meeting ICAO Standards and Recommended Practices (SARPs). This paper introduces one low cost method that States may want to consider as part of a layered security regime.

1 Background

1.1 Civil aviation continues to be a target of terrorists and criminals due to its visibility, high profile nature, and association with national symbolism. Threats to aviation have evolved over the course of several decades and are now considered generally well-planned and sophisticated. The most recent major threat against global civil aviation surfaced in August 2006 with the plot to use liquid explosives to destroy United States-bound flights flying from the United Kingdom. This plot is a prime example of the ever-evolving threat against civil aviation.

1.2 Each nation's aviation system is unique in terms of its size and resource capabilities. All ICAO Member States, however, have a responsibility to meet agreed upon global aviation security standards. Fortunately, each State can meet these responsibilities within its own economic and political realm, using methods and technologies adaptable to its own airports.

1.3 To mitigate the economic costs associated with aviation security, nations around the world are developing low-cost, innovative screening measures. This reminds us all that technology is no substitute for imagination. Alongside the screening of passengers, baggage, and cargo using both high-tech equipment are lower cost mechanisms that can add true value to an existing security regime, thereby increasing it effectiveness. One such low-cost mechanism is known as "suspicious behavior detection," a technique used by law enforcement investigators, polygraphers, customs officials, secret service, judiciary, prison systems and others to predict deceptive behavior in a subject.

2 Discussion

2.1 According to a variety of academic research, articles and projects drawn primarily from US, Japanese, Israeli, and UK sources, behavioral experts have found that the ability to detect deception is essential to a number of criminal, business, psychiatric, and interpersonal contexts. and can be an extremely productive security tool. Research shows that individuals can be trained to detect deception and evaluate truthfulness, particularly through: (1) analysis of facial expressions, non verbal inconsistencies and cues; (2) verbal cues and statement analysis training and real-life experience.

2.2 In criminal investigations, interrogation techniques are often fundamental to the success of gathering evidence. For instance, research has found that many types of criminal and immigration violation investigations have been aided by formal or informal use of suspicious behavior detection. It is often the work of the investigator to identify deceptive attempts by those interviewed or interrogated in connection with a case that will lead to suspicion of guilt. While a suspect may be strongly motivated to hide deception, there are verbal and non-verbal cues that lead an investigator to recognize attempts to hide the truth. There is a substantial cognitive overload that takes place when an individual attempts to lie or deceive. Especially when routine procedures or questions become troublesome for an individual who is attempting to defeat a checkpoint or a security measure.

2.3 Detecting deception based on cues observed is referred to in a number of ways. Most often called behavior detection, it is also referred to as *deception detection*, *behavior observation and recognition*, *behavioral analysis, lie detection strategies, passive information gathering, interrogation techniques*, etc. These methods serve to detect verbal and non-verbal cues or behavior as a means of uncovering deception.

2.4 According to a leading expert, suspicious behavior recognition or anomalies detection has two components: developing reliable and valid indicators that show intent to violate the law or engage in significant misconduct and the identification of individuals who harbor such intent. Indicators of intent do not necessarily guarantee criminal or terrorist intent but do serve to illuminate certain areas of concern and direct the security official to pursue further scrutiny. Any combination of verbal and nonverbal behaviors that raise suspicion in the mind of a trained professional identify what is commonly referred to as a “hot spot”. Hot Spots are deception “cues” such as micro-expressions, which are brief, subtle and incomplete facial expressions that occur before the individual has time to conceal these expressions. An example might be a brief flash of fear when subjected to security screening. Since micro-expressions are physiological, the deception cues are independent of the context and are considered more universal in nature and have been shown through research to be cross cultural. Indeed, research has shown that non-verbal deception cues are significantly higher with planned acts of deceit than with spontaneous ones.[1]

2.5 A notable example is the case of Ahmed Ressam, otherwise known as the “Millennium Bomber,” in 1999. A U.S. Customs inspector assigned to Port Angeles, Washington, questioned Ressam upon his arrival at the port in a rental car. Ressam’s behavior raised the officer’s suspicions. In her official statement, she said:

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[1] Examples of verbal and non-verbal cues: sweating, trembling hands or lips, tapping fingers or feet, too much or too little eye contact, rapid blinking of the eyelids, darting eyes, touching the eyes or mouth, moving away from the investigator through body language, breathing faster, dry mouth, pursed lips, asking the investigator to repeat questions/stalling for time, exaggerated expressions of innocence, excessive talking to convince the listener of their version of events, etc.

As the primary interviewing officer, I noticed during routine questioning that Ressam was acting in a nervous and strange manner while answering routine questions. There was something strange about his mannerisms. I decided to perform a more thorough search (which resulted in the discovery of timing devices and explosive materials).

2.6 Thus, the officer applied behavioral observation skills, experienced judgment, and interrogation techniques to uncover and prevent a possible catastrophic event from occurring at a high-volume, transportation-sector target.

2.7 The United States Transportation Security Administration is currently deploying a behavioral observation program at selected airports and intends to expand the use of a behavior-based security system beyond these airports.

3 Conclusion

3.1 Behavioral observation programs can offer an additional layer of security by providing transportation security officers and law enforcement personnel with a non-intrusive tool for identifying potentially high-risk individuals that exhibit behaviors indicative of stress, fear and/or deception.

3.2 These observation programs are designed to provide an additional layer of security by identifying passengers who exhibit stress, fear or deception, which may indicate possible terrorist or criminal activity. For some nations in particular, this can be a low-cost and effective means of bolstering existing security measures using limited resources.

3.3 The United States is committed to the advancement of innovative, low-cost screening methods and is exploring possibilities for assisting other States in this area.

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