

An Unmitigated Threat in Aviation

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Resulting from the September 11, 2001 terrorist attacks on the United States, the government, law enforcement, and regulatory bodies have implemented sweeping changes in aviation and airport security. State and federal governments, airports, airlines, and regulatory bodies have been tirelessly working together to prevent another attack that claims the lives of innocent people. These entities have dedicated countless amounts of money, time, and effort into improving airport and aviation security. However, the vast majority of these resources have been committed to enhancing passenger screening procedures. Few of these resources have been directed at preventing an insider attack. The threat of an insider attack is constantly present. The insider threat “results from the risk that results when malicious airline-airport employees have access to sensitive and restricted areas during the normal course of their required duties” (Black, 2010, p. 1). This threat can potentially come from “pilots, aircraft mechanics, aircraft fuelers and cleaners, and airline or contract employees who load baggage” (Black, 2010, p. 1). Although not a widely publicized or acknowledged security risk, the insider threat in aviation is a serious security risk that warrants changes in the screening and hiring process for personnel with access to restricted areas and requiring personnel to undergo the same security screening as passengers.

Instances of insider attacks predate the September 11, 2001 attacks and has haunted the aviation industry for decades. A widely publicized insider attack was the accident of PSA Flight 1771. This insider attack was executed by disgruntled USAir employee, David Burke. Burke was dismissed from USAir on December 7, 1987 after appearing before the company’s Board of Appeals for stealing \$68 from a drink fund set up by USAir flight attendants. Enraged by his dismissal, Burke plotted his revenge on supervisor Raymond Thompson. Burke knew that Thompson commuted home every day aboard the PSA daily non-stop flight from his office at USAir Headquarters in Los Angeles to his home in San Francisco. After purchasing a ticket on

PSA Flight 1771, Burke used his USAir employee credentials, which had not been seized by the company after firing, to bypass security at Los Angeles International Airport with a loaded 44-magnum pistol. As the plane reached its cruising altitude of 29,000 feet, Burke sought out Thompson and opened fire, killing the unsuspecting supervisor. As one of the flight attendants opened the cockpit door to inform the flight crew of the incident that had just occurred, Burke appeared in the cockpit door and opened fire on the flight crew, fatally shooting both pilots. Burke immediately seized control of the airplane and pitched the nose down, entering the plane into a rapid descent. As the plane descended, it accelerated and built enormous amounts of airspeed. The airplane was unable to endure the stress of reaching 1.2x Mach airspeed at 13,000 feet. Burke fatally shot himself moments before the airplane broke apart. The crash of PSA Flight 1771 claimed the lives of all 44 passengers and crew onboard the airplane. In response to this incident, the Federal Aviation Administration (FAA) “adapted policy to require that all members of any airline flight crew, including the Captain, be subjected to the same security measures as are the passengers” (“Special Report: PSA Flight 1771”, n.d., para. 9). However, airport operators are extremely hesitant to enforce this federal regulation and it is still horrifyingly easy for pilots and other essential airport personnel to bring prohibited items into secure airport areas. Airport operators are extremely hesitant to require the same daunting security measures for employees that passengers experience because it would agitate employees. This incident clearly shows how emotional, financial, and workplace problems can cause an insider to use an aircraft to end his/her own life or the lives of others in order to seek revenge. The example also readily shows how the lack of security and desire for revenge can take the lives of dozens of innocent individuals. Requiring personnel to undergo the same security screening as passengers would have prevented this indecent and saved the lives of these innocent

and unsuspecting passengers. This incident is a prime example of why pilots and personnel with access to sensitive areas should undergo the same screening as passengers.

A more recent and equally chilling example of an insider attack is the April 7, 1994 hijacking of FedEx Flight 705. FedEx employee Auburn Calloway was facing financial troubles and termination from the company. Calloway was scheduled for a dismissal hearing with the company for lying about his previous flight experience. Enraged by the scheduled dismissal hearing and desperate to support his ex-wife and two young children, Calloway saw his standard company life insurance policy of \$2.5 million the only way to ensure his children received a college education. However, the \$2.5 million life insurance policy would only be paid out if Calloway was ““innocently” killed in an airplane accident” (Hamilton, n.d., para. 6). Calloway plotted to take control of the airplane and intentionally crash the DC-10 into Federal Express Headquarters in Memphis, Tennessee. This would accomplish the intention of leaving the life insurance policy to support his children and enacting revenge on the company who scheduled him for a dismissal hearing. Calloway arrived early to fly jump seat aboard the flight from Memphis, Tennessee to San Jose, California. He boarded before any of the flight crew arrived and stowed a guitar case which contained several hammers and spear gun. The injuries Calloway planned to inflict on the flight crew with the hammers would appear only as blunt force trauma in an autopsy of the crew. These blunt force trauma injuries would be consistent with injuries sustained in a typical catastrophic airplane accident. Calloway also switched off the Cockpit Voice Recorder because there could not be any evidence of an intentional crash. Captain David Sanders, co-pilot Jim Tucker, and flight engineer Andy Peterson boarded the plane with no clue as to what they were in for. They never remotely considered the possibility of “being hijacked by a fellow employee intending to kill you and fly your fuel-laden airplane into

the Federal Express Memphis headquarters building in a suicidal attack” (Hamilton, n.d., para. 3). The flight crew didn’t know Calloway, but FedEx employees riding jump seat was not uncommon. Soon after departure, Calloway began his plan of taking over the plane. After a desperate struggle for survival, the flight crew was able to fight off Calloway’s attack and return to the airport safely. This incident clearly demonstrates how external stressors such as financial, marital, workplace, and other problems cause influence an employee to plan and execute an insider attack. The internal stressors and mental state of each crew member is extremely hard to detect and predict, but these factors could heavily influence that safety of the flight. This incident also clearly demonstrates why pilots and personnel with access to sensitive areas should undergo the same screening as passengers. If Calloway had been screened before boarding the plane, the weapons he carried would have been confiscated and this indecent would not have happened.

The insider threat is often disregarded because some believe the threat is not prominent enough to enact tighter security measures. However, the prevalence of these incidents are increasing and they are drawing attention to how realistic and probable an insider attack really is. The ease in which a member of the flight crew can hijack an airplane is astonishing. Ethiopian Airlines Flight 702 was hijacked by 31-year-old co-pilot Hailemedhin Abera Tegegn on February 17, 2014. As the pilot exited the cockpit to use the restroom, Tegegn locked the pilot out of cockpit and diverted the flight, which was en route to Rome, to Geneva, Switzerland. Tegegn was seeking asylum in Switzerland. Although no passengers or crew members were harmed, this incident shows how easy an insider can take control of an aircraft and use it for his/her own intentions. Specialists in aviation security say that “aviation insiders still have ample opportunities to sabotage flights” (Michaels, 2014, p. 1). Philip Baum, managing director

of London aviation security consulting firm Green Light Ltd., says, “We spend so much time in aviation safety on checking passengers for prohibitive items at checkpoints that we forget all other screening issues” (Michaels, 2014, p. 1). This incident continues the trend of nine passenger planes being hijacked by pilots seeking asylum and three other cases since the late 1990s where the pilots were suspected of intentionally crashing fully functional passenger jets (Michaels, 2014, p. 1). Airline pilots were once revered and admired by the American public. They were regarded as capable and trustworthy individuals. When boarding a flight, passengers do not fear a pilot hijacking the airplane. They put their trust in the flight crew to get them to their destination safely. When this trust is placed in the wrong hands, it makes passengers question how trustworthy the pilots really are and how well the airlines screen their applicants. Airline pilots are usually “screened before hiring and repeatedly assessed while on the job. The frequency and thoroughness varies by airline and country” (Michaels, 2014, p. 1). Federal aviation regulations outlining the thoroughness and frequency of pilot screening have not been amended or strengthened even after repeated incidents of pilot hijackings. Many believe that these incidents do not occur often enough to warrant a change. Vulnerabilities in the aviation and airport systems such as these will continue to be exploited by insiders who are intent on harming innocent people and the industry. These problems will persist until regulations are modified and the screening process for applicants is changed.

It would be extremely easy for critics to discount the relevance of the insider threat because most examples of this threat have occurred well before the implementation of all of the security enhancements of the post-9/11 era. However, an eye-opening incident that has occurred in the post-9/11 era has brought into question the way we clear pilots for duty. This incident is the crash of Germanwings Flight 9525 and the allegations that co-pilot Andreas Lubitz

deliberately crashed the Airbus A320 into the French Alps, killing 144 passengers and six crew members. The March 24, 2015 flight was enroute from Barcelona to Düsseldorf when Lubitz reportedly locked the captain out of cockpit, reprogrammed the autopilot for 100 feet and modified the autopilot settings several times in to order increase the airplane's speed (Smith-Spark & Haddad, 2015, para. 4). Investigators found a tablet in Lubitz's home which revealed that the distraught pilot had been researching suicide methods and cockpit security procedures. This accident "shows how little the industry and its regulators have done to acknowledge and address the most extreme manifestation of those psychological strains: pilot suicide" (Kulish & Clark, 2015, para. 5). The entire incident could have easily been prevented had Lufthansa, parent company of Germanwings, or the dozens of medical professionals Lubitz sought help from reported concerns of Lubitz's mental state to the appropriate regulatory body. The lack of oversight by Lufthansa, Germanwings, German regulatory bodies, and European regulatory bodies resulted in a severely depressed pilot being allowed in the cockpit and killing over a hundred innocent and unsuspecting passengers.

Another disturbing incident in the post-9/11 era is the gun smuggling ring involving a Delta Air Lines baggage handler based out of Hartsfield-Jackson Atlanta International Airport in December 2014. 31-year-old Delta baggage handler Eugene Harvey would bring guns into the secure area of the Hartsfield-Jackson Atlanta International Airport by using his security pass and would then hand them off to co-conspirator Mark Quentin Henry, a former Delta employee, after Henry passed through airport security. The 45-year-old Henry was fired from Delta Air Lines in 2010 for abusing the airline's buddy-pass system. Authorities say that Henry "took guns aboard at least 17 commercial flights this year [2014] from Atlanta to New York airports with the help of Harvey" (Muskal, 2014, para. 3). Harvey and Henry were two of five people arrested for

smuggling guns aboard commercial flights bound for John F. Kennedy International Airport in New York. The group is accused of “conspiring to sell 153 firearms, including AK-47 assault weapons and 9-millimeter handguns” (Muskal, 2014, para. 3). Harvey was charged with “trafficking firearms, violating airport security and aiding others in the smuggling scheme” (Muskal, 2014, para. 5). Henry and the other three defendants were charged “in a 591-count indictment alleging conspiracy, first-degree criminal possession of a weapon and first-degree criminal sale of a firearm” (Muskal, 2014, para. 8). This incident is a prime example of why changes need to be made to the screening and hiring process for personnel with access to restricted areas. Insiders have knowledge of how to bypass airport security measures and can easily abuse this knowledge for their own gain. The responsibility of having this knowledge should only be entrusted to the highest quality of candidates who do not have any indications that they will abuse this knowledge.

Even when security measures are taken, persons with knowledge of these measures can easily take advantage of this knowledge. This is highlighted by the recent discoveries that thousands of Secure Identification Display Area (SIDA) badges across the country are not accounted for and 1,450 SIDA badges were lost or stolen at the Hartsfield-Jackson Atlanta International Airport alone over a two year period. These airport employee security badges “allow airport employees with secure access to enter securely locked doors throughout the airport” (Holden, 2015, para. 1). Aviation security professionals and authorities are concerned because “the missing badges present serious concerns for security officials and are something terrorists would like to have possession of in order to compromise security” (Holden, 2015, para. 2). However, just because an individual possesses one of these badges does not mean they will gain access all secure parts of the airports because many airports use PIN number systems or

biometrics (Holden, 2015, para. 5). Although no one has gained access to the secured area of an airport using lost or stolen SIDA badges, it still poses a large security risk (Yamanouchi, 2015, para. 3). These badges, along with other information obtained, could help facilitate in insider attack.

The changes that need to be made in the hiring process for personnel with access to restricted areas and requiring personnel to undergo the same security screening as passengers are the responsibility of the Transportation Security Administration (TSA). These security measures need to be included in federal regulations in order to mitigate an insider attack. However, TSA has still not addressed this serious security risk. TSA's comprehensive risk assessment of airport security "did not consider the potential vulnerabilities of airports to an insider attack – an attack from an airport worker with authorized access to secure areas" (Government Accountability Office (GAO), 2011, p. 1). Recent announcements of "random passenger-like screening of airline employees throughout the workday and biennial criminal history checks, until there is a system in place for "real-time recurrent" FBI background checks for all aviation workers" (Sternstein, 2015, para. 2) is seen by some as a first step in protecting against the insider threat. These measures include "better security screening of airport employees, and stepping up "the frequency of random and unpredictable" inspections of airport staff throughout the day" (Theen, 2015, para. 7) and limiting access to secure areas. However, some believe that "measures, such as random screening and security probes, are unable to effectively mitigate this threat" (Brandt, 2011, para. 11). Although a step in the right direction, these procedures will only have a minimal effect because there are several employees not being screened. One possible way of fixing the holes in these measures is by requiring that "all staff members and all vehicles entering the airport must undergo security screening" (Lennerman, 2012, p. 227).

The most logical and effective recommendations for changes and additions to the existing process of screening employees were presented in “Managing the Aviation Insider Threat” by Alan Black (2010). In his thesis, Black suggests several changes to the current badging process. Under the current process, a criminal history records check is completed before an employee is issued their original badge, but the employee is not required to have an additional criminal history records check when his/her badge is renewed. Requiring a criminal history records check every time an employee’s badge is renewed could unearth criminal behavior patterns that could indicate a potential insider threat. Current criminal history records checks consider an individual’s criminal history for the preceding ten years. This hinders aviation security professionals’ ability to acquire a complete profile on an applicant. Criminal history records checks should be required to include an individual’s entire criminal history in order to discern an individual’s qualification to possess access to secure areas. In addition, criminal and civil penalties for failing to self-report convictions of disqualifying crimes should be implemented. Employees are required to report convictions of disqualifying crimes to the employer or airport operator within 24 hours of conviction. However, under the current regulations, employees who fail to report these convictions are not punished in any way. Enforcing criminal and civil penalties for failing to report these convictions will increase the likelihood of employees self-reporting. Self-reporting convictions of these crimes is vital to airport security and will help mitigate the insider threat. This policy should be taken further to include requiring employees with access to secure airport areas to report arrests related to disqualifying crimes because charges can be reduced or it could take months or years to reach a conviction. Black also highly recommends eliminating proof of identification documentation that is not issued by the federal or state government and implementing the requirement that criminal history records checks must

include an ability to verify information for a full 10-year term in the case of immigrants and include juvenile criminal records for employees under the age of 27 (Black, 2010).

Once these changes are made to the existing process of screening employees, several additional measures should be implemented. One addition measure that needs to be implemented is reviewing a credit history report on all employees that have access to secure airport areas before hiring and every time their badge is renewed. Credit checks are another method of verifying an individual's identity and provide information on the individual's financial well-being. Bankruptcy or other financial challenges can indicate an individual's desperation and probability of carrying out an insider attack if given the proper incentive. Individuals with less than desirable credit history should be closely monitored for criminal activity. Another measure that should be implemented is reviewing an applicant's work history for the preceding ten years. This procedure can reveal behavioral patterns such as disciplinary actions, terminations, or other actions that are likely to be duplicated in the new work place environment at the airport (Black, 2010). Behavioral patterns revealed in the applicant's work history have the potential to reveal the applicant's propensity to violate regulations and laws, and possibly execute an insider attack. In addition to credit history checks and reviewing work history, applicants should also be required to provide a minimum of three personal references. Personal references provide insight into the integrity of the applicant and the company he/she keeps. A lack of personal references or references from associates with questionable backgrounds and behavioral patterns could be an indication of less than desirable behavioral tendencies by the applicant. Perhaps the most important requirement that can be added to the employee screening process is the disclosure of all travel outside of the United States by all applicants and all incumbent employees with access to secure airport areas. Specifically, "documentation

demonstrating an individual's travel history, including international locations that are otherwise regarded as unfriendly towards the U.S. and with a history of harboring, aiding or funding terrorist organizations" (Black, 2010, p. 39). This is especially important given the recent trend of U.S. citizens traveling to countries with known training camps and havens for terrorist organizations and returning to the United States with plans to carry out terrorist attacks.

One extremely important requirement that should be added to the employee screening process, but is often overlooked, is a psychological evaluation. A psychological evaluation should be required of all applicants and existing employees. The external stressors such as marital, financial, and emotional stressors need to be evaluated along with workplace demands in order to compile an accurate profile of the applicant and employee. Internal conflicts cannot be seen by the naked eye and it is usually these conflicts that lead to employees becoming an insider threat and threatening the lives of others. FedEx Flight 705, PSA Flight 1771, and Germanwings Flight 9525 are excellent examples of why psychological evaluations are needed for applicants and incumbent employees. If psychological evaluations were part of the employee screening process, these incidents could have been avoided and many innocent lives could have been saved. Psychological evaluations combined with requiring medical professionals to conform to regulations regarding disclosing medical diagnoses of aviation professionals to the employer and the proper aviation regulatory body. Ensuring that medical professionals conform to these regulations can prevent incidents where pilots intentionally crash perfectly functioning passenger jets and take the lives of innocent and unsuspecting passengers.

Although not a widely publicized or acknowledged security risk, the insider threat in aviation is a serious security risk that warrants changes in the screening and hiring process for personnel with access to restricted areas and requiring personnel to undergo the same security

screening as passengers. TSA is primarily responsible for implementing these changes to protect the American public from the insider threat. Federal regulations to address this issue must encompass all possible threats because the “defense of air assets will become even more problematic in the face of a spectrum of threats enabled by technology and an accelerating insider threat” (Caudill & Jacobson, 2013, 31). In today’s security environment, additional measures are needed to ensure that employees with access to secure areas will not violate that trust that is placed in them. The recommendations discussed above could vastly enhance protection from an insider threat if implemented. Passengers need to enlighten themselves of this danger and demand that authorities modify regulations in order to protect them from the insider threat. Passengers should demand that essential personnel and flight crew encounter the same scrutiny before being allowed in secure airport areas. However, most passengers are oblivious to the constant threat of an insider attack.

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