

DRAFT

SAFE SKIES

The Current State of Aviation Security

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AN ASSESSMENT ON AVIATION SECURITY,
ONE YEAR LATER

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PREFACE

"A safe and secure civil aviation system is a critical component of the nation's overall security, physical infrastructure, and economic foundation"¹

On September 11, 2001, nineteen Al-Qaeda terrorists stunned the world with four synchronized suicide hijackings, a terrorist operation the scale of which the world had never seen before. The entire world was shaken by this atrocious terror attack on the Twin Towers, the Pentagon and the White House (which was probably the forth target), an attack in which thousands of lives were lost.

The uniqueness of this terror attack is that it was the first time a terror organization rose up so brutally and in such a radical manner against domestic Aviation in the homeland itself, the United States of America, leader of the free world².

It is a frustrating paradox: The democratic heritage of America is one of the main causes that made it possible for terror organizations to establish terror networks all over USA. Freedom of Speech, the Right to Privacy and other fundamentals characteristics of the democratic nations were cynically exploited for building terrorist infrastructures.

The third millennium is here and the war against terror is the main theme of its early years. The events of 9/11 are more than a radical escalation of terrorist behavior and characteristics. They are (or should be viewed as) a breakthrough in the enlightened civilization's attitude and actions toward the emerging danger of the global terror: A worldwide declaration of war against terror – its perpetrators, its infrastructures and its patron countries.

¹ Dillingham, Gerald, Aviation Security – Terrorist acts illustrate sever weaknesses in Aviation Security, Statement before the subcommittees on Transportation, Senate and House Committees on appropriations, US GAO, September 20, 2001

² Narkis, Pinhas, Terror Twins, Strategies and Tactics Ltd. Publication, 2003, Hebrew edition.

CHAPTER 1: THE THESIS – IT IS A FAILURE OF THE ENTIRE COUNTER-TERRORISM CONCEPT, NOT ONLY OF THE AVIATION SECURITY

"Our enemies instead will use unconventional techniques, either exclusively or as a supplement to their attack. They will use terrorism. They will use cyber attack and information warfare. And they will use chem.-bio attack, .. We will not tolerate terrorist organizations acquiring or maintaining stockpiles of weapons of mass destruction" – Richard Clarke, the Clinton's Administration's National Coordinator for Security, Critical Infrastructure and Counter-Terrorism, October 7, 1998³

Counter-Terrorism hypothesis prior to 9/11

On April 30, 2001, the U.S. Department of State issued its comprehensive annual report: Patterns of Global Terrorism, describing incidents and trends in international terrorism in the year 2000. It is the first time the Bush administration State Department has been compelled to publicly comment on the nature of terror attacks against Israel in the era following its withdrawal from Lebanon.

The report clearly does not reflect the new realities of terror. Despite the statement in 'Patterns 2000' that it is "increasingly important" that states should adopt a 'zero tolerance' for terrorist activity within their borders," the real message of this report is that at least for the time being, political — not counter-terrorist — concerns hold the day.⁴

The catastrophic events of 9/11 demonstrated more than just a failure of aviation security; they showed a total collapse of the entire counter-terror concept, which assumed that the threats posed by extreme Muslim terror organizations are still outside the homeland.

It would be an understatement to associate the 9/11 terror attack merely to a failure of Aviation Security: It was not just a malfunction of the

³ Clark, Richard, Clinton's Administration's National Coordinator for Security, Critical Infrastructure and Counter-Terrorism, at a conference on countering chemical and biological warfare, October 7th, 1998.

⁴ Shenckar, David, **Peace Watch**, The Washington Institute's Special Reports on the Arab-Israeli Peace Process, Number 322, May 1, 2001

screeners, air marshals, or security officers'; the failure was rooted in the administration's lack of response to the emerging terrorist threat⁵.

1. Primarily, the fiasco can be attributed to the intelligence agencies' failure to divert sufficient resources to study those threats thoroughly, evaluate them, and communicate with each other in order to share valuable information at the opportune time.
2. Another failure was the intelligence agencies' concurrence with the administration's ignoring "signals" from various sources regarding the path, means and methods of operations that international terror might employ against the United States. Moreover, it appears that the government did not fully realize the true characteristics of the "New Terrorist", the suicidal murderer, and their implications.
3. While most reports repeatedly warned of terrorist acts geared towards causing mass destruction, the intelligence agencies were focusing on technologically "sophisticated" terrorism and neglecting the "old-fashioned" methods, such as hijacking planes using nothing but box cutters.

It should be noted that the notion of using airplanes as guided missiles is not new. As early as 1994, Algerian terrorists hijacked an Air France jet and demanded that it be fully loaded with fuel, far more than needed to reach the stated destination. After a successful commando operation, several letters found on board revealed the true objective of the hijackers: to crash the plane with all passengers and hijackers on board, into the Eiffel Tower. A year earlier, an official study by the Pentagon suggested that aircraft might be used as guided missiles on a suicide mission. This report was suppressed to avoid alarming the public⁶.

⁵ Gerald Kauvar, staff director of the Gore Commission, admitted that "it's a government failure... we specifically said the FAA had to change and they've proved resistant to change" - Pasternak, Judy, "**FAA, Airlines Stalled Major Security Plans; Safety: Few of the steps recommended five years ago have been completed**", Los Angeles Times, October 6, 2001.

⁶ Easterbrook, Gregg, "**The All-Too-Friendly Skies – Security as an Afterthought**," in Rose, Gideon and Hoge, James Jr. (Eds.), How Did this Happen? Terrorism and the New War, Rose, Gideon and Hoge, James Jr. (Eds.), New York City: Council on Foreign Affairs, 2002, p. 177.

Steps taken following 9/11

The administration took many steps and implemented new measures following Bin-Ladin's attack. It seems, however, that some of these steps were motivated by political considerations imposed upon Bush's administration. The main goal was to convince the public that the government is taking aggressive measures in response to the colossal failure. These measures were designed to be perceived by the public as means to prevent additional terrorist attacks on the aviation industry. The administration can better convince the public that it takes substantial actions to improve security by federalizing the screener force than by revealing measures taken by the Administration to improve the process of information sharing within the intelligence community.

Evidence speaks for itself: According to expert estimates, 95% of TSA resources last year went toward meeting the two deadlines in the public spotlight – the Nov. 19 2002 deadline for hiring, training and deploying a federalized screeners force, and the Dec. 31 2002 deadline for deploying the EDS/ETD screening systems in airports. Both deadlines met successfully, with few exceptions.

Those two measures have increased security by deterring potential terrorists from choosing a mode of operation similar to that of Bin-Ladin's troops. But there are still many loopholes in the overall security system in various areas such as cargo, mail, perimeter, onboard security, etc. It seems that despite measures taken by the Administration in those areas, legitimate political concern to rebuild public confidence in Aviation Security by demonstrating the Administration's seriousness regarding this matter dictated that the focus was on measures observable to the public and not necessarily where it was in fact most required.

CHAPTER 2: THE EMERGING INTERNATIONAL TERROR AND THE PROFILE OF THE "NEW TERRORIST"

"The potential actions of loosely organized, international networks of terrorists who share a vision of global 'Jihad' against the west, especially in the United States, remain a clear and present danger" ⁷ – Mark Wong, Deputy Coordinator for Counter-Terrorism, U.S. Department of State, May 22, 2001

U.S Counter-Terror Policy in the Last two Decades

During the 1970's and 1980's, the main terror threat to U.S. citizens was originated in countries (such as Libya, Syria, Iran, and Iraq), directly and indirectly involved in terrorism. Terrorist groups, sponsored on a large scale by those countries, became increasingly sophisticated, not only in their ability to attack, but also in their capacity to manage complex financial and logistical networks, all over the world.

Only in the 1980's, however, did the U.S first direct serious efforts at countering terror outside its own borders (e.g. "Urgently Fury" – Grenada, 1983; "El Dorado Canyon" – Libya 1986; "Praying Mantis" and "Ernest Will" – Persian Gulf, 1987–1990). During most of the 20th century U.S. counter-terrorism policy consistently reflected a certain restraint or even indifference regarding terrorist acts. One of the obvious reasons for this is that history shows that terror organizations, while taking advantage of the liberal society and the strict civil protection of civil rights in the United States in order to thrive, did not commit any serious local acts of terrorism.

Developments in Terror acts against U.S. Targets

Islamic terror organizations have treated the United States and its allies as targets since the beginning of the 1970's. Even then, most of their terrorist acts were perpetrated outside U.S. borders – here are several examples:

- **September 1970** – The "Popular Front for the Liberation of Palestine" (PFLP) organization hijacks 3 flights to New York: Pan

⁷ From the statement of Mark Wong, Deputy Coordinator for Counter-Terrorism, U.S. Department of State, before the House Armed Services Committee Special Oversight Panel on Terrorism, May 22, 2001.

American, TWA, and Swissair. Attempts to hijack a fourth one - El-Al flight – failed thanks to the vigilance of the crewmembers.

- **December 1973** – The "Black September" organization kills 32 passengers during an attack on Pan American and KLM planes at Rome Airport.
- **1979-1980**: The U.S. Embassy in Iran was seized, embassy officials held hostage for 14 months
- **April 1983**: The U.S. Embassy in Beirut was attacked by Hezbollah suicide bomber; 49 killed, 120 wounded
- **October 1983**: Marine barracks in Beirut car-bombed; 241 U.S. Marines killed, hundreds injured.
- **December 1988**: Pan American flight 103 was blown up over Lockerbie, Scotland; 270 people killed (Libyan terrorists).
- **February 1993**⁸: The World Trade Center in New York City was badly damaged when a car bomb planted by Islamic terrorists explodes in an underground garage; six killed, hundreds injured (followers of Abd al-Rahman).
- **June 1996**: A fuel truck carrying a bomb exploded outside the U.S. Marine barracks in Dhahran, Saudi Arabia; 19 Americans killed (Bin Ladin organization).
- **August 1998** – 220 people were killed in the U.S. Embassies in Kenya and Tanzania bombings (Bin Ladin organization).
- **October 2000** - 17 sailors killed when a small dingy carrying explosives rammed the destroyer U.S.S. *Cole* (Bin Ladin organization)
- **September 2001** - Terrorist Attacks on U.S. Homeland, thousands of Americans were killed.

A review of this list of terrorist attacks clearly indicates three observations:

⁸ This was the first serious attempt of local Islamic terror act (2/26/1993). 4 months later 9 Islamic terrorists were arrested at Queens for planning to bomb and destroy Manhattan's underground bridges.

1. Continuous growth of Islamic terror groups against American targets.
2. A continuous increase in the audacity of these terror attacks and in the number of casualties.
3. The desire to harm, not only American citizens, but also government officials all over the world. In addition, since the 1990's the homeland itself has been a target for terrorist acts.

The U.S. efforts to counter the threat, in the 1980's and onward, were aimed primarily against the sponsoring states: The "State Sponsor" legislation, several sanctions laws, Abdel Buset al-Megrani conviction (for the murder of 259 passengers on board Pan-American flight 103 and 11 dead on the ground in Lockerbie, Scotland) was directed mainly at the government of Libya. On the international level, the United States led an effort to isolate and confront sponsoring states with international sanctions, multilateral pressure, diplomatic efforts and a law enforcement campaign⁹.

The "New Terrorist" and the 9/11 attack:

The term "New Terrorist", which is very common in recent experts' reports, is somewhat misleading. This "New Terrorist" is actually not so new. He has been around for almost 20 years, a veteran of the Afghan front with the Russians and then of the Chechen front. He served in several military organizations and knows all there is to know about guerrilla warfare and different weapons and explosives. Unlike the terrorist of the 1970's and 80's, today's Islamic terrorist believes that in blowing up innocent civilians he is doing God's work. For him, terrorism is a holy duty, and he is willing, and even desires, to die in carrying out his mission¹⁰.

What did this network of Islamic radicals followers of Bin-Ladin hope to achieve in the September 11 attacks? To put it simply, however unbelievable it seems, Bin-Ladin wants the whole world to be ruled by Islamic law (this

⁹ Ibid.

¹⁰ Ganor, Boaz, The Changing Threat of International Terrorism, ICT (International Policy Institute for Counter-Terrorism) publication, December 2002.

notion is known as "Dar el-Harb" – the realm of the sword – and "Dar el Islam" – the realm of Islam)¹¹.

Religious terrorism promotes an uncompromising worldview dictated by the belief that the religion holds the sole key to 'decision-making. It uses religion to promote its revolutionary, violent theories¹².

The 9/11 attacks in New York City and Washington DC were primitive in the technological sense (no use was made of advanced weaponry or vast quantities of explosives) and on the other hand were extremely sophisticated (in terms of planning and timing). However, the recruiting, the preparation and the execution of the attacks – without their being revealed and aborted - demonstrate the extensive operational capabilities and sophistication of Al-Qaida¹³.

The 9/11 suicide group was consisted of several teams that operated independently of each other and apparently had no contact between them. The commander of the group was Muhammad Atta, an Egyptian and former member of the "Hamburg Group" suicide squad.

The perpetrators left three suicide letters and a videocassette, filmed six months prior to the attack. The letters indicate that the hijackers and their cell leaders were instructed in detail on how to prepare for a suicide operation and how to behave during the attack. They were instructed to remain calm, to avoid showing tension, and to internalize the fact that they were going to a better place - the Garden of Eden. The letters also include specific details describing the operational preparations – the required equipment, the state of their box cutters, their passports. They were instructed to confirm that they were not under surveillance and knew how to behave once they board the planes¹⁴.

We will probably never know exactly what happened inside those airplanes. The little we know about one of the flights (gleaned from fragments of cell

¹¹ Ibid.

¹² Whine, Michael, the Annual Report of the Stephen Roth Institute for the Study of Contemporary Anti-Semitism and Racism at Tel Aviv University: Anti-Semitism Worldwide 2000/1.

¹³ Ganor, Boaz, "**The World is not Coming to an End, However...**", The International Policy Institute for Counter-Terrorism, September 12, 2001.

¹⁴ Ibid.

phone conversations) indicate that the terrorists created panic by stabbing one or more of the passengers and caused the pilots to come out of the cockpit.

There is no big surprise in the fact that four sets of pilots, flight attendants and passengers simply gave in to the hijackers, who were armed only with box cutters. Most hijackers since the 1970's had goals to achieve, goals that required their own survival. U.S. airline crewmembers were instructed to cooperate with hijackers in order to bring the plane to a safe landing, somewhere. The prevailing concept was that hijacking is a hostage-taking situation, ignoring the possibility of suicide terrorists on a murderous rampage. Of course, the passivity is also a derivative of legal and liability issues: The airlines' liability is limited if the plane is hijacked; once the crew resists and a disaster occurs, the airline may be found negligent¹⁵.

¹⁵ Ibid., p. 176

CHAPTER 3: AVIATION SECURITY PRIOR TO 9/11

"Last year was the worst on record for airline delays. This summer is likely to be as bad, if not worse. ... adding just a few minutes of delay to each airline flight in the U.S. can create gridlock in our aviation system, with dramatic negative impacts on the economy" – Secretary of Transportation Norman Mineta, U.S. House of Representatives Transportation committee of the April 4, 2001

During the past two decades, the contemporary American airports were transformed into an "organized chaos". 628 million passengers traveled annually by air on U.S. carriers – more than two air trips per head, in average. Air transportation became the preferred travel method of most Americans: businessmen, families, students, day laborers, everybody. Airports employed thousands of workers to provide service for all the visitors. Of course the great masses of people made airports and airplanes an attractive target for terrorists.

FAA policy prior to 9/11 emphasized safety over security and crime prevention over terror deterrence. One of El Al's former CEOs stated that he can't remember how many times sanctions were imposed on airlines due to safety breaches while security issues were left aside. Aviation Security was left to the airlines, an industry that objected to the security measures recommended by the Gore Commission¹⁶, claiming that the industry could not bear the consequences. "By September 11, most of the proposals had been watered down by industry lobbying"¹⁷.

The U.S. airline industry was entirely focused on maximizing passenger numbers and reducing costs: "More passengers, lower prices, more luggage, more speed, and getting planes off the runway as fast as physically possible: these had been the imperatives of the U.S. airline industry for the preceding two decades"¹⁸. Perhaps the most compelling example is the experimental boarding procedure practiced by several airlines - first boarding the window

¹⁶ Among those recommendations: CAPPS (Computer-Assisted Passenger Pre-Screening) system; PPBM (Positive Passenger-Baggage match); tighter screening of mail and parcels, etc.

¹⁷ Pasternak, Judy, "**FAA, Airlines Stalled Major Security Plans; Safety: Few of the steps recommended five years ago have been completed**", Los Angeles Times, October 6, 2001.

¹⁸ Easterbrook, Ibid, p. 163.

seats, then the middle seats, and only then the aisle seats – just to save a few more minutes of boarding time. This approach resulted in extensive resources invested in flight safety (aircraft technology, air fleet maintenance, air fleet operation), while security was an afterthought.

Some more examples:

- E-tickets: Airlines promoted electronic tickets because it cuts costs but it also reduces security (no paper trail to trace)
- Self check-in kiosks – Those kiosks allow passengers to obtain boarding passes without encountering any security officer (some of the kiosks even displayed the mandatory security questions...)
- Sky Marshals corps – While the United States did have sky marshals corps, less than 1% of the commercial flights had an armed marshal on board, prior to 9/11. The reasons for that were: threat assessment, which was defined as low and budget constraints.

Several tests conducted by the "Red Team" (the U.S. Department of Transportation's elite team of undercover airport security inspectors) found time and time again that "it is extremely easy to smuggle weapons onto planes or to enter tarmac areas without identification"¹⁹. Some of those reports were published in public²⁰ but little was done to rectify the security breaches. It is not surprising – "Security" is considered to create delays and inconvenience to passengers. Above all, it costs money. Congress and federal regulations hemmed and hawed but no one forced the issue²¹.

During that time, the main improvements in Aviation Security were technological: the advanced CT (computerized tomography) scanners, the CAPPs (Computer-Assisted Passenger Pre-Screening) system and the PPBM (Positive Passenger-Baggage Match) system. The PPBM system, however, was utilized only on international flights; CAPPs was so crippled by

¹⁹ Ibid., 164

²⁰ See, for example, the GAO Report "Aviation Security – Urgent Issues Need to be Addressed", September 11, 1996.

²¹ Ibid, p. 164

legal constraints that it pinpointed none of the 19 hijackers of 9/11; and the security screening inspections were performed by "poorly paid workers with little job motivation, many of whom are recently arrived immigrants who may have limited English skills"²². During 2000-2001, the CT systems, which cost \$1 million each, were utilized to screen 225 bags per day, while their actual capacity is about 225 bags per hour.

FAA was not unfamiliar with security flaws. Bogdan Dzakovic, head of the FAA "Red Team", accused agency managers of trying to "cover up" airport security defects that his team members found during undercover tests. According to his testimony at a congressionally sponsored "whistleblowers" forum, the agents were ordered to tip off airports before those "surprise" tests. Dzakovic, a former air marshal, claimed that the 9/11 attacks could and should have been completely prevented.

²² Ibid, p. 167.

CHAPTER 4: AVIATION SECURITY FOLLOWING 9/11

"The allies of terror are equally guilty of murder and equally accountable to justice" – President George W. Bush, Address at the U.N. General Assembly, November 10, 2001

September 11 produced a new political will for concrete action to counter the terrorist threat to America and its allies. America's leaders came to realize that ideological, radical Islamic terrorists are not deterred by limited-force actions such as bombing their [evacuated] training camps²³. This lesson, though, seems to have been learned only so far as Al-Qaida is concerned. Other terror groups and their sponsor states did not receive the same treatment - yet. The Al-Qaida hijackers could have never succeeded in their mission without the logistical support of their terror group network. They were funded and facilitated by numerous individuals, cells and affiliates that provided all the logistic assistance required for an operation of this scale – they were provided with money, training, travel documents, intelligence information, etc. etc...

The actions taken by the Bush administration were steps in the right direction. Terror is not a state or federal issue. It is not even a national issue. The terrorist threat is an international issue and should be dealt with holistically. The office of Homeland Security, while gathering together all counter-terror activities in the homeland, should dedicate efforts to create a global and borderless sharing and collaboration system among the nations in a mutual effort to defeat terror.

Aviation Security improvements

Within days of the 9/11 attacks, the White House requested some answers from the FAA regarding the status of the Gore Commission recommendations from 5 years ago. The FAA briefly replied that 25 out the 31 recommendations had been completed, but actually, most of the

²³ Levitt, Mathew, **Targeting Terror: U.S. Policy Toward Middle Eastern State Sponsors and Terrorist Organizations, Post-September 11**, The Washington Institute for Near East Policy Press, 2002

measures were not yet in place. Some was still in the development process²⁴. It was clear that a drastic change was needed.

The first steps taken by the federal government were to make funds available to the aviation industry to fortify cockpits, add federal air marshals on airplanes, institute a policy of zero-tolerance punitive action on security breaches, and post the National Guard at airports.

On November 19, 2001, President Bush signed into law the "Aviation and Transportation Security Act (ATSA)", which among other things created a new Transportation Security Administration (TSA) within the Department of Transportation. This Act established a series of milestones toward achieving a better-secured air travel system.

For the first time, airport security came under direct federal responsibility. The TSA was provided with additional funds for federal air marshals, security managers, supervisors, law enforcement officers and screeners to ensure that all passengers and carry-on bags are inspected thoroughly and effectively, and set a one-year deadline for compliance.

During that year, the TSA accomplished its "monumental, but doable"²⁵ task of meeting the deadline: placing federal screeners for passengers and baggage at all the nation's 429 commercial airports; TSA contractors (Lockheed Martin and Boeing-Siemens did a remarkable job regarding the checkpoint configuration and installation of the EDS (Explosive Detection Systems); the training program for screeners was revamped to correspond to the new terror threats; and PPBM became mandatory on domestic flights as well as international.

The new Aviation and Transportation Security Act also required all workers with security clearances to pass a fingerprint check for criminal record by the end of 2002. The law also requires that all screeners be U.S. citizens.

By December 31, 2002, the next deadline - to deliver advanced technology and screeners to perform 100 percent baggage screening, the TSA succeeded in installing the EDS/ETD machines at the 429 airports, but was unable to recruit and train enough manpower to utilize them.

²⁴ Pasternak, Ibid.

²⁵ The words of Norman Y. Mineta to President Bush, as stated at the TSA Anniversary Event, Washington DC, November 18, 2002.

Did the TSA achieve its specified goals? That depends on how we define its goals: If the goal is to meet the ATSA legislation deadlines, then there shouldn't be any doubt. The TSA made good on its leaders' promises.

If the goal was to restore public confidence in aviation security, it seems that the U.S. aviation industry, though it has not yet regained all its customers, is at least on the right track in getting back toward where it was prior to 9/11.

But, if the TSA goal was, in the words of President Bush in his address on November 19, 2001, "World class security balanced with world class customer service", then we have to say that we are not there, yet

The steps and measures taken by the TSA so far were appropriate for the immediate task of restoring public trust in aviation security and mending the obvious and most outstanding security breaches, but one cannot fix in one year, the negligence of many years.

There are still several issues to be addressed in aviation security: cargo, mail, air marshals on more flights, reinforced cockpit doors, appropriate basic and recurrent training for screeners and flight attendants, and more. The lack of attention to each of these issues may pose dangers to aviation security.

CHAPTER 5: U.S. AVIATION SECURITY STATUS TODAY

What is the status of US Aviation Security today? After most of the measures have been taken, are we safer?

The aviation system carries 700 million passengers annually. Terror experts warn that the TSA is ignoring security breaches on the "backside" of airports, bending on tough standards for federal screeners and wavering on which bomb-detection technology to use²⁶. The fear is that the TSA will give in to airline industry pressure to avoid flight delays and merely provide a "façade" of security.

On December 22, 2001, another horrifying act of terrorism might have occurred. As it turned out, Richard Reid, the "shoe bomber", was stopped thanks to a vigilant flight attendant and several determined passengers, before bombing the American Airlines flight from Paris to Miami. We shouldn't classify this incident as an "unsuccessful terror act". Rather, those in charge of homeland security should treat it as though the AA plane had exploded in mid-air. This was another demonstration of civil aviation's vulnerability, even after some major improvements.

The task of providing security to the nation's aviation system is a mammoth one. Although it is obvious that no security system can be a full proof system, the public expects the administration to take all measures necessary in order to reduce the risk. U.S. airspace is enormous and defies easy protection. The nation has hundreds of airports, thousands of airplanes, ten of thousands of daily flights and limitless ways terrorists can attack the system²⁷. The only way to completely prevent aviation terror is by banning air transportation. But there is a way to take into consideration security needs while not eliminating the aviation industry.

As Washington moved to reduce the vulnerabilities exposed by the 9/11 strike, it should also try to anticipate the next one²⁸. It seems that most of the

²⁶ Gathright, Alan, "**Race to overhaul airline security; Industry pressure may slow reform, critics fear**", San Francisco Chronicle, March 24, 2002.

²⁷ United States General Accounting Office, **Aviation Security – Terrorist Acts Illustrate Severe Weaknesses in Aviation Security**, September 20, 2001

²⁸ Perry, J., William, "The **New Security Mantra – Prevention, Deterrence, Defense**" in Rose g. and Hoge, James (Ed.), How did this Happen? Terrorism and the New War, Rose g. and Hoge, James (Ed.), New York City: Council on Foreign Affairs, 2002, p. 225.

TSA efforts so far were dedicated to "the war that just ended". There are still vulnerable areas in U.S. aviation security that need to be addressed, before the next terror group tries to take advantage of the breaches. Here are some examples:

- **"Trojan Horse"**: While most attention was focused on the screening process – passengers and bags – about 1 million airport workers all over the nation are not required to go through physical inspection before entering secured areas. The only security check they have to pass is the 10-year background check. The DOT Office of Inspector General (OIG), the office responsible for airport employees investigations (this jurisdiction will be transferred to the Department of Homeland Security OIG by March 1, 2003) has indicted about 800 airport employees in the last five years (more than 400 employees were convicted), many of them for giving false information on their background checks. The background check is not enough, especially when it is well known that terror organizations often use infiltrated sleeper groups or individuals²⁹, waiting, sometimes several years, to be called to execute a terror attack.
- **Cargo**: U.S. air carriers carry billions of tons of cargo each year, some of it in passenger planes (half of each passenger aircraft hull is filled with cargo). The law requires screening of cargo but doesn't specify a date by which that should be accomplished. The TSA should develop a comprehensive air cargo security program that includes identity checks of individuals making cargo deliveries, a computerized cargo profiling system, and cargo screening facilities.
- **Mail**: In addition to freight, air carriers also carry mail. In 1979, a bomb concealed in a mail parcel exploded in an American Airlines cargo hold (no injuries). Following that incident, the FAA and the U.S. Postal Service mutually agreed to screen parcels before placing them on board but after a short while this arrangement evaporated. The main concern, expressed by U.S Postal officials, was that screening parcels would invade the right of privacy. That was not the only concern:

²⁹ One example to the "Sleeper" line of attack is the case of Ali Mohamed, a US citizen (though born in Egypt) that served in the U.S. army (reached the rank of sergeant) ; He pleaded guilty, in 2001, to his involvement in the bombing of the American embassy in Nairobi on behalf of bin Laden.

screening all packages would slow down mail and gives the public a reason for using private delivery services. Even after 9/11, the postal service objects to tightening security regarding air mail. The current status is that only parcels weighing less than a pound (0.454 Kilogram – enough to bring a plane down) may be loaded on commercial flights.

- **Air Marshals:** Even after reinforcement of the air marshal corps, there are still American flights with no air marshals on board. The cost of implementing full air marshal coverage on all U.S. flights is huge. It seems that the Administration is still lagging behind in implementing a system that would provide most of the higher-risk flights with air marshals on board.
- **Reinforced doors:** More than a year after 9/11 attack, some U.S. aircraft still lack reinforced cockpit doors - "by far the most important design change for U.S. commercial aircrafts"³⁰. The cockpit door should be a dead-bolted steel door with plated hinges that cannot be ripped open or shot out. The spirit of the new ATSA law has made clear that the open cockpit, one of the symbols of America's customer service-oriented aviation industry, should become a thing of the past.
- **Training of flight crews:** As mentioned earlier, U.S. airline crewmembers were instructed to cooperate with hijackers in order to enable a safe landing. The change in the threat nature was followed by new policy that was defined by the TSA after 9/11. Today, crewmembers are required not to take any risks, and to assume that a hijacker is a dangerous terrorist whose aim his to destroy the airplane with all passengers onboard, or perhaps create even a bigger disaster by crashing the airplane into a strategic target, and therefore he should be treated as such. Flight crews are challenged to distinguish between an irritated passenger, an unstable passenger who tries to hijack the airplane and a terrorist with suicidal intensions. Flight attendants should be taught how to distinguish between those different situations according to the behavioral pattern of the individual, and how to handle such incidents. The new terrorism era requires that flight crews (flight attendants as well as pilots) should go through innovative and comprehensive training programs, specially designed to prepare them to respond to threat level four and five

³⁰ Easterbrook, *Ibid.*, p. 172

situations and enable them to cope with the possible scenarios, where all other security measures have failed and the flight crew know-how is the only hope for survival of the airplane, the passengers, and probably many more civilians.

- **Public Awareness:** Terror experts, such as Dr. Rohan Gunaratna³¹, share an opinion that suicide terror acts can be prevented only during the planning stage. Once execution is under way, it will be very hard to prevent the disaster. However, Israeli experience has shown that this is not exactly the case: Israeli civilian and law enforcement awareness induced suicide terrorists to commit their act at undesirable places and times, and thereby reduced the possible casualties. In several incidents, suicide terrorists aborted their mission due to early detection by the alert Israeli civilians. We should learn this lesson: Public awareness can decrease, and in some occasions prevent, terror acts, even suicide terror.

Despite the above, it is obvious that the U.S. aviation industry has made substantial progress in the area of security. After the first urgent measures were taken, the entire system has attuned itself to handling the threat to U.S. aviation more seriously and professionally. It is time to do an interim debriefing and try to measure the effectiveness of those measures in order to improve resource allocation and consequently the level of security and customer service.

³¹ Gunaratna, Rohan, "Terror from the sky", Jane's Intelligence review, September 24, 2001

CHAPTER 6: METRICS TO MEASURE AVIATION SECURITY PROGRESS AND EFFICENCY

In general, there are currently no standard criteria by which it is possible to objectively and quantitatively evaluate the level of security provided by the new measures. By defining terror's main goal as "creation of an unremitting paralyzing sensation of fear in the target community", we need metrics to measure changes in the community's behavior, and these elusive metrics, can be determined only over a long period of time. It is possible, however, to identify tangible metrics that measure progress and efficiency of the level of security, particularly aviation security. These metrics can be classified into the following two groups:

1. Metrics that evaluate specific components of the security system
2. Metrics that evaluate the entire security system

The need for a comprehensive set of performance metrics for all the "Homeland Security" sub-categories is clear. The definition of the term "Homeland Security" is so elusive and represents such a wide spectrum of sectors, each of them to being loosely defined as well, that without such metrics it will be very difficult to evaluate the level of adequacy provided by the measures taken by the Administration.

Based on my experience, I am a great believer in the phrase: "what can't be measured does not count, and what does not count does not get done". My business experience as well as my Air Force background has taught me that competition is the mother of all achievements. Therefore, it is important to conduct metric measurement in order to evaluate, compare and generate competition among airports, airlines and aviation security systems. In the United States itself, all of us witnessed many times how competition between enterprises derives and motivate them for achievements. It is up to us to create competition in the aviation industry, regarding security, and the way to do that is by creating transparent³² evaluating system that would grade the different airports and airlines, similar to J. D. Powers's grading in many other industries, not only by customer service but by level of security. After all, the general public expects security these days more than anything else.

³² Even though the need for transparency is clear, there will be amount of opaque due to security consideration.

Most metrics used by the recent Homeland Security studies seems to be general, qualitative descriptions of the administration's initiative status, or binary metrics referring only to the completion or incompleteness of a certain task. Of course, the status of most Homeland Security sectors cannot be easily described by binary metrics.

To find such metrics, we must first define our objectives, the general outcome we would like those measures to describe. We suggest the following objectives in the Aviation Security sector³³:

1. Defense - Preventing terrorist attacks on U.S. aviation industry (e.g., hijacking, bombing, firing missiles at airplanes or using airplanes as targeted missiles).
2. Deterrence - Reducing the Terror organizations motivation to attack the U.S. aviation industry and by that reducing its vulnerability.
3. Minimizing the damage and recovery efforts of the aviation industry from terrorist attacks, if and when they occur.

While it might seem unrealistic to expect total prevention of terror attacks in the homeland, it is obvious that in aviation security anything less than 100% prevention is a failure. When fighting terror, success should be measured as preventing terror from influencing and changing the public lifestyle. The public itself does realize that they cannot expect absolute prevention of terror attacks without considerable cost to the public's rights.

By defining such a set of metrics to evaluate security we can, and should, create a public standard for analyzing the level of security through customer service. These metrics should become the tools by which the public could put pressure to bear upon executives to improve their security systems or lose the public trust (and wallet).

³³ Those objectives are merely the reflections of Office of Homeland Security's *National Strategy for Homeland Security* defined strategic objectives.

- **Metrics that evaluate specific components of the security system. Proposed Aviation Security metrics are:**

1. **Police and law enforcement presence** – Many studies and information gathered on terrorist behavior indicate that the presence of large, well-trained, terror prevention-oriented (as opposed to crime prevention-oriented) law enforcement units along the route to the terror attack served as a major deterrence factor. The reinforced security presence might cause the perpetrators to retreat even when execution of the terror act has already begun. In most cases, though, the reinforced security presence would be spotted by the terrorists in the information-gathering stage (prior to the actual attack) and would cause them to call off the entire operation, or to choose an alternate target. We suggest several sub-metrics to portray a fair evaluation of the security force presence factor. (a) **Number of security officers** - This metric should be measured in total numbers per predefined area (e.g., 10 LEOs per checkpoint, 14 airport police officers at the airport's main entrances, etc.); (b) another sub-metric to evaluate the efficiency of The Law Enforcement force presence might be the **mobility and actions performed** by this force (e.g., how many times during an hour did they pass near a certain predefined point; how many passersby aroused their suspicion, how long did it take them to reach their posts on the sound of an alert, etc.); (c) **Terror orientation of security personnel** – Countering terror requires a quick response to the situation, once it is diagnosed as a terror attack. To achieve this necessary quick response, the security force must be terror-oriented; in other words it must act based on the assumption that a suspicious act might be a terror attack, and act accordingly. This sub-metric should be based on analysis of the security force's response to different alarm situations, and it should measure the proportion of situations interpreted as terror acts out of the total number of alert situations.
2. **Existence and utilization of appropriate technology-based systems at the checkpoints** - Utilization can be measured by several metrics, such as: (a) percentage of screened luggage and carry-on bags out of the total number of bags loaded on board; (b) the different kinds of standard and non-standard explosives that can be detected by the different technologies; (c) proportion of passengers searched

more thoroughly out of the total number of passengers; (d) rate of alarms and false alarms.

3. **Awareness to changing security needs amongst aviation industry executives, security officers and the general public** - This issue can be measured by: (a) percentage of airports and airlines taking steps to assess their specific vulnerabilities; (b) percentage of airports and airlines taking steps to address their specific vulnerabilities; (c) number of items discovered/confiscated by security officers; (d) total number of emergency procedures declared by security officers within a given frame time; (e) total number of emergency procedures declared due to public alertness.

4. **Security Training systems** – One of the most important factors of the counter-terrorism defense strategy is the proficiency level of the security personnel. But the air marshal's types of expertise are, and should be, very different from those of the baggage screener, which in turn are different from those of the checkpoint screener and from those of the flight attendants. Aviation security depends on the expertise each of these different functions, and none of them can be neglected – because the terrorist will always try to penetrate through the weakest link of the chain. Each of the security duties requires a different course program, different subjects to study, different class hours and different OJT. The training programs should include different types of recurrent training and different timing for that training. In addition, we believe that all airport employees should go through security and security-awareness trainings. Airport's level of security can be much higher if all its employees, from top management to the last employee, would have increased security awareness, as they have customer service awareness. There are several training systems metrics to be measured: (a) number of class hours; (b) number of hours of "field" training in the work environment; (c) final exam (certification) success ratio (a very high success ratio might indicate that the exams are too easy); (d) number of OJT hours prior to certification; (e) number of monthly hours dedicated to recurrent training; (f) success rate in in-house tests and in independent system tests. (g) Proportion of employees, out of total number of employees, who have been through security trainings. (h) Proportion of

executives, out of total number of executives, who have been through security trainings.

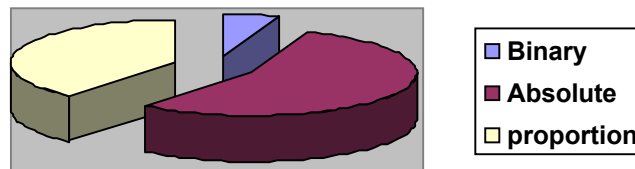
5. **The existence and extent of accountability in public reports on security system status** - Without transparency, we might face more cases of executives ignoring the obvious due to inappropriate considerations. This metric should express the extent to which executives show accountability by publishing reports regarding the actual security status (under the limitations of field security). Lately we have seen Logan, Pittsburgh, Dulles and Ronald Reagan national airports set a good example to such transparency.

The following table describes the different metrics and the metric type of variable.

Metric	Metric type
Police and Law Enforcement presence: (a) Num. of security officers (b) Mobility and actions (c) Terror orientation	Absolute numbers Absolute numbers Proportion
Existence and utilization of appropriate technology: (a) Screened luggage and carry-ons (b) Explosives detection capabilities (c) Searched passengers (d) Alarms and false alarms	(a) Binary metric (b) Proportion (c) Proportion (d) Proportion
Security awareness: (a) Vulnerability assessments in airports and airlines. (b) Steps taken to address vulnerabilities – can be measured nation wide or per unit (c) Discovered items (d) Emergency procedures - LEOs (e) Emergency procedures - public	(a) Proportion (b) Absolute number (nation level) or proportion (airport or airline level) (c) Absolute number (d) Absolute number (e) Absolute number
Security training system: (a) class hours (b) "Field" training hours (c) Certification exam (d) OJT hours (e) Recurrent training hours	(a) absolute number (b) absolute number (c) Proportion (d) absolute number (e) absolute number

It is not surprising to reveal that most of the metrics are measures by absolute number or by proportion because they describe a process and the outcome of it (e.g. does this process generate better security?). The conclusion is that it is possible to find objective quantitative criteria to the elusive term of "Aviation Security".

Metric Type Distribution



- **Metrics which evaluates the entire security system:**
 1. **Deterrence** – The deterrence should be measured as perceived by terror organizations. This can be evaluated mainly according to information reported by the different intelligence agencies, the rate of attempts to conduct terror attacks and the type of targets that are chosen by terrorists. This metric is based on weighting several sub-metrics and presented as a continuous measure (e.g. on a scale from zero to 100%)
 2. **Independent system audits and tests** – System audits/tests (such as those conducted by the FAA "Red Team") can provide irreplaceable information about security in general and on the status of the different components of the security system. This metric is measured as proportion.
 3. **In-house system drills** - We have learned from our experience that a security system that is not kept under the right degree of suspense is bound to develop apathy and impassiveness. This can be illustrated as a

circus juggler trying to walk across the ring on a tightrope: If the rope is too tightly stretched, it is bound to rip. If the rope is slashed, the performer will surely fall. Only when the rope is just tight enough, can the juggler cross safely.

4. **Compliance with the regulations** – The U.S. aviation industry mobilized itself after 9/11 to ensure that the aviation security system fully complies with the new regulations. It is essential to conduct recurrent measurement of different parameters to evaluate the level of compliance. While most airlines and airports are doing their best to fully comply with the regulations, it is unrealistic to expect full compliance, with no breaches, and it is therefore meaningless to use a dichotomous measurement such as "Full Compliance" or "Incomplete compliance. On the contrary, we should establish definitions for different levels of compliance (e.g., 100% compliance, 90% compliance, etc.). The sub-metrics measured under this category might differ from year to year.

CHAPTER 7: SUMMARY

We all have to be aware that the war against Al-Qaida has not yet ended. Bin-Ladin last tape is obvious evidence of that. Attempts to eradicate the Al-Qaida and its affiliates will succeed only after a coordinated global effort³⁴. Until that day, security at airports and other types of ports and border control stations should remain on the alert and should be improved constantly.

Nuclear or biological weapons in the hands of terrorists – that's the greatest single danger to American (and world) security, and is not so far-fetched. "Considering the level of catastrophe that could occur in a nuclear or biological attack, mitigating such threats should be an overriding security priority today"³⁵. Aviation security cannot be handled separately from those threats. It should be regarded as part of a comprehensive counter-terrorism program.

The term "Victory over Terror" is usually not the appropriate phrase to use. "Victory" refers to conquering and occupying territories and decisively subordinating the enemy's will. Naturally, it is not applicable when dealing with terror organizations. The concept of successful counter-terrorism policy should be preventing terror from changing the public's normal way of life, diminishing its media coverage and reducing the number of casualties.

The likelihood of success of the counter-terrorism policies depends on three strategies: prevention, deterrence, and defense: Prevention (limiting evolving threats before they can spread) of the proliferation of weapons of mass destruction (WMD) requires the cooperation of other nations, and the United States should promote such accords and non-proliferation treaties. Deterrence, the United States' single strategy during the Cold War era, is obviously harder to implement when dealing with terror groups. Both strategies could fail in the face of terrorism³⁶, which leaves us with the third one – defense.

³⁴ Schweitzer, Yoram, "**The Case of the Shoe-Bomber – Lessons in Counter-Terrorism – This Time at No Cost**," ICT (International Policy Institute for Counter-Terrorism) web site, <http://www.ict.org.il/articles/articledet.cfm?articleid=423>

³⁵ Perry, *Ibid.*, p. 227

³⁶ Perry, *Ibid.*, p. 230

The first, and main, line of terror defense strategy is efficient intelligence network, which in due time will supply advanced warning of an imminent attack. In order for the office of Homeland Security to develop such a network, some legislative steps must be taken to abolish the restrictions on investigations of domestic suspects by U.S intelligence agencies and to reconnect the different agencies and Law Enforcement³⁷. The joint information collections should not be stopped at U.S. borders. Other nations should be part of these efforts and information-sharing.

By knowing the enemy, his motivation, his objectives and targets, and his weaknesses and vulnerabilities, we can achieve better deterrence. By knowing his limitations we can use them to our own benefit. By knowing his opinion about our security systems, we can improve and anticipate. This level of familiarity with the enemy can be achieved only by a sophisticated intelligence system, oriented for this purpose.

³⁷ Ibid.

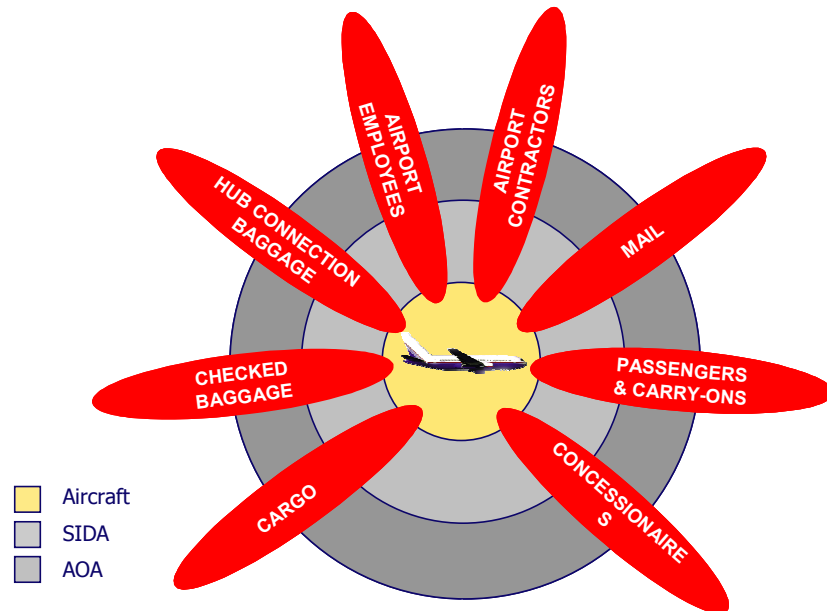
**APPENDIX: AVIATION SECURITY: GS-3'S TVRA® (THREAT,
VULNERABILITY AND RISK ASSESSMENT)**

GS-3's experts have practiced this methodology many times in the past, all over the world, and with great success. This unique process is used by the Israel Security Agency and has been implemented in Israel at Ben Gurion International Airport and at the overseas locations served by El Al Israel Airlines. It provides a clear picture of the security system status while measuring the parameters suggested in the previous chapter.

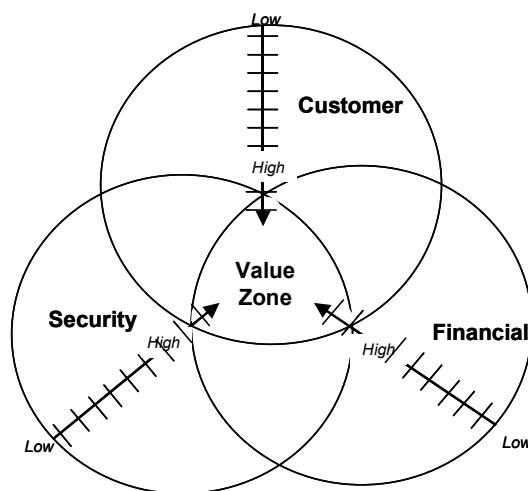
GS-3's methodology is based on five elements: First, we define the threat; second, we define the PMOs (Possible Methods of Operation) and the pathways (aviation processes) that might be used by terrorists to gain access to aircraft or airport facilities. The common PMOs, defined as a result of intensive research by international intelligence agencies based on case studies, research into modus operandi, and ongoing intelligence information, are believed to be the principal threats to the aviation industry worldwide: (a) aircraft hijacking; (b) placing an explosive device in a passenger's checked baggage; (c) planting an explosive device in catering items, a mail parcel or cargo taken on board; (d) using a "Trojan horse" – an airport employee – to place an explosive device or means of hijacking on board; (e) shooting down aircraft with ground-to-air missiles; (f) and finally, armed attacks against airport infrastructure – primarily passenger terminals. The most common pathways are: (a) passengers and carry-on bags (b) checked baggage, (c) cargo, mail, concessionaires, airport employees, airport contractors, hub connection baggage.

The common pathways are: (a) Passengers and carry-on baggage, (b) Checked Baggage, (c) Cargo, Mail, Concessionaires, Airport employees, Airport contractors, Hub connection baggage

Third, we run all known PMO scenarios at the assessment sites to identify vulnerabilities.



Fourth, based on identified vulnerabilities, we assess the risk. And fifth, we make recommendations for mitigation, while delicately balancing the tradeoff among customer expectation, the security imperative, and economics



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