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Air Cargo Security- The Cost of Doing Business in the 21st Century

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"Science and technology is key to winning this new kind of war"
Secretary of Homeland Security Tom Ridge (Press Release DHS, September 2004)

In the United States, the newly created Transportation Security Administration (TSA), as part of the larger Department of Homeland Security (DHS), has assumed overall responsibility for transportation security. The US government has generally relied heavily on strategic partnerships with industry to reach their security goals. Other countries have followed suit. However, the Europeans and the Israeli's have been far less enthusiastic than the Americans in permitting the industry to police itself. Some air cargo security programs outside the US are in the forefront, particularly European Union programs. All of these efforts, regardless of location, face long term transportation security challenges that can seem daunting and sometimes insurmountable. This paper addresses the need to improve and enhance the Air Cargo security program in the US and make it more seamless with international models.

The government has justifiably claimed to have made significant improvements in making the US transportation system more resistant to terrorist attacks. They have repeatedly publicized the fact that since December 31, 2002, 100 percent of baggage checked at the nation's 450 commercial airports has been screened for explosives and other harmful materials before being loaded onto a plane. However, the strategy relating to air cargo security, not checked baggage, which is needed to mitigate remaining vulnerabilities must be addressed as soon as possible. Most aviation security and "operator" practitioners would agree that the level of security in this particular "air cargo" sector is little better than it was on or before September 11, in spite of a significant amount of money spent and the passage of numerous pieces of legislation.

Many security upgrades have indeed been made, as noted by the bipartisan National Commission on Terrorist Attacks Upon the United States, also known as the 9/11 Commission. Congress has passed a number of bills, including the Aviation

Transportation Security Act designed to prevent terrorists from attacking the U.S. transportation system or using the system to initiate new attacks. The administration also has taken a systematic approach, trying to extend the U.S. security zone beyond U.S. borders and building many layers of defense between foreign departure points and U.S. borders. The intention is to create a fall back position, so that if one breaks down, another can provide protection. In addition, the administration has invested in new technologies to prepare for new threats as terrorists' tactics and methods evolve. The current legislation mandates that TSA 1. Provide for screening of all property, cargo, carry-on and checked baggage, and other articles, that will be carried aboard passenger aircraft operated by an air carrier or foreign air carrier; and 2. Establish a system to screen, inspect, or otherwise ensure the security of freight that is to be transported in all cargo aircraft as soon as practicable. (49 USC 44901 (a); 49 USC 44901 (f)). The legislation has been implemented through regulations, Security Directives and Emergency Amendments. Most recently, the DHS issued a proposed rule relating to Air Cargo Security Requirements which was published in the Federal Register on 10 November 2004. Numerous interested parties responded to the Notice of Proposed Rule Making.

In related efforts, the Transportation Security Administration (TSA) has been working on technologies ranging from sophisticated explosives-sniffing portals to "smart" tamper-resistant containers to blast-resistant cargo containers for passenger planes. Currently, five airports are testing the portals at passenger security checkpoints. This technology subjects passengers to puffs of air, which are collected and analyzed to determine if explosive residues are present. The pilot programs will help determine whether the trace detection technology is appropriate for use within an airport environment. These efforts are commendable but they do not address the issue of the cargo hold.

What is lacking is a strategic plan to provide for seamless transition from one transportation mode to another across numerous state and international boundaries which is also cost effective and not totally focused on passengers and carry on baggage. Commission Chairman Thomas Kean correctly pointed out in August 16, 2004 congressional testimony that, "In a free society we cannot protect everything everywhere, all the time, but they [the American people] expect their government to make rational decisions about how to allocate limited resources." (Congressional Record, 16/08/2004)

TSA needs to correctly prioritize assets in order to accurately assess the proper allocation of resources. Air cargo security should be one of those priorities.

Air Cargo Security: Trends, Policies and Problems

As stated, the government has attempted to improve the screening of passengers and carry-on baggage but have yet to duplicate that effort in the area of air cargo security or among other means of transportation. Americans would do well to review the European models in formulating a viable air cargo methodology. The International Civil Aviation Organization's security plan is contained in Annex 17. It addresses all aspects of aviation security but Chapter 4, (4.5.1 through 4.5.4) directly relates to "cargo and mail and other goods transported on international passenger flights." Chapter 4 of Annex 17 requires that each contracting State ensures that appropriate measures are taken to protect cargo, baggage, mail stores and operators' supplies being moved within an airport and intended for carriage on an aircraft. The cargo must be subjected to appropriate security controls at several points in the manufacturer to consumer logistics chain.

US airlines operating outside the US must rely on the fact the airport and the carrier comply with the ICAO recommendations and rules. Admittedly, there is no guarantee and it is a calculated risk that what is loaded in foreign airports is safe. In contrast to US regulations however, each contracting State must establish measures to ensure, that "operators do not accept consignments of cargo, courier and express parcels or mail for carriage on passenger flights unless the security of each consignment has been reviewed by a designated agent." (Annex 17, 4.5.3) Until such a program is implemented in the United States, the opportunities for a terrorist to access the cargo hold of an aircraft are endless.

The US Congress had been unsuccessful in passing a competent and comprehensive air cargo security regulatory plan. Senators Kay Bailey Hutchinson (R-TX) and Diane Feinstein (D-CA) on 15 January 2003 did introduce an air cargo bill into the Senate (S. 165). It sought to amend P.L. 107-71, the Aviation and Transportation Security Act. The bill was nearly identical to a bill submitted the year before by former Chairman Ernest Hollings (D-SC) and Senator McCain (R-AZ) which failed in the 107th Congress. The bill, finally passed in December 2003, has imposed additional responsibilities on the

TSA. In general, it requires the TSA to regularly inspect air shipping facilities, expand the Federal Flight Deck Officer Program to cargo pilots, establish an industry-wide database of cargo shippers and create a security training program for air cargo handlers. In accordance with paragraph 11 (a) of Rule XXVI of the Standing Rules of the Senate and Section 403 of the Congressional Budget Act of 1974, the committee determined that the cost of implementing the bill will be \$417 million over the period 2004-2008.

Additionally, the bill requires the TSA to establish a system for regular inspections of shipping facilities that handle air cargo to ensure that appropriate security protocols are followed. Currently, the TSA employs about 50 cargo security inspectors. In order to inspect every air cargo facility only once a year will require the employment of an additional 500 inspectors. Clearly, this is an area where the private sector could step in as designated agents similar to the programs in Europe.

Supplementing this effort, the TSA is to create a security training program for air cargo handlers. Specifically, Section 5 “requires the Under Secretary of Transportation for Security to establish a training program for any persons that handle air cargo to ensure that the cargo is properly handled and safe-guarded from security breaches.” (Air Cargo Security Improvement Act, GPO Access, Internet: <http://wais.access.gpo.gov>.) The section refers to all cargo aircraft and passenger aircraft carrying freight. However, passenger aircraft carrying freight currently provide only a small percentage of US passenger airline revenues. For example, American Airlines reported \$721 million in cargo revenue for 2000, out of total revenue of \$19.7 billion. Consequently, as a general rule, air carriers generate approximately 3-4% of total revenue from cargo. (Stockholder’s Quarterly Report, April 2001)

The bill also requires that TSA establish an industry wide database of air cargo shippers that use passenger aircraft. According to the FAA, more than 50 commercial air carriers presently transport cargo on passenger aircraft. Keeping the database current will be particularly difficult and will constantly need updated; incurring an approximate cost of \$10 million a year. More importantly the bill obliges air carriers that operate all cargo aircraft to establish and implement a security plan specifically related to cargo.

The Under Secretary for Transportation is tasked with establishing the standards. Officially known as the Air Cargo Security Improvement Act, Section 7 also instructed

the Secretary of Homeland Security to submit a report within 90 days to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Transportation and Infrastructure on the potential impacts of the current TSA's proposed program. Several other reports were also proscribed. Section 11 instructs the TSA and FAA to jointly submit a report evaluating blast resistant cargo container technology and Section 13 requests a report to best defend turbo and jet passenger aircraft from Man-Portable Air Defense Systems.

Regardless of the fact that Congress believes the bill will have no adverse impact on the economy, the industry will likely complain regarding any changes which incur spending additional money. They rationalize that because the bill addresses measures to protect the overall cargo system that business will naturally comply. Many experts believe that full cargo screening for passenger aircraft will never happen despite the glaring discrepancies between the screening of checked baggage and cargo due to cost considerations.

As stated, the U.S. Transportation Security Administration (TSA) did publicize the proposed plan in a November 17 press release. The plan responds to comments made in September 2003 by working groups of TSA's Aviation Security Advisory Committee, as well as recommendations from the General Accounting Office and the Department of Transportation's Office of Inspector General. The Strategic Plan supports the Notice of Proposed Rule Making (49 CFR Part 1540 et.al.) and will complement security programs and initiatives. Transportation Security Administrator Admiral James Loy said that the main objective of the air cargo strategic plan is to provide an effective framework that does not "unduly impede the flow of commerce." (17 November 2003, DHS News Release)

Specifically, TSA announced that the plan called for prescreening all cargo shipments to identify suspicious cargo, inspecting all such cargo, establishing a data base of vetted "known" shippers, banning cargo from unknown shippers and strengthening the security of the air cargo operating areas at airports as well as the security standards for air cargo personnel. In another November 17 news release, TSA advised that domestic and foreign commercial planes carrying cargo will be subject to random inspections on flights within, into and out of the United States.

TSA maintains that the first main objective of the Strategic Plan calls for augmentation of TSA's Known Shipper Program, which prohibits air carriers from accepting cargo that does not originate from shippers who meet TSA's Known Shipper requirements. The plan provides for full deployment of the program's Known Shipper Automated Database and Indirect Air Carrier Database, which will allow TSA and air carriers to have faster access and more thorough information on applicants for Known Shipper status and those seeking to ship cargo aboard passenger aircraft. A second component of the Strategic Plan is the development of a cargo pre-screening system similar to that used at national borders. TSA intends to use terrorist watch lists and federal and commercial databases to identify suspicious or higher risk shipments. From this they will develop a "risk score" for cargo shipments. TSA is working closely with Customs and Border Protection to build on existing pre-screening technology in place in the maritime environment.

TSA will accelerate research and development of technological solutions and new inspections protocols for inspecting air cargo as the third component of its Strategic Plan. Using \$55 million provided in fiscal year 2004, TSA will assess the viability of using Explosive Detection Systems, currently used to screen passenger baggage, or other systems that might have the potential to detect threats in air cargo. Technology development efforts will be augmented by deployment of canines in the cargo environment for the development of new inspection protocols. TSA is currently, conducting pilot programs using canine teams to inspect certain classes of mail at 11 airports and in the inspection of general cargo at six airports. TSA's Strategic Plan also focuses on strategies to secure air cargo perimeters, facilities, equipment and personnel. Enhanced background checks on persons who have access to cargo or cargo aircraft and required screening of passengers aboard cargo planes are among many measures that are supposed to be adopted.

Specifically, the, "Air Cargo Security Requirements: Proposed Rule" in the Federal Register, Section IV of the Notice of Proposed Rulemaking (NPRM) addresses each of the proposed changes to 49 CFR Parts 1540-1548 summarized above. The Federal Register specifically states that, "The major objectives of the program are to prevent passenger and large all cargo aircraft from being used as weapons and to prevent unauthorized explosives from being carried aboard, and potentially detonated, during

flight.” The rule proposes a Standard Security Program for all-cargo aircraft operators utilizing aircraft with a take-off weight of over 45,000 kg. (Federal Register/Volume 69, No. 217, 10 November 2004, Pg. 65260). Unfortunately, the program falls short of the requirements in place in Europe.

Historically speaking

Some air carriers and some indirect air carriers have experienced difficulty identifying “unknown shippers” in order properly to review all shipping documents. The FAA had extended the previous “unknown shipper” rules to all cargo and had required inspection of cargo from all these “unknown shippers” prior to 9/11. Passenger air carriers were required to obtain a Shipper’s Security Endorsement and identification check for all cargo. Prior to that, these endorsements had only been needed for cargo; again only from “unknown shippers”. In addition, foreign air carriers and indirect air carriers were also required to obtain similar information from all shippers known or unknown and to certify each shipment had an audit trail. On top of this, the FAA also required air carriers to apply security controls to cargo accepted from all-cargo flights as well as the passenger flights, closing yet another loophole in providing adequate security controls on cargo.

Consequently, the responsibility to inspect cargo has historically been in the hands of the airlines. They were regulated by the former Federal Aviation Regulations Part 108. This was prior to 9/11 and the transfer of security responsibilities to the Transportation Security Administration, which had implemented similar rules contained in Title 49 Code of Federal Regulations. However, little has been done to actually secure the cargo hold since the 1970’s. The airlines were required to “check” the checked and carry on luggage as well as cargo. How to define “check” was wide open to interpretation. Aircraft were required to be inspected after they had been left unattended and carriers were required to check the identification of unknown shippers. Known shippers were apparently free to do as they wished. The attitude was irresponsible and remains so today.

Specifically, FAR 108.13 (b) required the baggage carried in an airplane be checked by a responsible agent and that identification be obtained from all persons, other than known shippers, who seek to ship goods or cargo aboard the airplane. Section (c)

required the carrier to ensure that cargo and checked baggage carried aboard the airplane was handled in a manner that prohibits unauthorized access. Furthermore, Subparagraph (d) mandated that the airline conduct a security inspection of the airplane before placing it in service and after it has been left unattended. (Internet: <http://www.faa.gov/ars/AFS/FARS/far-108.txt>, pg.12, 24 April 2001)

The above regulations did not really explain how to secure cargo. Each airline and every airport had an individual set of guidelines. The job is massive but in today's environment the consequences of unattended baggage can be quite serious. The distinction between checked baggage and cargo is significant. Checked baggage is now technically to be scanned by explosive detection machines or appropriate other means. Cargo on the other hand has no such protection, even under the proposed rule. Arguably cargo is one of the most vulnerable points in the supply chain. The ramifications of neglect will likely be quite serious. Appropriate access control procedures to the flight line and unattended cargo and cargo holds are not only essential but also represent a common sense approach to security.

The key concept is continuous control. Any break in the chain supplies the terrorists with access. Once the airline accepts baggage at the check-in counter, or at curbside, it is usually placed on a conveyor belt where it is transported to a centralized sorting facility. It is not reasonable to eyeball every piece of baggage/cargo every second; but restricting access to the cargo will reduce both pilferage and unauthorized tampering. Newer technology will be capable of actually tracking each bag. Any casual observer at an airport can visually see that baggage in transit on an airfield is not sealed. Sometimes it is not even protected from the weather, let alone secured. Just restricting the public to the cargo/baggage area is insufficient. This is an area where the prescreening of employees and stringent access control standards are essential. It does not matter if every single piece of cargo has been screened or manually inspected if a nefarious employee who has access decides to tamper with it.

Unaccompanied baggage also presents some distinct cargo problems. There are many legitimate reasons why unaccompanied bags do not present a threat, but there are many more reasons to assume that they do in today's threat environment. Baggage does

get separated from its owner either by negligence on the part of the airlines, a passenger missing a connecting flight or baggage being carried inadvertently without any reconciliation with the passenger. More importantly, the separation may be deliberate causing a hazard to flight or for the illegal movement of drugs or other contraband. These instances are highly significant if a terrorist operation is underway.

After the Lockerbie tragedy, cargo finally became more of a priority. FAR 108.7 (b) (2) Security Programs: Form Content and Availability, required the air carrier security program to have the FAA approve, “the procedures and a description of the facilities and equipment used to perform the airplane and facilities control functions” in an attempt to standardize procedures. As stated, if the shipper was known, the airlines simply trusted that the cargo was safe. The definition of who was known and unknown remained at the discretion of the airlines. However, airlines, in the interests of making more profit were accepting cargo for carriage without really knowing the origination of the cargo. Hence the huge gap in security.

Congress has asked for the issue of air cargo to be studied via several routes. In May 1998, a report earlier mandated by Congress was submitted in response to the requirement in Section 313 of Public Law 104-264 of the Federal Aviation Reauthorization Act of 1996. Section 313 (a) stated that the Secretary of Transportation shall transmit to Congress a report, “on any changes recommended and implemented as a result of the White House Commission on Aviation Safety and Security to enhance and supplement screening and inspection of cargo, mail, and company-shipped materials transported in air commerce.” That report pointed out some significant discrepancies that existed. They remain relatively unaddressed to date.

The Aviation Security Advisory Committee (ASAC) created the Baseline Working Group (BWG) in July 1996 in an effort to strengthen the everyday airport security efforts in place across the nation. It was created prior to the formation of the White House Commission on Aviation Safety and Security but its efforts were related to the recommendations of the Commission. The BWG also formed the Cargo Working Group to specifically deal with the unique problems related to air cargo. The groups were dissolved in December 1996 when the ASAC issued the ASAC *Domestic Security*

Baseline Final Report. The President's Commission, assembled on 25 July 1996, also recommended that the FAA implement a comprehensive plan to address the threat of explosives and other threat objects aboard aircraft. In order to consolidate all the recommendations and views, the FAA requested that ASAC reconvene another CWG to be known as the Cargo Baseline Working Group. In 1997, this group published some expanded recommendations.

Overall, the CBWG concluded that 1. The FAA should implement a comprehensive plan to address the threat of explosives and other threat objects in cargo and work with industry to develop new initiatives in this area. 2. The FAA should place greater emphasis on the work of teams such as the Aviation Security Advisory Committee and the Baseline Cargo Working Group, to address cargo issues. The FAA agreed with the two recommendations and had pursued further cooperative efforts with the Postal Service, the US Customs Service and the air carriers.

In March 2004, the Aviation Security Advisory Committee that had been established after the Lockerbie incident in 1988 and is still functioning, submitted a significant amount of material to Congress on formulating an effective cargo security program. The TSA had stated they intended to use the recommendations as a strategic plan. The report was released to the public in October 2003 and advocates enhancing ramp and perimeter security, screening employees with access to cargo areas and parked aircraft, improving database and information sharing capabilities and researching new cargo screening technology. The ASAC failed to go so far as to recommend 100% inspection of air cargo or the banning of cargo on passenger planes; citing reasons of impossibility given the volume involved. The new proposed rule perpetuates this philosophy.

During 1995, the FAA started a new national data base to record air carrier and airport inspection data. The program developed into the Air Carrier and Airport Inspection Reporting System (AAIRS). This is not to be confused with the Adaptive, Agent-based Intrusion Response System. The AAIR system records on all aspects of an air carrier's security obligations, including cargo security requirements. It currently serves a worldwide user community of approximately 900 people. The Security Information Reference System (SIRS) is an internet based system that provides its members access to the most current FAA policies, directives, and other needed

information. In addition to terrorism, one of the greatest threats to aircraft safety is the unauthorized shipment of hazardous and/or dangerous cargo. Shippers often attempt to ship such dangerous cargo mixed in between permissible cargo. The purpose is to bolster the known shipper program as well as the requirements for so-called "unknown shippers."

Cooperation with Customs and Border Protection

Air cargo is still distinctly vulnerable under the current process. The United States and the European Union share the vision that civil aviation functions best when market principles govern and air carriers, not governments, decide where to fly, how often, and at what price. On September 20, 2004, in prepared remarks to the Royal Institute of International Affairs in London, Customs and Border Protection (CBP) Commissioner Robert Bonner said that because al-Qaeda and other terrorist organizations target not only the United States but also other countries, the international community needs to turn "promptly" into international standards the principal features of proven U.S. efforts to increase transportation security without impeding trade flows. He suggested that the World Customs Organization (WCO) should lead this effort. The WCO indirectly endorsed part of his approach when it decided in June 2004 to support development of universal standards for security and trade facilitation based on the main features of the Customs-Trade Partnership Against Terrorism (C-TPAT) program. Bonner presented the global war on terrorism as a confrontation between the civilized modernity and backward-looking Islamic radicals.

He said that radical Islam is, "yearning to return to the world of the seventh and eight century and a pan-Islamic fundamentalist state," that is why terrorists are attacking the global economy and globalization that leads to economic development, democratization, and, "yes, probably increased secularization." He compared the terrorist threat to the challenge of communism and said that the war on terrorism could last as long as the Cold War, and said that the United States and its partners can win this new war just as they triumphed over communism. (Bureau of International Information Programs, U.S. Department of State)

Additionally, CBP had announced in March 2004 that the Federal Register revised implementation dates for the transmission of inbound air cargo data required under the

Trade Act of 2002 cargo security rules would be extended until August 2004. The original implementation date had been March 4, 2004. "The new schedule will allow CBP to modify certain critical aspects of Air AMS (Automated Manifest System), train all CBP officers that process imported air cargo on those changes, and certify the software of new participants," said CBP Commissioner Robert C. Bonner. CBP completed the necessary changes in May 2004, which was followed by a 90-day certification-testing period.

The Business Of Business Is Business

A free market philosophy could be stated as; the business of business is business, not homeland security. "Private markets will not often provide adequate protection against terrorist attack on their own, since individual citizens and businessman tend to worry more about the immediate challenge of making a profit than about the extremely unlikely possibilities that their facilities will be attacked." (The Brookings Institute, 2003)

In this new era of continuous danger, the new security regulations are supposed to erect new and higher barriers between terrorists and supply chains not customers and supply chains. The impending rules are raising new concerns over their ability to offer time sensitive services and revealing stark divisions over who will pick up the bill. The concept of "level playing field" and questions of cost invariably come up when the discussion of additional regulations are mentioned. "Terrorism is directed at a state, it is not generally directed at the service industries of civil aviation," stated John Goldsworthy, chairman of the European Express Association Security Committee, in an address to the World Mail & Express Europe Conference in Amsterdam. He continued "The EEA fully supports the concept of air cargo security regulation. However, it does not support the governmental view that the costs of all security measures should be borne by industry." (Goldsworthy, 2002)

The basic response to the cost issue is to pass the costs along to the consumer. The markets willingness to bear these additional costs is a subject yet to be fully comprehended from an air cargo perspective.

Air Cargo and Economic Development

A report commissioned by The International Air Cargo Association (TIACA) titled “Air Cargo: Engine for Economic Development”, presents an analysis of the role played by air cargo in international trade, commerce and cross-border manufacturing. “Air Cargo enables nations, regardless of location, to efficiently connect to distant markets and global supply chains in a speedy, reliable manner. The huge volume of high-value, time-critical products traversing international boundaries by air has resulted in air cargo accounting for 40 percent of the value of today’s world trade,” (Dora Kay, President of TIACA, 2004)

According to the “Boeing World Air Cargo Forecast 2004/2005”, economic activity, as measured by gross domestic product (GDP), remains the primary driver for air cargo industry growth. World air cargo traffic will expand at an average annual rate of 6.2% for the next two decades, tripling current traffic levels. The report goes on to mention some of the on going profit challenges at passenger airlines and how they have focused attention on lower-hold revenue cargo (freight mixed with passenger baggage) market opportunities. Cargo revenue represents, on average, 15% of total traffic revenues with some airlines aiming to earn well over half of their revenue from this source.

New Realities

As mentioned in the “Boeing World Air Cargo Forecast 2004/2005: Of all recent industry developments, government-mandated security regulations present the highest potential for adverse impact upon the air cargo industry. They may have debilitating effects on shipment transit time. The industry must be diligent in working with authorities to realize security enhancements that are balanced with a time sensitive industry’s realities.

“The costs associated with the new security measures are likely to be significant. The success of such activities cannot be measured by the values they deliver to customers, employees or shareholders day in and day out. Instead, these measures will be most successful if they are never actually tested.” (Yossi Sheffi, 2001)

“The basic question is whether the federal role should be restricted to setting and monitoring security standards or whether the role should also include financing and implementation.” (Coughlin, Cohen, Khan, 2002).

The new realities of air cargo security are going to require a government-private partnership that is respectful of trade partnerships, is not overly burdensome with respect to costs, global and intra-modal.

Conclusion

It is clear that the Proposed Rules do much to codify already existing air cargo security protocols. However, it does not go far enough. The door remains open and unfortunately, the proposed rules, though exhibiting a formalization of needed standards, falls far short of protecting the public from the introduction of hazardous materials into the cargo hold. The government needs to go much further in mandating screening of cargo and tracking the load from manufacturer to consumer. Simply targeting high risk cargo fosters the concept of cost effectiveness, but does little to set the standard as a truly protective measure.

Recommendations

1. Institute a “designated agent” program similar to the air cargo security programs currently functioning successfully in the European Union and the United Kingdom.
2. Refocus on developing technology that can accurately scan bulk cargo on a sufficient throughput basis so as not to impede the free flow of commerce.
3. Continue and enhance the working relationship between cargo carriers and the US Postal Service.
4. Adjust efforts to scrutinize and hire only qualified and trustworthy employees to handle cargo.
5. Exercise increased efforts to monitor improve and tighten the “known” and “unknown shipper” programs.

Furthermore, the cargo industry needs to embrace a robust air cargo security effort. The proof that such programs are workable and that a nation wide implementation of a designated agent system will not place an unnecessary burden on commerce, has already been evidenced by its successful execution in Europe.

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in Aviation Management and a Bachelor of Science in Aeronautical Science with Flight from Florida Institute of Technology in 2003. His Turkish and French origins have stimulated his interest in global aviation issues such as aviation human factors, safety performance and security.

Bibliography

Air Cargo Security Improvement Act, Report of the Committee on Commerce, Science, and Transportation S. 165, 24 April 2003.

Arnoult, Sandra "Aviations Soft Underbelly", Air Transport World, Vol. 40 No. 11 (Nov 2003) pg. 53-56.

Code of Federal Regulations 1540 et. al.

Coughlin, C.C., Cohen, J.P., & Khan, S.R.(2002). Aviation security and terrorism: A review of the economic issues. *The Federal Reserve Bank of St. Louis*. (September/October 2002).

Crabtree, T., Hoang, T., & Edger, J. (2004). World air cargo forecast 2004/2005. Seattle: Boeing.

Department of Homeland Security, Transportation Security Administration, 49 CFR Part 1540 et. al. Air Cargo Security Requirements, Proposed Rules, Federal Register 10 November 2004.

Gooley, Toby. "Customs casts a wider Security Net", Logistics Management (Highlands Ranch, Colorado, 2002, 42 No. 8, pg. 73-78 (August 2003)

Morrison, Black, "TSA Slow to Act on Cargo Security, some says", USA Today, 21 June 2002, <http://www.usatoday.com/news/sept11/2002/05/22/cargo.htm>.

O'Hanlon, M.E., Daalder, I. H., Destler, I.M., Gunter, D. L., Lindsay, J.M., Orszag, P. R., et al. (2003). Protecting the American homeland: One year on: The Brookings Institution Press.

Sheffi, Y. (2001). Supply chain management under the threat of international terrorism. *The International Journal of Logistics Management*, 12(2).

Study and Report to Congress on civil Aviation Security Responsibilities and Funding (1998) US Department of Transportation, US Government Printing Office, Washington, D.C. <http://www.cas.faa.gov/reports/98Study/98study.html>.

TIACA. (2004). New TIACA study demonstrates the value of air cargo as the engine of economic development. Retrieved November 11, 2004 from <http://www.tiaca.org/articles/2004/08/30/9756B68B84E0407BA5E3CF9DAA00C5C5.asp>