Cyber Security & Aviation

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“The Economic Impacts of a Terrorist Attack on the U.S. Commercial Aviation System”
October 2005

7-Day Shut-Down:
- $13.5 - $21.3 Billion

Two-Year Projection:
- $249 - $394 Billion

Direct Costs:
- $27 Billion
Emerging Threats

DIRECT LINKS

SELF-RECRUIT

IDEOLOGY

AL-QAEDA AFFILIATES
Chemical Attack Path Evolution

1994

2001

2009

#RSAC
Aviation Terrorist Scenarios (RAND)

- Insider Planted Bomb
- Uninspected Cargo Bomb
- Large Truck Bomb
- Luggage Bomb
- Curbside Car Bomb
- Public Grounds Attack
- Air Operations Attack
- MANPADs Attack
- Control Tower Bomb
- Sniper Attack
- Mortar Attack

Potential Fatalities

Major Threats
- Insider Planted Bomb
- Uninspected Cargo Bomb
- Large Truck Bomb
- Luggage Bomb
- Curbside Car Bomb

Lesser Threats
“Operation Hemorrhage”

TATP

$4,200
“Destroying the target is not necessary!”

Bryant Neal Vinas

Faisal Shahzad
Jihad

Jihad is a term that has been widely misunderstood and misused in the Western media. It is often associated with terrorism and violence, but in fact, it has deep roots in Islamic tradition and practice.

In the Quran, the word 'jihad' is used to describe a struggle against evil forces, particularly the struggle against evil in the individual's soul. It is a term that is often translated as 'struggle' or 'effort'.

The actual form of this struggle is defined by the individual, and it can take many different forms. For some, it may involve personal purification, while for others, it may involve social or political activism.

In modern times, the term 'jihad' has been co-opted by extremist groups who use it to justify violent actions. These groups often misinterpret the true meaning of the term, and use it as a justification for their violent campaigns.

It's important to recognize the true meaning of 'jihad' and not to allow it to be co-opted by those who seek to use it for violent purposes. By understanding the true meaning of the term, we can better engage in the ongoing conversation about religion and violence.
Junaid Hussain @AllahuAkhbar911 3h
@FOXNEWS WE HAVE PLANTED EXPLOSIVES ON DELTA FLIGHT #1061 FROM LA TO ORLANDO, WE ARE ISIS, WE ARE HERE, YOU WON'T BE.

Junaid Hussain @AllahuAkhbar911 3h
@DeltaAssist @do2 WE PLANTED EXPLOSIVES ON BOARD FLIGHT #1061 HEADING TO ORLANDO OUR SOLDIERS WAITING FOR SIGNAL.
Physical World Conclusions

- Aviation is a visible, vulnerable and attractive target.
- The enemy is resilient and adaptive.
- Today’s attack vectors may not be tomorrow’s attack vectors.
- Attacks can be sophisticated and coordinated or they can be lone wolf efforts.
- Attackers may not fit the ‘traditional’ picture.
The Clausewitz Trilogy

Ways

Means

Ends
Ends – What you want to accomplish.

- Casualties & Property Damage
- Media & Propaganda Exploitation
- Psychological Impact
- Economic Impact
Means – Resources/Vectors

- People
- Aircraft
- Luggage
- Cargo
- ???????
Ways – Tactics - Aircraft

Photo Source: Boeing Aircraft
Company; www.newairplane.com
Ways – Airports & Cargo

- Airport Operations
  - Airport Operational Management
  - Departure Control Systems
  - Cargo Terminal Operations
  - Passenger Communications
  - Mobile Aps

- Cargo Terminal Operations
  - Unit Load Device (ULD) Management
  - Warehouse Management
  - Outbound/Export Operations
  - Bar Code Scanning
  - Service Level Agreement Management
Cyber Elements

- Reservation Systems
- Flight Management Systems
- Access Control Systems (Badges)
- Flight Traffic Management
- Departure Control Systems
- Passport Control Systems

- Hazardous Materials Transportation Management
- Cargo Handling & Shipping
- Computers on the Aircraft
  - Flight Control Systems
  - GPS
  - Fuel gauges; fuel consumption
  - Maintenance Computer
Lessons For Other Industries

- Cyber attacks have downstream effects.

- Focus is on:
  - Harming People
  - Dramatic visual property damage.

- Secondary effects are likely to be emotional and economic.
Cyber Security Implications

- Networks are good means to achieve desired ends.
- Critical cyber vulnerabilities are:
  - Access Control
  - Control of Potential Kinetic Weapons (IOT)
- Need to secure unintended use and corruption of technology
  - Driverless Cars
  - Conveyor Systems
Apply What You Have Learned Today

◆ Next week you should:
  ◆ Identify critical ecosystems that serve your organization

◆ In the first three months following this presentation you should:
  ◆ Understand the cyber vulnerabilities of these ecosystems
  ◆ Define appropriate measures to reduce/mitigate these vulnerabilities

◆ Within six months you should:
  ◆ Develop and implement policies and contractual modifications for the identified ecosystems to hold ancillary vendors to higher, stated security standards...
Key Takeaways

◆ Tomorrow’s threats will not be like today’s.
◆ Don’t underestimate your enemies.
◆ Think like an attacker, not a defender.
◆ Hold your suppliers and partners accountable to the same or a greater level of security than you have.
◆ Consider the psychological impact as well as actual damage.
Thank You!

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