



## Global Best Practices for World Class Airport Passenger Terminal Security



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## Airport Security – Major Focus on **Terrorism** :

***The Airport is NOT the Ultimate Target of Terrorists. The Intended Target is a Country and its Government\*.***

- Terrorist Attack is the Airport’s “Worst Case” Adversary Scenario
- Terrorism Counter-Measures can also be Effective Against Less Critical Security Risks.
- Security Infrastructure and comprehensive plans **MUST** be in place before elevated or severe threat conditions exist.

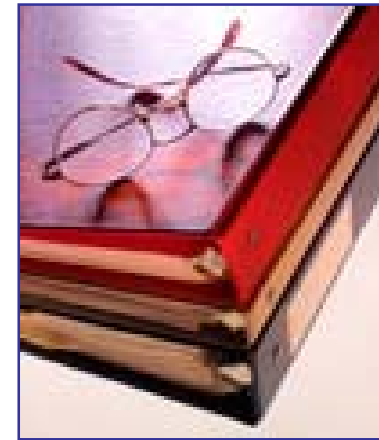


*\* Not necessarily the country in which the targeted airport is located.*

# Airport Security Baseline = **Standards Compliance**

These Standards set MINIMUM security levels that must be exceeded for complete and effective security in the interests of prudence, due diligence and good governance.

- **INTERNATIONAL**
  - Example = ICAO Annex 17, Doc 30, etc.
- **REGIONAL**
  - Example = EU / ECAC and similar
- **NATIONAL**
  - Federal Regulators (Country)
- **LOCAL**
  - Airport Authority



*It is well known that the IMPLEMENTATION of International and Regional Requirements has been INCONSISTENT from country to country resulting in some passenger frustration.*

## **Primary OBJECTIVE** of Airport Security :

***“ Prevent or reduce the risk of potential losses resulting from intentional and illegal acts to an acceptable level “***



- **Loss of Life**
- **Serious Injury**
- **Physical Assets**
- **Business Continuity**
- **International “Privileges”**
- **Competitiveness**
- **Reputation**

## Secondary *OBJECTIVE* of Airport Security :



- Maximum “Through-Put”
  - Passengers
  - Baggage
  - Cargo
  - Vehicles
  - Supplies

***“ Accomplish the Primary Objective with Minimum Obstruction to Operational Flow in the Most COST-EFFECTIVE Manner “***

The Total ***“Passenger Experience”***

## Example **“PASSENGER EXPERIENCE”** Factors:

- **“Wait Time in Queue”** :  
**“Average” vs. “Peak”**
- **“Apparent” Understaffing**  
**(unused lanes)**
- **Unnecessary, Repetitive**  
**Security Checks**
- **“Perception” of “ineffective”**  
**practices**
- **“On Again – Off Again”**  
**practices**

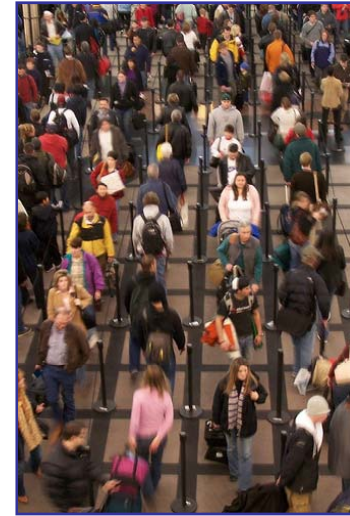


Denver International Airport

Screening Joke: **“Fast” – “Effective” – “Inexpensive” : Choose Any 2**

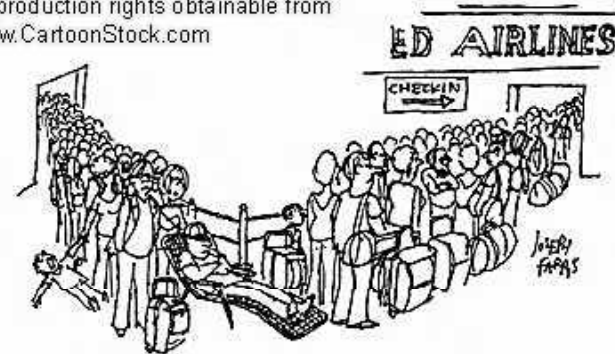
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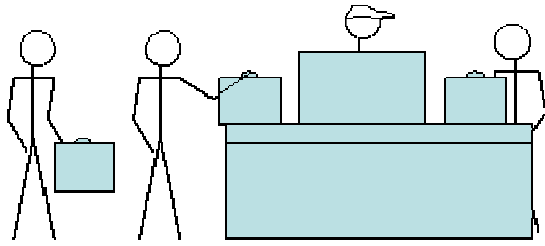
Denver International Airport

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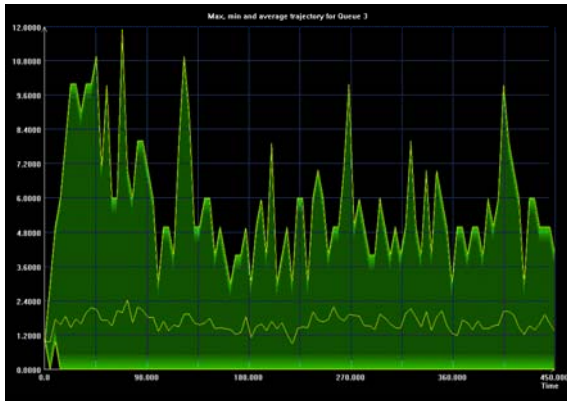


Screening Joke: “Fast” – “Effective” – “Inexpensive” : **Choose Any 2**

# Scientific Approach to “*Wait Time in Queue*” :



Process Analysis



Wait Time In Queue *Histogram* from  
KROLL's Proprietary Queuing  
Analysis Software

- “**Process Duration**” : Step vs. Sequence
  - Document Validation
  - Carry-On X-Ray
    - Secondary Search Process
  - Magnetometer (“Metal Detector”)
    - Secondary Search Process
- **Number of “Lanes”**

1. **Not** an “intuitive” issue in design and planning
2. **Not** a simple mathematical formula (“Algorithms”)
3. Time begins when approach motion stops.
4. Time ends when journey motion continues.
5. Alternate routing for “exceptions”
6. Factors such as “table length” in and out
7. **Actual through-put much less than mfg. claims**



## Other “*Passenger Experience*” Issues :

- **Unnecessary, Repetitive Security Checks**

Documents checked as many as **4 times** from “approach to the gate” through aircraft boarding. (5 or 6 with busing)



- **“Perception” of “ineffective” practices**

- Plastic meal utensils
- Cigarette Lighters
- Short bladed knives
- Liquids Limits

- **“On Again – Off Again” practices**

- Mobile Cellular Phones



# KROLL's 5 Adversary Categories of Airport Security :

- **Terrorists**



- **Criminals**



- **Disgruntled Individuals**



- **Deranged Persons**



- **Activists**



## Characterization

- **Motivations**
- **Objectives**
- **Tactics**
- **Strategies**
- **Weapons**
- **Tools**
- **Targets**

# KROLL's 5 TYPES OF ATTACK SCENARIOS for Airport Security :

## Attack Scenario Types

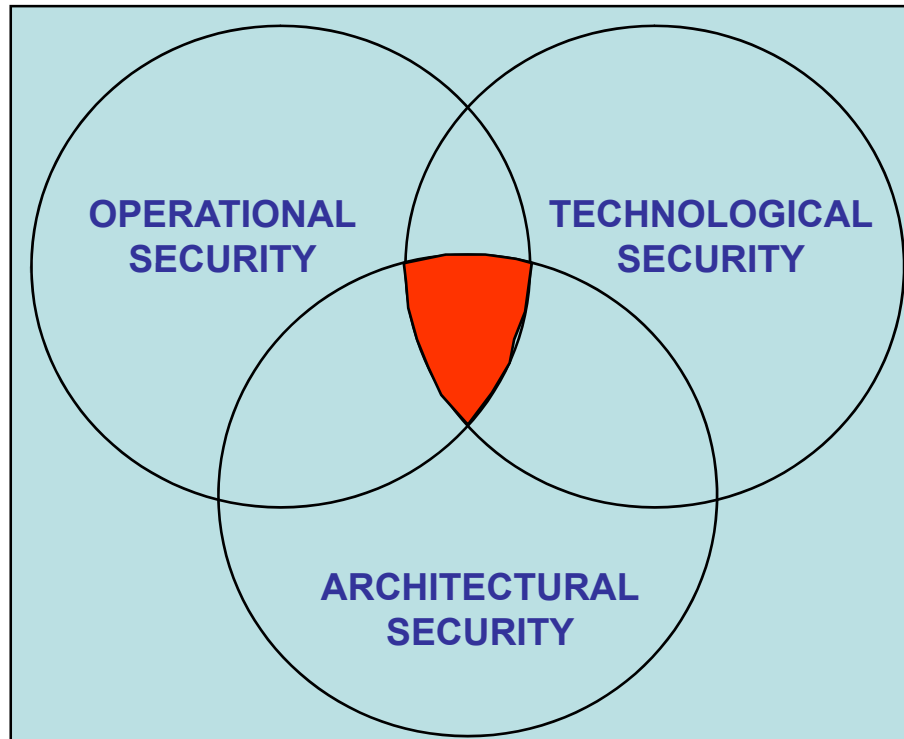
- Overt
- Covert
- Insider
- Proximity
- Indirect (Exterior)



THREAT / RISK MATRIX											
Tier / Rank	Adversary →	Terrorist		Criminal		Activist		Disgruntled		Deranged	
	Attack Scenario →	Overt	Insider Proximity Exterior	Overt	Insider Proximity Exterior	Overt	Insider Proximity Exterior	Overt	Insider Proximity Exterior	Overt	Insider Proximity Exterior
	..... Critical Assets or Areas ↓										

*One of KROLL's "Risk Based" Threat Prioritization Assessment Tools*

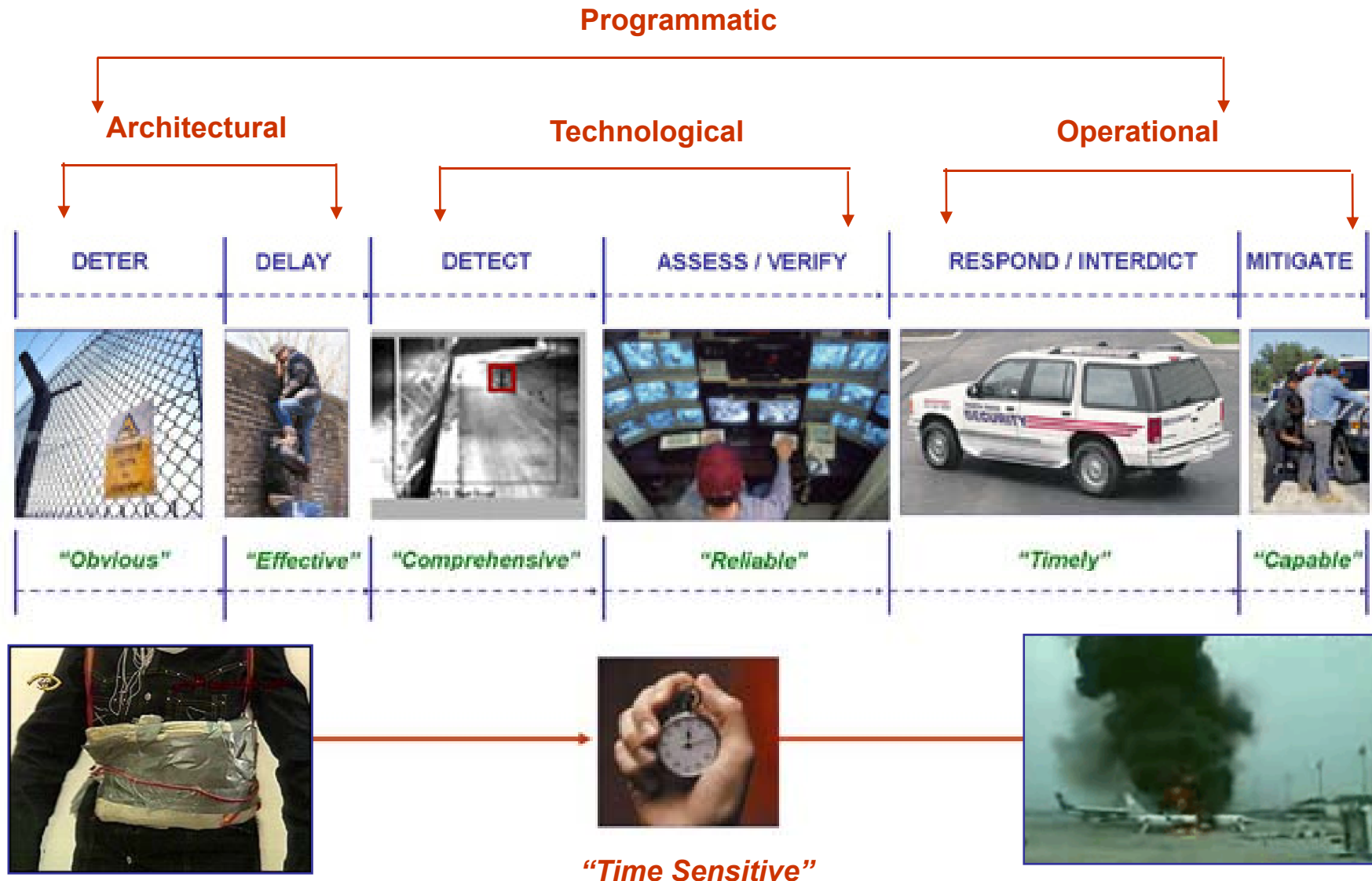
## A **HOLISTIC** Approach is a Global Best Practice in Airport Security



- All 3 Must Function as a **Single Unified Security Program**.
- **Integration** Must be both Technological and Programmatic.
- Decisions and Choices for one will Impact the Other two.
- **EFFECTIVE** Security Requires a Comprehensive *Airport Security Master Plan*.

**MORE Security Does NOT Necessarily Provide BETTER Security”**

# Example of an Integrated Airside Perimeter Security Concept



# Networked Total Integration is a Global Best Practice in Airport Security

“Code Blue” and other Intercoms



Fire alarm, BAS and other systems monitoring interface



CCTV Surveillance



Access Control Systems

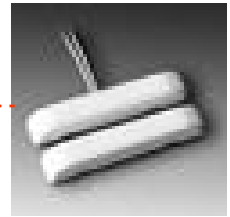


Stakeholder Sharing

Redundant Back-Up



Security Operations Center (SOC or C<sup>3</sup>)



Intrusion alarms



“Looped Through” Cameras  
With local monitor

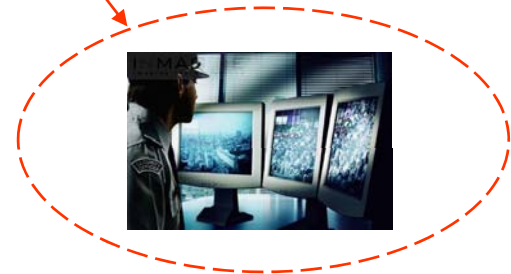
Firewall



Authorized Remote Users



Remote, unmanned access points



Sub-Systems (*i.e. at cargo*)

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# A **LAYERED** Approach is a Global Best Practice in Airport Security

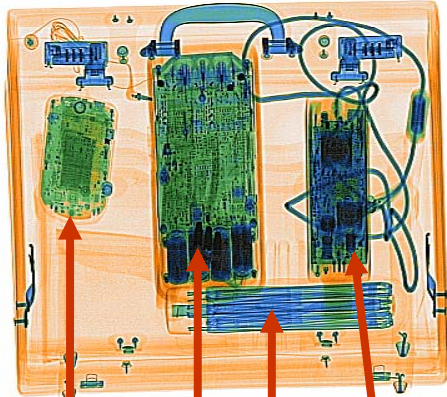


- Intelligence
- Customs
- Immigration
- Police (all involved levels)
- Security Department
- Airlines & Vendors
- Employee Vetting
- Multi-Level Passenger Screening
- Random Employee Checks (airside)
- Biometric Access Control
- Passenger Risk Assessment
- Behavioral Profiling
- Travel Document Validation
- No-Fly Lists / “Watch Lists”
- Hold Baggage - Passenger Matching
- Advanced Passenger Manifests
- Multi-Level Bag Screening
- Strict “Need-to-Go” Policy

# State-of-the-Art Security Technology is a Global Best Practice in Airport Security

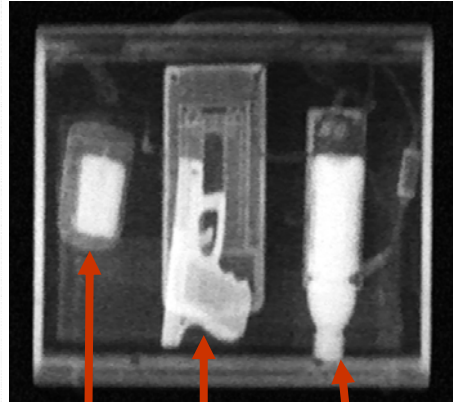
## “Backscatter” Content Imaging Technology for Vehicles, Baggage, Cargo, etc.

Color X-Ray View



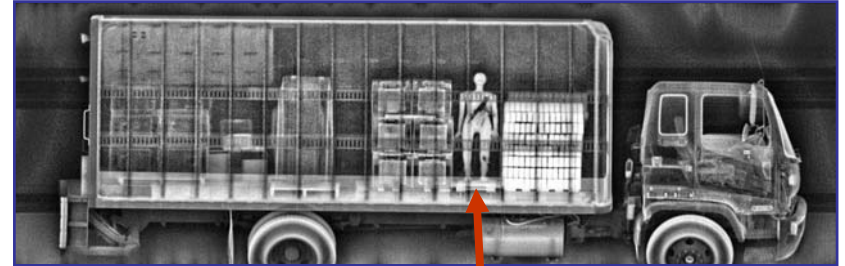
PDA  
Electronics  
Umbrella  
Laptop Power Cord

Backscatter View



Plastic Explosives  
Glock Handgun  
Liquid explosives

Full Vehicle Scan at 10kph Continuous



Concealed Adversary  
(such as in catering truck)



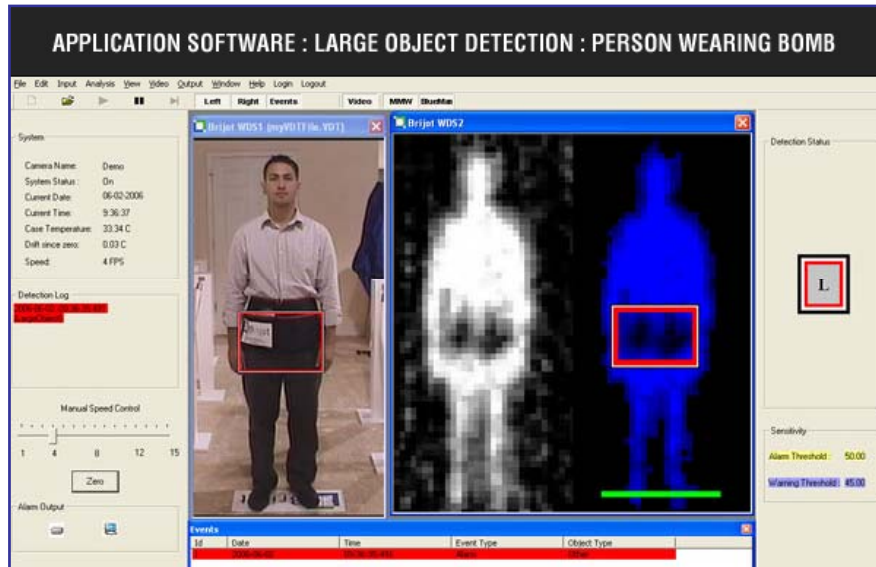
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# State-of-the-Art Security Technology is a Global Best Practice in Airport Security

## Millimeter Wave Imaging

### Sample Operator Screen Image



Can be effective against concealed liquids, plastic weapons or ceramic weapons.



Ceramic knife concealed in newspaper

Trace detection for liquids in sealed containers (including peroxides)



## Access Control : “Tailgating” and “Piggybacking”



### “TAILGATING” or “PIGGYBACKING”

Two or more persons access the portal using only one access control credential.

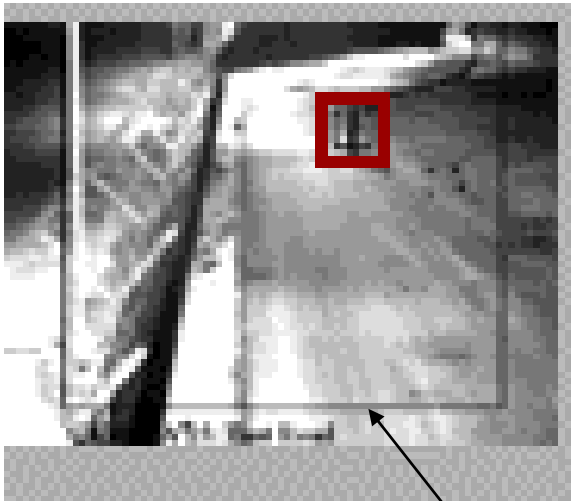
### PASSBACK:

Passing the access control credential from the sterile zone to a person in the non-sterile zone

(under doors, through fences, etc)

# State-of-the-Art Security Technology is a Global Best Practice in Airport Security

## Video Motion Detection Alarm



User defined detection  
“box” or multiple boxes

## VIDEO ANALYTICS EXAMPLES:

- Video Motion Detection Alarm
- Un-Attended Bag “Leave Behind”
- Detect Person in Motion
- Detect Vehicle in Motion
- Track Person / Vehicle Cam-to-Cam
- Alarm on Direction of Travel Violation
- Facial Recognition
- Automatic Number Plate Recognition (ANPR)

## Bag or Parcel “Leave Behind” (un-attended) Detection



# Staffing Issues are Critical in Airport Security

## Staffing & Allocation Modeling (SAM)

- on-duty
  - days off
  - vacation
  - sick-days
  - turn-over
  - supervision
  - management
  - support
    - administrative
    - training instructors
    - quality assurance
- Organizational Structure
  - Balance of Security, Police, Govt., etc.
  - Integration of Personnel Resources
  - Duty Station Deployment
  - Training : pre-deployment & in-service
  - Performance Appraisal & Monitoring
  - Incident Command Structure



# Questions & Answers



***Thank You !***

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