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Smart Security and Facilitation

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M.Sc. Program

Airport Planning and Management

Module 07

March 2015

Outline

A. Introduction

B. Security Management Principles

C. Airport Security Planning

D. Security-Oriented Facility Design

E. Airport Facilitation and Coordination

F. Conclusion

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Smart Security and Facilitation Introduction



Introduction

Realities

- **Airports just another business**
  - Face typical security risks such as property theft, hackers seeking intellectual property, and corruption
  - Demands typical crime-prevention response like door locks, cyber protection, and integrity audits
- **But airports face disproportionate security / border control demands with little relationship to transport business**
  - State sovereignty protections complicate airport operations, especially for international flights

Realities

- **Peaceful now, but future attacks ongoing risk**

Privatization Complicates National Security

- **Strategic (geo-political) target**
  - Threat to aviation not bound by geographic limits
  - Airports, aircraft and other air transport assets represent substitute political targets, regardless of whether privatized or remain in state hands
  - Violent acts have introduced uncertainty, affecting safety, security and regularity of air transport
  - Implementation of aviation security protocols have undermined the industry's value proposition, and encouraged travellers / shippers to use more user-friendly alternative modes where practical

Other Modes Face Less Intense Scrutiny

Airport Management Strategy

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- **Better coordinated response needed**
  - Facilitation vital to remove national security oriented obstacles to travel within and between states
  - Facilitation measures necessary to retain aviation industry speed advantages or industry will wither
  - State directives to protect both aviation and national security interests will not disappear anytime soon
  - Collaboration will reduce delays, administrative expenses, and improve customer service
  - http://www.futuretravelexperience.com/2014/10/melbourne-airport-and-qantas-sign-up-to-smart-security/video

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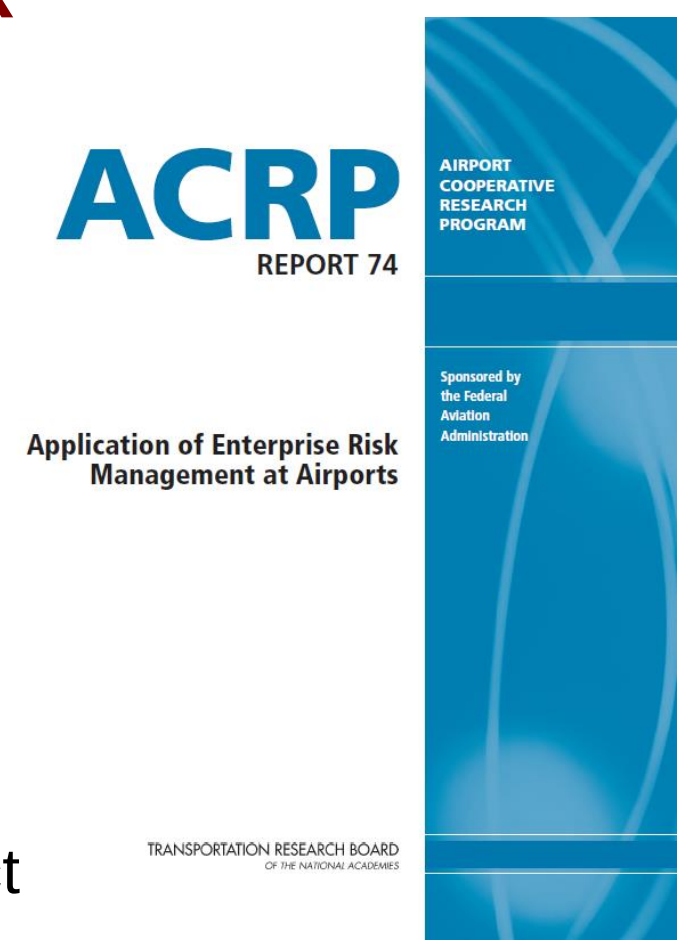
Security Management Principles



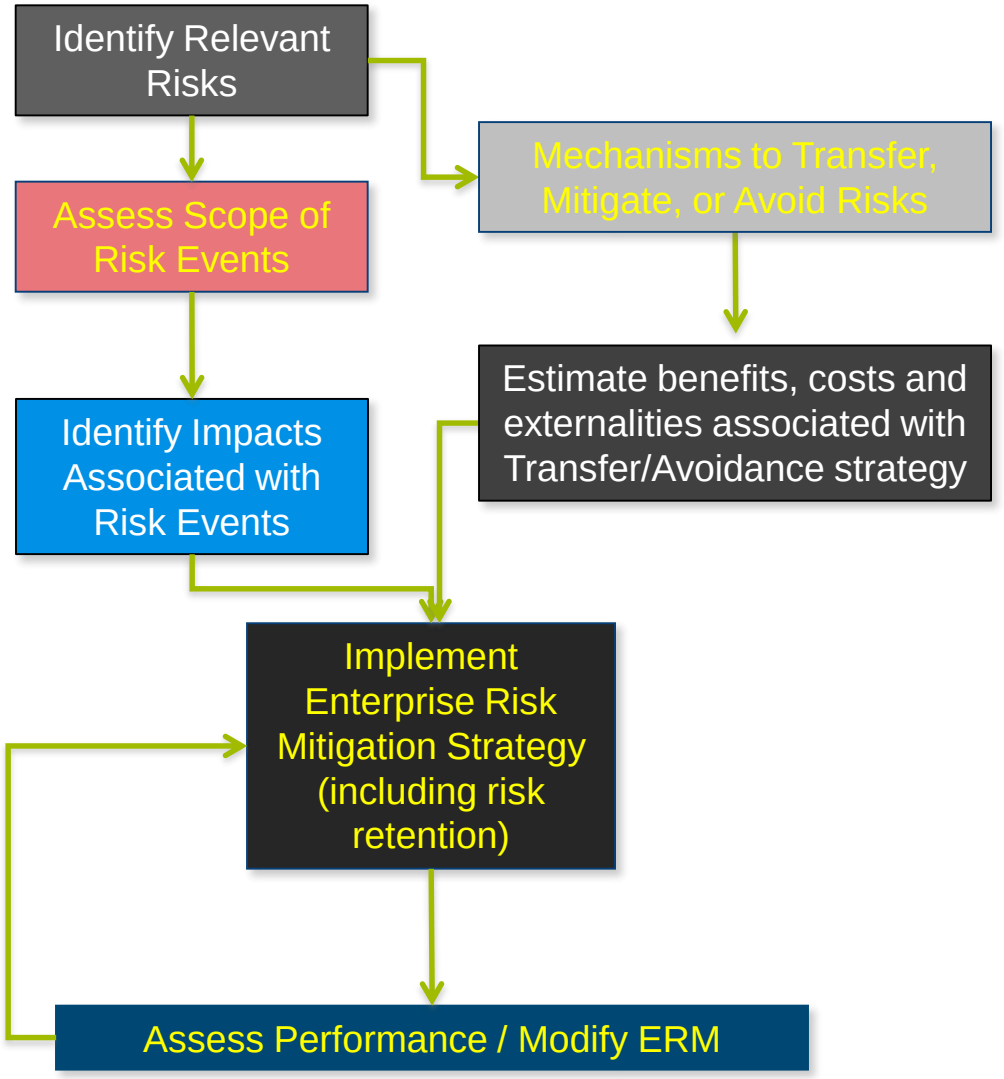
Enterprise Risk Management

- **Airport Security Framework**
  - Risk arises when operational practices have potential for an adverse outcome leading to costs and even outright failure
  - ERM process identifies and assesses the risk
  - Strategy needed to implement actions that mitigate, monitor, or control both the probability and the potential adverse effect of unplanned events



Enterprise Risk Management

- **ERM Process**



Aviation Security Perspectives

- **ICAO Advisory (Doc 9082)**
  - States are responsible for ensuring implementation of adequate security measures at airports pursuant to the provisions of Annex 17 — Security to the Convention on International Civil Aviation
  - States may delegate task of providing individual security functions to such agencies as airport entities, aircraft operators and local police
  - States to determine in which circumstances and the extent to which costs in providing security facilities and services should be borne by the State, the airport entities or other responsible agencies

Aviation Security Perspectives

- **IATA Position**
  - First and foremost, state responsible for security
  - Governments should assess and provide most cost effective solution for additional security measures
  - Provide airlines with adequate and transparent financial information
  - Consult airlines on security measures provided at a given airport and on the level of security charges
  - Airports and airlines should agree a fair share allocation of costs to ensure that all users make a contribution towards security costs

Relevance for Airport Management

- **Crucial to business continuity**
  - Strategic allocation of resources and organizational accountabilities to respond and recover
  - Capital markets require risk management practices to ensure cash flow continuity / bond coverage
  - Requires specific Board and Executive level governance / oversight structures
  - **C**orporate **S**ocial **R**esponsibility integration
    - e.g. IATA / ACI signed Memorandum of Understanding in 2013 jointly to develop Smart Security (SmartS)

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Smart Security Planning

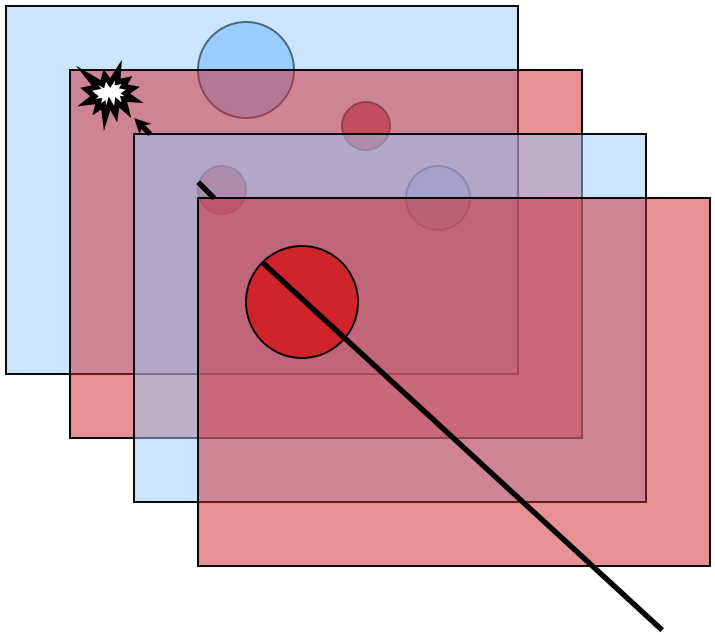


Aviation Security Principles

- **ICAO Annex 17**
  - *"Combination of measures, regulations, practices and procedures to safeguard civil aviation against acts of unlawful interference, taking into account the safety, regularity and efficiency of air travel"*

Security Planning Model

- **"Swiss Cheese" Model**
  - No single application is 100% effective
  - Layered system reduces threat penetration



Security Planning Model

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- **“Swiss Cheese Model” by J. Reason (1990)**
  - Hypothesis that non-standard events can be traced to organizational failures but if dealt pro-actively would reduce faults occasions and severity
  - The holes in the cheese represent individual system weaknesses that continually vary size and location
  - System produces failures when holes align permitting "trajectory of accident opportunity" so hazard freely passes through all defences
  - ICAO adopted Reason model, and recommend firms organize defences through series of barriers

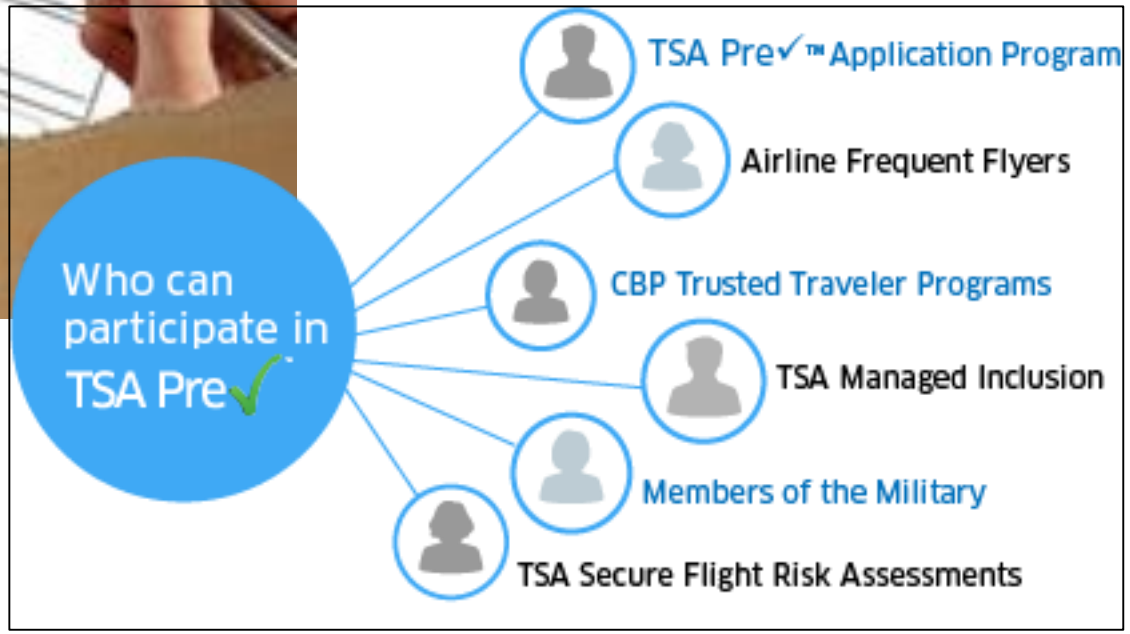
Airport Security Principles

- **Security Management System (SEMS)**
  - Holistic approach to security intended to permeate the entire organizational structure
  - Performance-based and established against carefully evaluated threats
  - Fully structured yet flexibly designed to respond to changing needs
  - Widespread introduction remains work-in-progress, although no alternative approach would appear superior at present

Airport Security Principles

- **Integrate process across value chain**
  - Closer cooperation and common objectives involving all relevant stakeholders
  - Encourage states to share information in timely manner, without duplication, to identify in advance threats so appropriate risk management strategy / tactic can be employed
  - Use of information technology solutions to reduce costs and delivery global solutions across partners
  - Focus where insufficient data exists, but do NOT remove all defences for “Known” traveller / shippers

Known Shipper / Traveler Programs



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Security-Oriented Facility Design



ICAO Related Obligations

- **Annex 17, Standard 3.2.6**
  - "Each Contracting State shall ensure that the architectural and infra-structure related requirements necessary for the optimum implementation of civil aviation security measures are integrated into the design and construction of new facilities and alterations to existing facilities at airports"
  - Privatized airports, either through lease, licence, or applicable national law will be obliged, in all circumstances, to comply with whatever state security rules are implemented in compliance with ICAO and other multi-national treaty obligations

Security Design Principles

- **Design Fundamentals**
  - Demarcation of secure airside and groundside areas through designation of security access restrictions
  - Protection of barriers between access points
  - Recognize that each type of airport development may have unique security requirements
  - Establish protocols for the segregation of passengers, and possibly staff that require screening before access permitted to sensitive areas

Security Design Principles

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- **Design Fundamentals**
  - Mitigate impacts of weapons use within the building on passengers, staff, and building integrity
  - Design core structural elements to limit impacts and casualties from post-attack structural failure
  - Require construction materials and assembly techniques resilient to anticipated threat events
  - Enhance protection for vulnerable or high threat areas

Security Design Principles

- **Design Fundamentals**
  - Integrate security designs throughout building fabric so to avoid conflicts between the efficient use of passenger processing areas and system flow requirements, including facilitation practices, commercial services
  - Recognize that failure to adopt balanced approach can lead to having security requirements overwhelm or seriously interrupt passenger and staff flows
  - Permit contingency plan implementation in such a way that non-affected building areas remain generally usable to avoid total operational system failure

Security Design Principles

- **Complementary Requirements**
  - Permit access for merchandise delivery throughout building without onerous costs to operators
  - Use of enhanced lighting and CCTV for surveillance
  - Recognize special arrangements will complicate security access protocols (e.g. diplomatic baggage, prisoners and deportees under armed escort)
  - Social equity concerns demand security service levels to disabled and mobility impaired travelers must be equivalent to standard process requirements
    - Accommodation versus Equivalence

Security Design Principles

- **Industry Consultation Really Not Optional**
  - New or renovated facilities require study at the conceptual design stage long before detailed construction plans and tender documents are prepared to ensure relevant security elements are sufficiently addressed
  - Requires collaboration between security agencies, airport managers, building architects throughout the building planning process
  - Attention to specific security / border control facility design standards will assist in planning practice

Security Planning Criteria

- **Manual Introduction**
  - Numerous advantages to incorporating security into airport planning at earliest planning and design phase
  - Timely consideration of such needs is almost guaranteed to result in cost effective, less obtrusive, and more effective and efficient security systems

U.S. TSA Facility Planning Topics

- **Overview**
  - Introduction
  - Applicability
  - Purpose
  - Background
  - Coordination
  - Changing Security Concerns and Contingency
- **Initial Planning**
  - Security Boundaries
  - Vulnerability Assessment
  - Protection Criteria
  - Physical Protection
  - Crime Prevention
  - Record Keeping
  - Responsibilities
  - Design Factors

U.S. TSA Facility Planning Topics

- **Guidelines**
  - Airport Layout
  - Aircraft and airside maneuvering areas
  - Landside ground access and facilities
  - Passenger and cargo terminals, including baggage and pre-board screening, and freight inspections
- **Supplementary Topics**
  - Vulnerability Management
  - Weapons of Mass Destruction Protocols
  - Airport Blast Protection
  - General Aviation
  - Command and Control
  - International Parameters
  - Other agency coordination

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Airport Facilitation and Coordination



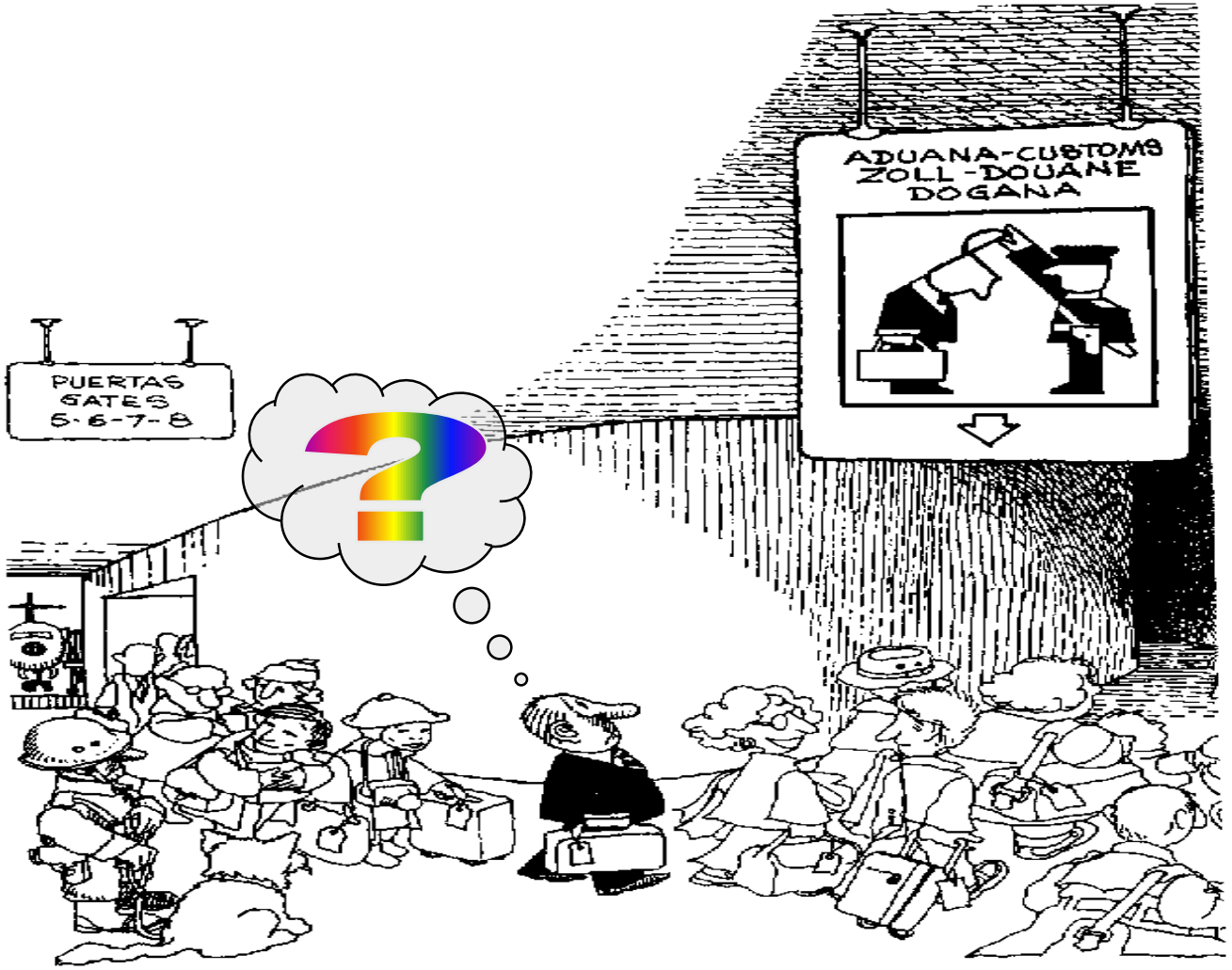
Emerging Paradigm

Emerging Paradigm

Facilitation Purpose

- **ICAO Annex 9**
  - *A combination of measures and resources intended to facilitate access to facilities and services as well as to expedite the process of air transportation*
- **Rationale**
  - Traffic volume and mix increasing
  - Fast technology evolution permits new services
  - Threat assessment demands greater sophistication
  - Implementation and monitoring costs in value chain
  - Despite gains, states increasing security protocols

Challenging Task for Security Agencies



Facilitation Challenges

- **Select Global Threats**
  - Acts of unlawful interference, illegal migration, illicit trafficking, and contagious disease
  - Response is severe state controls
    - Multiple passport controls
    - Aviation security measures
    - Special customs procedures
  - Need to reconcile facilitation and security
  - http://www.iata.org/pressroom/speeches/Pages/2014-06-02-1.aspx (minutes 9:44 to 12:40)

Airport Facilitation Priorities

- **Service Quality**
  - Sequential travel stages depends on link efficiency
  - Airports monitor services for improvement actions
  - Passengers prefer consistent (preferably high) quality

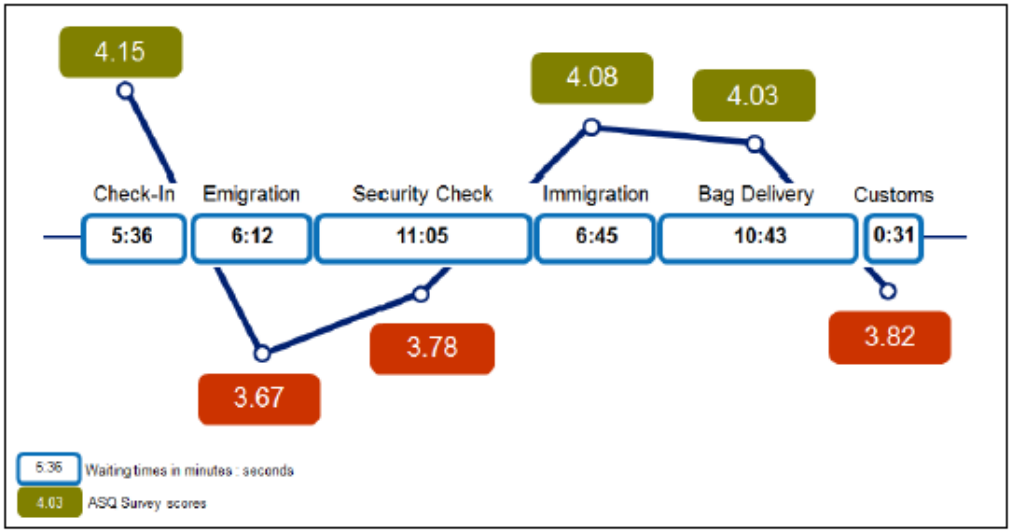


Figure 2: Impact of waiting times in customer satisfaction

Airport Facilitation Priorities

- **Operating Efficiency**
  - Airports and their concessionaires must improve processes and flows under their control
  - Frequently, major services that impact overall efficiency are controlled by others, thus improvements can only be achieved through negotiation
  - Establish cooperative environment (e.g. Facilitation Committee) that allows all parties to see processes holistically with a common objective and focus
    - Remember, irregular operations (IRROPS) will strain system, so build goodwill – you will need it

Airport Facilitation Priorities

- **Facility Utilization**
  - Achieve capacity optimization through investment
  - Measure processes at key locations and optimize flow rates to avoid bottlenecks
  - Recognize, specialized facilities need to be allocated to specific users at specific times
  - Undertake thorough cost per space analysis with objective to improve handling control and redundancy
  - Postpone capital expenditures and use interest savings to invest in near-term facilitation as well longer term Research and Development with industry

Airport Facilitation Priorities

- **"Journey Management" Intermodal Integration**
  - While airports compete with each other, significant potential exists to expand airport catchment area
  - Airlines are beginning to pursue beyond aviation service offerings, including through rail ticketing
  - Combination of modes gains speed and convenience of reaching smaller markets at lower cost
    - Lufthansa has multiple rail connections to Frankfurt
  - Ultimately transportation must be viewed from a user mobility perspective, thus modal integration just a matter of time, and finding the right business model

"Journey Management" Underway

IATA Air Transport Consultancy Services

Air/ Rail Intermodality Study

Final Report

For

Central House, Lampton Road
Hounslow, Middlesex TW3 1HY
United Kingdom

February 2003

High Speed Rail Access to Heathrow

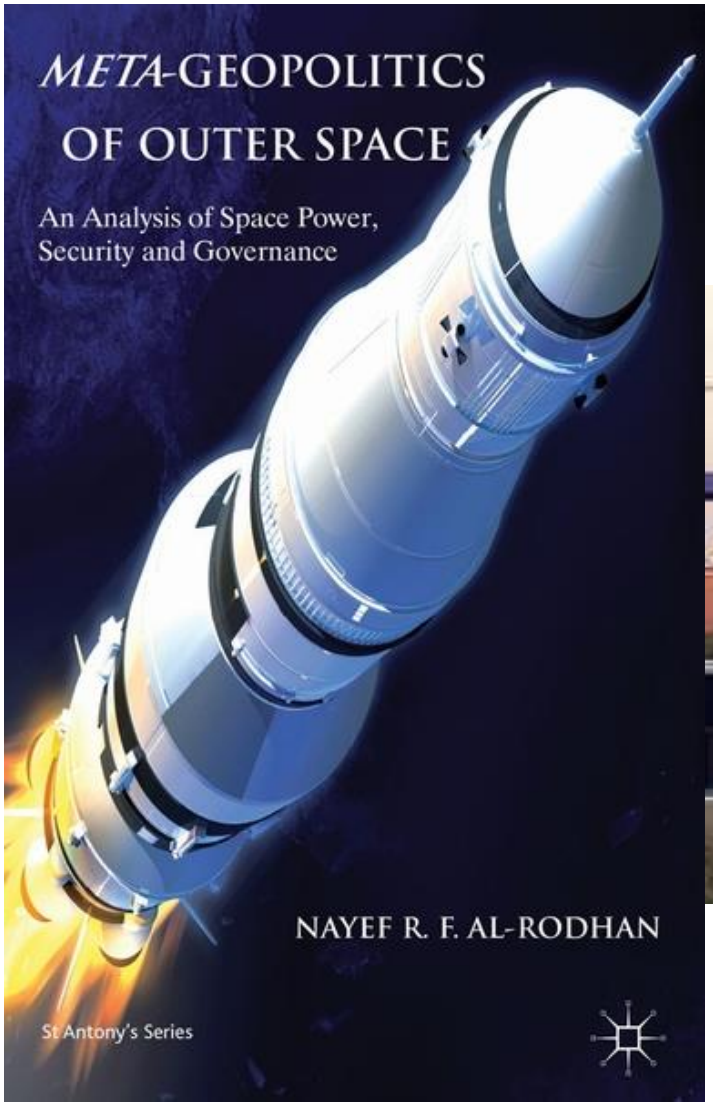
A Report to the Secretary of State for Transport by
Rt Hon the Lord Mawhinney Kt

July 2010

Future Paradigm

- **Business NOT as usual**
  - "**Trade with security** is a premise equally applicable to firms and the state in their respective decision-making processes" (Trade With Security, Sulmona, L.G., 2012)
- **Airport system consequences**
  - Security / border control relocating to forward positions
    - Turkey introduces virtual pre-clearance - https://www.evisa.gov.tr/en/
  - Competitive advantage for first-movers
    - Just walk through, no immigration queues at Dubai airports by 2015, Khaleej Times, 2013
  - Fundamental design / process changes coming

Future Paradigm



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Conclusions



Conclusions

- **Airport security risk management starts with planning and system integration objectives**
- **State, airline, and service provider consultation crucial to workable / affordable security system**
- **Commencing facility designs with security-in-mind can deliver more cost-effective solutions than expensive retrofits later**
- **Facilitation and coordination efforts demand airport leadership that can become source of competitive advantage**

References

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Thank You!

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