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Airport Operational Efficiency

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Airport Operational Efficiency

- Introduction
- Principles
- Characteristics
- Measures
- Regulation
- Conclusion

Introduction

- In a privatised airport environment, there is a need for States to regulate and oversee the airport management and operation to ensure ICAO and State standards for airport operational safety and efficiency are maintained
- Regulation of airport operational efficiency requires the definition of performance criteria and standards
- ICAO promulgate standards and recommendations on airport operational efficiency for international airports and where these have an impact on safety
- States have further criteria and standards specific to the characteristics of national airport operations

Need for Regulation

- ensure that the users and customers are provided with an operational efficiency at airports which meets State performance criteria and standards
- efficient airport operations have a beneficial impact on safety and financial performance
- possible conflicts of interest between stake holders
- Enforcement requires national regulations in addition to ICAO international regulations
- Privatised airports - standards should also be included in terms of reference and agreements
- States should periodically certify and issue licenses for airport operations

Principles

- Operational efficiency has a direct impact on safety, user satisfaction and the financial performance of the airport, airlines and service providers
- ICAO requires that States shall take all necessary steps to secure the co-operation of operators and airport administrations in ensuring that satisfactory facilities and services are provided for rapid handling and clearance of passengers, crew, baggage, cargo and mail at their international airports
- To achieve this objective, States should monitor and have measures to directly or indirectly influence the performance of airport operators, airlines and other airport service providers

Characteristics

- driven by air traffic volumes and characteristics, operating procedures, and facility capacity
- Over-provision of capacity results in under-utilisation of facilities and under-provision of capacity results in operational efficiency deficiencies
- single vs multiple ground handling and service providers - competition improves efficiency
- ICAO recommends that airlines have the option for the provision of ground handling operations

Measures

- measured against defined level of service criteria and performance standards, or by users subjective perceived level of service
  - Level of Service – space, time and distance – comfort and convenience
  - Performance standards – reliability and effectiveness
  - Congestion – space and comfort
  - Delay - processing and waiting -time
  - Direct and uninterrupted flows - convenience
  - Incidents – emergencies, collisions, bird strike
  - Deficiencies – facility and equipment performance
- Ideally balanced throughout the airport system to provide a constant perception of level of service

Methods for Measuring Airport Operational Efficiency

- Observation – survey and study existing situations and facilities with known characteristics
- Simulation – test planned new facilities or changing circumstances

Measuring Operational Efficiency in Airport Elements

- Airspace and Airfield – Aircraft
- Support and Emergency Services - Aircraft
- Passenger Terminal – Passengers, Visitors, Employees
- Cargo Terminal – Freight and Mail
- Terminal Landside Ground Access – Vehicles and fixed transit systems

ICAO References

- Annex 9 - Facilitation
- Annex 14 - Aerodromes
- Annex 10 - Aeronautical Telecommunications
- Annex 12 - Search and Rescue
- Annex 16 - Environmental Protection
- Annex 17 - Security
- Airport Services Manuals
  - Rescue and Fire Fighting
  - Pavement Surface Conditions
  - Bird Control and Reduction
  - Removal of Disabled Aircraft
  - Airport Emergency Planning
  - Airport Operational Services
  - Airport Maintenance Practices

Airspace and Airfield

- Airspace – throughput and delays - route structure, traffic characteristics, operational procedures
- Airfield – throughput, delays, routings and incidents
- Factors which affect airfield throughput include:
  - traffic characteristics - aircraft type mix
  - operational procedures – rwy allocation and taxi distance
  - runway configuration – number, alignment and separation
  - runway availability - aircraft noise exposure, wind, visibility
  - taxiway configuration – rapid exit and parallel taxiways
  - gate allocation – number, size and location
- pavements - surface contamination and irregularities
- vehicle traffic delays at taxilane/taxiway intersections

Support and Emergency Services

- The services relate primarily to the accommodation, servicing and operational safety of aircraft
- Range of services for aircraft:
  - Aircraft turn-around time – rapid aircraft servicing
  - RFF vehicle response time – 2 (max 3) min
  - Emergency services preparedness – Emergency Plan
  - Removal of disabled aircraft - Plan
  - Handling of dangerous goods
  - Secondary power supply maximum switch-over time
  - Aircraft anti and de-icing holdover time
  - Snow clearance and water removal from pavement surfaces
  - Bird control and hazard reduction
  - Preventive maintenance programme
  - Airside ground movement control

Passenger Terminal

- ICAO Recommended Practices:
  - 60 minutes for international departure passenger processing from presentation at first processing point to the scheduled time of flight departure
  - 45 minutes for international arrival passenger processing from disembarkation to completion of last clearance process
  - guidance for transit stops, transfer connections, passenger loading/unloading, signage, walking distances, flight information display systems, public address systems, terminal landside access, baggage handling, security equipment, aircraft parking and servicing

Passenger Terminal

- Airports and airlines have developed additional performance standards for passenger and baggage processing including the following examples:
  - Congestion – space standards
  - Queuing Times
  - Processing times
  - Delivery Times
  - Transfer connection times
  - Walking distances
  - Level Changes
  - Information Systems
  - Equipment reliability/performance

Passenger Terminal

- ICAO recommends the optimum allocation of aircraft parking stands as close as possible to the terminal building for rapid passenger loading and unloading
- ICAO recommends the provision of remote stands for aircraft parking when it is neither loading nor unloading to optimise the utilisation of contact stands
- Airports and airlines have operational standards related to the proportional split in the allocation of contact gates and remote stands

Cargo Terminal

- ICAO specify goals for the documentation requirements and processing procedures for cargo
- ICAO advocate the simplification of documentation, minimising dwell time and expedition of clearance of cargo
- ICAO recommended practice for the processing of import cargo is to release all general cargo within 4 hours from the time documentation is presented
- Safe storage and handling of dangerous goods

Terminal Landside Ground Access

- ICAO recommends that States ensure that rapid and reliable city/airport ground transportation is available
- ICAO have recommend practices related to terminal ground access, vehicle parking, check-in, etc
- Examples of operational efficiency measures for ground access transportation facilities and services:
  - Private Cars and Taxis
    - Travel time, distance, congestion, delay
    - Terminal curb access capacity
    - Parking availability and convenience for access to terminal
  - Rail and Bus
    - Service frequency, reliability and travel time
    - Platform location and convenience for access to terminal
    - Cabin space and comfort, baggage check-in and handling

Regulation of Airport Operational Efficiency

- ICAO SARPs – Annexes and Manuals
- National Regulations
- Airport Standards and Procedures
  - Airport Master Plan
  - Airport Operations Manual
  - Airport Maintenance Manual
  - Airport Security Plan
  - Airport Emergency Plan
  - Disabled Aircraft Removal Plan

Enforcement of Regulations

- National Legislation
- Airport Operating Guidelines

- Privatisation Terms of Reference
- Proposal Due Diligence
- Privatisation Agreements

- Airport Certification and Licensing

Regulation of Airport Operational Efficiency

- ICAO is currently developing guidance material for airport certification and licensing related to safety
- assist States to develop national procedures for airport inspection and monitoring and issuance of airport operating licenses
- Airport certification will focus primarily on safety of airport operations, but States could also stipulate criteria for operational efficiency in its requirements for airport facilities, services and operations

Procedures for Controlling and Monitoring Airport Operational Efficiency

- define level of service criteria, performance standards, and their evaluation methodology
- measure operational efficiency by observation and surveys under actual traffic conditions
- The efficiency of emergency services can be evaluated through exercises
- Operational efficiency deficiencies identified should be studied to develop corrective measures
- studies should include consultations between the state authority, airport, airlines and service providers

Methods for the Correction of Operational Efficiency Deficiencies

- operational procedures – new and/or revised
- demand management – flight schedule co-ordination
- capacity enhancement - facility expansion

ICAO Guidelines

- ICAO recommends that States whose airports experience traffic peaking problems should notify airlines in advance of any restrictions related to traffic and the airport capacity for schedule co-ordination

- ICAO requires that States encourage consultations between the airport and airlines, control authorities and representatives of other airport users and service providers when planning new or modified facilities at airports

Conclusions

- It is in the interest of the States, airlines, airport operators and airport service providers, whether public or private, to provide efficient airport operations as this has a beneficial impact on safety and financial performance
- States require regulations related to the efficiency of airport operations and provisions for their enforcement, in addition to the regulations related to airport operational safety
- ensure that airport users and customers are provided with an operational efficiency at airports which meets State level of service and performance objectives

Thank You