



New trends in airport management

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Content

1. Operational management
2. Terminal management
3. Management of intermodal connections and transport
4. Management of environment
5. Management of ICT and HR totally changed
6. Conclusions



Technological revolution in the airport sector

- Robotics in physical processing used for passenger facilitation
- Self-service capabilities
- Block-chain technologies
- IOT platforms
- Efficient security processes



Technological revolution in the airport sector

Goal:

- Optimize the airport operations and technology infrastructure
- Enhance process efficiency
- Improve the passenger journey

Operational management

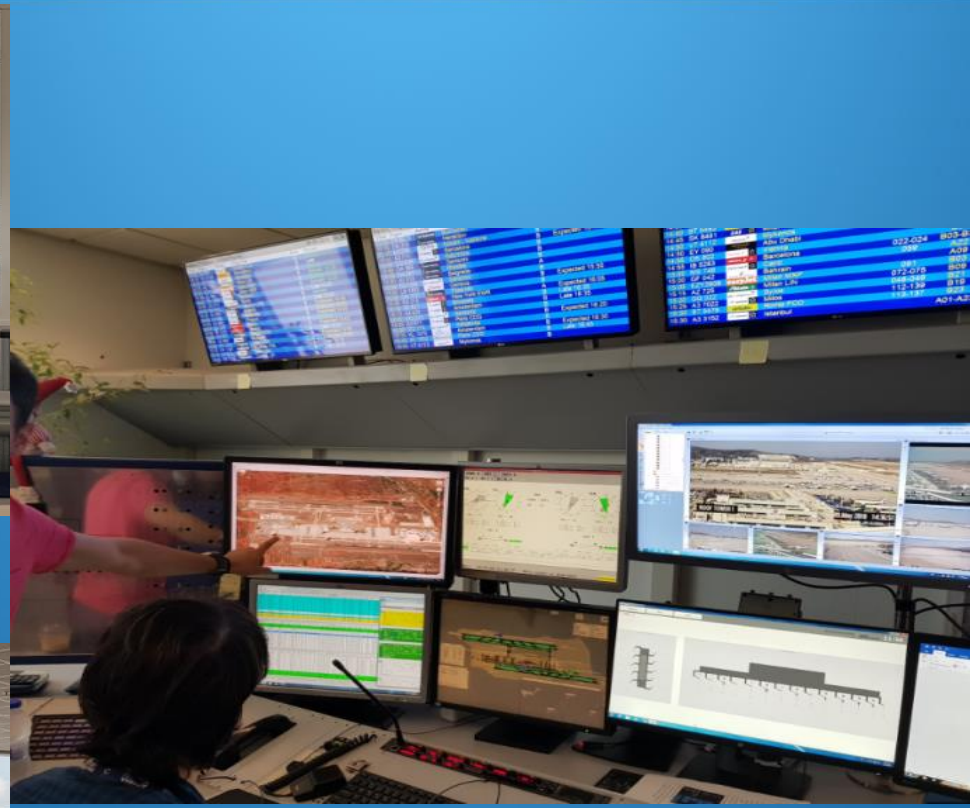
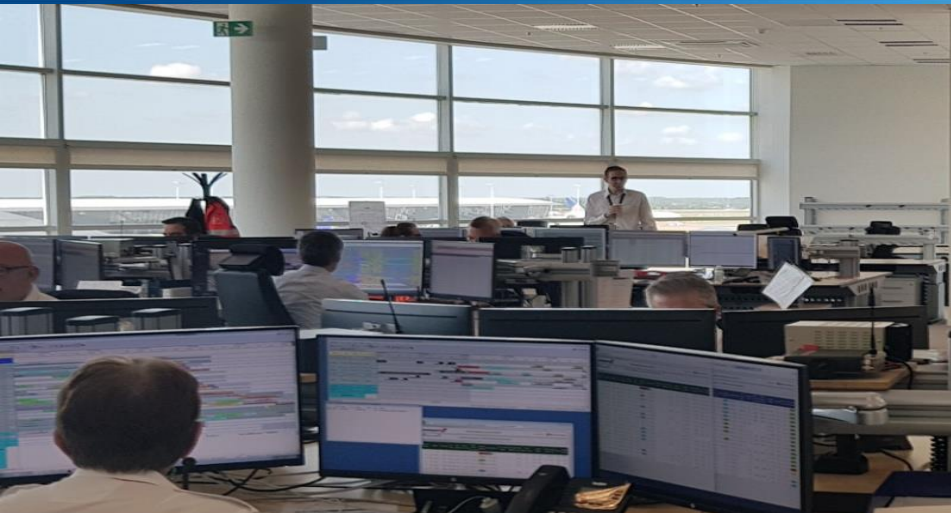


Must be organized taking into account:
TAM and APOC

By implementing a control center, HCA will use:

- Prediction capabilities
- Automatic assistance
- Monitoring and alarming

Operational management



Operational management



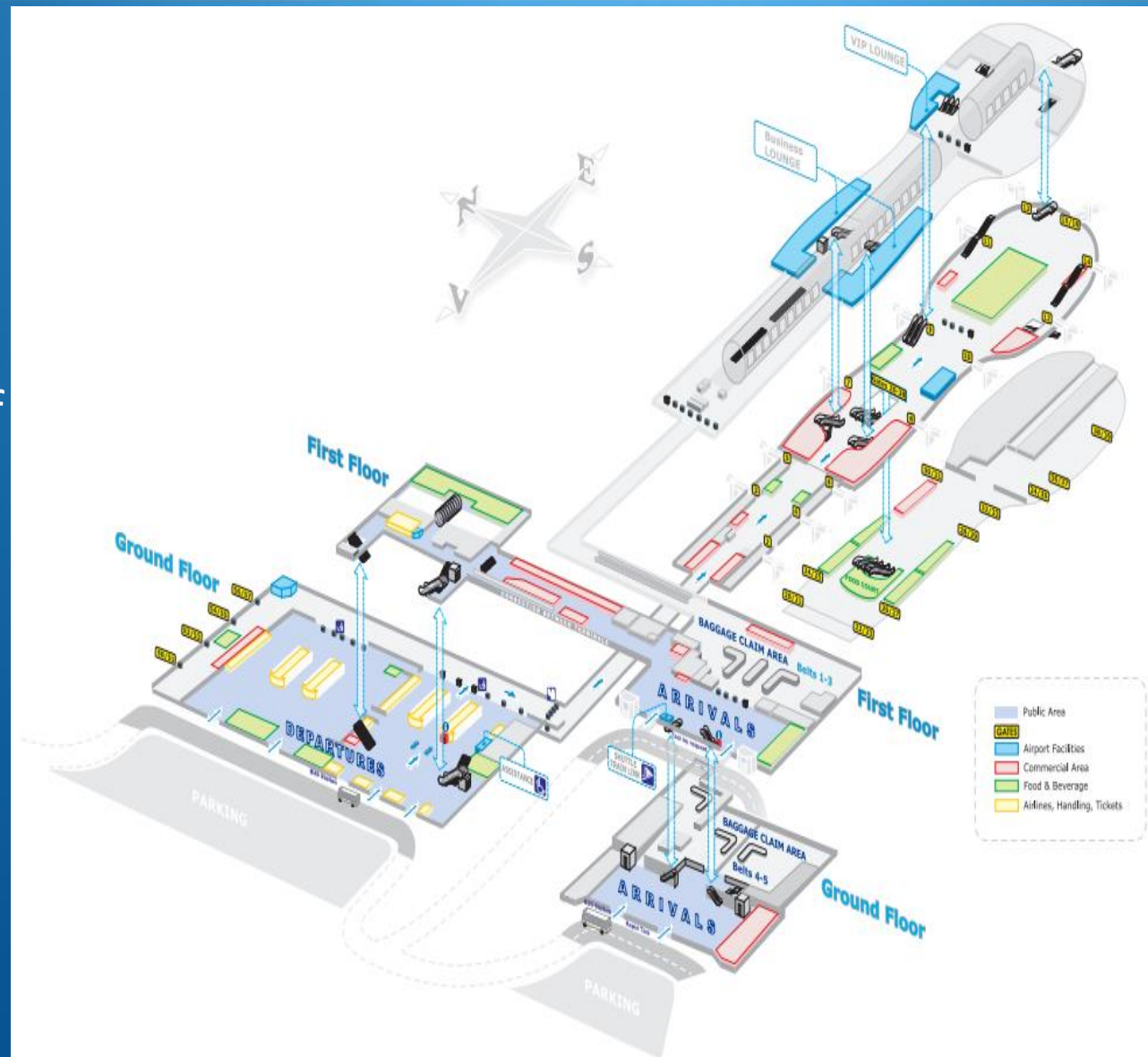
Total Airport Management

- Enables the airport to take the correct decisions
- Eliminate the impact of flights off schedule, bad weather, traffic conditions

Terminal management

Areas of interest:

- Check-in
- Baggage drop-off
- Security
- Border control
- Bording





Terminal management

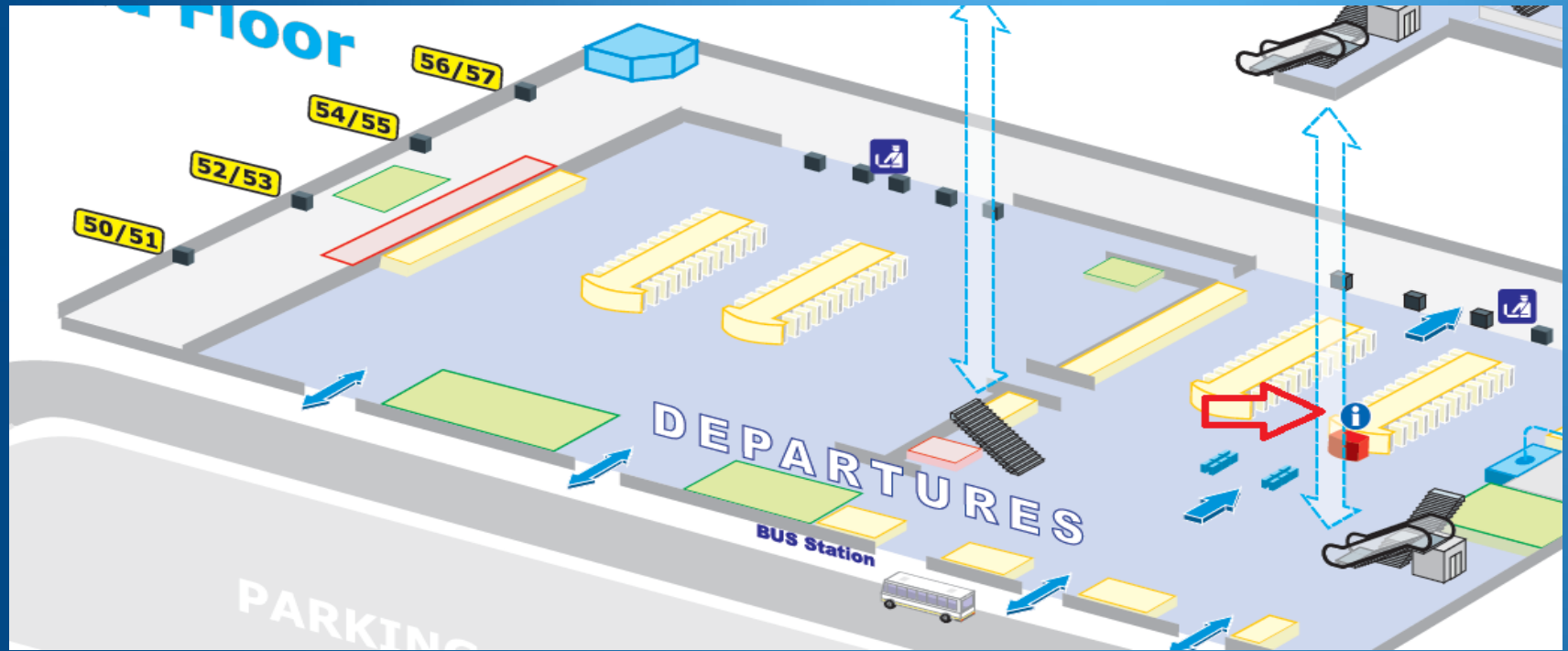


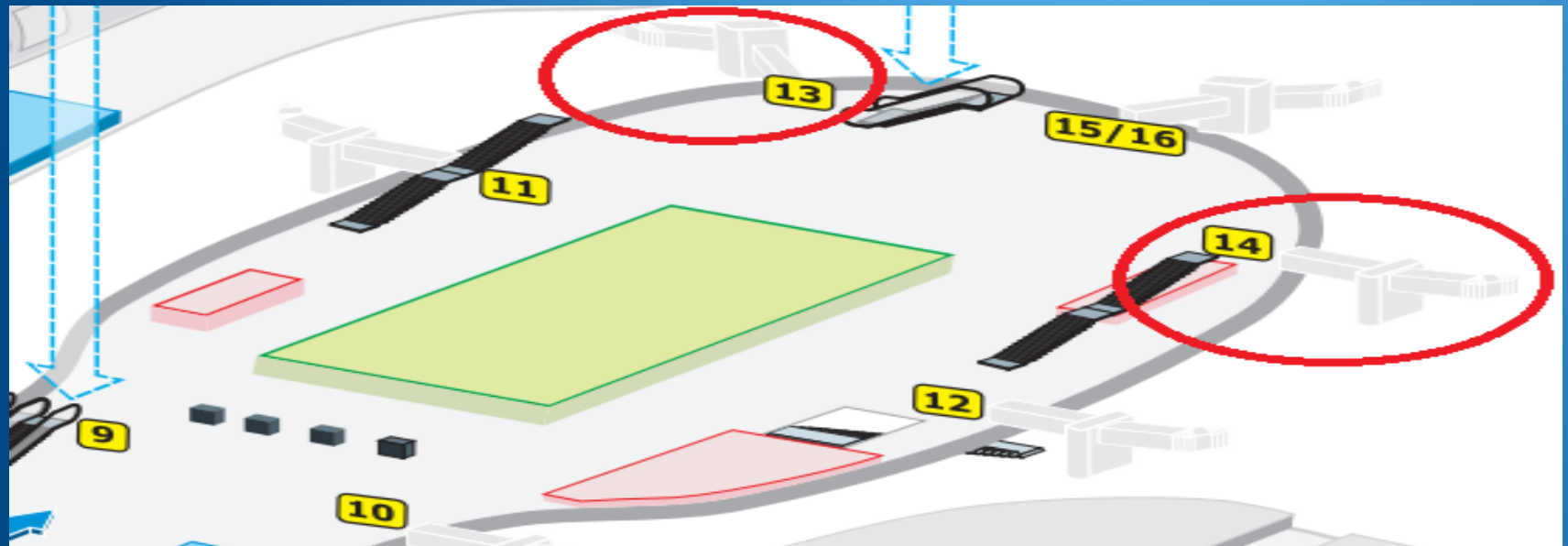
Table 1. Passenger processing analysis

Passenger processing	Present processing time	Optimistic approach
Processing time/pax	2 min/pax	30 sec/pax

Table 2. Analysis of the baggage handling system hypothesis

Passenger processing	Current processing	Optimistic processing
93 counters considered	2790 pax/peak hour/flow	3960 pax/peak hour/flow

Terminal management



Analysis of automated boarding system on HCA

Passenger processing at boarding	Number of passengers/flight	Optimistic processing time/pax	Optimistic processing time/flight
	150 pax	3.3 sec	8.25 min

Terminal management



Autopiloted vehicles for helping passengers with reduced mobility

EU Regulation (EC) 1107/2006



Terminal management



Services for passengers who have never traveled or are disoriented by the signs or announcements at the airport.



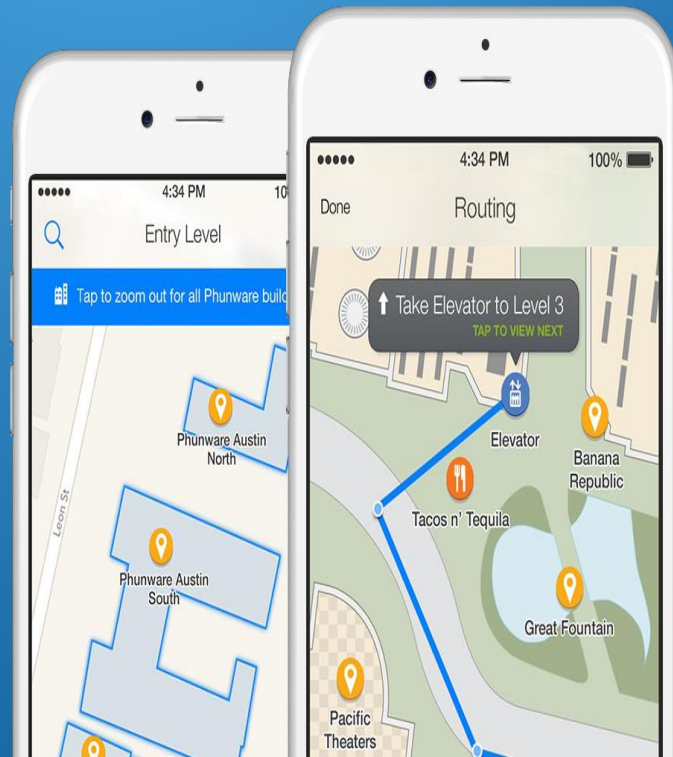
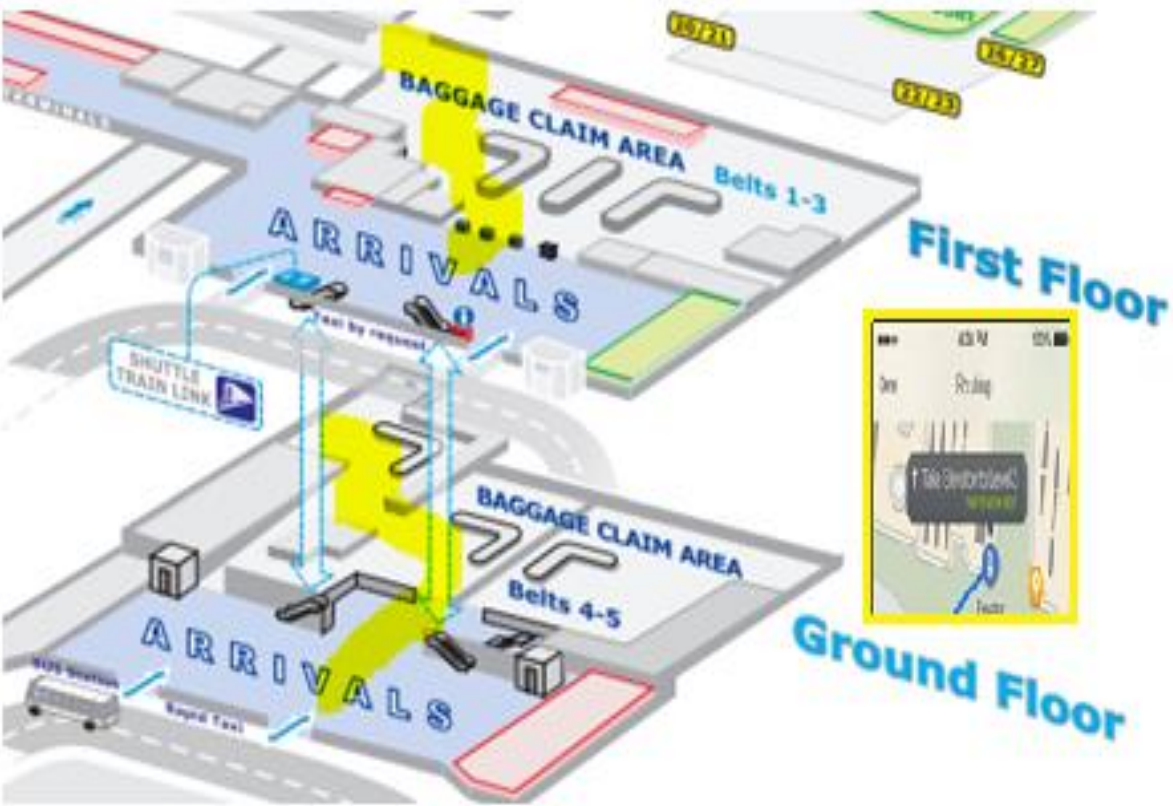
tips for the
**FIRST TIME
FLYING**





Terminal management

Mobile application for Henri Coandă Airport



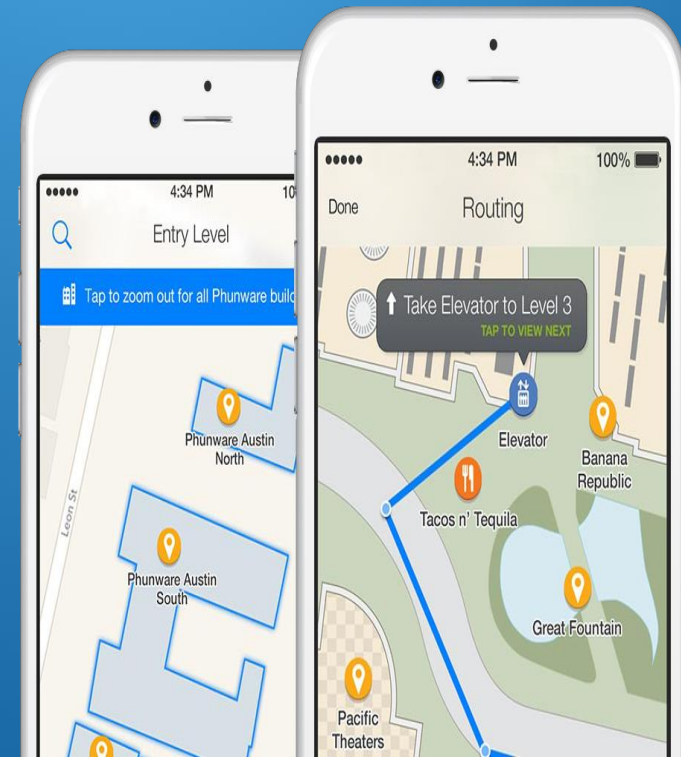
Terminal management



Mobile application for Henri Coandă Airport

Data used for calculating the passenger's custom route:

- Terminal map
- Facilities
- Flight information
- Departure time
- Bording gate



Management of intermodal connections and transport



The need to create a special department at HC airport to develop intermodal transport

→ Integrated multimodal transport system must be well synchronized

Now:

- Transshipment from train to bus is not the easiest option
- The system gets weak points in terms of comfort, coverage or frequency and information concerning transportation options.

Management of environment



The efforts made by HC airport should target a sustainable development

→ Multi-airport noise models

$$\text{Noise Energy} = \sum_{\text{aircraft}} \left(N_{dep} \cdot 10^{\frac{LAT + FO}{20}} + N_{arr} \cdot 10^{\frac{APP - 9}{10}} \right)$$

European Directive 2002/49/EC

ECAC Doc 29 methodologies

Management of environment

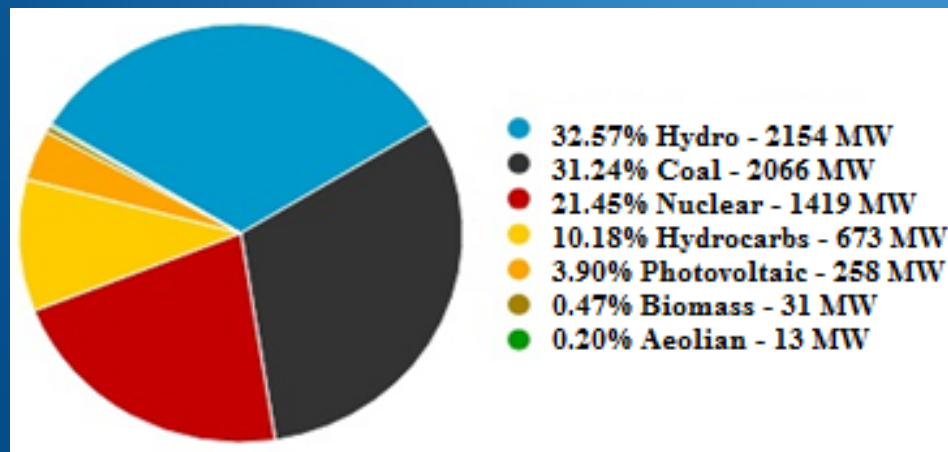


- The carbon footprint of Bucharest HCIA includes:
 - direct emissions from its own sources or under direct control of the airport (thermal power stations, generating sets, vehicle fleet, ground-handling equipment, fire-fighting equipment),
 - indirect emissions through purchased electricity.
- HCA passed two of the four levels of ACI Airport Carbon Accreditation program for which it had to demonstrate the reduction of carbon emissions for previously identified sources.

Management of environment



- Electricity dominates HCA consumption by over 15% of total annual costs
- Reducing electricity consumption is a priority for the airport operator
- Sustainable management means cost and resource effectiveness



Management of environment



The use of new equipments in airport infrastructure

→ *The green alternative to HCA lighting*

Light emitting diodes which converts more than 80% of the energy into light, so no heat is released.

Calculating the amount of emissions at 600g/kWh results in a reduction in emissions of 3,755 g for a single LED lamp used at the airport.

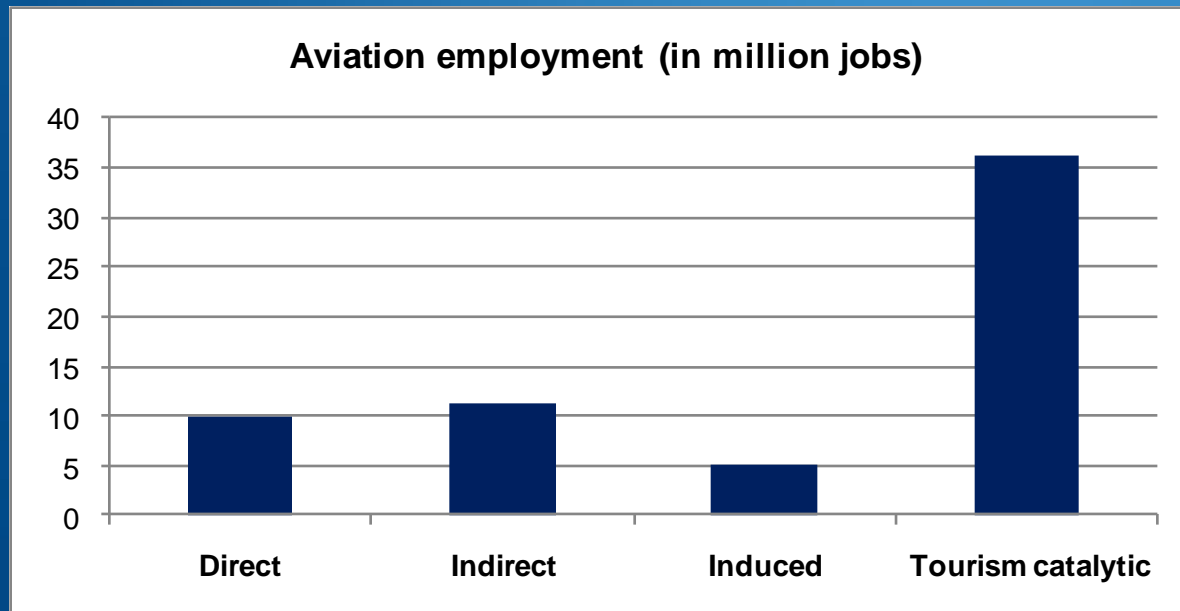
Management of ICT and HR totally changed



Air transport, as an integrating part of the world's largest industry, travel and tourism, provides:

→ \$ 2.7 trillion economic benefit

→ Employs 62.7 million people globally, predicting 99 million jobs by 2034



Management of ICT and HR totally changed



Airport transition to a passenger centric business model

→ As support for the new trends in airport management, the management of ICT and HR needs to be enhanced

Management of ICT and HR totally changed



Air transport sector undergoes a dynamic transformation

- Provides a wide diversity of regulated occupations
- Continuous education and specialized training for employees

High-level jobs based on:

- interdisciplinary qualifications
- driving long-term sustainable economic growth

Management of ICT and HR totally changed



Interdisciplinary occupations:

- ICT and aviation
- Economics and aviation
- Marketing specialists for air transport
- Green energy and air transport infrastructure
- Management for air transport or for multimodal transport.

Management of ICT and HR totally changed



Interdisciplinary qualifications:

- Engineering and Aeronautical Management master program at the Faculty of Aerospace Engineering
- UNESCO Chair's Smart, Green and Integrated Transport and Logistics/ Sustainable Transport master program
- KAAT Erasmus project which will also be completed with a master program: IT applied in aviation.

Conclusions



- The authors propose performing modern airport solutions relative to the HC airport capabilities
- Airport management will be able to:
 - Handle congestions
 - Handle the allocation of staff as needed
 - Facilitate the use of air transport for pax.
- *Airport revenues from non-aviation activities will also increase.*



Smart Airport



SMART AIRPORT

