Resilience of airports: Information sharing and decision making between stakeholders

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Meta CDM

Multimodal, Efficient Transportation in Airports and Collaborative Decision Making

COOPERATION

Introduction

- Various stakeholders at an airport: airport manager, airlines, air traffic control, ground handlers, … and passengers

- In crisis situation:
  - How is the information shared between stakeholders on an airport?
  - How do these stakeholders make decisions?
  - How could such information sharing and decision making be improved:
    - In the short term?
    - In the longer term?

Information sharing and Decision Making

- Heart of the A-CDM concept
- Goal: to reduce delays and improve system predictability, while optimizing the utilization of resources and reducing environmental impact

- Few A-CDM airports: Munich, Brussels, Paris CDG, Frankfurt and London Heathrow
- A-CDM currently built for nominal conditions

Interviews

- Airports: Paris CDG, Brussels, Toulouse Blagnac
- Airlines: Air France, Easyjet, Fedex
- Others: Ground Europe Handling, Egis Avia

Outline

- Interviews results
- Stakeholders expectations
- Future research paths in CDM

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Nominal operational conditions

- Interviewed people all agree on the operational efficiency improvement with A-CDM
- Getting the A-CDM label is considered as a means to improve :
  - operational communication (inside the airport, with other airports)
  - commercial communication

Disruptive events with A-CDM

- Usual A-CDM procedures no longer relevant
- Need to have adapted procedures
- Even with an A-CDM crisis cell, strong problems of communication between A-CDM stakeholders
- Little communication with non A-CDM stakeholders

Case study: CDG airport - CDM

- CDM stakeholders: DSNA, ANS of CDG, Air France, Easy Jet, Fedex, airlines associations, Meteo France (weather forecast provider).
- The CDM@CDG website: all actors have access to the same information

- A "plateau CDM“:
  - Dedicated fully equipped room,

  with 16 posts, is used in case of degraded conditions.
  - main actors can communicate and make decisions in the presence of others

Case study: CDG airport - Crisis Management

Past crisis: In december 2010, heavy snowfalls led to the complete closure of CDG airport.

First, airport was functioning close to capacity, with numerous passengers in the terminals.

Case study: CDG airport - Crisis Management

- Then Heathrow closed, But CDG not aware of it long before, and had to accommodate several of Heathrow-bound long haul flights.

=> need for better communication between the main airports in Europe

- Finally airport closed because of missing deicing fluid while cargos' company still had deicing fluid

=> Distinction needed between closing passenger operations and cargo operations.

Case study : CDG airport – Passengers ‘ aspects

Up to 4000 pax stuck at the airport
They slept in camp beds on December 24, 2010 at CDG airport

Of the 1,160 flights initially planned for Christmas day, 200 departures and 200 arrivals were cancelled: around 60,000 passengers affected.

Complains on lack of information provided to them

Case study : CDG airport – Passengers ‘ aspects

- In crisis situation, airlines can have difficulty to evaluate the delay. Information provided by ADP to passengers but can be irrelevant

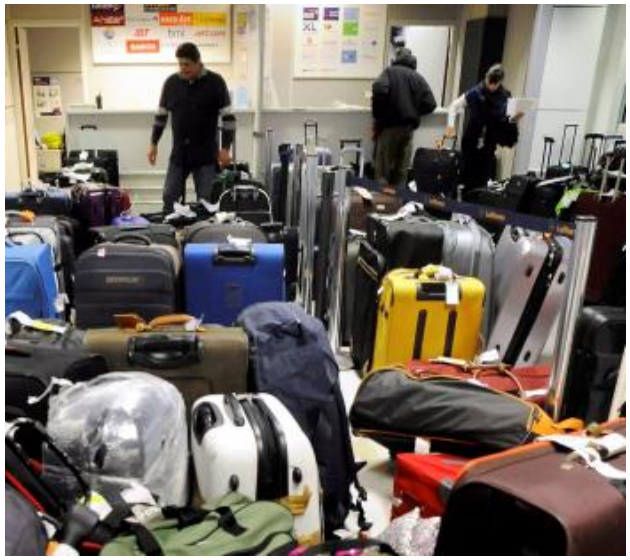
Disruptive events without A-CDM

- Crisis room where airport, airlines, ground handler, ATC, police representatives, etc. meet regularly

- No crisis room opened in continuity with all stakeholders representatives

Case study : Toulouse Blagnac airport

- December 2010, closure of Paris CDG
- Strong impact at Toulouse airport:
  - Passengers and luggages stuck at the airport
  - Rerouting of flights to the airport



Case study : Toulouse Blagnac airport

- No information on flight status
  - From other airports
  - From airlines station managers not aware about the flight situation

- No information to communicate to and with the passengers

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Short/medium – term expectations on current A-CDM platform

- Better information sharing:
  - Single website with information on all airports
  - Information on system bottlenecks, in crisis situations
  - Push notifications from website to smartphone
  - Data link with pilots for updated information

- Optimal turn around process with linked arrival and departure management (A-MAN, D-MAN)

- CDM performance indicators: Public, transparent to identify benefits and bottlenecks and to improve the experience process.

Short/medium – term expectations on non A-CDM platforms

- Being able to measure the A-CDM efficiency to convince airport stakeholders to collaborate

- Getting the A-CDM label progressively while being free in the successive steps to follow:
  - To avoid “frightening” airport stakeholders with rigid implementation procedures
  - To control the implementation cost

Long-term expectations

- CDM processed at the **network level**.
  - Need of **automated links** between airports' CDM tools, with common message format
  - **En-route data-sharing**, or onboard communications enabled.

- Better tools to **reaccommodate passengers** in case of flight cancellation or missed connection due to delay.

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The future of CDM: Further research paths

- CDM 'light'
  - Good solution for several middle sized airports
  - Small web portal to share information
  - Pre-established, validated procedures
  - More simple sequencing tool

⇨**Need to develop a CDM Light label**

The future of CDM: Further research paths

- Multimodality
  - Main issue: finding an **economically viable** path towards fully integrated multimodal transportation.
  - Missing of **common coordination** between the ground transport and the airside for schedules planning and for luggage transfer
  - Need of **metrics** reflecting the passenger's experience e.g. full multi-modal itinerary delay

The future of CDM: Further research paths

- Improvement of the Decision Making Process:
  - Studying the best decision making process in case of crisis situations.
  - Equity and fairness ensure adherence of all stakeholders to the CDM procedures,
  - Need to identify strategies leading to the best decisions and how to incentivize them.

The future of CDM: Further research paths

- Measuring the CDM impact for all stakeholders:
  - Use of past data on airports having implemented A-CDM
  - Econometric estimations per stakeholders aiming at measuring the impact of CDM on relevant variables such as for instance the level of delay

Concluding remarks

Preliminary identification of potential research projects that could be interesting and necessary to launch

Do they seem relevant?

Would you have other ideas?

Any question?

THANK YOU VERY MUCH

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