

Airport Breakout-Session

What are the open airport research questions for the coming years?

ATM 2009 Seminar

July 2nd, Napa

Breakout-Session

- Everybody in the room is expected to raise one open research question for the airport domain!
- There are no stupid questions...
- All questions are collected and published on the ATM2009 website
- If somebody thinks that a raised question is already solved, this will be noted as well

Questions

- Capacity of the airport, capacity of the airport is concrete. Is it possible to move all the landside to highspeed rail and have more air side capacity

There is investigation, to move check in counters, EUROCONTROL. Improve the predictability of the system. Georgemason team to link stuart to other newyork airports using helicopter

- Why do we not have stochastic flight plans, a trajectory is very deterministic why?
EURO : not totally stochastic, buffer slots to absorb uncertainties, paper published 2007, for systems it might be good to know, if there is a small uncertainty or a large for the system rather than the passengers. Quantify stocasticity in the system around a deterministic flight plan. Trieste, working with EUROcontrol working to build a bigger picture, to include all the goals, time window, operations depending on airlines and airports. CATS

- Airports work well in the USA to tackle equipment problems etc. are we spending too much resources on areas where there are actually no problems

(if there is a sudden change in the runway config, how does it impact the system)

Passengers recognize the capacity change at airport between bad and good days..no strategic planning, airlines should/would pay a higher price to get out first..current research is about departure time slot etc..how should stochastic nature be incorporated into research or is it just in the departure time. Price incentive research between george mason et Nasa GRAconsensus

- What are the items to be addressed first which have a higher B/C ratio.

NASA is working on it, the importance to applying existing B/C model undermines new ones.

- Is their economic technology to reduce risk of runway operations (eg. runway incursions)

Runway incursions increase with the square of operations, battle to keep them at constant level. Challenge in the future

- Why there is no automatic pilots on the ground, useful when weather is bad, autopilot for ground taxi operations

SESAR : concepts exist, far from to be solved.

- Major issues of integrating airport and airspace operations
MITRE : Proposing to solve this..VOLPE: strategic prediction of flow at TMA..sync. Time of operation of one airport and of the entire system, who should do the re-sync ..architecture question..NASA has a tool
- Multiple airports as a collection of airports in the metropolitan airport, multimodal system. NASA is doing some doing some work on metroplex under george mason and purdue..Gatech, MOSIAC and SENSUS
- Carrying out operations in network perspective, wider than a metroplex area..operations at one airport have impacts on other airports..bottlenecks on hub operations, opportunity to look at different config

- Encourage airlines to expand data on flights, to show continuation of flights, to show flight number of the next journey..is the flight continued to share information with airport source provider..encourage ground service providers to share their data
- How to find the right departure sequence, how can we have an accurate prediction of the 4d traj, given an accurate take off time.
- Take off time is stochastic, if we know the exact take of time, we can improve a lot of things

- Chicago is problem as the check-in desk collapsed, information system assurance, the system doesn't crash , system is good..information security.
- How the new tech would increase the airport capacity, new separation rules, benefits of new tech..reducing separation may not buy you anything as a single occupancy rule does not buy you anything

- Do we really is bothered with the buss. Trajectory ..talk about buss trajectory – repository of trajectory which people can share, SESAR
- Environ impact: whats the right aircraft, whats the right fleet..why are they downsizing
- Roles and responsibility of towers and TRACON in the next gen operations, current rules for TRACON are a mess under weather..organizational changes, how can we organize the TRACON better?

- Operate with without towers (physical) under current tech.. Do we need a concept of ground worthiness concept..
- Work is already going on the virt-tower in eurocontrol, FAA is also doing the same. DLR and ?
- Whats the rules with the gates, beyond the gates, buffer gates, choke points

When intergrating air and ground operations what the role of airport operators.how to integrate the land side and air side operators

Making data, people who need to do research..make data available to them..USA has DX, getting that data is hard. Whats acutally happening at the [surface..@newark](#), the gates empty doesn't mean it can be used, improve operations at airports, gap between people who do research and data

- Data access is a problem, we need benchmark data sets, when we solve optimization problem we need to be sure, internet simulations..harmonize a lot of things, we don't have data for airports, cant validate..strong institutional enabler
- Are they some political decisions adding airports, general observations about closing airports and opening them, HSR..economic situation of the stake holders at the airports..operational improvement if they have desing whether to include it or not..competition and not compatible..should be attached with the colloborative decision maker..motivate the actors to work towards these goals..economic analysis..compensate those who cant make profits..construct app. Performance metrics

- Shifting ops to regional airports, increase complexity, if the controllers have the skill to do it..talk to controllers , skills to deal with complex situations at regional airports, workload changes..how the work load changes at departure..political considerations with the workload and payscales. If increase traffic at small airports, they have redesign airspace

- Whether the work share between departments should be different..controllers look at traffic and airlines operate self organized
- Airports without controllers?
- Auto controller ?
- Do we need more insight, into development of society into airports, prepare the impact of LCC in future

- New vehicle classes in NEXTGEN, cost service tradeoff
- Controller workload, capacity limit, controller workload is not the capacity limit..does it need to be focussed with local ground , to do things in a more tactical manner, explicit guidance, decision support tools..seperation standards and certify tools.. See though displays and wide screen

- Going more and more into 4d, how can we display 4d info on a 2d display..uni of linkoeping research conducting on the same..
- Wake vortex, new tech on aircrafts and some have them or not, the mixture of equiped and un-equip would have an impact on nextgen..even between very equip and mod equip also have an influence

- Buss model..cheaper to equip aircrafts than build runways..alaska airways increased cap by 50%
- Do we have questions which we agree “in this room” are solved, data linked
- Passengers, how we can reduce waiting time at airports for passengers..model passenger flow..

- Airport operations influenced when fuel costs increase.. how? Megan S and George Mason Univ working on the same.
- Choice of passengers between hassle free security and 4d, what would they choose.
- Monetary incentives for passengers being punctual..RF-ID to track passengers..may give some incentive for passengers to track
- Padding of schedules, great tech at 1950 times..how do we get the efficiency back..or at the airport runway

- The waiting times at airports, and moving aircrafts to different regional airports, airline airport operators for the switch of operations..rather shop or sit in the flight and wait..how are passengers going to react, when airlines which operations between regional airports, annoys passengers but great capacity, passenger choice, poll in the air by passengers where to land..door to door service to insure travel times

- EU airports better at certain things eg. EU are better at taxi out times. Much less common in EU..US are better at capacity per runways
- EU and USA have different performance metrics..one set of metrics..
- passenger bill of rights in EU not in the USA..airlines tend to overlook this and tend to capture the market.
- Taxi out times in EU, do not count delay in allocating taxi out times

- Different terminology between EU and USA..what is what..different map..important to have architectural overview..eg. Take off time..TMA
- Question of airlines, airlines collaborate with airports unlike EU. Mentioned earlier how do we get all the actors to play together..
- More benefits than drawbacks in sharing information (airlines)

- Airline function can be broken to retail function and flying aircrafts..aircrafts would be utilities.

Questions addressed

