AVIATION: CAPACITY IS THE ISSUE

Geert Boosten

Aviation Management Conference 2013
AVIATION CAPACITY IS THE ISSUE

• All presentations today are related to capacity shortage

• Efficiency of the entire aviation system is at stake

• No easy solutions

• Requires new positions and redefining roles of stakeholders
ACCOMODATING GROWTH IS THE MAIN CHALLENGE

Asian Travel Business: More Passengers Bring New Airports, Challenges for Airlines

The world's airlines expect to see a 31 percent increase in passenger numbers between 2012 and 2017, the International Air Transport Association (IATA) reports in its Airline Industry Forecast. By 2017 total passenger numbers are expected to rise to 3.91 billion—an increase of 930 million passengers over the 2.98 billion carried in 2012, IATA says.

Single European Sky: Member States fail to reach key deadline to achieve more efficient European airspace

Capacity Needs in the National Airspace System
An Analysis of Airport and Metropolitan Area Demand and Operational Capacity in the Future

Stansted Seeks Four Runways To Meet Capacity Shortage
AIRPORTS AND METROPOLITAN AREAS THAT NEED ADDITIONAL CAPACITY IN 2020

Note: Some airports and metropolitan areas were only identified with additional socio-economic information.
Capacity (Doc 9854)

- Doc 9854 Appendix D
  - The global ATM system should exploit the inherent capacity to
    - meet airspace user demands at peak times and locations
    - while minimizing restrictions on traffic flow.
  - To respond to future growth, capacity must increase,
    - along with corresponding increases in efficiency, flexibility and predictability,
    - while ensuring that there are no adverse impacts on safety
    - and giving due consideration to the environment.
  - The ATM system must be resilient to service disruption and the resulting temporary loss of capacity.
SCHIPHOL IN THE 1980’S

Have capacity will fly.....

Source: K. Noordzij, Board Member Schiphol in program Koers ‘85
WHAT IS THE CHALLENGE?

• Shift in global aviation towards Asia, Middle east (and Latin America)

• Capacity is limiting factor for growth. Do we understand what drives aviation capacity?

• Are we capable to add new capacity (airports and air space) on time?

• Who owns, allocate and controls capacity at airports and in the air?

KLM looks to grow partnerships in Asia, which are becoming larger targets than North America’s

Partnerships and KLM Royal Dutch Airlines are intertwined: KLM and Northwest Airlines first joined forces in 1989 when KLM acquired a 20% holding in the US carrier, then the two pioneered the industry’s first modern joint venture in 1997, subsequently been imitated not just by trans-Atlantic peers but by airlines across the world.

Source: CAPA Centre for Aviation
Link: http://centreforaviation.com/
IMPACT NEW AIRCRAFT ON NETWORKS

Figure 1: 767 network in 1997

Figure 3: A330 network in 2013 – new customers in past five years

Figure 2: A330 network in 2003

Figure 4: 787 network in 2013
US AND EUROPE NO LONGER LEADING IN AIRPORT DEVELOPMENT

Emerging Markets News

Singapore Changi, Odebrecht to Buy Rio Airport for $8.3 Billion
CAPACITY PROBLEMS IN THE NETHERLANDS

EVALUATION OF THE FUTURE DUTCH AIRPORT SYSTEM:

• WHICH TYPE OF TRAFFIC TO WHICH AIRPORT

• KNOCK–ON EFFECT
WHAT IS AVIATION CAPACITY?

Aviation Capacity =

Business Model Airline + infrastructure + air space + societal conditions

Business model Airline: operating model of airline to serve markets
Infrastructure: technical capacity airport infrastructure (airside+terminal+landside)
Air space: technical capacity air space
Societal conditions: environmental, civil vs military, land use planning, regulations
AIRLINE BUSINESS MODEL: CYCLIC INTERACTION

Future challenge:
- Accommodating expected growth
- Climate neutral growth

Constraints: Impact on aviation growth and development

Business models: Impact on aviation revenue capacity and cost structure
AIRPORT CAPACITY

• Comité de Sages 1994
• AEA: 2020 60 major airports totally congested

• Examples:
  • Fraport (just opened a new runway)
  • Schiphol: diverting traffic
  • Vienna, Prague, London: new runways needed
AIR SPACE

• Limited capacity

• Expansion needed
  • Civil – military

• New systems and procedures
  • Sesar
  • NextGen
SOCIETAL CONDITIONS

- Regulations
  - Bi-laterals
  - Safety
  - Security
- Environment
  - Noise
  - Emissions
    - Global
    - Loal
- Land-use planning

- EU
  - Intermodality
  - Open Skies
  - Free travel
- Economic impact
  - Mainport
CAPACITY OPTIMIZATION RESEARCH TOPICS: MANY OPTIONS

• Improving business models
• Optimal use of airport facilities
• New procedures and regulations
• Economic instruments (price)
• Air space procedures
• New technology (aircraft, engines, etc.)
• Bio-fuels
• .......
WHAT HAPPENS IF AIRPORT HITS CAPACITY CEILING?

FRAMEWORK FOR ASSESSING EXPANSION OF LONDON'S AIRPORTS

22/04/2013 - Over the years there has plenty of debate on the expansion of London's airports, and RSPB, WWF-UK and HACAN have asked CE Delft to propose a general framework for assessing airport expansion and new airport development projects, based on best practices and academic research. The study The Economics of Airport Expansion provides a transparent framework for (social) cost benefit analysis of airport expansion and new airport development projects. It is extremely important that all types of effects are included in the CBA and to avoid any double counting by including indirect effects. Many studies find a positive correlation between aviation and economic growth, but no causal relationship between connectivity and economic growth was found. The positive effect of aviation on economic growth appears to be stronger for remote and poor regions than for central, well-developed ones. It is not clear whether this effect is truly additional, or whether regions with airports grow at the expense of other regions.

EDBR advies

GEEF ROTTERDAM AIRPORT VLEUGELS

Het belang van Rotterdam Airport voor Rotterdam: uitbreiding als zakenvliegveld

Rotterdam Airport moet terug in het bezit van Rotterdam en ruimte krijgen om te groeien
AIRPORT – REGION RELATIONSHIP

City airport development:
What airport is needed to Support the regional economy

Airport City development:
How can the airport benefit from developments in the region or even trigger new developments.
2 NETWORKS INTERCONNECTED VIA AIRPORT

City region Network

Airline Network

Airline serving the region

Network = Sum of Airline/alliance Connections

Network = Connections to Economies worldwide

Network = \( \Sigma \) (airline + ground traffic connections)
ROTTERDAM: 2 NETWORKS NOT INTERCONNECTED VIA AIRPORT

Network = Sum of Airline/alliance Connections

Perception Rotterdam:
Business connections
Not sufficiently served
Alternatives not available

Network = \( \Sigma \) (airline + ground traffic connections)
NEW ROLES OF STAKEHOLDERS

• Airport: from capacity provider towards connectivity providers
• Region: explicitly defining demand for connectivity
• Airlines: optimizing added value for regional connectivity
• ATC: safety isn’t the only concern, managing connections
CAPACITY WILL BECOME A CONNECTIVITY GAME

Have capacity will fly...

Becomes

Turning capacity into connectivity
Thank You