

Multi-Hub Network configurations

– a temporary or permanent outcome
of airline consolidation?

Workshop on Multi-Hub Strategies
and the Implications for
National Aviation Policies

Jan-Christoph Düdden
WHU Koblenz

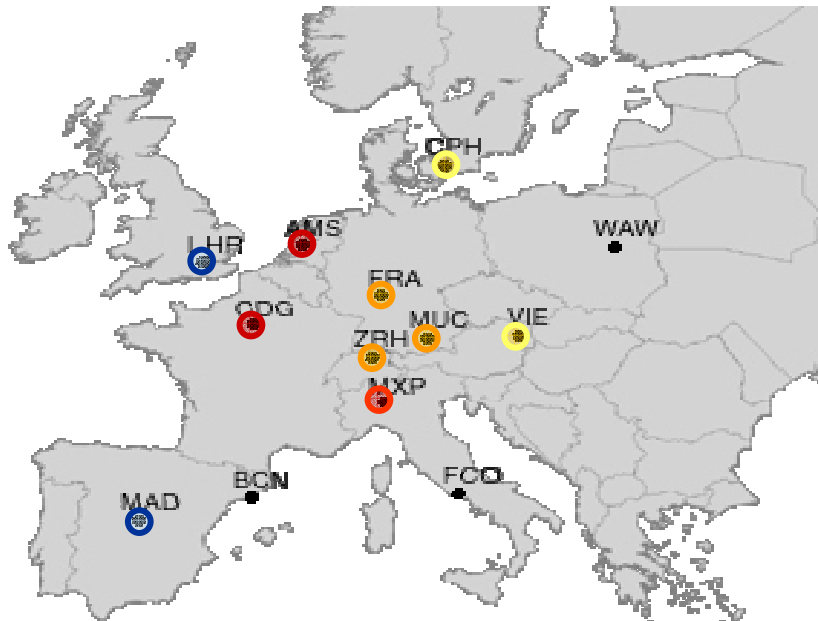
Den Haag, 28. October 2005





Consolidation in Europe is leading to multi-hub networks



Overview of European Hubs



-  Lufthansa/SWISS
-  Star Alliance w/o LH/LX
-  Air France/KLM
-  SkyTeam w/o AF/KL
-  One World

- Consolidation in the USA has shown that merged airlines close down duplicating hubs
- US carriers still have multiple hubs, but those are geographically dispersed. This would fit to a multi-hub network in LHR and MAD
- Theory also tells us that multi-hub networks are not optimal (in symmetric space) as they forego economies of density
- Amsterdam and Zurich are currently protected by merger agreements...but will they be de-hubbed in the future??

A hub & spoke carrier has several possibilities to offer long haul travel



Overview on long haul network configurations

„Pure Hubbing“

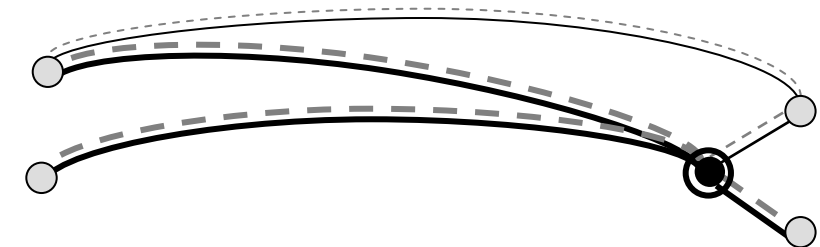
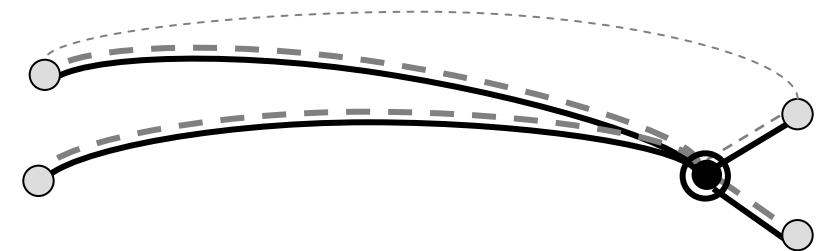
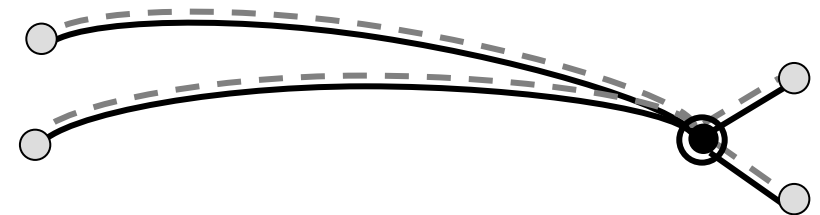
- Long haul traffic flows are bundled in a hub airport
- Maximisation of economies of density

„2-Class Society“

- Non-hub business class-only direct flights
- Absorption of high yield demand while profiting of density economics for low yield demand

„Bypassed Hubbing“

- Direct flights are offered in non-hub markets with sufficient market demand to operate frequently.
- Traffic flows with lower demand are served via a conventional hub airport

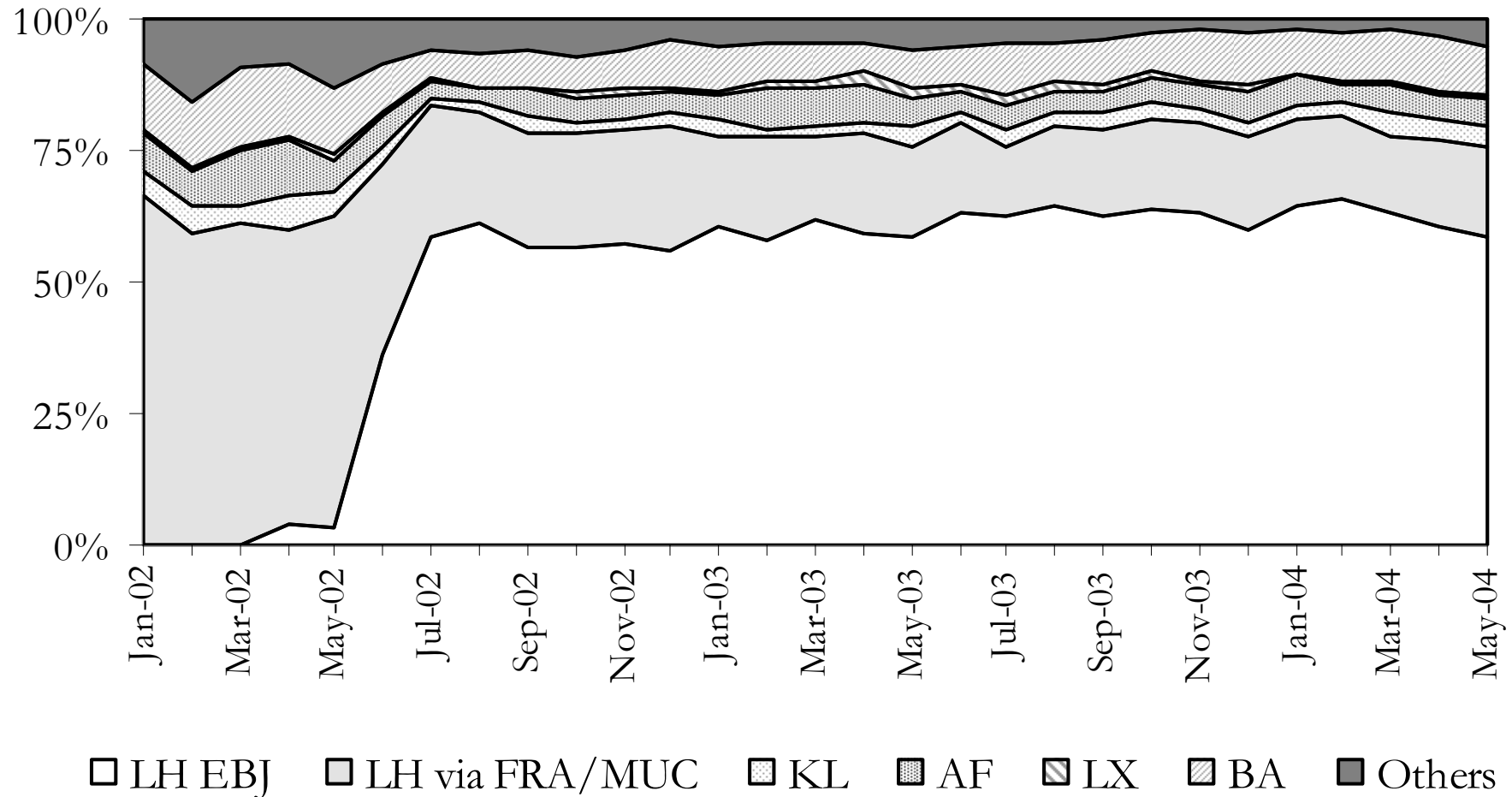


--- Business Class
— Economy Class

A direct flight can grab a major share of premium city-pair demand



Market shares for high yield demand on Düsseldorf-New York city-pair

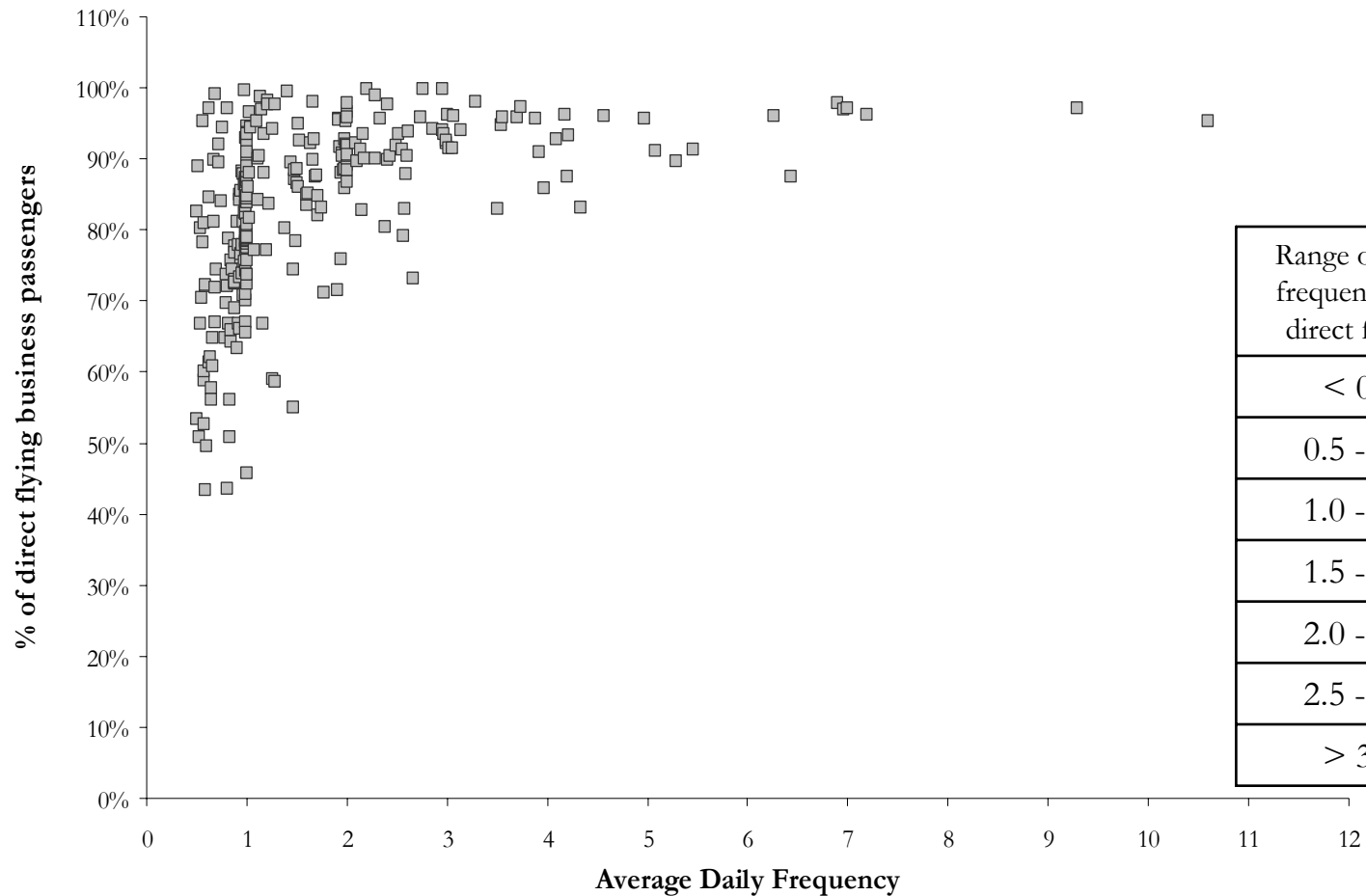


Source: MIDT, own calculations

With rising frequency less passengers travel via hubs



Percentage of direct travelling high yield demand compared to frequency



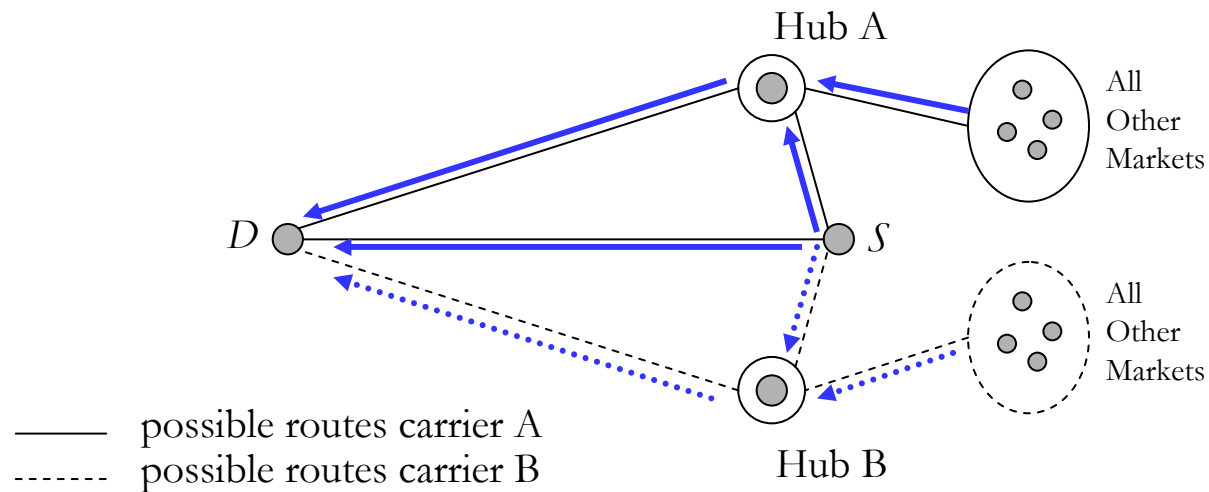
Range of daily frequencies of direct flights	Average % of premium direct travel
< 0.5	n/a
0.5 - 1.0	74%
1.0 - 1.5	84%
1.5 - 2.0	87%
2.0 - 2.5	92%
2.5 - 3.5	92%
> 3.5	93%

Source: MIDT, own calculations

Model



Setup and Assumptions



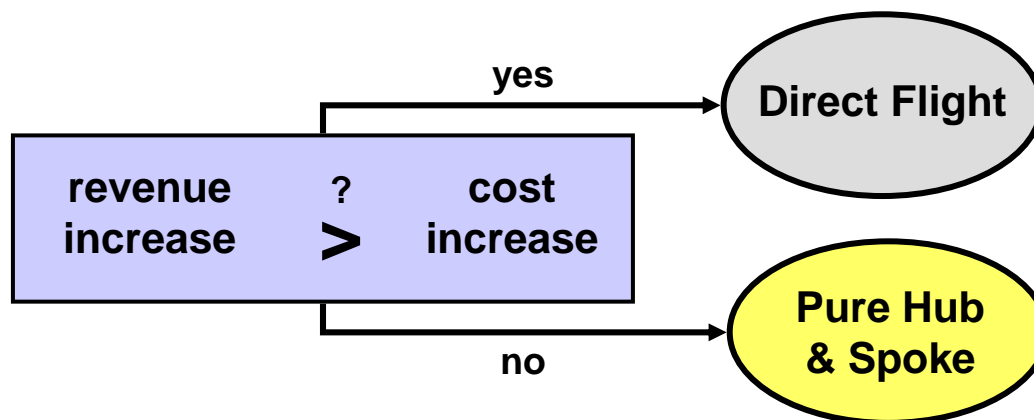
- A1: It is always cheaper to offer capacity via the hub due to economies of density
- A2: Some premium demand travels directly when a flight is available, the rest uses the hub connections
- A3: Low yield demand travels where the lowest price is available, else evenly distributes itself on the hub connections
- A4: Both airlines are symmetric, but only A can choose to operate the direct flight

Results



Parameter influence

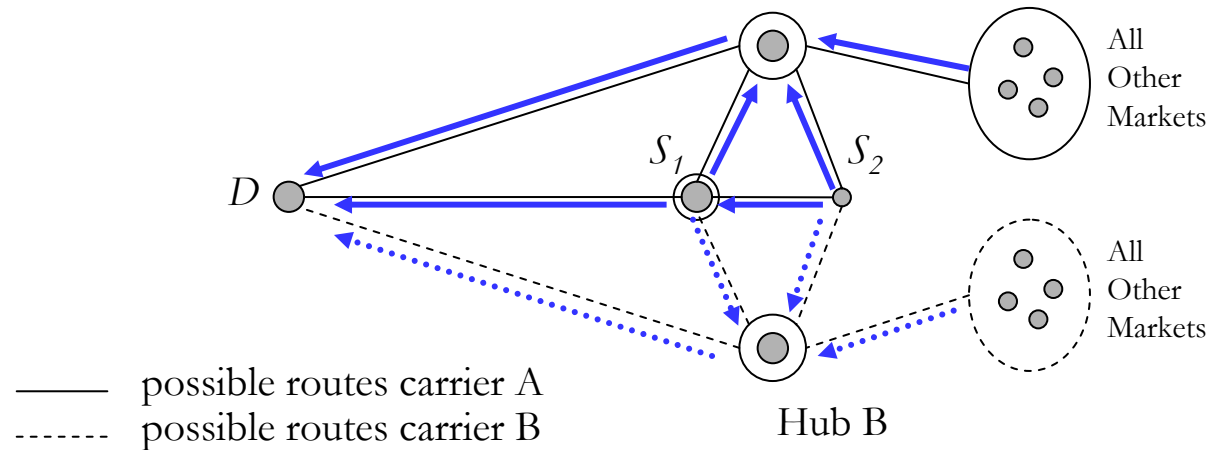
Pure hub & spoke networks are favoured by...		direct flights are favoured by...
high	density economics (C)	low
low	feeder costs (C)	high
low	preference for direct flights (R)	high
low	premium price level (R)	high
high	demand level (C)	low
low	# of competitors (R)	high



Profit maximising network configurations can be multi-hub networks



Setup and Assumptions



- A5: Minimum aircraft sizes exist = minimum demand > demand on S_1 -D
- Multiple hubs are always more cost intensive due to the loss in density economies
- If the additional revenue attracted by the direct flight can overcompensate these additional costs, the profit maximising network configuration can take the characteristics of a multi-hub network
- What about density economics?

Loss of density economics favour a primary/secondary hub strategy



- The size of possible secondary hubs is influenced by the degree of dependence between airline and its primary hub airport
- Primary airports -especially hub airports- have monopoly power, which often relates to higher costs.
- The higher the costs for the hub airline at its primary hub, the higher the probability that it will follow a strategy of equitable hubs
 - Competition between hubs leads to lower overall costs which can outweigh lower costs through density economics.
- When costs are similar at all airports, the airline should follow a primary / secondary hub strategy
 - Maximisation of density economics
 - Lower costs through density economics will outweigh lower costs of the potential secondary hub
 - Polar Case: Non-hub intercontinental connections to serve specific local demand, single hub to transport all connecting traffic.

Overall implications due to consolidation



Conclusion

- The future of operations in cities like VIE, ZRH, MIL, FCO, CPH, MAD and AMS will be largely dependent on the size of **local high yield demand** and the **degree of preference for direct flights**
 - High preference for direct flights will generally favour long haul flights
 - Low demand will lead to the abolition of long haul routes
 - Medium demand will lead to minor hub activities to operate long haul routes
 - High demand will ensure long haul direct flights, but without hubbing
- Based on our results we expect a reduction in long haul direct capacity when compared to the status quo out of current secondary hubs.
- With demand growth we expect new non-hub direct long haul routes to be established



Conclusion

- The large catchment in Amsterdam will always secure a certain number of direct short and long haul flights
- The large catchment also implies that a high degree of hubbing is not necessary
- The future of active hubbing operations will be determined by AF/KLM, and will be largely influenced by possible cost advantages of AMS vs. CDG
- If active hubbing should decline AMS can follow to non-exclusive strategies
 - Focus on local premium traffic
 - Create own feeder traffic
 - by improving accessibility to the airport
 - by lowering costs to attract LCCs, which can lead to an increase in passive hubbing
- To maximise the amount of direct flights, the Netherlands should give seventh freedom rights to the other European major carriers, as new local players will lack the size and financial backing to endure vs. AF/KLM.