

Airport capacity expansion strategies in the era of airline multihub networks

Guillaume Burghouwt
Head of section aviation economics
Director Airneth

g.burghouwt@seo.nl
www.airneth.nl; www.seo.nl

www.seo.nl - secretariaat@seo.nl - +31 20 525 1630

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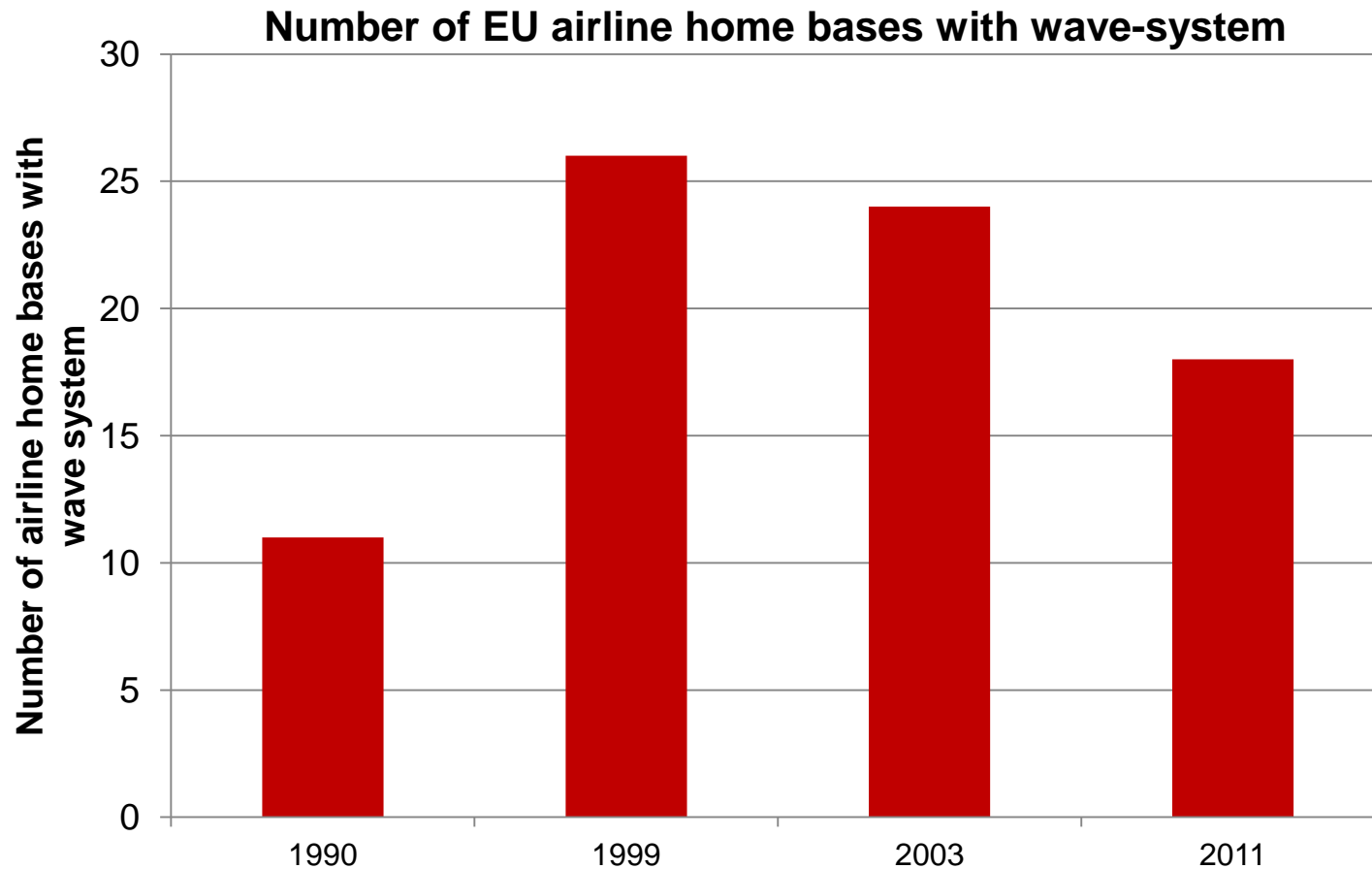
Outline

- **Hubbing in Europe**
- **Hubs are factories to create route density**
- **Hubs are factories to create connectivity**
- **The rise of multihub networks**
- **Specialization in multihub networks**
- **Implications for airport capacity expansion strategies**

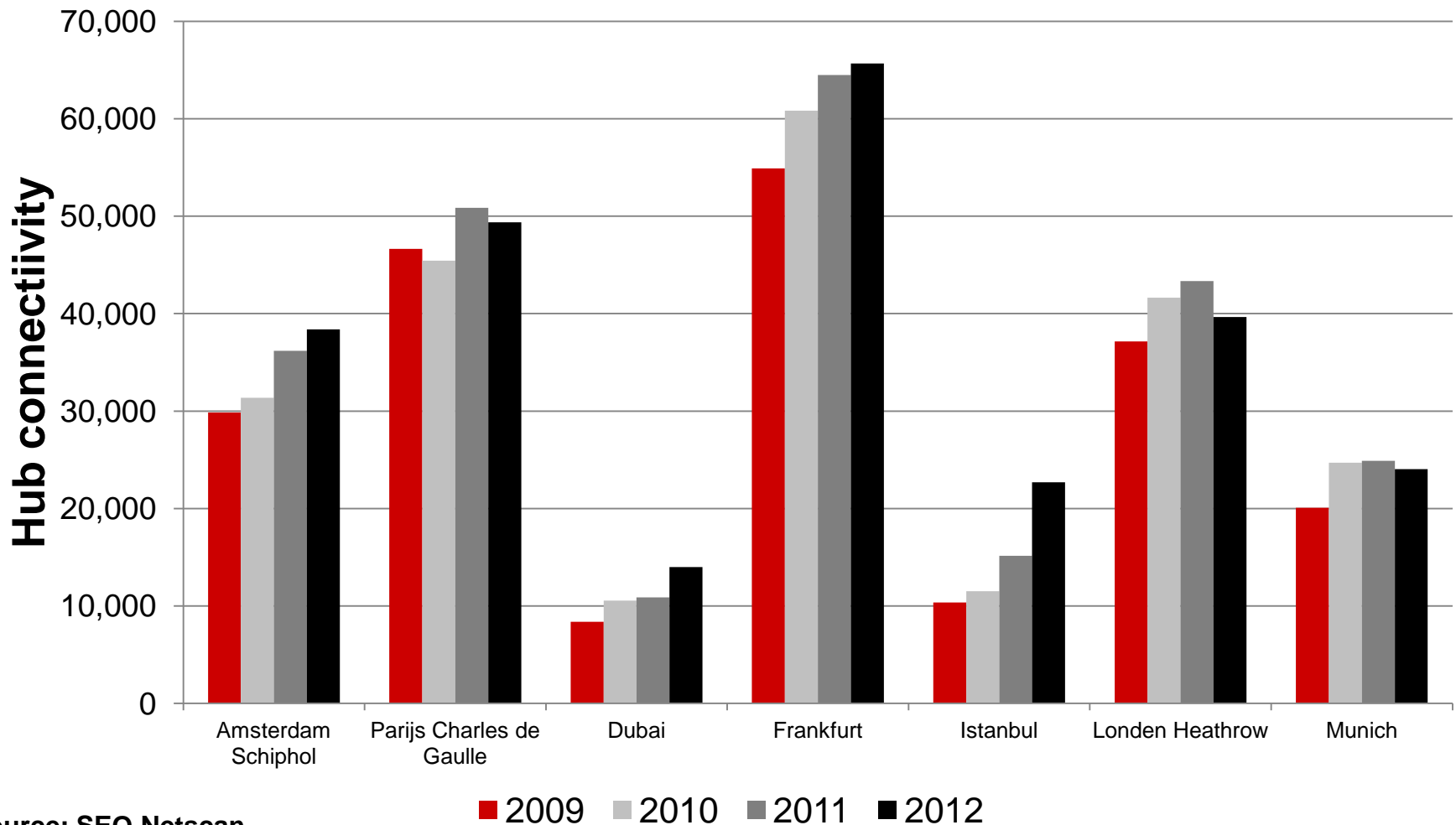
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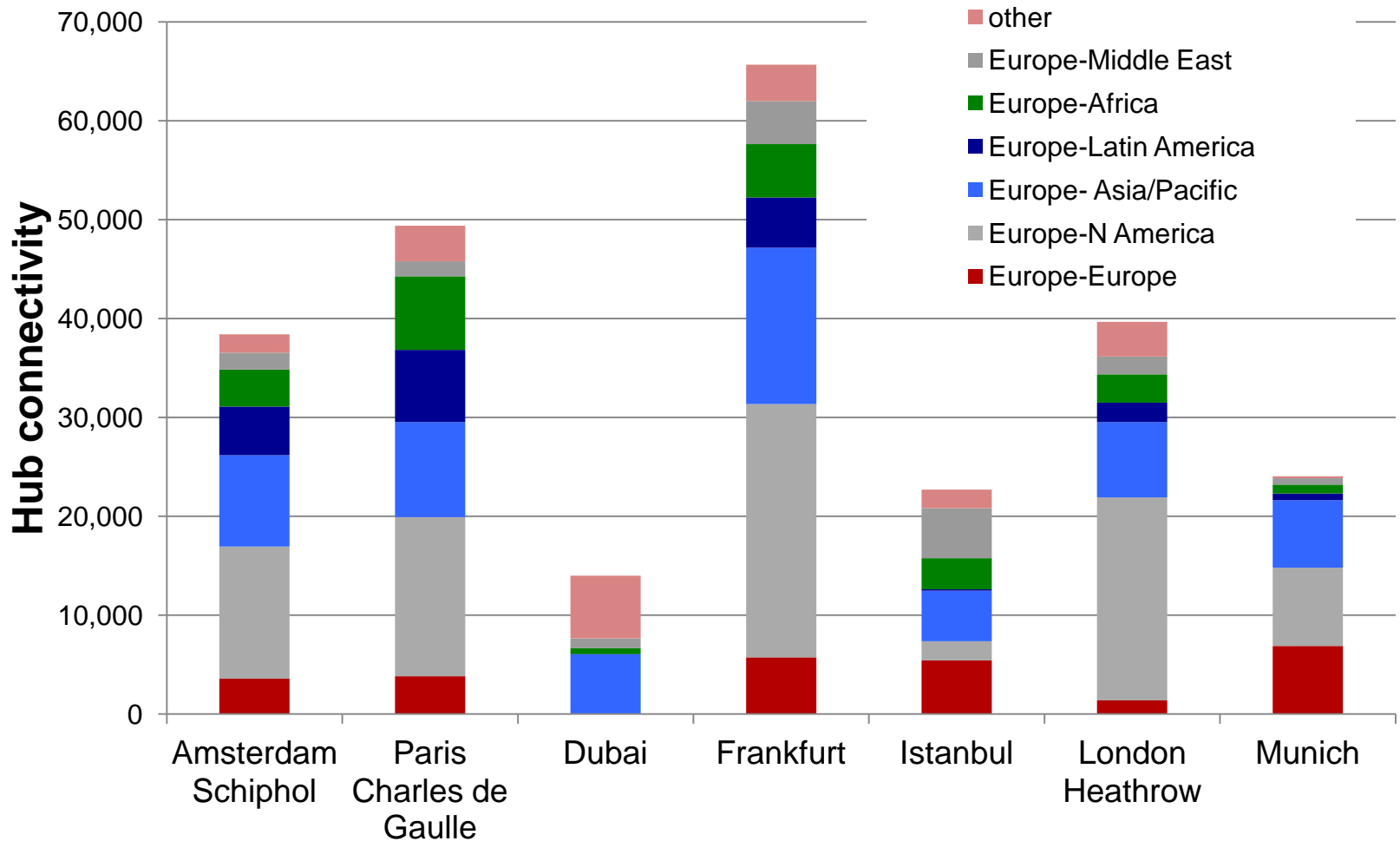
EU liberalization resulted in adoption and intensification of airline hub-and-spoke networks



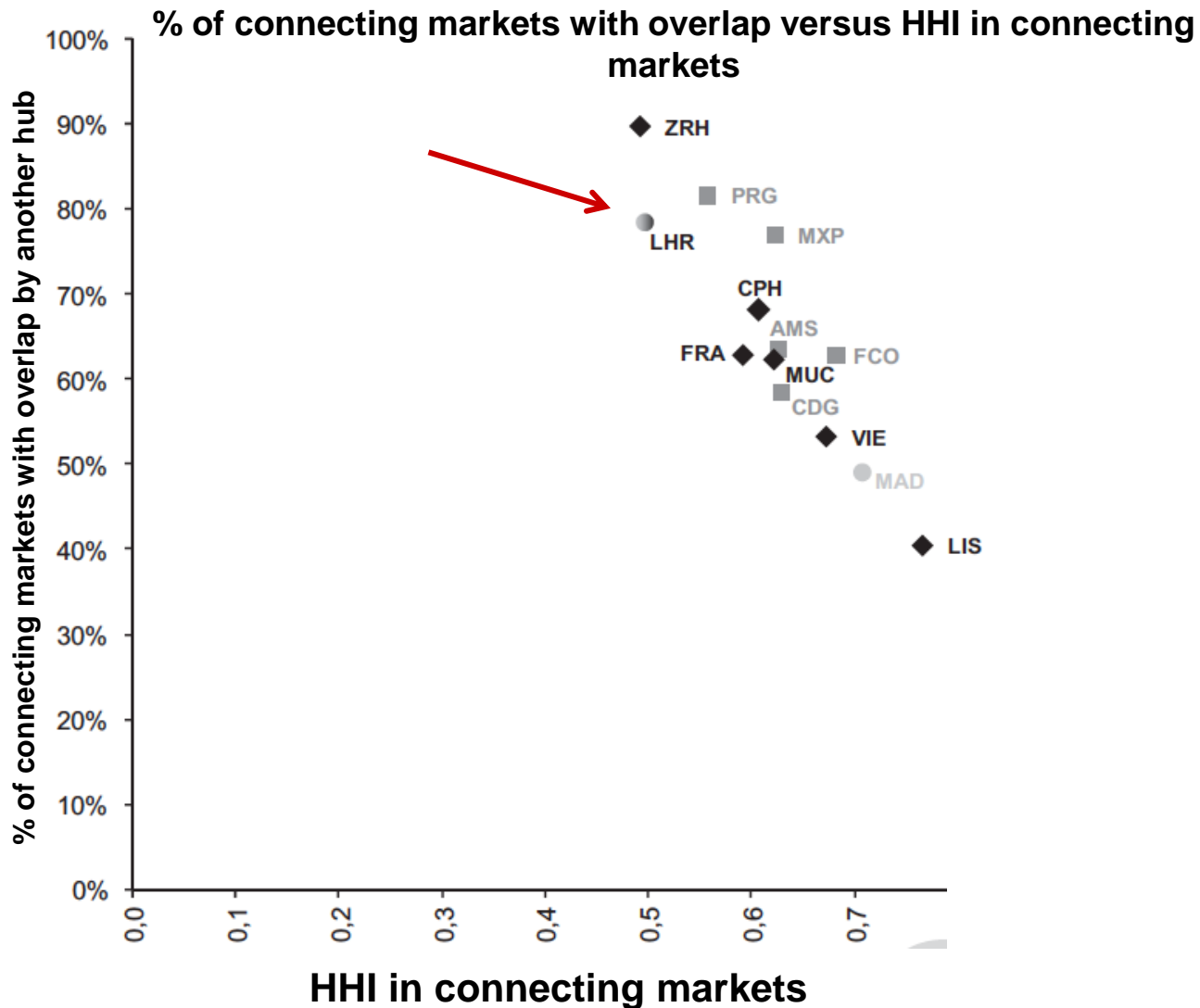
Istanbul, Dubai, Frankfurt and Amsterdam on the rise; Heathrow and Paris stagnating



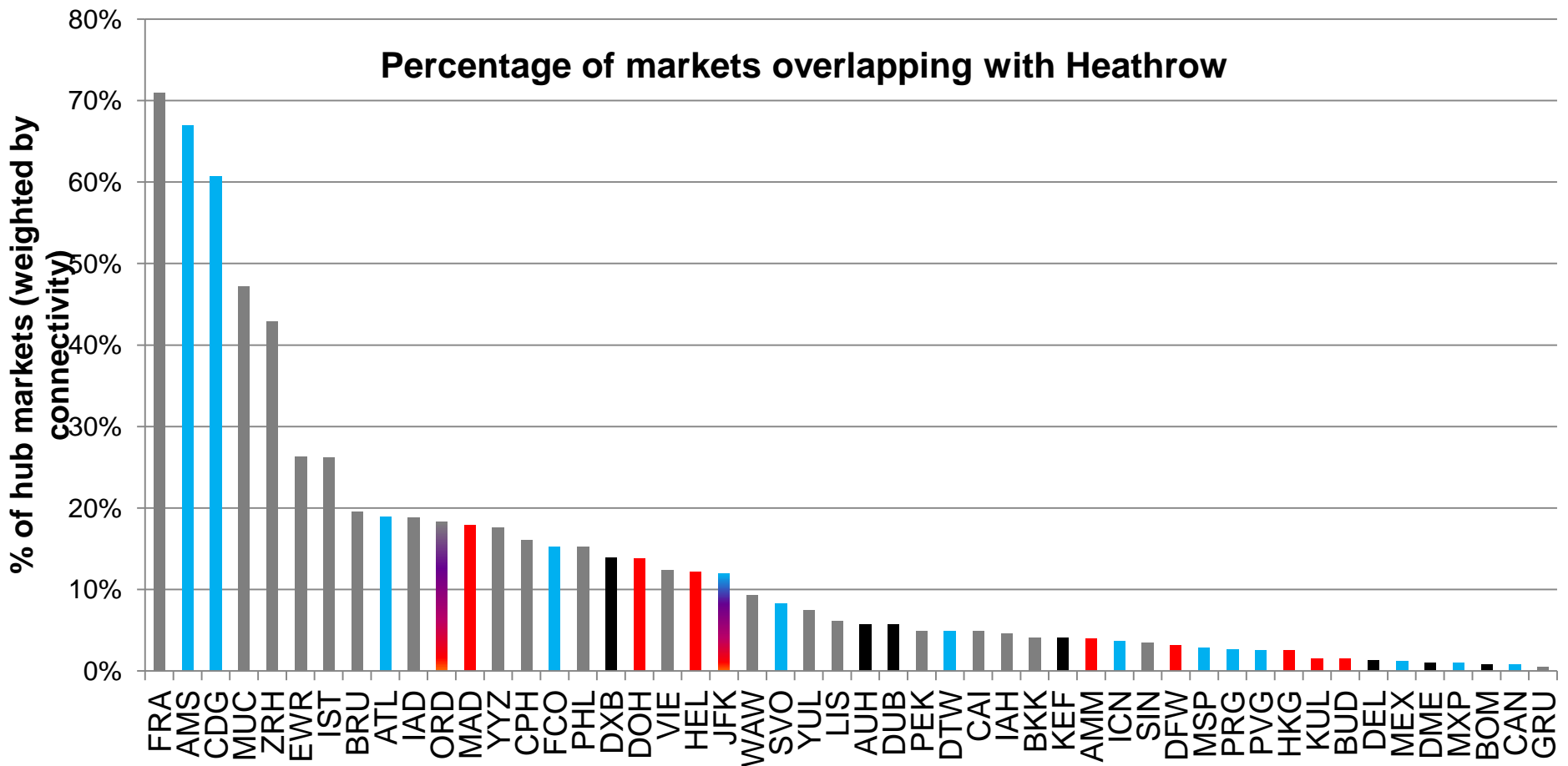
Geographical specialization



Heathrow one of the European hubs with most overlap in the connecting market



Competition in the connecting market of Heathrow: many substitutes

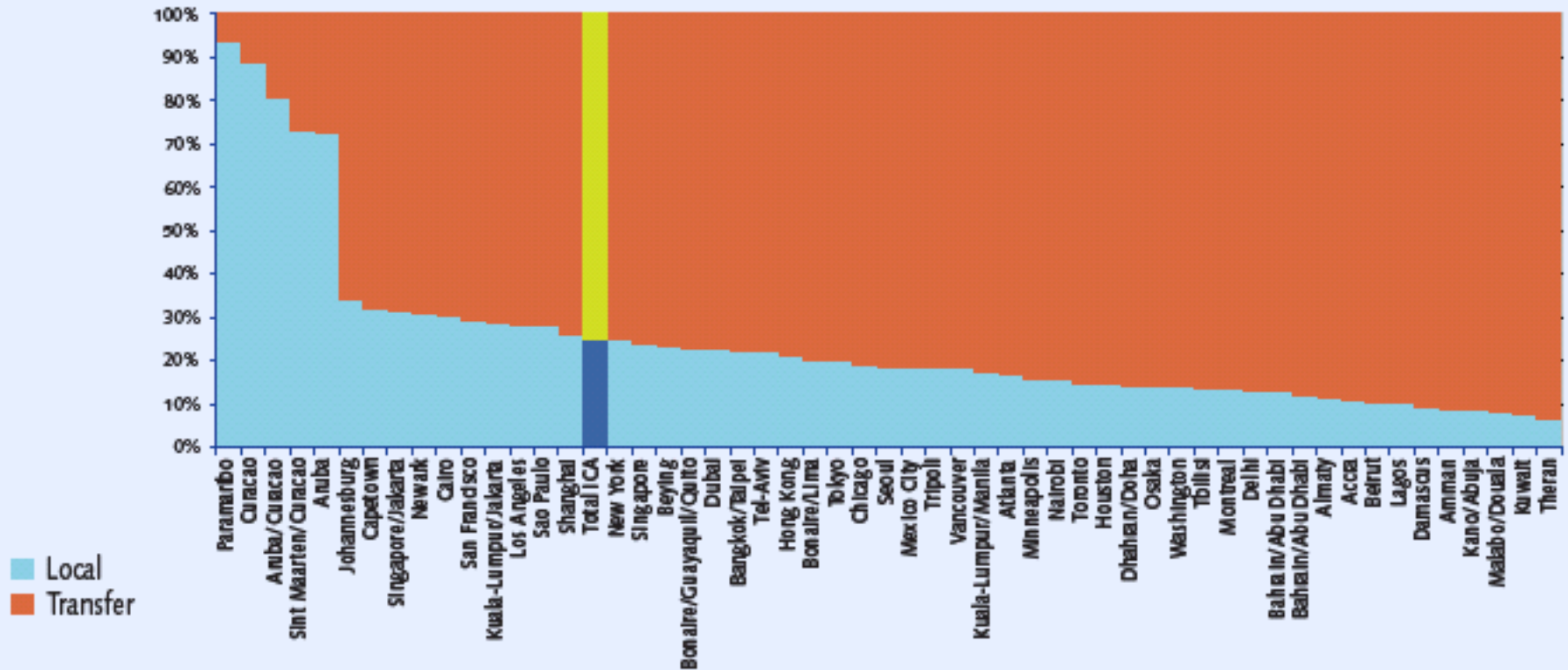


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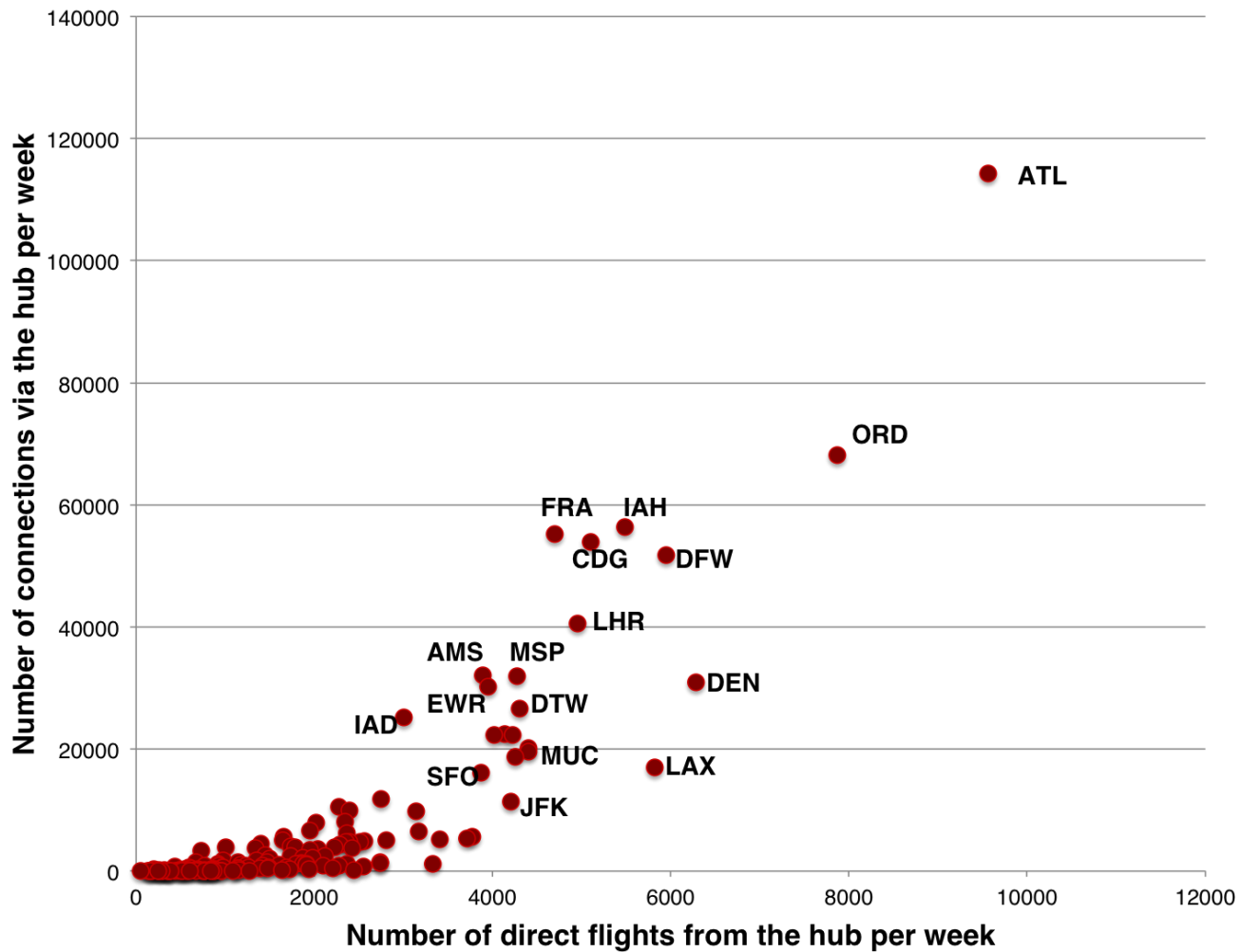
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Hubs are factories to create route density

% of local versus transfer traffic at intercontinental KLM routes



..and they produce more with every direct flight added: the multiplier effect of hubbing

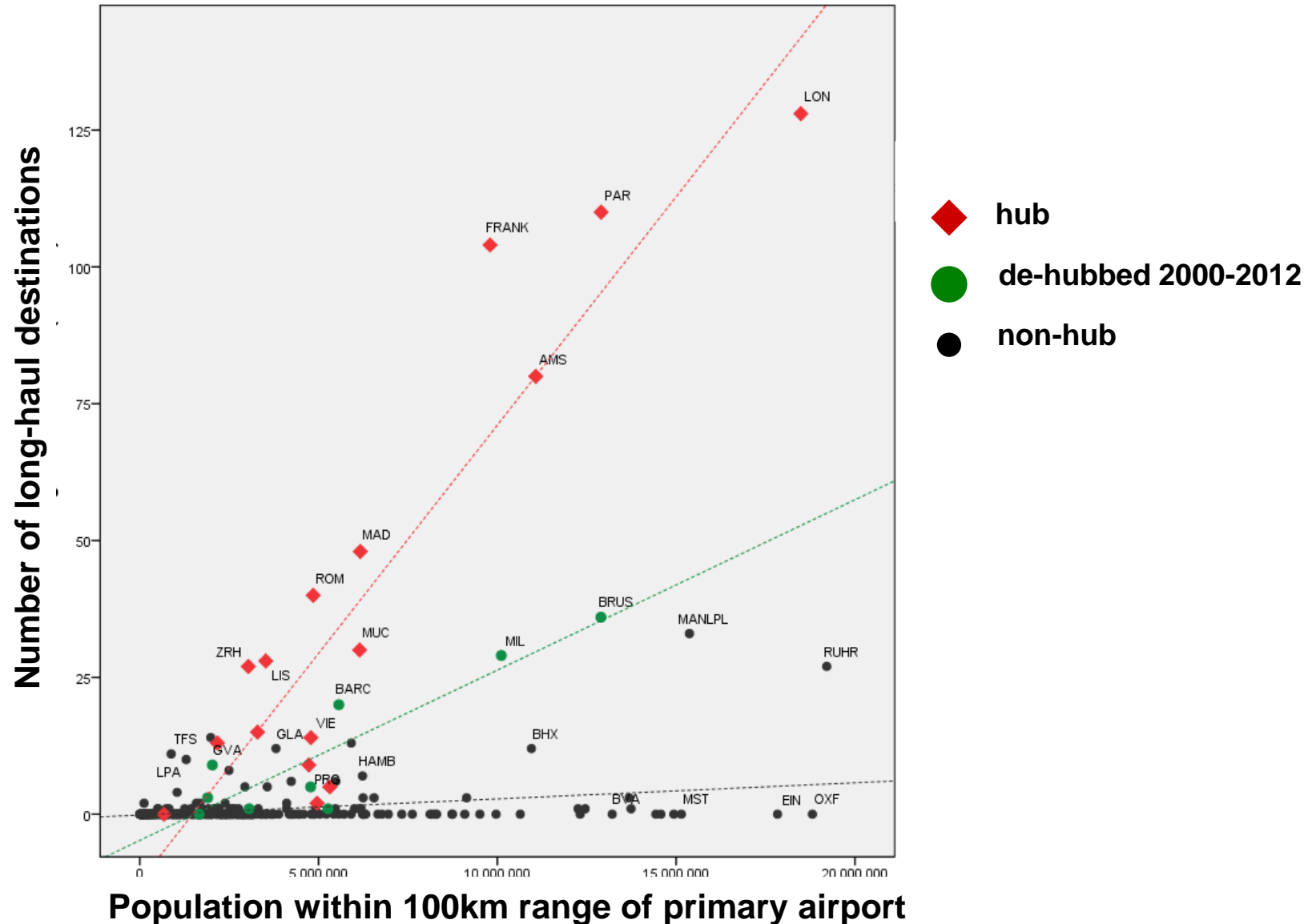


Source: SEO Netscan; OAG (2009)

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Hubs are factories to create long-haul connectivity for European metropolitan regions



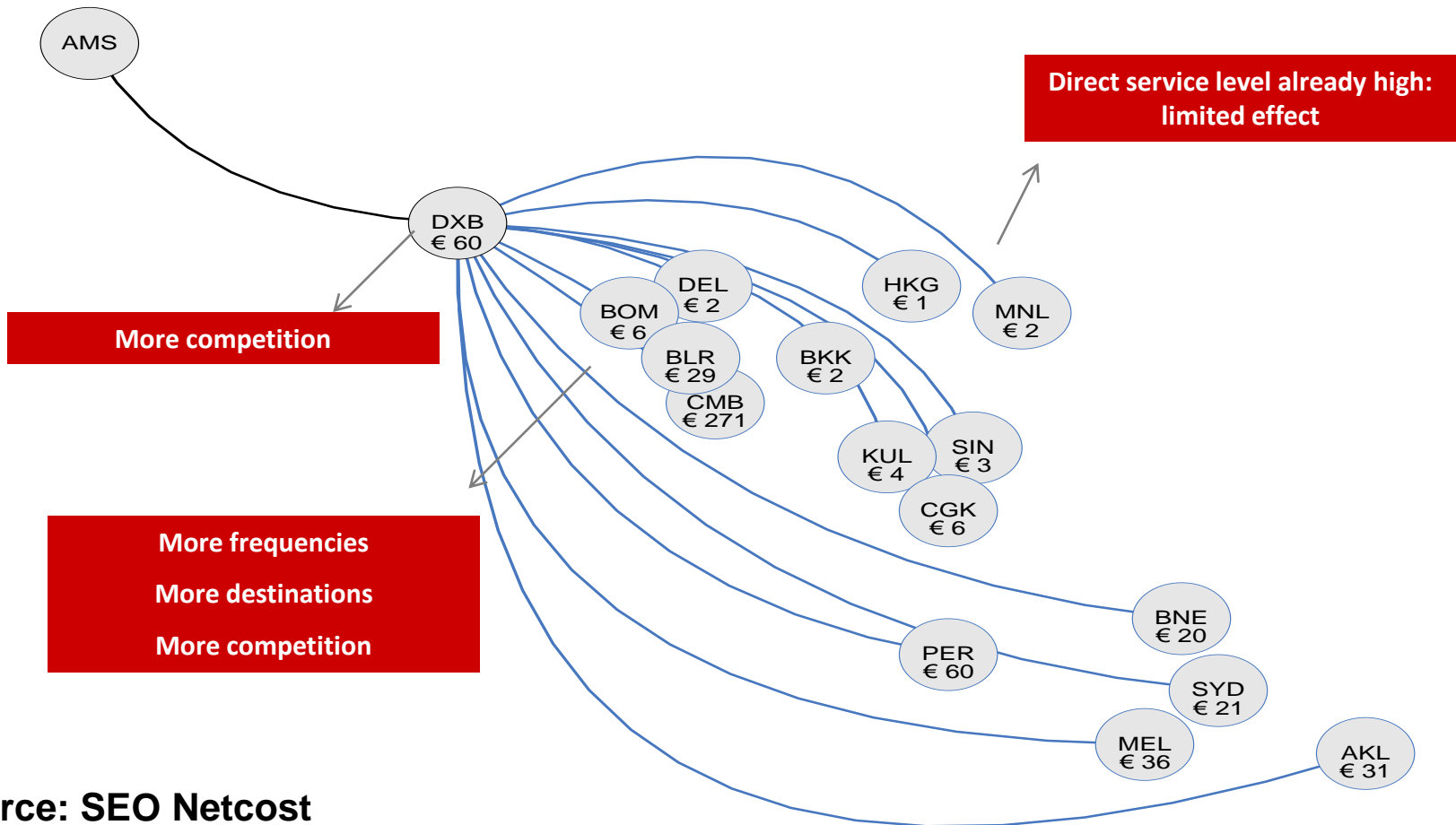
Benefits of hubbing for metropolitan areas

- **Direct connections reduce travel costs for consumers: more direct flights, shorter travel times, higher frequencies**
- **These benefits “ripple” through rest of economy, e.g. agglomeration effects, inbound tourism**
- **Regional-economic benefits**

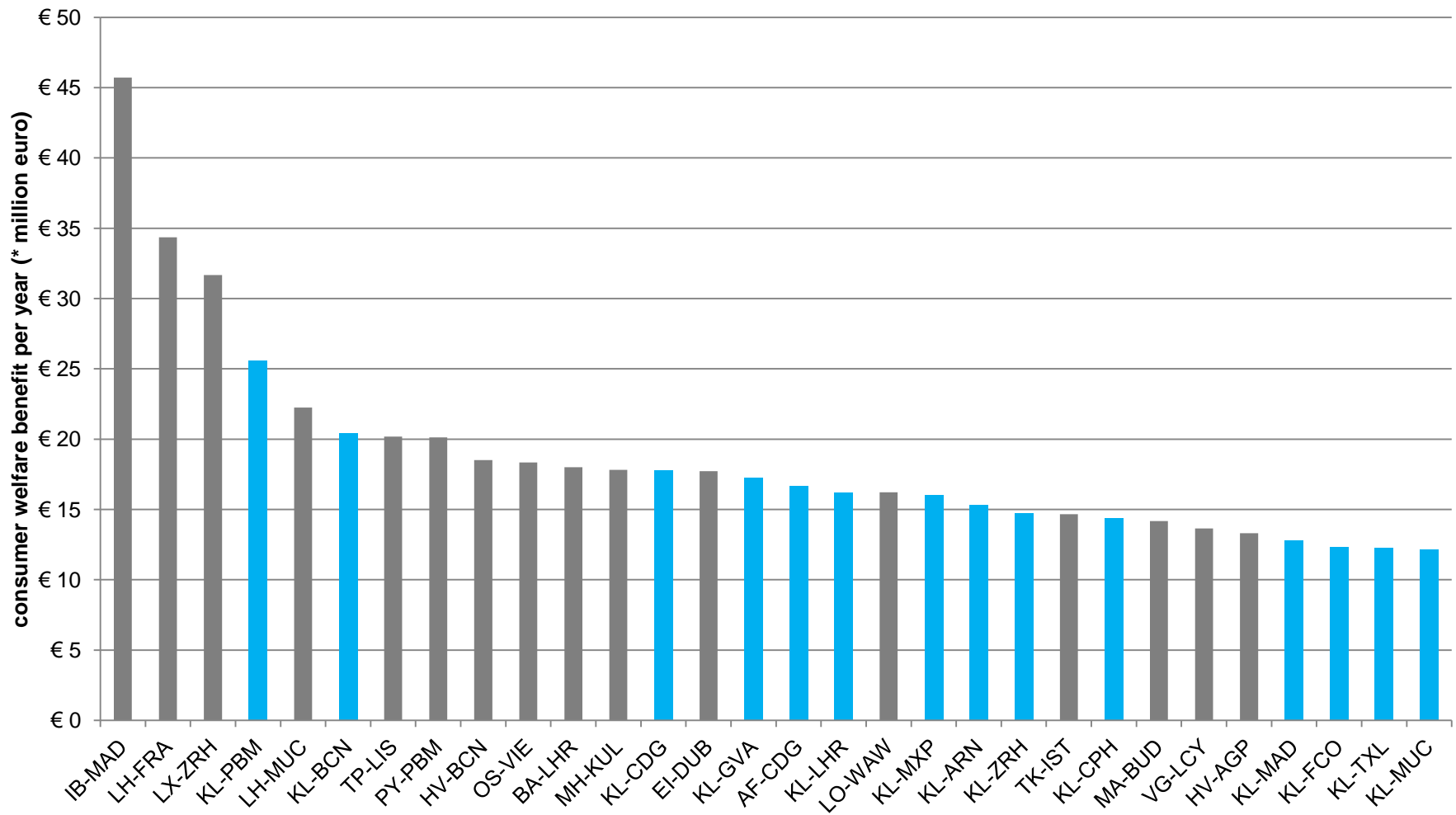
- **Bel & Fageda: 10% increase in the number of direct intercontinental flights at European airports leads to a 4% increase in international headquarters**
- **Vinciguerra et al: significant relationship between connectivity and R&D activities in European regions**
- **Frontier Economics: relationship between trade and direct connectivity to emerging economies**
- **.....**

But it is not only about direct flights and the home-based hub carrier: visiting network carriers important as well

Consumer benefits per passengers of Emirates entering the AMS-DXB market



Consumer welfare benefits per year (mln euro) of direct routes at Amsterdam



What makes a good hub airport attractive?

- **Central geographical location vis-à-vis the most important traffic flows and feeder airports**
- **Peak-hour capacity to facilitate an efficient wave-system structure of the hub airline**
- **Strong hub carrier being part of a global airline alliance**
- **Availability of traffic rights (market access)**
- **Short Minimum Connecting Time**
- **One terminal concept**
- **Competitive visit costs**
- **Good landside accessibility**
- **Available options for future growth**
- **Airport amenities**

Becoming a hub is not easy; losing a hub is irreversible, at least in the short run

- **Path dependency**
 - Airline add new flights to existing hubs rather than new ones
 - Air transport agreements favour existing hubs
 - Few airports have sufficient capacity for a substantial hub operation
- **Dehubbing:**
 - Redondi et al. (2010):
 - De-hubbed airports do not recover original traffic within 5 years time
 - De-hubbing likely to be irreversible
 - Tan (2012):
 - Average air fares increase after legacy carrier de-hubs an airport

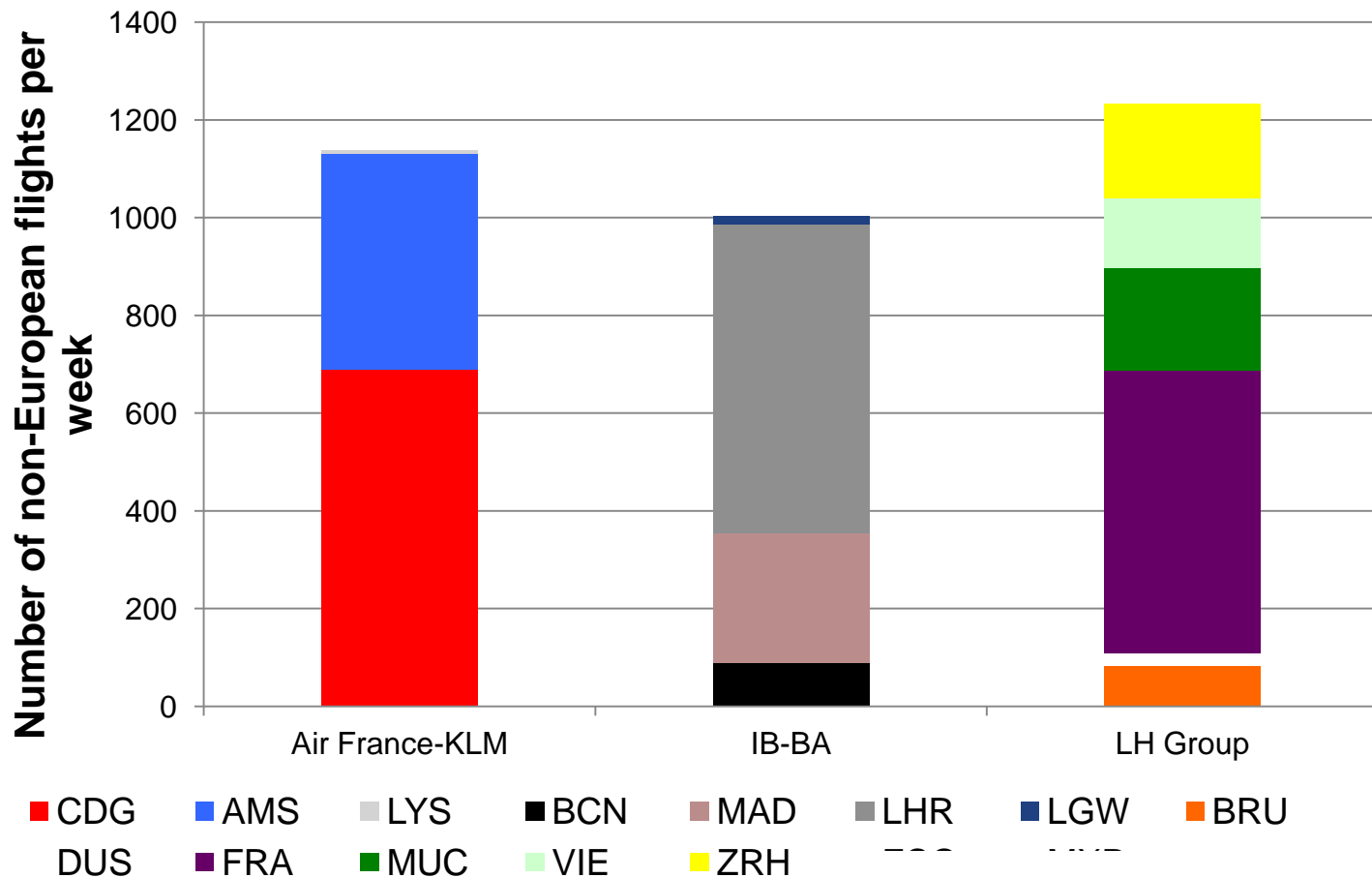
The airline hub graveyard

Airport	Airline	Year of dehubbing
Montreal Mirabel/Dorval	Air Canada	1980s
Kansas City Int. Airport	TWA	1982
Denver	Continental	1994
Nashville	American	1995
San Jose	American	1995
Raleigh-D.	American	1996
Gatwick	BA	2000
Brussels	Sabena	2001 (restart 2010)
Basle	Swissair/Swiss	2001
Nice	Air Littoral	2001
Raleigh-D.	Midway	2001
Baltimore	US Airways	2001
Zurich	Swissair	2001 (restart 2002)
Pittsburgh	US Airways	2003
Clermont-F.	Air France	2004
Miami	Iberia	2004
Barcelona	Iberia	2006
Milan MXP	Alitalia	2008
Athens	Olympic	2009
Copenhagen	SAS	2001-2008
St. Louis	TWA/AA	2001-2010
Barcelona	Spanair	2012
Budapest	Málev	2012

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Three major multihub airline networks in Europe



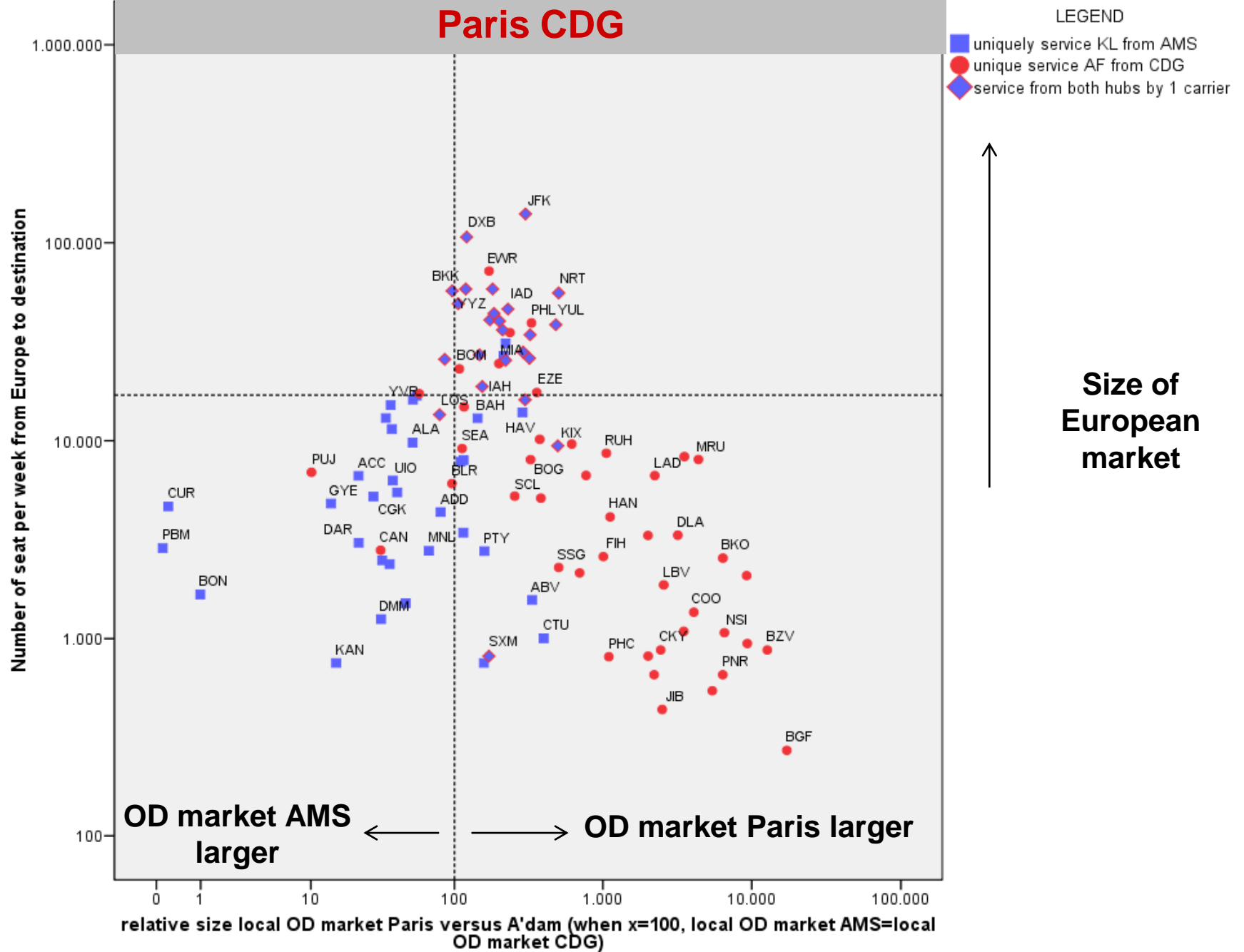
Single hub solution generally to be preferred. So why do airlines operate multihub networks?

- 1. Capacity shortages at the primary hub**
- 2. Bilateral constraints and aviation law**
- 3. Spatial coverage and market access**
- 4. Level of demand**
- 5. Frequency game**
- 6. Strategic positioning and entry deterrence**
- 7. Better aircraft utilization**
- 8. Unions**
- 9. Path dependency**

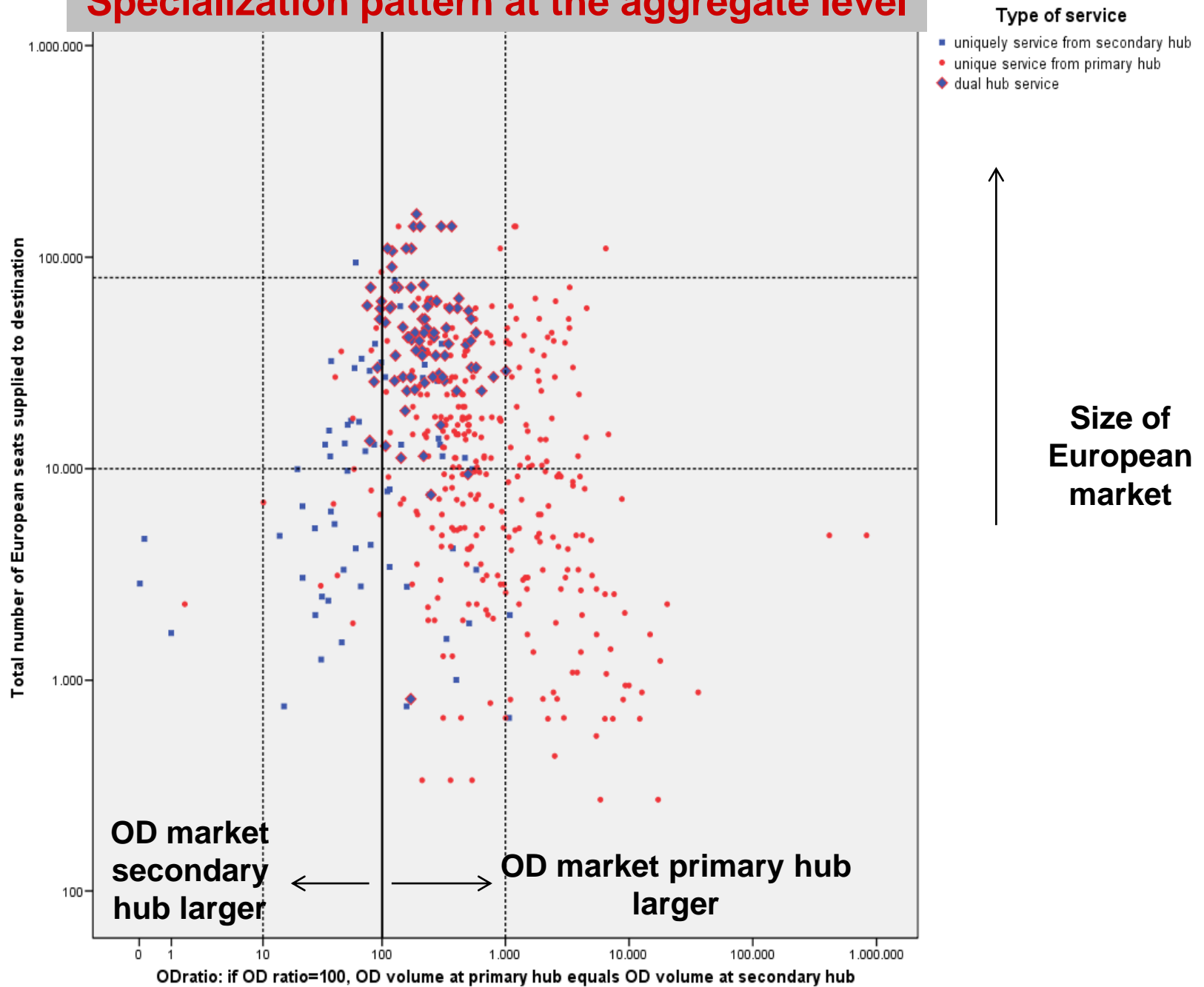
Multihub specialization

- **Large destinations served from multiple hubs**
- **Small destinations: unique service from single hub**
- **Relative size of the O&D market important for choice for primary or secondary hub service on small destinations**
- **Other variables:**
 - **Size of premium markets**
 - **Size of the European feeder network**
 - **Capacity**
 - **Bilaterals**
 - **Competition level**
 - **Service level by alliance partners**
 - **Location of the hub**

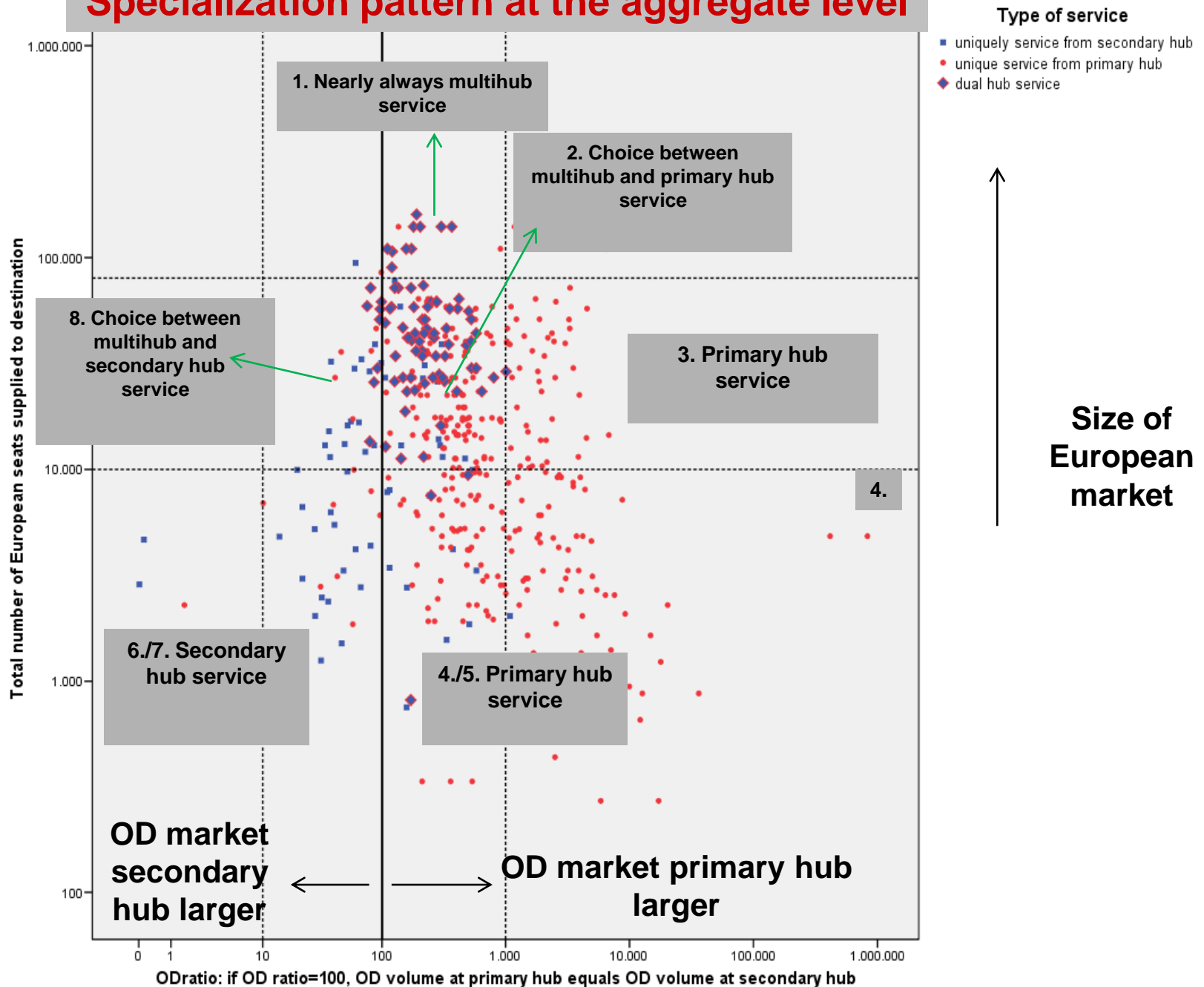
Specialization pattern Amsterdam versus Paris CDG



Specialization pattern at the aggregate level



Specialization pattern at the aggregate level



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Implications for capacity expansion strategies

- **Split hub operations result in connectivity loss**
- **Hub operation less important for short-haul connectivity than for long-haul connectivity**
- **Without capacity expansions, LHR hub will have few opportunities for operating in unique long-haul markets (with higher yields)**
- **Large local market makes London preferred hub in any multihub airline network**
 - **Except for markets where secondary hub benefits from geographical location and unique O&D demand**

Implications for capacity expansion strategies (cont.)

- **Second hub carrier?**
 - **Vast and high-yield London market one of few European metropolitan areas that could support two substantial hub operations**
- **Optimizing airport capacity use through a “selectivity policy”**
 - **Demand management measures**
 - **Experiences in the Netherlands: prioritization of network segments:**
 1. Hub operation
 2. Long-haul business
 3. Short-haul business
 4. Cargo
 5. Point-to-point/leisure
- **The risk of sticky airlines when ‘old’ airport is kept open**