



## Networks in the Airline Environment

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Vice President Mainport Strategy KLM

# Meet the KLM Group

>200 destinations  
(139 by KLM)

KLM Group and partners SPL (S15)

251.000 aircraft movements at Schiphol in 2015

KLM Group 2015

67% transfer  
52.000 connections

S15 (good+exc, 2-way, p.w.)

No 3 private employer in NL (in FTE)

2014

32.9 mln passengers  
656 kiloton cargo

KLM Group at SPL 2015

5 joint ventures  
38 codeshare partners  
4900 flts/day  
646 destinations

KLM-S15

€ 9.6 bln net turn over

2014

Nr 1 Dow Jones Sustainability Index (Sector Airlines)

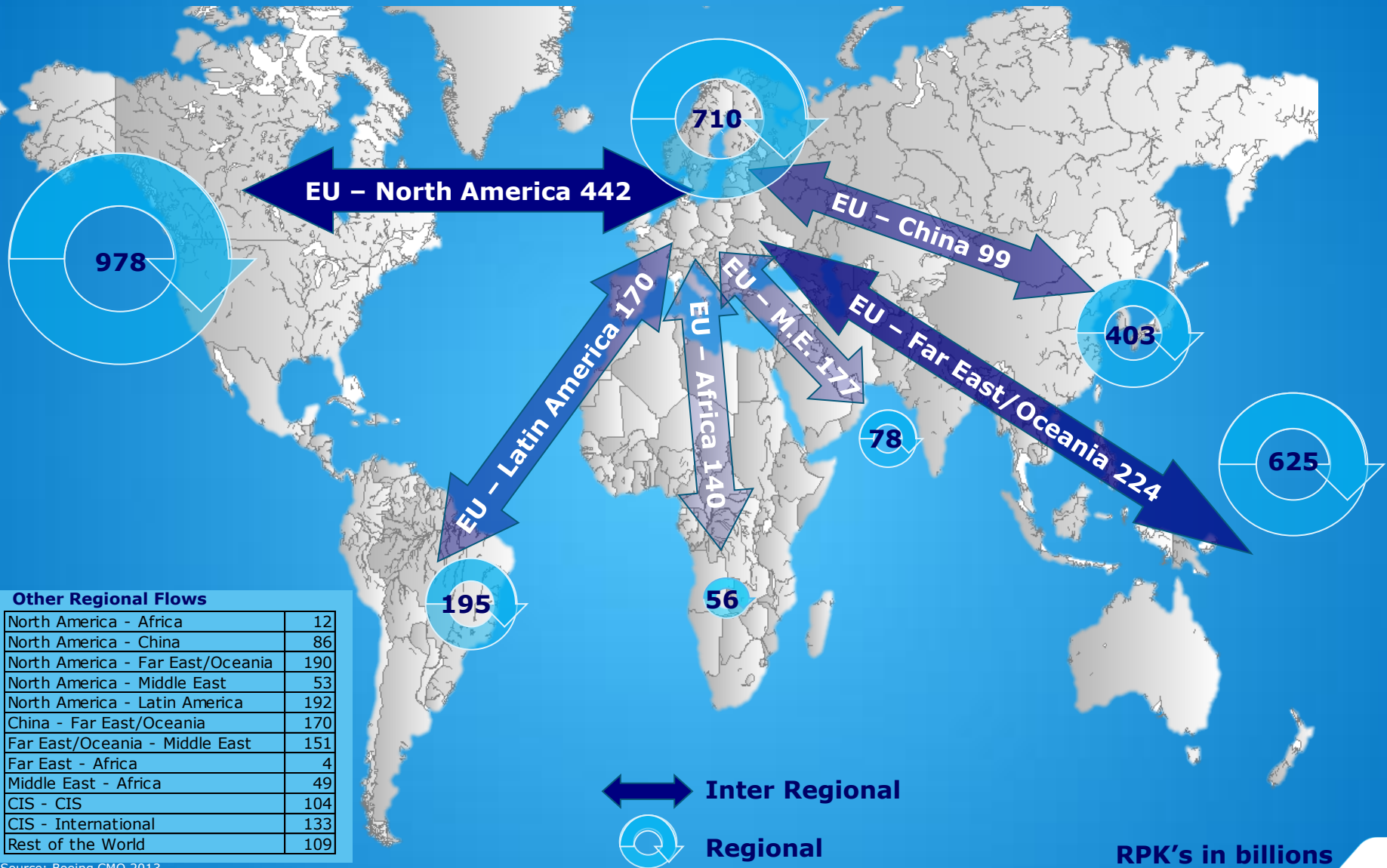
2005-2015

Aviation NL

€ 26 bln  
290.000 jobs

Source: McKinsey/BCG 2011

# Passenger traffic per continent



## Other Regional Flows

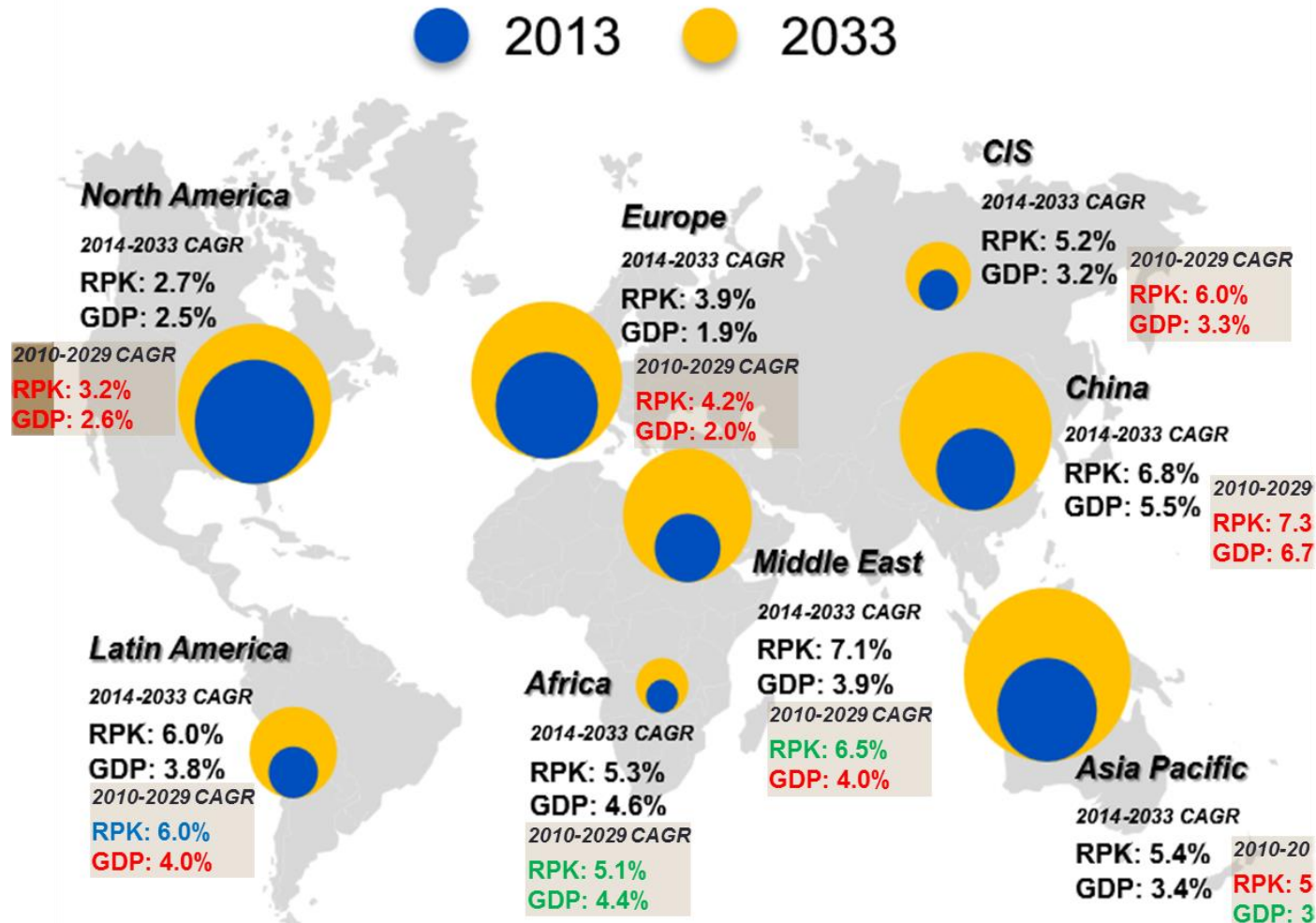
North America - Africa	12
North America - China	86
North America - Far East/Oceania	190
North America - Middle East	53
North America - Latin America	192
China - Far East/Oceania	170
Far East/Oceania - Middle East	151
Far East - Africa	4
Middle East - Africa	49
CIS - CIS	104
CIS - International	133
Rest of the World	109

Source: Boeing CMO 2013

RPK's in billions

# Relationship between GDP and RPK

Most areas have a downward adjusted prognosis



Bron: Global Insight

# Mainports important for economy and a world wide connectivity

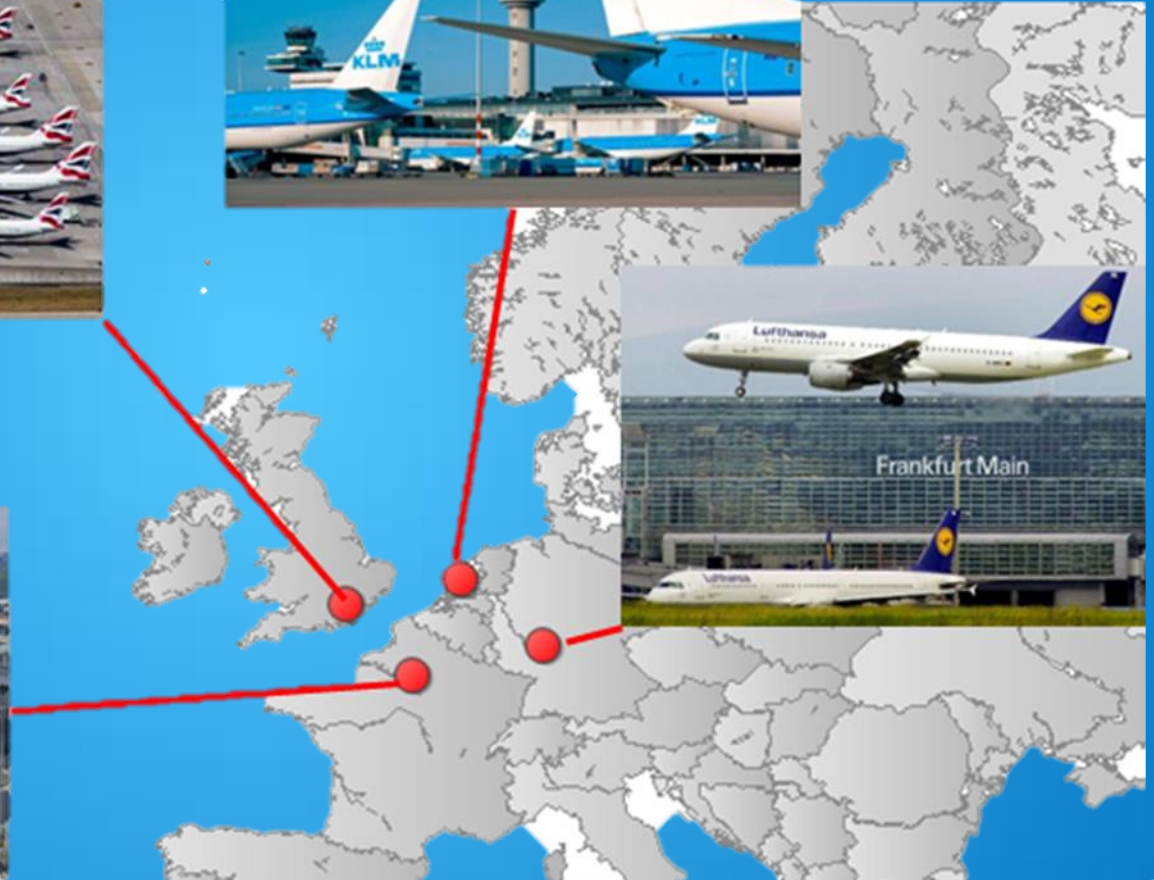
The central map illustrates the Netherlands' role as a global hub. The orange highlight and arrows indicate its extensive international connectivity. The surrounding images represent key aspects of the Dutch economy and infrastructure:

- Topsectoren:** A pie chart showing the diverse economic sectors of the Netherlands.
- Coat of Arms:** The official emblem of the Netherlands, symbolizing its national identity.
- Port Infrastructure:** An image of a busy port with large cranes and cargo ships, highlighting the Netherlands' status as a major maritime hub.
- Air Transport:** A KLM airplane on a runway, representing the country's global aviation network.
- Urban Environment:** A man in a suit walking in a modern city, symbolizing the Dutch economic and professional landscape.
- International Relations:** A row of flags, including the European Union flag, representing the Netherlands' integration into global and regional markets.
- Financial Sector:** A stack of Euro coins and a Dutch flag, indicating the country's strong financial and economic ties.

✘ Gemeente  
✘ Amsterdam  
✘



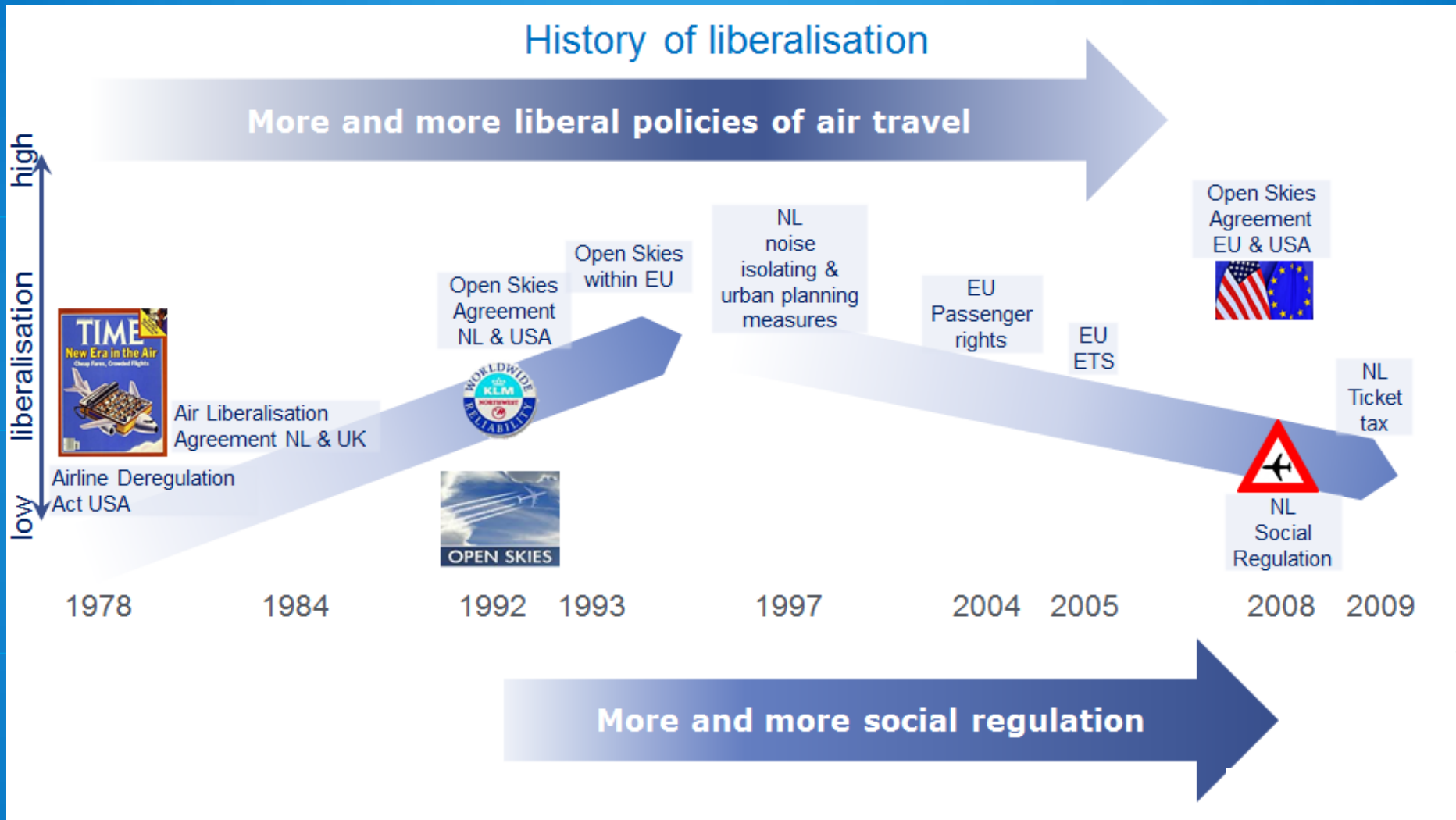
# Competition on a broader view



# Competition on a broader view

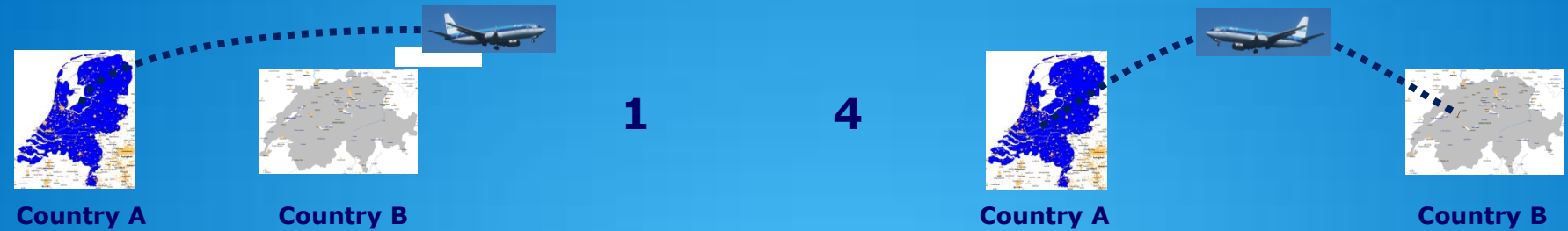


# Freedoms of the Air



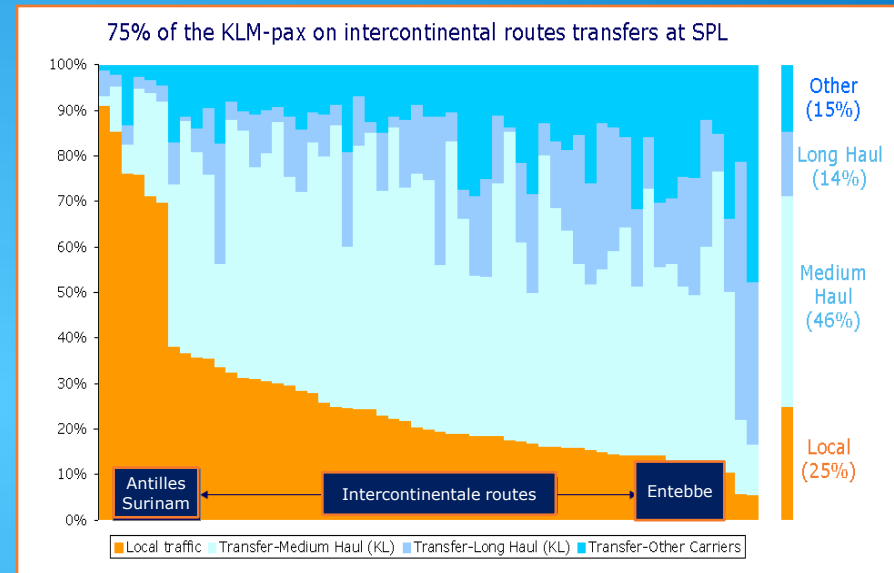
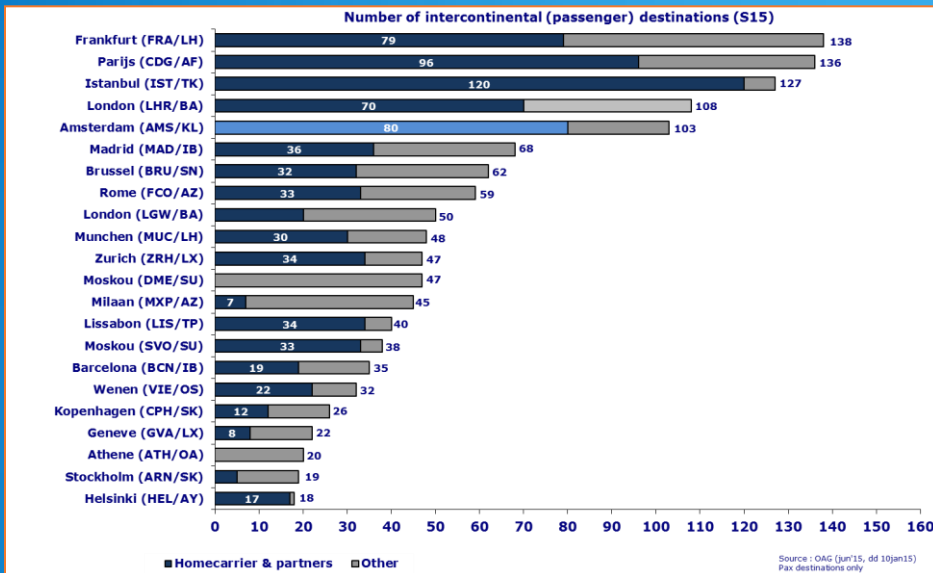


# Freedom of the Air



1. The right to overfly another country
2. The right to make a non-commercial landing (fueling, etc.)
3. The right to carry passengers and cargo from country A to country B
4. The right to carry passengers and cargo from country B to country A
5. The right to carry passengers and cargo between different countries (B & C)
6. The right to carry passengers and cargo from country B via country A to country C
7. The right to carry passengers and cargo within another country (Cabotage)

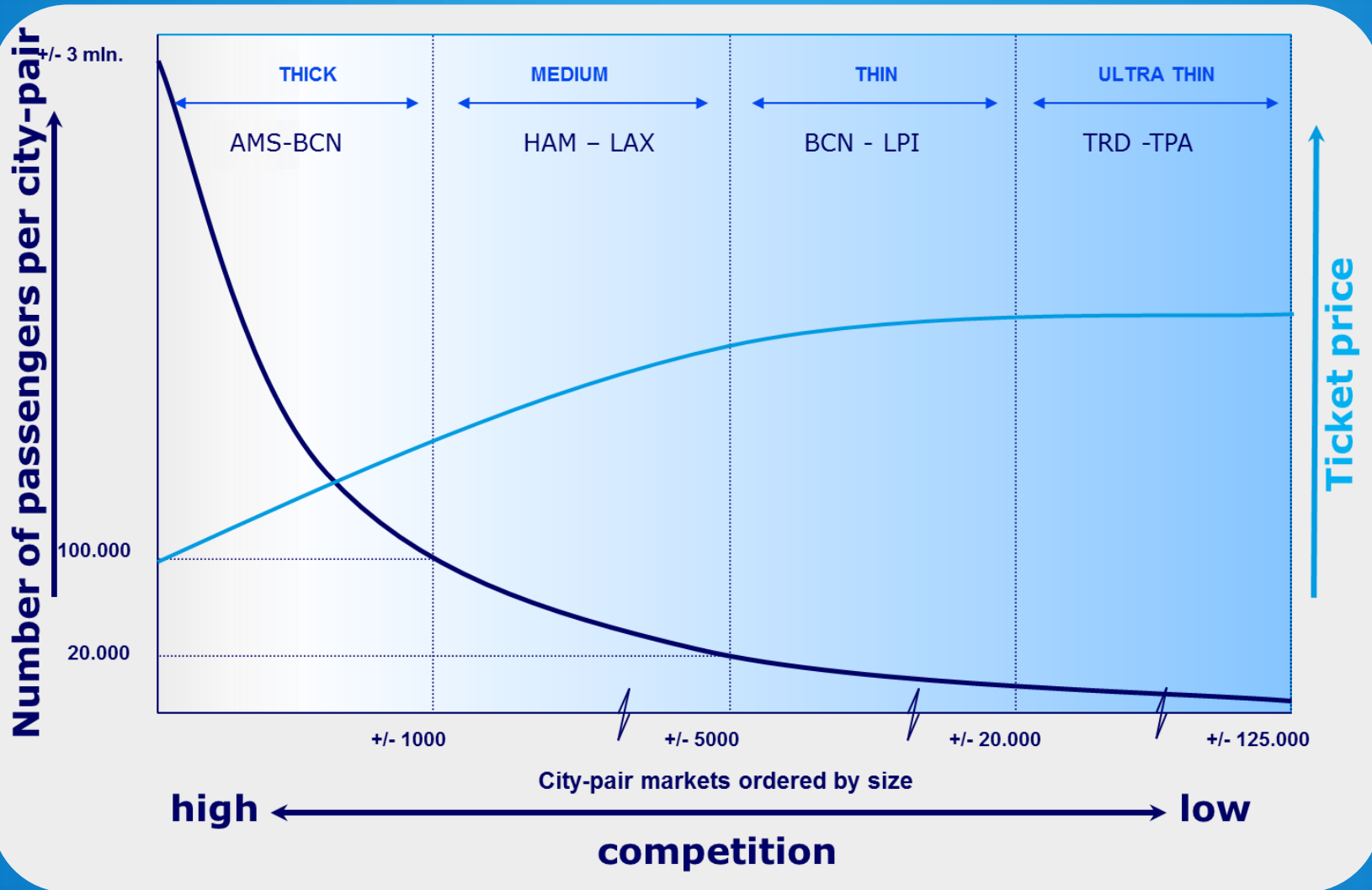
# World wide portfolio only possible by transfer traffic and a well tuned network



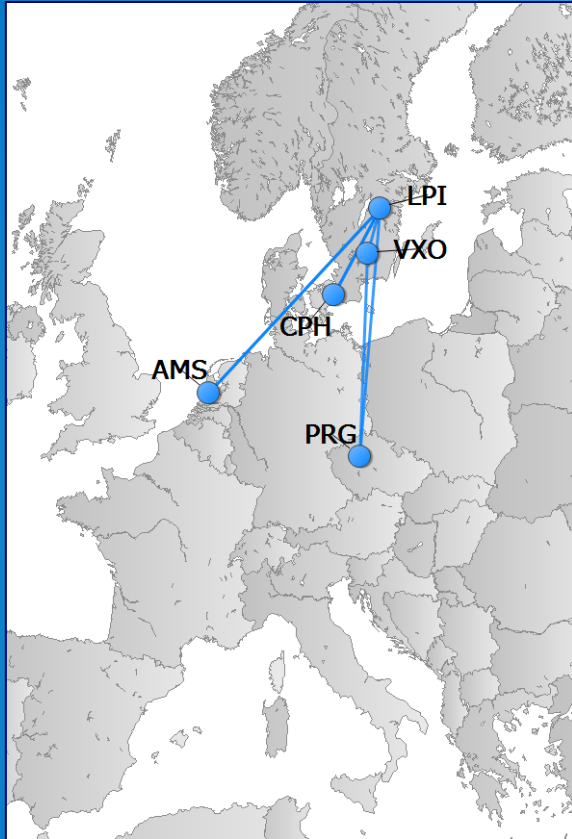
➤ Small home market requires transfer passengers to maintain its mainport position

# Margin business of an airline

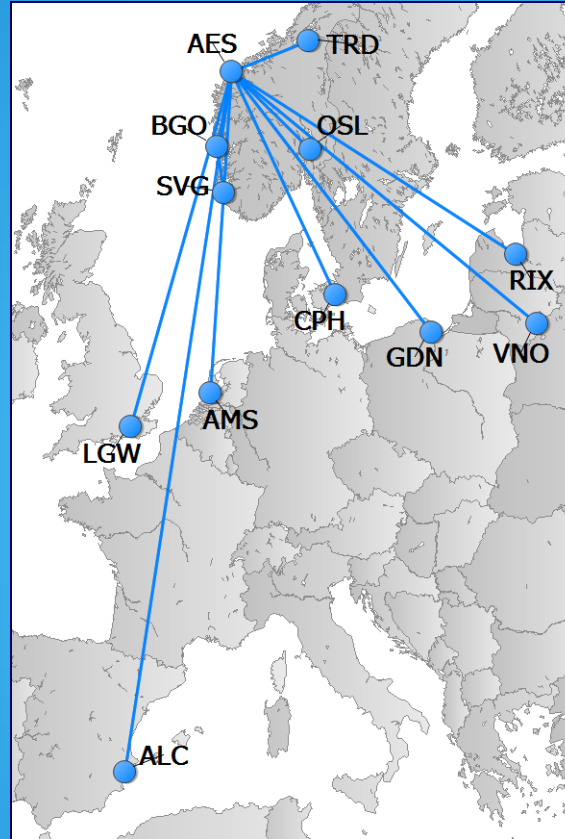
focus KLM hub network on high yield thin & ultra thin routes



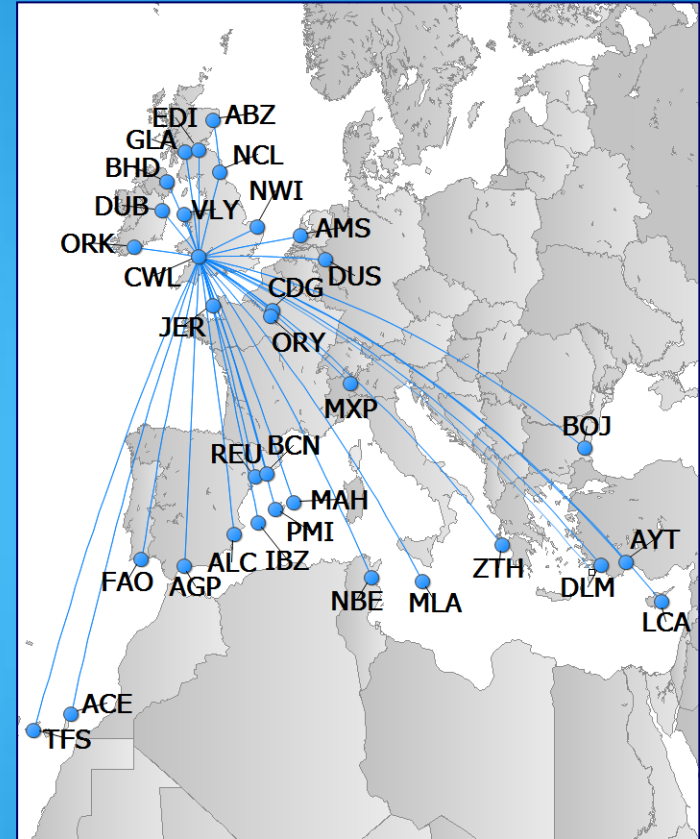
# Small markets connected via AMS



**Linköping:**  
3 daily KL flights  
540 seats per day

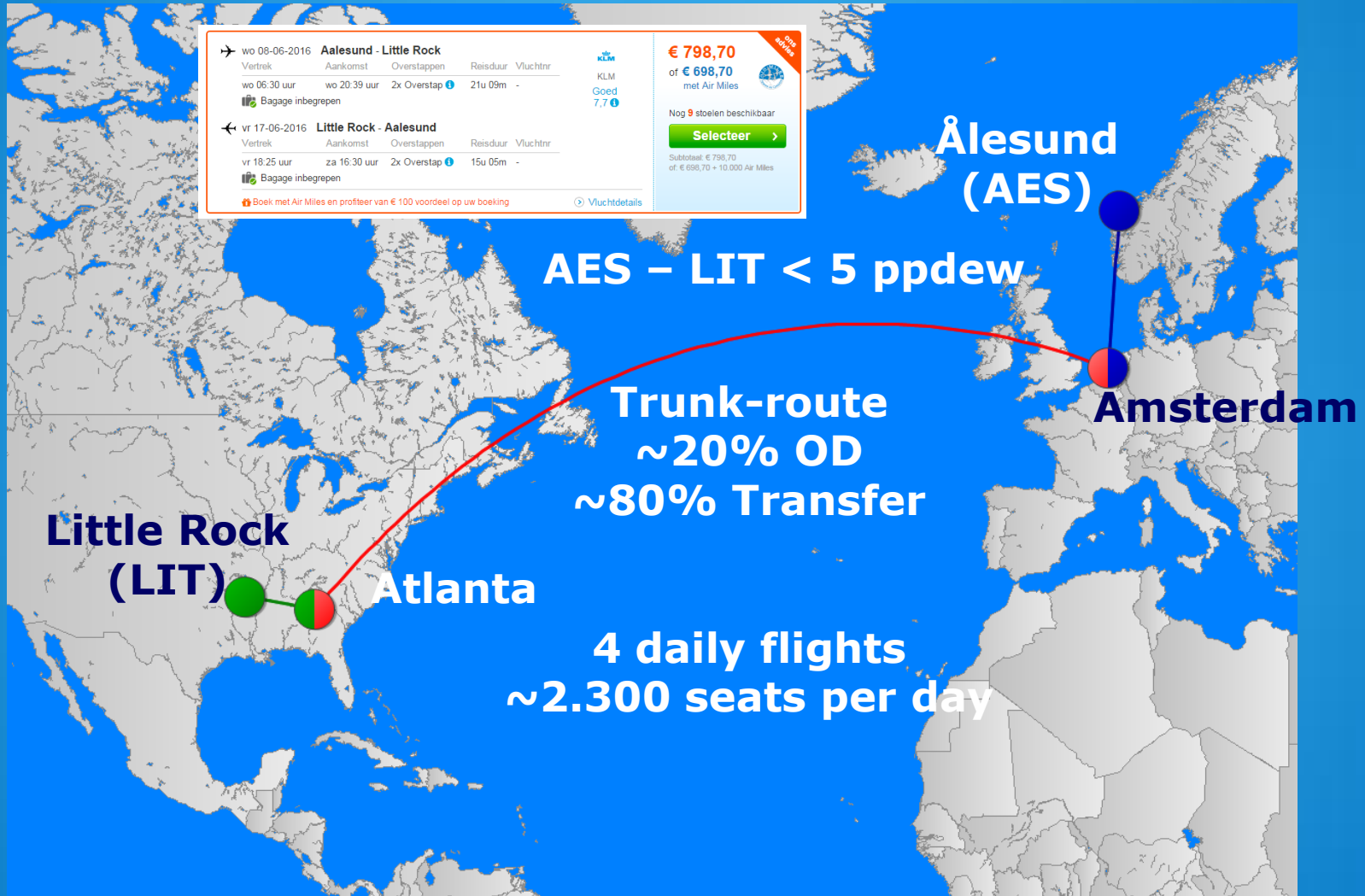


**Ålesund:**  
2 daily KL flights  
400 seats per day



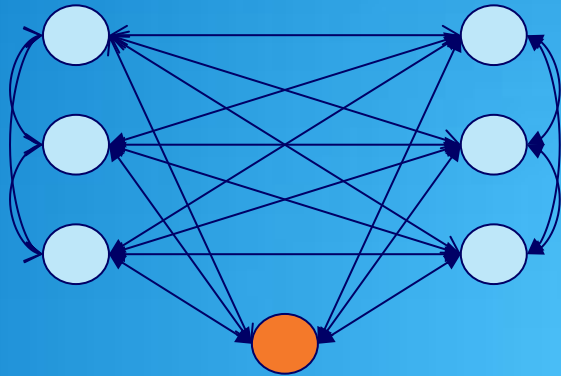
**Cardiff:**  
3 daily KL flights  
480 seats per day

# Many thin traffic flows combined make a sustainable network



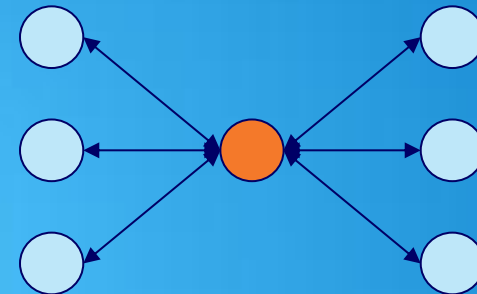
# 'Hub-and-Spoke' best (business) model for KLM

## Point-to-Point



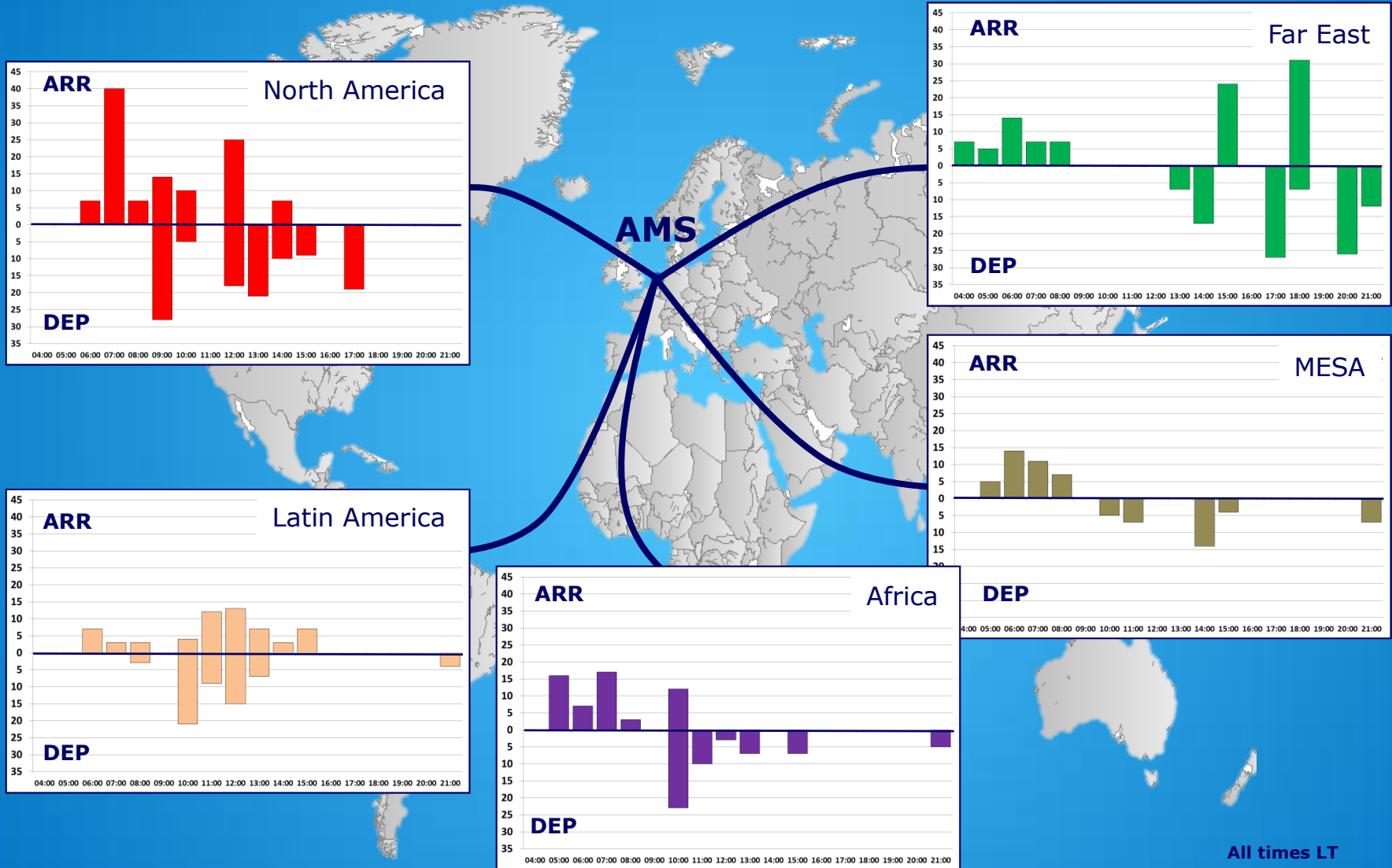
- Stations connected directly
- Sufficiently large local market
- Routes can easily be added or cancelled
- Higher yield/flown kilometer
- Simpler (ground) infrastructure
- Simpler reservation system

## Hub-and-Spoke



- Stations connected via the Hub
- Mix of local and connecting traffic
- Possibility to operate a large Intercontinental Network
- Connecting (very) small markets
- Lower yield/flown kilometer
- More complex infrastructure at homebase on ground

# Geographical position AMS and 'schedule windows' determine schedule design



All times LT





# 80% of flights fits as "skip one bank"

DUS  
BRU  
BRE  
LHR  
...

NCE  
MXP  
ARN  
GVA  
BSL  
MUC  
VIE  
CPH  
...

ATH  
SVO  
LED  
IST  
...

**Determines distance  
between waves**

% Destinations

10%

80%

10%

Time from AMS

< 3 Hours

± 5 Hours

> 5 Hours

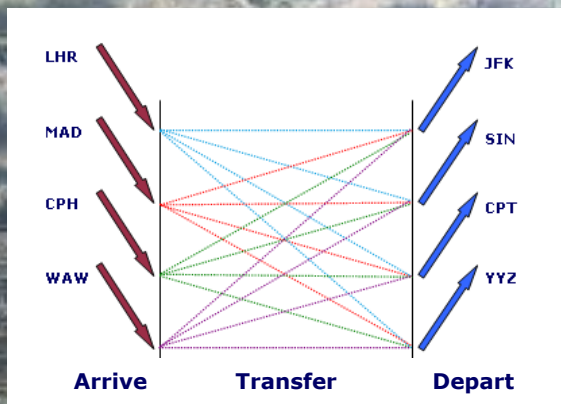
Character

Between banks

Skip one bank

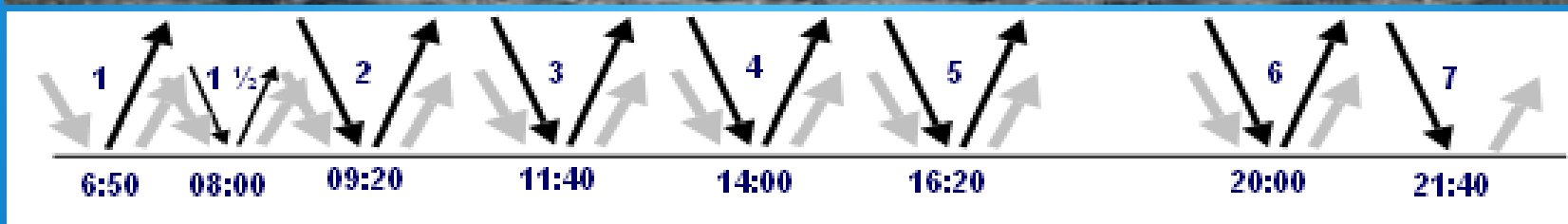
Skip two banks

# Current KLM 7 Wave System at Schiphol



- ♦ 7 waves structure
- ♦ 53,000 connections per week offered
- ♦ 34 mln seats/year

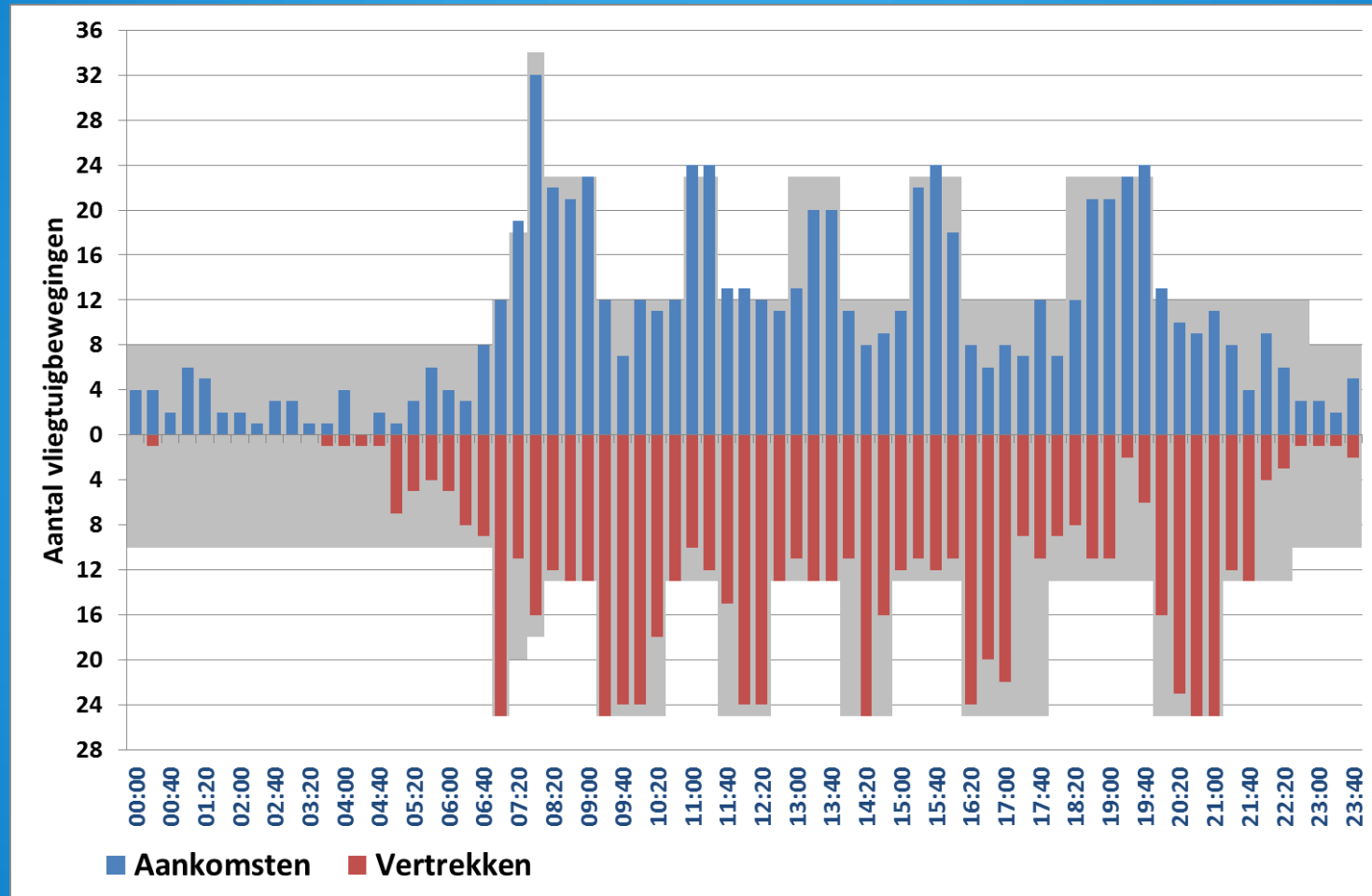
Europe →  
Intercontinental →



Timing of the (double-sided) banks mainly determined by:

- ICA scheduling windows (and geographical location AMS)
- Block time distribution of European destinations
- Shift structures SPL-Hub

# Wave System results in peaks, which leads to (relatively) higher demand for infrastructure



# Toronto (YYZ) geared per day based on...

AMS-L	① Mon, 10 Aug 15			② Tue, 11 Aug 15			③ Wed, 12 Aug 15			④ Thu, 13 Aug 15			⑤ Fri, 14 Aug 15			⑥ Sat, 15 Aug 15			⑦ Sun, 16 Aug 15		
74ES-6	LAX	0004	0850	MEX	0860	0857	FEK	0856	0867	HKG	0888	0893	FVG	0854	0901	IAH	0902	0901	IAH		
		1015	1230		1240	1540		1310	1515		1645	1930		305	755		520	755	0885	MEB	
		0812	0811	ORD	0812	0861	IAH	0862	1310	1515	0895		PVG	0896		0895	YYZ	0896	0885		
		505	1040		505	755		520	720	1330	1530		1600			1550	1005	1230	0895	PVC	
74ES-7	MEX	0888	0895	PVG	0896	0855		0856	0887	MEX	0888	0803	LAX	0804	0885	1550	MEX	0888	0895		
		1240	1530		1600	1935		255	820		1040			1015	1230			1240	1530		
		0862	0843	JFK	0844	0881	NRT	0862	0843	JFK	0844	0895	YYZ	0896	0881	NRT	0862	0843	JFK	0844	
		1300	1520		1005	1240		1300	1520	1005	1005	1240		1300	1520		1005	1005	1240	1935	
74ES-8	NRT	0862	0843	JFK	0844	0881	NRT	0862	0843	JFK	0844	0895	YYZ	0896	0881	NRT	0862	0843	JFK	0844	
		1300	1520		1005	1240		1300	1520	1005	1005	1240		1300	1520		1005	1005	1240	1935	
		0888	1645		0895	YYZ	0896	0895	YYZ	0896	0861	NRT	0862	0843	JFK	0844	0895	PVG	0896	0855	
		1645			1550		1005	1550		1005	1240		1300	1520		1005	1005	1240	1935	0855	
74ES-9	PVG	0896			0863	1040	LAX	0804	0885	MEX	0888	0897	PEK	0898	0887	HKG	0888	0891	1645	1855	
		1600			1040			1015	1230		1240			1540			1515		1645	1855	
		0898	0887	HKG	0888	0891	CTU	0892	0891	CTU	0892	1900	TO	0811	ORD	0812	0801	LAX	0602	PEK	
		1310	1515		1645	1855		1655	1855		1645	1900		1040	505	750	705		1540	1855	
74ES-10	CTU	0892	TO	0811	1040	ORD	0812	0661	IAH	0662	0601	1645	LAX	0602	0695	YYZ	0896	0897	PEK	0898	
		1655	1900	710			505	755		520	750			705	1550	1005	1540		1310	1515	
		0889	0887	HKG	0888	0891	CTU	0892	0891	CTU	0892	1900	TO	0811	ORD	0812	0801	LAX	0602	PEK	
		1310	1515		1645	1855		1655	1855		1645	1900		1040	505	750	705		1540	1855	
74ES-11	PVG	0896			0863	1040	LAX	0804	0885	MEX	0888	0897	PEK	0898	0887	HKG	0888	0891	1645	1855	
		1600			1040			1015	1230		1240			1540			1515		1645	1855	
		0888	1645		0895	YYZ	0896	0895	YYZ	0896	0861	NRT	0862	0843	JFK	0844	0895	PVG	0896	0855	
		1645			1550		1005	1550		1005	1240		1300	1520		1005	1005	1240	1935	0855	
74ES-12	PEK	0898	0887	HKG	0888	0891	CTU	0892	0891	CTU	0892	1900	TO	0811	ORD	0812	0801	LAX	0602	PEK	
		1310	1515		1645	1855		1655	1855		1645	1900		1040	505	750	705		1540	1855	
		0892	TO	0811	1040	ORD	0812	0661	IAH	0662	0601	1645	LAX	0602	0695	YYZ	0896	0897	PEK	0898	
		1655	1900	710			505	755		520	750			705	1550	1005	1540		1310	1515	
74ES-13	PVG	0896			0863	1040	LAX	0804	0885	MEX	0888	0897	PEK	0898	0887	HKG	0888	0891	1645	1855	
		1600			1040			1015	1230		1240			1540			1515		1645	1855	
		0888	1645		0895	YYZ	0896	0895	YYZ	0896	0861	NRT	0862	0843	JFK	0844	0895	PVG	0896	0855	
		1645			1550		1005	1550		1005	1240		1300	1520		1005	1005	1240	1935	0855	
74ES-14	ICN	0856			0803	1040	LAX	0804	0885	MEX	0888	0897	PEK	0898	0887	HKG	0888	0891	1645	1855	
		255			1040			1015	1230		1240			1540			1515		1645	1855	
		0894	TO	0895	1040	ORD	0812	0661	IAH	0662	0601	1645	LAX	0602	0695	YYZ	0896	0897	PEK	0898	
		520	710		1040		505	755		520	750			705	1550	1005	1540		1310	1515	
74ES-15	ICN	0856			0803	1040	LAX	0804	0885	MEX	0888	0897	PEK	0898	0887	HKG	0888	0891	1645	1855	
		255			1040			1015	1230		1240			1540			1515		1645	1855	
		0894	TO	0895	1040	ORD	0812	0661	IAH	0662	0601	1645	LAX	0602	0695	YYZ	0896	0897	PEK	0898	
		520	710		1040		505	755		520	750			705	1550	1005	1540		1310	1515	

# Toronto (YYZ) geared per day based on...

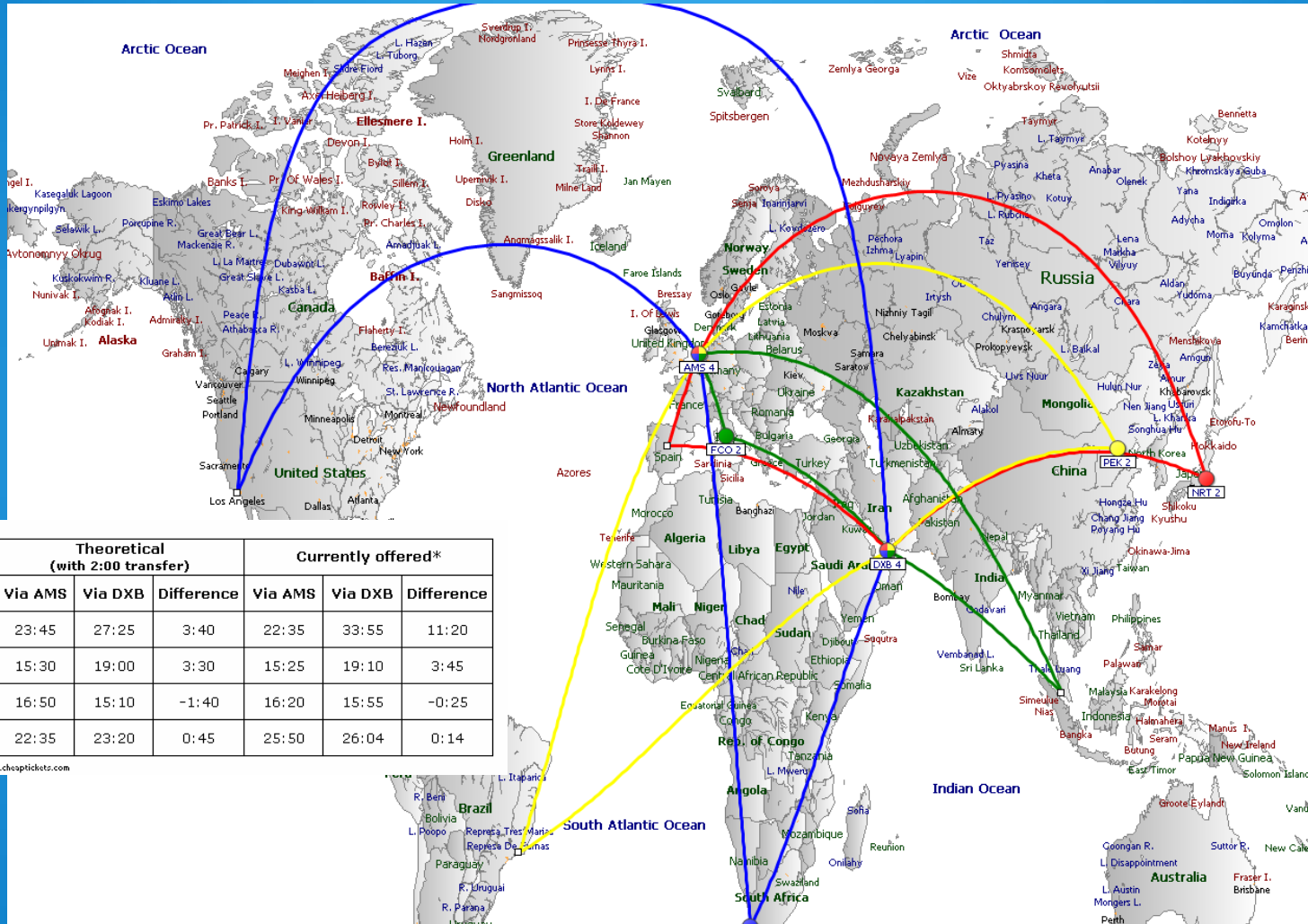
AMS-L	1 Mon,10Aug15	2 Tue,11Aug15	3 Wed,12Aug15	4 Thu,13Aug15	5 Fri,14Aug15	6 Sat,15Aug15	7 Sun,16Aug15
172.2 74ES							
74ES-1		0695 YYZ 0696	0695 YYZ 0696	0695 YYZ 0696	0695 YYZ 0696	0695 YYZ 0696	0695 YYZ 0696
10:50		1550 1005	1550 1005	1550 1005	1550 1005	1550 1005	1550 1005
87.1 333A							
333A-1	0695 YYZ 0696						
02:14	1550 1005						
87.1 332B							
332B-1	0692 0691 YYZ	0692 0691 YYZ	0692 0691 YYZ	0692 0691 YYZ	0692 0691 YYZ	0692 0691 YYZ	0692 0691 YYZ
	455 735	455 735	455 735	455 735	455 735	455 735	455 735
332B-2	YYZ 0696						0695 YYZ
08:55	1005						1550

- Market demand:
  - Passenger
  - Cargo
- Fleet availability
- Crew availability

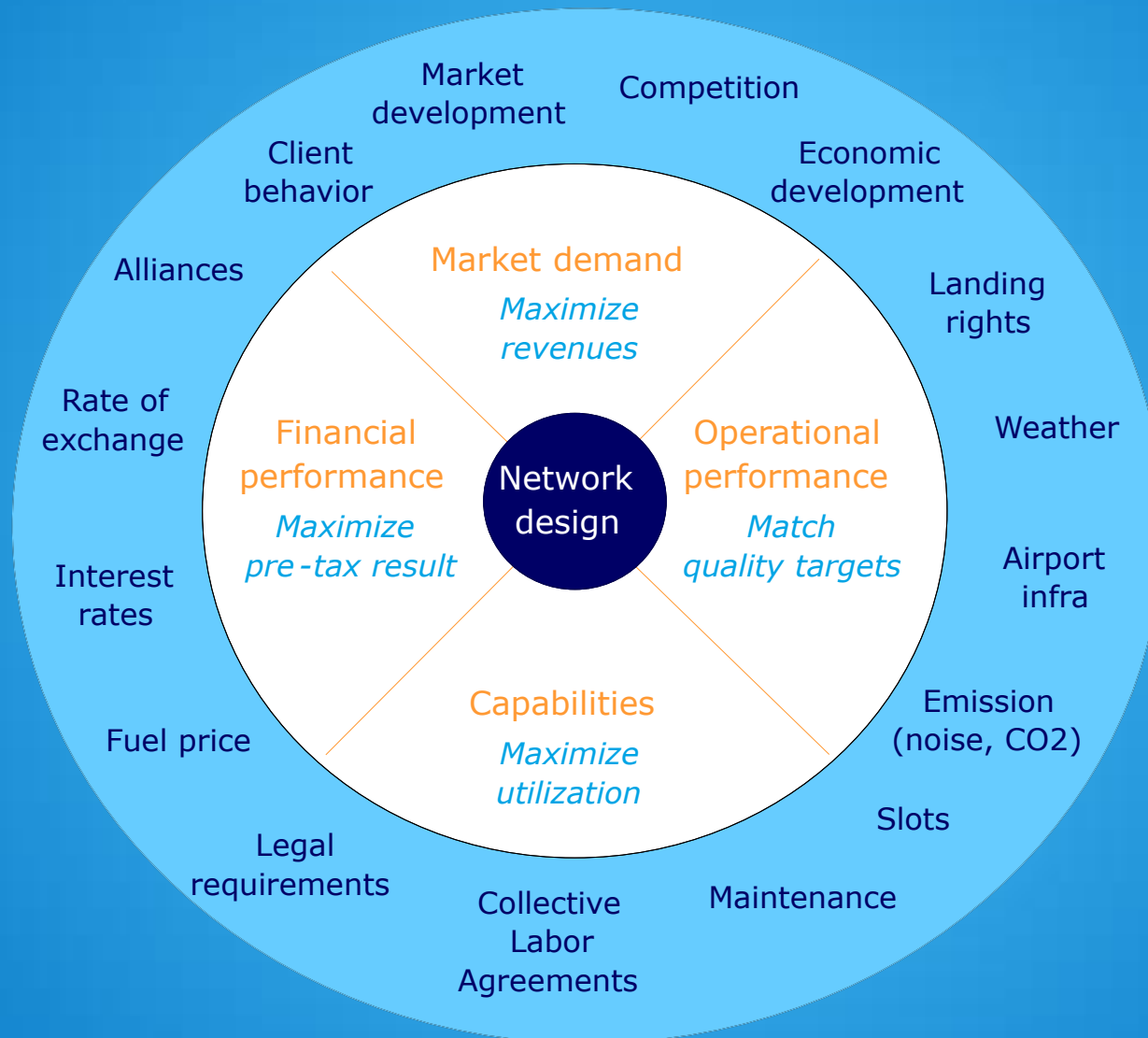
# Through Dual-Hub passengers have choice of multiple time channels



# Examples of travel times

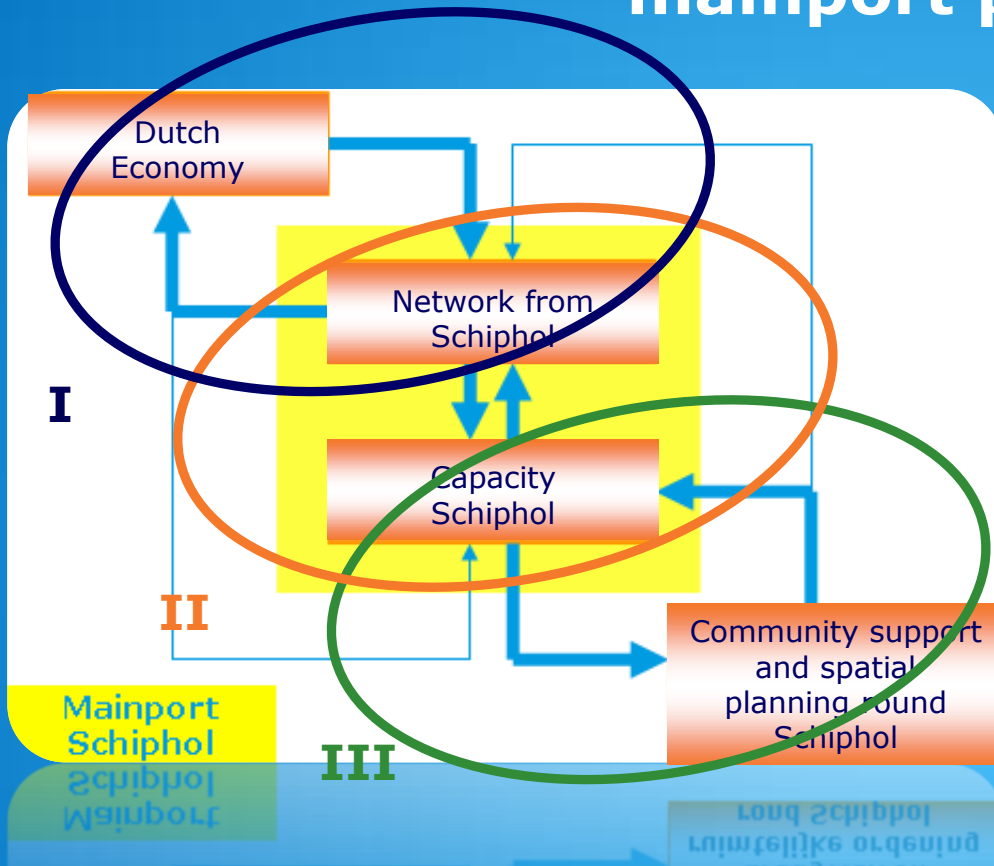


# The trade offs of Network development

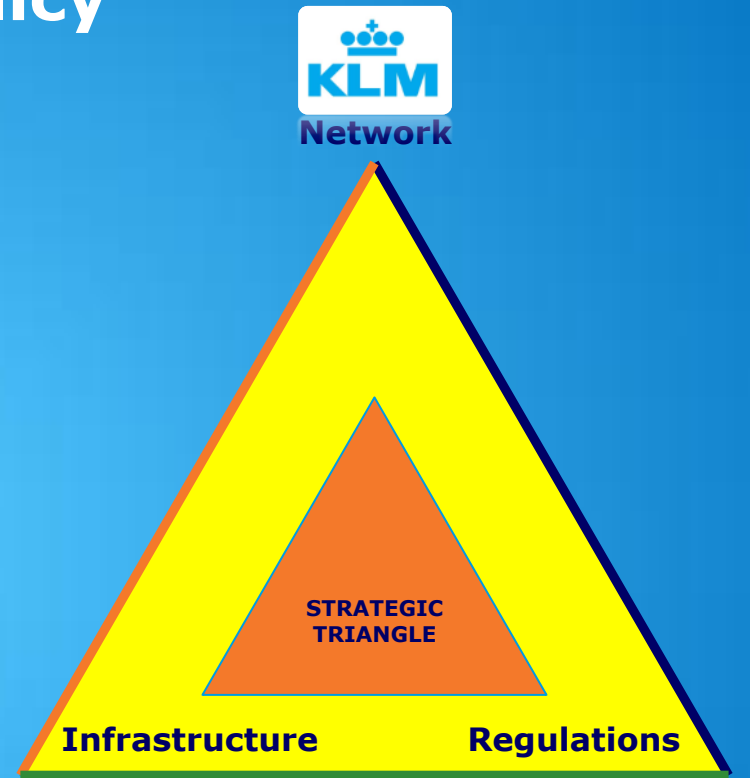




# Cooperation is essential for a successful mainport policy



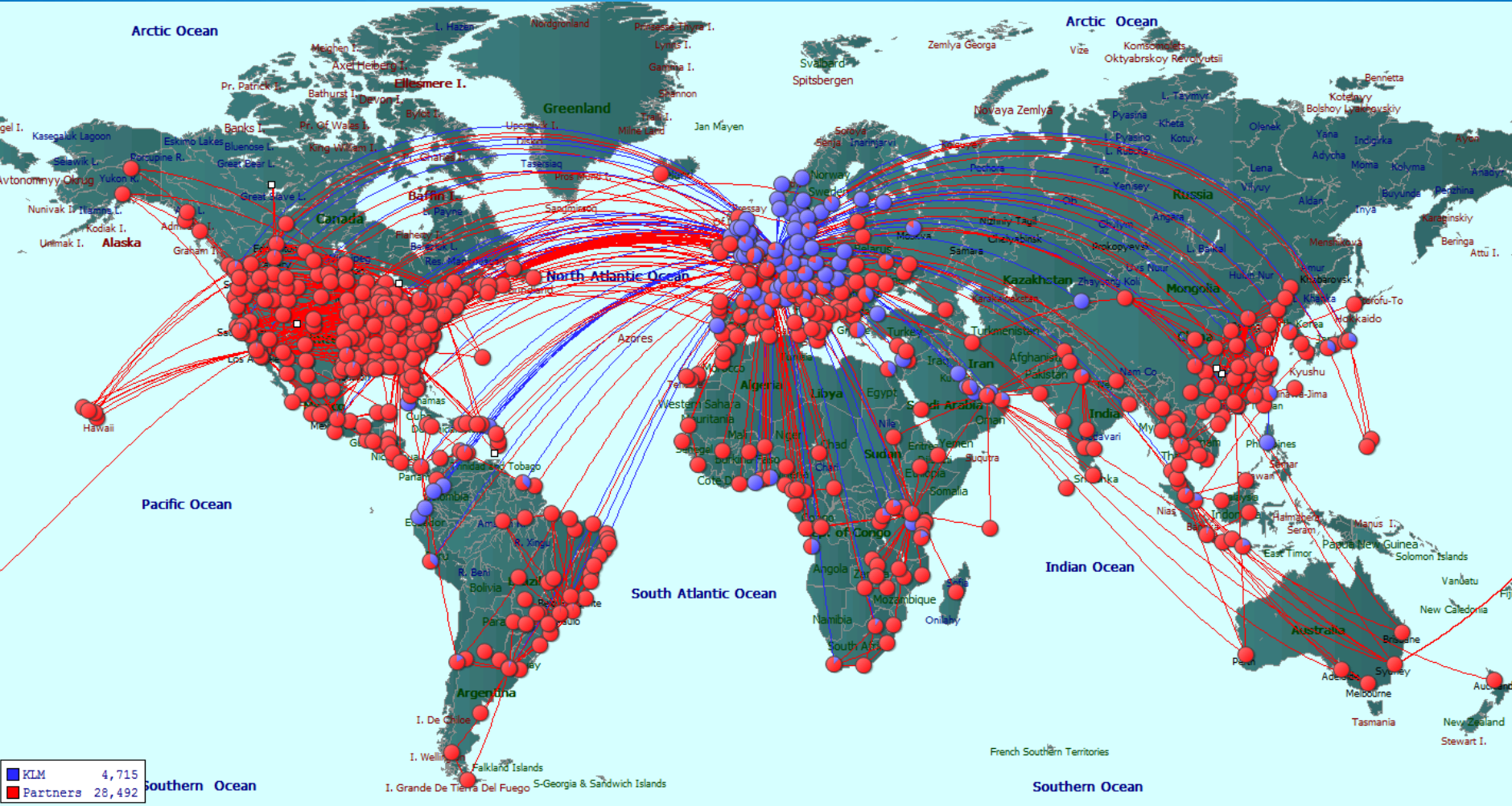
- I** Maintain the hub network for the Dutch economy and employment
- II** Obtain and maintain sufficient capacity to keep and expand the hub-network
- III** The accessibility, the business climate and the environment



local government



# Coordinated worldwide Networks







**Thank you for your  
attention**