



Rail Connections and Airports

From Terminal to High Speed Rail



AIR TO RAIL STATISTICS

Service investments on faster, more efficient, and dedicated rail links to airports is more apparent in other developed nations compared to the US:

Regions (Air-to-Rail Airport #s)	Light Rail	Metro / Commuter Rail	Airport Express / Regional Rail	High-Speed Rail
USA (32)	31%	66%	16%*	3%**
Asia (45)	11%	67%	24%	16%
Europe (67)	16%	66%	43%	10%

Number of Rail Lines at Airport	USA	Rest of World
4+ Rail Lines/Operations	0	3
3 Rail Lines/Operations	2	10
2 Rail Lines/Operations	3	29

*No US airport has a dedicated airport express rail service

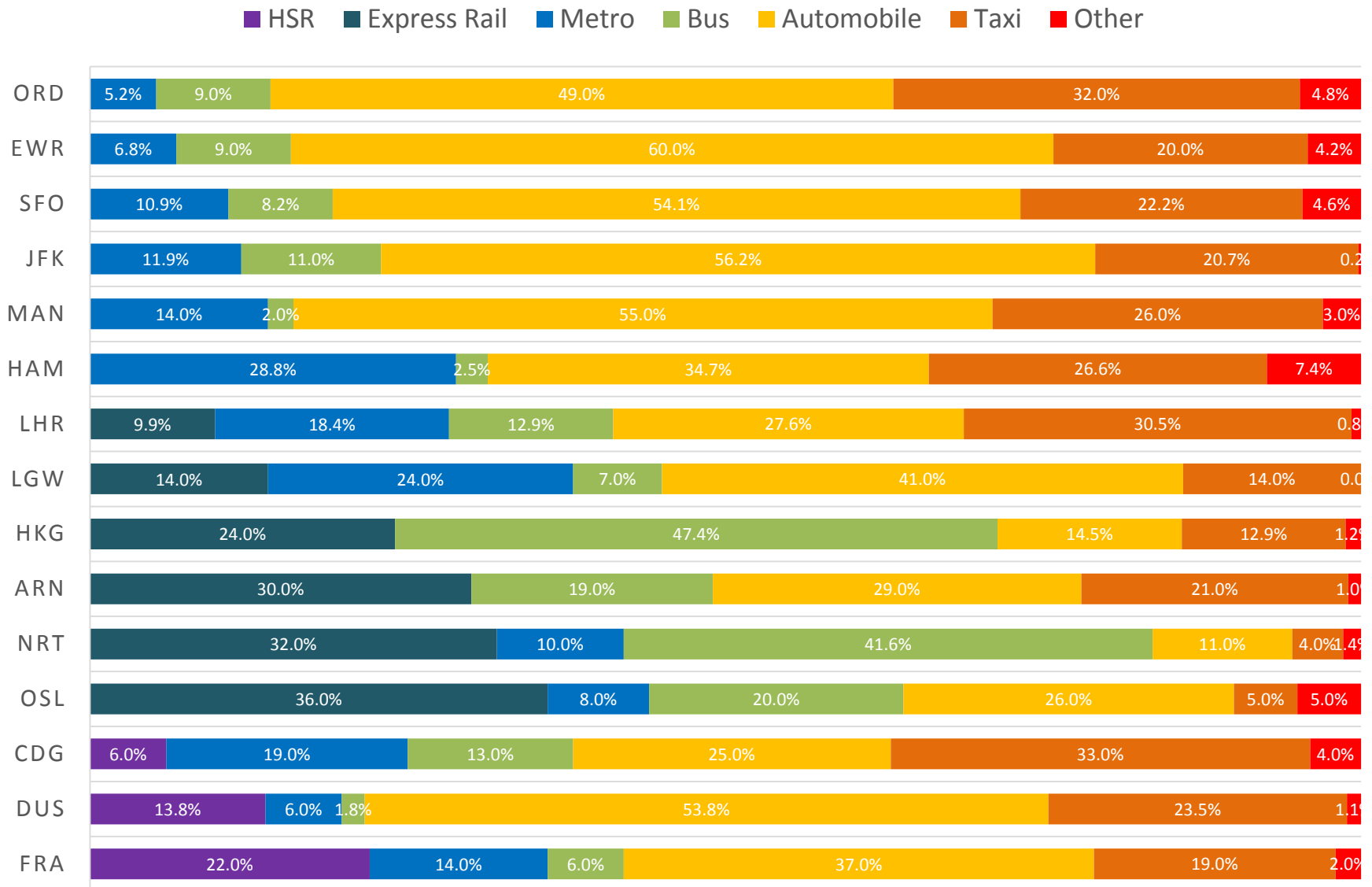
**Amtrak's Acela Express, US's only near-HSR service, stops only at BWI Airport Sta.

As of 1/1/2017

EXISTING MAJOR AIRPORTS WITH HSR STATIONS

Airport	Distance to CBD (Downtown)	HSR Station Location	Connect to CBD by HSR	Headway to CBD	Notes	Price Premium
FRA	8 mi	Walk to Terminal	Yes (ICE)	15 min	11 min to CBD; same as Local	€13.00+
AMS	9 mi	At Terminal	Yes (Thalys)	60 min	16 min to CBD; same as Local	Unknown
DUS	9.5 mi	People Mover	Yes (ICE)	60 min	6 min to CBD; same as Local	€8.00+
CTU	10 mi	At Terminal	Yes (CRH)	60 min	5 min to CBD; no Local service	¥8.00 (future)
SHA	10 mi	At Terminal	No (CRH)		Local service only to CBD	
CGN	10.5 mi (Köln) 14 mi (Bonn)	At Terminal	Yes (ICE) No	Sporadic	9 min to CBD; 5 min faster	€8.00+
LYS	12.5 mi	At Terminal	No		Local service only to CBD	
LEJ	13 mi (Leipzig) 15.5 mi (Halle)	At Terminal	No Yes (ICE)	Sporadic	12 min to CBD; 5 min faster	€8.00+
SFO	14 mi	People Mover	Yes (CA HSR)	15 min	15 min to CBD; 15 min faster	???
CDG	16 mi	At Terminal	No		Local service only to CBD	
HAK	16 mi	Walk to Terminal	Yes (CRH)	45 min	9 min to CBD; no Local service	
CGQ	20 mi	At Terminal	Yes (CRH)	30 - 60 min	15 min to CBD; no Local service	
SJW	25 mi	Shuttle Bus	Yes (CRH)	Sporadic	15 min to CBD; no Local service	
ICN	35 mi	At Terminal	Yes (KTX)	6 a day	43 min to CBD; same as AREX	None
LHR	18 mi	At Terminal	Arpt Express	15 min	15 min to CBD; 8 - 45 min faster	£7.00-18.00+
PVG	22 mi	Walk to Terminal	Maglev	15 min	6 min to Outer City; 50 min faster	¥46.00+
NRT	40 mi	At Terminal	Arpt Express	20 min	41 min to CBD; 30 min faster	¥1,200+

MODE SHARE AT AIRPORTS WITH TRANSIT CONNECTIONS



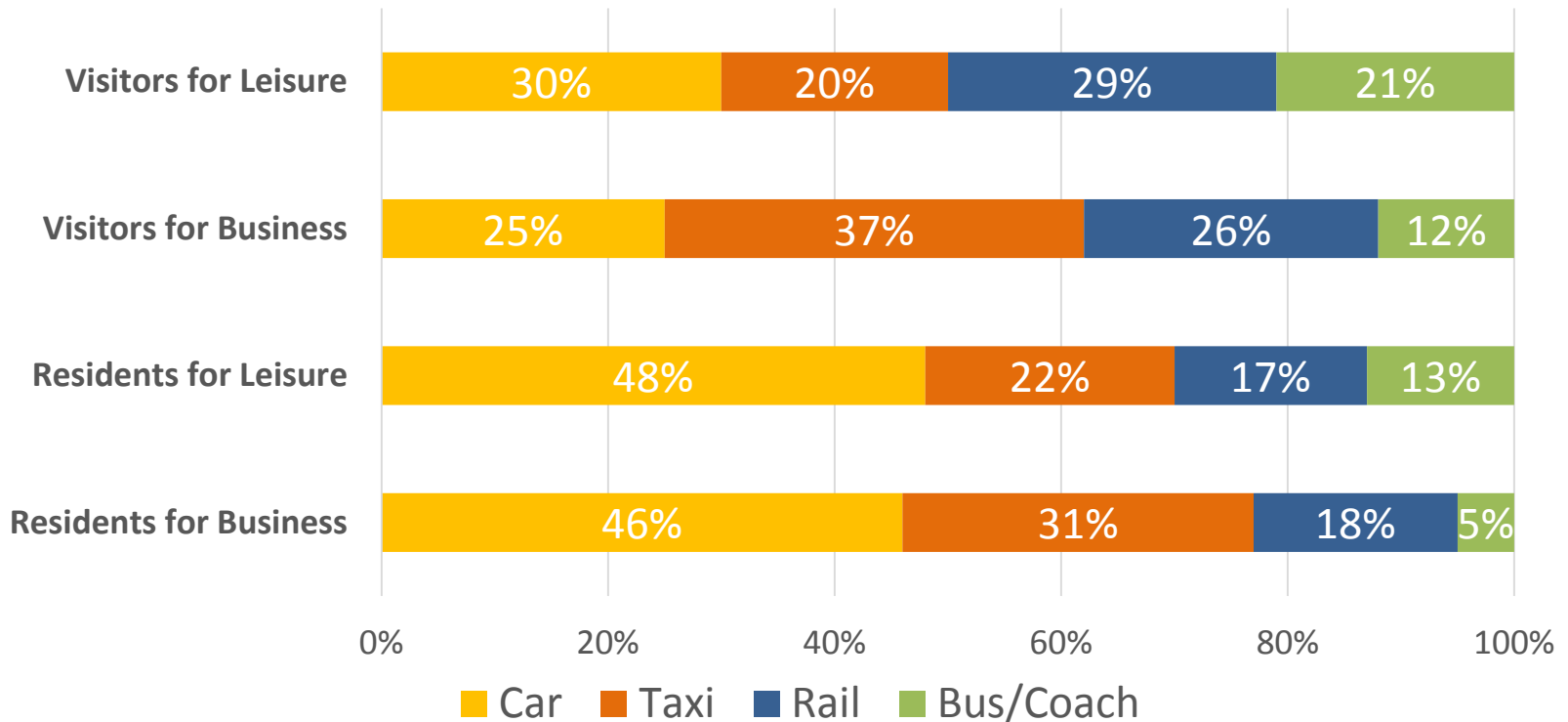
Data from respective airports' yearly reports and GARA database; years anywhere from 2006 to 2014

VISITORS MORE LIKELY TO USE TRANSIT

What visitors look for in airport/transit links:

- 1) Safety
- 2) Reliability/Efficiency
- 3) Comfort
- 4) Amenities (Wi-Fi)

**London LHR Airport
Visitors vs Residents Mode Split**



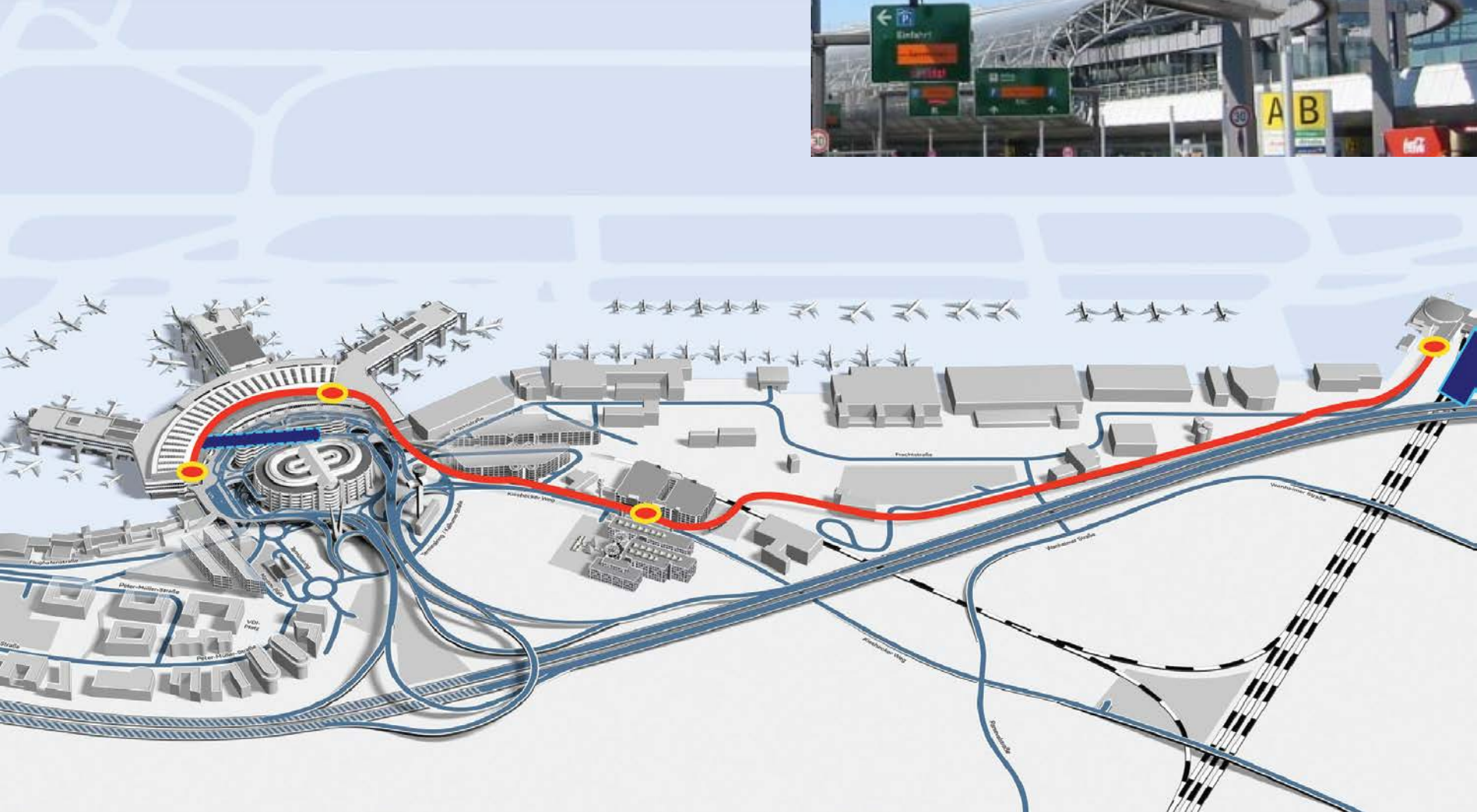
DUSSELDORF AIRPORT

■ HSR ■ Express Rail ■ Metro ■ Bus ■ Automobile ■ Taxi ■ Other

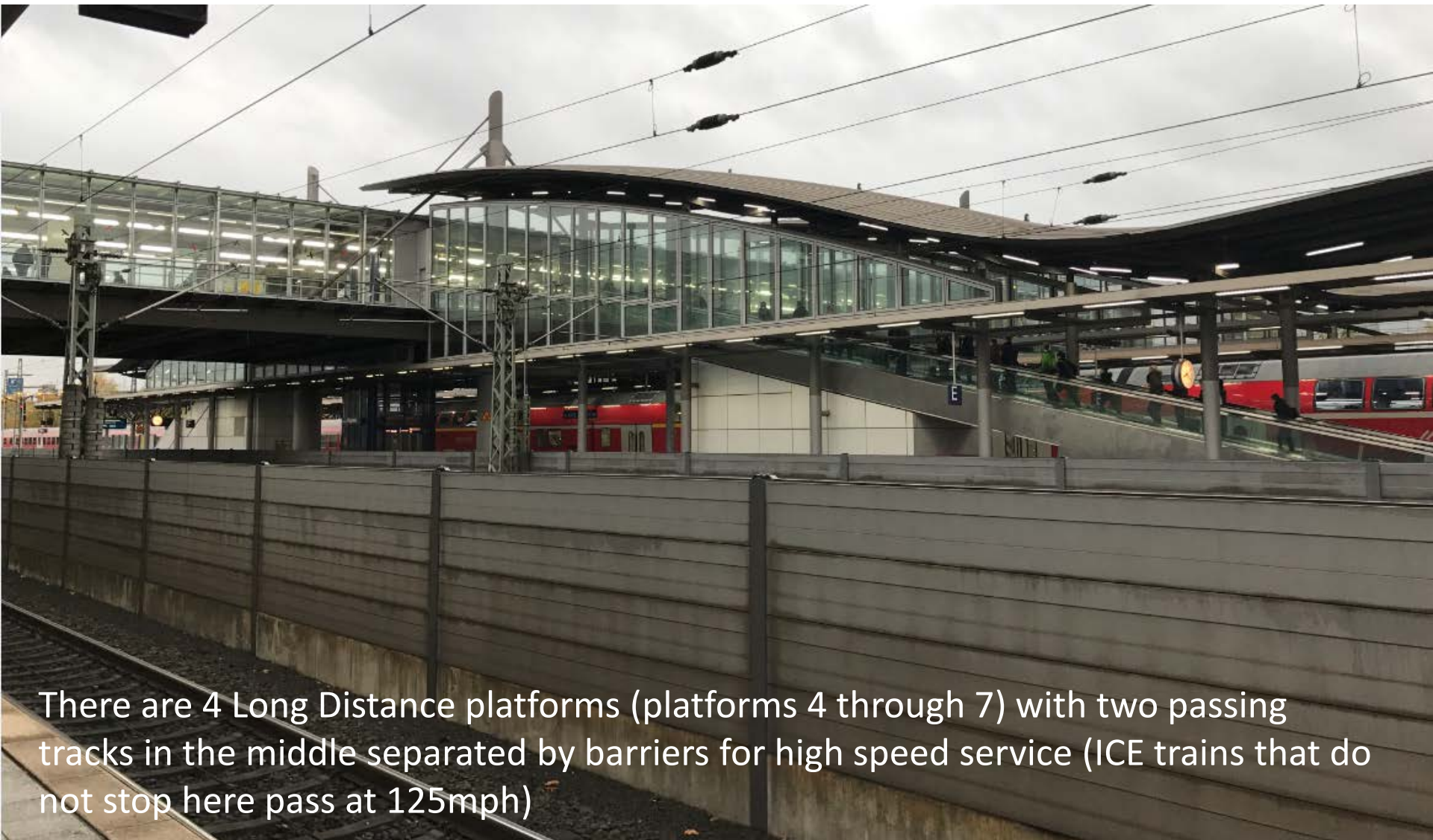


Dusseldorf Airport

SKYTRAIN CONNECTION



LONG DISTANCE RAIL STATION DESIGN



There are 4 Long Distance platforms (platforms 4 through 7) with two passing tracks in the middle separated by barriers for high speed service (ICE trains that do not stop here pass at 125mph)



Moving walkways (not escalators – luggage friendly) take customers up to the concourse level, which connects directly to the SkyTrain



Oversized elevators also connect from the platforms to the concourse

Dusseldorf Airport

SKYTRAIN LONG DISTANCE STATION



Long distance station and SkyTrain link from the end of the runway



The Airport manages the terminal signage, while Deutsche Bahn manages the platform signs

FRANKFURT AIRPORT

■ HSR ■ Express Rail ■ Metro ■ Bus ■ Automobile ■ Taxi ■ Other



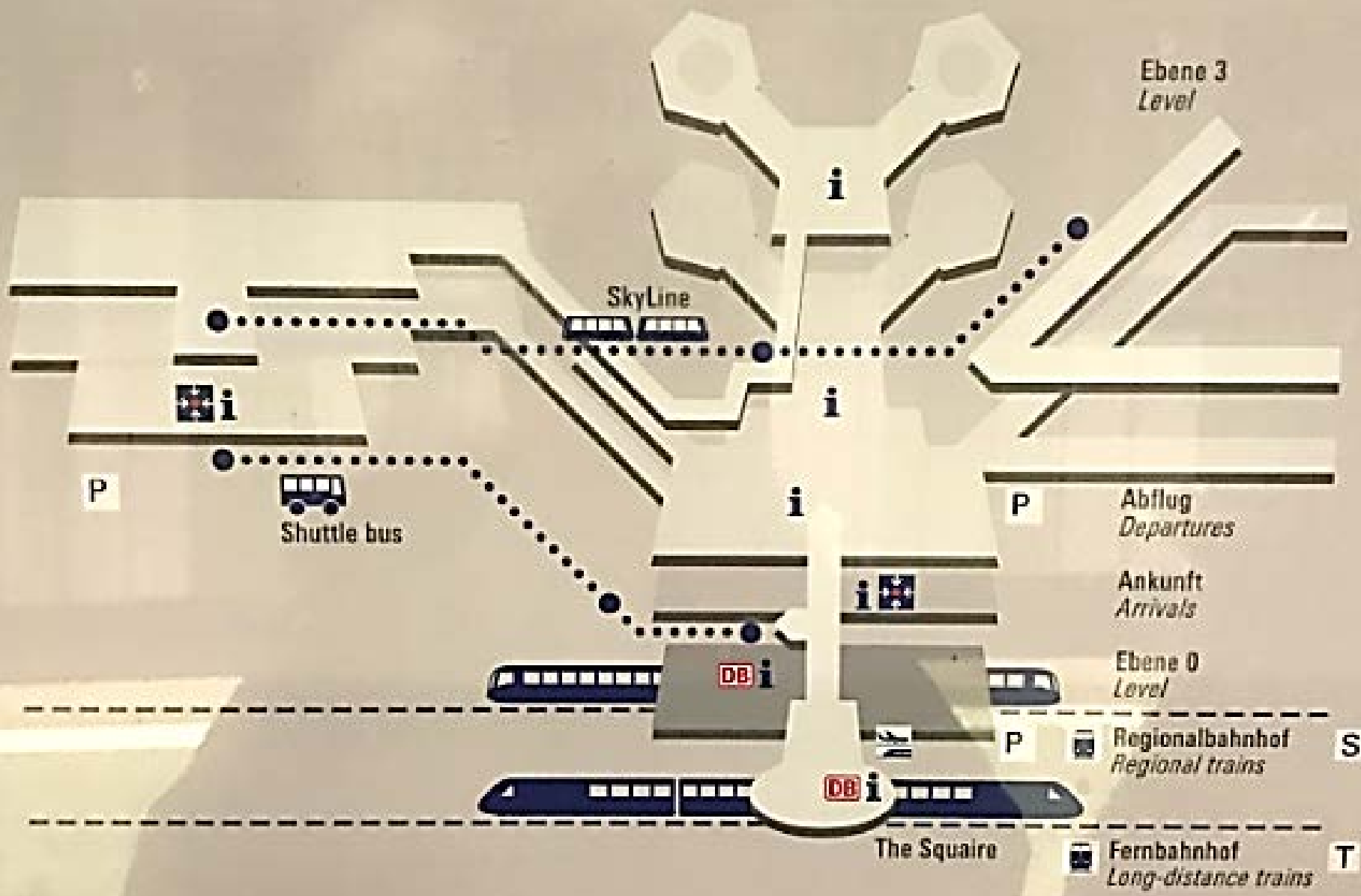
SEAMLESS MOBILITY

Flug Flight	nach to	über via	planmäßig scheduled	erwartet estimated	Terminal Terminal	Halle Hall	Schalter Counter	Flugsteig Gate
SV 180	RIAD		15 ⁴ 0		2	D	845-848	D4
LH 3420	STUTTGART	HBF.	16 ⁰ 7		1	A	260-461	T5
LH 3620	KOELN	HBF	16 ⁰ 9		1	A	260-461	T6
LH 1350	WARSCHAU		16 ¹ 5		1	A	260-461	B16
LH 956	BIRMINGHAM		16 ² 0		1	A	260-461	B26
LH 1040	PARIS CH. DE GAULLE		16 ² 0		1	A	260-461	A26
LH 1196	ZUERICH		16 ² 0		1	A	260-461	A30
L8 1360	KATTOWITZ		16 ² 0		1	A	260-461	A50
AT 811	CASABLANCA		16 ² 5		2	D	812-814	E2
LH 946	MANCHESTER		16 ² 5		1	A	260-461	B28
LH 1016	BRUESSEL		16 ² 5		1	A	260-461	A28
LH 3P18	DUESSELDORF	HBF	16 ² 5		1	A	260-461	T7
LH 264	VERONA		16 ³ 0		1	A	260-461	B4
LH 330	VENEDIG-MARCO POLO		16 ³ 0		1	A	260-461	A6
LH 996	AMSTERDAM		16 ³ 0		1	A	260-461	A38
LH 1088	MARSEILLE		16 ³ 0		1	A	260-461	A52
LH 1340	BUDAPEST		16 ³ 0		1	A	260-461	A56
LH 1390	POZNAN/POSEN		16 ³ 0		1	A	260-461	A64
LH 254	MAILAND-MALPENSA		16 ³ 5		1	A	260-461	B6
LH 1098	TOULOUSE-BLAGNAC		16 ³ 5		1	A	260-461	A60

WAYFINDING



Good signage allows people to know that there are two separate stations



Ebene 3
Level

SkyLine

Shuttle bus

Abflug
Departures

Ankunft
Arrivals

Ebene 0
Level

Regionalbahnhof
Regional trains

The Squaire

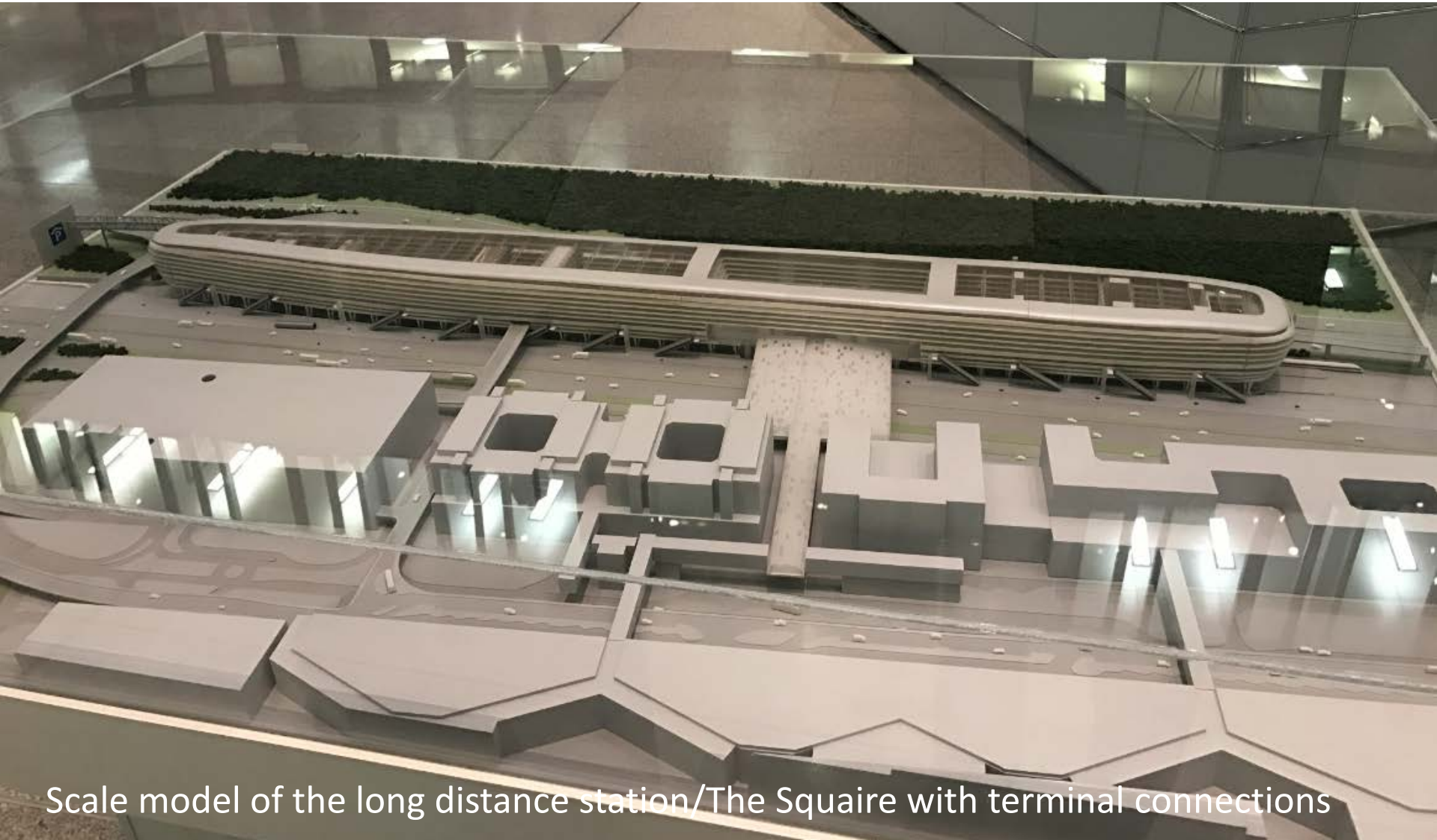
Fernbahnhof
Long-distance trains

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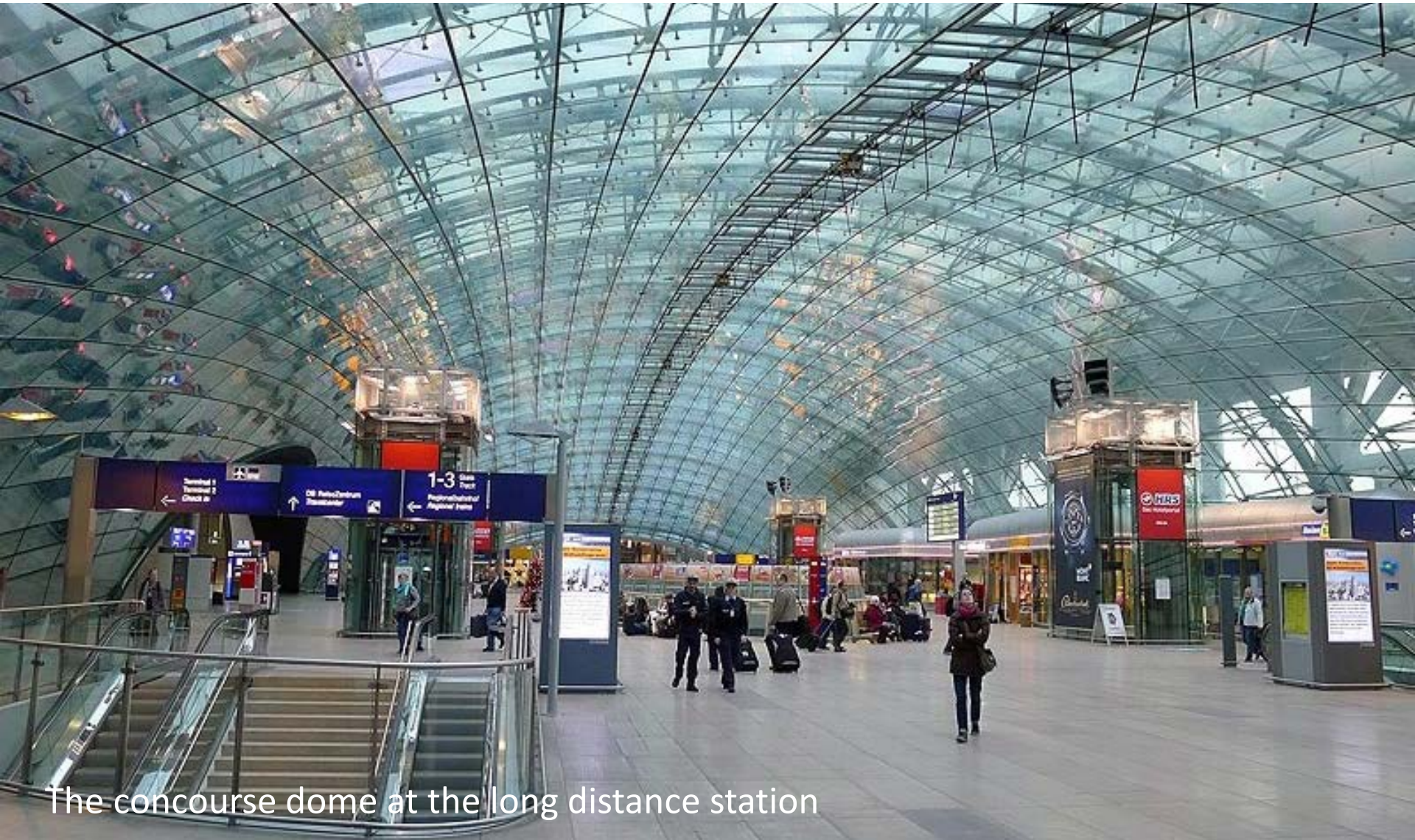
Frankfurt Airport

THE SQUAIRE BUSINESS PARK



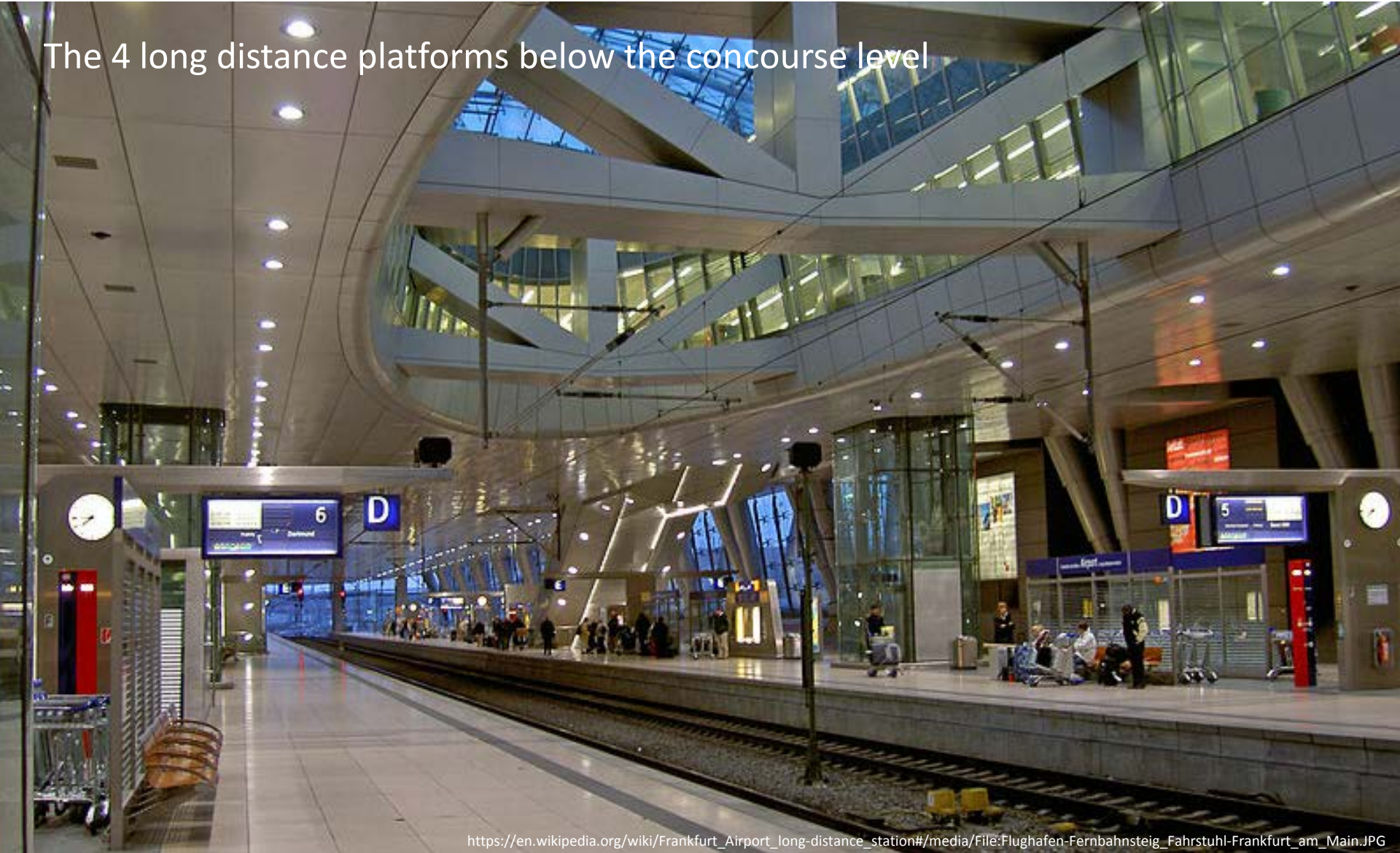
Scale model of the long distance station/The Square with terminal connections

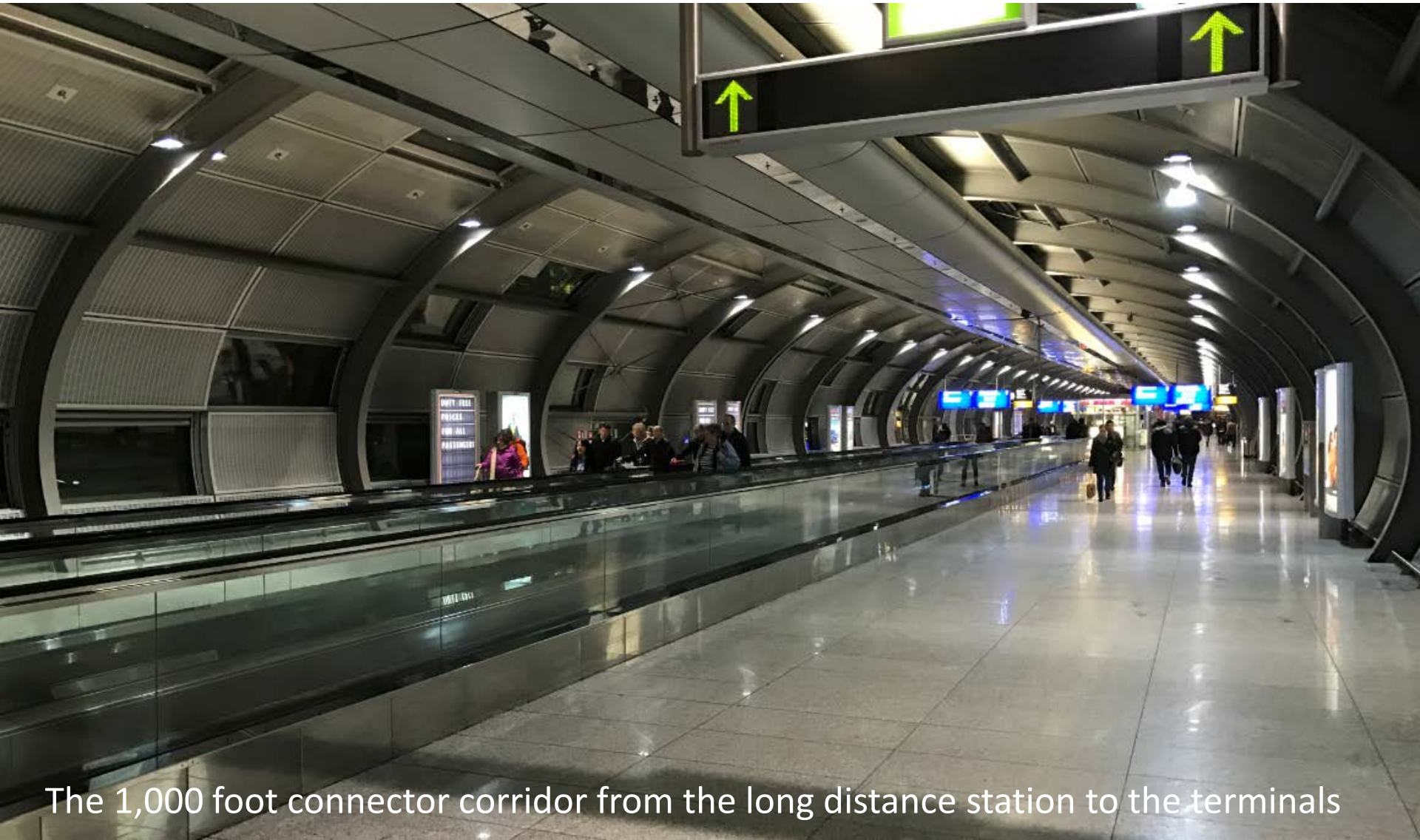
LONG DISTANCE STATION DESIGN



The concourse dome at the long distance station

The 4 long distance platforms below the concourse level





The 1,000 foot connector corridor from the long distance station to the terminals

LUFTHANSA EXPRESS RAIL



RAIL CONNECTIONS IN GERMANY

Lufthansa Express Rail



Premium product

- Exclusive Cooperation between LH and DB
- Blocked seats in dedicated trains, matched on the flight plan in FRA
- Codeshare / One Ticket
- Through Check-in (baggage drop-off and pick-up at AIRail Terminal FRA)
- Irregularity tracking
- AIRail Service Concept and On Board Service

357.000 passengers
in 2014

Rail & Fly



Field product

- Discounted railway ticket together with international air travel – regular DB product open to other airlines
- Connection from all railway stations (5.600) within Germany
- No extra services,
- No through-check in
- No irregularity tracking

187.000 passengers
in 2014

SERVICES



	Stuttgart (ZWS)	Cologne (QKL)	DUS (QDU)	Kassel (KWQ)	Karlsruhe/ [Mannheim] (KJR, MHJ)
Opening	2001	2003	2013	2014	2014 [2015]
Train	ICE 1 u. ICE3	ICE 3	ICE 3	ICE 1	ICE 3
Travel Time (Min)	72	55	72	98	65/ [25]
Daily Frequency	12	22	16	8	7





AirRail Terminal along the terminal connector from the long distance station

AirRail Terminal bag drop for LH Express Rail riders



THANK YOU!

