

TRANSPORTATION INFRASTRUCTURE

# HYPERLOOP

AUD | SMART CITIES | DANIEL MICHAEL MÜLLER







**SAFETY  
FIRST**

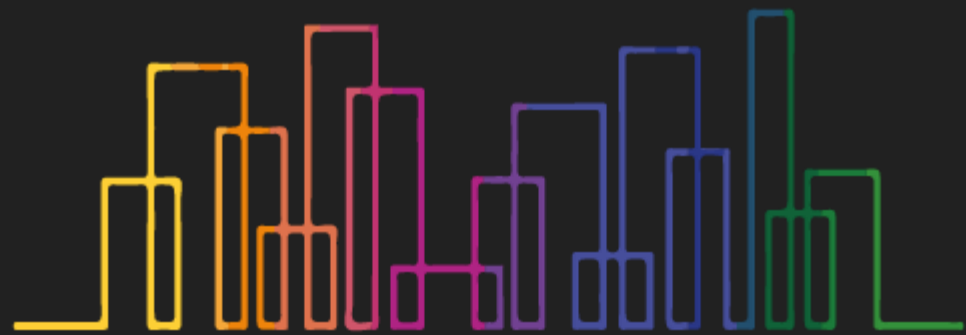
*fast*





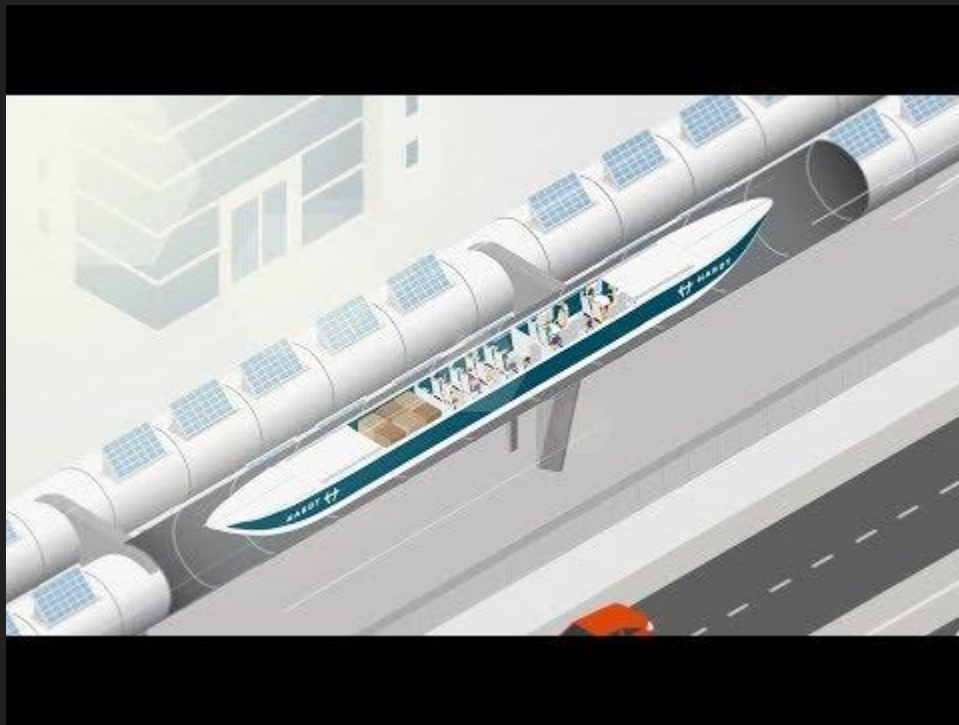






CONNECTING CITIES

# THE HYPERLOOP





**1080**  
km/h

1080km/h, 5 mal schneller als  
die Deutsche Bahn



**2**  
Minuten

Eine Abfahrt alle 2 Minuten  
den ganzen Tag lang



**30**  
Sekunden

Eine Abfahrt alle 30 Sekunden  
während der  
Hauptverkehrszeit



**5**  
Minuten

Die Be- und Entladezeit der  
Passagiere wird auf  
5 Minuten geschätzt



**30**  
Euro

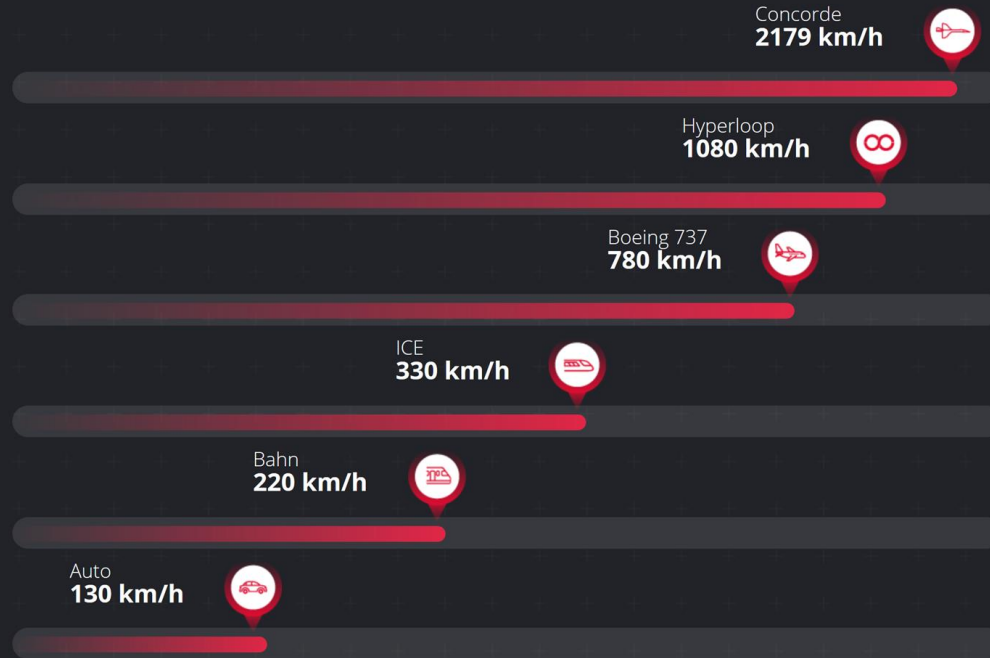
Das Ticket soll z.B. in Frankreich  
je nach Reisezeit  
durchschnittlich 30 Euro kosten

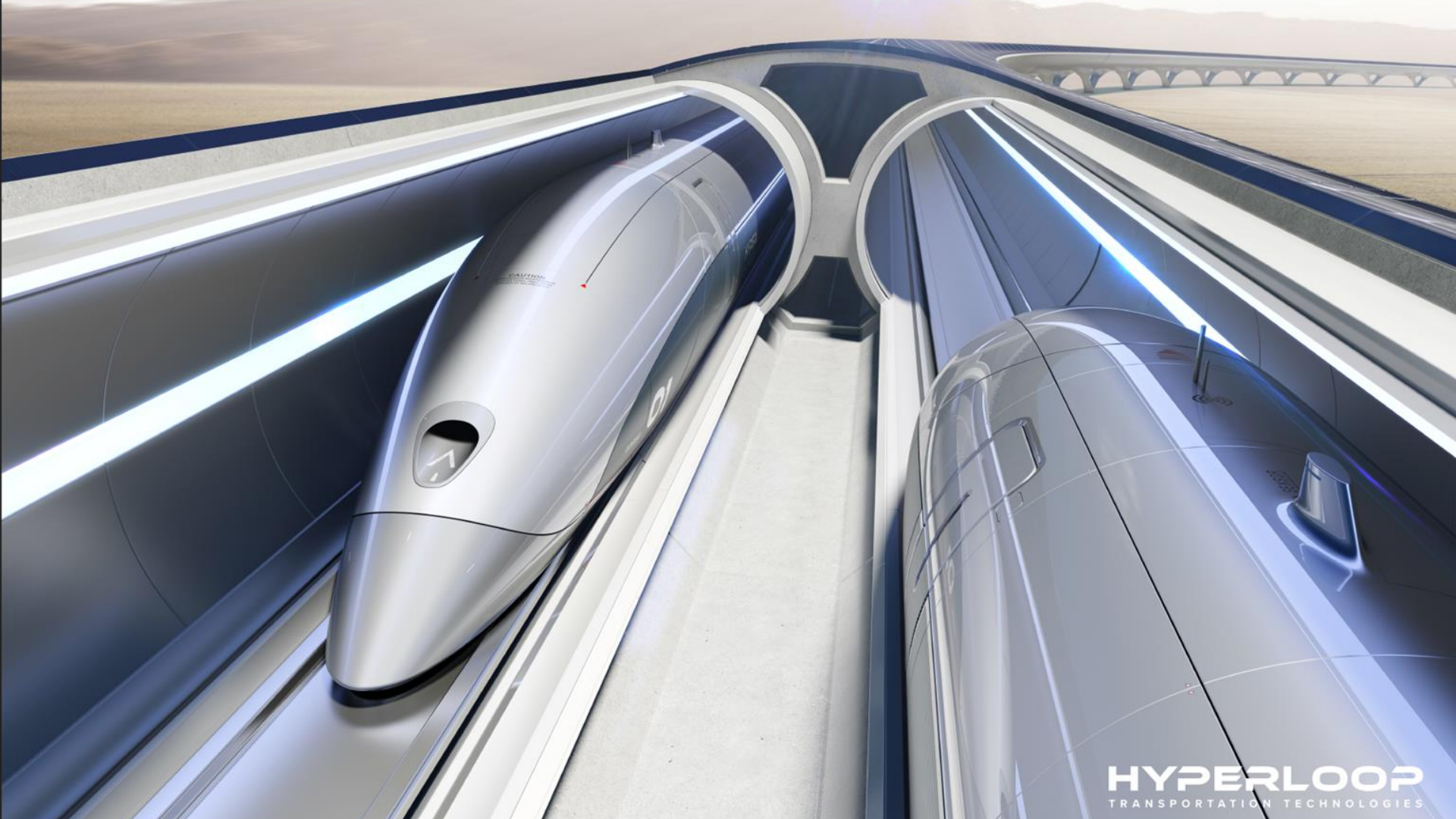


**20/40**  
Millionen

1 Kilometer Strecke soll  
zwischen 20 und 40 Millionen  
US-Dollar kosten

# SPEED COMPARISON





**HYPERLOOP**  
TRANSPORTATION TECHNOLOGIES

# THE CAPSULE

passengers:  
28-40

length:



<http://www.hyperloop.global/assets/Images/how-it-works/capsule.jpg>



# THE STRUCTURE

- tubes
  - Steel/concrete/carbonfiber
  - Elimination of friction
  - Protection from weather and traffic crossing
  - solar cells produce electricity
- vacuum
  - Low-pressure environment
  - Increased efficiency
- pylons
  - Reinforced concrete
  - Height variance for terrain





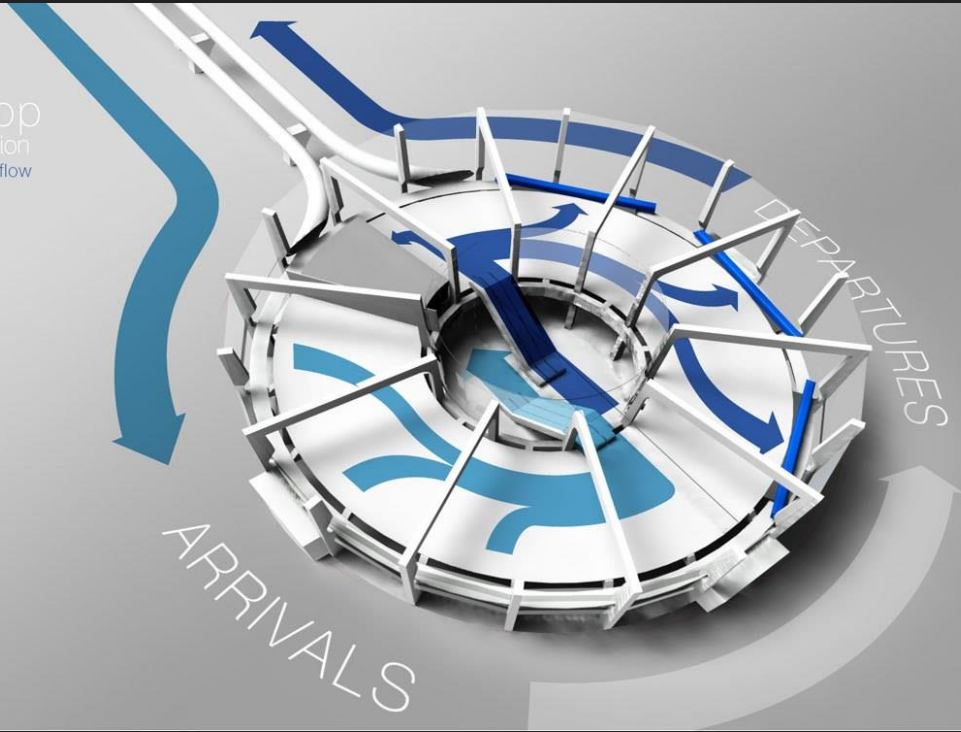
# THE STATION



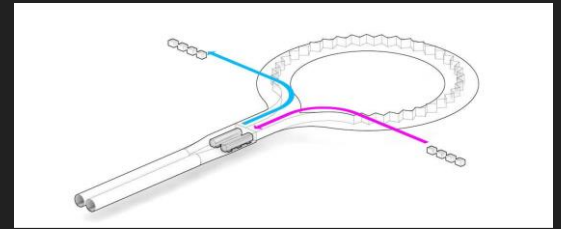
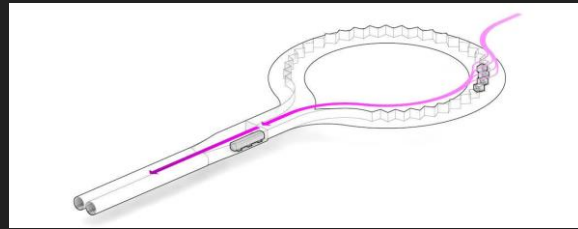
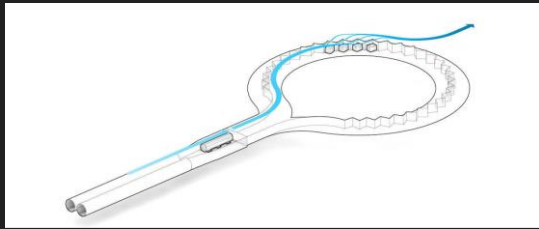
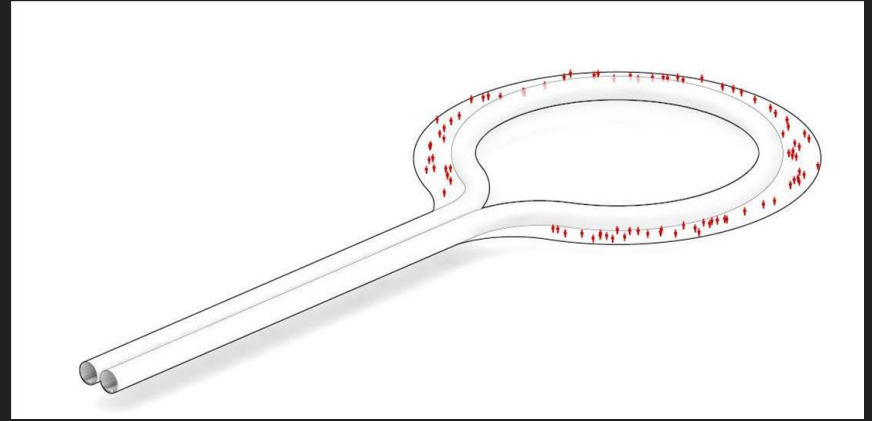
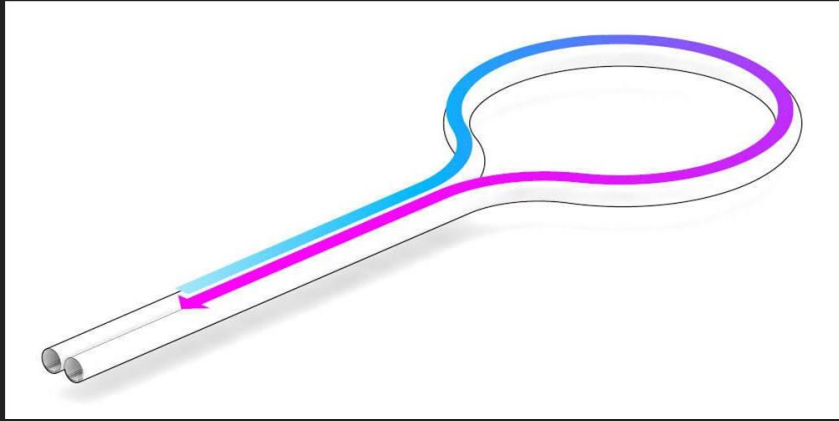
**HYPERLOOP**  
TRANSPORTATION TECHNOLOGIES

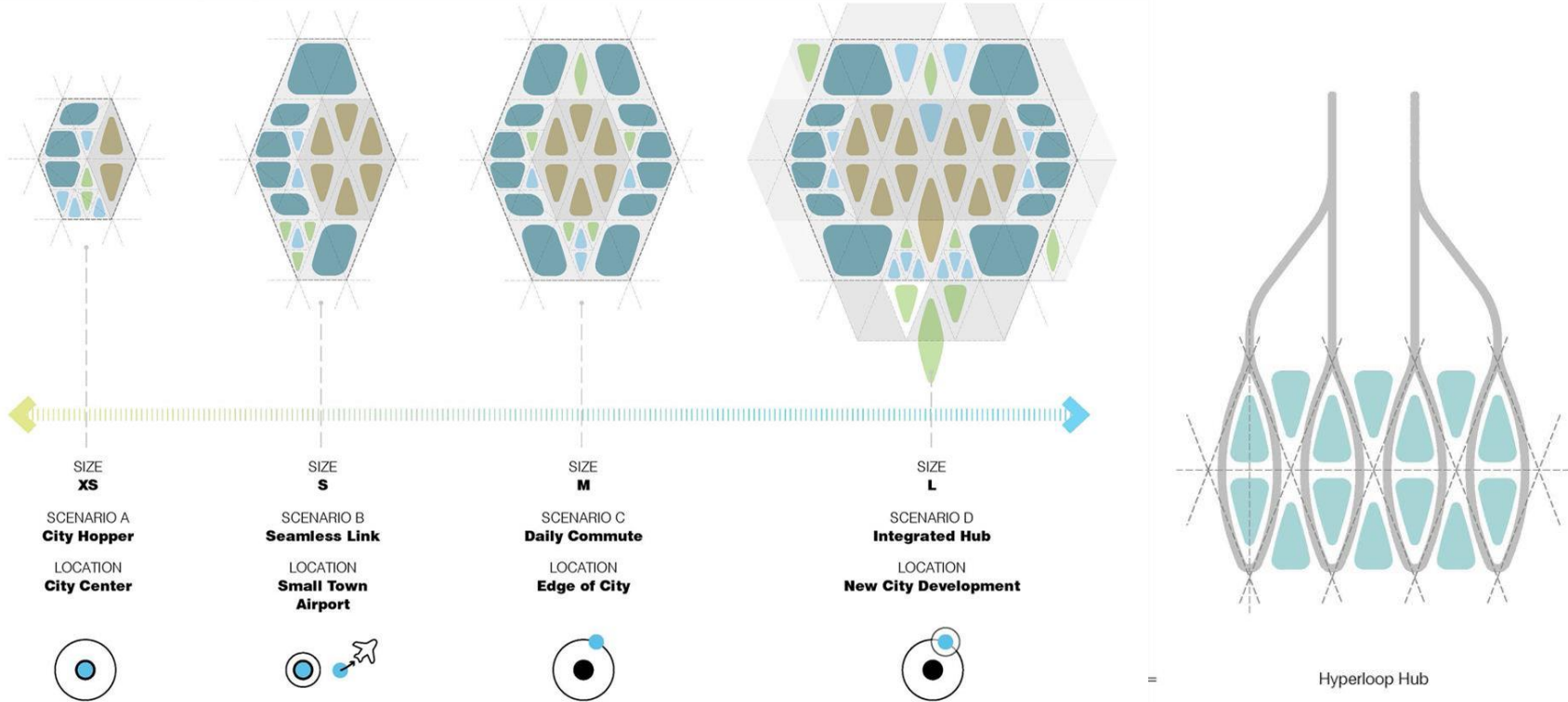


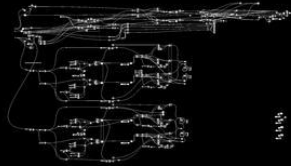
Hyperloop  
Passenger Station  
Second Floor Workflow



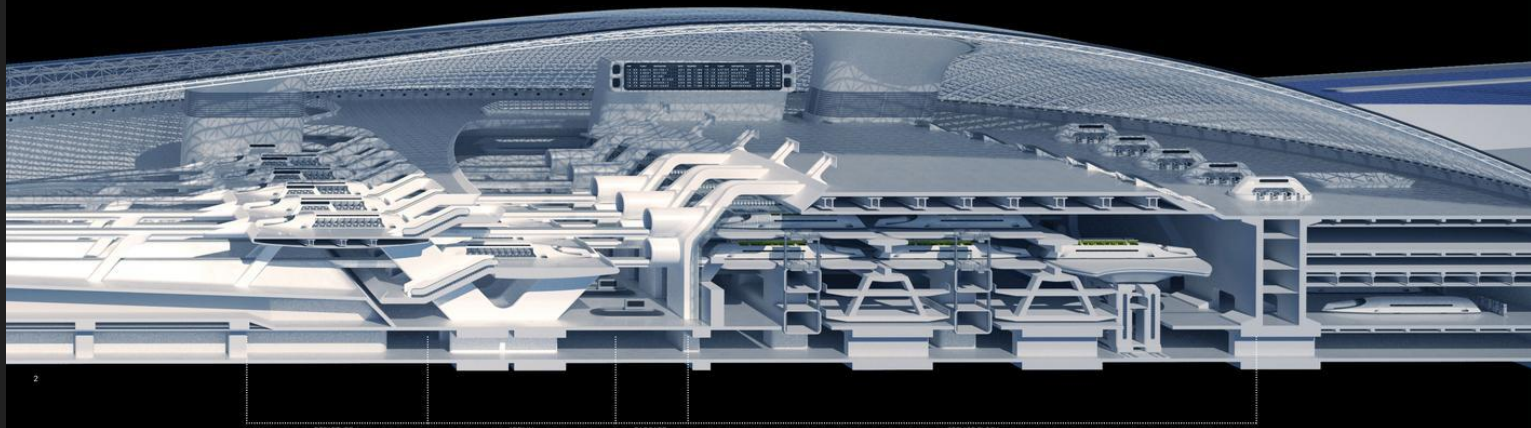
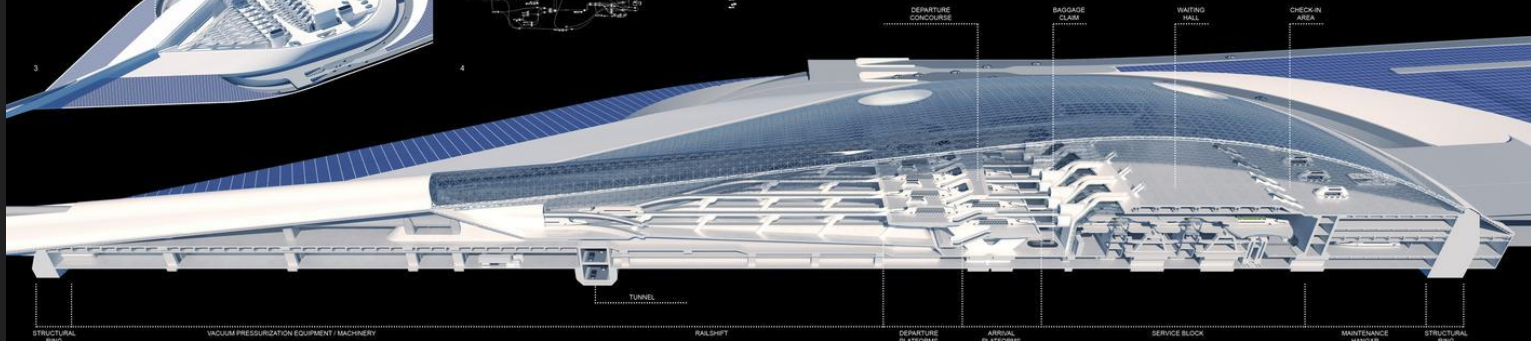
dev.sergeroux.com | sept 2013





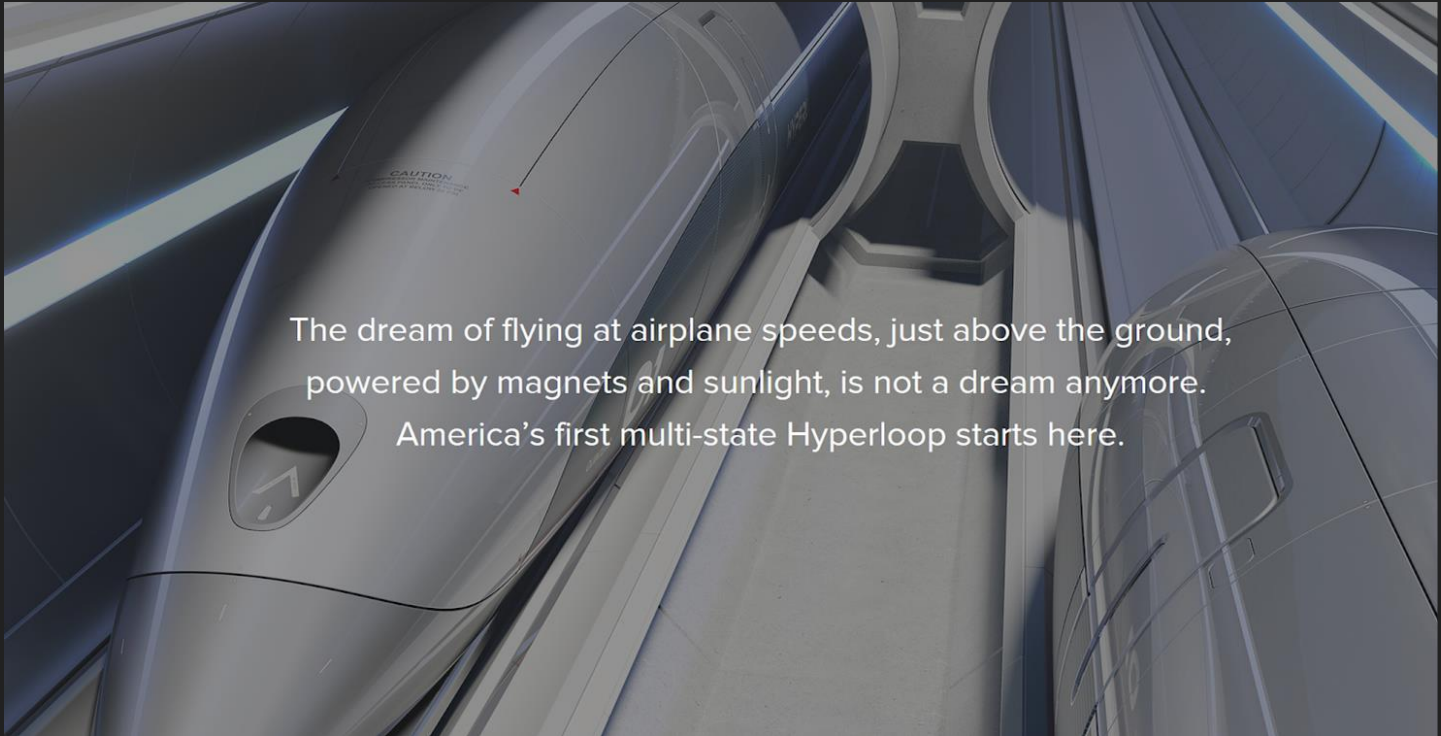


- 1 LONGITUDINAL SECTION
- 2 ENLARGED SECTION
- 3 ACCELEROMETRY
- 4 ROOF TRUSS GRASSHOPPER DEFINITION



**EXAMPLE**

# GREAT LAKE, USA



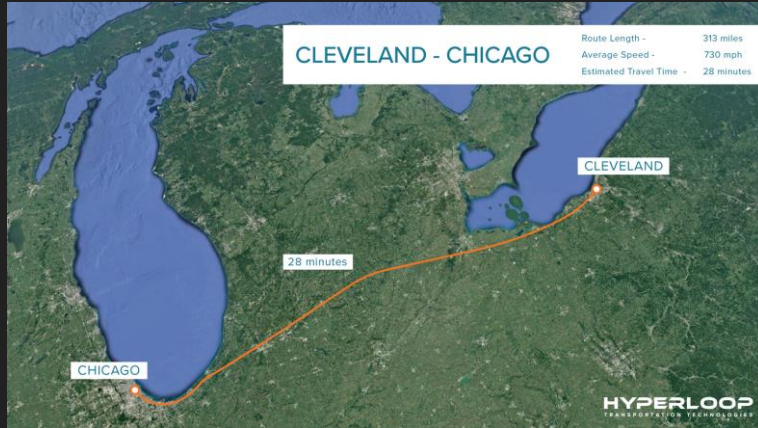
The dream of flying at airplane speeds, just above the ground,  
powered by magnets and sunlight, is not a dream anymore.  
America's first multi-state Hyperloop starts here.

# GREAT LAKE, USA





# GREAT LAKE, USA



Connection between Cleveland and Chicago

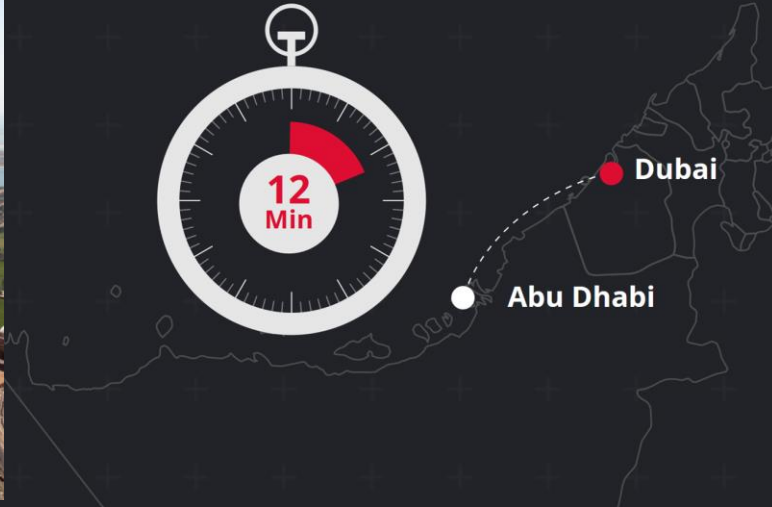
first track which is to be expanded into a network at a future stage



# SOUTH KOREA



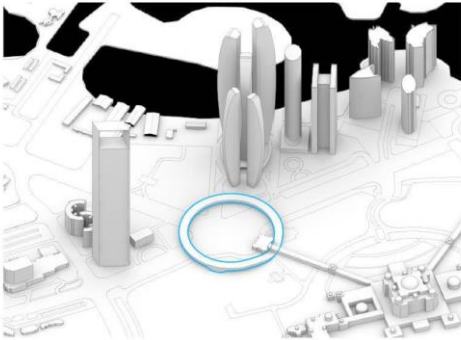
# DUBAI - ABU DHABI



# DUBAI - ABU DHABI

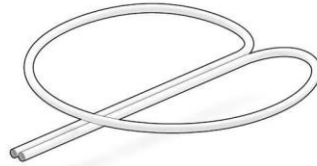


# PORTALS



**ETIHAD TOWERS, ABU DHABI**

The portal forms a pedestrian connection around a busy intersection. The length of the perimeter allows passengers to board from every direction.



ETIHAD TOWERS



BURJ KHALIFA

## ADAPTATION

The perfect location for a portal is at points of high passenger density, which is typically in the center of a city. The shape of the portal can adapt to any site and context.



**BURJ KHALIFA, DUBAI**

The tight site requires a compact solution, so the portal is organized as a spiral and is contained almost entirely belowground. The interior becomes an arena-like bowl with all gates immediately visible from the point of entry.





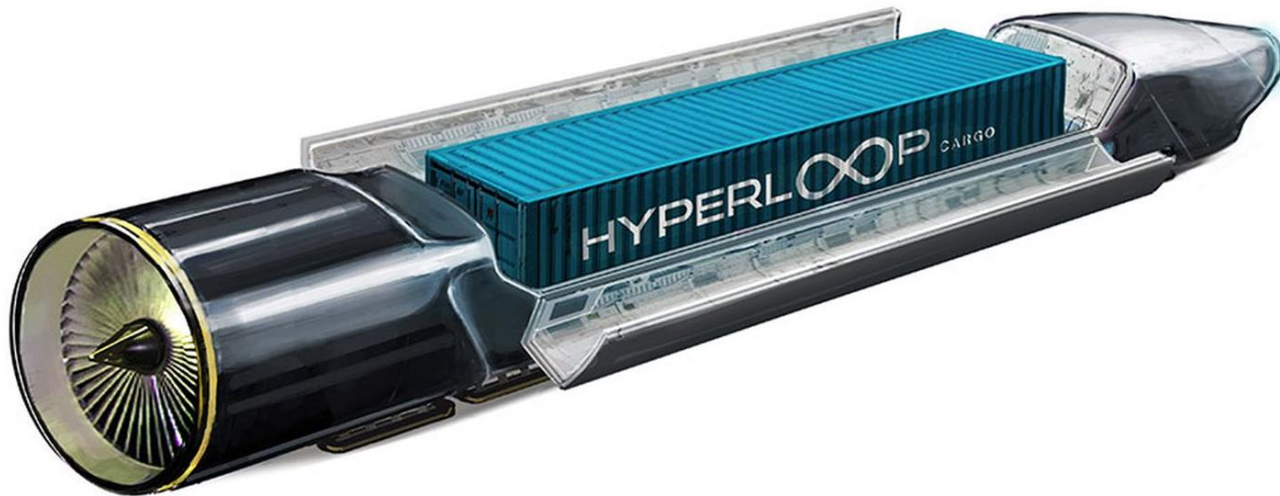


An aerial night view of the Dubai skyline, featuring the Burj Khalifa as the central focus. The city is illuminated with various lights, and the sky is a deep blue. The Burj Khalifa is the tallest building, with its spire reaching towards the top of the frame. Other skyscrapers are visible around it, and the city's layout is clearly visible from above.

**EXPO 2020**  
**DUBAI, UAE**







HYPERLOOP



# Cargo





Choose a route and see how much time you  
can save with Virgin Hyperloop One.

ORIGIN CITY  DESTINATION CITY  ESTIMATE

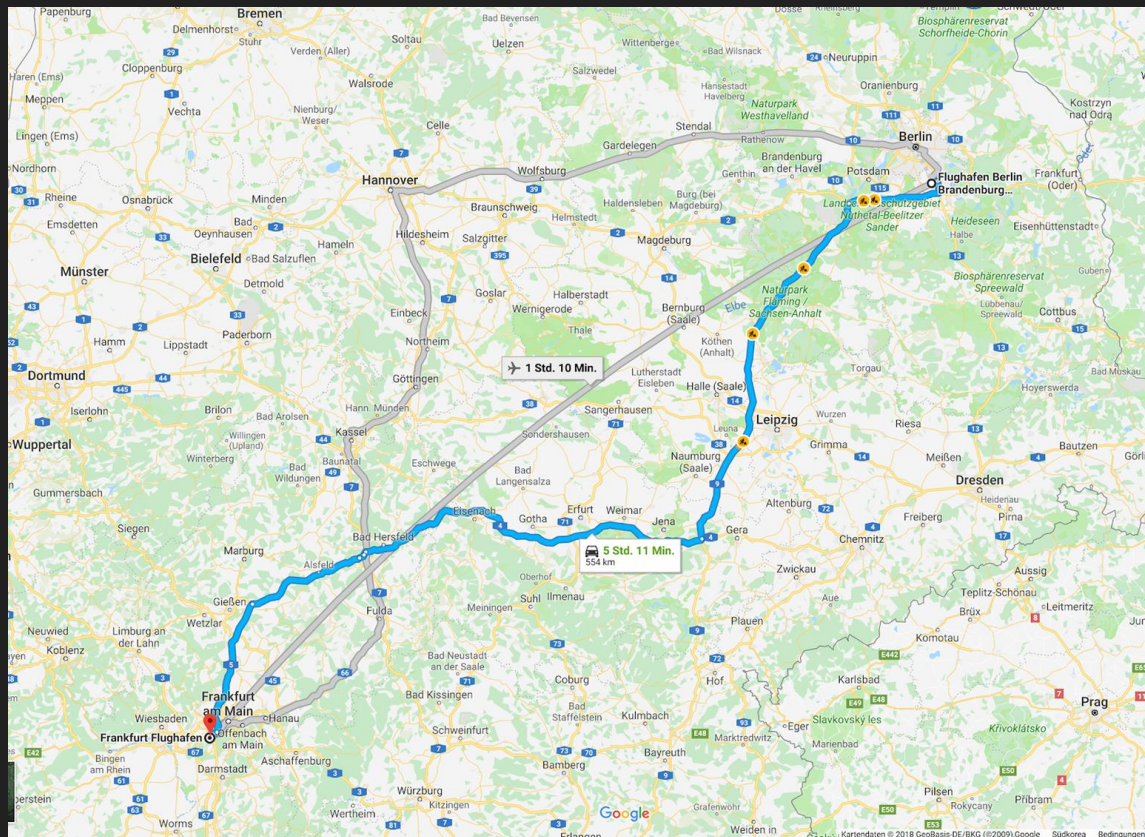
or choose an example route

- Dubai – Abu Dhabi
- Mumbai – Pune
- Los Angeles – Las Vegas

<http://hyperloop-one.com/route-estimator/>

# FRANKFURT - BERLIN

connecting the  
financial capital with  
the state capital





BUS:



7 H



FLIGHT:



3 ½ H



TRAIN:

4 ½ H

CAR:

**BERLIN**



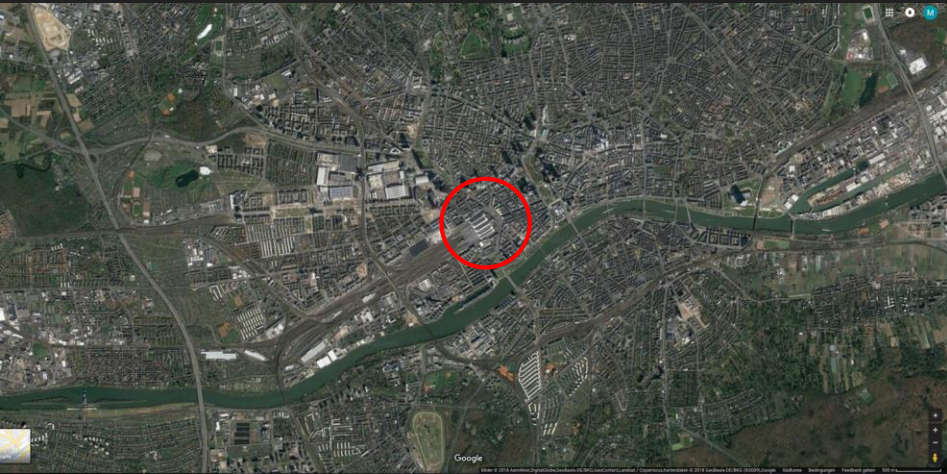
**FRANKFURT**

# FRANKFURT MAIN STATION

station is outdated

railway terminus

working to capacity





# FRANKFURT MAIN STATION

ground floor:

train

underground:

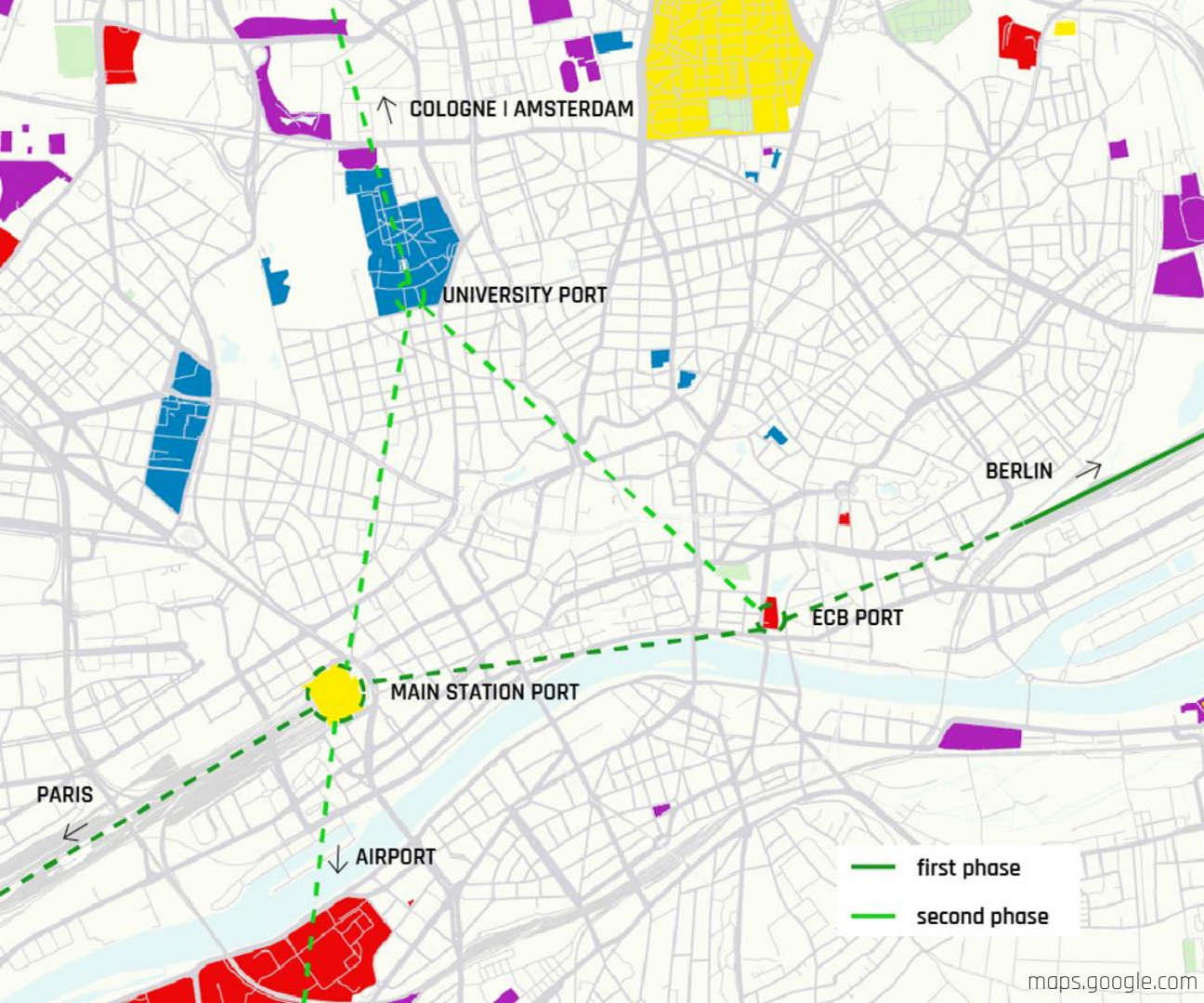
subway

hyperloop

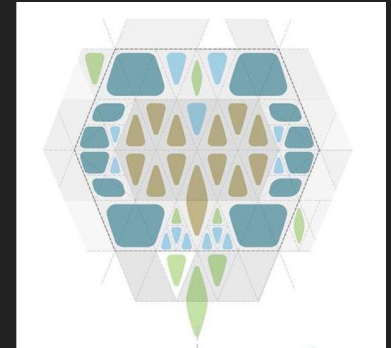


Hauptbahnhof **Frankfurt (Main)**

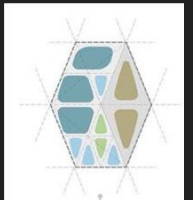




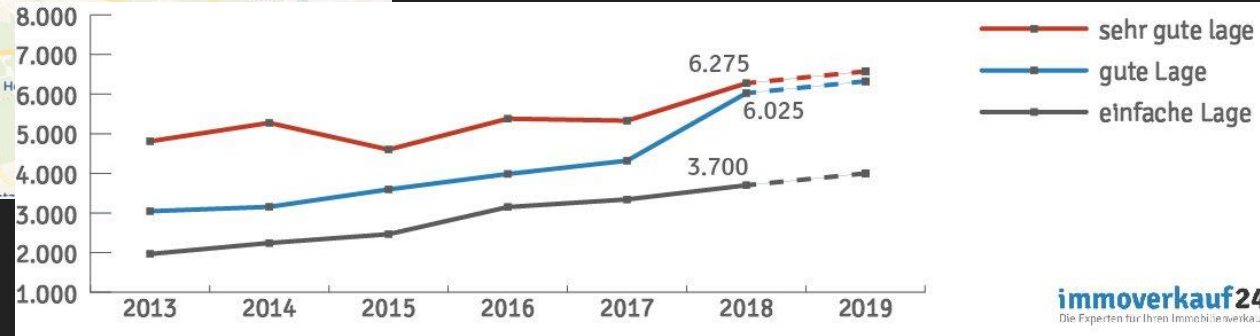
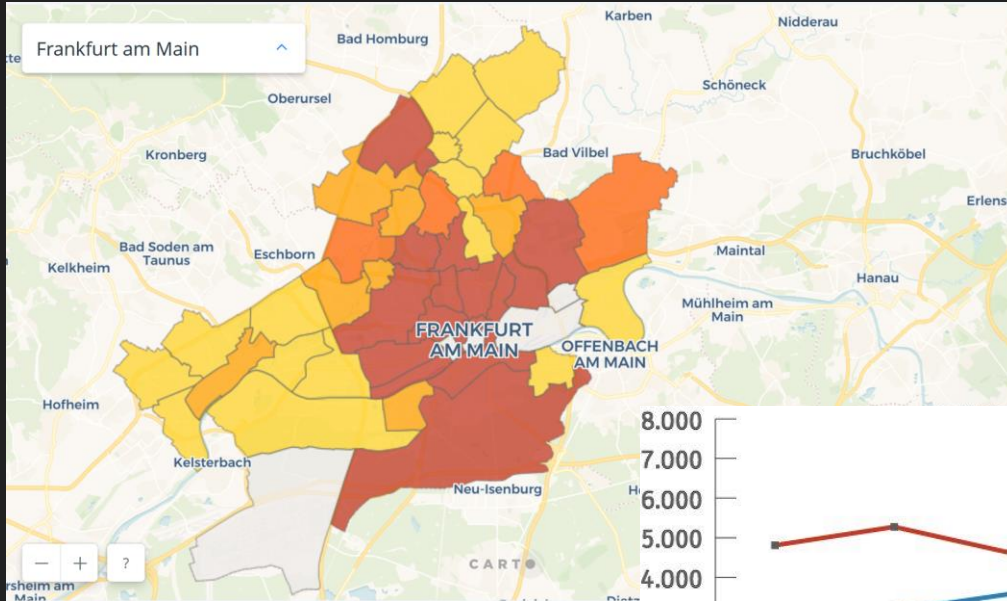
## Main Station Hub: Integrated Hub



## University Port & ECB Port: City Hopper



# FRANKFURT REAL ESTATE



<https://www.immoverkauf24.de/immobilienpreise/preise-frankfurt/>



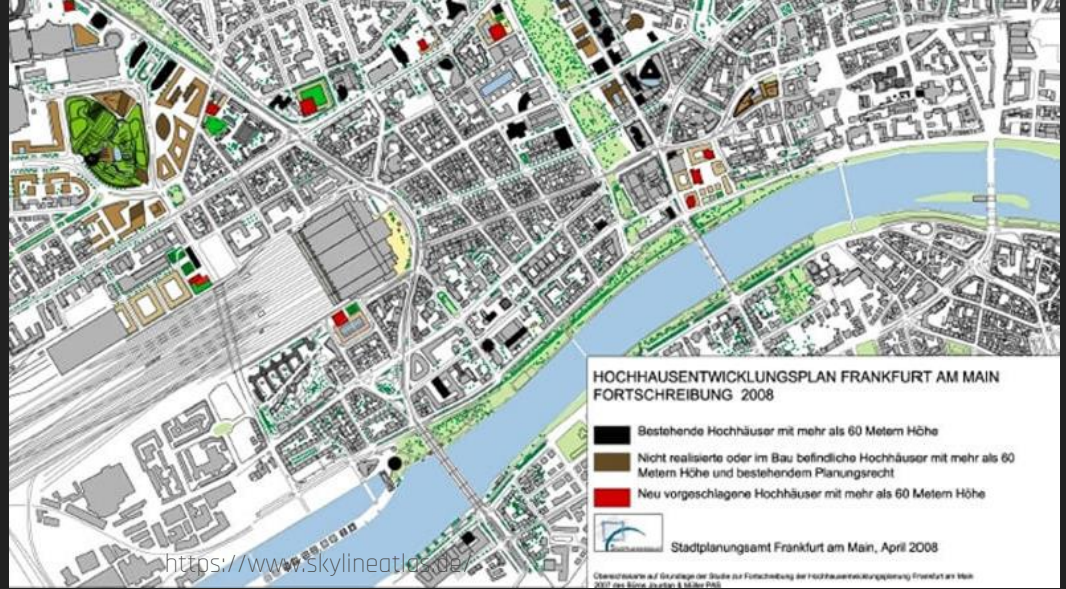
# FRANKFURT HOTELS



## ● 25 Hochhäuser aktuell im Bau (05.12.2018)

WinX (01/2019)  
Marienurm (03/2019)  
Lyoner Straße 40 (04/2019)  
Hahnstraße 30-32 (07/2019)  
Grand Tower (07/2019)  
OmniTurm (09/2019)  
Blue Horizon (2019)  
Wohnquartier am Westhafen (2019, 2 Türme)  
Lyoner Straße 11 (2019)  
Onyx (2019, Bauarbeiten zur Zeit eingestellt)  
One Forty West (03/2020)  
Morrow (04/2020)  
DB Tower (06/2020)  
Global Tower (07/2020)  
b'mine Hotel Frankfurt (12/2020)  
EDEN Frankfurt (2020)  
The Spin (2020)  
SOLID Home (2020)  
160 Park View (2020)  
FAZ-Hochhaus (2020)  
New Frankfurt Towers (2020, 3 Türme)  
ONE (12/2021)

<https://www.skylineatlas.de/>



[https://www.skylineatlas.de/wp-content/uploads/2017/01/silhou\\_skyline\\_dark.jpg](https://www.skylineatlas.de/wp-content/uploads/2017/01/silhou_skyline_dark.jpg)

**Q&A**

# REFERENCE

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