



**INFRABEL**

# Optimierung der Kapazitätsauslastung: Vorbereitung des belgischen Eisenbahnnetzes auf zukünftiges Verkehrswachstum

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13/05/2026



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  - Optimising the network
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# We are Infrabel: Mission & Key Figures

## INFRABEL

Manages all rail traffic on the Belgian network

Builds, maintains and modernizes Belgian rail infrastructure

Is responsible for the pricing, billing and collection of charges for the use of railway infrastructure

Allocates capacity on the Belgian rail network



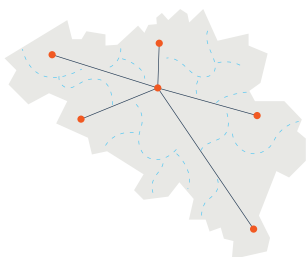
**9.579**  
colleagues (end 2024)



**1.240.577**  
passenger trains (in 2024)



**142.766**  
Freight trains (in 2024)



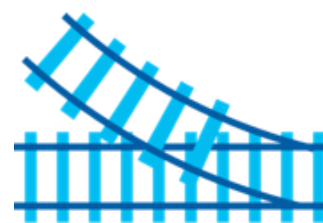
**3.615**  
kms of lines



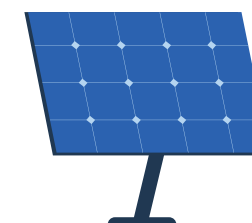
**11.713**  
civil engineering structures



**1.612**  
level crossings

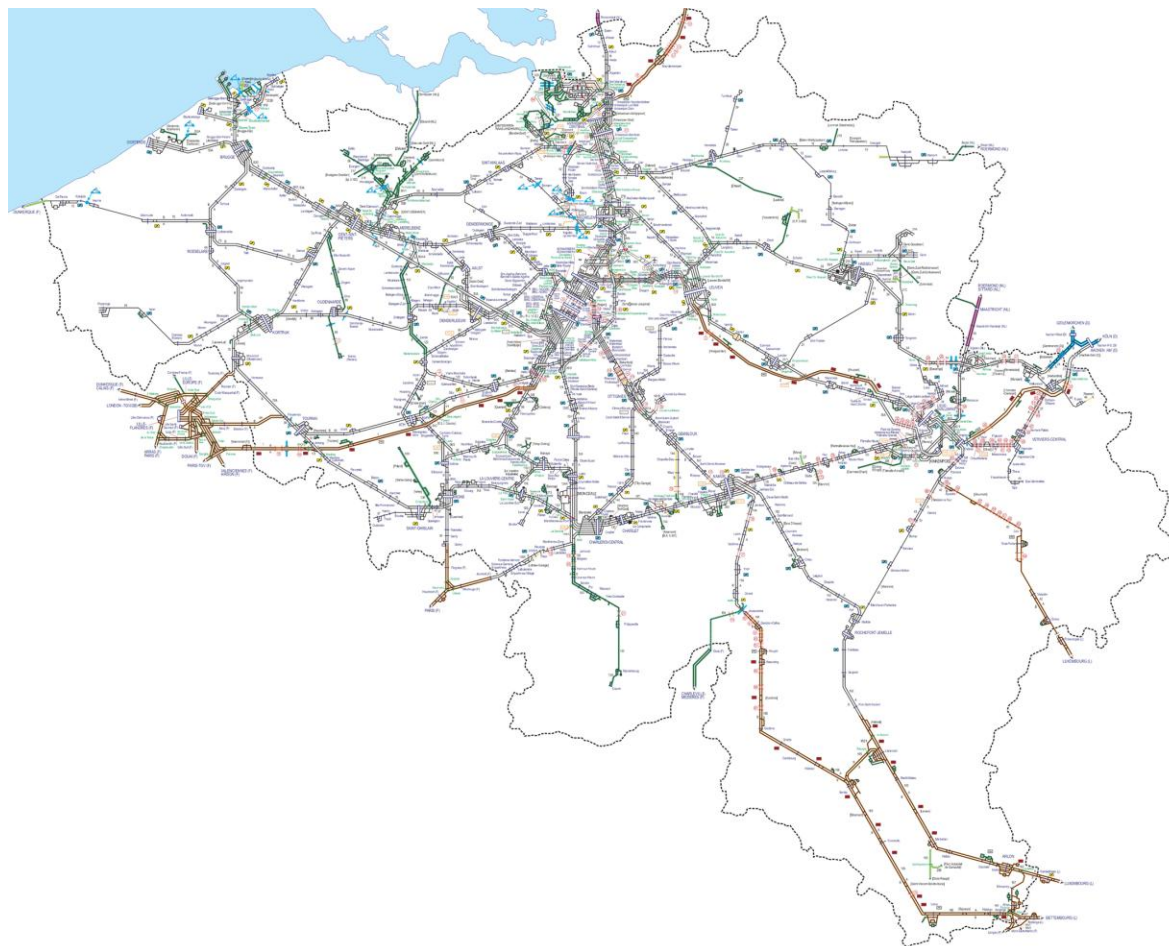


**4.010**  
track switches and crossings



**29%**  
of renewable energy in total energy consumption  
(total energy consumption of 272.188 MWh)

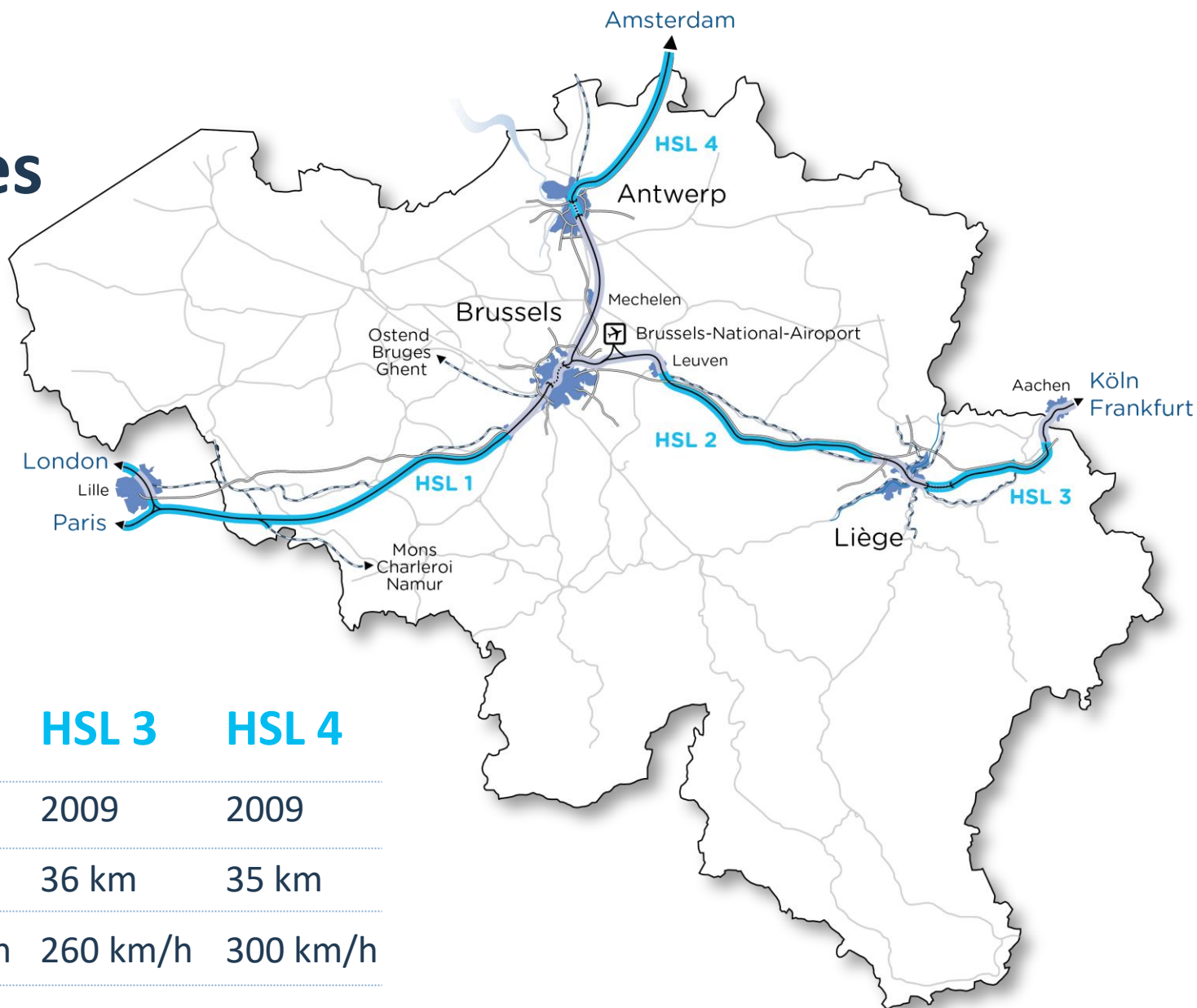
# We are Infrabel: Our network



- A **dense and heavily used network**, with an important **transit** function (freight and passenger)
  - 4 passenger applicants
  - 16 freight applicants
- **556 passenger stations, 10 ports & terminals**
- Network fully equipped with **ETCS** (except HSL1)
- Approximately 90% of the network is **electrified**
- Network characterised by **closely spaced hubs, nodes** and (cross-level) **junctions**.
- 16 active **border crossings** where coordination is needed.

# We are Infrabel: Our High-Speed Lines

Our high-speed network is finished and is an important link for international transit traffic between the Netherlands, Germany, France and the UK.

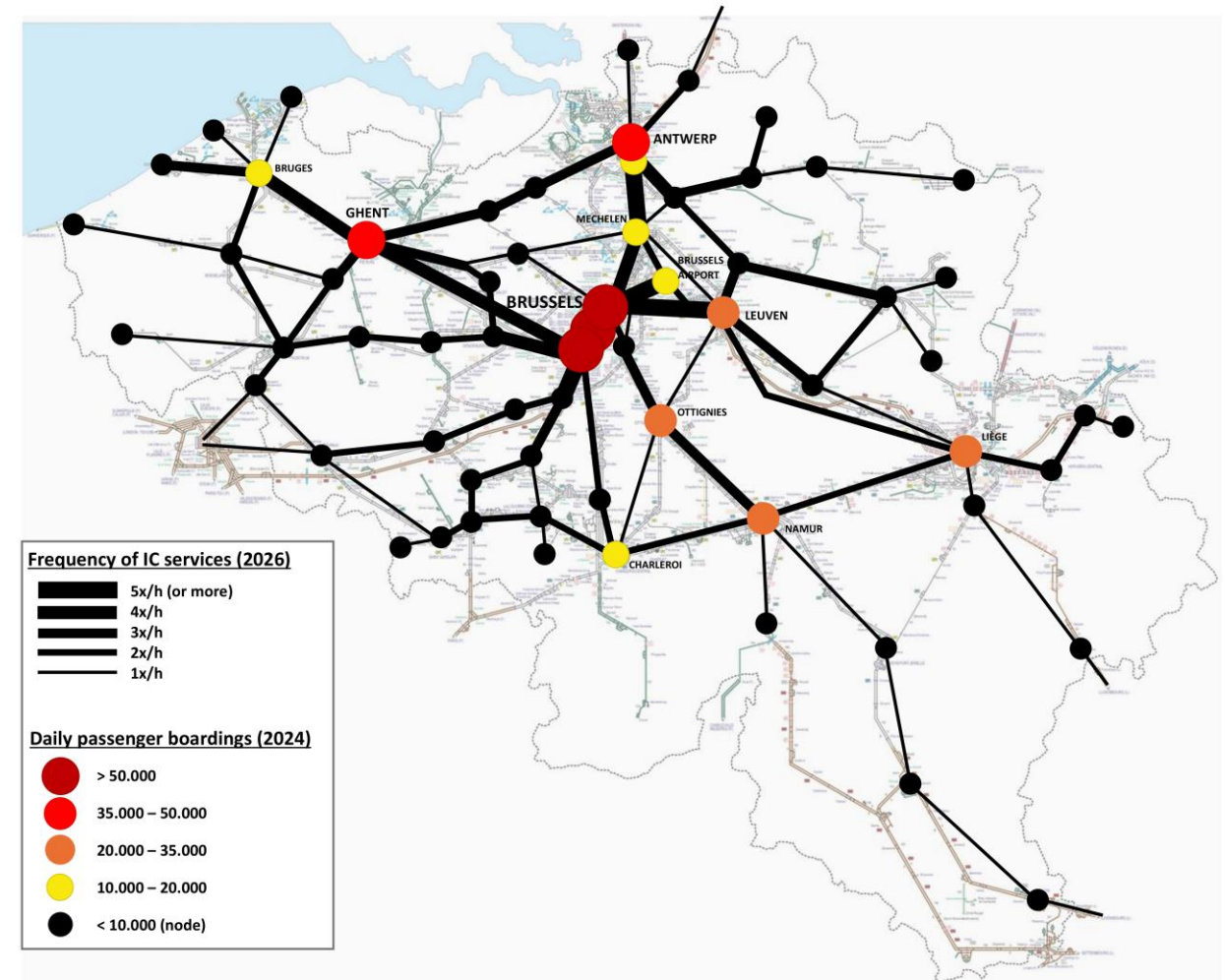


	<b>HSL 1</b>	<b>HSL 2</b>	<b>HSL 3</b>	<b>HSL 4</b>
Operational since	1997	2002	2009	2009
Length	71 km	64 km	36 km	35 km
Speed (reference)	300 km/h	300 km/h	260 km/h	300 km/h

# Our Network and its utilisation

## Domestic passenger services (PSO)\*

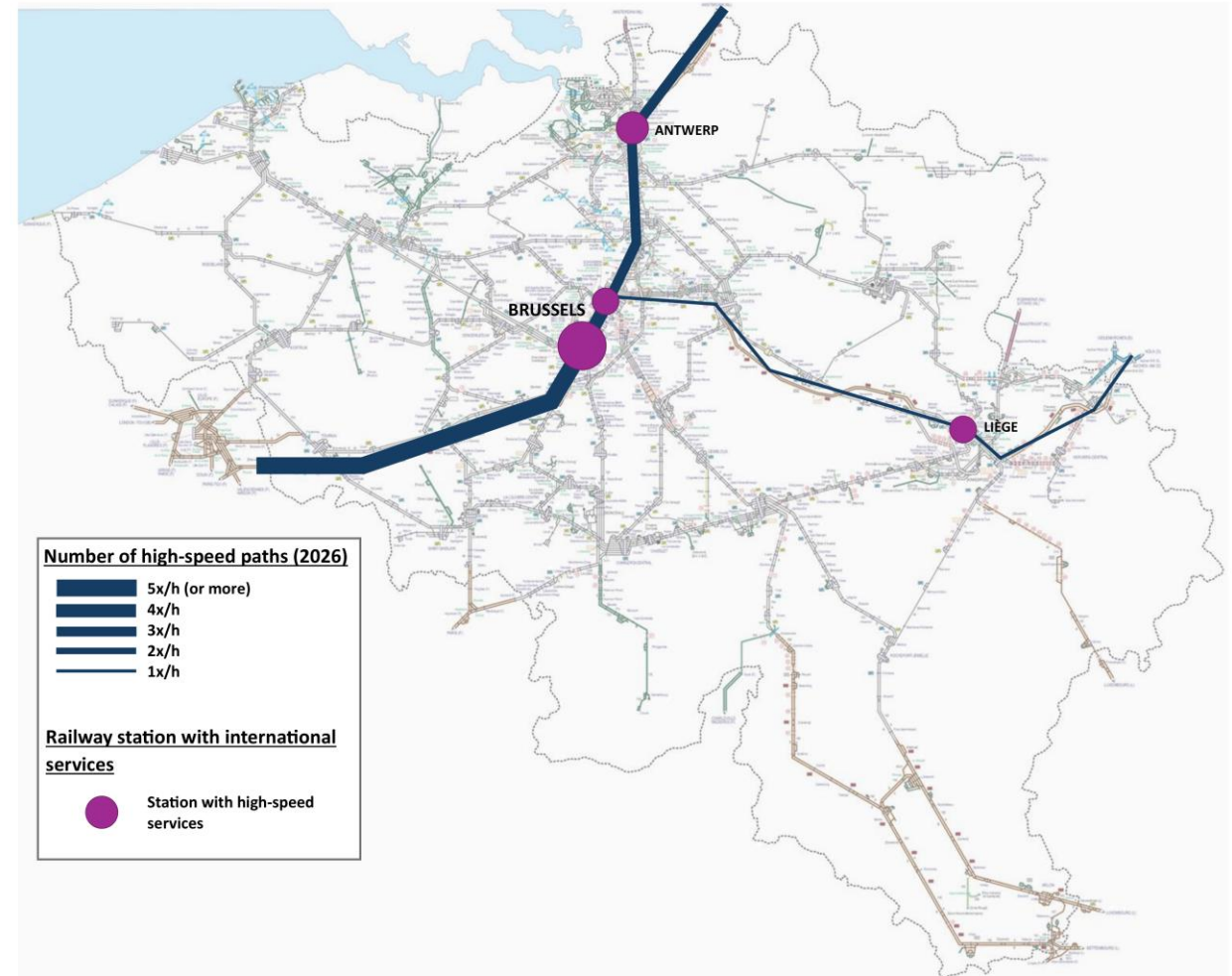
- Today **one operator**: NMBS/SNCB operating IC, L, S and P trains
- Major passenger flows **between largest cities**
- Domestic transport plan primarily **oriented towards Brussels**
- **Hourly clock-face service**, but gradually growing towards 30' frequencies



# Our Network and its utilisation

## International high-speed services

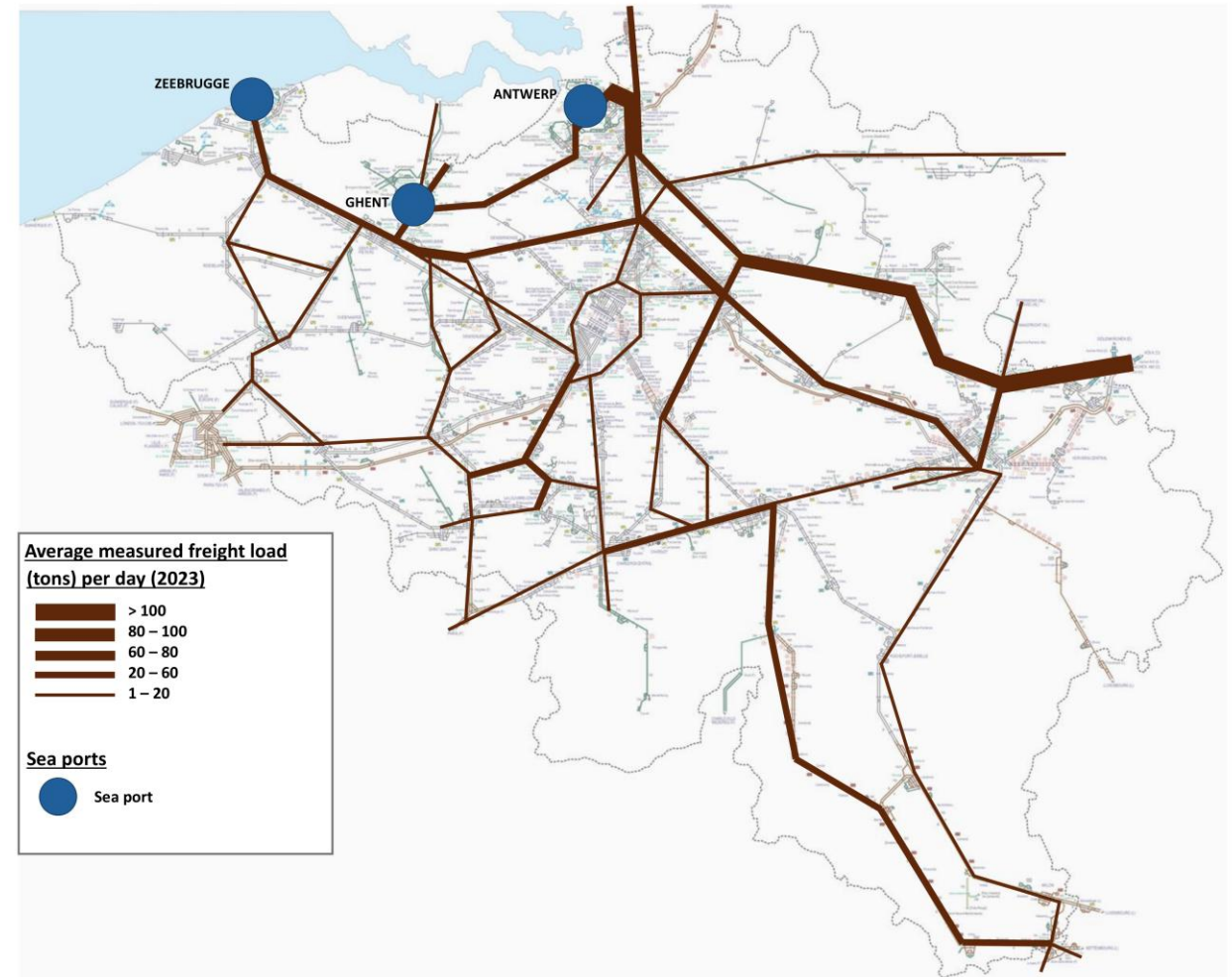
- Clock-face paths to the Netherlands, Germany, France & the UK
- High-speed network is **internationally oriented**, with limited shared use for domestic traffic (on 2 of 4 high-speed lines)



# Our Network and its utilisation

## Freight flows

- Most freight flows are **internationally oriented**
- Major freight flows **between sea ports** (Zeebrugge, Ghent and Antwerp) and Germany, France and the Netherlands



# International Passenger traffic: the market is growing

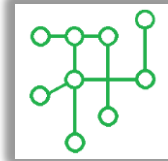
## The future market:



*More applicants will be requesting capacity for international passenger services*



*The market will grow*



*How is this market translated into a working timetable, capacity needs and available infrastructure*



*Challenge to tackle, knowing the PSO-market and the freight market are evolving as well*



Deutsche Bahn and Trenitalia want piece of Amsterdam – Brussels – Paris HST service via subsidiaries Arriva an Qbuzz



Leo Express to launch new Bratislava-Brussels connection

**Alstom to supply Belgium's SNCB with up to 50 electric Traxx passenger locomotives**

- First firm order of 24 locomotives worth around €120 million
- Locomotives for domestic and cross-border journeys between Belgium, the Netherlands, Luxembourg and Germany
- The most sustainable mobility solution in their category

**New Eurostar rivals could increase services and cut costs for travellers**



By Angela Symons  
Published on 13/11/2023 - 18:15 • Updated 14/11/2023 - 14:52  
Share this article Comments  
Virgin's Richard Branson will reportedly be the next to challenge Eurostar's 30-year monopoly on cross-Channel trains.

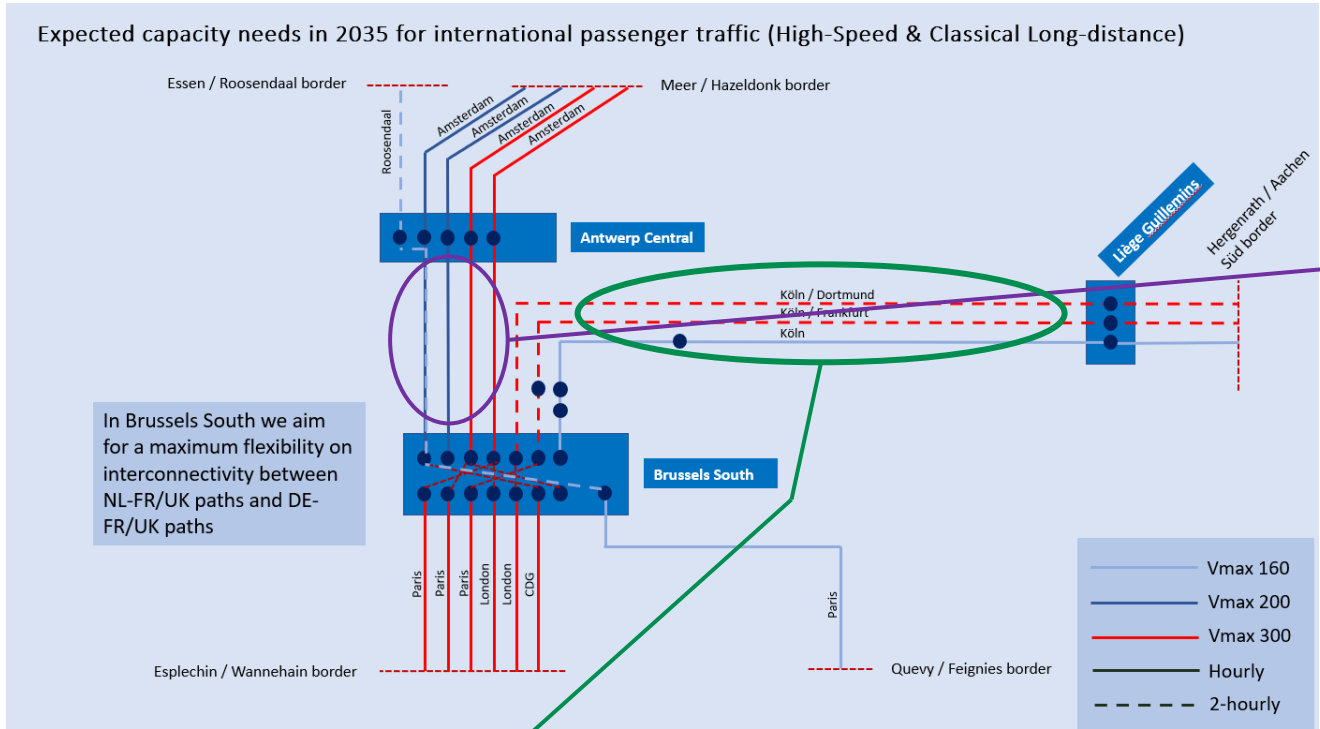
**EVOLYN TO ACQUIRE 12 HIGH-SPEED ALSTOM TRAINS TO LINK UK AND EU**  
October 11, 2023

The project of the new operator in the Channel Tunnel involves an investment of 1 billion GBP

HEURO

OUR MISSION IS TO BECOME  
**EUROPE'S NEXT HIGH-SPEED TRAIN OPERATOR**

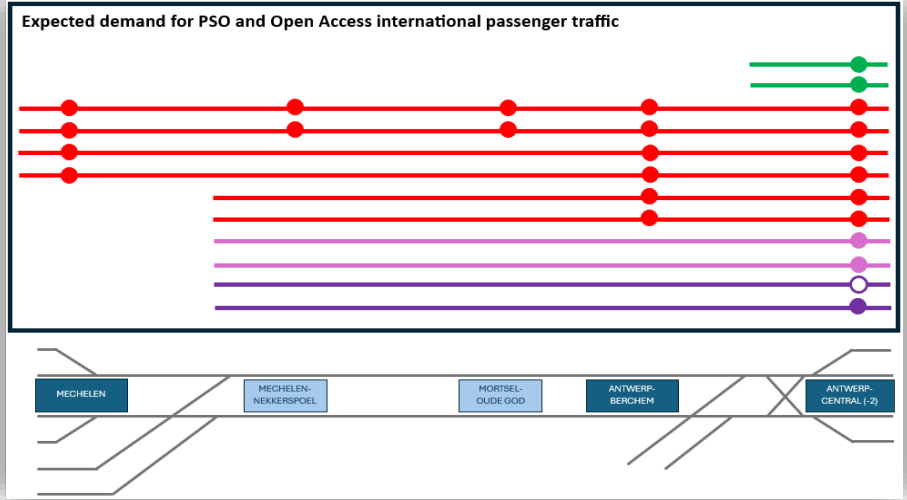
# International Passenger traffic: the market is growing



Significant increasing capacity demand for international passenger trains on corridors with heavy PSO traffic:

### Antwerp – Brussels (L25/L25N):

- 6 heterogeneous Intercity slots between Antwerp & Mechelen (2 to Brussels Airport)

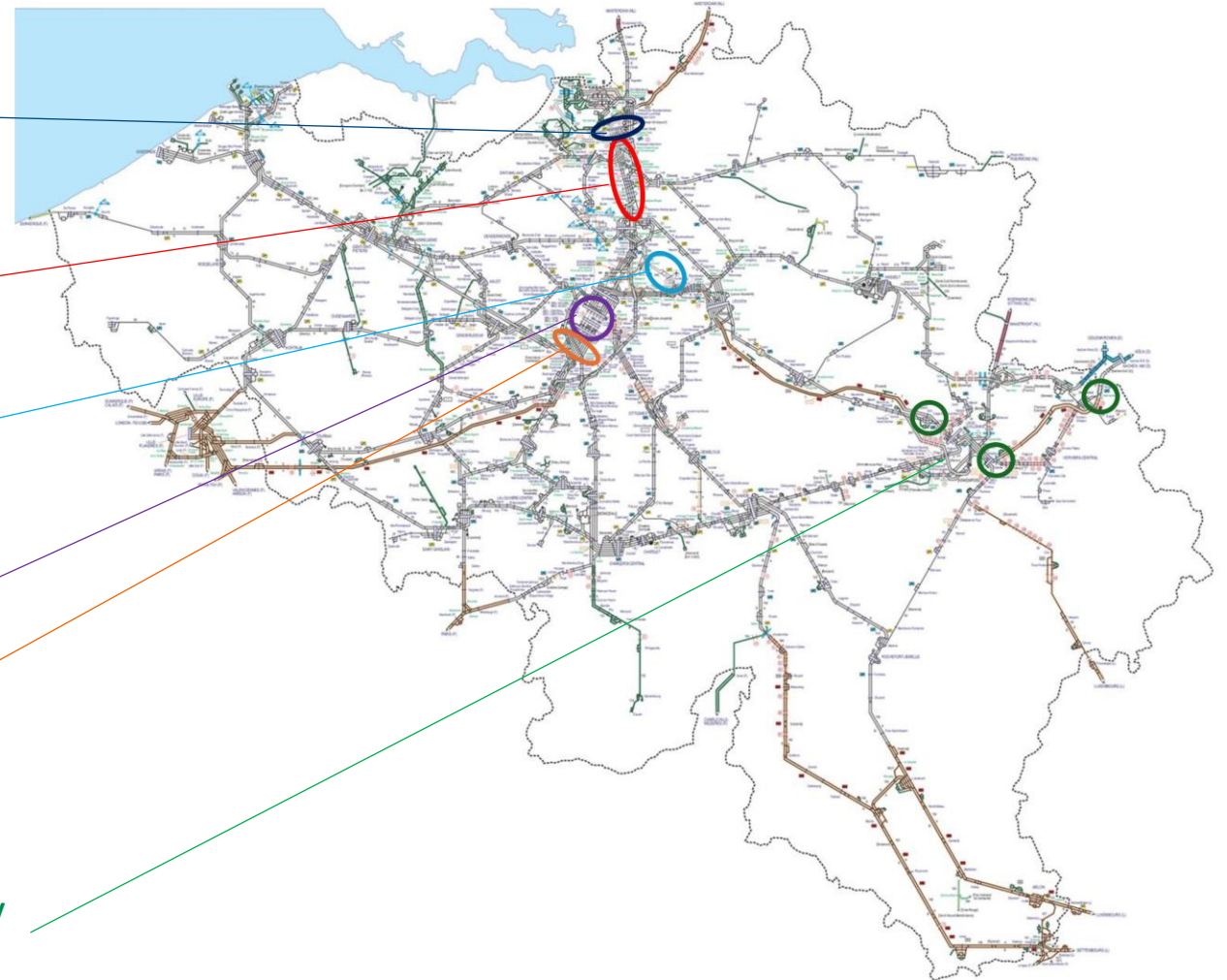


### Liège – Brussels (L36N):

- Heaviest part between Leuven and Brussels
  - 7 Intercity/hour of which 2 via Brussels Airport

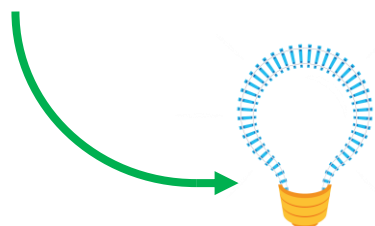
# Today's capacity challenges on international passenger corridors

- Antwerp Central station: 4 through tracks
- Brussels-Antwerp corridor: 2 track section between Mechelen (flat junction) and Antwerp-Berchem with very high, heterogeneous traffic volumes
- Brussels Airport station: limited station capacity (3 tracks)
- Brussels North-South Junction: 6 tracks with very high traffic volumes
- Brussels South station: limited station capacity
- Sequence of 3 flat junctions on Brussels-Germany corridor: Ans, Y.Chênée, Y.Hammerbrücke



# Tackling the capacity challenges

How to cope with increasing market demand and heavily used infrastructure?



By international coordination and national optimisation

## International cooperation & coordination

- Anticipate market demand and harmonise cross-border volumes
- Pre-planning in anticipated phases to align paths and have them well structured at border points

## National optimisation

- Homogenisation of train paths
- Logical sequences of fast vs slow paths
- Bottleneck-oriented planning on flat junctions

## International working groups and processes



EuroLink, an RNE Working Group building Europe's future rail capacity concepts through coordinated, cross-border planning and strategic timetable design.



Through RNE's ACP working group, working on Capacity Strategies, Capacity Models, and Capacity Supply Plans.



Internal working groups on optimising capacity and good use of our network.

# Tackling the capacity challenges: EuroLink (1)

The story of EuroLink, triggered by challenges on the London-Amsterdam corridor.



➔ **Need for better alignment and configuration of a European wide timetable for freight and passenger traffic, for national and international**

## EuroLink:

- Initiated by ProRail, SBB, Ostschweizer
- Fachhochschule and Infrabel
- 2020 – 2024: as an informal thinking tank
- Since January 2025: An RNE Working Group with a common Mission Statement
  - Integrate existing national strategic planning frameworks with an approach of European added value
  - To showcase European benefits of national infrastructure investments and thus boost commitment to infrastructure funding.
  - To enable RNE and its Members to fulfil challenges from EU institutions / legislation.



# Tackling the capacity challenges: EuroLink (2)

## EuroLink's Philosophy

Working on 4 main axes



**Higher Frequencies:** systematic (cross-border) paths with potential for growth



**Short travel times:** to improve attractiveness

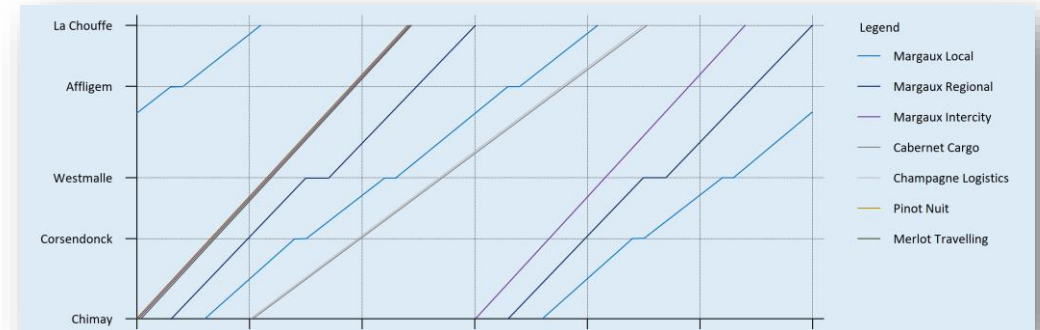
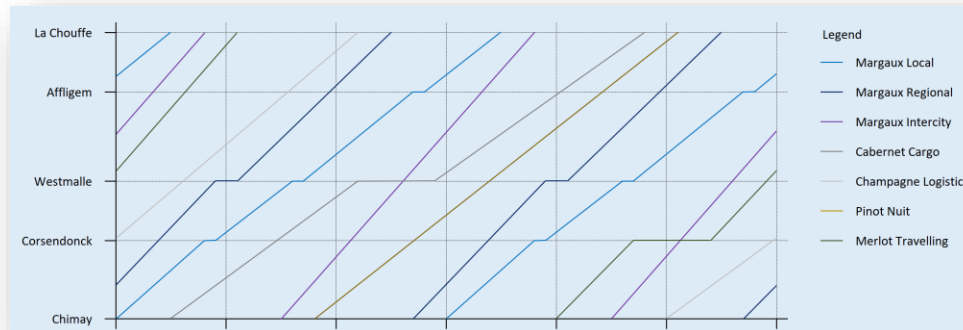


**Direct connections:** between core markets (based on market insights)



**Optimise transfers:** attractive transfer times in hubs for non-direct connections

By systematic timetabling to maximize capacity



By involving the market: dialogue with applicants, ministries, NGO's, ... and create support  
 Input for ACP (Capacity Strategies, Capacity Models and Capacity Supply Plans)

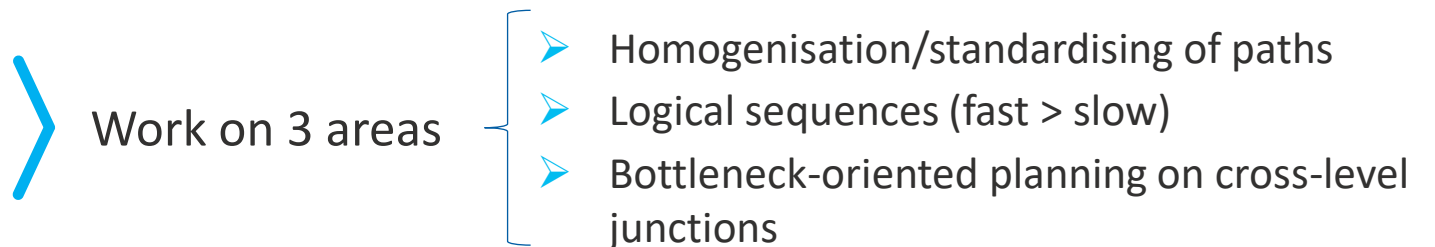
# Tackling the capacity challenges: Optimisation (1)

**Optimising our network:** a necessity to improve the use of our network, and to create adequate answers in terms of capacity concepts to the evolving market.

➔ **Nationally also need for a better alignment:** through the EuroLink Working Group, there is a platform wherein we aim:

- to work on integrated (national – international) Capacity Concepts
- to work together with the relevant partners (PSO-operator, ministry, ...)

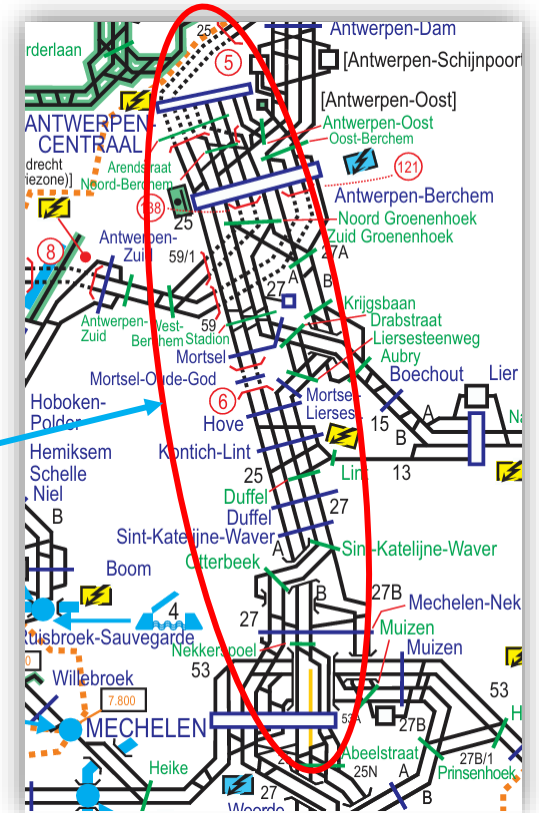
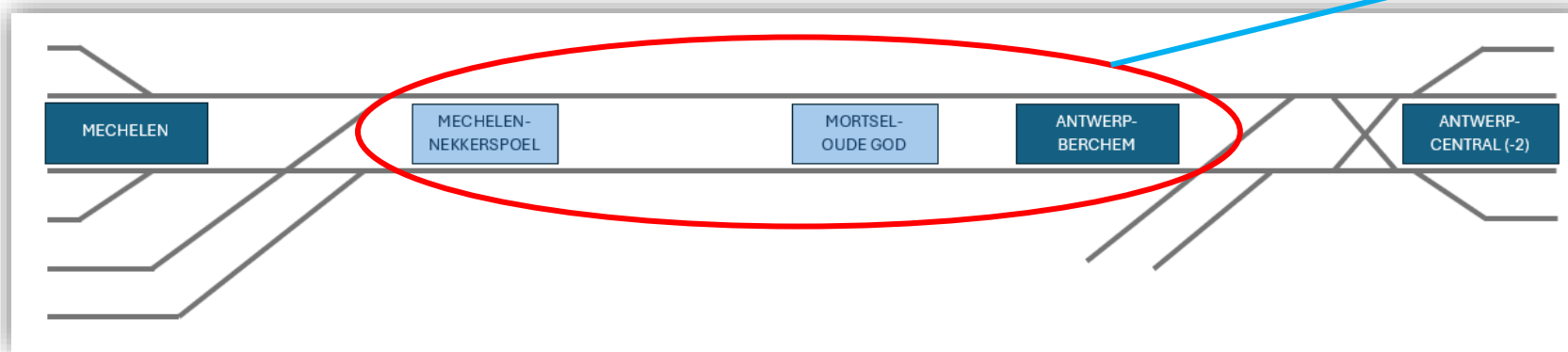
Infrabel aims to optimise capacity on its network to cope with the evolving market: Passenger & Freight – National and International



# Tackling the capacity challenges: Optimisation (2)

## Optimising our network: Case study Mechelen – Antwerp

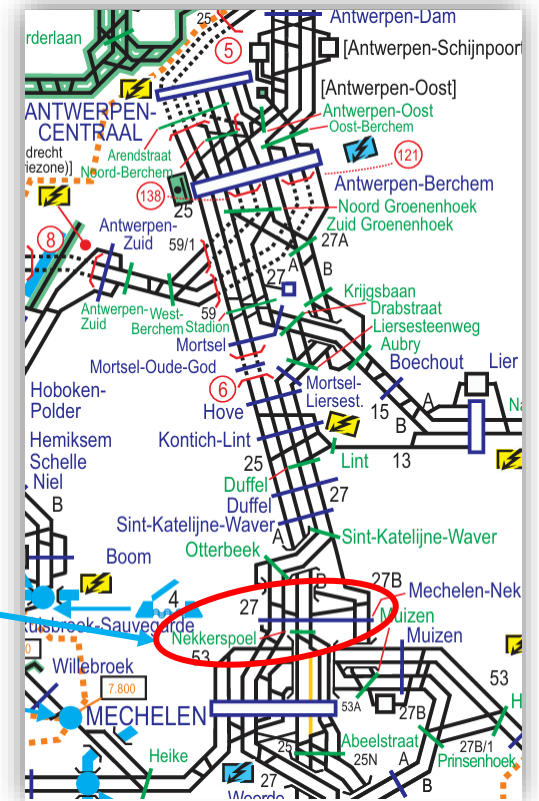
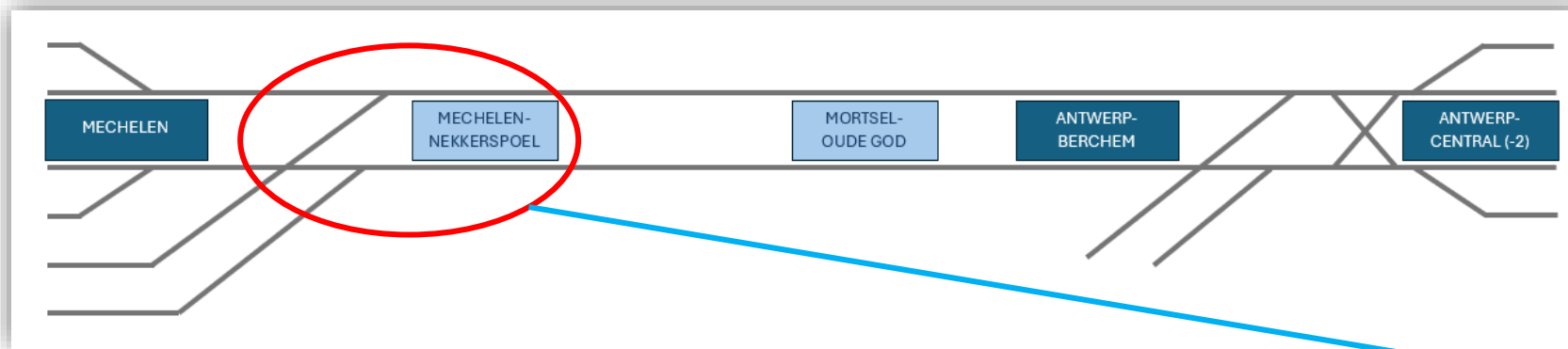
- Applying EuroLink Philosophy on standardising and optimising via systematic timetabling
  - Introducing of constant average speed and a more even distribution of stops along the route.
  - Mixed use of paths (ex. London-Amsterdam path can also be used for a night train Brussels-Prague)



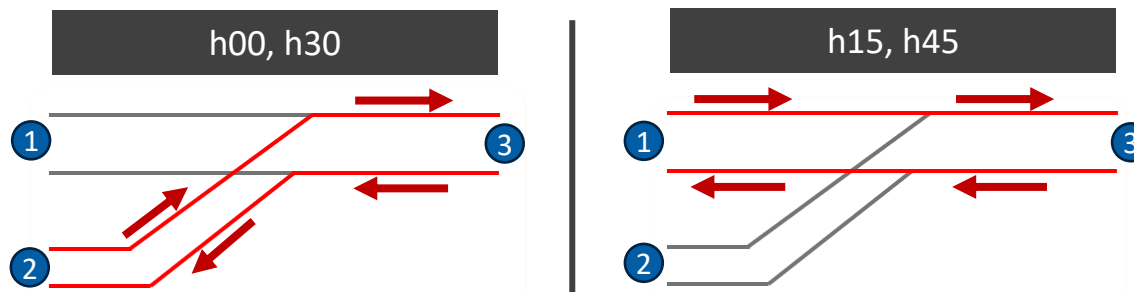
# Tackling the capacity challenges: Optimisation (3)

## Optimising our network: Case study Mechelen – Antwerp

- Bottleneck-oriented planning



- Inbound and outbound trains from the same corridor cross each other at the junction



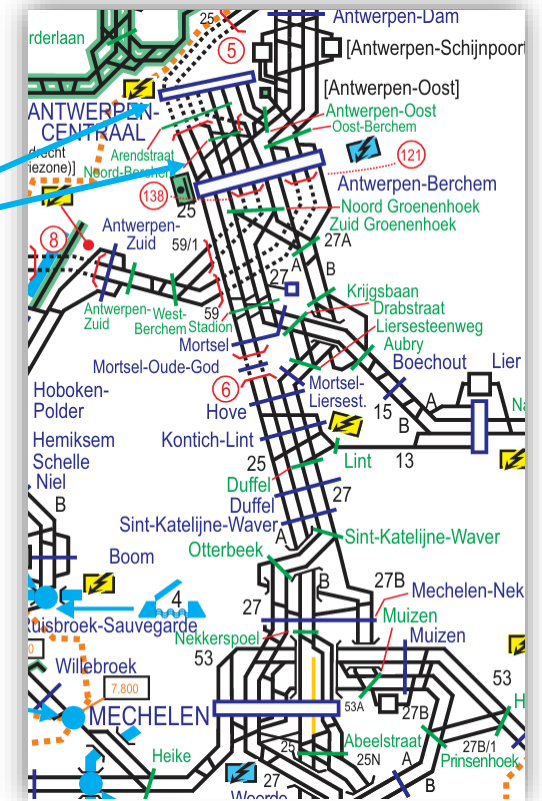
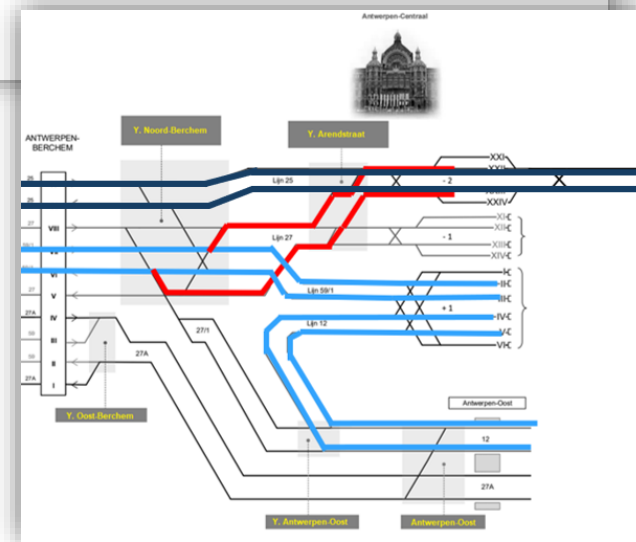
# Tackling the capacity challenges: Optimisation (4)

## Optimising our network: Case study Mechelen – Antwerp

- Efficient use of infrastructure to increase capacity (and improve robustness)



- The infrastructure defines the preferred routes (corridor pattern)
- No terminating trains at Antwerp Central station -2 level



# Conclusions

The challenges ahead are significant, and we have work to do!



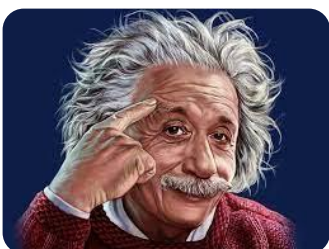
## We need to study!

- Studying and understanding the market
- Build capacity concepts that respond to the market
- Be creative and think outside of the box to find solutions



## We need to cooperate!

- With partner Infrastructure Managers to tackle international challenger together
- With applicants (PSO & Open Access) and PSO-authorities to find solutions together.



## We need to learn!

- Wisdom is not a product of schooling, but of the lifelong attempt to acquire it.





THANK YOU 😊

Questions?



# Back-Up slides



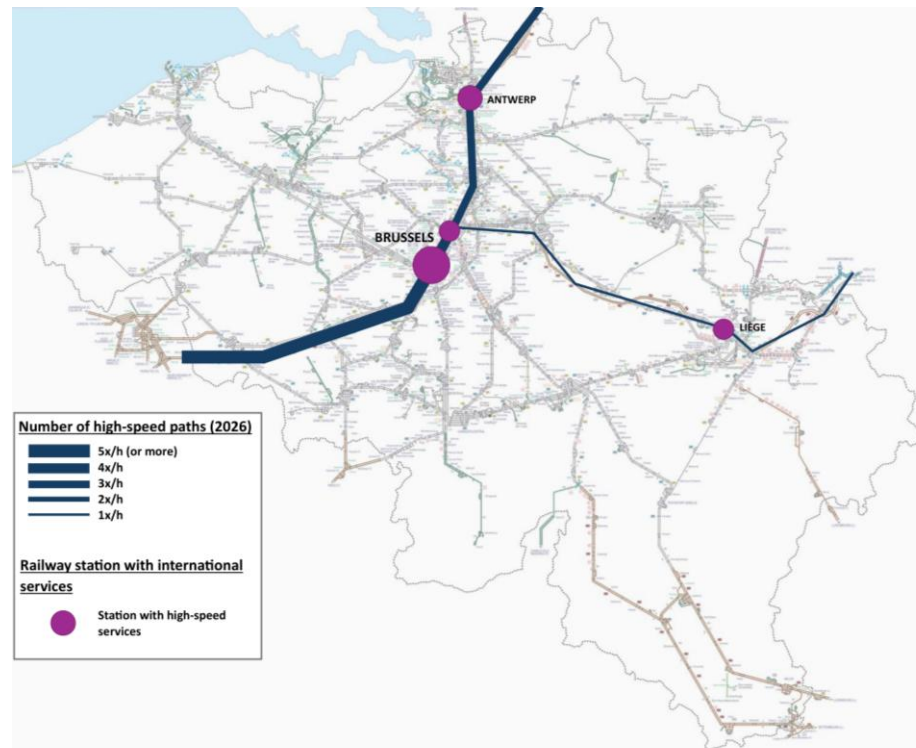
# Vortrag 1: Optimierung der Kapazitätsauslastung: Vorbereitung des belgischen Eisenbahnnetzes auf zukünftiges Verkehrswachstum

*The Belgian network faces numerous challenges. On one hand, the country's dense population creates the need for a high-frequency and efficient national passenger rail service. On the other hand, Belgium's strategic location at the heart of Europe drives significant demand for international rail traffic, both for destination and transit purposes. Furthermore, with the presence of major ports, freight traffic volumes are projected to double by 2030/2035 compared to the baseline year of 2019. In response, Infrabel is rising to the challenge and exploring ways to meet future capacity demands across the various market segments on the network.*

# Key Points of the Infrabel's presentation

- Who is Infrabel? Quick overview of some key numbers and our network
- Insights in the market, the actual transport plan, and how it will evolve
  - We have a dense national transport plan
  - Good international offer and connectivity
  - We see growing international demand (freight and passenger)
- The growing market leading to capacity challenges along the different axles
  - Focus on how the future market could be translated in capacity terms / timetable terms
  - Challenges in terms of cross border coordination and harmonisation
  - Identifying and tackling the capacity bottle necks which arise
- Potential through cooperation and smart capacity management
  - Set up of an international working group on long term cross-border capacity concepts: EuroLink
  - Studies on route management and capacity killers, and ideas to remove/solve them
- Working together with stakeholders
  - Involvement of RU's, Ministries, passenger organizations to establish support

# Our Network and its utilisation

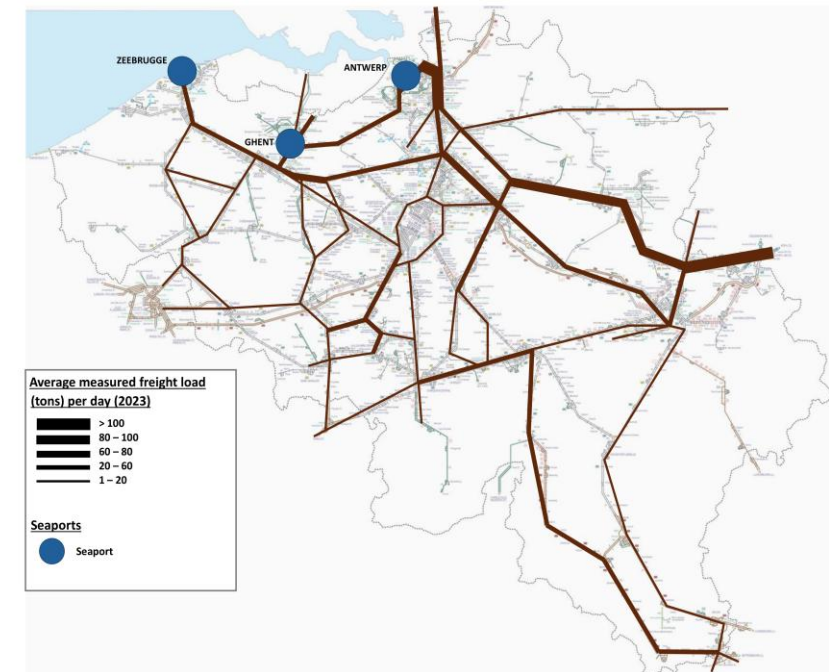


## International high-speed services

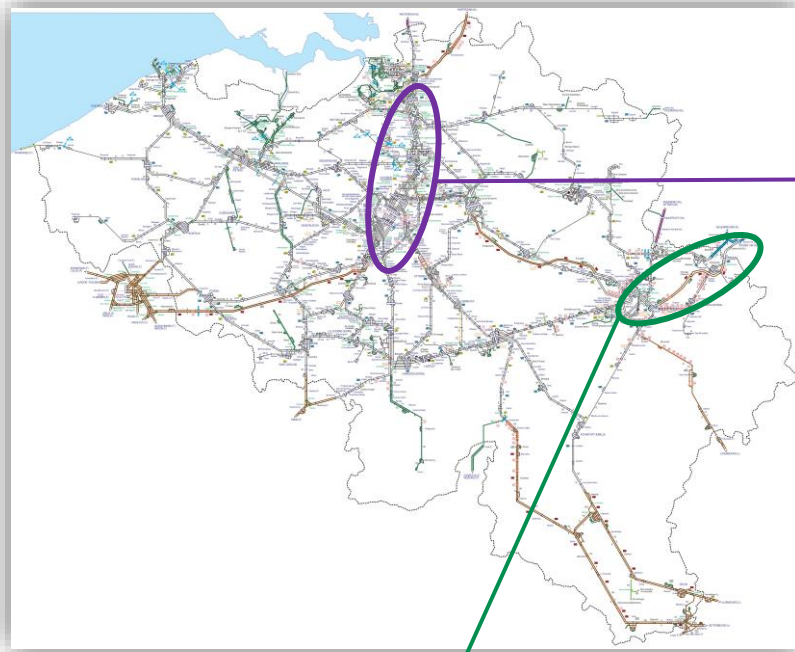
- Clock-faced paths to the Netherlands, Germany, France & the UK
- High-speed network is internationally oriented, with limited shared use for domestic traffic (on 2 of 4 high-speed lines).

## Freight services

- Most freight flows are internationally oriented
- Major freight flows between seaports (Zeebrugge, Ghent and Antwerp) and Germany, France and the Netherlands



# Today's capacity challenges on passenger corridors

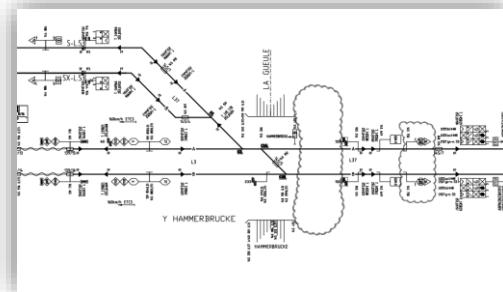
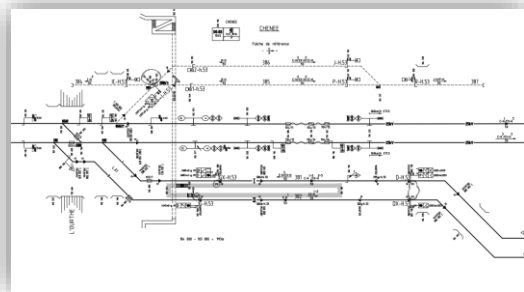


Antwerp Central Station

Antwerp – Brussels Corridor  
➤ High Volumes & Heterogen patterns

Brussels Airport

Brussels North South Junction (6 tracks) and Brussels South station



Junctions Chênée & Hammerbrücke

