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Innovation as a response to Challenges and Opportunities in Multimodal Transport:

The B-TC – BASF Class Tank Container

Samer Ghandour
Business Development Lead – Railway Undertaking and Intermodal Strategy

20.11.2026 – UIC/ UIRR Combined Transport Report 2026

BASF’s segments

Core businesses

Standalone businesses

Chemicals



Petrochemicals

Intermediates

Materials



Performance Materials

Monomers

Industrial Solutions



Dispersions & Resins

Performance Chemicals

Nutrition & Care



Care Chemicals

Nutrition & Health

Surface Technologies



Environmental Catalyst and Metal Solutions



Battery Materials

Agricultural Solutions



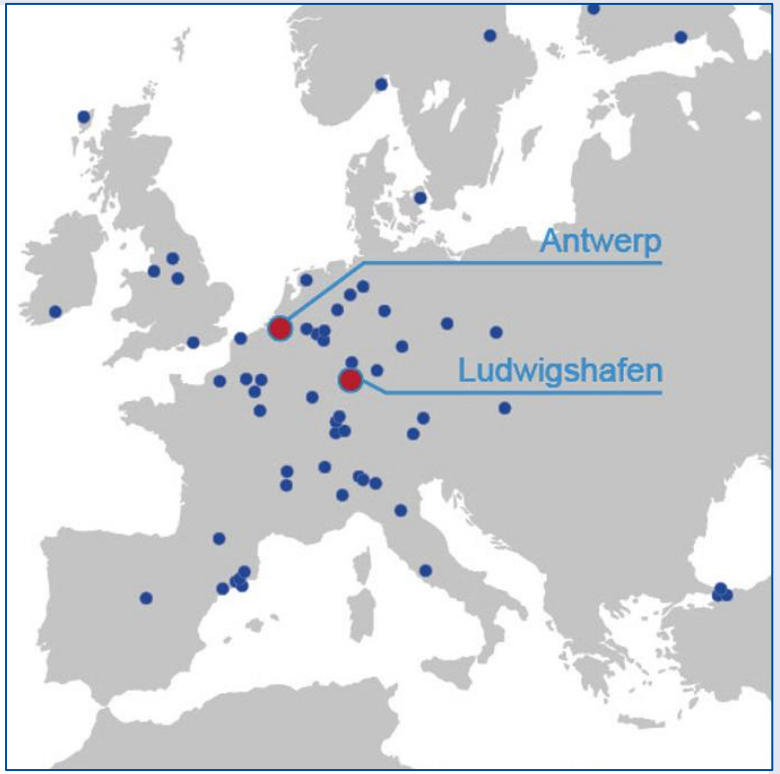
Agricultural Solutions

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- Our chemistry is used in almost all industries
- We combine economic success with environmental protection and societal responsibility
- Sales 2025: €59.7 billion
- EBITDA before special items 2025: €6.6 billion
- Employees (as July 2026): ~ 95,000
- 234 production sites including 7 Verbund sites
- Over 75,000 customers in almost every country in the world



Production sites

Verbund sites

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BASF Ludwigshafen & Antwerp

- ~ 10km² - site
- ~ 125 production plants
- ~ 106 km streets
- ~ 210 km rail tracks
- 3 inland ports
- 2 intermodal terminals

BASF Ludwigshafen



Conventional rail

Intermodal rail

Barge



- ~ 6km² site
- ~ 54 production plants
- ~ 152 km streets
- ~ 41 km rail tracks
- 1 deep seaport
- 1 intermodal terminal

BASF Antwerp



KTL Kombi-Terminal Ludwigshafen



BASF TCL
(Tank Container Storage Yard)



Block trains connecting both sites



Combinant Combined Terminal Antwerp

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Different chemical product specifications drive different technical requirements



The B-TC concept in Ludwigshafen provides diverse advantages:

- Lower costs
- Equipment is defined as intermodal unit
- Flexible use within the intermodal system compared to rail tank car
- Higher availability through separation of the tank (B-TC) from the rail wagon (or rail car)
- B-TC as “mobile” storage tank yard provides new opportunities
- Better handling through diverse transport modes (speed, flexibility)

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The Innovation of B-TCs compared to other equipment



Classical rail tank car
70.000 liter volume
64 tons payload



BASF Class Tank Container
up to 73.000 liter volume
66 tons payload



Standard tank container
25.000 – 36.000 liter volume
25 tons payload

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Transport of full loaded B-TC (75t) by different modes of transport on-site in Ludwigshafen

Rail



AGV – Automated Guided Vehicle

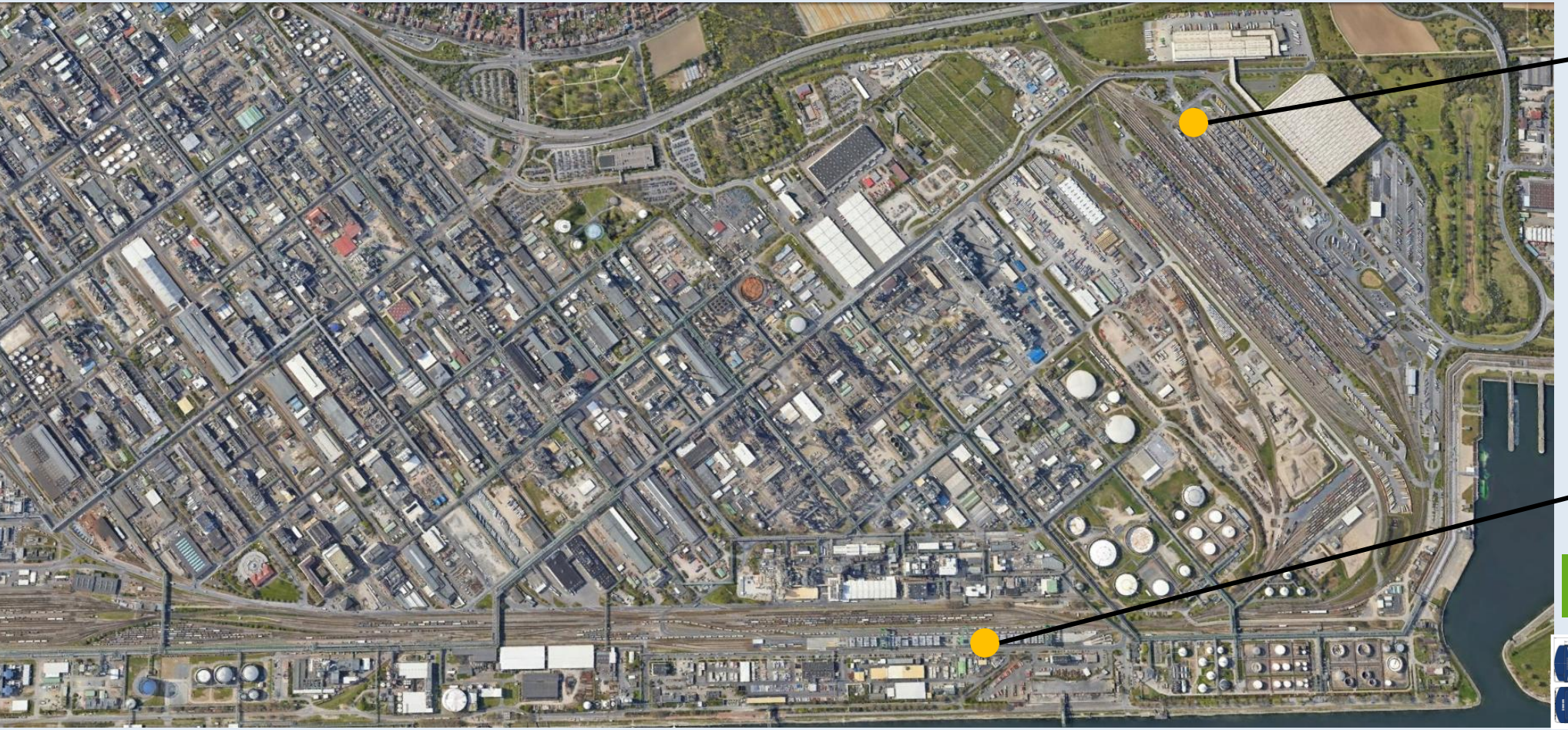


Trucking – Heavy Chassis

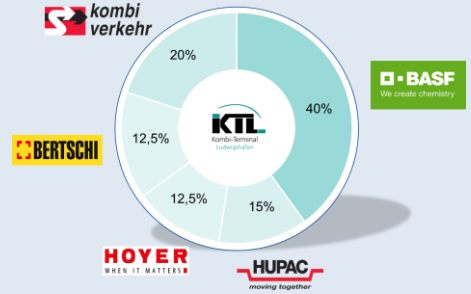


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Location of the main terminals at BASF site in Ludwigshafen



KVT Ludwigshafen operated by KTL GmbH



TCL - Terminal Container Storage Yard

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45’ BTC

52’ BTC

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Combination between storage/ warehousing and transport





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Kombi-Terminal Ludwigshafen can “currently” lift an empty BASF Class Tank Container (B-TC)



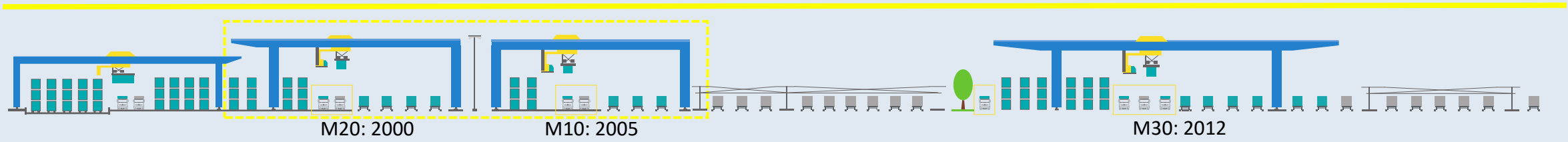
From lifting empty B-TC
BASF Class Tank Container

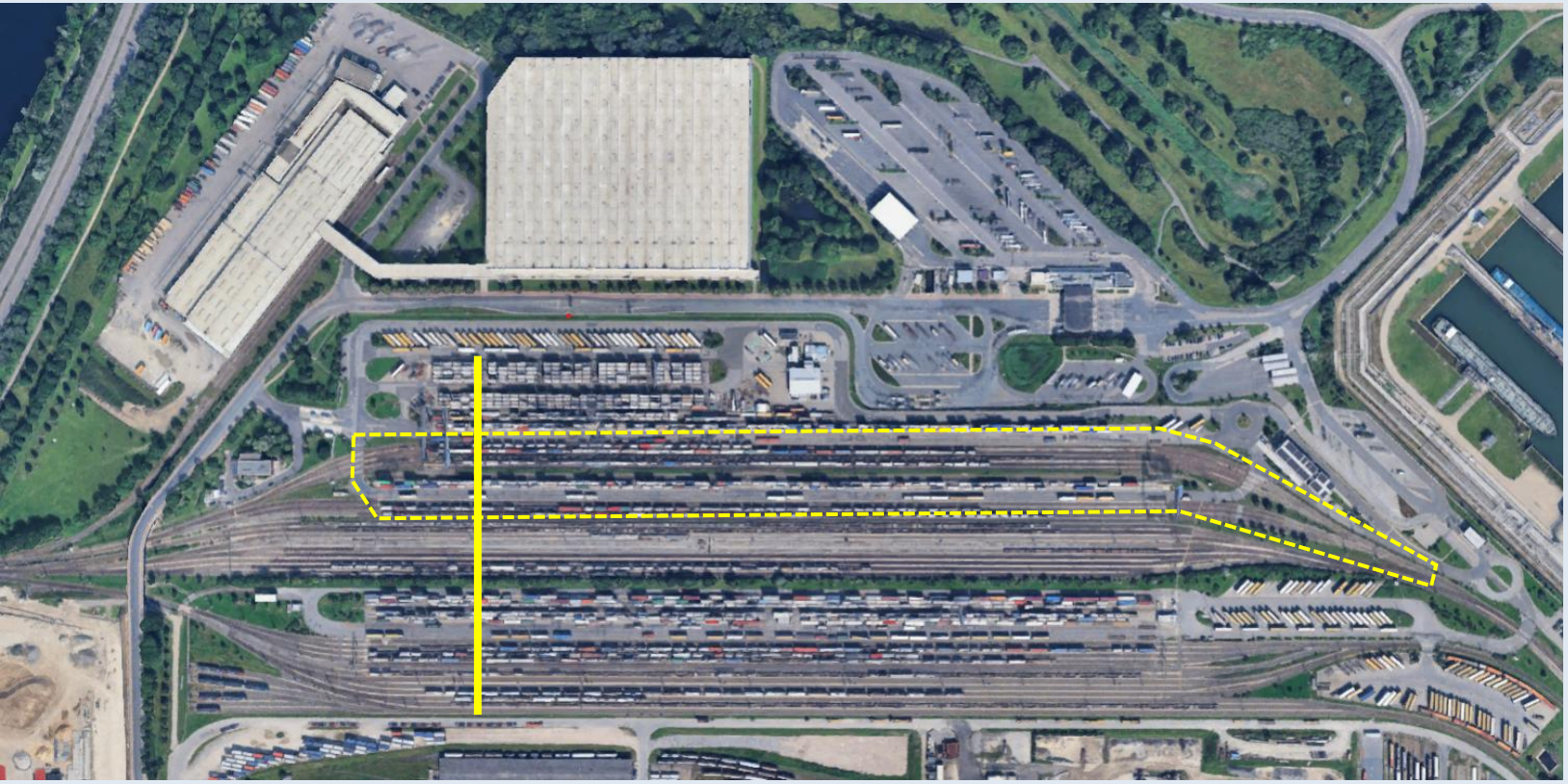
to handling fully loaded B-TC units (75t) from Q3 2028 onwards, following the commissioning of KVT Modul 50

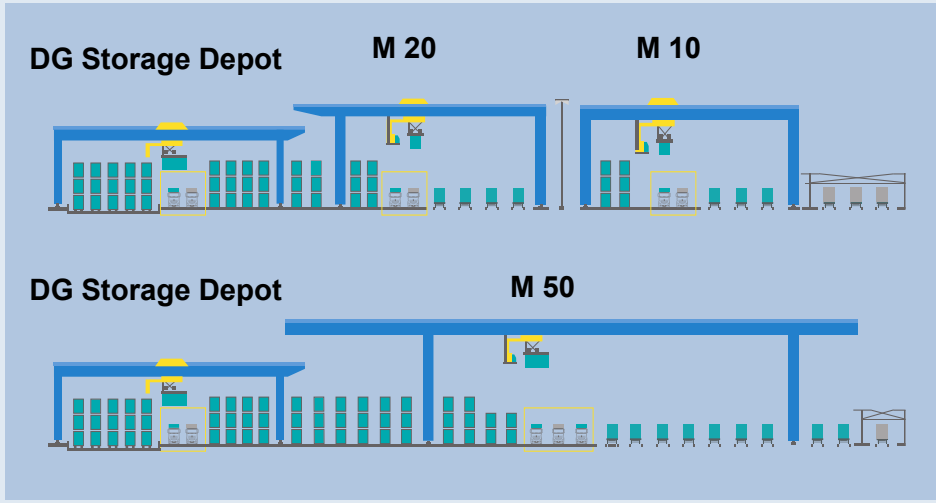
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Need for Refurbishment for two Modules within KVT: M10 & M20

KVT Module 50 will replace both M10 & M20 by end of 2028







Funding:

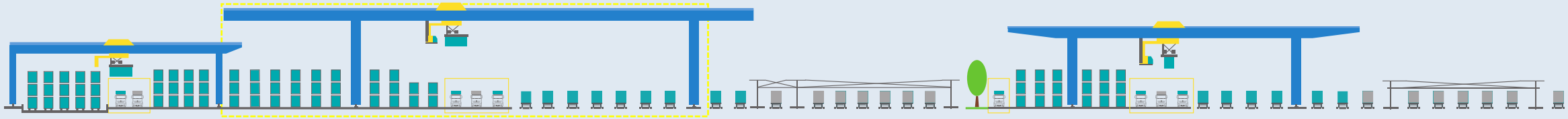
The project has been awarded €51 million in funding by the German Federal Railway Authority (EBA),

funding approval issued on 24 March 2026

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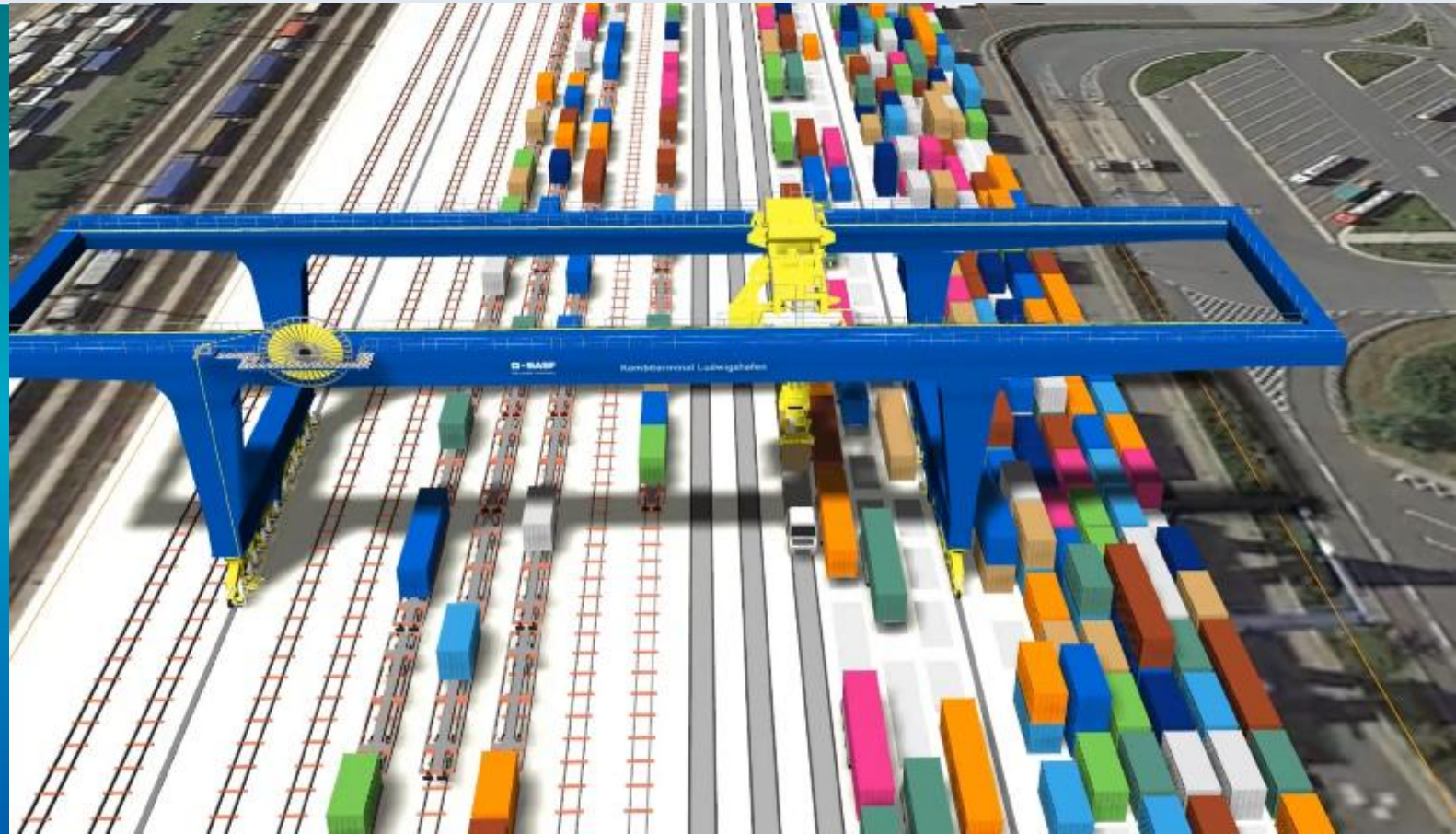
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Planned future terminal layout by 2028



Depot: 2000 M50: 2028 M30: 2012

- 300.000 m^2 area
- Module 50 und 30
- 9 handling tracks à 670m
- 6 handling tracks à 620m
- 10 siding tracks à 600-700m
- 3 portal cranes à 40t payload
- 3 portal cranes à 40 t payload with special lifting capability of 75 t
- 3.500 TEU storage capacity
  + 90 Semitrailer parking spaces



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Terminal container storage yard (TCL) at BASF Ludwigshafen



- In operation since 07/2018
- Fully automated
- 2 portal cranes
- 3 tracks
- Capacity of 2,000 TEU
- max. stacking height of 6 containers

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Intermodal transport is the strongest growing rail segment in Europe

- **Support and development of intermodal networks**
- **New 75t segment in intermodal transport**

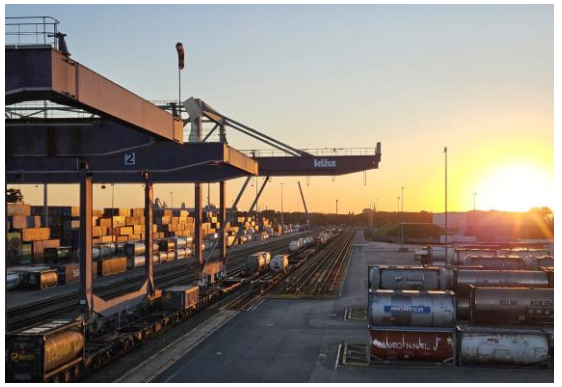
KTL Ludwigshafen – *(75t Terminal as of 2028)*



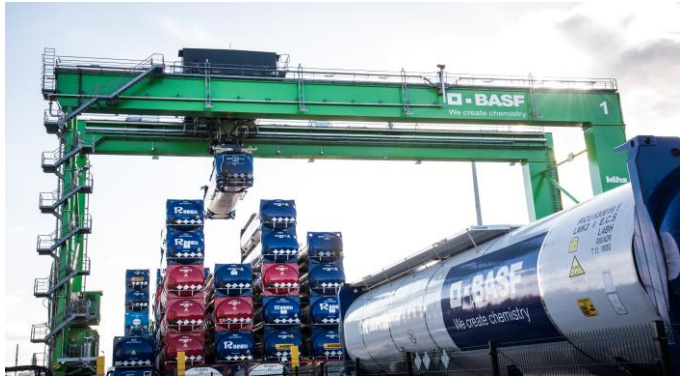
Combinant Antwerp (75t Terminal)



PKV Duisburg (75t Terminal)



BASF TCL Terminal & Storage Yard, LU (75t)



Maxi Terminal Hamm (75t Terminal)

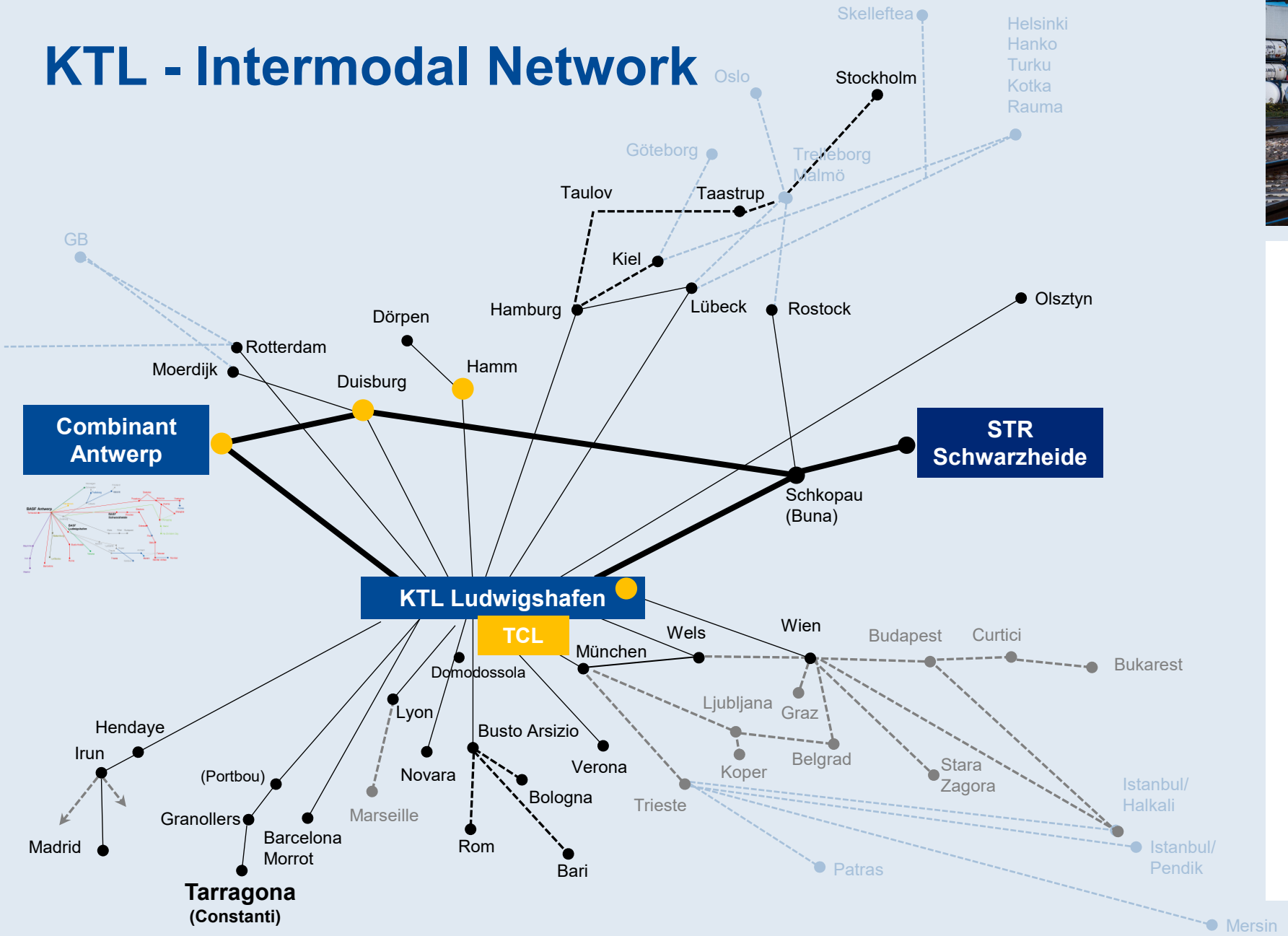


Block trains/ wagon group between chemical sites & storage Verbund



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KTL - Intermodal Network





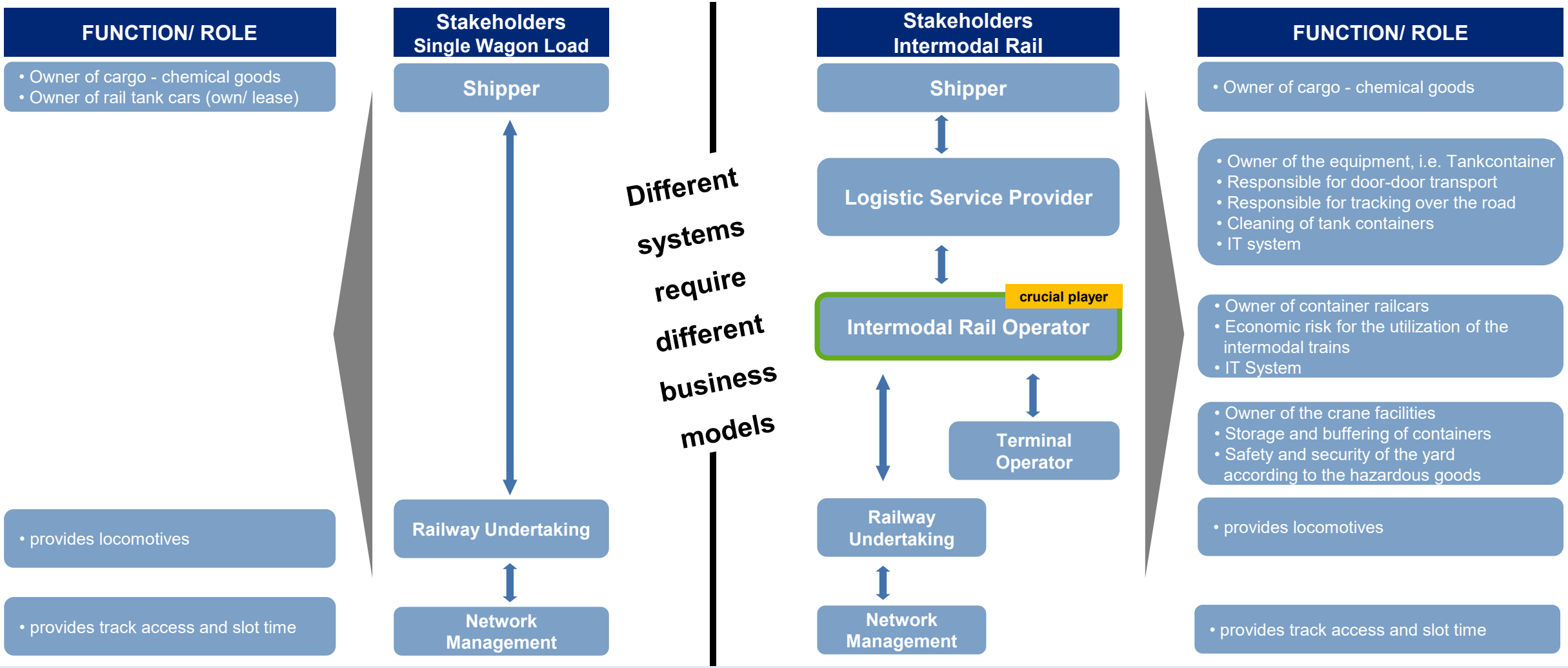
- Regular direct train connections to all major economic regions of Europe with up to 23 trains daily
- In Ludwigshafen, three main intermodal operators providing their services and using Ludwigshafen as gateway system
- Seven railway undertakings have access to KTL terminal
- Currently only four terminals in Europe can lift the 75t within the continental intermodal business

BASF-Sites
- Intermodal rail
- RORO/ Short Sea
- Gateway traffic
- Terminal (75t)

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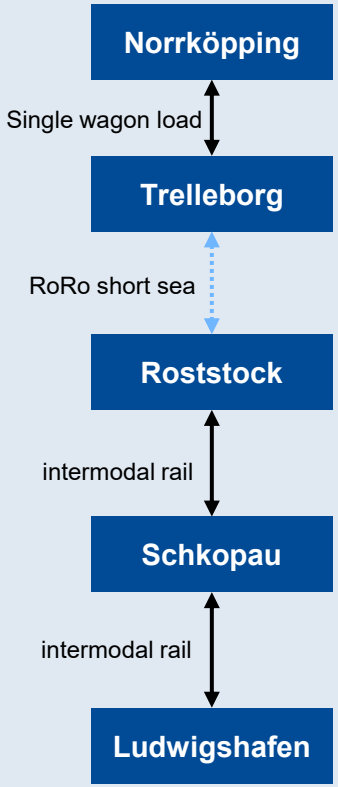
Opportunities for B-TCs within the intermodal and multimodal transports

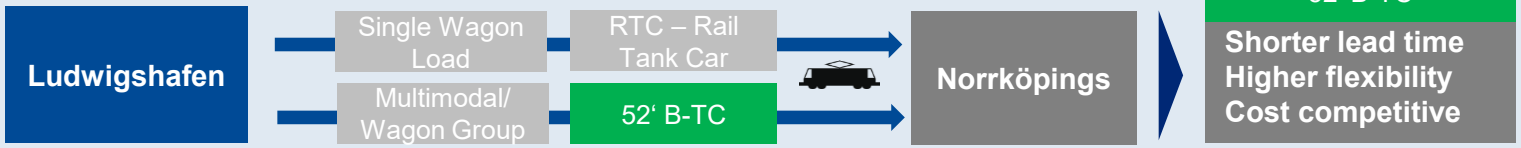


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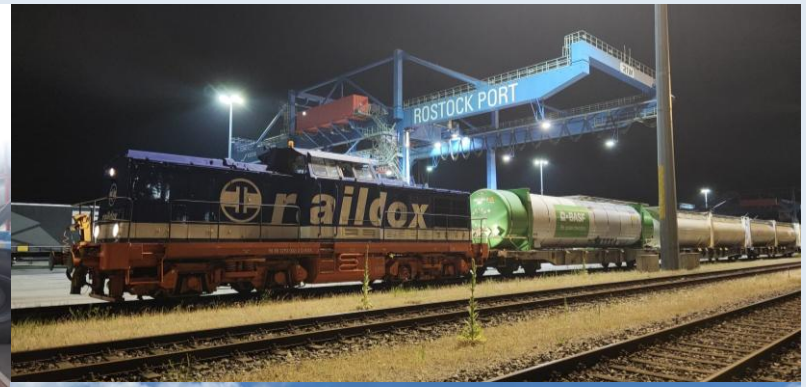
Executing wagon group transport via alternative routing for the 52’ B-TC within the multimodal transport mode to Sweden















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The success factors and growth opportunities of the B-TCs within the chemical industry are impacted by basic parameters!

Infrastructure

- Development & remodelling of intermodal terminals
  - Terminal capacity
  - Design and configuration of portal crane / spreader for special lifting capability (75t)
- Connecting consignor and consignee sites
  - access per rail - private rail siding or
  - access per truck - heavy container chassis via private road “site”
- Cleaning and repair stations
  - Transport of empty 45’/ 52’ B-TCs for cleaning by truck takes around 3-4 days “all-in”
    (in comparison, RTC- Rail Tank Cars via rail system, 10-15 days)
- Usability & compatible at loading & unloading stations
  - if needed, potentially minor upgrade

Market

- Need for new business models and transport concepts
- Collaborating between all stakeholders within the intermodal industry, but also the chemical industry (consignor/ consignee)
- Suitable rail wagons for the B-TCs (75t) are already integrated within the intermodal system along relevant destinations within Germany and Europe
- Higher flexibility and accessibility
- B-TCs can be leased/ accessed by bulk LSPs
  (it’s not a pure BASF closed system)



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What do we still expect from the Market?

Expectations:

- Developing the intermodal and multimodal system, amongst other by implementing the B-TCs (75t) with first/ last mile via single wagon load or wagon group
- Intensifying the collaboration between chemical industry for more intermodal and multimodal transports
- Developing new business models and transport concepts

Advantages can be described as follow:

- Improving of fix costs and variable costs (cleaning, maintenance, wagon idle time, etc.)
- Improving reliability and punctuality of trains towards customers
- Improving intermodal train and terminal utilization as well
- Improving production and entire supply chain costs
- Higher flexibility especially during volatile market

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