Integration of rail in the supply chain, a Rotterdam experience

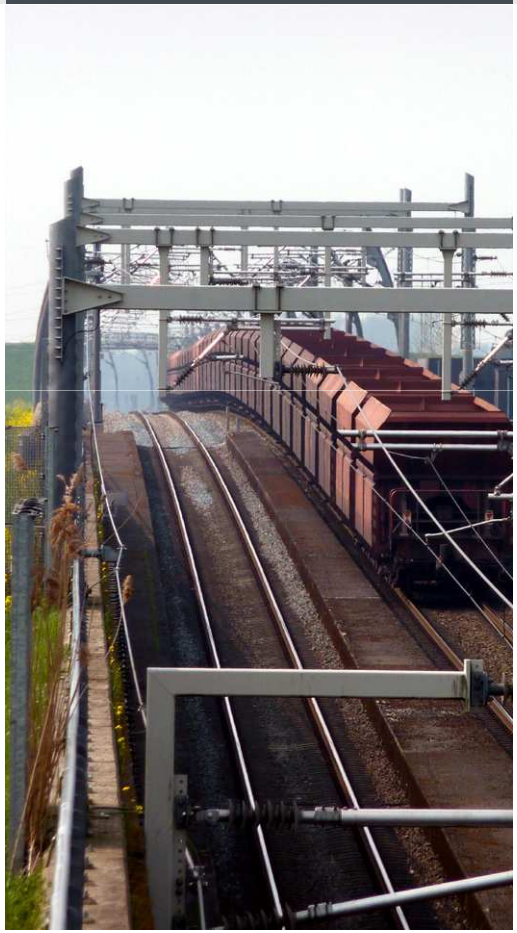
Guus de Mol,
Manager Development & Logistic Solutions

Kivi Niria, May 27th 2011

KEYYRAIL

Overview

- Keyrail and the Betuweroute
- Developments volume and market share
  - Market share border crossings and A15
  - Volume growth
  - Rotterdam Maasvlakte
- Chain management & punctuality
  - Supply Chain Management
  - Pilot 2007 – 2009
  - Intermodal shop chain management
  - Punctuality
- Kijfhoek shunting yard



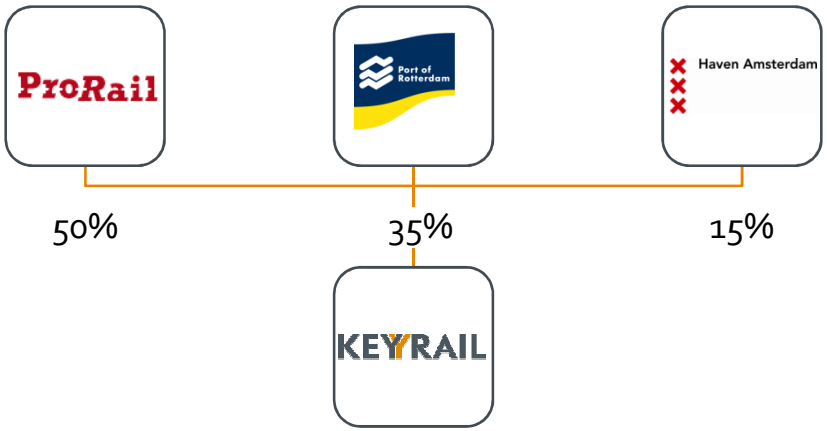
Keyrail BV

Company goal:

- commercial exploitation of the Betuweroute
- break even within 5 years

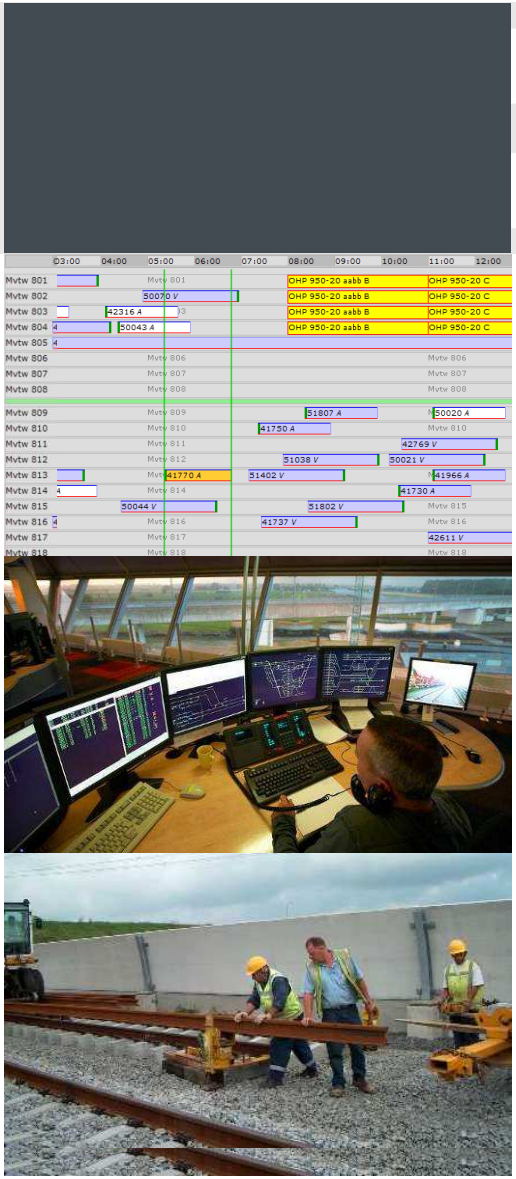
Importance of participation of ports:

- knowledge of the market and logistics
- partnerships for prospects & commercial leads



Our core business

- **Managing and allocating capacity**
  - Integral planning
  - Development of logistic concepts and models
- **Safe and punctual traffic control**
  - Focus on border crossings
  - 24/7
- **Maintenance**
  - Work on the railway with as little disruption as possible



Keyrail: Key to Europe

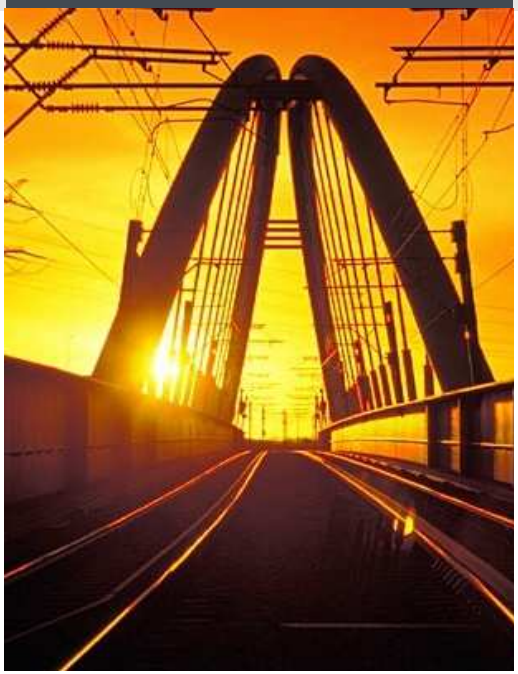
- Dutch connection: "from sea up to Zevenaar"
  - A15 track (bundled with the A15 highway)
  - 'Harbour line' (rail tracks in the Port of Rotterdam)
  - Including shunting yards and
    connections to port industries (e.g. container terminals)
- Amsterdam joins at Geldermalsen

Betuweroute: part of European corridors

Importance Betuweroute for The Netherlands

- Supports the Dutch modal shift policy
- Extra dedicated capacity in favor of freight trains
- Extra capacity for passenger trains on parallel routes
- Alternative to the transportation of dangerous goods
- Contributes to the ports of Rotterdam and Amsterdam
  - improve competitive position Dutch ports
  - better hinterland connection
  - higher air quality
  - facilitate growth

General characteristics Betuweroute



- Betuweroute =
  160 km dedicated rail track for freight trains
  - 48 km 'Harbour line' (Rotterdam port area)
  - 112 km A15-route
- 12 km crossings on separate levels
  - 130 bridges / viaducts
- About 20 km underground
  - 5 tunnels
  - Electric tension of 25 kV on A15 route and Harbour line
  - A15 route: ERTMS / ETCS level 2
  - Harbour Line: ERTMS / ETCS level 1

Innovations Betuweroute

- Electric tension
  - A15 route + harbour line: European standard 25 kV (alternating current voltage)

    Existing railway network: 1500 V direct voltage -> insufficient for freight trains and high speed trains
- Train control system
  - A15 route: ERTMS/ETCS

    Signals in the locomotive (board computer)
  - Harbour line: ERTMS (signal poles)

    Existing railway network: ATB with signal poles alongside the track

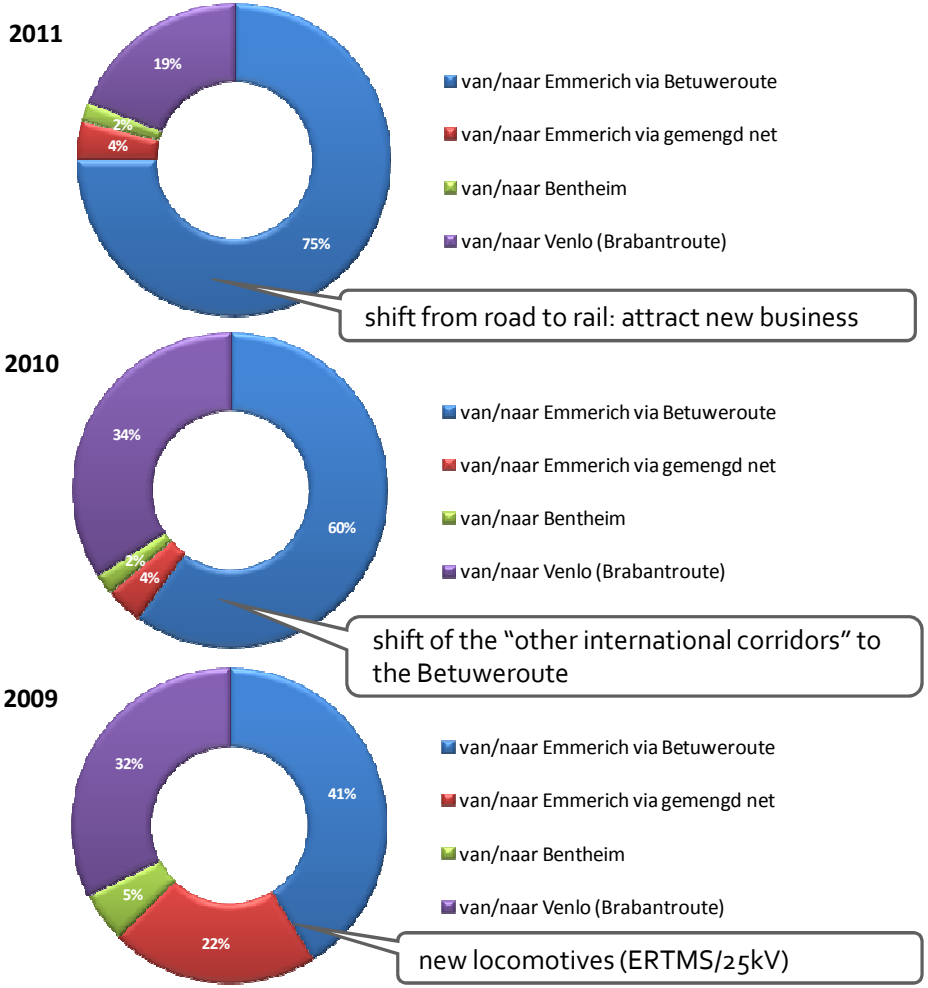
Innovations Betuweroute

Tunnel Technical Installations

- permanent detection and monitoring of the safety in the tunnels
- sprinkler and fire-extinguishing technology
- installations are automatically activated in case of an accident (such as fire or the release of hazardous or explosive chemicals)
- supporting regular train traffic

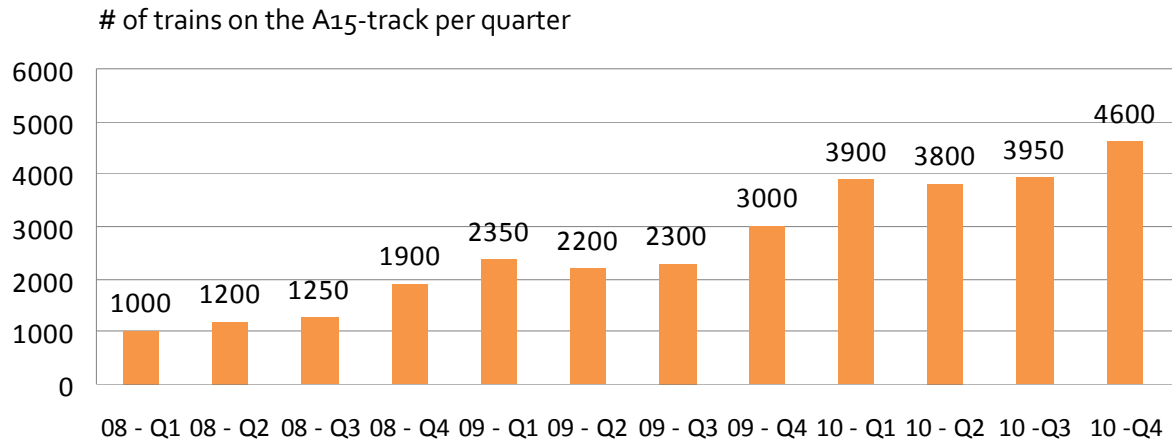
Volume & market share

Market share Betuweroute A15



Volume growth

- 350 trains per week in 2010
- 2011: >500 trains per week
- To grow to max capacity available at German border crossing
- Long term ambition: 800-900 trains per week



Intermodal traffic (containers)

Weekly traffics per country (september 2010)

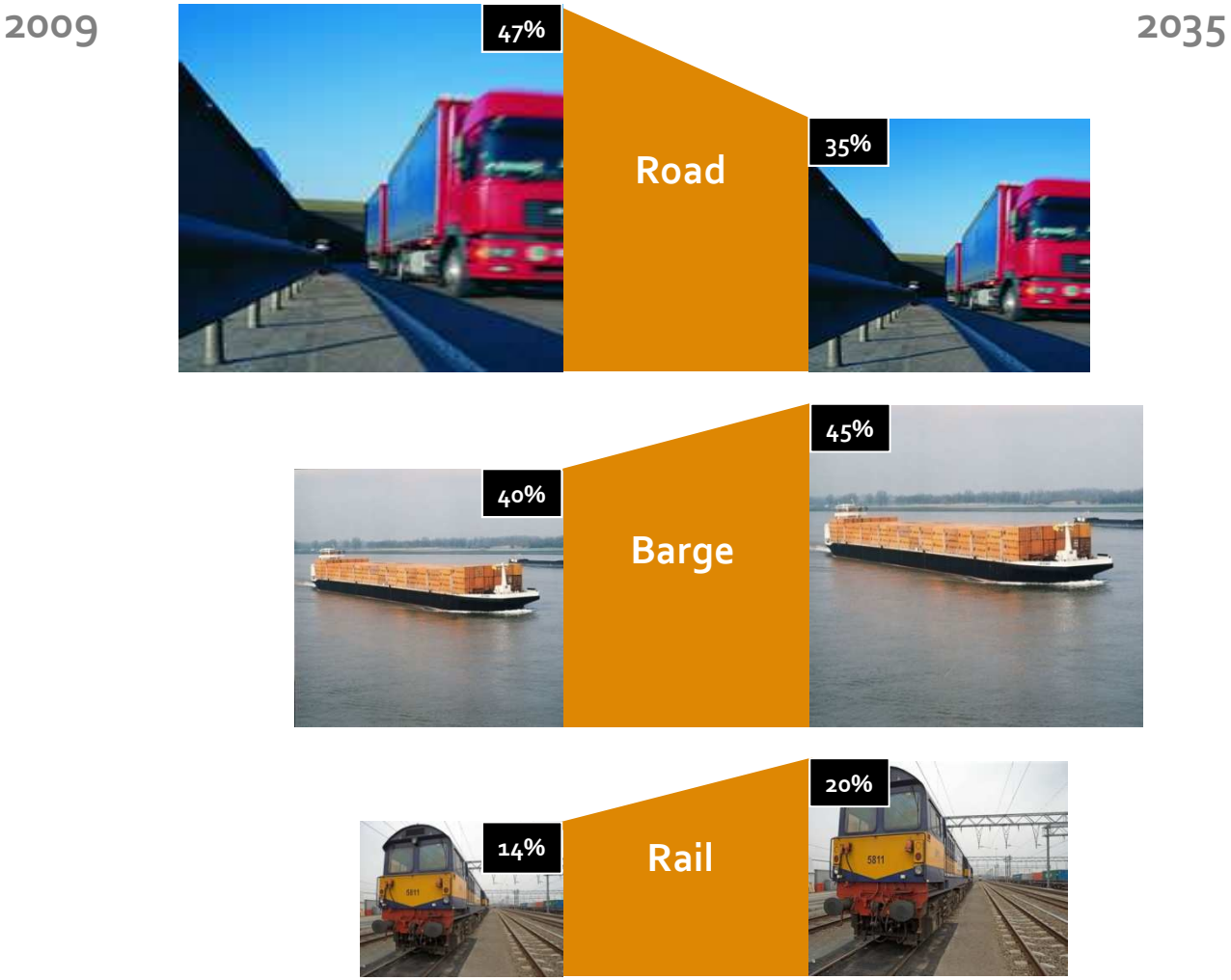
Bron: Railcargo Information Netherlands

Maasvlakte 2

Port of Rotterdam will grow from 11 to 38 mio TEU!

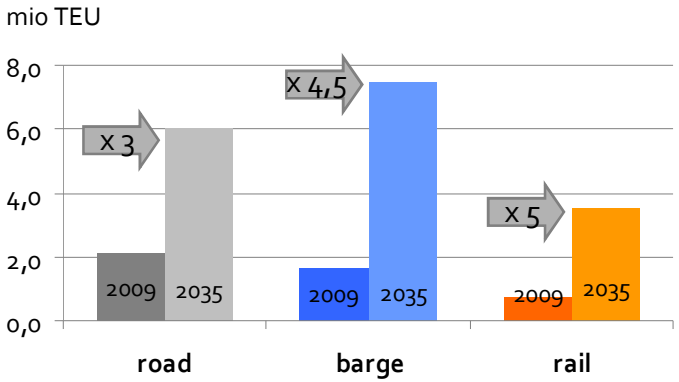
Bron: HbR Projectorganisatie MV2

Modal shift target intermodal Maasvlakte



Atlas Maasvlakte 2

Growth hinterland modalities
(x 1 mio TEU containers)



Containers via Maasvlakte Rotterdam 1)

- 2009 versus 2035 -

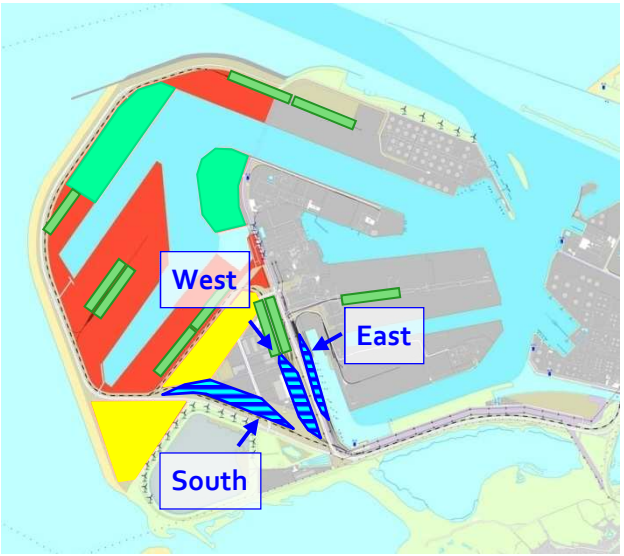
- Modal shift from road to barge and rail
- Total growth hinterland container volume x 4
- New terminals: commitments by contract

1) Port of Rotterdam

Rotterdam Maasvlakte: development shunting yard

- Present situation: 2 shunting yards for intermodal and bulk (coal, iron)
- Development Maasvlakte 2: planned reservation for new shunting yard 'South' with about 30 tracks
- Challenge for 2035: rail container volume x 5, number of shunting tracks x 3

Name shunting yard	Number of container tracks on shunting yard		
	At this moment (2011)	*New to build*	*Future situation (2035)*
Maasvlakte East	2 tracks	-	0 tracks
Maasvlakte West	18 tracks	14 tracks	32 tracks
Maasvlakte South	-	30 tracks	30 tracks
total	**20 tracks**	**44 tracks**	**62 tracks**



Port of Rotterdam

Need for change

- Challenge for 2035: rail container volume x 5, number of shunting tracks x 3

- EU Corridor regulation 913/2010 forces intensive cooperation between terminals and Infrastructure managers
  - Integration off plans
  - Working together for operations

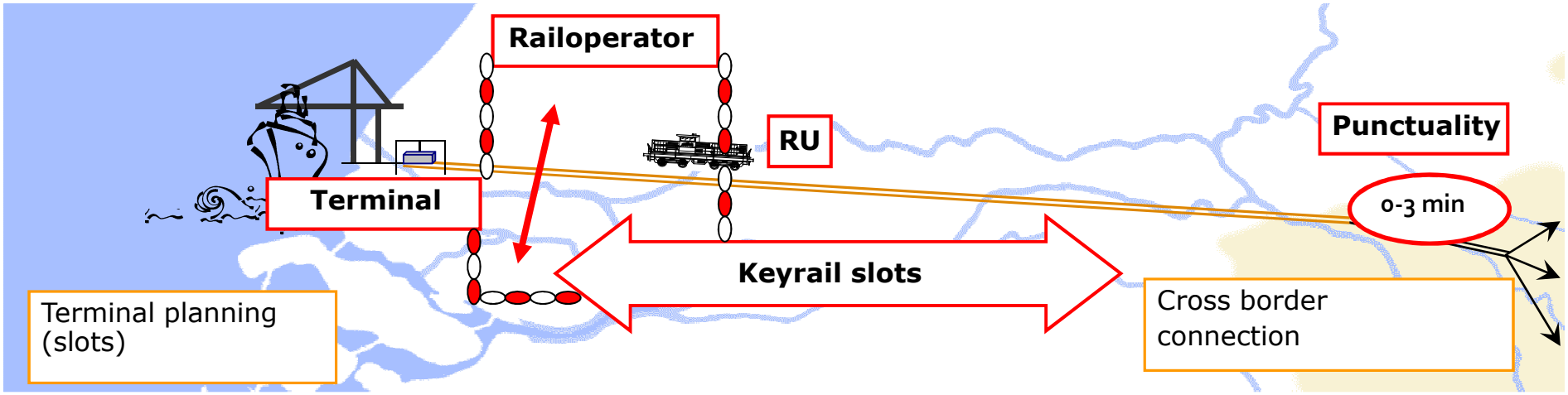
Chain Management

- pilot 'Chain Management Harbour Line'
- 2010: Keyrail as chain manager
- 2011: start Intermodal Shop chain management

Supply Chain Management

- 2007: Start Supply Chain management => a joint effort with the market
- Purpose :

  Increase punctuality of rail freight transportation in the Rotterdam port area
- This has to lead to
  - +22% punctuality improvement
  - More efficient use of material
  - Increased quality of rail products
  - More capacity, without extra infrastructure
  - Roll out in the Intermodal market



Supply Chain Management
- example -

Example of analyzing and improving the supply chain (current issue)

Joint effort with the market **Replanning** **Operational rules**

Supply industry →  →  → **Distribution industry**

By ship / train

Terminalslot
06:00-08:00 hrs

Trainpath including bordercrossing
09:10 hrs (Rotterdam - Duisburg)
Average delay +120 (border)

Promised ATA

Low reliability

Incidents **Punctuality** **Measure, Report, Analyse, Improve, Control**

Information /communication

Pilot 'Chain management harbour line' 2007 - 2009

Background

- Logistic and industrial companies in Rotterdam complain about poor performance

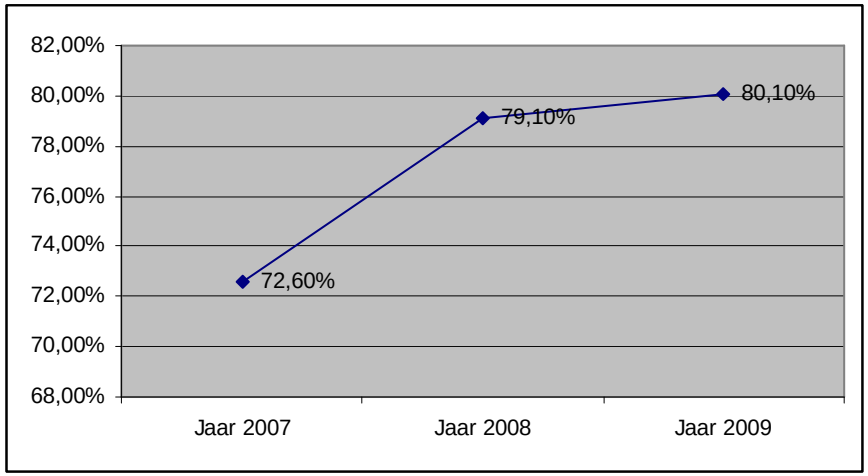
Pilot 2007 – 2009

- Participants: ECT,RSC, Hupac, ICF, DBS, Veolia en ERS
- Increase punctuality of the rail freight transportation
- In order to:
  - More efficient use of material (locs, rail tracks, train drivers, shunting yards, terminal capacity, etc.)
  - More capacity without extra infrastructure
  - Increased quality of rail products

Results

- Operational rules
- Improvement of mutual communication
- Chanced "Mindset" and keeping the rules
- Integral planning
- Improved punctuality

Punctuality Port of Rotterdam – Hinterland (eastwards)



Ten operational rules have been agreed

General	1	Integrated Planning (IP): time tables and terminal slot
	2	Terminalslot
Standard process	3	The number of units for loading and unloading will be given in time
	4	The wagon list and the AZ / ZA composition will be given in time
	5	The (dynamic) expected time of departure (ETD) of the terminal will be announced as soon as possible
	6	Transport related information will be given in time
	7	Loc and loc driver are back in time in the terminal to realise the ETD
Deviations	8	Expected deviations of the planned ETA's and ETD's will be given as soon as possible
Corrections	9	Replanning in case of deviations
	10	Shunting of blocking trains (terminals and shunting yards)

2010: Keyrail as chain manager

Keyrail as chain manager focuses on freight

- Pricing policy
  - "Entry Agreement": e.g.. Agreements about parking and rental of tracks

- Connections cross border
  - Focus on punctuality
    - With regard to original planning
    - With regard to adjusted planning: Entry Agreement - punctuality > 89%

- Quality
  - Integral planning
    - Tuning terminal slots & time tables & engine drivers & locomotives
    - Possibly more ICT solutions Intermodal Shop Chain Management
  - Results:
    - Railway undertakings reschedule assets and engine drivers
    - Rail terminals focus on closing times terminal slot

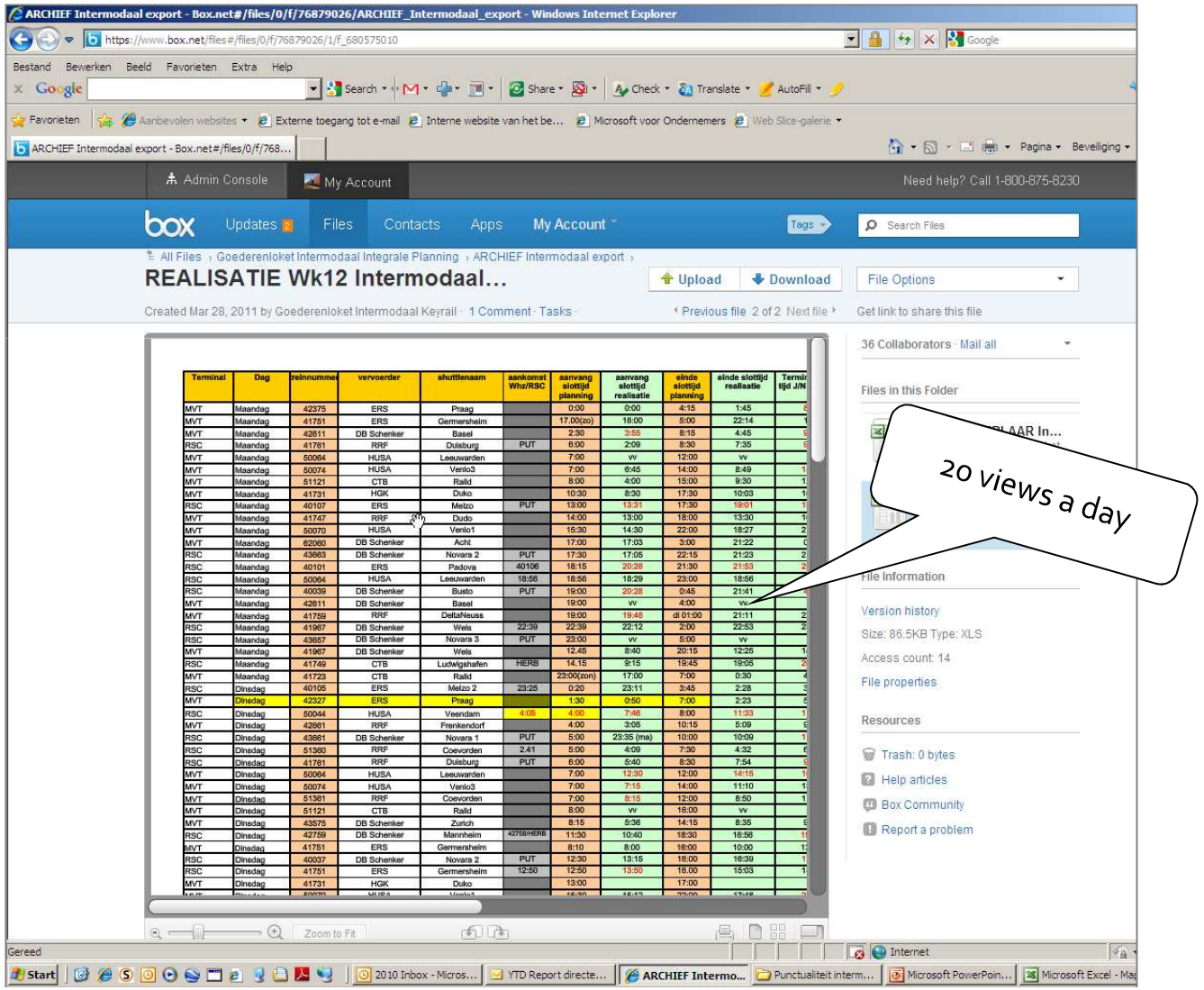
Intermodal Shop Chain Management

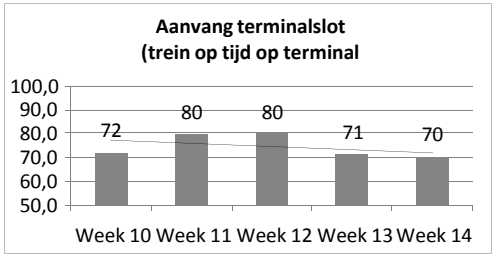
Results by mutual focus

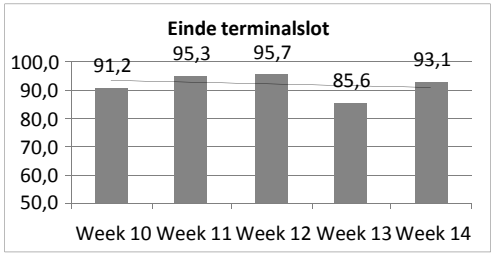
- Each Monday: evaluation sessions with Keyrail, railway undertakings and ECT/RSC
- On Friday: tuning plans based on the original planning
- Carry trough improvements (eg: rescheduling the morning shift of a railway undertaking)
- Begin 2011: Intermodal export trains (RSC/ECT, HUSA, DBS, RRF, ERS, CTB)
  [may be later import also]
- Daily results via a cloud (webbased);
  - Weekly performance report on the internet
  - Internet access only for authorized members
  - Twitter account #LoketIntermodal

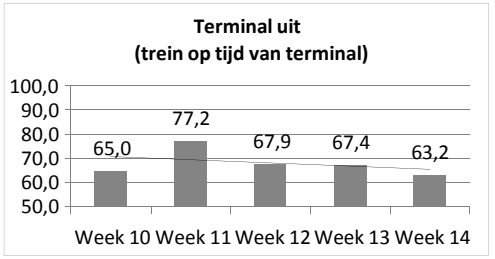
Daily tracking of realisation

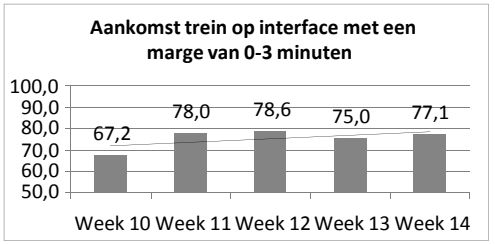
Mutual focus for the best results











Increased quality through higher punctuality

Increased quality

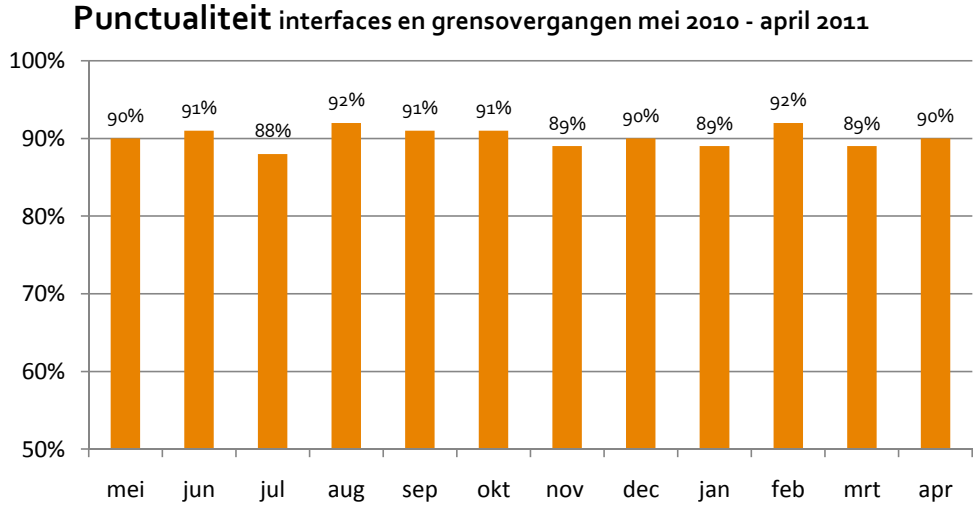
- Reliable product
- Attractive costs

Example

- Started in 2007 with Pilot Chain Management

Increase punctuality of the rail freight transportation in the Rotterdam harbor area (target of improvement 20%). Result:

- More efficient use of material
- Increased quality of rail products
- More capacity, without extra infrastructure

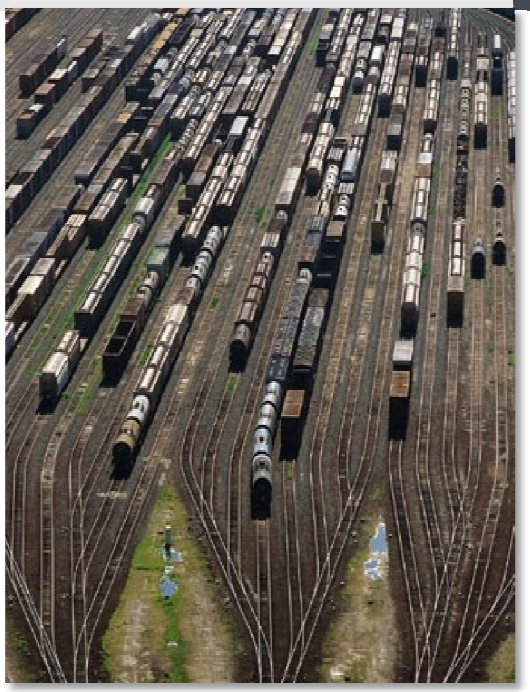


- Punctuality = deviation on planning < 3 minutes
- Performance agreement Keyrail: punctuality ≥ 89%

Kijfhoek

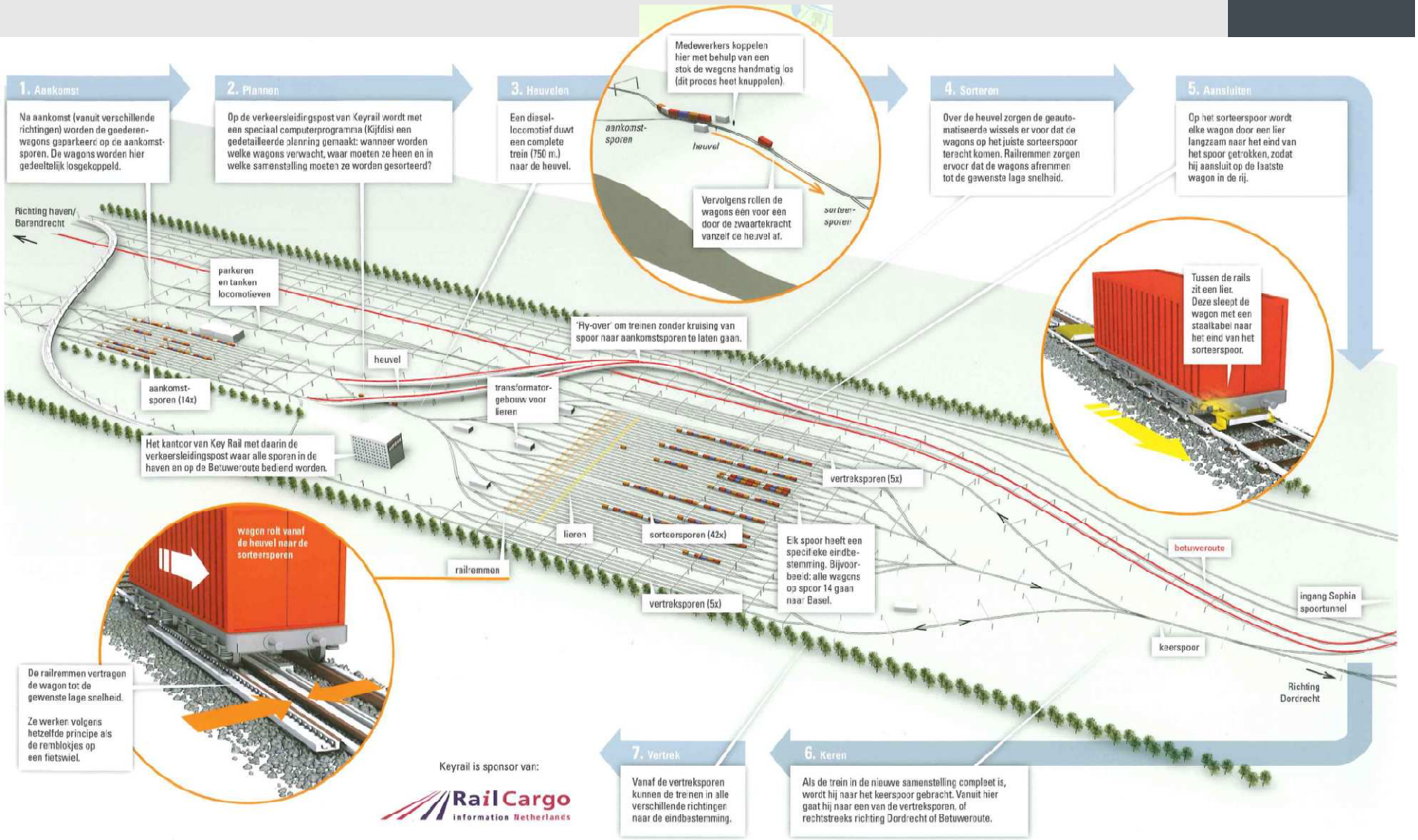
Shunting yard

Characteristics Kijfhoek

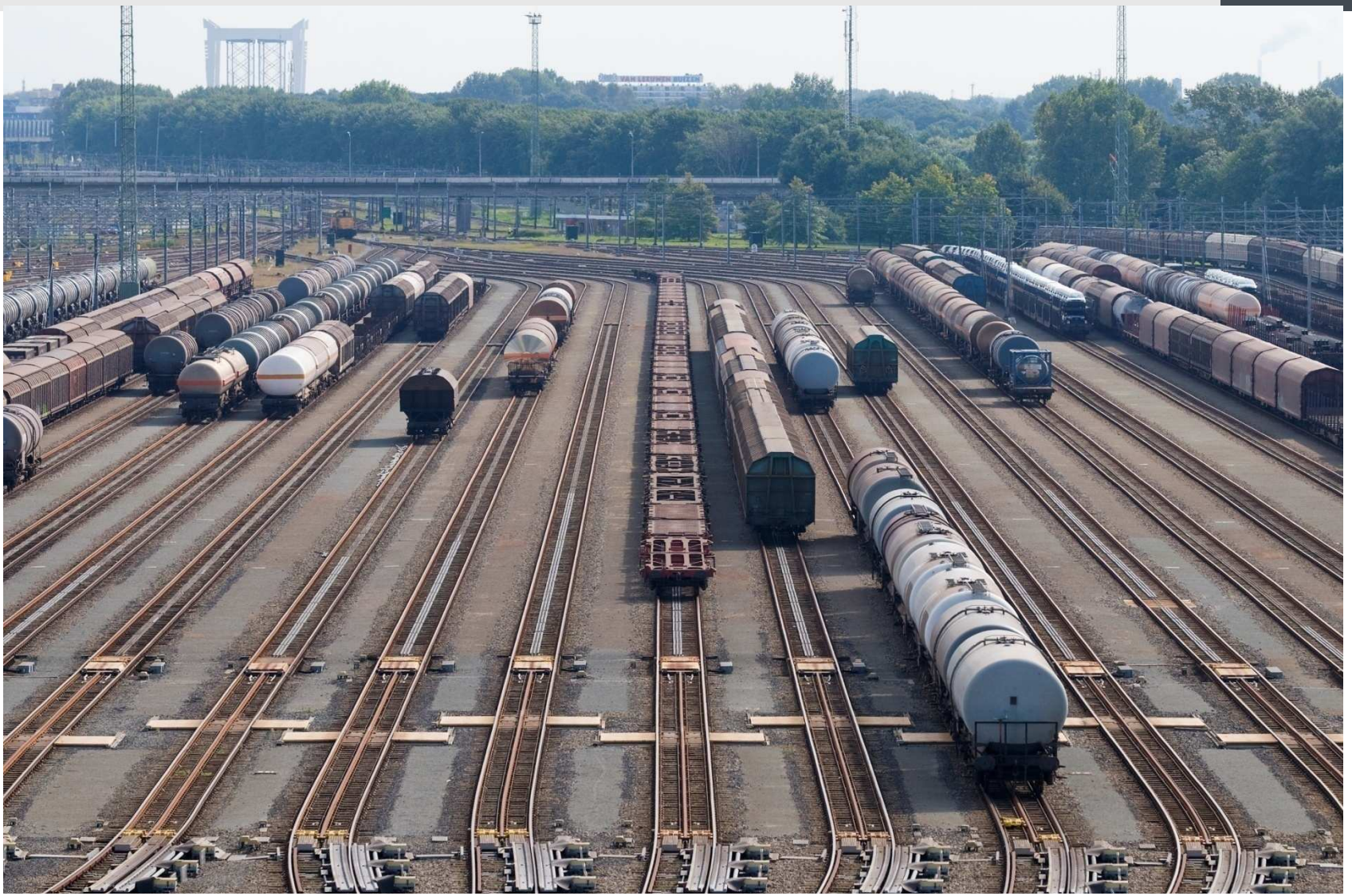


- Opened in 1980
- In 2009: area of over 500,000m²
- Sorting wagons by using gravity:
  - Locomotive + stick + hill
  - Gravity does the effort
- Shunting yard: 43 distribution tracks
- 5 departure tracks and 14 arrival tracks
- Length shunting tracks: > 700m
- Capacity shunting facility: 120 trains with an average of 33 to 34 wagons per day (4,000 wagons/day)

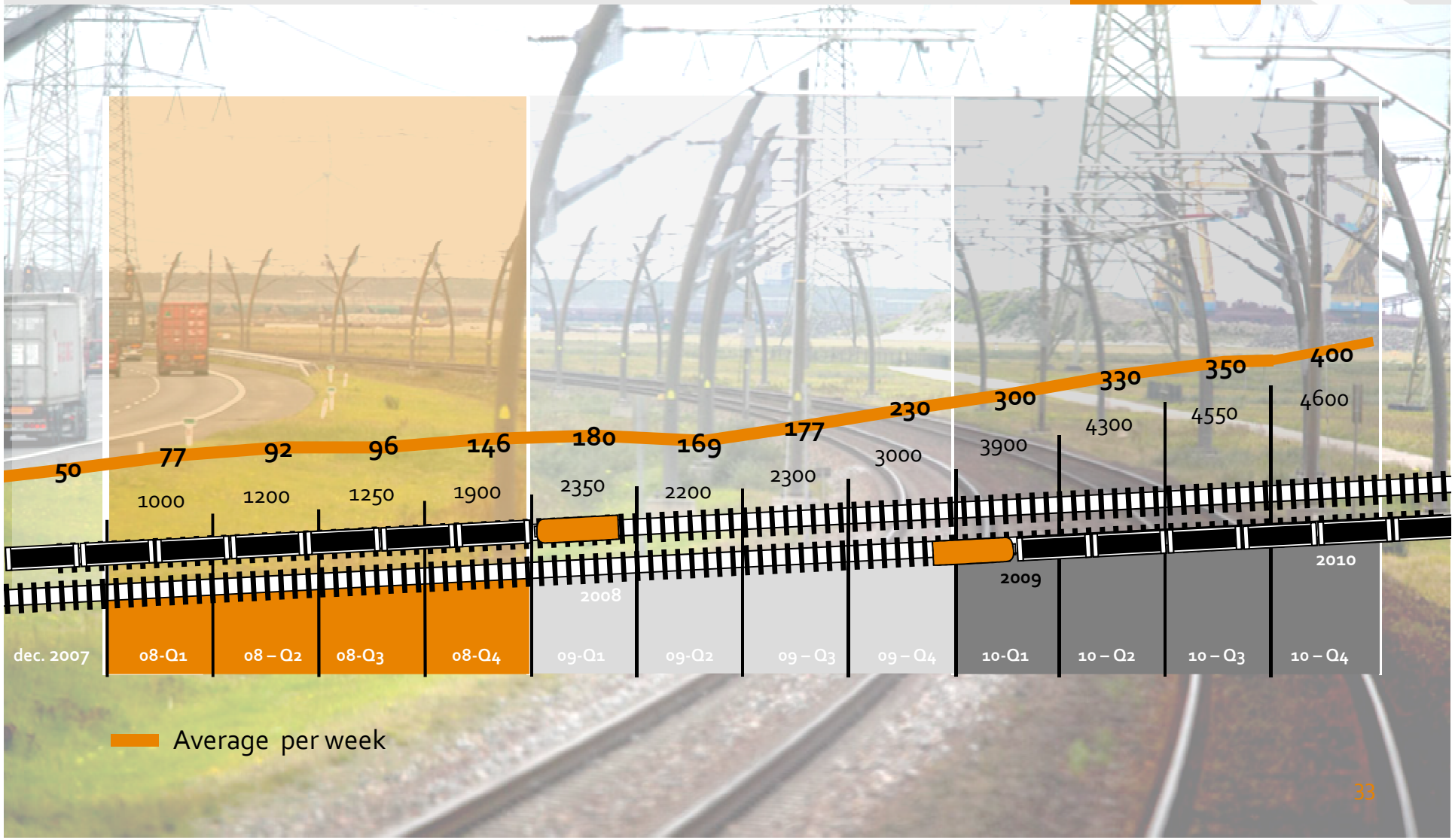
Infographic Kijfhoek



Kijfhoek: lynchpin in European network



Keyrail: Key to Europe



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Key to Europe

www.keyrail.nl