

OLIVER WYMAN

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Developments and trends in single wagonload rail traffic in Europe

Prepared for:
6th International VDV Railway Congress



Agenda

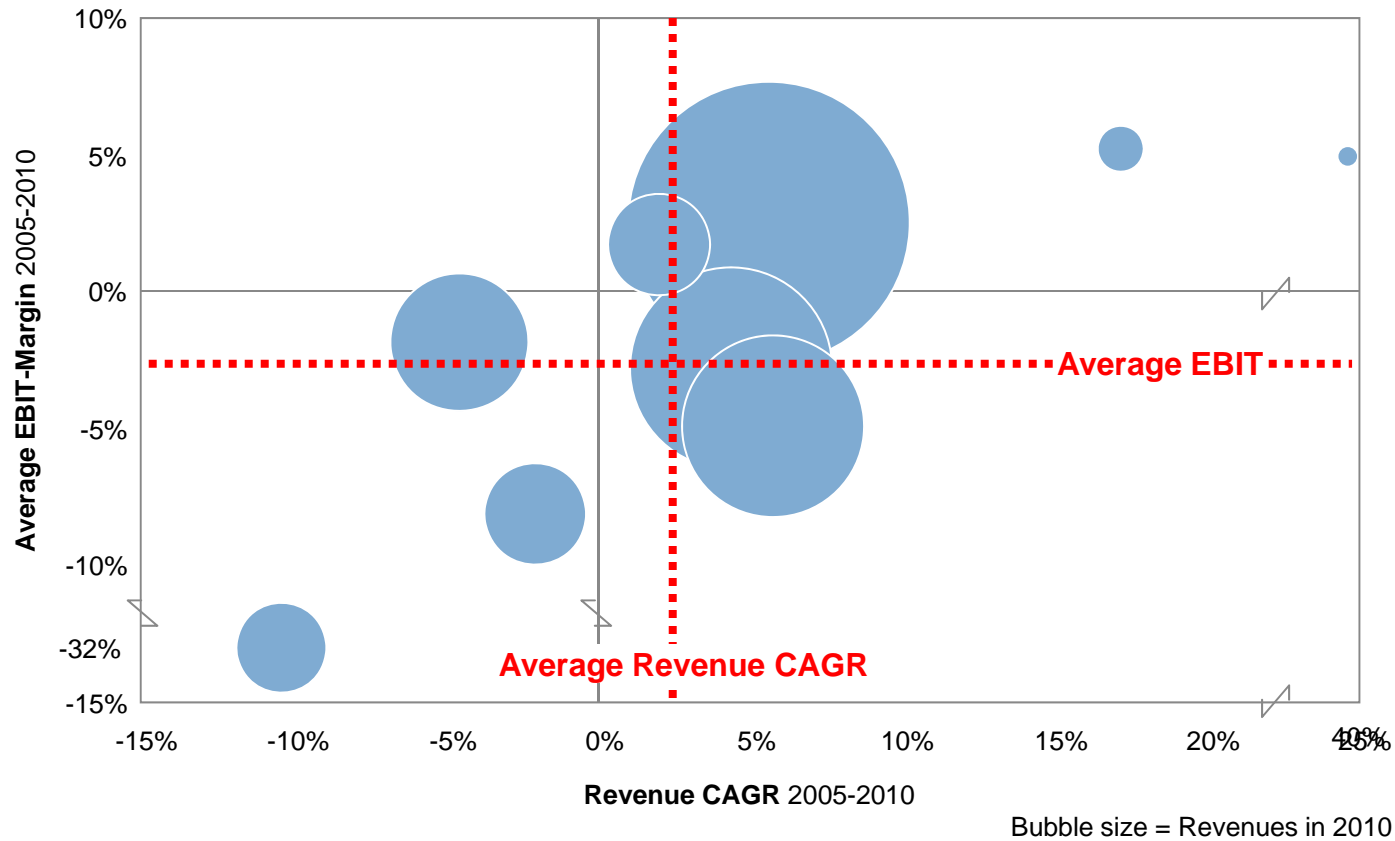
- **Current Challenges in the European Single Wagon Load Traffic**
- **Future Market Opportunities**
- **Going forward – Making Single Wagonload Rail Traffic Successful**



Challenges in the Single Wagon Load Traffic.

European Freight Railways: The search of a sustainable business model

Overview Financial Results European Freight Railroads 2005-2010

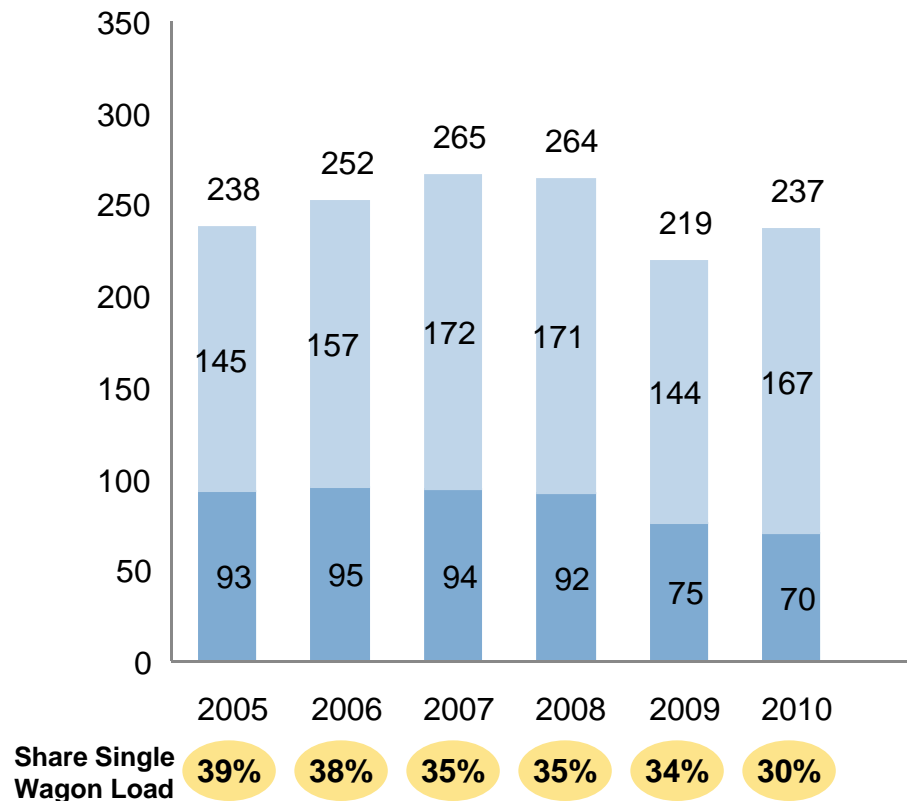


Source: Annual reports, Amadeus, Oliver Wyman analysis

Over the last years, European Freight Railways have conducted several heavy restructurings of Single Wagon Load systems

Rail freight development 2005-2010 by production type

Bn tkm for D, CH, F, IT, S, PL, SL


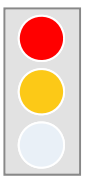

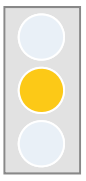

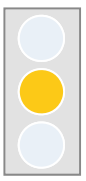

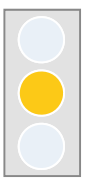

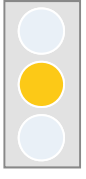


Examples of restructuring activities

- Cut of service points, in some cases >50%
- Concentration of hubs / marshalling yards and traffic flows
- Building up of client specific services / networks
- Optimization of last mile feeder and de-feeder structures
- ...

Source: Eurostat, Prograns, Oliver Wyman Analysis

Nevertheless, customer expectations could not be entirely fulfilled

Customer requirements ¹	Weight	Performance Single Wagon Load
Punctuality and reliability		 <ul style="list-style-type: none"> ▪ Reliability and punctuality especially on international Single Wagon Load very low ▪ Train switches are critical; > 3 per wagon
Footprint and international reach		 <ul style="list-style-type: none"> ▪ Sharp reduction in service points across many systems in Europe ▪ Only limited synchronization of initiatives
Flexibility and availability		 <ul style="list-style-type: none"> ▪ High flexibility in accepting traffic but no end-to-end check of capacity ▪ Availability of empty cars often not optimal
Transit time		 <ul style="list-style-type: none"> ▪ In general, acceptable transit times but no reflection of more time sensitive goods categories ▪ Prioritized wagons slow down the overall network
Service portfolio		 <ul style="list-style-type: none"> ▪ Often core service and only limited value added services like track & trace, prioritization, supply chain integration

Source: Oliver Wyman research ¹ only selected customer requirements

The productivity of resources is still not satisfying

Resources Productivity in Single Wagon Load

Based on examples; productive time in %

▪ Locomotives:	45 to 55%
▪ Train drivers:	40 to 50%
▪ Wagons:	30 to 40%
▪ Local Resources:	35 to 40%

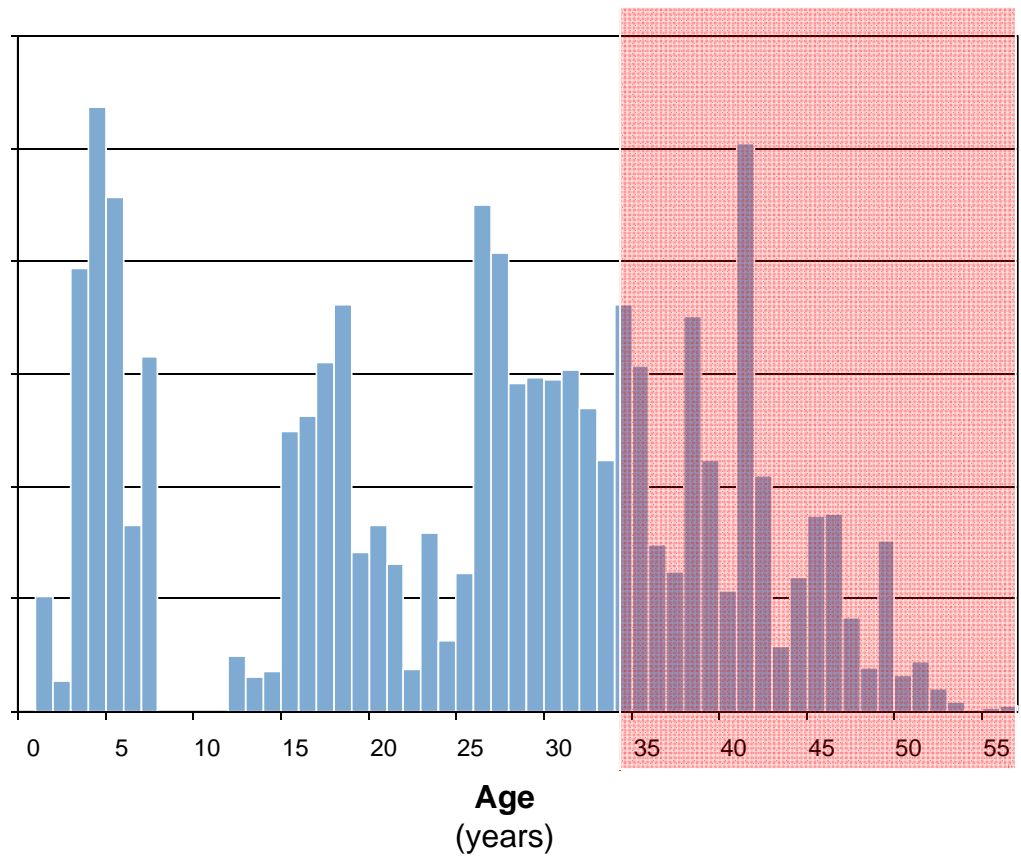
- Overall, **low productivity of resources:**

- No active management of assets through their cycle
- Lack of industrialization in resources deployment
- Fragmentation and high decentralization of processes
- No integrated planning of different resource types; no integrated optimization approach

Source: Oliver Wyman project experience

Heavy reinvestments for sustainable development needed over the next years

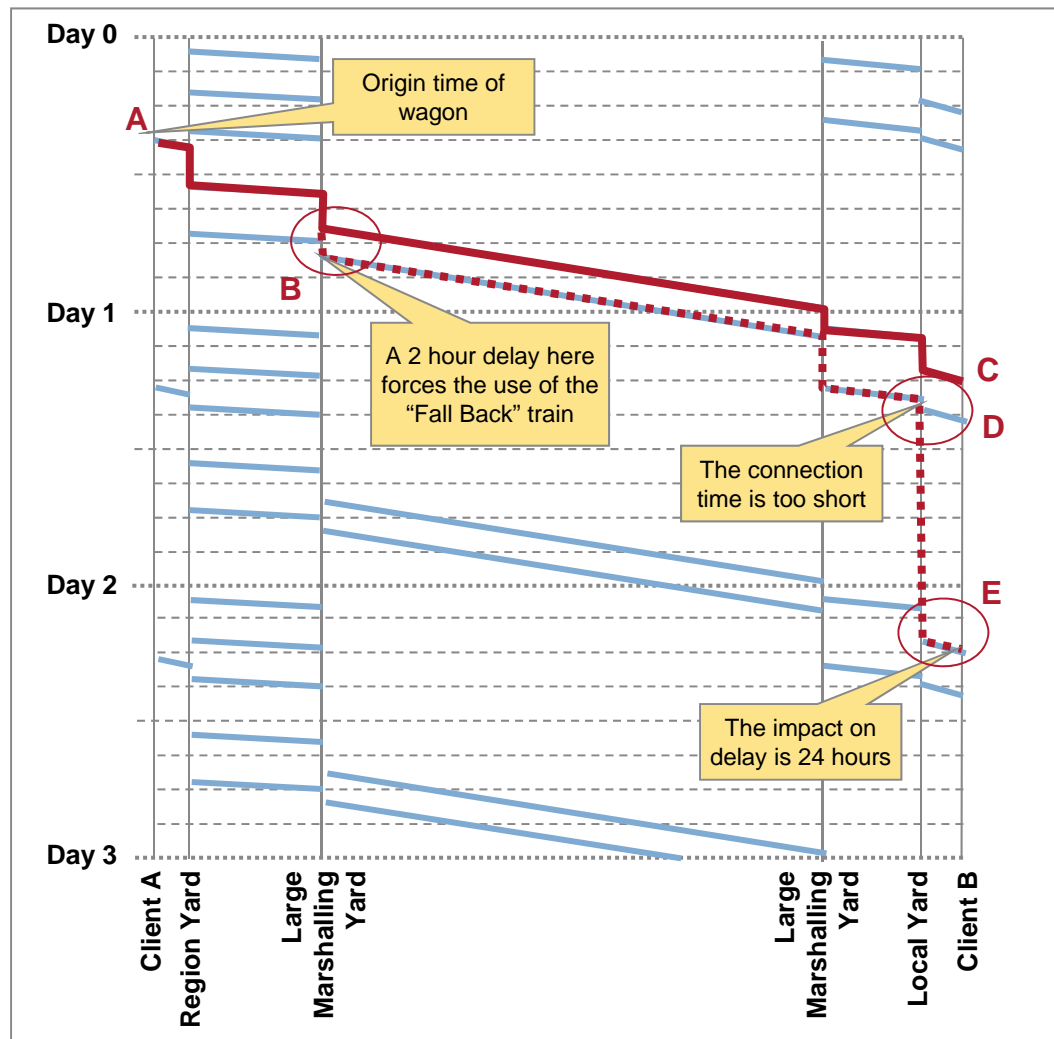
Example wagon fleet structure by age In number of freight wagons



Source Oliver Wyman project

Challenge Complexity: Keeping performance high in a multi-level complex network is a key operational challenge

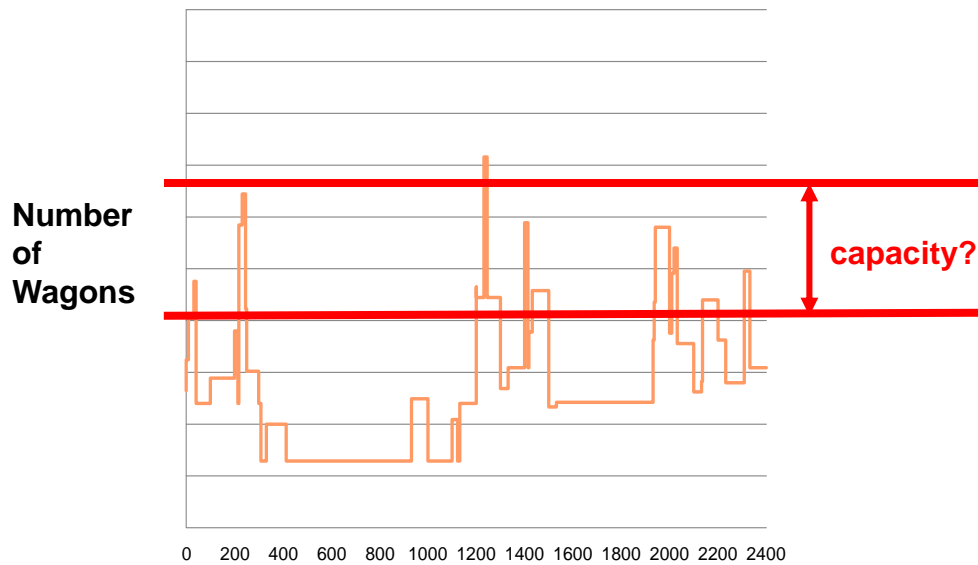
Illustrative Wagon transit



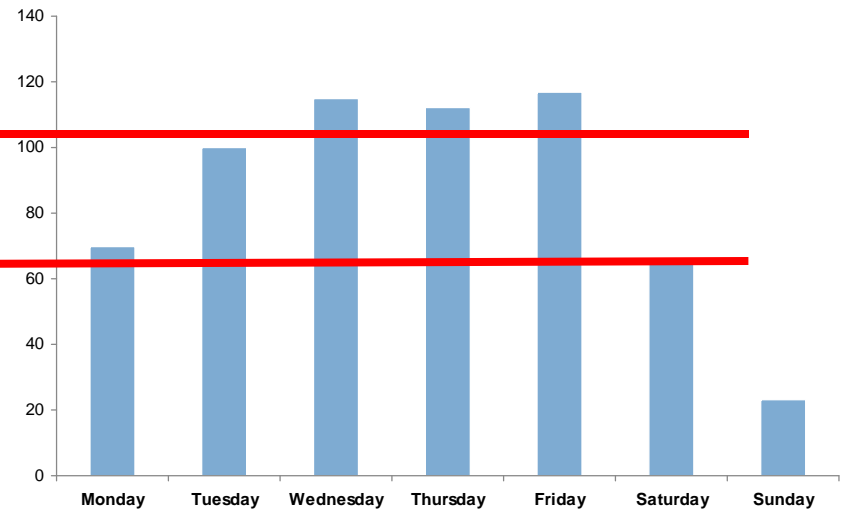
- Reliability is impacted by the number of train changes and “fall back” train options in the change points
- O / D are often characterized by a large number of train changes and only a few „fall back“ train options on the feeder / de-feeder network

Challenge Peak Loads: Capacity dimensioning as a challenge due to load peaks

Daily load curve of a regional Hub



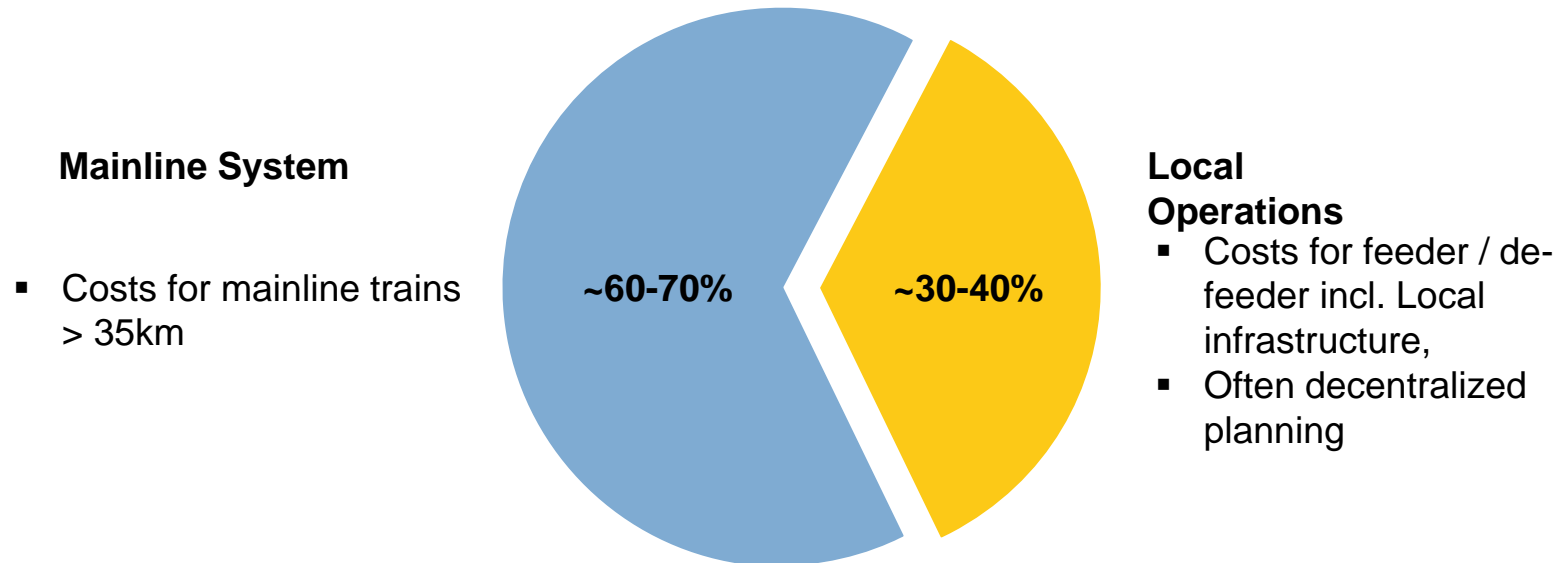
Weekly load curve



Source: Oliver Wyman projects

Challenge Decentralization: ~30 to 40% of the total costs are generated in less transparent local operations

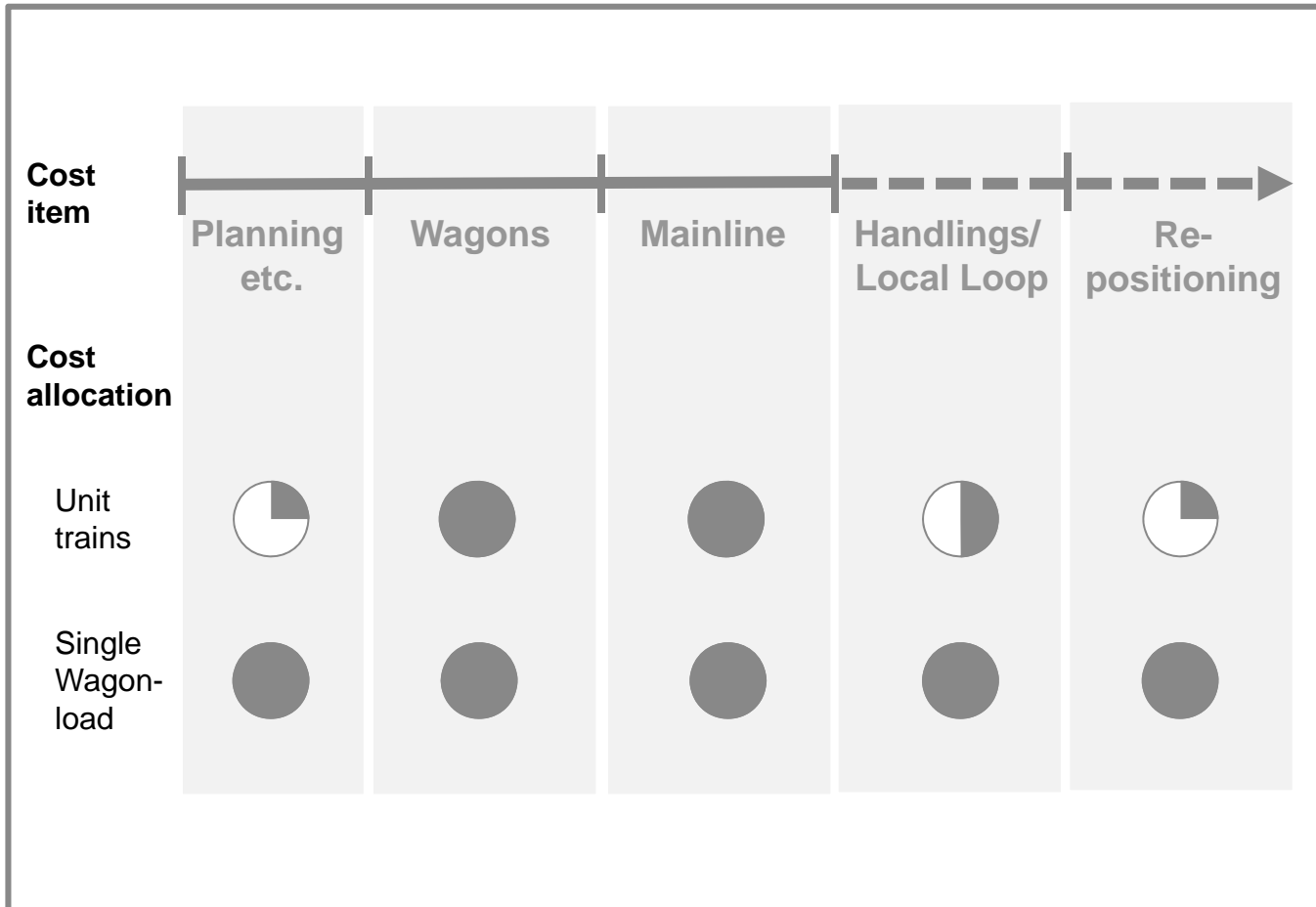
Costs of local operations in Single Wagon Load traffic
In % of total costs



Source: Oliver Wyman projects

Being the backbone of the railway system Single Wagon Load takes over large amount of the freight rail system costs

Typical railroad cost allocation

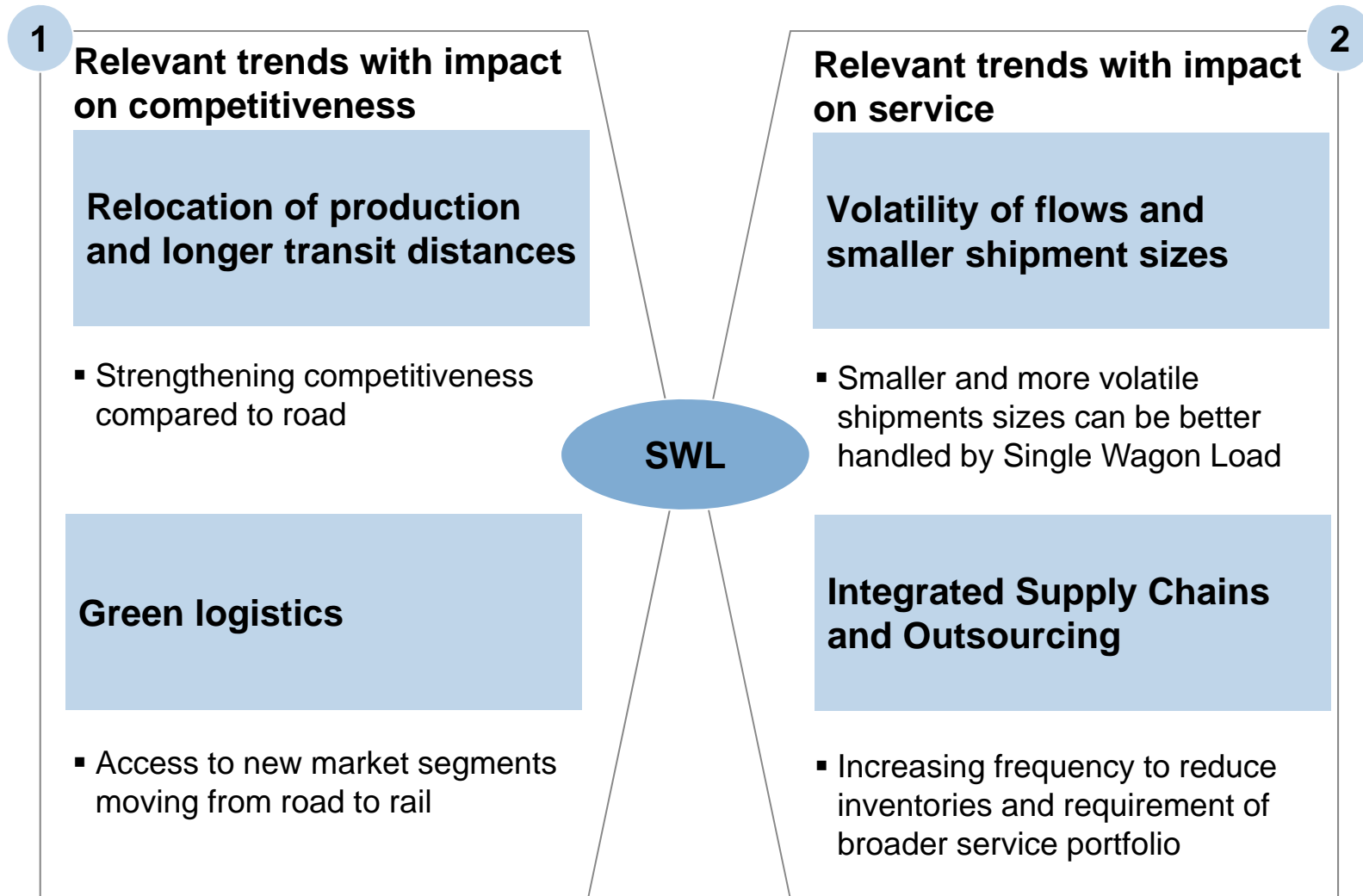


- No dedicated repositioning costs for locomotives for unit trains
- Often handling and local activities appear for unit trains. They are seen as network costs
- Significant share of short term changes (spot trains, late or cancelled trains) are unit trains, but system reserves and planning / replanning effort are shared costs



Future Market Opportunities.

Several logistics market trends could increase the attractiveness of Single Wagon Load

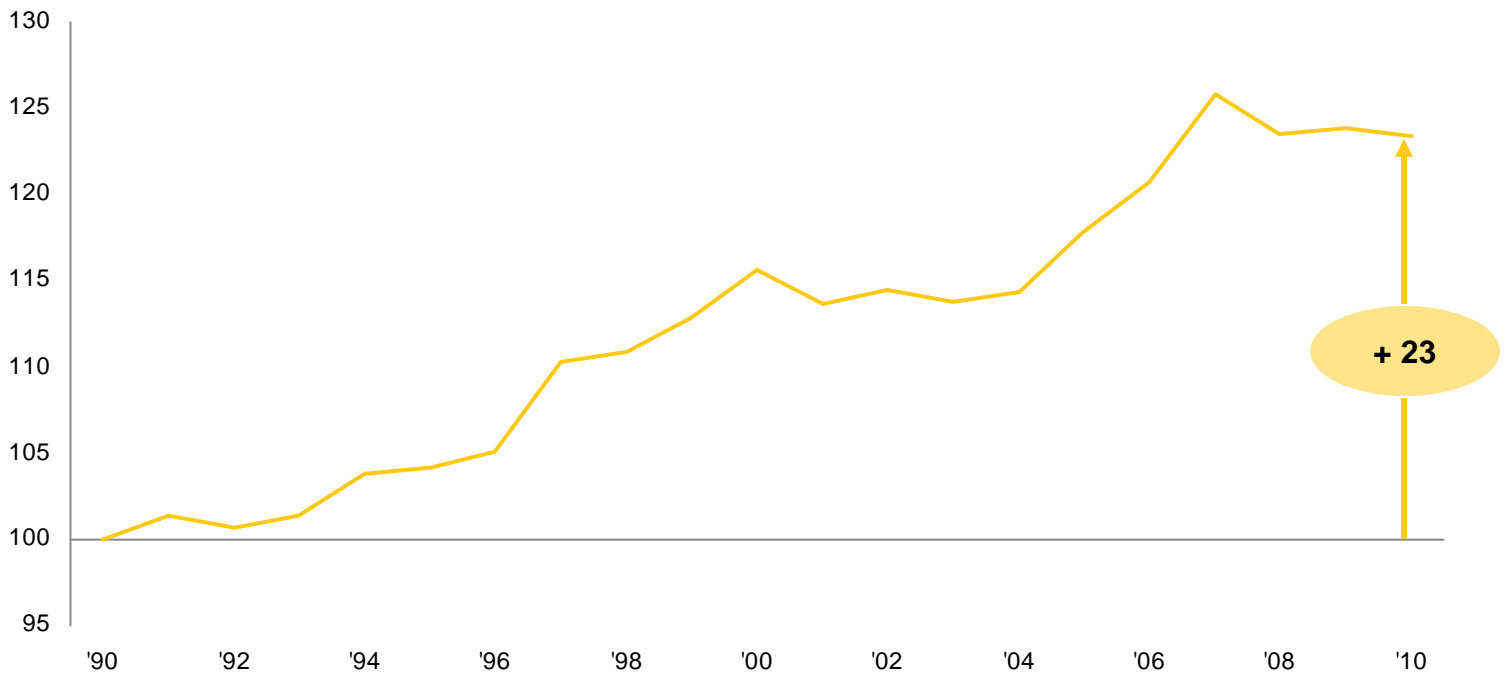


Source: Oliver Wyman

1

Long distance traffic becomes increasingly important in rail, improving intermodal competitiveness of Single Wagon Load

Development of average transport distances in rail freight in Europe¹
Indexed, 1990 = 100

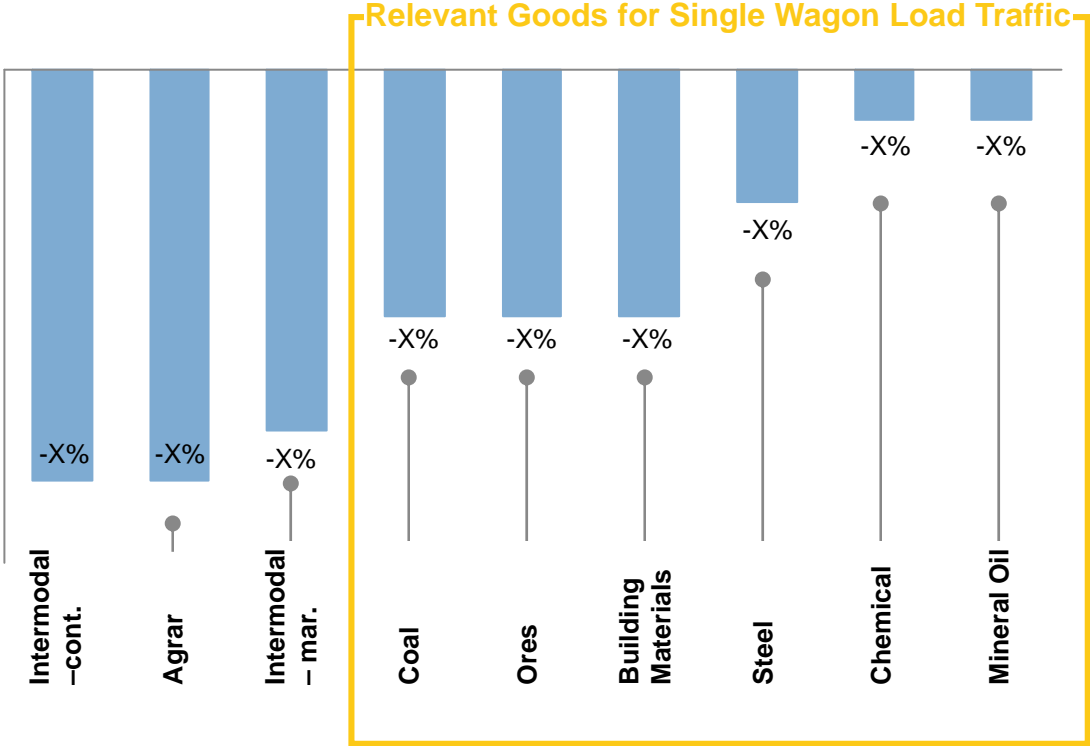


¹ AU, BE, DK, F, FR, GR, UK, IT, NL, P, ES, CH, DE
Sources: Worldbank, Statistisches Bundesamt, Oliver Wyman analysis

1

This will have a positive impact on market's willingness to pay -provided Single Wagon Load can deliver the required performance

Price elasticities by segment



- Generally, willingness to pay in the market, especially for the relevant goods segments
- Prerequisite is fulfilling market quality level needs, e.g. punctuality

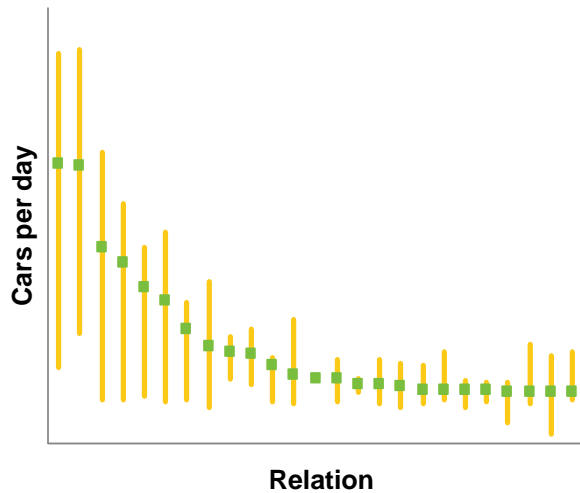
Source: Oliver Wyman analysis

2

Full load trains are less stable than often assumed

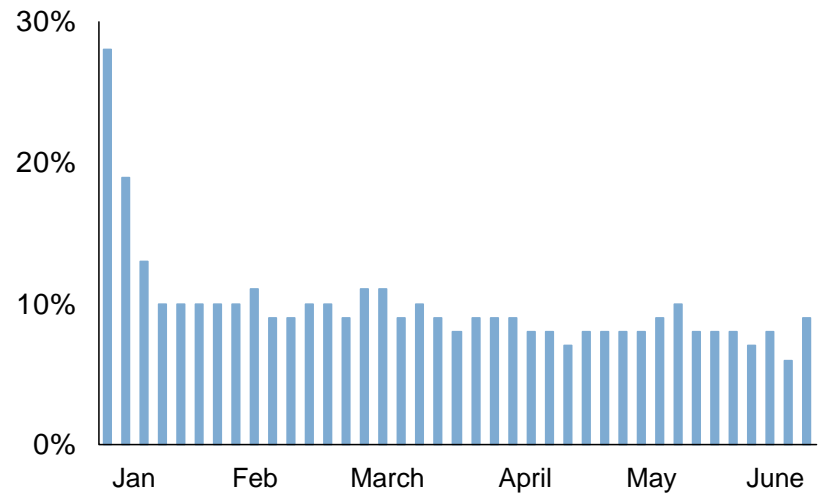
Volume changes

Max./ Ø / min. daily Traffic volumes



Canceled trains

% of canceled full load trains



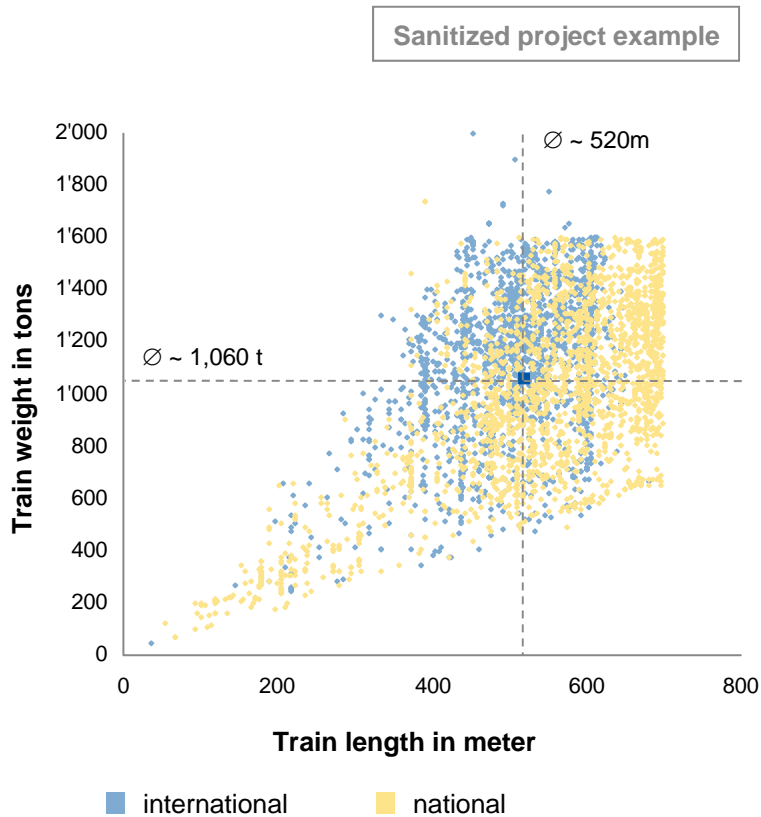
Source: Oliver Wyman project example

2

Due to variety of goods, volatility of demand and short term changes, full load trains are often not optimally utilized

Utilization of Full Load Trains

Train length and train weight



- Full load trains are less stable than often assumed:
 - Volatility
 - Short term changes / cancelations
- There are different design standards in Europe. International trains are cut to lower standards even in the departing country
- Variety in length and weight requires extensive scheduling of wagons & trains and thus increases number of empty runs

Source: Oliver Wyman

2 Different market requirements which are not yet fully addressed by Single Wagon Load products

Basic requirements by selected industries

	Agriculture	Chemical	Automotive
Punctuality and reliability			
Footprint and international reach			
Flexibility and Availability			
Transit time			
Service portfolio			

Source: Oliver Wyman

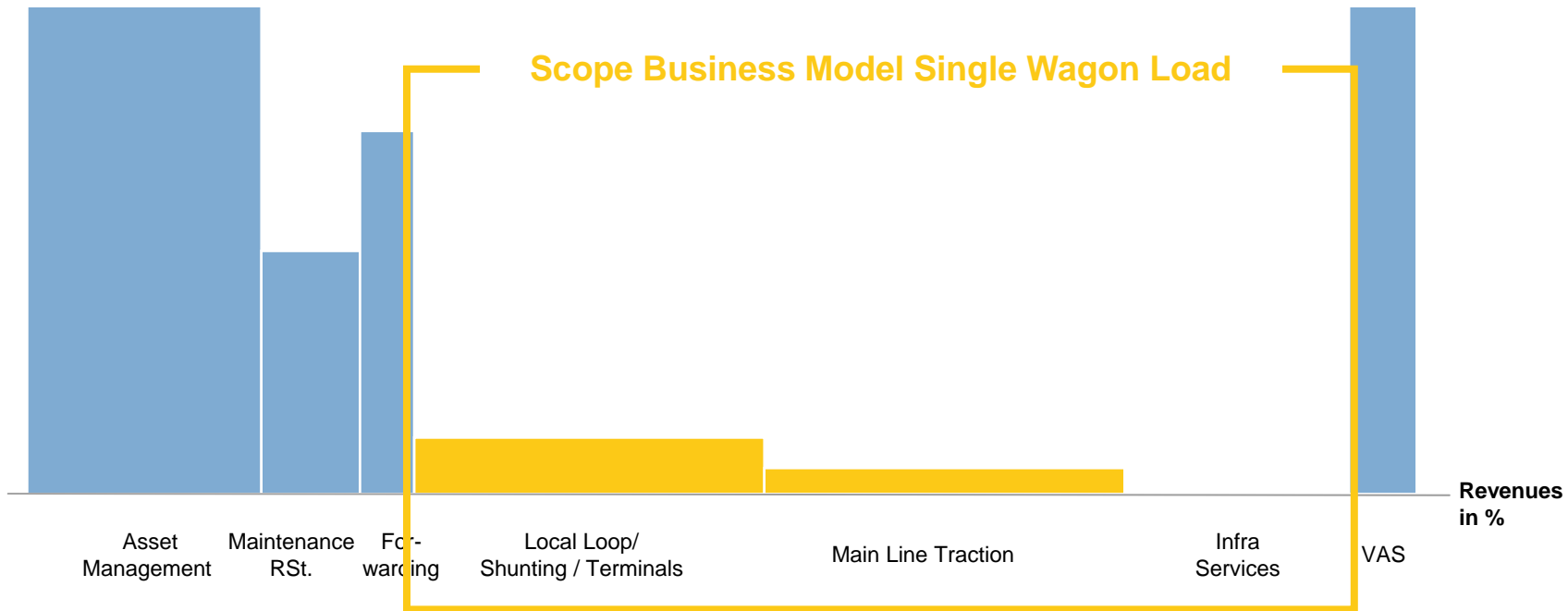
Very important

Less important

2

Currently, potential profit pools are not tapped by Single Wagon Load

Potential Profit Pools Single Wagon Load in Europe¹



1 EU plus CH

Source: UIC International railway statistics, Oliver Wyman databases and project experiences



Making Single Wagon Load Traffic Successful.

The Single Wagon Load system needs to be fundamentally changed to achieve a sustainable development

International Co-Operation

- **Crossborder management** of Single Wagon Load network
- **Strengthening of international co-operation** around clients, offer and network

Adapt business model

- Increase **network synergies** and focus on **systems productivity**
- **Stabilize resources deployment** through active capacity and peak load management
- **Differentiation** and **expansion of offer**

Adapt offer and resources planning processes

- Building up **network management**
- **Integrated** planning and steering of offer and resources



Productivity



Service Quality



Competitiveness

Customers are pushing towards European solutions and harmonized service levels for Single Wagon Load

Example: European steel production sites of one manufacturer



- Consistent service levels
- Convergence of prices and conditions
- Central coordination of customer management

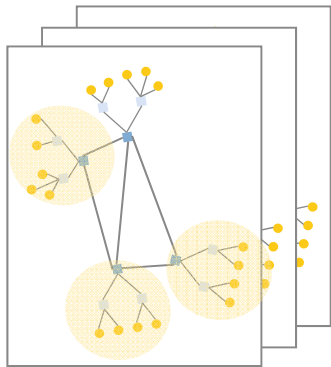
Therefore...

- „One Offer“
- Seamless integration of networks
- Co – ordinated cross -border network and customer management

Source: Oliver Wyman

Consolidation of networks and re - integration of unit trains to achieve synergies in a new wagon group oriented network

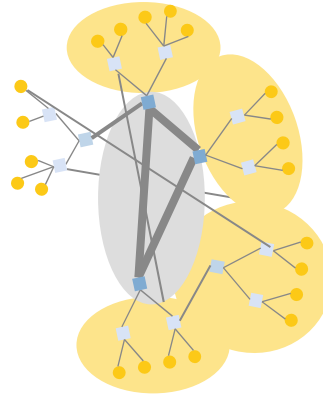
Traditional Single Wagon Load Network(s)



- Inflexible, hierarchical, decentralized but stable network
- In addition, often several solutions / Single networks in place
- High fixed costs with eroding volumes
- Frequent service

Source: Oliver Wyman

Wagon group oriented Network



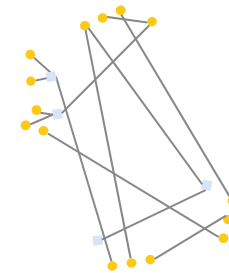
- Volume consolidation of Single Wagon Load and selected Full Load Trains
- More flexible and direct wagon group based network

➔ **Synergies**

➔ **Greater stability**

➔ **Higher wagon productivity**

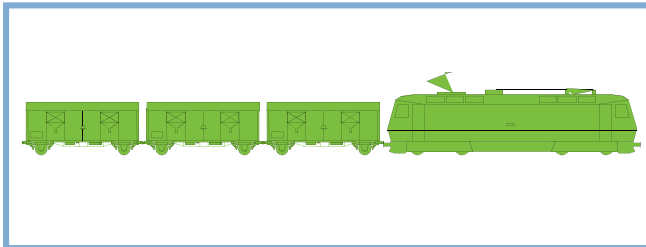
Unit Trains



- Point to Point Trains
- Instability due to volatility
- System reserves required to keep up flexibility
- Low frequency of service

Train view will be substituted by a shipment and network view

Train View



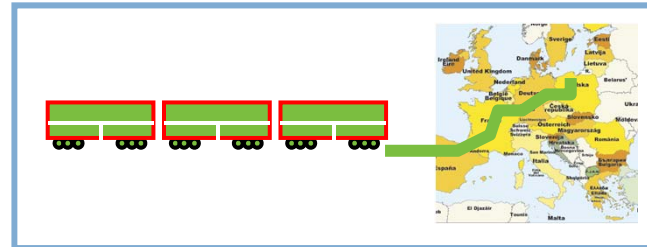
Punctuality of train start and arrival

Speed

Train utilization

Train management

Shipment and network view



Performance agreement on a shipment base

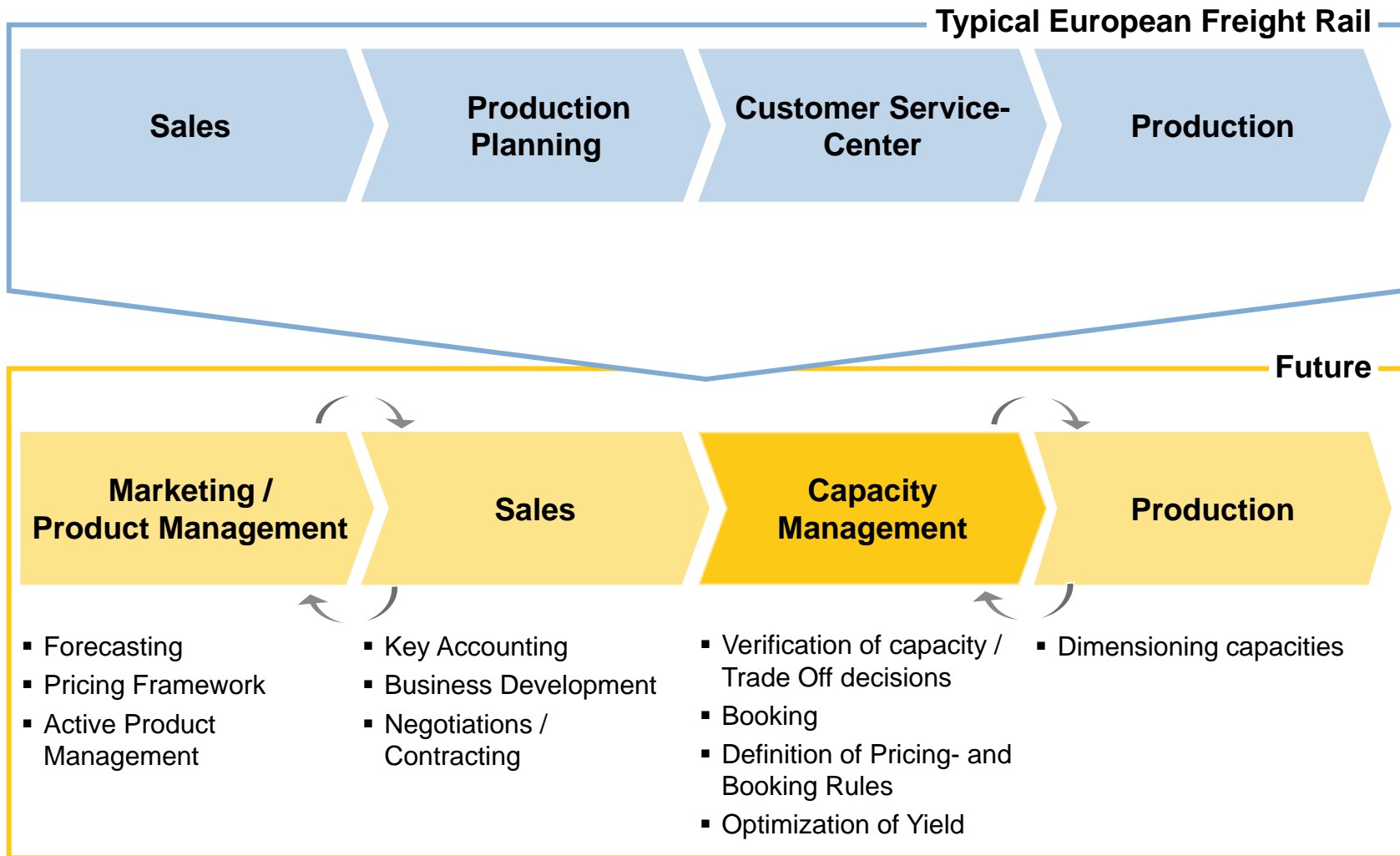
Transit times

System utilization

Network management

Source: Oliver Wyman

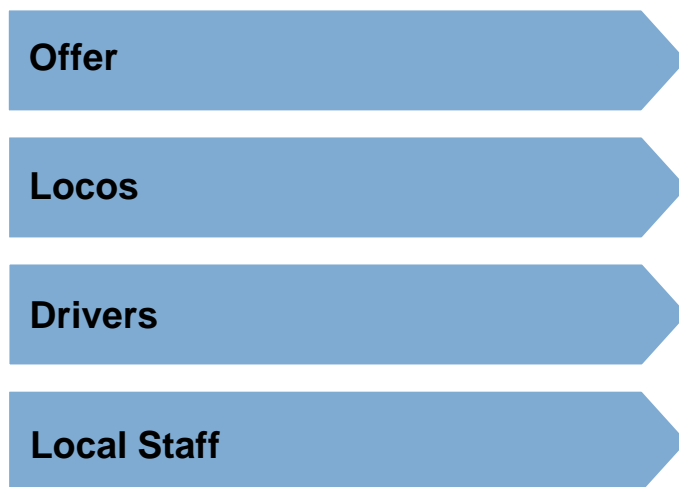
An active capacity management would further increase stability of the system



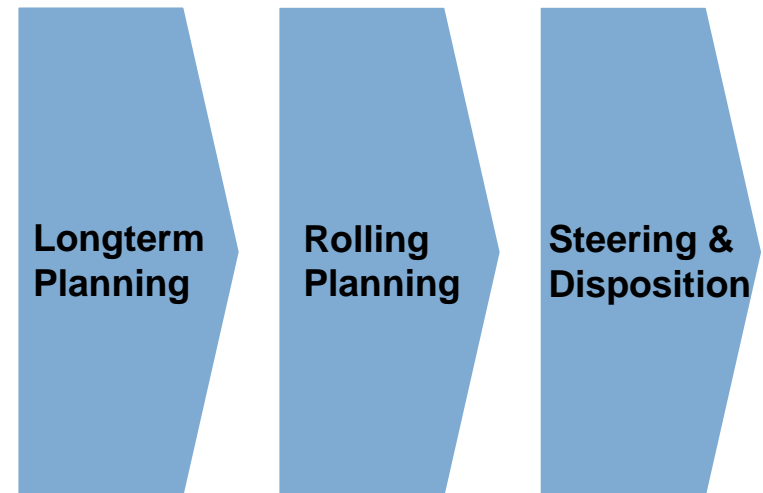
Source: Oliver Wyman

Long term perspective and integrated offer + resources view required to tap potentials

Objectoriented Planning



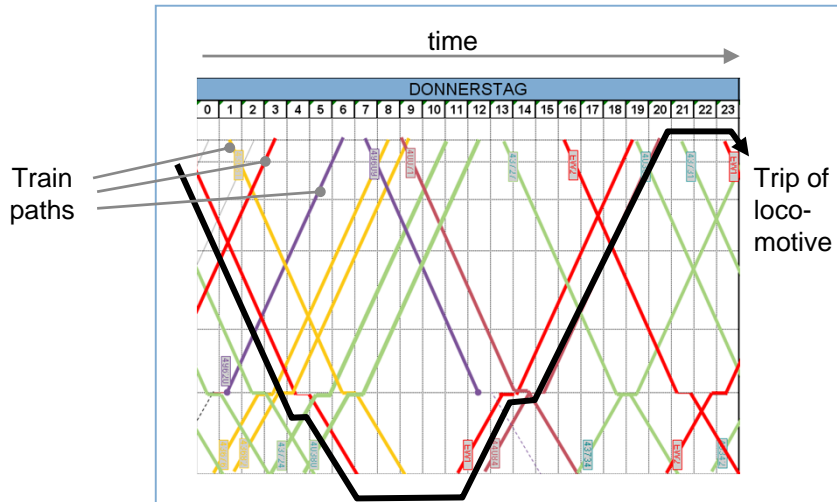
Integrated Planning



- Long term strategic development
- Integrated product view
- Synergies to exploit system productivity potentials

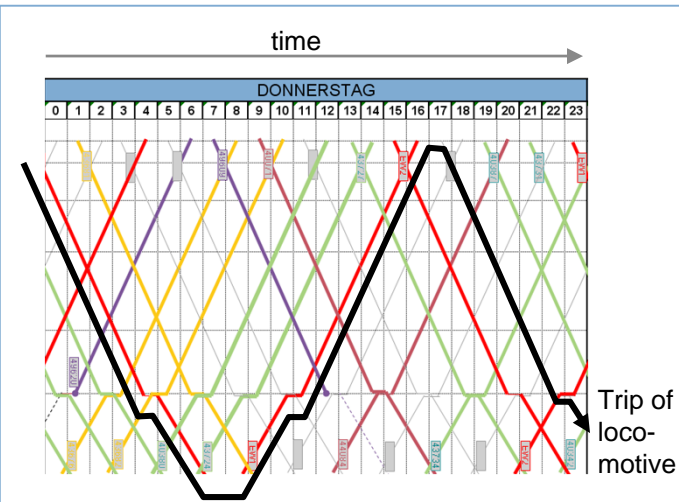
Resources deployment can be further “industrialized”

Demand driven production



- Traditional assignment of train paths with non-systematic path utilization
- Irregular assignment of train paths leads to longer locomotive dwell times and switches

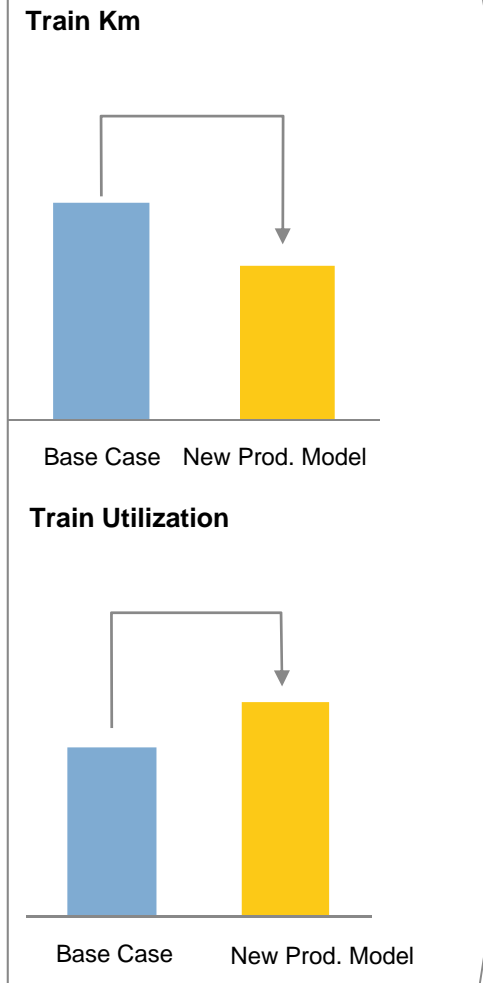
Scheduled production



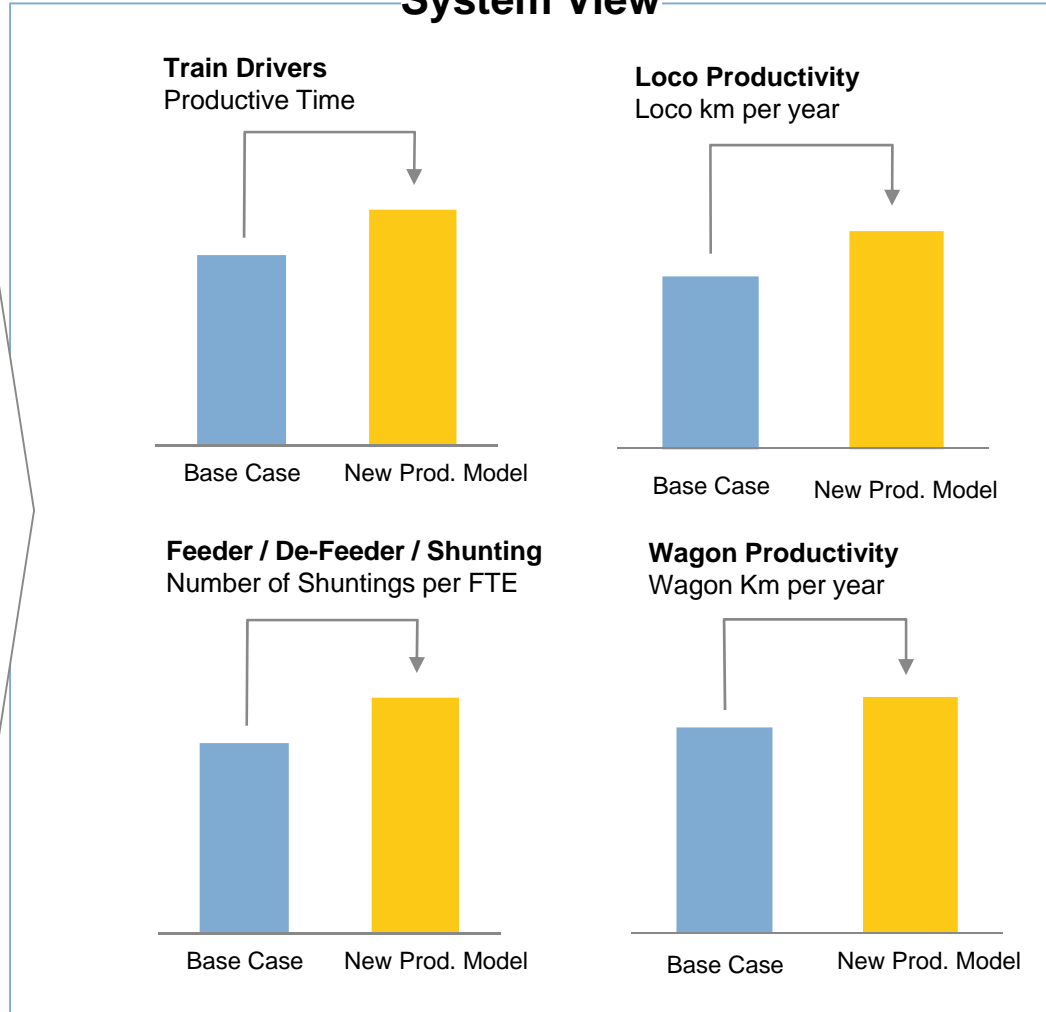
- Regular Production with even distribution of traffic throughout the whole day
- Concept of regular trains with system train paths allows optimal locomotive cycles and increases locomotive productivity

Goal is to increase productivity of the system vs. focused view on selected system elements

Traditional Parameters

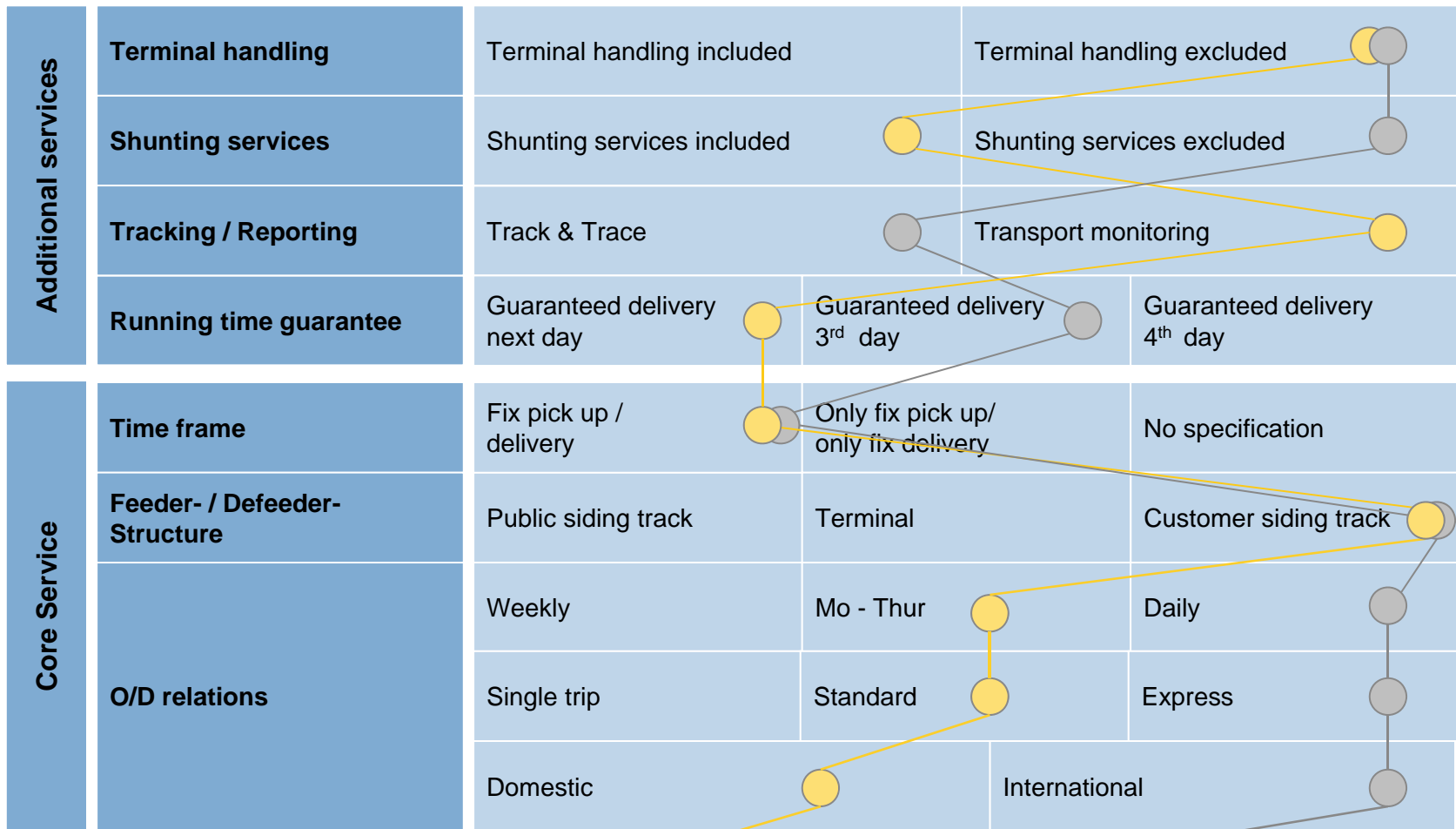


System View



Core service can be differentiated by building in different product attributes to better addressing market needs

illustrative



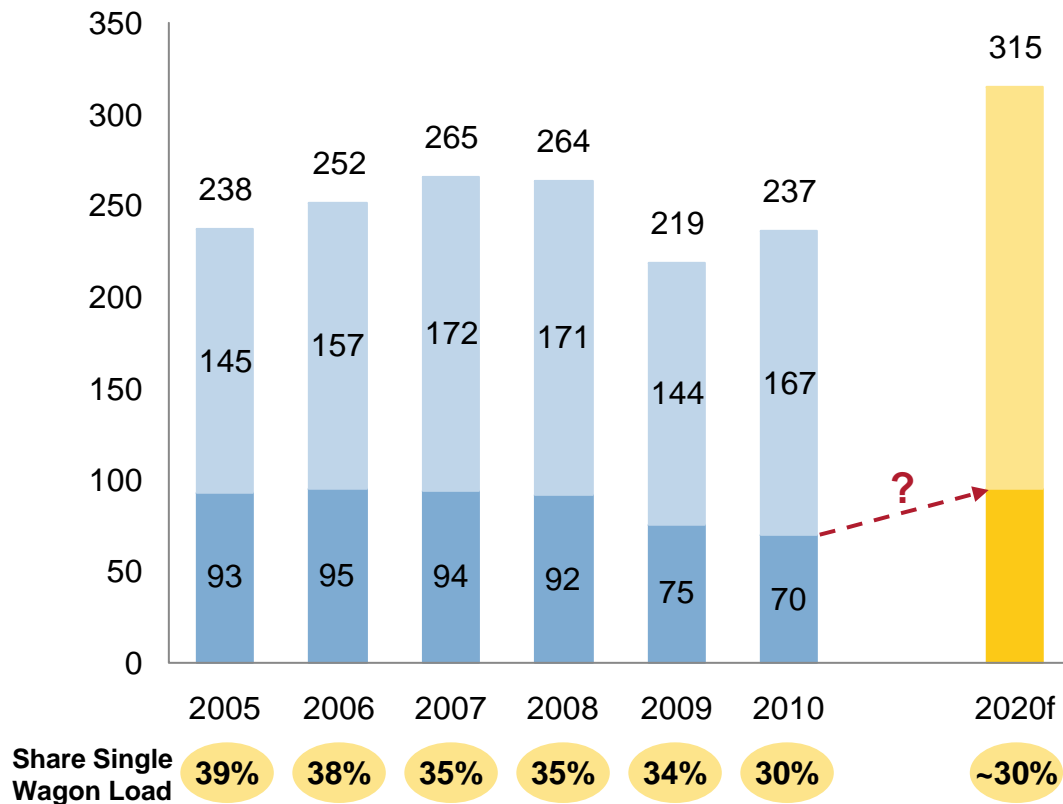
● Example Agriculture ● Example Automotive

Source: Oliver Wyman

The future of Single Wagon depends on the ability of the industry to co-operate and engage into a fundamental change

Rail freight development 2005-2010 by production type

Bn tkm for D, CH, F, IT, S, PL, SL



Required changes of Business Model:

- Seamless international co-operation (commercial + operational)
- From Single Wagon Load to Wagon Group Network
- Install Capacity Management
- More industrialization
- ...

Source: Eurostat, Prograns, Oliver Wyman Analysis

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