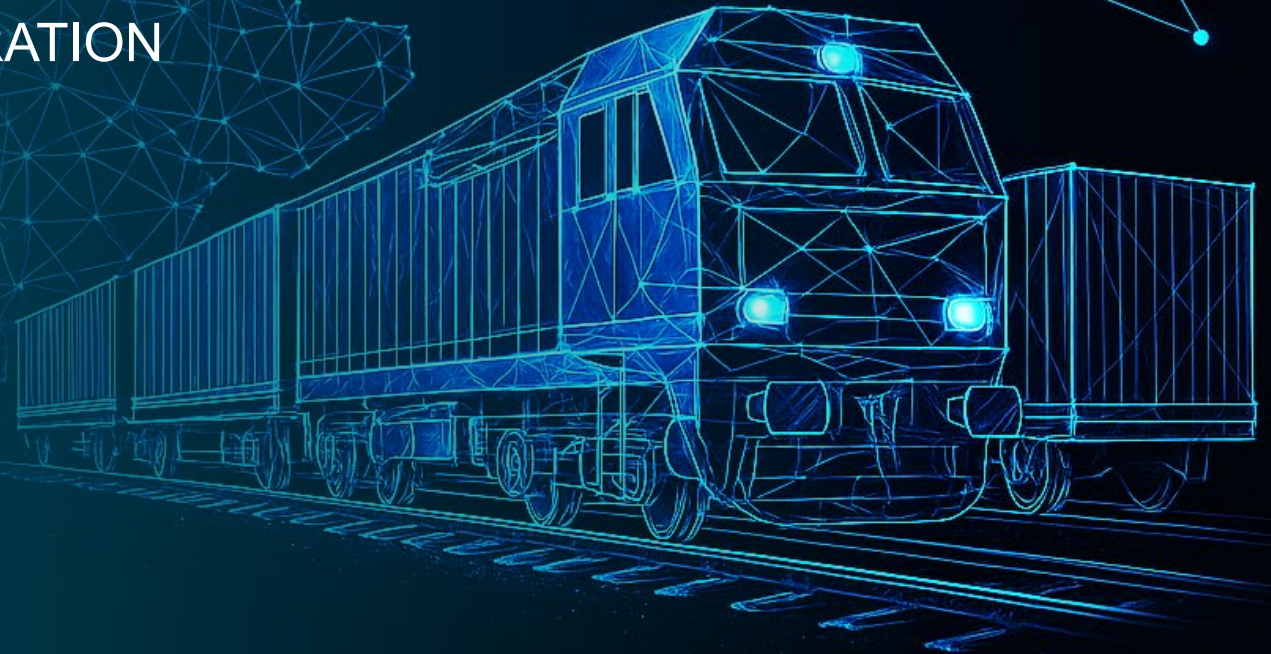


AI OPTIMIZES TRAIN LOADING AND NETWORK CAPACITY IN COMBINED TRANSPORT

KIBA PROJECT OUTCOMES FROM
RESEARCH-INDUSTRY COLLABORATION

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The Challenge



Every day, hundreds of load units must find their place on limited train slots across a changing network.

The Challenge



Complex network

Many routes/trains/terminals, data gaps



Market pressure

Road competition, cost focus



Volatile demand

Short-term changes, no predictability



Capacity limits

Train length, wagons, yard space



Manual handling

Human errors, inefficiency



Unpredictable events

Congestion/disruptions



Safety risks

Incorrect loading, overloads



The Solution

Utilizing mathematical
optimization, AI and
Machine Learning

**Solution development with the
KIBA project:**

Artificial Intelligence and Discrete
Loading Optimization Models for
Enhanced Utilization in Combined
Transport

*Künstliche Intelligenz und diskrete
Beladeoptimierungsmodelle zur
Auslastungssteigerung im
Kombinierten Verkehr*

INFORM Worldwide



Optimization
since 1969



HQ in **Aachen,**
Germany



7 subsidiaries
on 4 continents



1200+ employees
and growing



1000+ customers
worldwide



AI-powered
solutions for
various markets



Optimized Network Planning

Optimized Network Planning

Why?



Optimize distribution of load units
across the European rail network



Maximize network utilization
(max. transported load units)



Increase the attractiveness of rail freight
(min. transport time and cost)



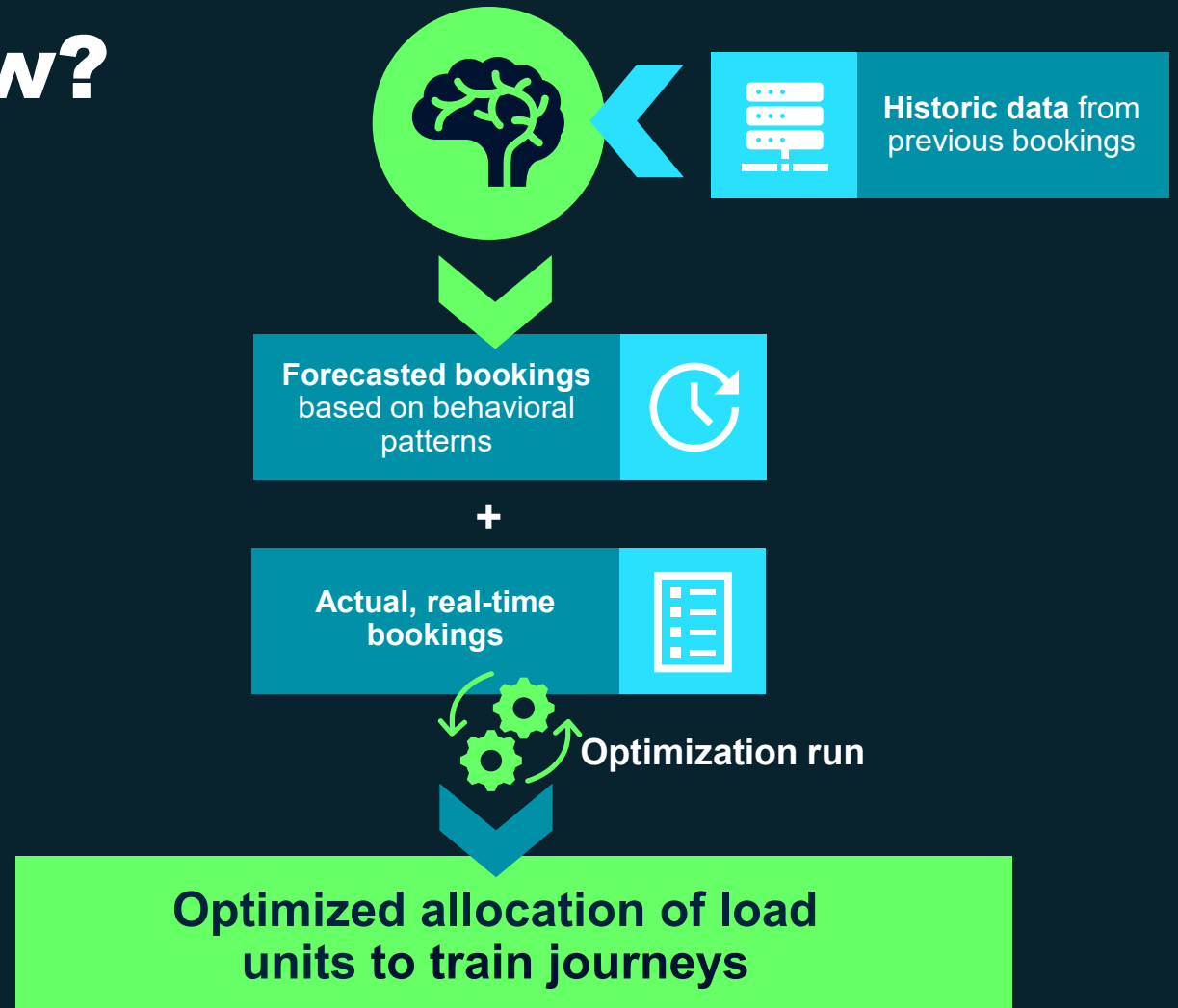
Reduce re-handlings, delays,
and congestion at hubs



Forecast and plan with the help of AI
to enhance efficiency and resilience

Optimized Network Planning

How?



Optimized Network Planning

Use Cases

Scenario 1

- An employee cannot have the overview over all real-time data (bookings, routes, restrictions, etc.).
- The optimization module can.
It also has the ability to forecast.

Scenario 2

- An unforeseen track closure occurs, and a train is canceled.
- The train must now take a different route, and the load units will no longer arrive at their destination on time.
- The optimization can reallocate load units on train journeys.

Optimized Train Load Planning



Optimized Train Load Planning

Why?



Decisions at the push of a button



Optimize allocation of load units to wagons



Shorten crane travel distances, reduce crane handlings



Minimize handling time per load unit



Comply with safety and hazardous goods regulations



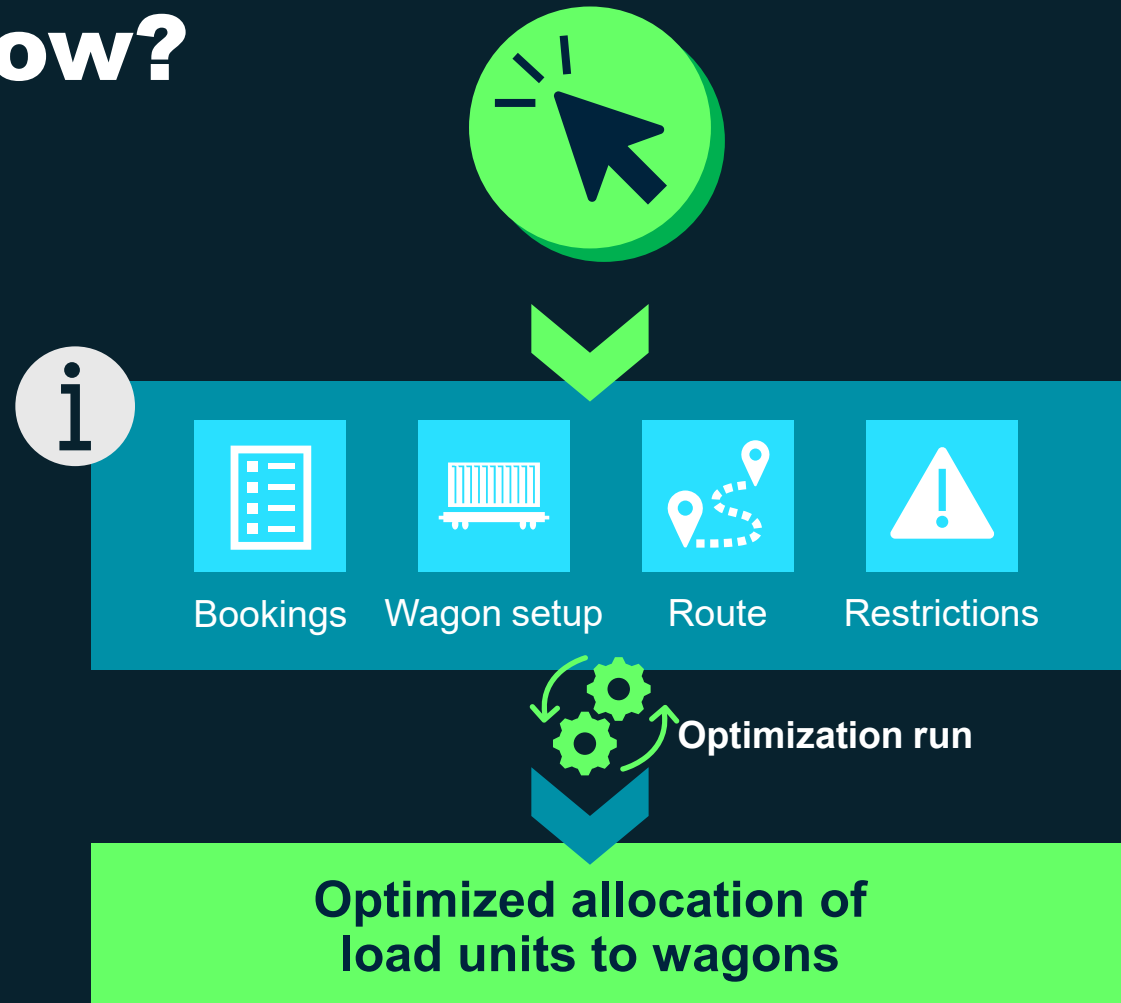
Avoid unnecessary re-handlings



Maximize train utilization with existing resources

Optimized Train Load Planning

How?



Optimized Train Load Planning

Use Cases

Scenario 1

- A truck arrives on short-notice.
- Its load unit is high-priority.
- You need to update the train load plan in real-time.

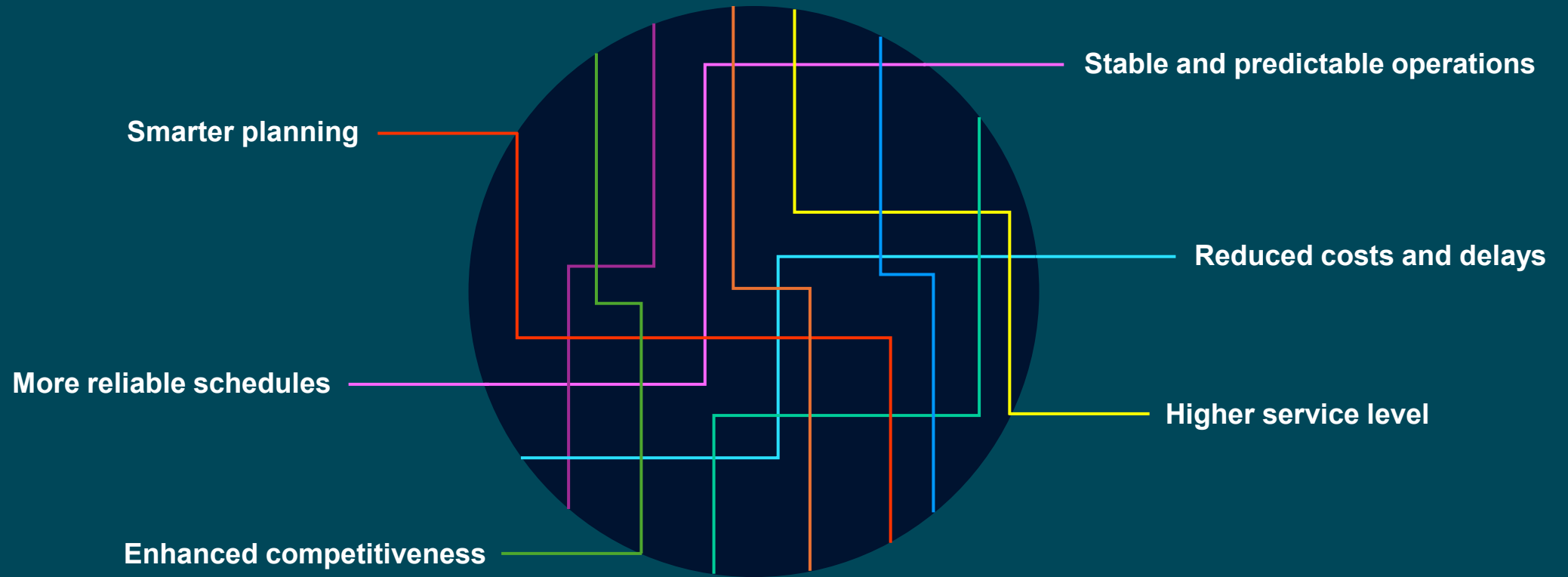
Scenario 2

- The real wagon setup differs from the communicated wagon setup.
- You need to rearrange the train load in real-time.

Scenario 3

- A company operates multiple terminals.
- You can save time and resources by centralizing the train load planning across locations.

Added Value



Thanks for listening!

Feel free to reach out if you have any open questions!

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Or add me on LinkedIn!

