

# OPTIMIZATION OF TRANSPORTATION AND YARD LOGISTICS PROCESSES **FOR** **PORT OPERATIONS**



## Meet **the Team**



**ANASTASIA BIRUKOVA**  
Lead SAP Transportation Management  
Consultant at LeverX Poland



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Solution Architect, Head of SAP  
Development Department at LeverX  
Poland

OUR SPEAKERS

# A Few Facts About LeverX Group

**800+**  
clients

**1,600+**  
employees

**950+**  
successful  
projects

**20**  
years of close  
collaboration with SAP



**14** offices



**10** countries



## LEVERX GROUP



Helping Companies Leverage  
Investments in SAP Solutions

SAP Global Strategic Supplier

## emerline

Operates as a part of LeverX Group  
and provides full software development  
services for startups and established  
companies in both consumer  
and enterprise areas

# LeverX Group Team



## SAP Consultants

- Business process analysis
- System configuration
- Support and maintenance



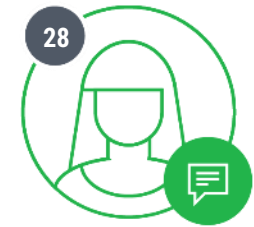
## PMO

- Project planning
- Project management
- Risk assessment and mitigation



## SAP Basis and Security Consultants

- System administration
- SAP system update and maintenance



## UI/UX Designers

- User interaction design
- Information architecture design
- Wireframing and prototyping
- Web and mobile interfaces



## SAP Software Engineers

- Solution architecture
- Implementation of business logic
- Solution development and extension



## Software Engineers

- Application architecture design
- Implementation of business logic
- Integration scenarios
- Design of user interfaces
- Information architecture design



## QA Engineers/ SAP Quality Managers

- Compatibility testing
- Functional testing
- Performance testing
- Usability testing
- Security testing



## DevOps

- Cloud services and platforms
- Infrastructure monitoring and auditing
- Deployment design and automation
- Continuous delivery

# Areas of Expertise



Road Transportation



Rail Transportation



Air Transportation



Water Transportation



Multimodal Transportation

# SAP Supply Chain Management Value



## Increased work productivity

- End-to-end process automation
- Electronic interaction
- Reduced resource redundancy



## Transparent transportation cycle and improved **service assistance**

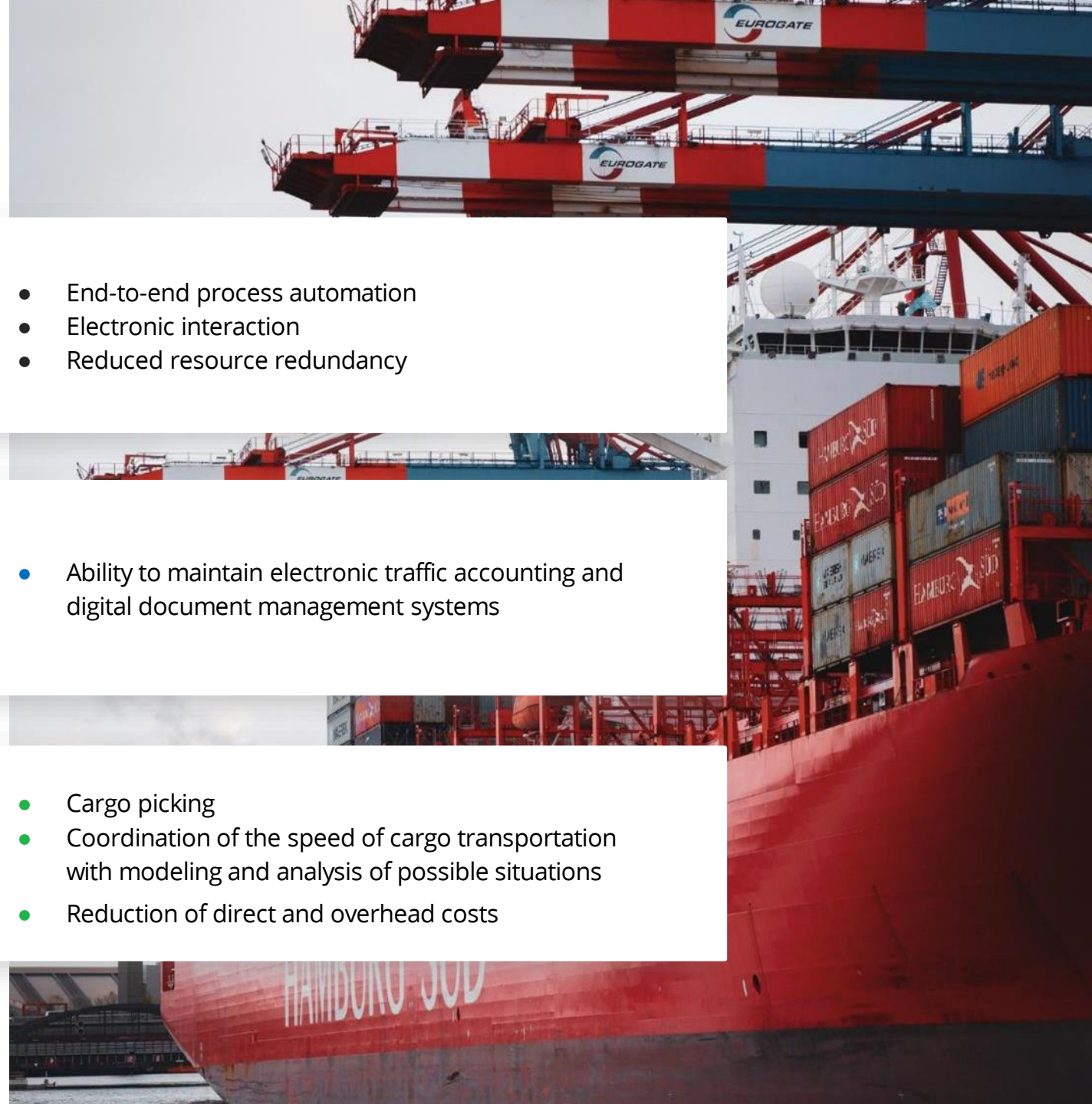
- Ability to maintain electronic traffic accounting and digital document management systems



## Freight costs **saved** by **5 – 15% \***

- Cargo picking
- Coordination of the speed of cargo transportation with modeling and analysis of possible situations
- Reduction of direct and overhead costs

\*Source: SAP Performance Benchmarking



# SAP Supply Chain Management Value



## Cash flow optimization

- Accurate costing and calculations (reduced surcharges and unplanned additional surcharges, inaccurate invoices, etc.)
- Automatic accruals with checking / tracking accruals
- Optimization of the number of freight costs
- Self-billing
- Integration of freight cost generation, billing and financial indicators



## Standardized shipping processes and operations

- Unified transport platform
- Centralized tariff and data management



## Accelerated business decision making and analysis, reduced data complexity

- Real-time analytics

# LeverX as **Yard Logistics** Implementation Partner

## LEVERX AT SAP

- Working with IBSO **since 2009**
- Engagement in **more than 60** Customer Implementation projects
- Involved



## NOTEWORTHY & PROFESSIONALISM

Before project launch, the **LeverX Group Team carefully analyzes** the business needs of each client and takes into account all expectations. Thus, **we ensure the successful development and implementation** of the product.



## LEVERX AT YARD LOGISTICS

- Technical architecture and implementation of major functionality of this product starting from the very first release
- Strong consulting and presales expertise in YL
- Internal landscape for demo and presales activities





# Intelligent SAP Supply Chain Management

Modern Digital Supply Chain **becomes a completely integrated ecosystem that is fully transparent to all the players involved** — from the suppliers of raw materials, components, and parts to the transporters of those supplies and finished goods, and, finally, to the customers demanding fulfillment.

## Yard Logistics Management (YL)

The solution helps to control all warehouse management processes and preview planned workloads using a range of tools.

## Transportation Management (TM)

The solution ensures reliable delivery of orders, reduces transport costs and improves overall logistics efficiency.

## Warehouse Management (EWM)

Solution for automating the management of logistics centers and warehouses.

## Production Planning And Management (PPDS)

A solution for creating and improving production plans, drafting purchase orders, detailed planning of resource loading.

## Integrated Business Planning (IBP)

The solution provides real-time data processing and interpretation.

## Serialization Control (ATTP)

Solution serialization (labeling of products) management, traceability of goods with serial numbers, and the provision of regulatory reporting.

# **SAP TRANSPORTATION MANAGEMENT AND YARD LOGISTICS FOR SAP S/4HANA OVERVIEW AND HIGHLIGHTS**



# Optimize **Transportation Management and Yard Operations in Port** with SAP TM and SAP YL

**SAP Transportation Management** integrates fleet and logistics management throughout your network, helping you reduce transportation complexity dramatically.

**SAP Yard Logistics** is a warehouse management system designed to simplify all related processes. The main advantages of SAP YL, according to LeverX experts, are the increase in process automation and seamless connection to billing and transportation. SAP YL is a smart tool that helps to:



Improve resource utilization



Optimize yard space



Get detailed data analysis



Increase process transparency



Avoid errors in manually entered data



Digitize warehouse with drones, sensors and mobile devices

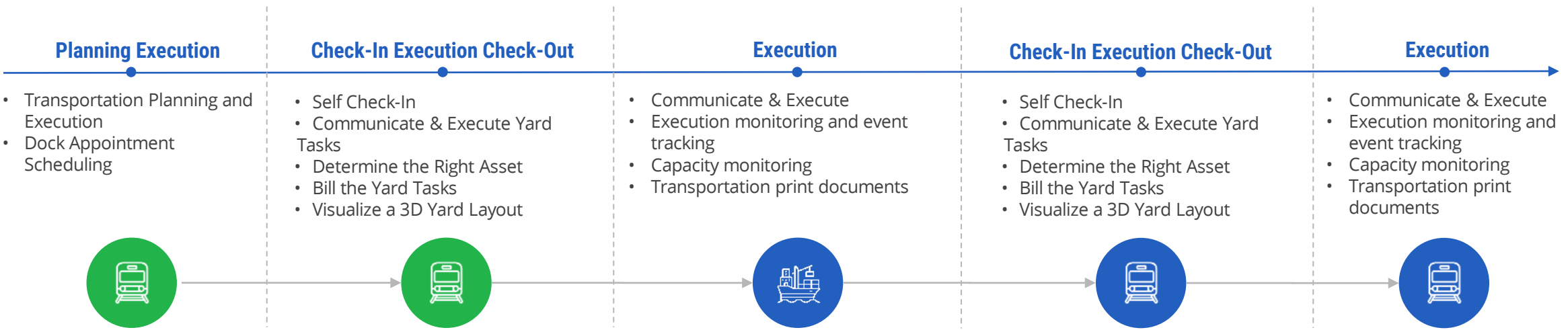
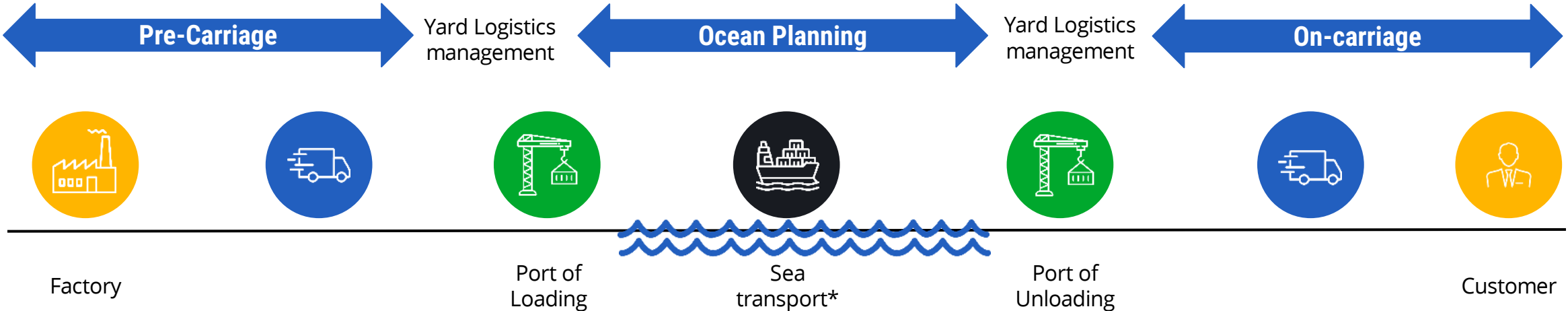


Form an integrated business network



Handle huge volumes of data thanks to automated planning processes

# Road-Ocean scenario Planning and Execution with SAP TM/YL





Yard  
Planning

Yard  
Execution

Yard Mobile  
Operations

**Yard  
Monitoring**

Billing

Master  
Data

Settings

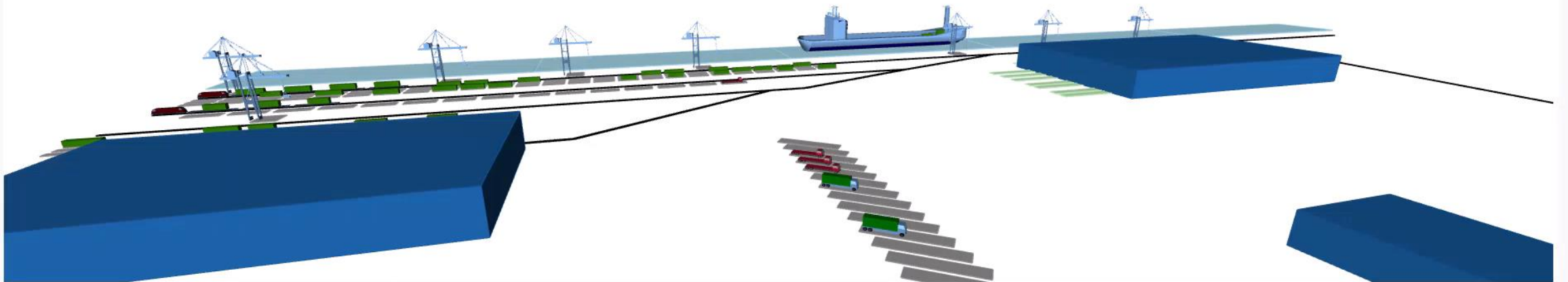


Yard SEA1, Yard Cockpit, Schematic View

Settings

### Yard Overview

Refresh | Flatten Buildings | Maintain Filter | Reset Filter | Collada Bounds

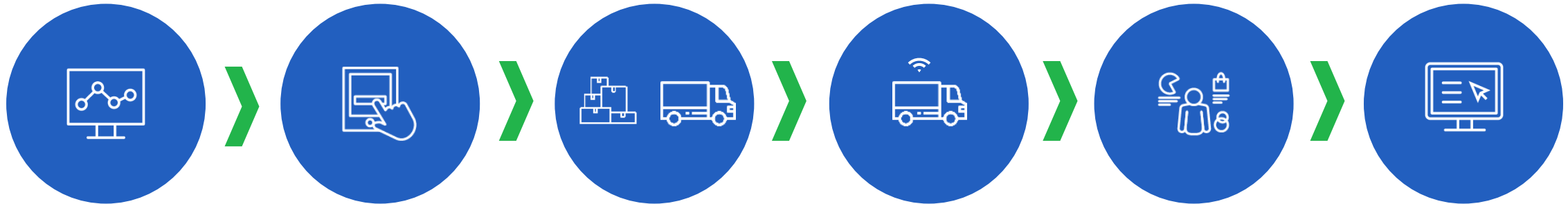


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# **SAP TRANSPORTATION MANAGEMENT FOR SAP S/4HANA SOLUTION DETAILS**



# Transportation Management Functionality



## Strategic Freight Management

- Strategic Freight Procurement
- Contract Negotiation
- Capacity Management

## Order Management

- Integrated ERP Transportation Demand
- Personal Worklists
- Sales & Stock Transfer Order Scheduling
- Schedule management
- Order Life-Cycle Management & Visibility

## Transportation Planning

- Manual and automated planning and dispatching
- Routing, resource, and carrier selection
- Order tendering
- Dangerous goods management
- Planning of parcels

## Transportation Execution

- Extended warehouse integration for execution
- Logistics execution
- Execution monitoring and event tracking
- Capacity monitoring
- Transportation print documents
- Trade regulation compliance (using SAP GTS)

## Freight Settlement and Invoicing

- Freight agreement management
- Charge and tariff management
- Integration with SAP S/4HANA
- Transportation charge calculation

## Analytics and Reporting

- Dashboards for the SAP HANA platform
- Overview pages with KPIs to manage your operational business
- Flexible reporting
- Real-time data reporting

# Best-in-Class Freight Planning Capabilities

Comprehensive visibility & powerful planning tools

## Transportation demand

- Manage freight units
- Create building strategies



## Planning constraints

- Availability and capacity
- Loading / unloading durations
- Incompatibilities
- Driver constraints



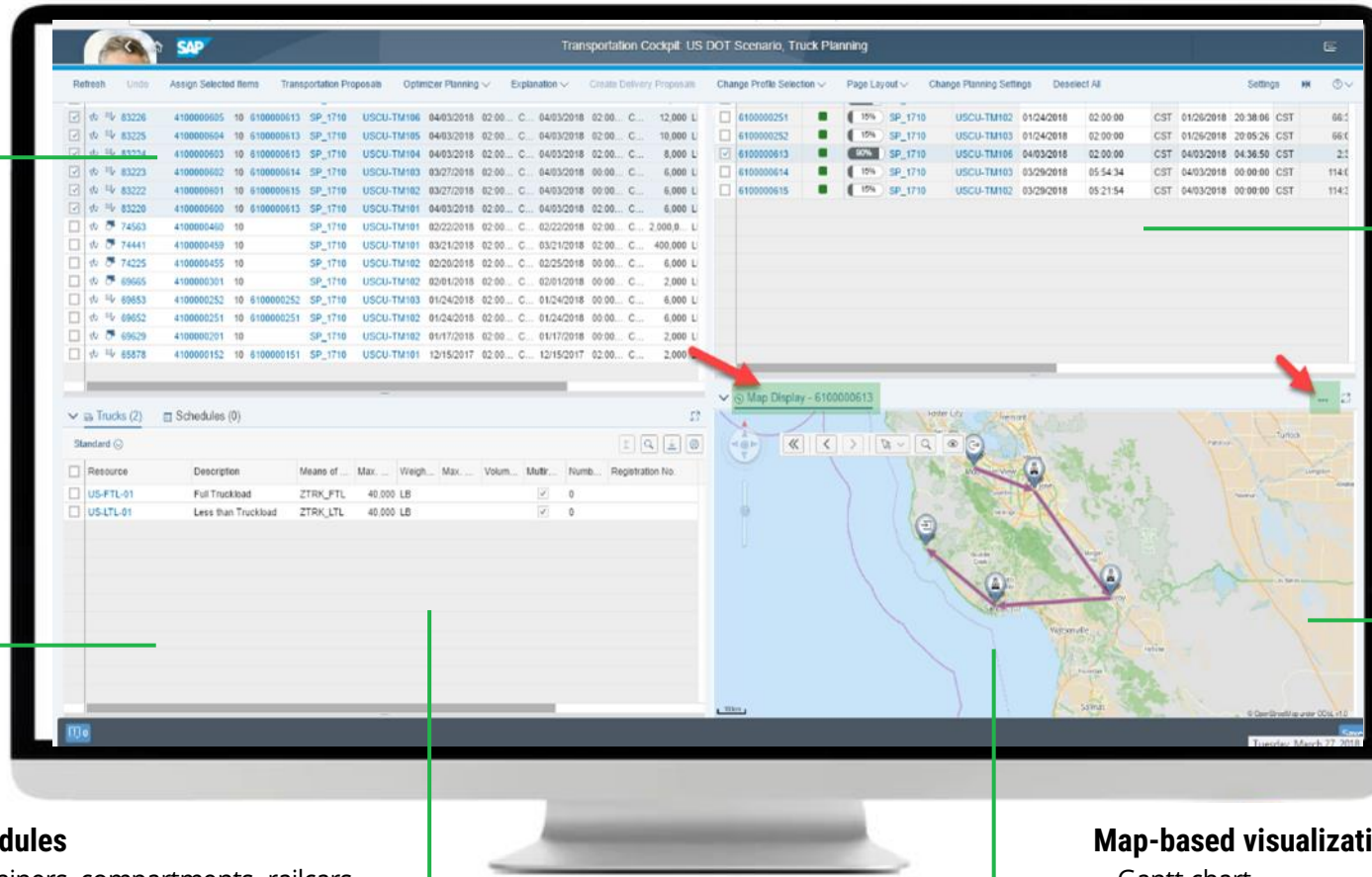
## Plan resources & schedules

- Vehicles, trailers, containers, compartments, railcars
- Land, ocean, air
- Schedule transportation



## Map-based visualization & planning

- Gantt chart
- Map views
- 3rd party GIS integration



## Supporting data

- Freight execution status
- Carrier ranking
- Freight charges



## Freight documents

- Freight orders & units
- Trailer documents & rail
- Ocean & air bookings





# Package Building and Load Planning Optimization



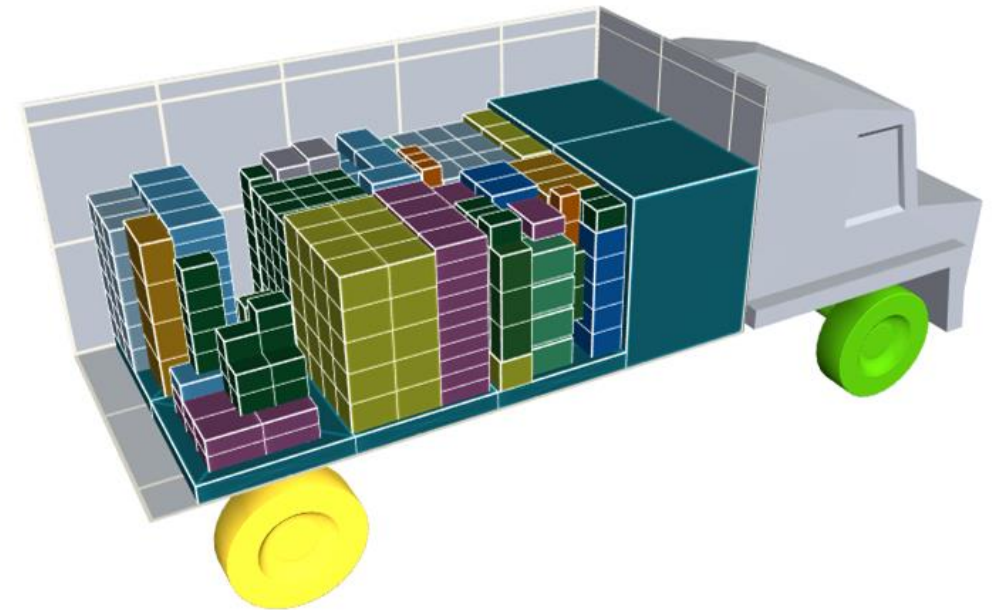
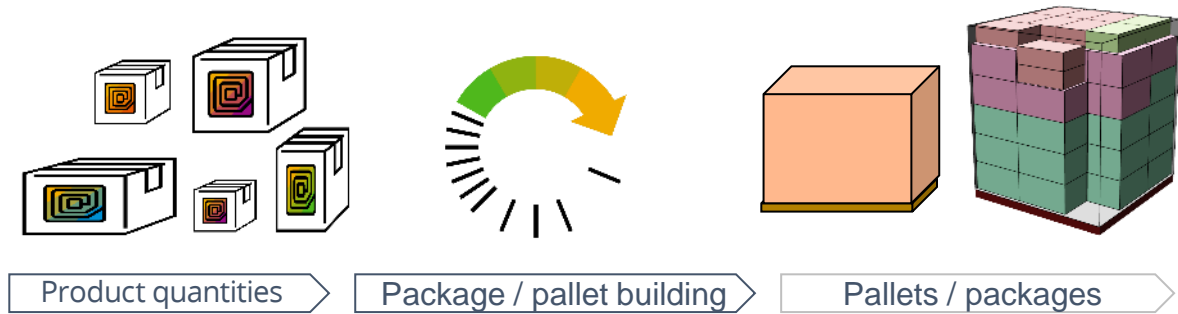
Minimize **number of pallets**



Maximize **truck utilization**



Optimal utilization of **loading space**



# SAP YARD LOGISTICS FOR SAP S/4HANA SOLUTION DETAILS



# Functionality in SAP Yard Logistics for SAP S/4HANA



Integration with SAP ERP,  
SAP TM, SAP EWM and SAP LBN



Multilevel loading  
scheme



Billing of Yard Tasks



**Dock Appointment  
Scheduling**  
(local or via SAP LBN)



**Mobile Yard  
Execution**



**Exception Handling**



Advanced Task Planning with  
BRFplus



Printing

## CORE FUNCTIONALITY



Yard Order Processing and  
Automation



Self-Check-In



Location Determination and  
Stacking



**Monitoring with 3D  
Yard Layout / Alerting**



Internal Yard Processes  
& internal Yard Order



Measurements, Checklists  
and Inspections



IoT Enablement/  
Integration Capabilities



Classification of  
Transportation Units

# SAP DIGITAL SUPPLY CHAIN EXPERTISE



# Project Experience



French container transportation and shipping company, leading worldwide shipping group.



Finnish full-service logistics company, since 2018 part of CMA CGM Group.



Singapore-based global container shipping company. Now wholly owned subsidiary of the CMA CGM Group.



Danish integrated shipping company, the largest container ship and supply vessel operator in the world.

# SAP TRANSPORTATION RESOURCE PLANNING



# SAP TRP Overview

SAP Transportation Resource Planning solution allows you to:



Increase the **visibility** of transportation resources



Support & enable **triangulation** decisions



Monitor the **current stock** and status of your resources according to type and location



**Balance the stock** of empty resources at minimal cost in the network



Determine **supply and demand** of empty transportation resources



**Trigger plan execution** in the transportation management system



Obtain **forecasts** of your supply and demand situation



Monitor resource related **KPIs**



Take decisions to **avoid or optimize resource repositioning** based on calculated provisioning and return locations

**SAP Transportation Resource Planning** delivers support to provide the right resource at the right time and right location to fulfill the customer demand at a minimal cost

# Business Background

## Key business needs addressed by SAP Transportation Resource Planning

01

Is a resource available and is it always possible to determine an available to promise date?

02

Which supply and demand of empty resources do I have and can I allocate best the appropriate resource?

03

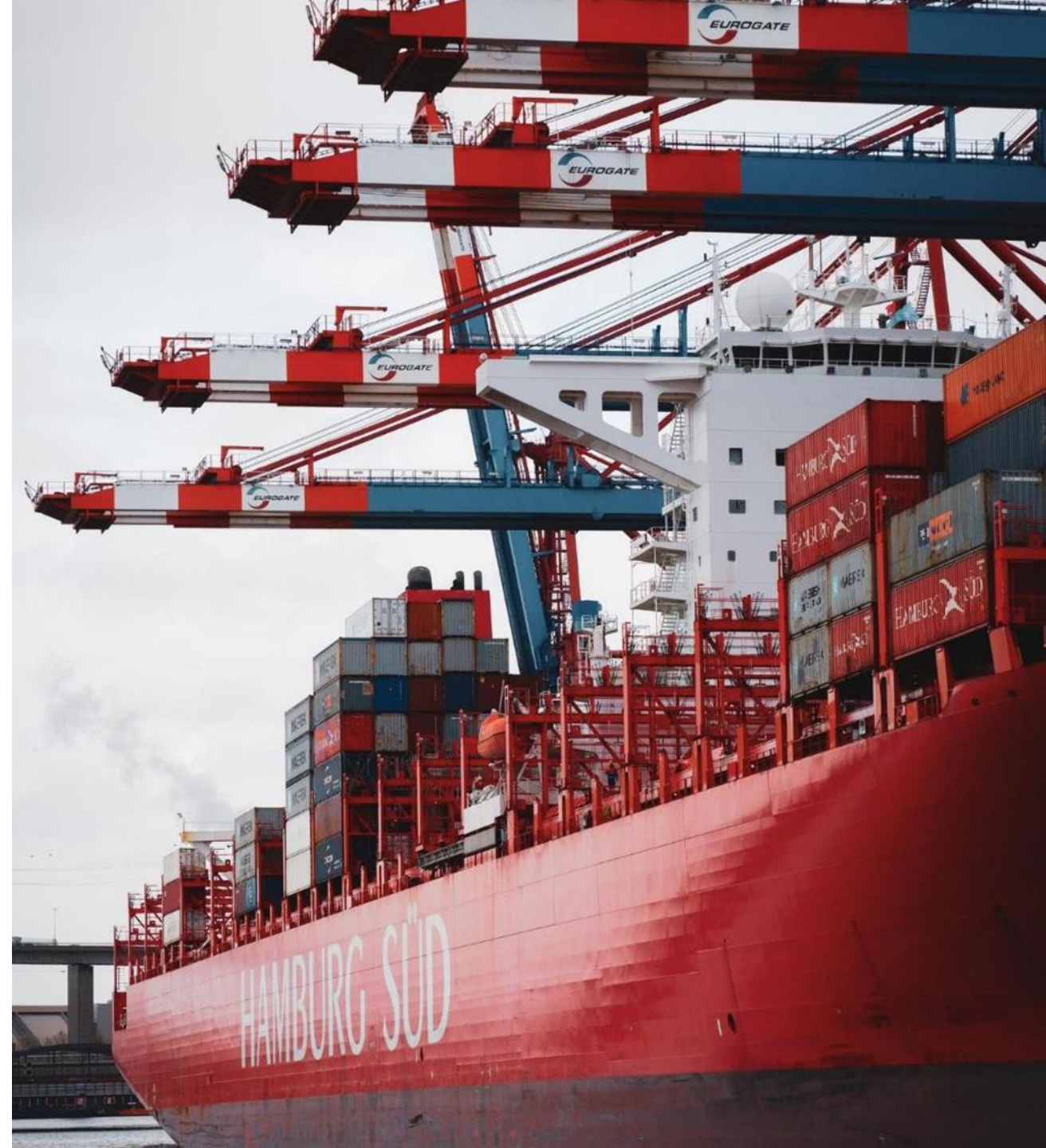
How can I reliably forecast the supply and demand of resources?

04

How to avoid repositionings of empties and increase the utilization of my resources by reducing my costs per resource?

05

How can I maintain and increase my service level?





# Business Value

SAP Transportation Resource Planning is adding value to the business

## IMPROVED BUSINESS PERFORMANCE



**Cost reduction** of owned resources due to decreased idle and dwell times



**Improved utilization of leased resources** by leveraging leasing contract information such as on-/off hire dates and locations, leasing costs and penalty fees



**Increased visibility** leads to tighter control of empty movement factors to decrease empty mileages by reduction of dwell times, shorter transit times from depot to shipper resp. consignee to depot, leverage back-load opportunities (e.g. triangulation, street turn, import-export combination)

## IMPROVED QUALITY AND REDUCED RISKS



### Utilization of fleet:

Due to improved business performance, the tactical fleet size can be reduced by increasing the utilization



### Leverage service reliability:

At time of freight/forwarding order creation the optimal pick-up location and time can be determined. When integrating SAP Transportation Resource Planning with SAP Transportation Management add-ons for container shipping liners for SAP S/4HANA, an empty resource availability check is done before booking confirmation.



### Transparency of operations:

The higher the visibility, the more educated the planners' decision can be



### Real-time information due to seamless integration with SAP Transportation Management:

Changes and exceptions are dictating logistics. Real-time information from the logistic system is key for the resource planner to make best decisions.

# Business Value

## Example: Top Issues Facing Global Ocean Freight

### CONTAINER RE-POSITIONING

- Repositioning empty containers costs the shipping industry **\$15- \$20 bn a year - up to 8%** of a shipping line's operating costs - according to Boston Consulting Group (BCG). *Source*
- ... repositioning accounts for **15%** of the operational costs related to container assets. *Source*
- Empty containers costs of a large Ocean Carrier: **\$ 1 billion / year**
- The imbalance between the global markets forces global operating Ocean Carriers to sail around with **4 million** empty containers per year (ShippingWatch November 1/2012)

**\$15- \$20  
bn / year**

Repositioning empty  
containers

**15%**

Operational costs related  
to container assets

**\$ 1 bn / year**

Empty containers  
costs

**4 m**

Empty containers  
per year

### CONTAINER DWELL-TIME

Container utilization is broken down to: **60% dwell time, 20% transit time and 20% change of Custody time ( US DOT )**

**60%**

Dwell time

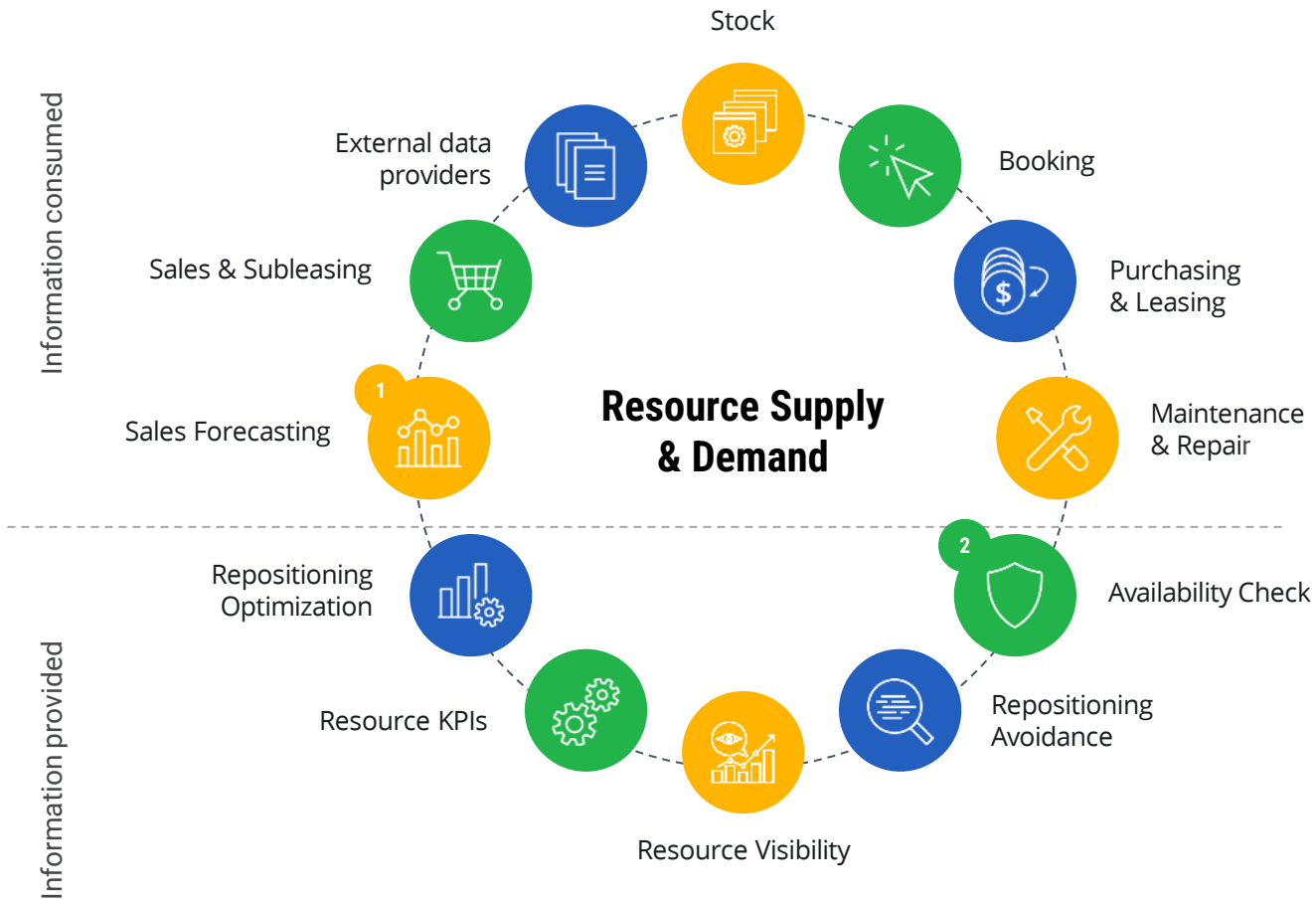
**20%**

Transit time

**20%**

Change of Custody time

# About the Solution



**1** Forecasting capabilities based on customer data upload & SAP HANA AFM modelling in customer project

**2** Available for SAP Transportation Management add-ons for container shipping liners for SAP S/4HANA

# About the Solution

SAP Transportation Resource Planning is supporting the smart and automatic planning of empty transportation resources based on an existing network and integrated with logistic systems such as SAP Transportation Management

## VISIBILITY

Offering a high **visibility** of transportation resources, their status, condition and current location as well as their stock



## SUPPLY & DEMAND

Building a **Supply & Demand** plan based on transactional data coming from a logistic system and forecasted data coming from a sales forecast system



## PLAN EXECUTION

Triggering the **Plan Execution** based on the resource planning via a seamless integration to SAP Transportation Management



## RESOURCE PLANNING

Providing decision support for **Resource Planning** with regards to **repositioning avoidance** (suggestion of best pick-up or return location and time including consideration of triangulation and street turn) and **repositioning optimization** (balancing depots based on future supply and demand in order to have the resources available to fulfill the customers demand)



## KPI MONITORING

Offering **KPI Monitoring** to support the decision making processes of the resource planner



**These elements are available for all kind of empty transportation resources such as (ocean) containers, railcars or trailers. SAP Transportation Resource Planning is supporting both Shipper and Carrier processes**



Let's discuss!

We are here to answer all your questions  
and find the best approach to enhance  
your business processes.

LeverX  
[contact-leverx@leverx.com](mailto:contact-leverx@leverx.com)

