SOLVO Europe B.V.

Modern Comprehensive IT Solutions for Managing and Optimizing Handling Operations with Different Cargo Types at Marine and Railway Terminal

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Senior Vice President Sales & Marketing

About Solvo

Who we are

SOLVO is an international leading vendor of TOS, WMS and YMS solutions and systems integrator on the global markets.

We are a leading provider of high-end supply chain solutions to help and optimize the logistics and all cargo handling.

Our approach

Not just development and implementation. We have the largest expertise in automating storage logistics and are ready to work on a turnkey basis. We are a leading firm in providing quality and value to our customer.

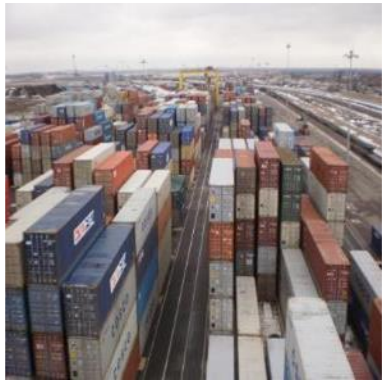
27 years experience

24/7/365 support

6 offices worldwide

400+ projects

Business core areas

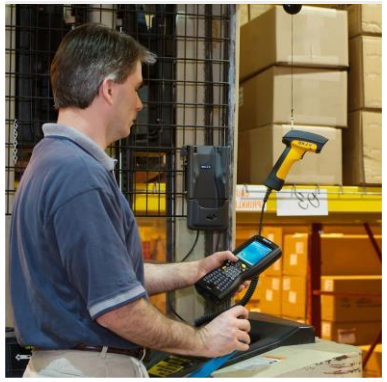


Solutions for ports and terminals

A leading Terminal Operating System for ports and terminals. An ultimate set of solutions for managing just any type of cargo: container, break bulk, Ro-Ro, general cargo, etc., including extra solutions as the VBS, AGMS, VGM.

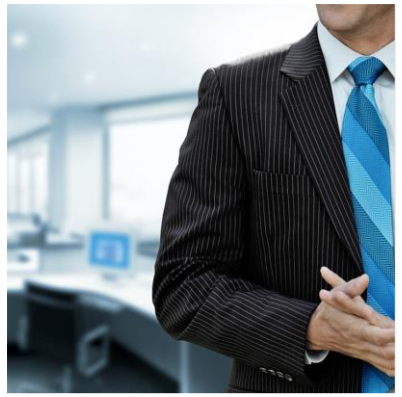
Solutions for managing yard

YMS helps to manage all the operations at the yards, including allocation and storage of different types of cargo, housekeeping, reefer and empty containers management, CFS management etc. Providing procurement of gate-entry/cargo pick-up permits for truck-drivers, trucks and cargo forwarders/transport companies.



Solutions for warehouse logistics

One of the leading software providers of SCE software. Solutions range from WMS to WCS, Yard, Billing, KPI and more for all verticals: production, retail and distribution, 3PL and pharmaceuticals.



Consultancy in logistics and system integration

Logistics and Management consultants, including specializations for Project Management, Optimization, Engineering, Design and Procurement.

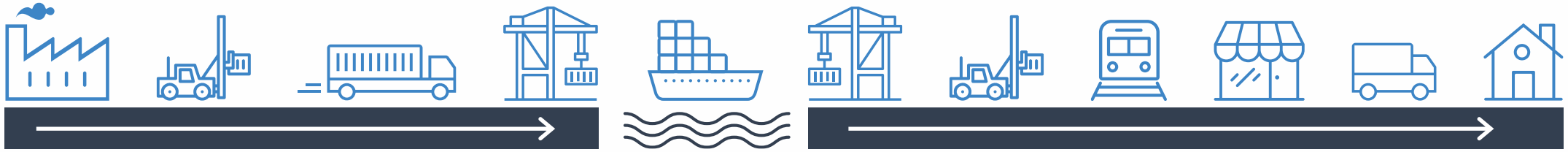
As well as training, seminars, webinars and other educational events.

SOLVO Europe B.V.

Multinational brands

400+ projects

Modern ports are moving to Extended Supply Chain



- Moving to Global Supply Chain
- Global Information Environment Connecting All the Elements of the Supply Chain
- End to End visibility - to final customer

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Modern TOS as a full Supply Chain solution and an integration platform

Support of Complex Technological Chains

Vessel operations

Breakbulk

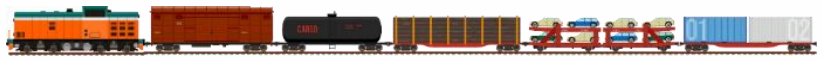
3PL

Ro-Ro on MAFI

Bulk

CFS

Vehicles



Rail operations

Containers

Gate operations

Solvo solutions portfolio

Solvo.TOS
for Marine and Inland container terminals

Containers

Solvo.TOS.Cargo
for Multipurpose terminals

Break Bulk and Ro-Ro, mixed cargo

- Ro-Ro
- Break Bulk, Bulk (fertilizers, grain, pellets)
- Goods packed in bags and boxes (sugar)
- Construction materials
- Sawn material, round timber
- Metals (ferrous and non-ferrous)
- Food, including perishable food
- Paper (rolls, pallets) and pulp
- Metal waste, machines
- Warehouse inventory

Solvo.TOS platform

KPI Module

Billing Module

VBS Module

GOS Module

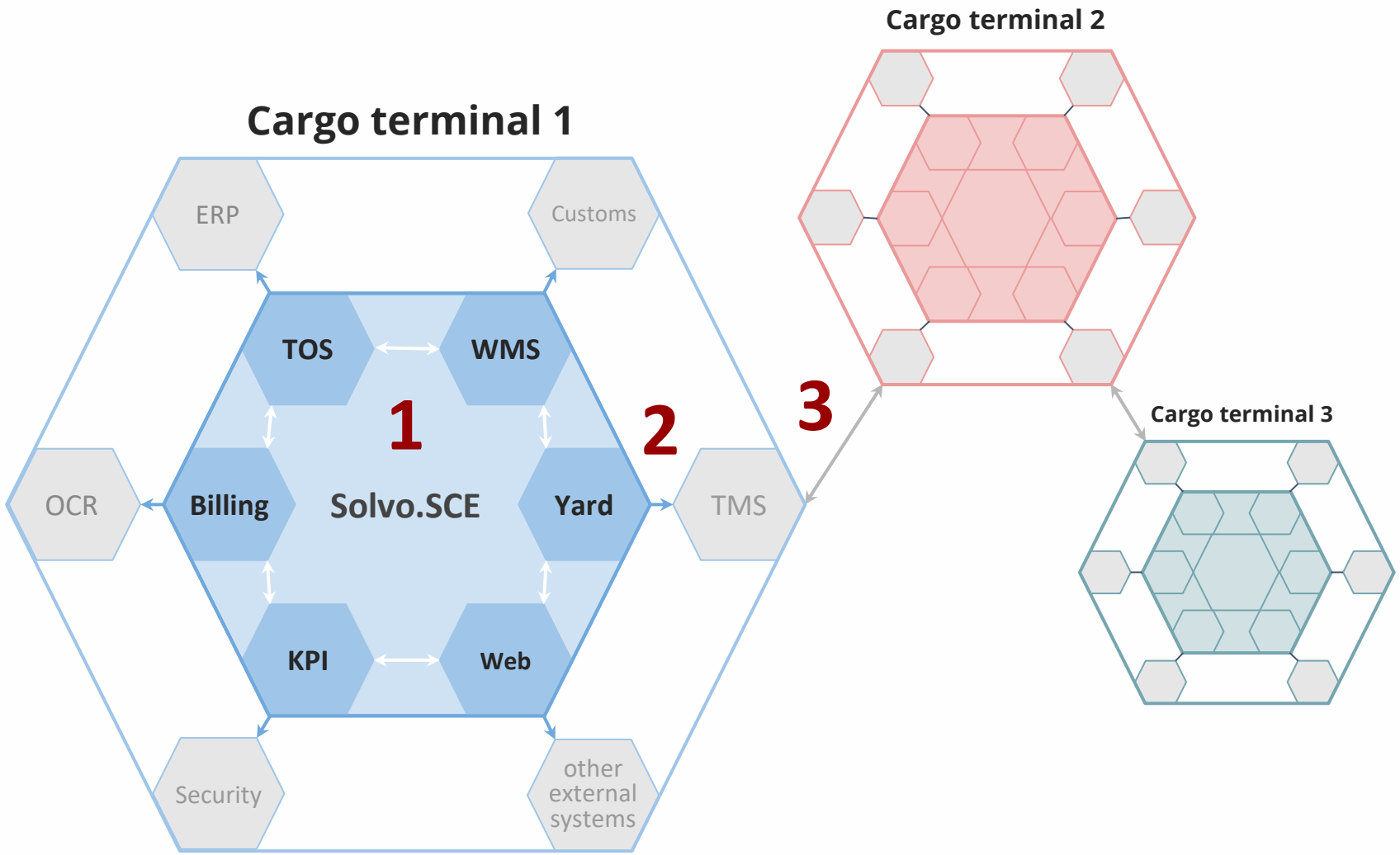
The system is creating for every cargo type dedicated business rules, with precise definition of what can be done with them, by whom and when.

Solvo.Yard

Palletized and piece loads

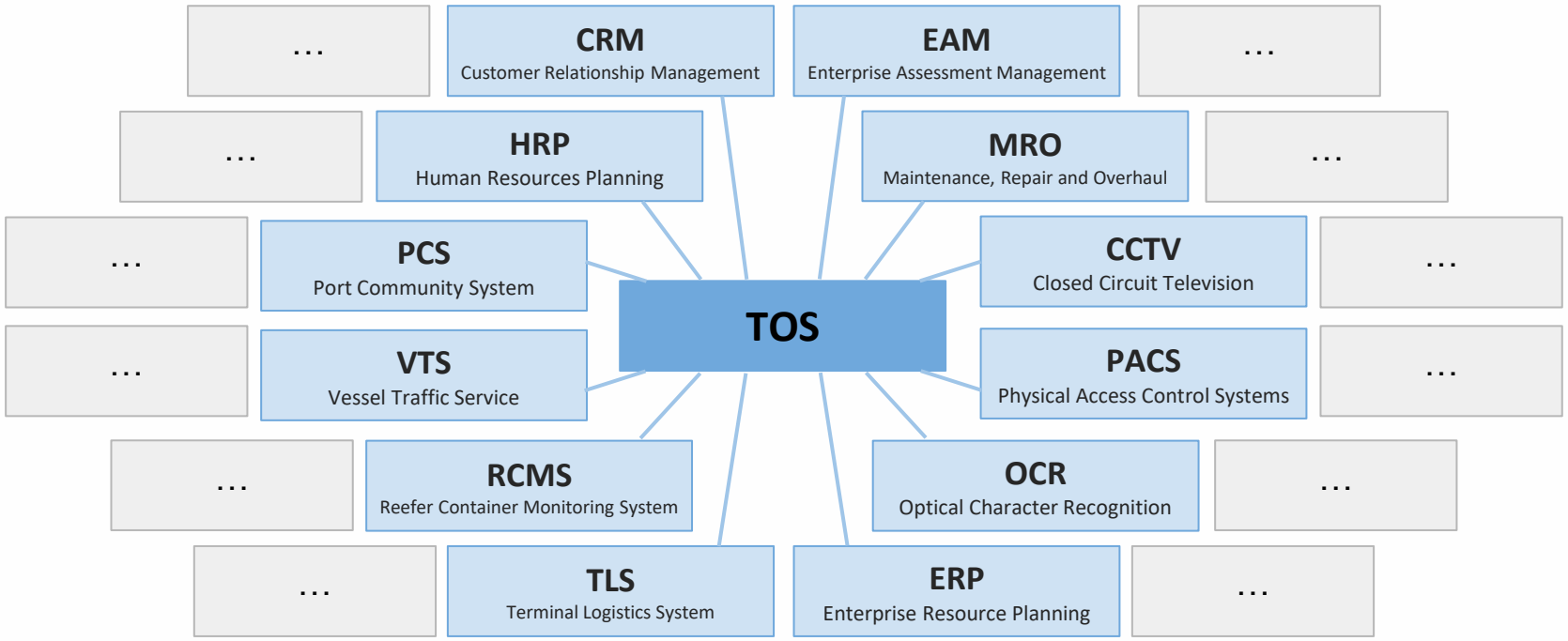
Solvo.WMS
warehouse management

System Integration Levels



1. Solvo.SCE Platform based solutions (integration between Solvo products).
2. Integration between Solvo solutions and external software.
3. Integration between different logistics facilities or participants of the Global Supply Chain

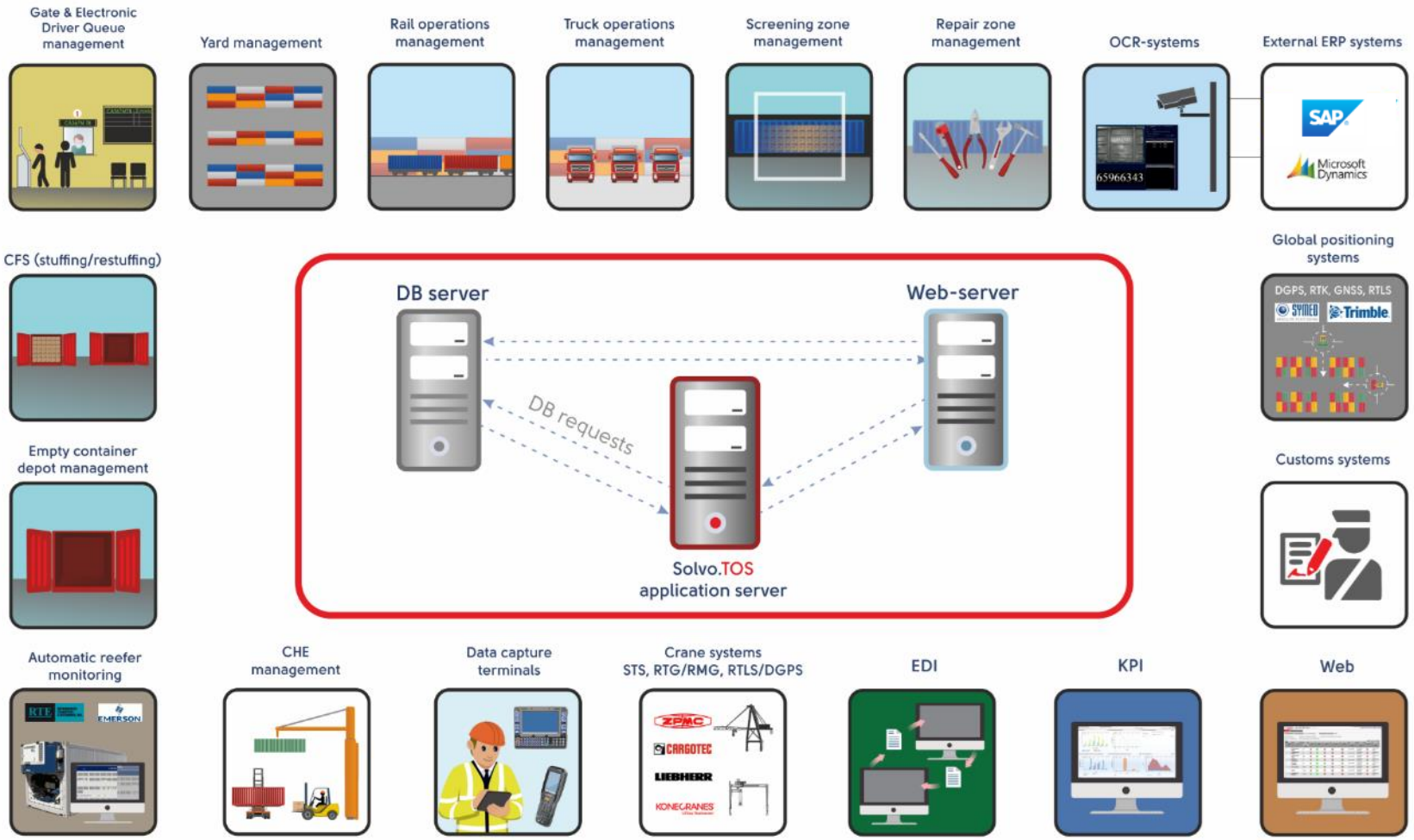
Solvo.TOS Integration Opportunities



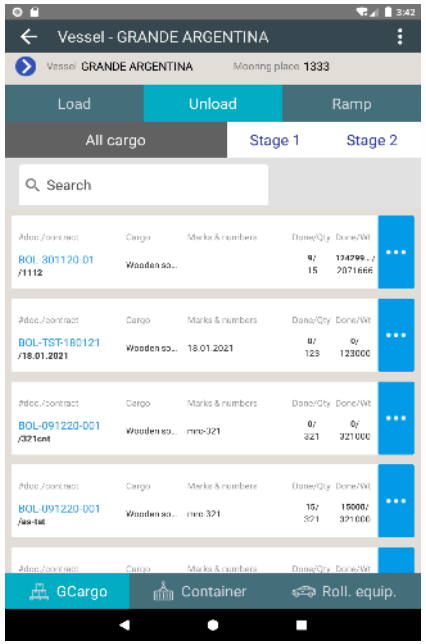
Solvo.API (Application Programming Interface) is divided into two modules: EDI (Electronic Data Interchange) for receiving and transformation data from external information systems and Notifier for preparing messages in the required format for external information systems when certain events occur.

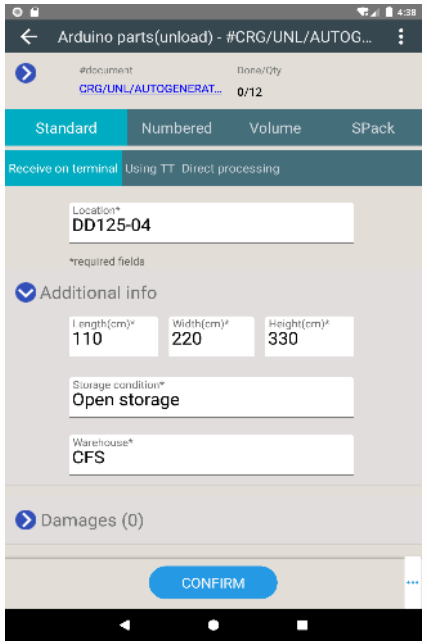
System receives a document with a message from the port system — integration platform — transfer it to the EDI module in various formats, which are then converted into the format required for the **Solvo.TOS** database. As a result, the user receives all this information online.

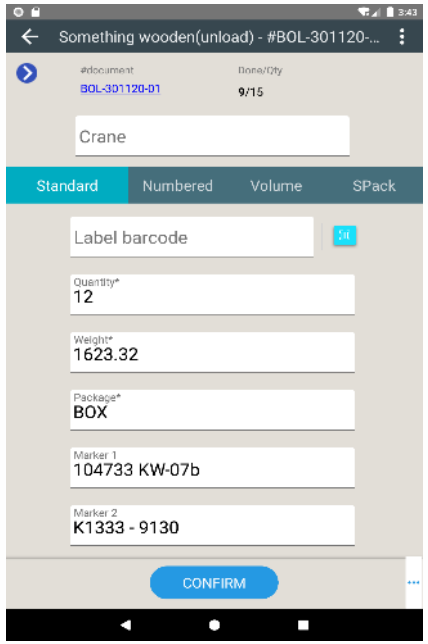
Solvo.TOS overview

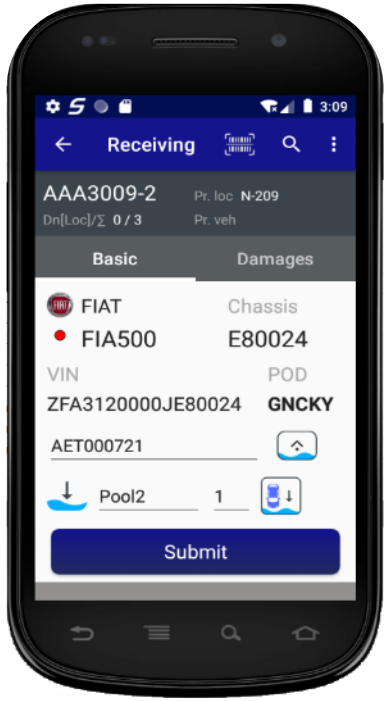


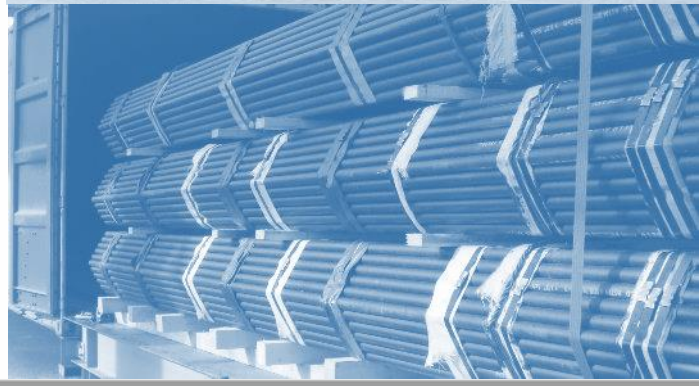
Cargo characteristics processed by Solvo.TOS







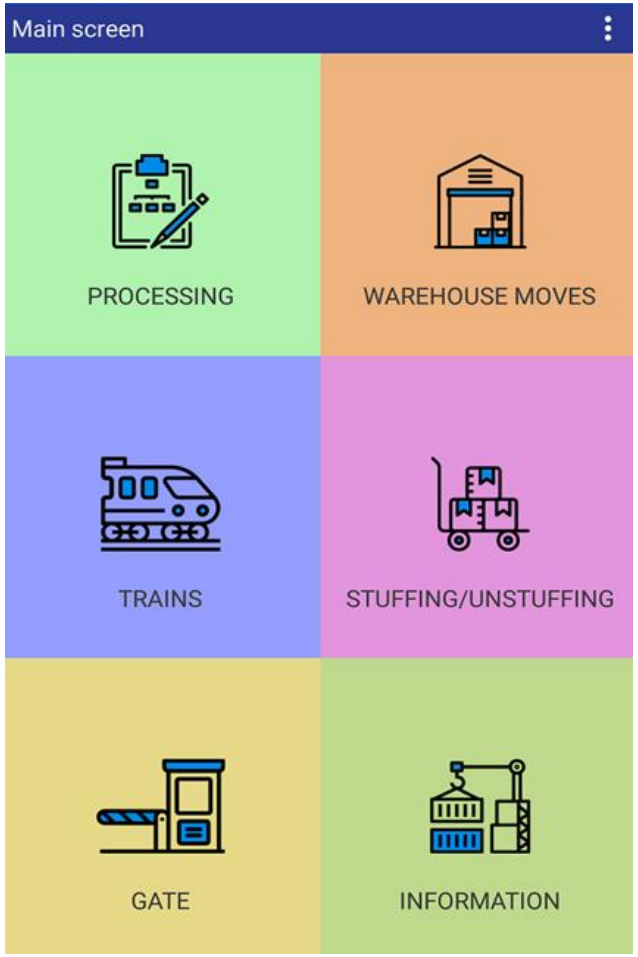


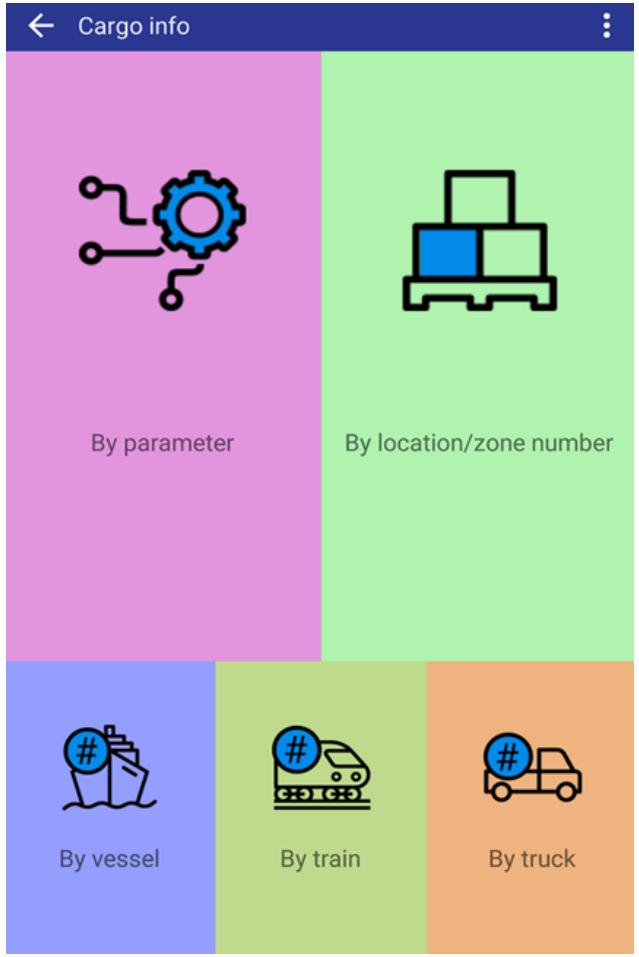


Among cargo characteristics processed by Solvo.TOS:
Package type, weight, quantity, dimensions (length, width, height), marking (label), markers.

For each cargo type the system can have specific characteristics, for example, cars:
VIN number, color, mode, dimensions (length, width), weight, type.

Interfaces for mobile devices



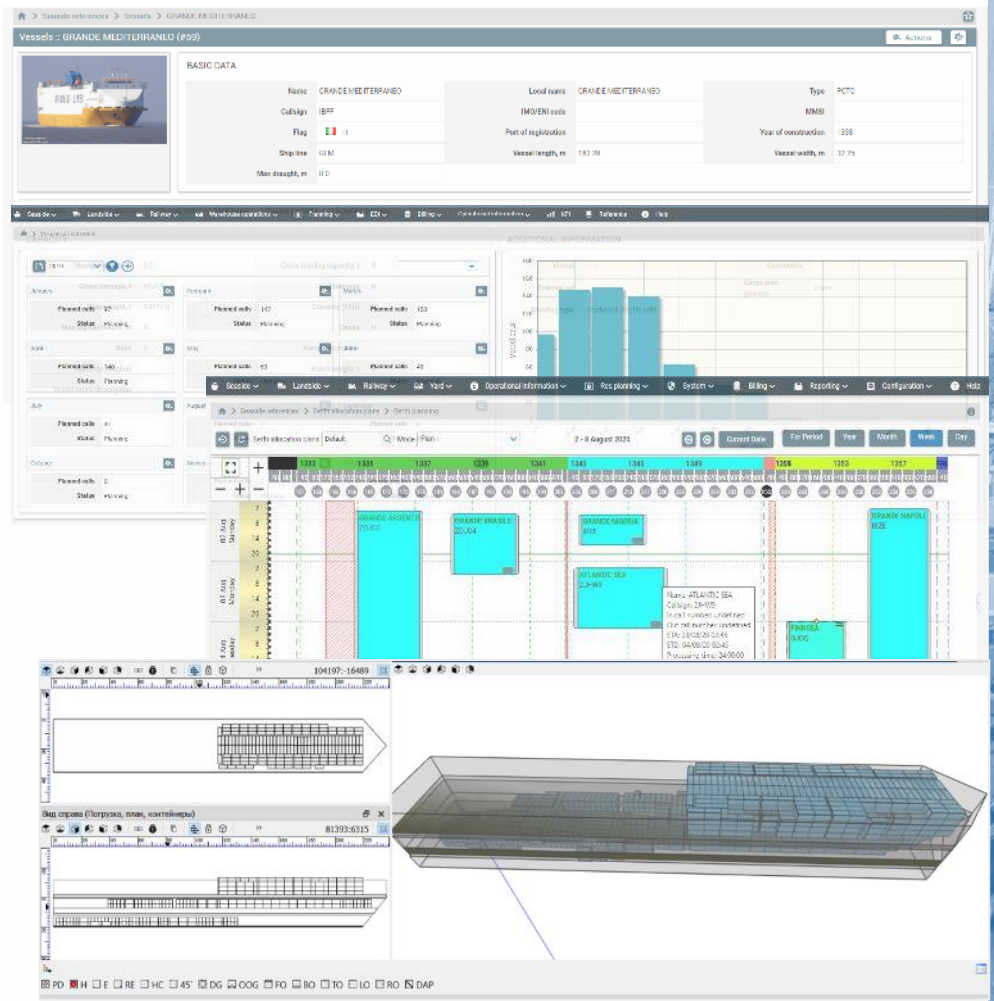


- Acceptance of different types of cargo from vessel, truck and rail
- Registration of truck visits, vessel calls, train visits
- Registration of different yard operations
- Photo-fixation of damages, choosing the type of damage from the list, adding comments
- Scanning features
- Registration of internal operations (Inspection, Repairs, Customs operations)

Vessel planning capabilities

Vessel operations management starts with vessel calls registration, including detailed information about the technical specifications and unique vessel structure. The information is added just once, during 1st vessel call and used for the future visits.

The system has a wide range of options for planning vessel arrivals. With the help of tools such as the Cargo Planner and the Universal Vessel Planner it is possible to plan the loading and unloading of containers in the required order, taking into account the container characteristics and specifications. Once at the terminal, the container is recorded in the system and all of its further movements are registered in the system.



Truck Visits

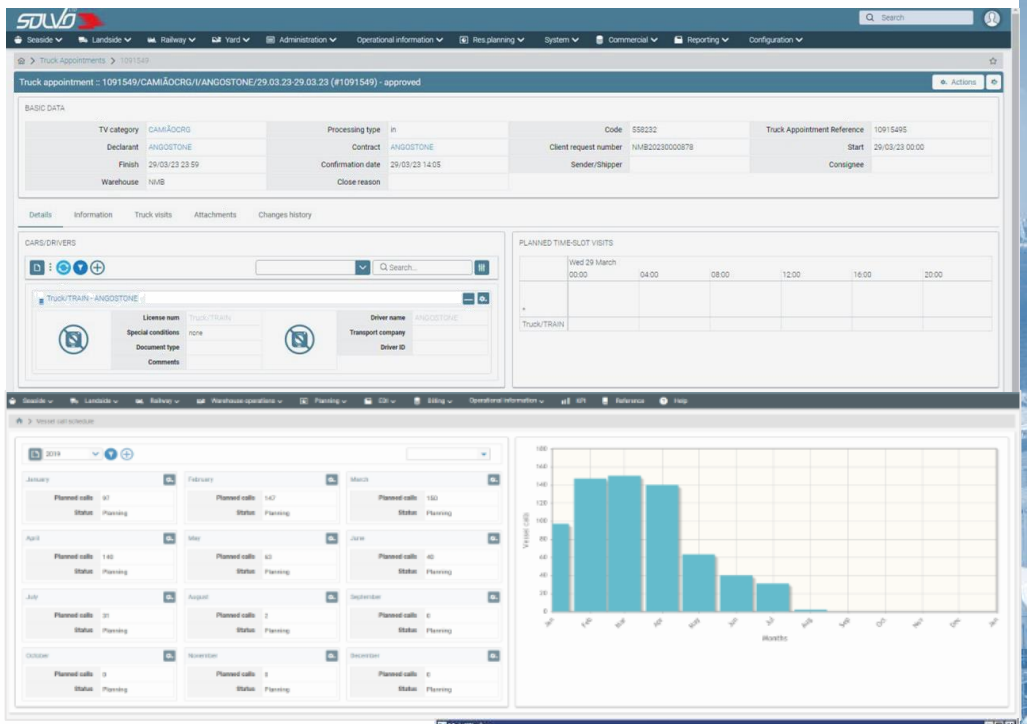
Solvo.TOS creates TA using time slotting technology, means that it is possible to choose convenient date and time for transport vehicle and get a guarantee that truck will be processed within a chosen time window.

It allows to plan, manage and monitor the progress of cargo loading / unloading based also on ETA / ETD

Truck appointment is created by forwarders or other external users through the Web portal using time slotting technology.

Allows to avoid long queues at the terminal gate.

Always possible to check the visit status.

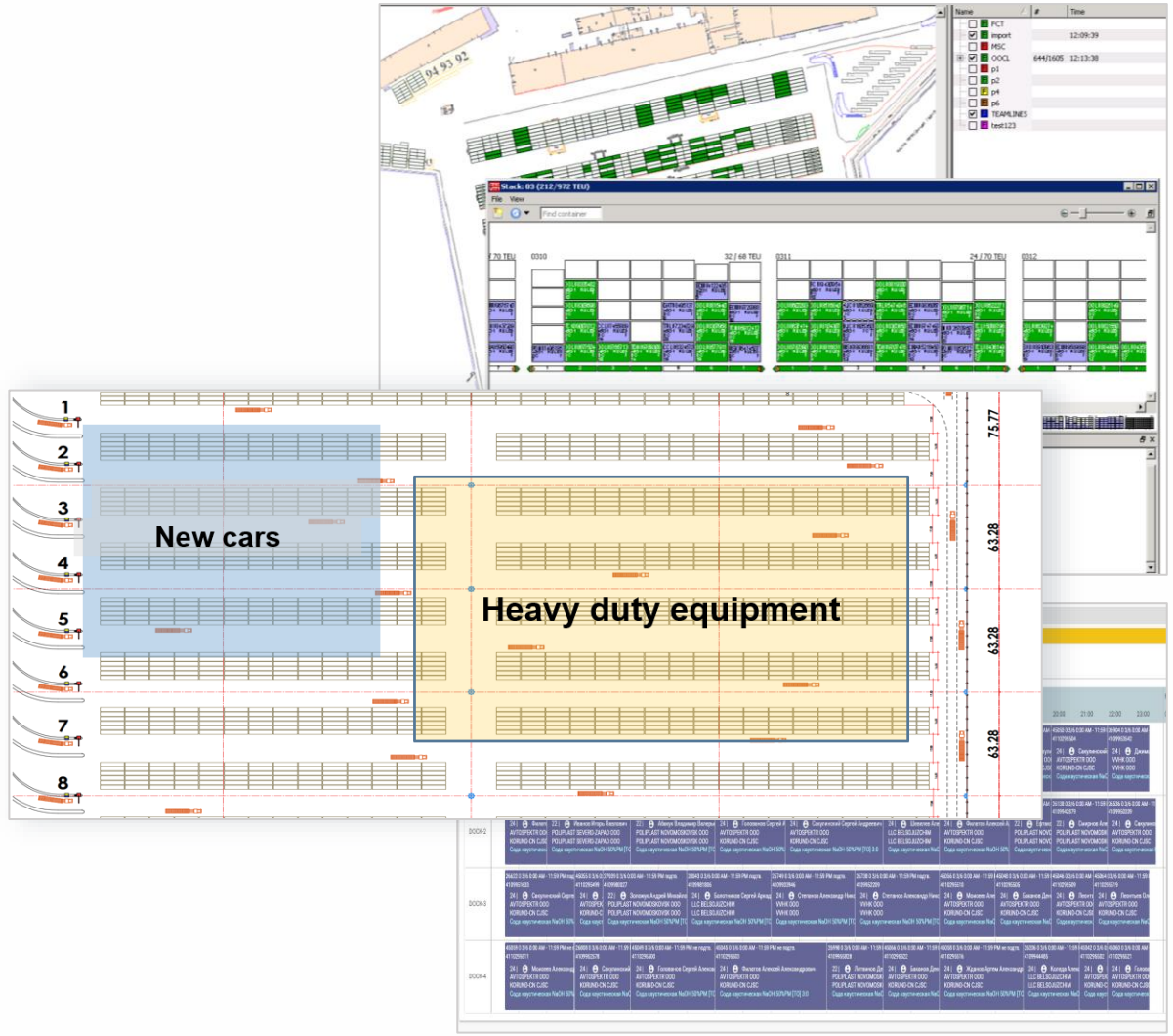


Yard Management

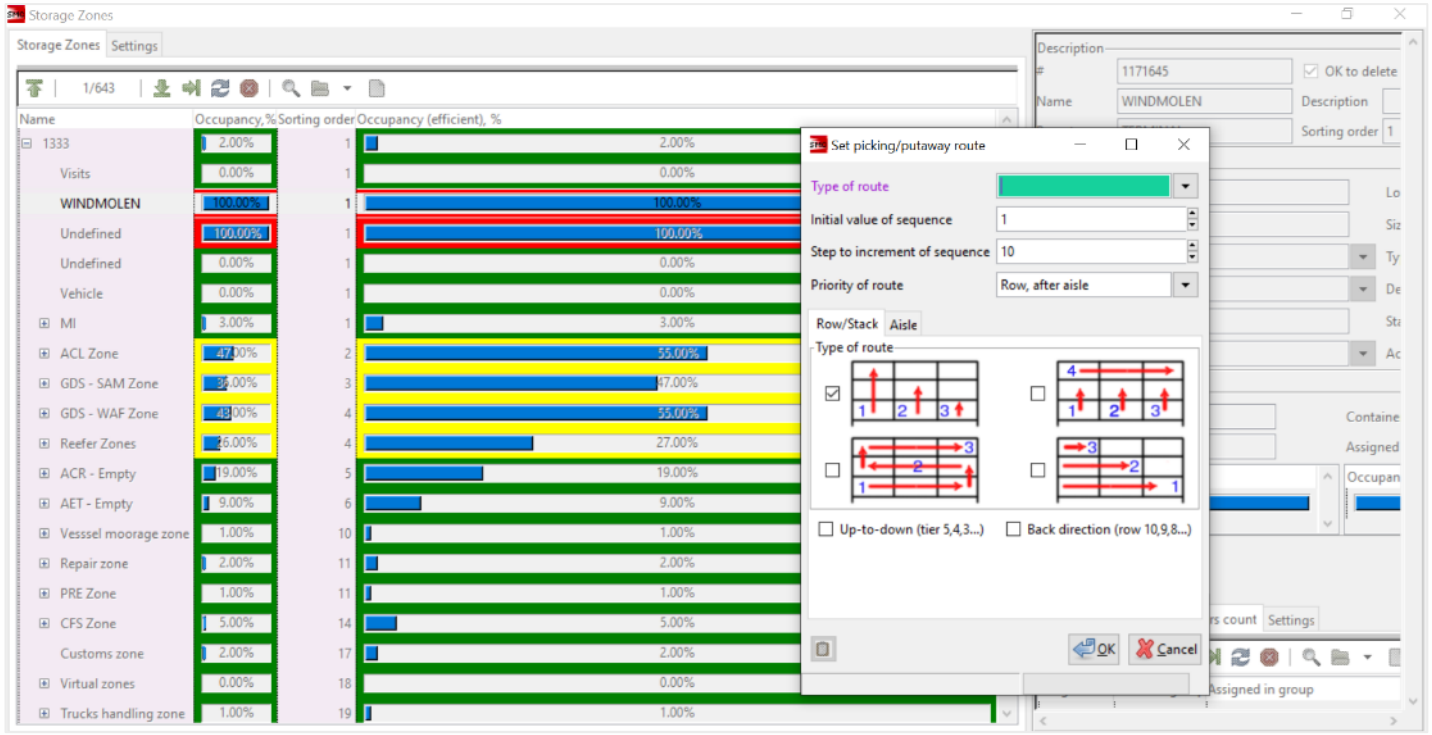
WTM: Graphic terminal layout viewer and editor is used to manage CHEs in the yard and plan routes. The port layout can be viewed and managed in real time allowing to establish a tree-like structure of terminal locations, groups and zone occupancy: Display, edit positions of terminal objects; Monitor the actual level of terminal occupancy in real time; Monitor CHEs and workers in real time; Plan loads and much more.

Dynamic stacking based on rules and strategies The core technology that the system uses to manage operations is automated work order generation based on predefined rules and strategies.

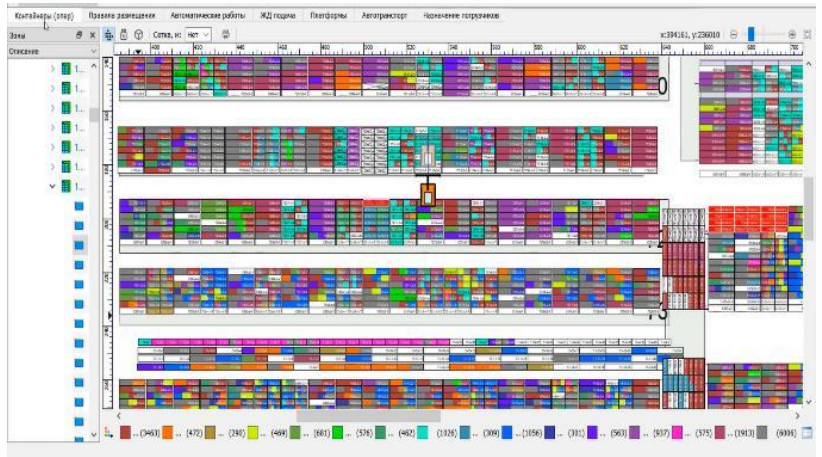
Dock scheduling The system also supports the automatic dock assignment function But before docks can be assigned, planning must be completed. For this purpose, Solvo has developed a graphical interface, visually user-friendly, with which the operator can conduct planning, using drag and drop, and simply move the icons with the booked timeslots, by that optimizing the work of the yard.



Dynamic stacking based on rules and strategies in the yard



The core technology that the system uses to manage operations is automated work order generation based on predefined rules and strategies. There are hundreds of strategies available in the system that may take into account thousands of parameters to make sure the putaway process for example is efficient and housekeeping is minimal.



The system finds a stack for the container based on putaway rules.
For example, all MSC containers are to be placed in zone 1 of the yard storage area, while CMA containers go to the stacks in zone 2.

Solvo.TOS for General Cargo

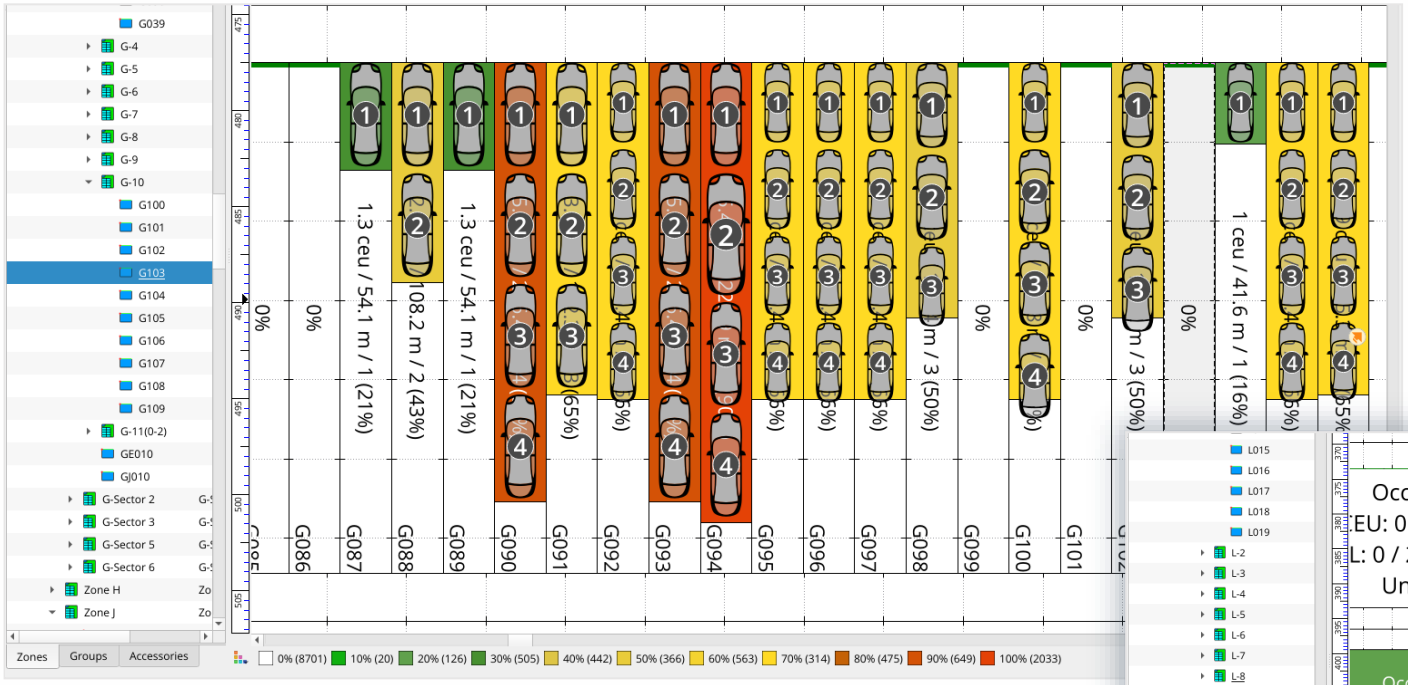
General cargo is one of the most complex categories in terms of organization of handling, storage, and accounting.

They are characterized by a huge variety of dimensions, weight, types and number of packages, storage rules, compatibility and other criteria.

Complex factory equipment, timber, scrap metal, cargo in drums and reels, paper reels, plywood. Each of these cargoes requires its own rules for handling, optimal placement and storage, compatibility, and record keeping.

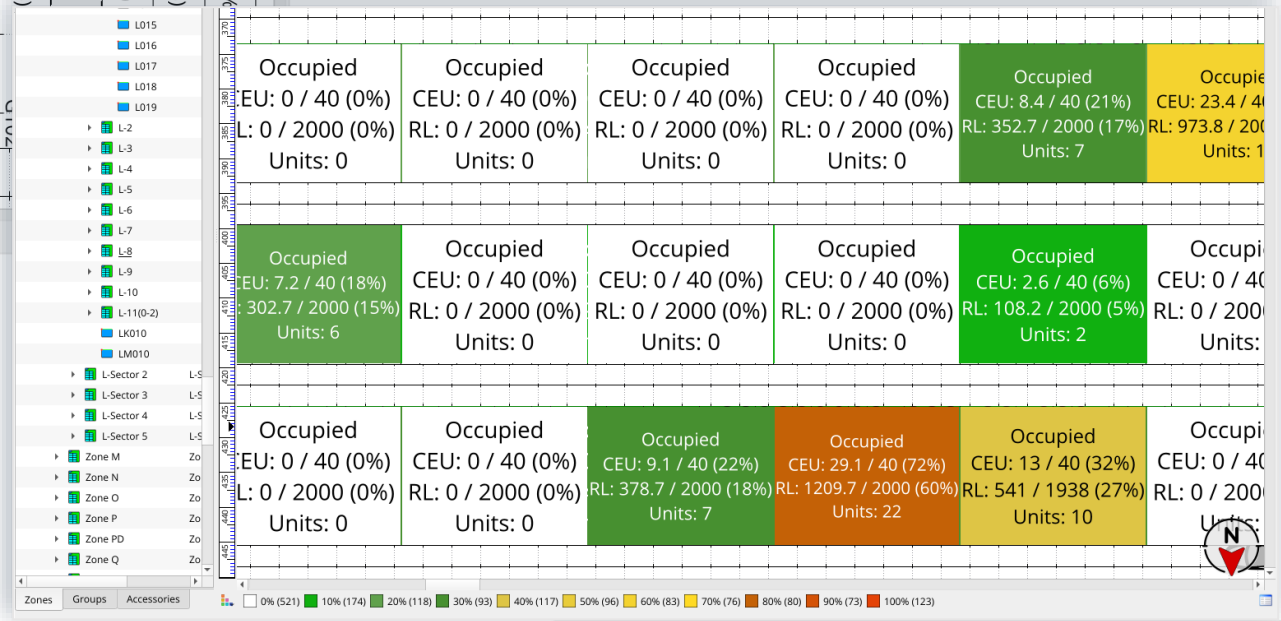
Each general cargo may require a different type of material handling equipment. How to account for and systematize something that has such a wide range of differences?

Realtime visibility — yard assets

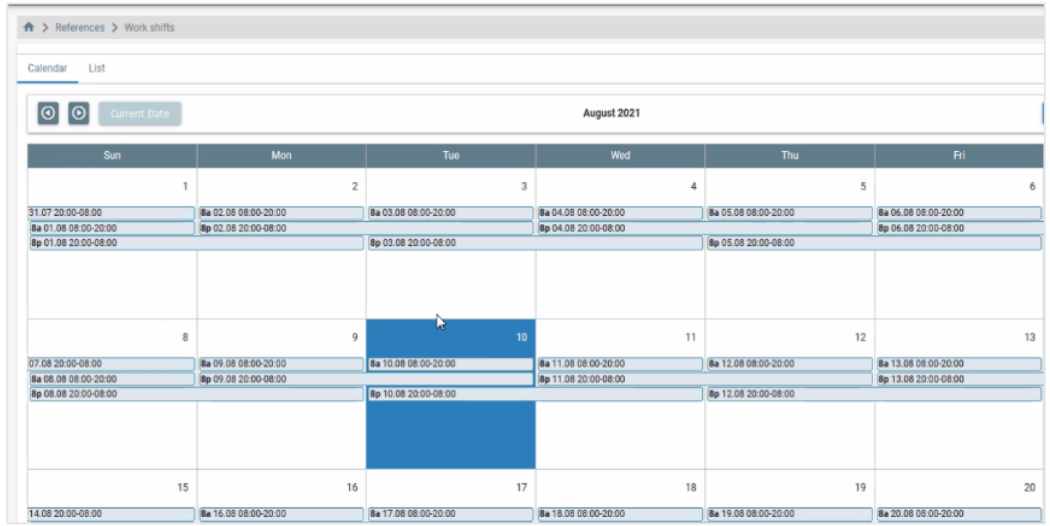


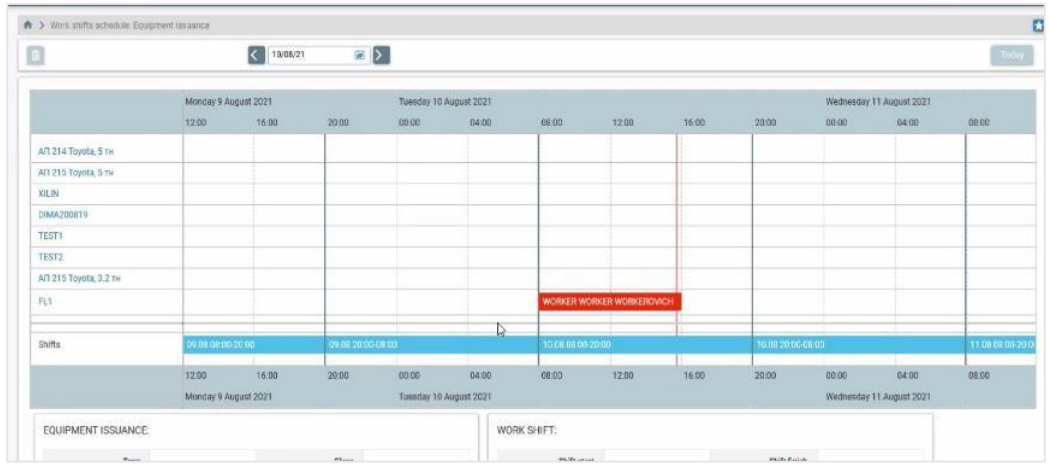
The graphical terminal layout offers a real-time bird's eye view, yard section and yard block views and helps dispatchers monitor all terminal operations in real time and take immediate action if needed.

This is especially effective whenever yard equipment units such as RTGs use GPS transmitters. In this case dispatchers can monitor all actions as they actually take place with no delay. The GUI is customizable with regard to displayed information and design



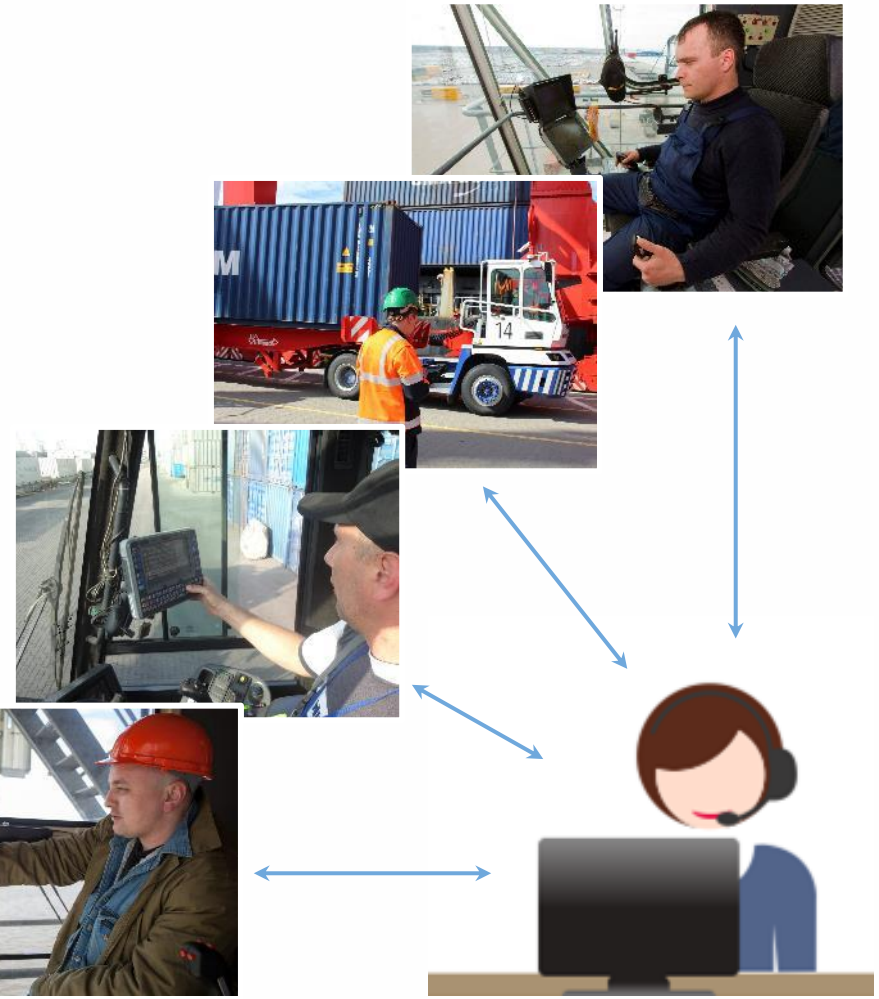
Personnel & Equipment productivity



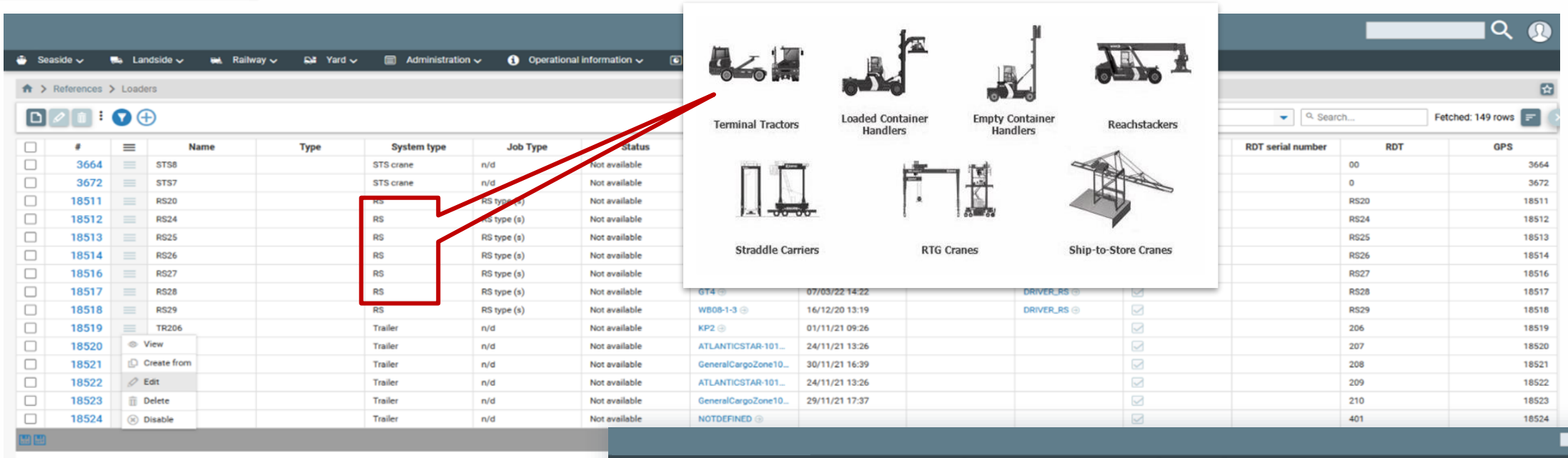


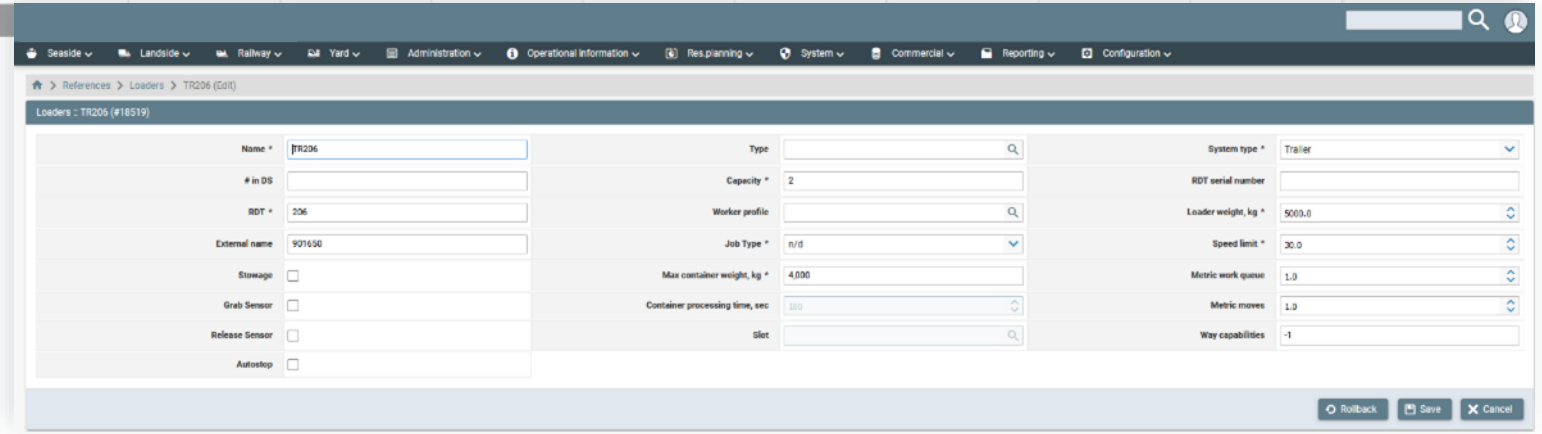
The dispatcher plan in advance and then controls the execution of the work-orders, using an interactive terminal map and data received in real time from RDT mounted on vehicles or held by tallymen.

Thanks to aggregating data and reports on employee productivity—either individually or for groups— the system provides visibility where terminals are allocating their labor budgets and help them to optimize human assets.



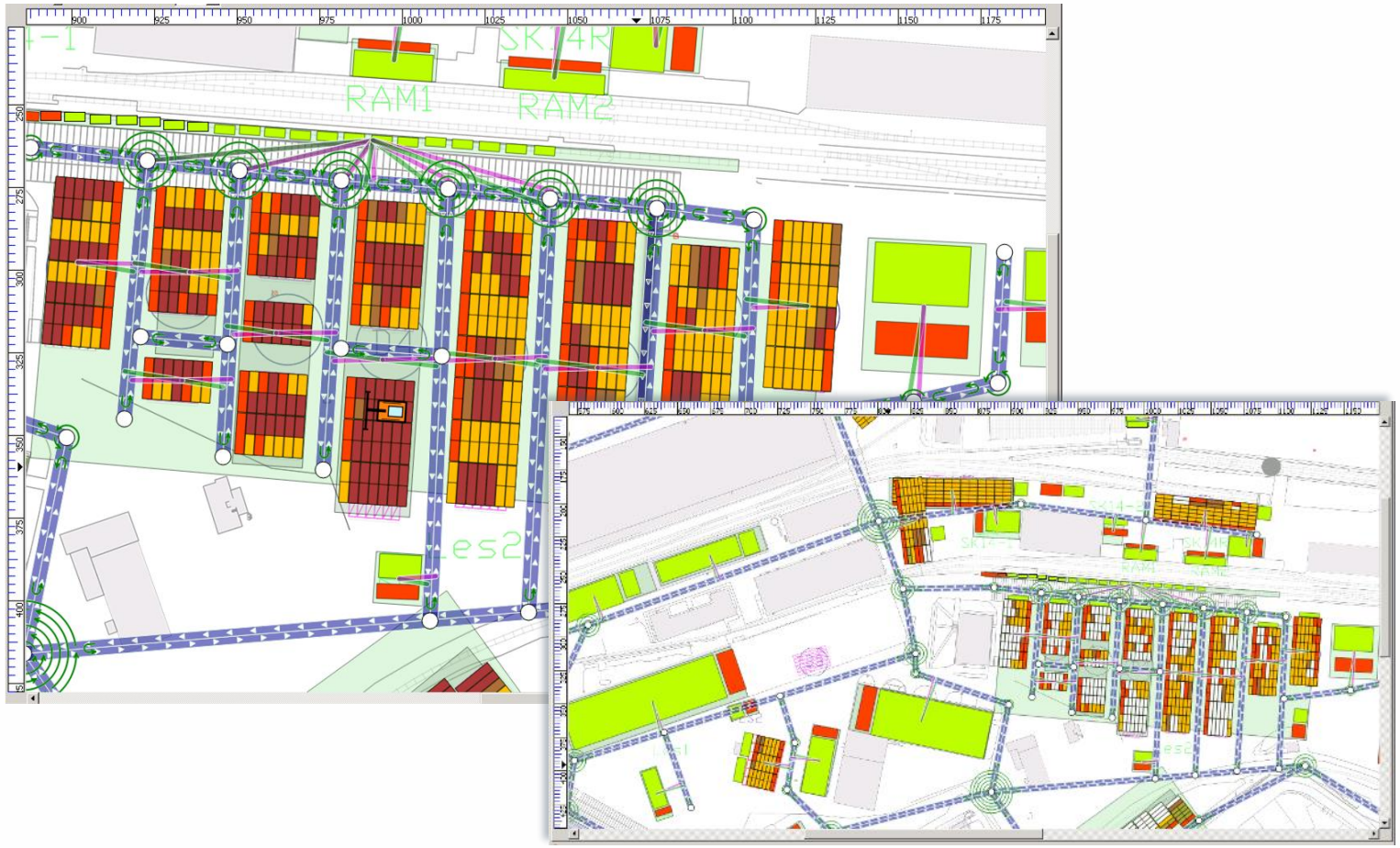
Supported types of equipment





All terminal equipment can be managed by the system automatically according to the dynamic stacking rules and strategies.
You can view the list of assigned jobs. The system initiates a job to vehicle operators to place the container in the specified location.

CHE Accounting and assignment



- The system analyzes the available data about the road network of the terminal and builds the optimal route for a MHE
- The entry of road data is carried out through the roads editor function - part of the Real-time terminal layout viewer and editor
- The user defines the key checkpoints, permitted turns and delays
- The user can also then set the availability of a stack for processing from a selected road

Job sequencing and prioritizing

Very urgent

- Move a container to the berth #4 – 90%
- Move a container to the stack – 60%

Urgent

- Prepare container for customs inspection – 100%
- Prepare container for x-ray -70%

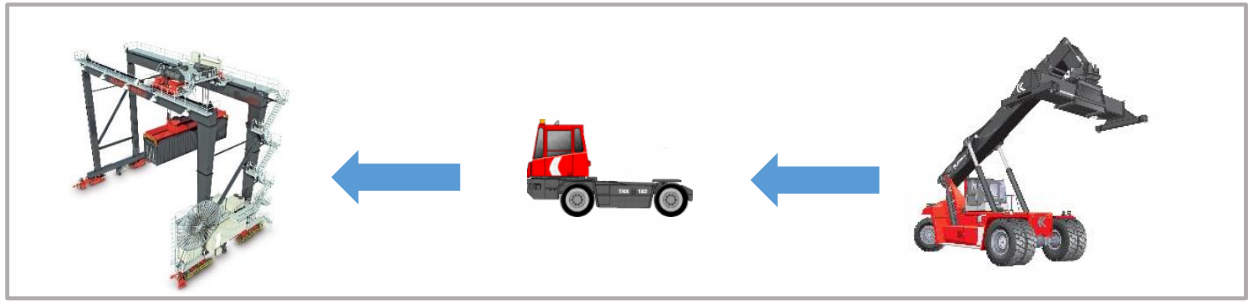
Regular

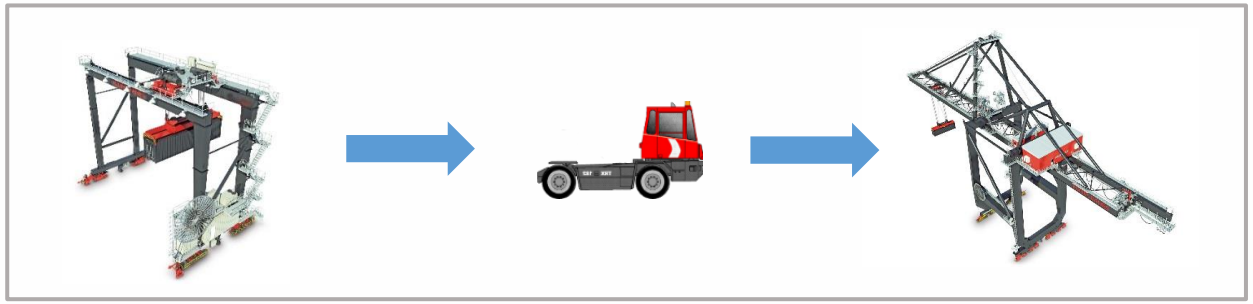
- Train unloading – 85%

- Every job in the system is prioritized. The order of job execution is set using the available job priorities
- TOS automatically increases the job priority in case a MHE operator has not been assigned with it for a specific period of time
- The job with the lower priority but higher category is executed earlier than the job with the higher priority but lower category

The system calculates the optimal job based on:

- Importance – determines the correlation between the job type and urgency
- Priority type – event that sets the priority
- Urgency categories and assigns it to the most suitable MHE



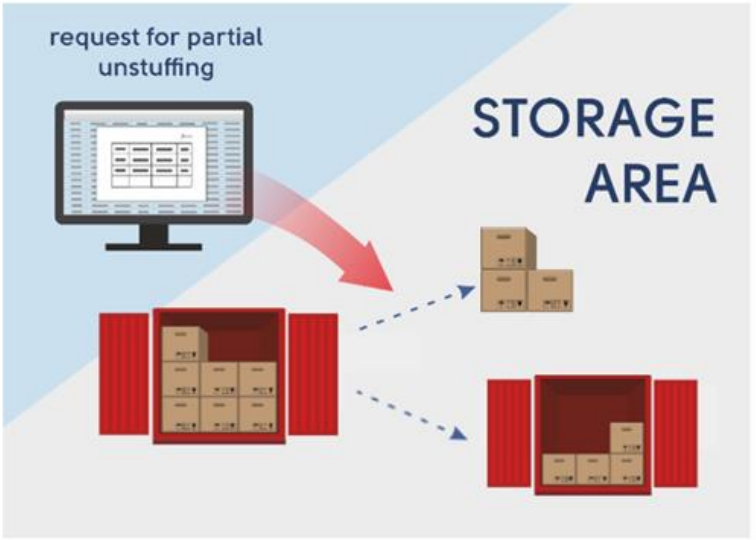


Stuffing and unstuffing

The CFS module is responsible for the automation of container stuffing/unstuffing processes, container inspections and repairs; as an additional functionality, the system is equipped with an empty container depot management tool, regulating the setting of rules for the automated issuing/receiving of empty containers at the terminal and other tasks.

Performed based on requests. Requests can be filed by clients via the web-portal or by service-desk operators. The system supports partial container and GC + Ro-Ro stuffing/unstuffing.

Upon completion, the tallyman will register new seals via RDT and confirm job completion. The system will automatically create a stuffing/unstuffing certificate.

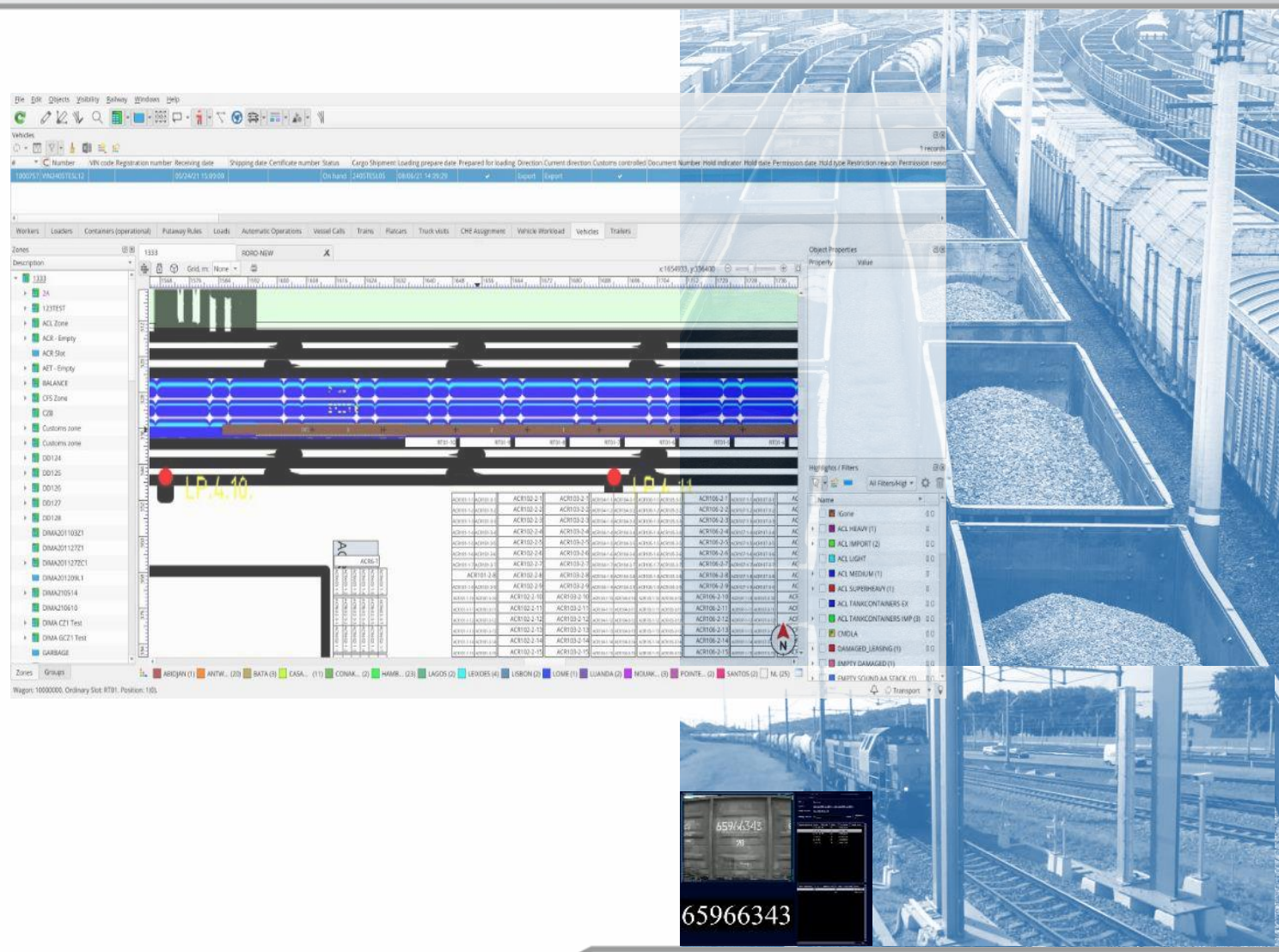


Based on requests from clients the system can automatically create and distribute work orders for **partial unstuffing of containers**. Information about how much cargo needs to be unloaded from the container is entered in the comment field, the information is for reference.

Rail operations

The system can perform automatic scheduling on the railroad, operating such data as:

- **Cargo information**
- **Railcars parameters**
  - Railcar Reference - Determines railcar length, owner, time to scheduled repair, etc.
  - Railcar parameters: loaded from an external system, or filled in by the tallyman via RDT during registration
  - Cargo putaway specifications
- **Various types of documents, based on which loading and unloading of railcars is carried out**
- **Planning, managing and monitoring the progress of loading / unloading trains based on ETA / ETD (estimated time of arrival / departure)**

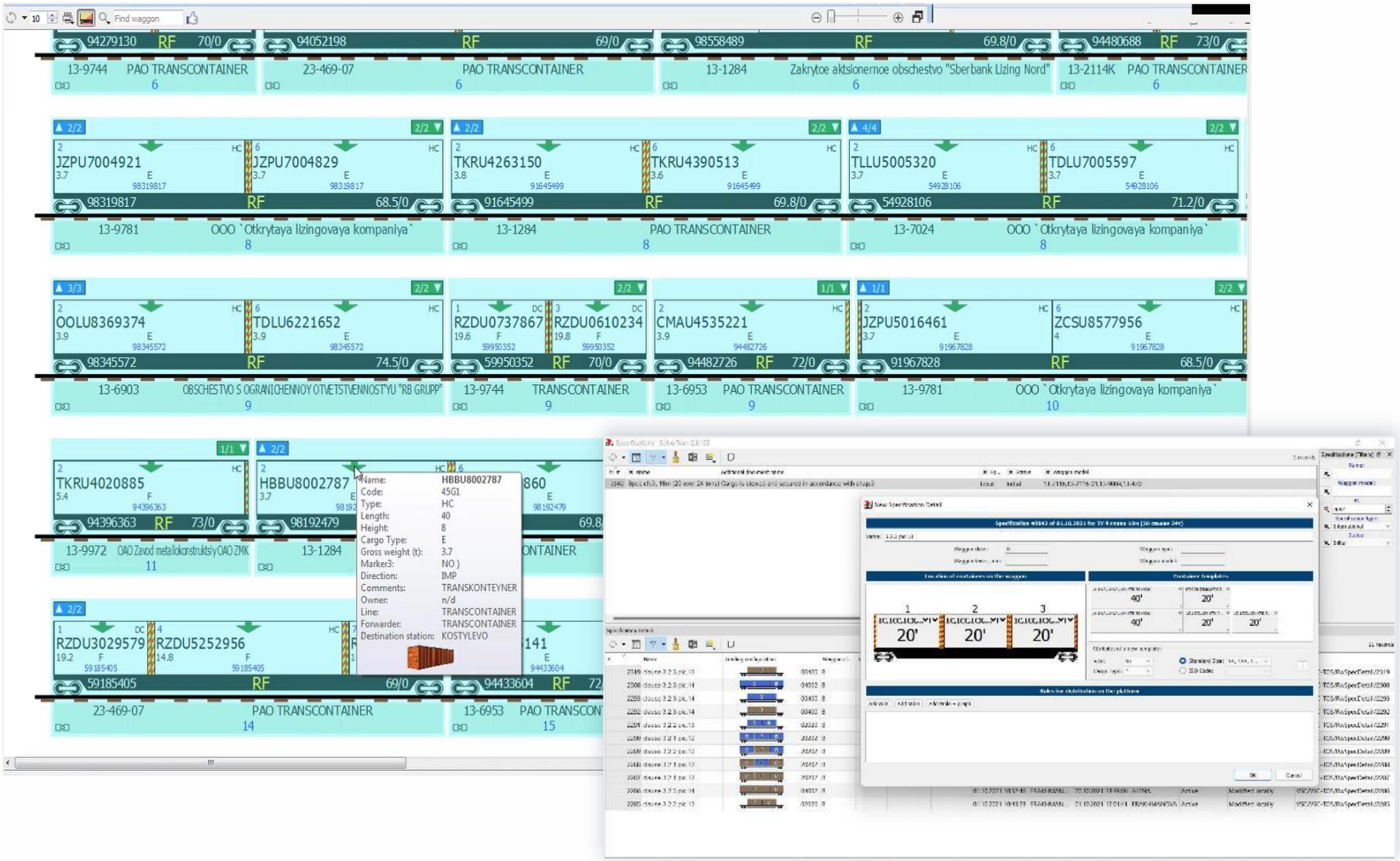


Improving cargo handling on the railroad

The system enables to automate

1. Planning of rail car staging
2. Registration of rail consignment notes
3. Registration of rail car arrival/departure
4. Loading/discharging planning
5. Train and cargo inspection
6. Train loading and unloading

- Automatic planning of rail car staging increases personnel productivity
- Reduced number of errors when creating rail car plan



Implementation efficiency

- **Organization and optimization** of technological processes of work with material flows. Thanks to the principle of address-based storage, up to 99.9% accuracy of data on the quantity and placement of goods in the warehouse is increased and full control over goods movement is ensured.
- **The use of storage space is optimized** through the use of the right strategies for the placement of goods and the procedure of density and use of cells: the storage capacity is increased by 5 to 25%.
- **Reduces the time required** to perform all warehouse operations
- **Increase in labor productivity by 20-30%.** The number of situations when staff cannot find goods in the warehouse is reduced to almost zero.
- **Solvo.TOS for port and terminal management, helps to unify all systems and databases** of one or even several enterprises into a single and convenient ecosystem.
- With its help, all types of cargo, storage areas, loading and shipping processes of container and cargo terminals **are under control**.
- **The Solvo.TOS system will greatly simplify the handling** of general cargo by optimizing the space for their storage, as well as keeping records and organizing their shipment from the terminal.


TOS
WMS
Yard
Solvo.SCE
an integrated supply chain execution platform
KPI
Billing
Web
Solvo.Web
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