

Digital Transformation in Cargo Operations: IT Strategies for Modern Ports and Rail Terminals

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About Solvo



28+ years experience



24/7/365 support



5 offices worldwide



400+ projects

Who we are :

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

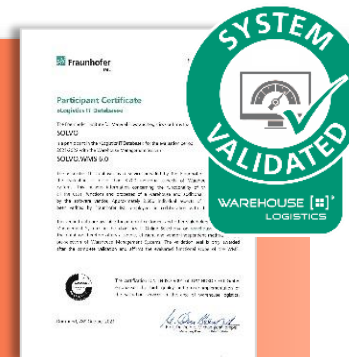
We are a leading provider of high-end supply chain solutions to help and optimize the logistics and all cargo handling.

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, taking risks. We are a leading firm in providing quality and value to our customer.

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Certificates



Business core areas



Solutions for ports and terminals

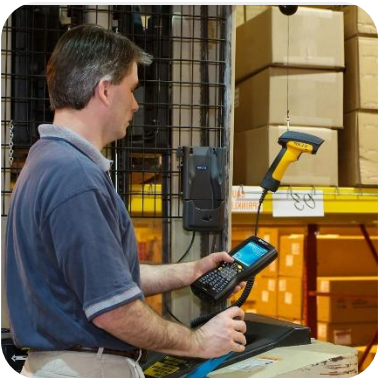
A leading Terminal Operating System for ports and terminals. An ultimate set of solutions for managing just any type of cargo: container, break bulk, Ro-Ro, general cargo, etc., including extra solutions as the VBS, AGMS, VGM.



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.

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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.



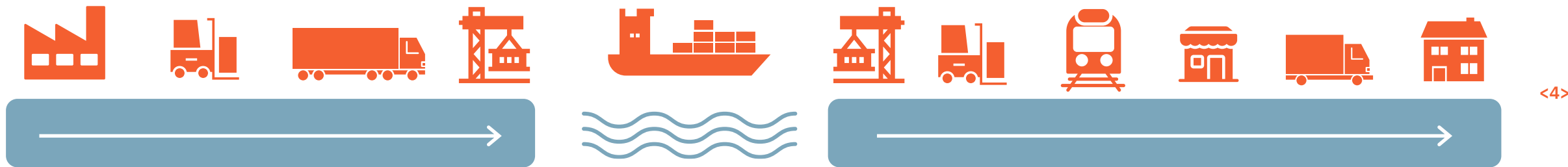
Consultancy in logistics and system integration

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

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

Modern ports are moving to Extended Supply Chain

INTERNATIONAL TRADE SUMMARY

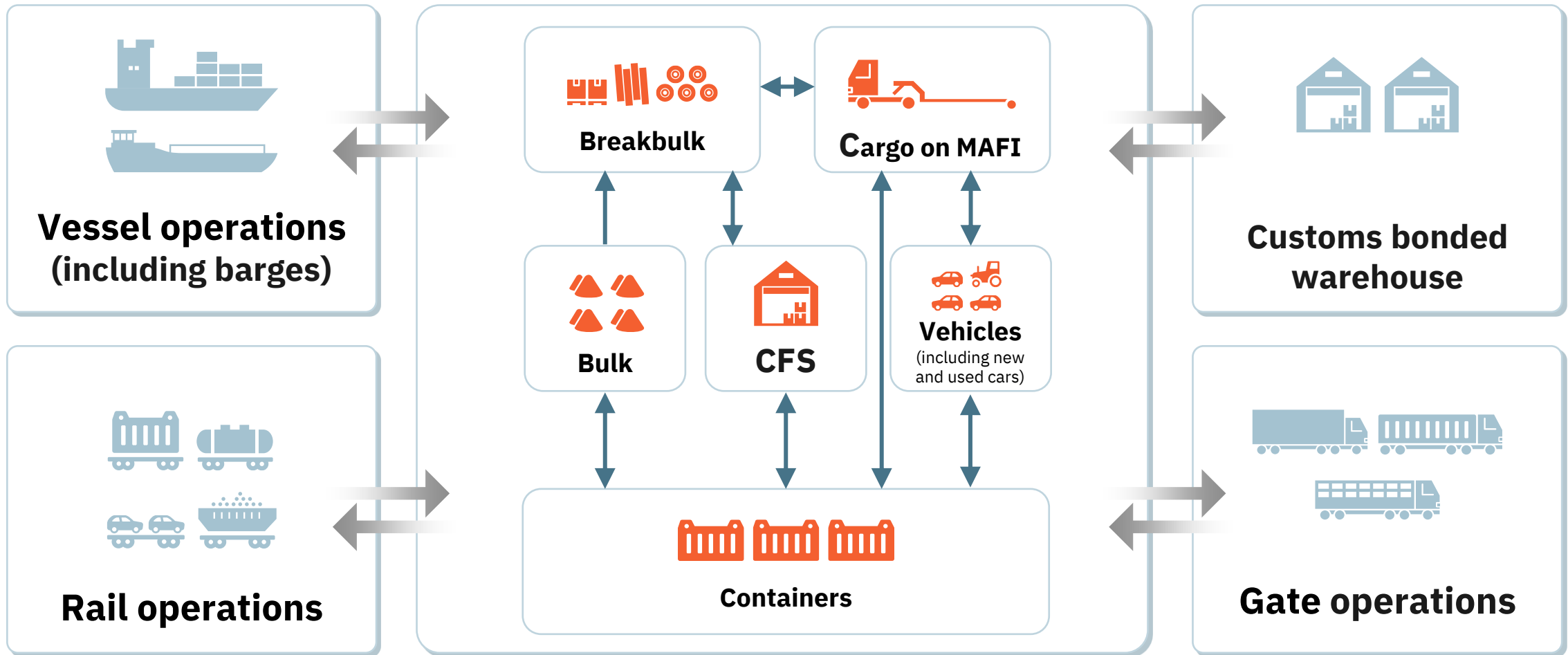


- Moving to Global Supply Chain
- Global Information Environment Connecting All the Elements of the Supply Chain
- End to End visibility — to final customer

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

Support of **complex technological chains**



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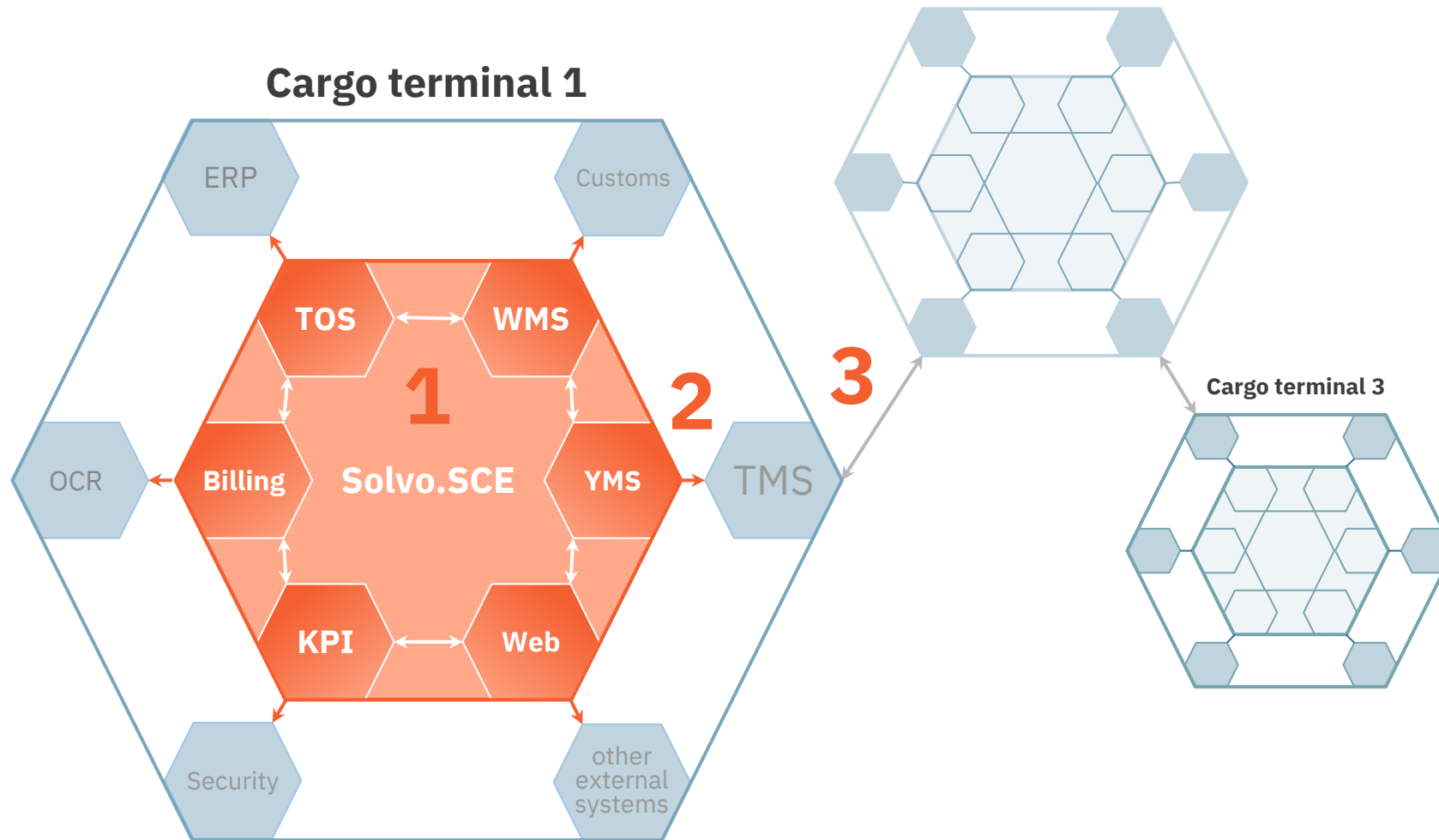
Solvo.TOS overview

Solvo.TOS



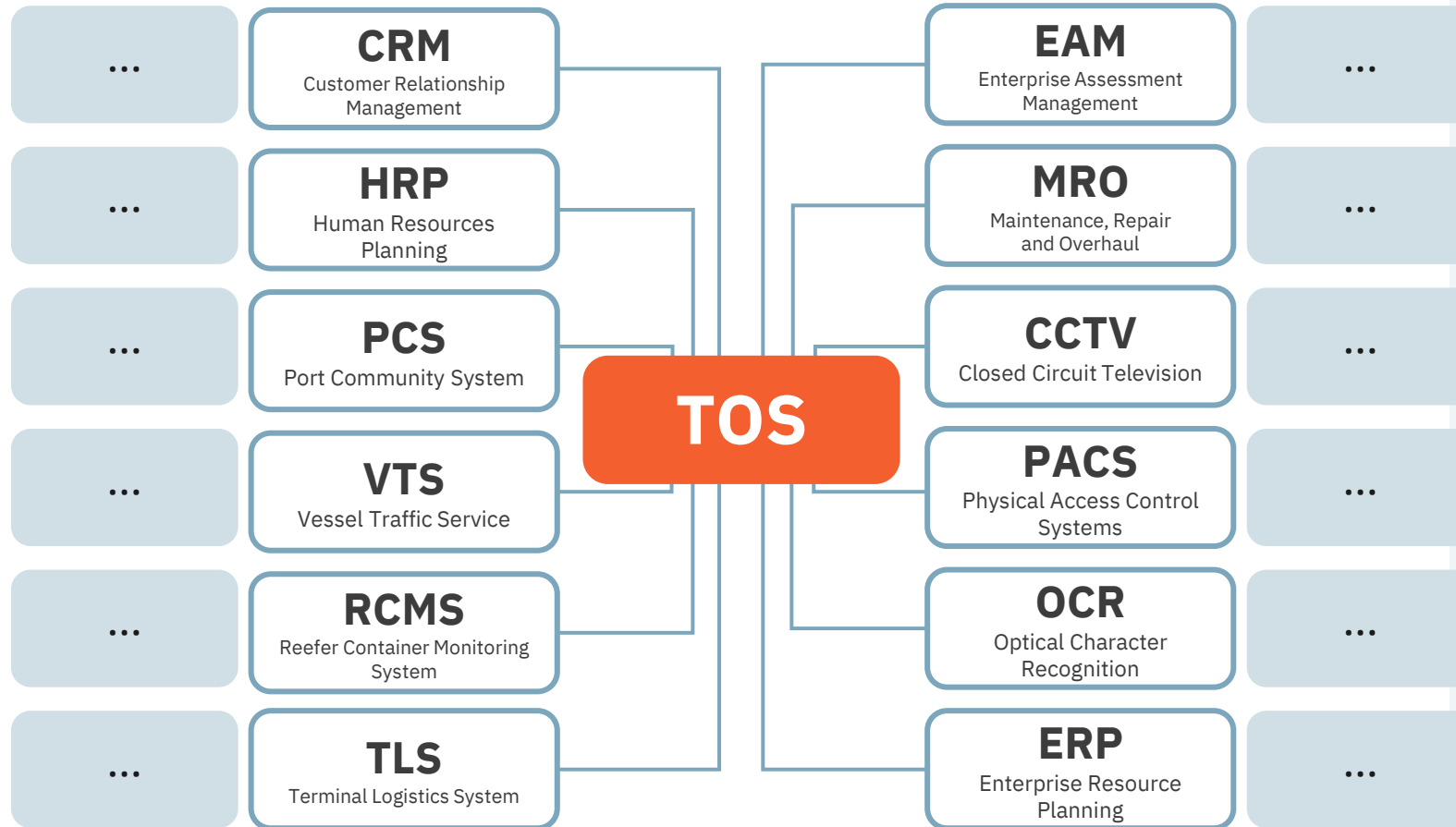
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System Integration Levels



- 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

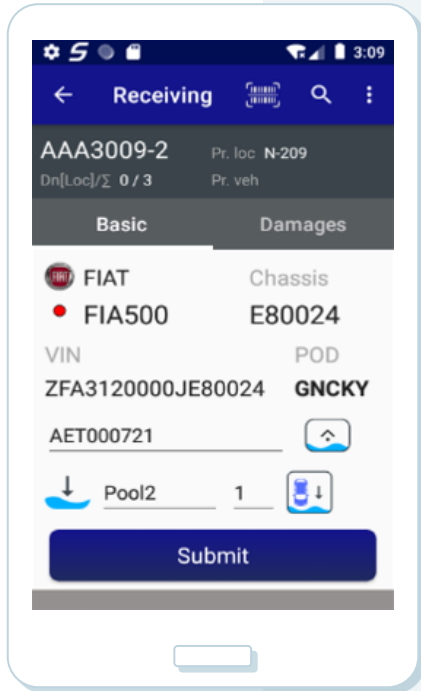
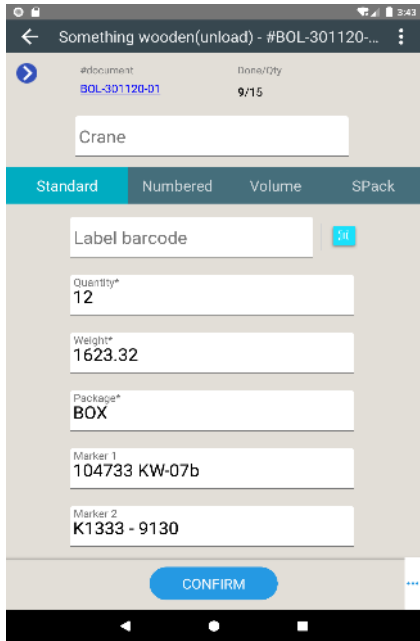
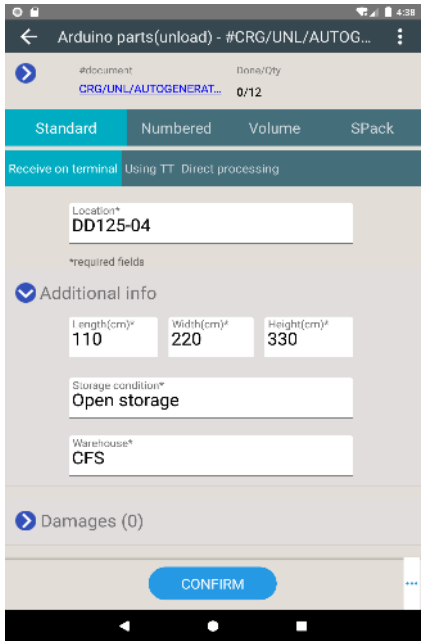
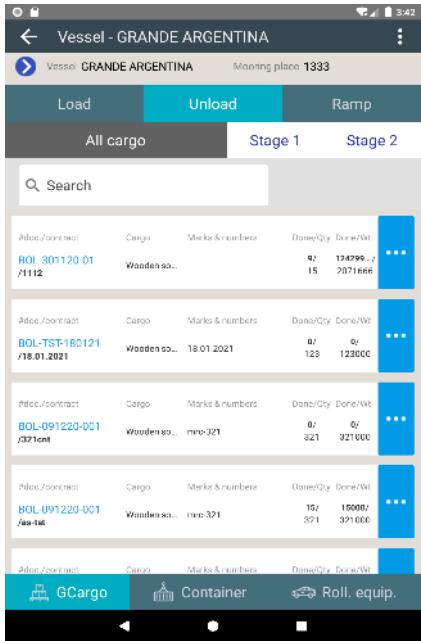
Solvo.TOS Integration Opportunities



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.

Cargo characteristics processed by Solvo.TOS



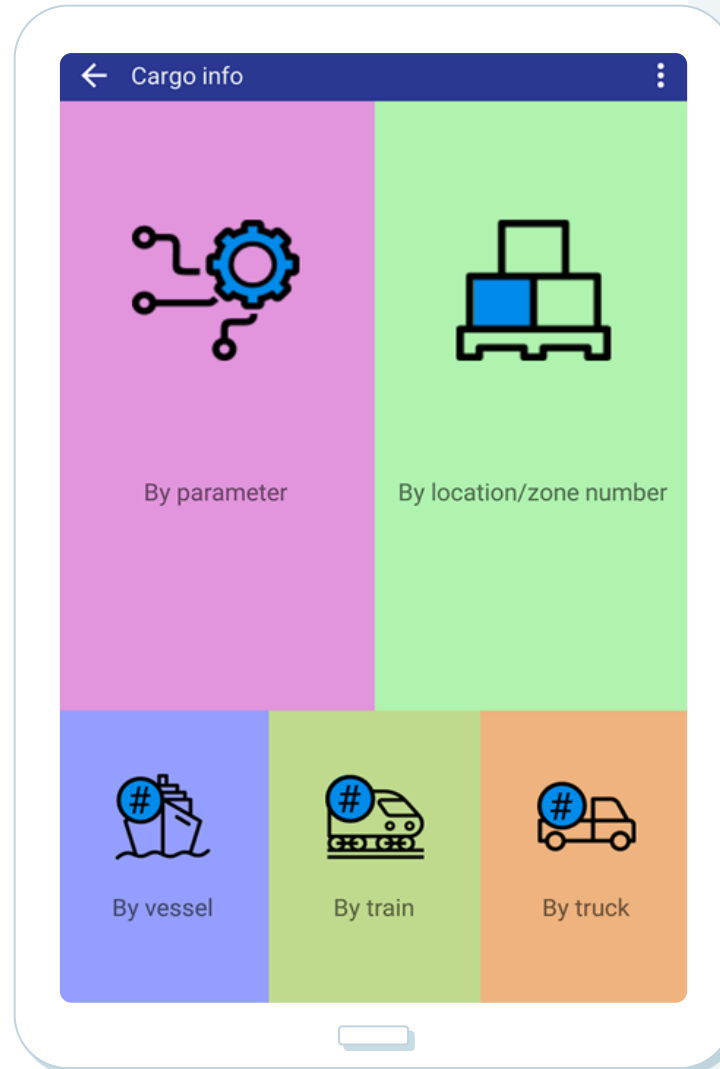
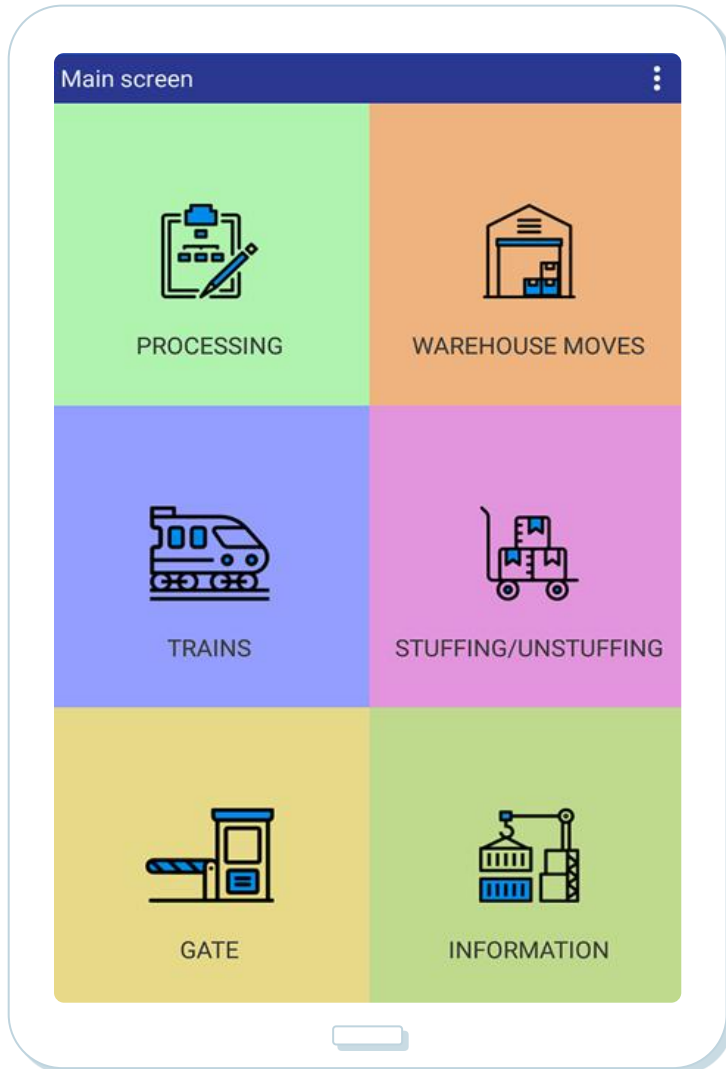
Among cargo characteristics processed by Solvo.TOS:

Package type, weight, quantity, dimensions (length, width, height), marking (label), markers.

For each cargo type the system can have specific characteristics, for example, cars:

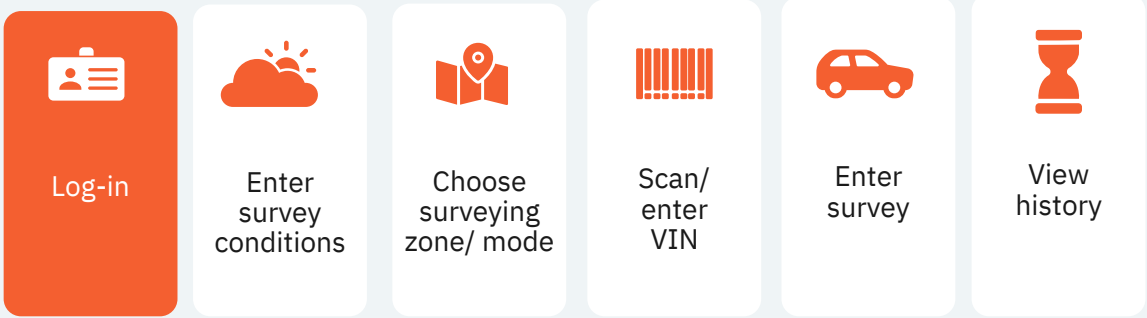
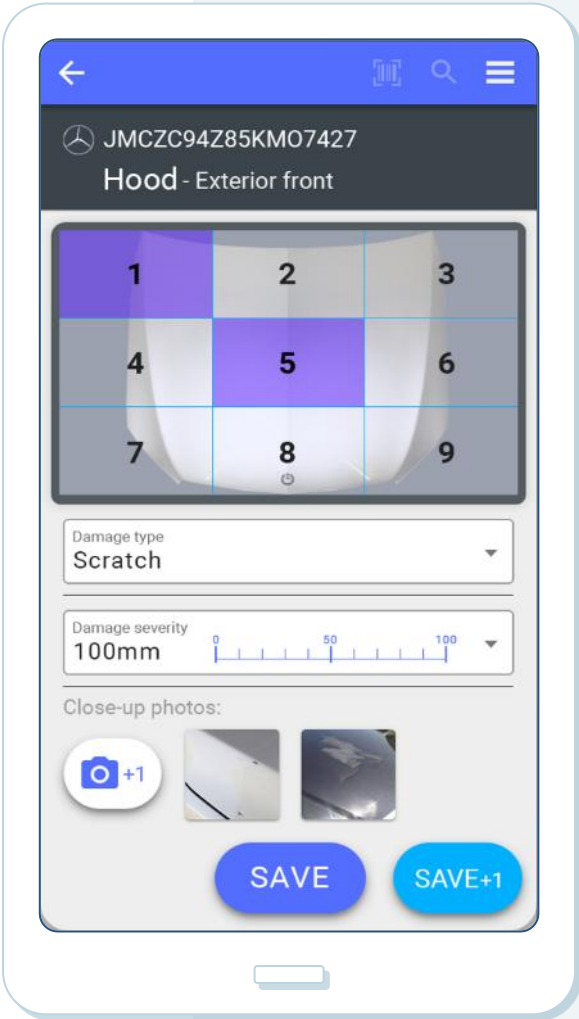
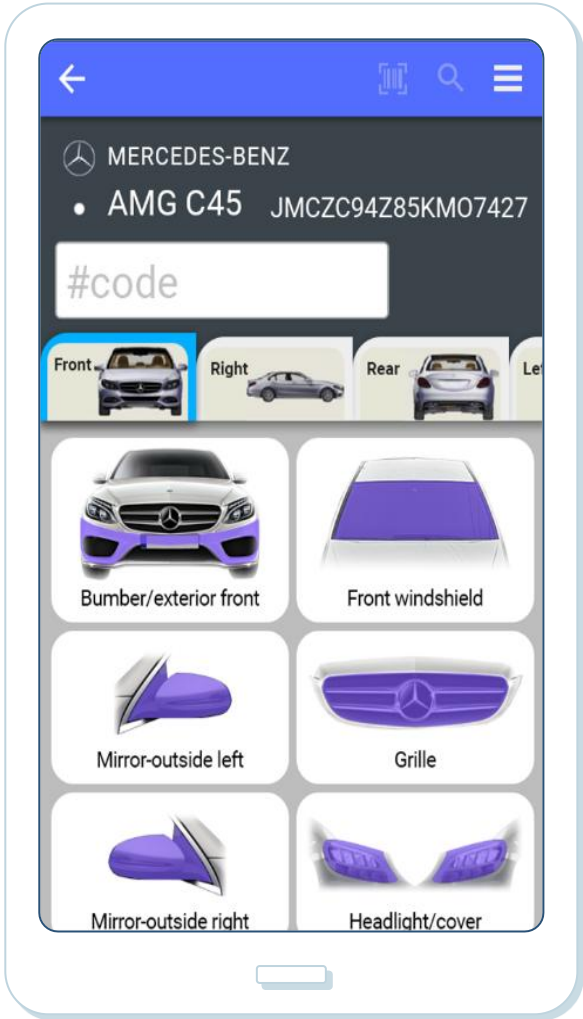
VIN number, color, mode, dimensions (length, width), weight, type.

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)

Survey Mobile application



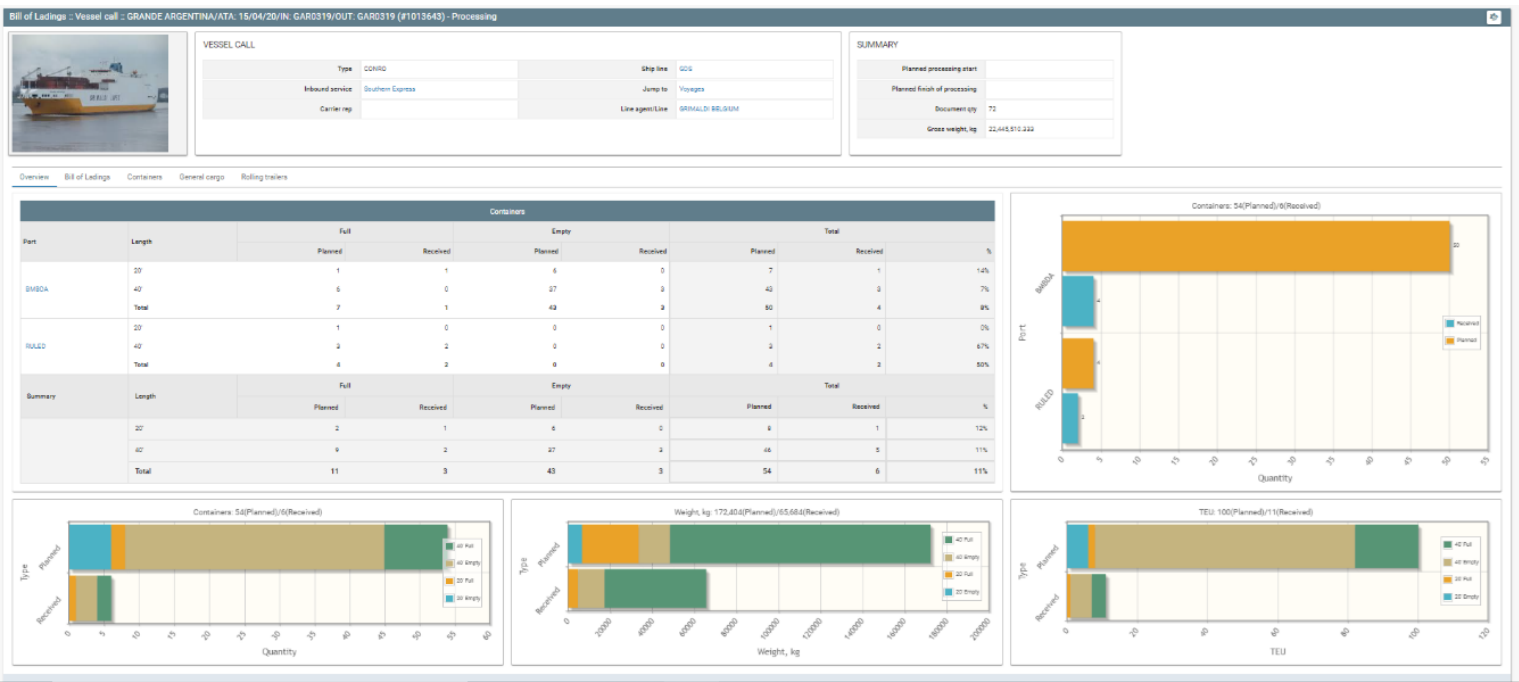
The application is based on the AIAG international standard.

The application has flexible settings and according to the weather conditions of the surveyor: before starting the shift it is necessary to set such parameters as time of day, weather conditions and vehicle condition: soiled, clean, snow/ice covered.

The main screen is divided into 3 parts: in the left part we see the instructions for the surveyor, instructions can be created for individual types of vehicles, for different models of cars and for each brand of car.

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Speeding up document flow processing



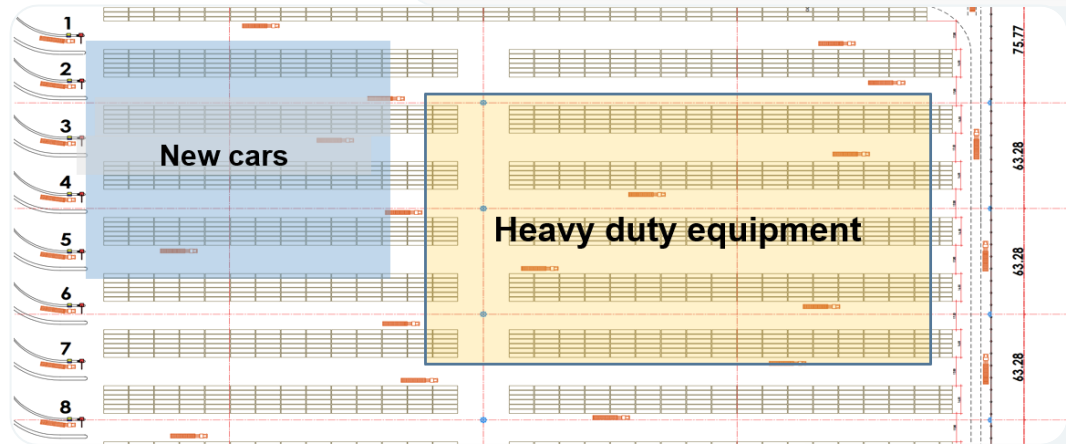
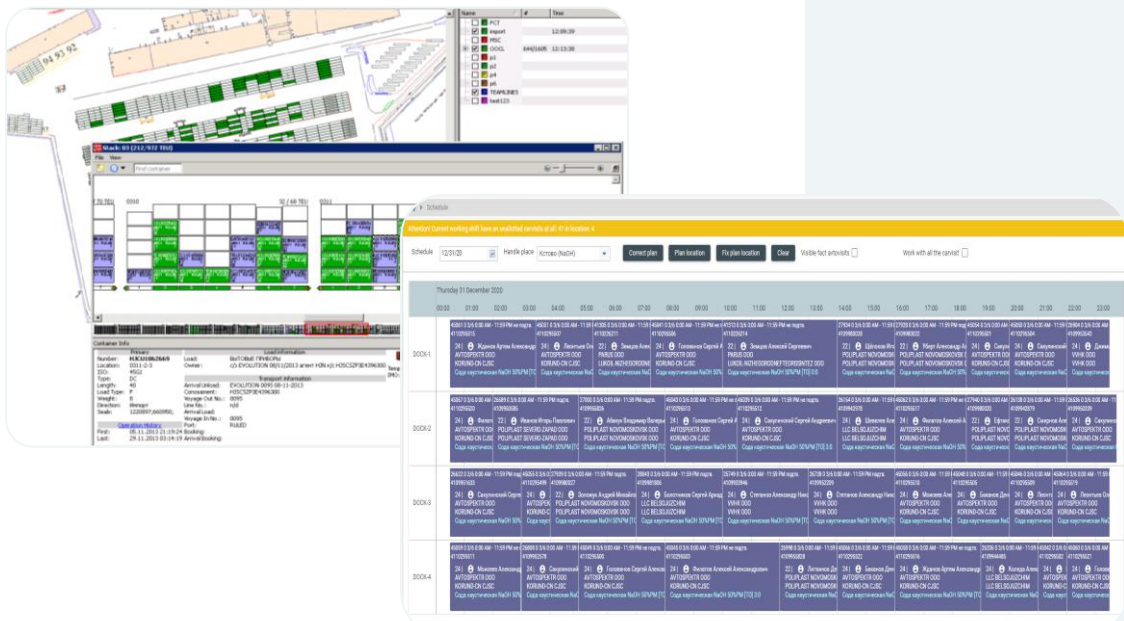
Information about the cargo is taken from documents uploaded in advance, such as bills of lading, bookings and service orders.

Further work on loading and unloading is based on the data obtained from these documents.

The system also allows to visualize statistical data and present them as graphs and charts.

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Yard Management



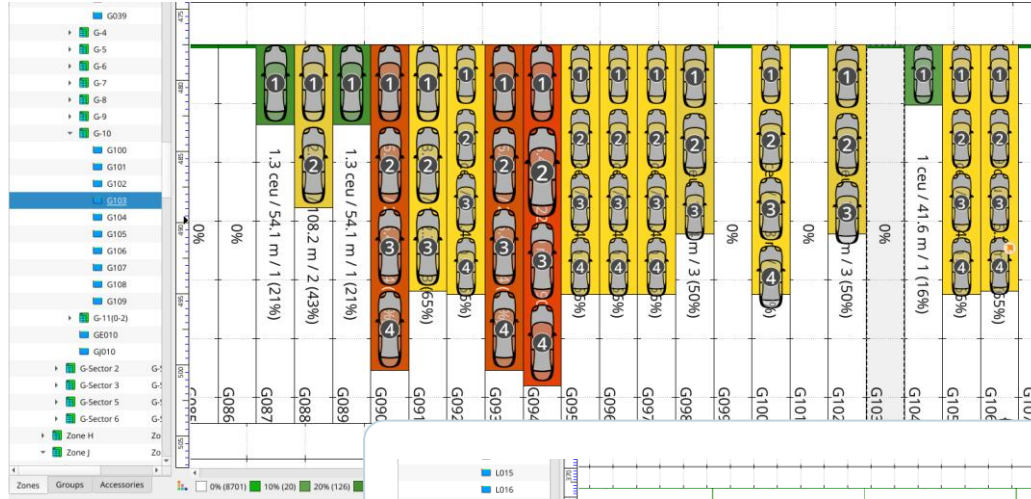
WTM: Graphic terminal layout viewer and editor is used to manage CHEs in the yard and plan routes. The port layout can be viewed and managed in real time allowing to establish a tree-like structure of terminal locations, groups and zone occupancy: Display, edit positions of terminal objects; Monitor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

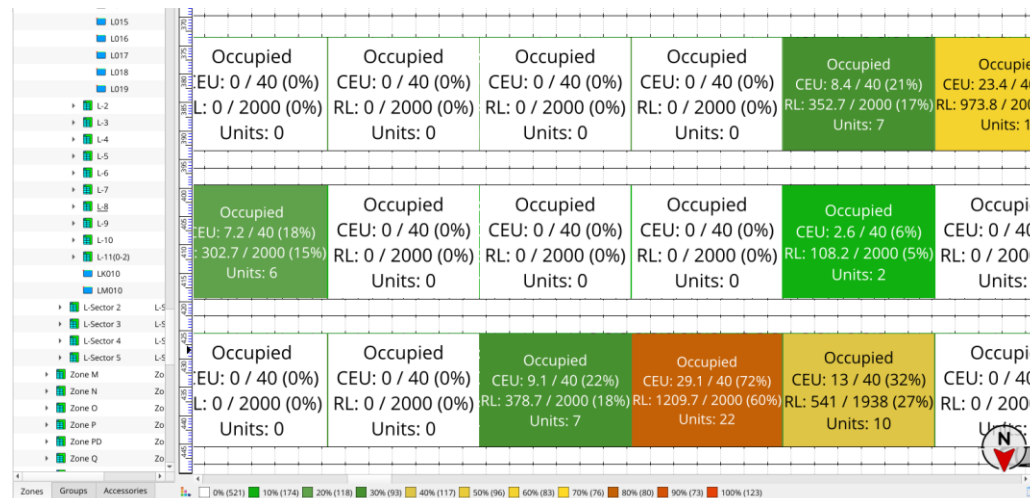
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Dock scheduling The system also supports the automatic dock assignment function. But before docks can be assigned, planning must be completed. For this purpose, Solvo has developed a graphical interface, visually user-friendly, with which the operator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

Realtime visibility — yard assets

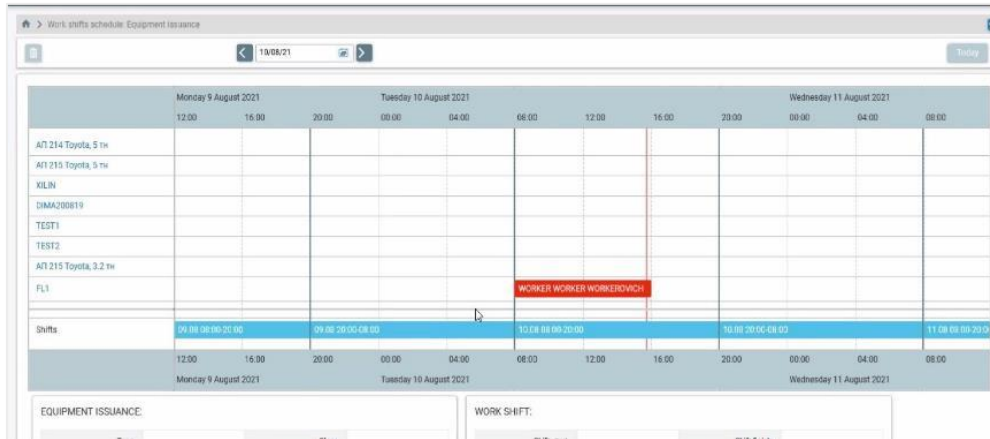
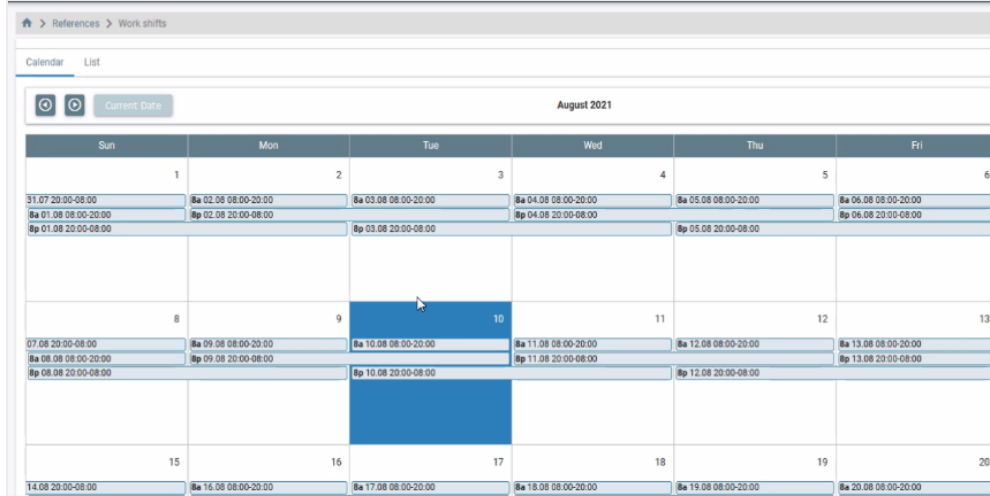


The graphical terminal layout offers a real-time bird's eye view, yard section and yard block views and helps dispatchers monitor all terminal operations in real time and take immediate action if needed.



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



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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.

Implementation efficiency

Client services



Accelerated transport (truck, rail) processing at the terminal using preliminary data and time-slotting



Enhanced customer-relationships with online, real-time data access.



Improved control with direct commands to vehicle-mounted radio data terminals



Complete traceability with operator and CHE driver history logging



Superior service quality for freight owners with up-to-date container information



Increase in labor productivity by 20-30%
The number of situations when staff cannot find goods in the warehouse is reduced to almost zero

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Implementation efficiency

Operating costs



CHE optimization
with predefined
routes and proven
stacking strategies



**Rational equipment
labor utilization**



**Elimination of
unproductive moves,
bottlenecks and
decrease** in empty runs
and stowage errors



**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%



**Conservation of fuel
and energy**, reducing
maintenance costs
and increasing
equipment lifespan

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Implementation efficiency

Logistics



Streamlined and optimized mechanical processes involved in cargo flow at the terminal



Complete control over cargo flow



Maximum space utilization, increasing from 5 to 20% (depending on area type)



Locate containers faster and with higher precision



Optimized and pre-defined cargo stacking strategies to reduce reshuffles and costly moves



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%

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The solution is here!

Giovanni Migliaccio,
Vice President
Sales & Marketing