3rd Baltic Ports and Shipping 2019 Gdynia, Poland

Optimising the terminal equipment maintenance processes with digital services

One in four container movements around the globe is handled by a **Kalmar solution**.

A global reach with personnel in 30 countries and sales and service in more than 100 countries.

People
5,700

Service staff
1,500

Presence
100+
countries

Assembly
Poland
China
USA
India
Malaysia

KALMAR factory in Poland

Metalowa 2, 73 -102 Stargard (Szczecin area)

Opening: 2010

Area – 30.800 [m2]

Our strategy – ALL KALMAR equipment to be electric driven by 2021


KALMAR
SSAB
KALMAR Powered by H_2


KALMAR
ASC 5.0


TraPac
KALMAR
ASC01W


KALMAR


eco efficient
KALMAR


22
20
11

Kalmar’s operating environment

KALMAR

Provides integrated port automation solutions including software, services and a wide range of cargo handling equipment

navis

TOS coordinates and optimises the planning and management of container and equipment moves in complex business environments.

Navis provides also maritime shipping solutions:

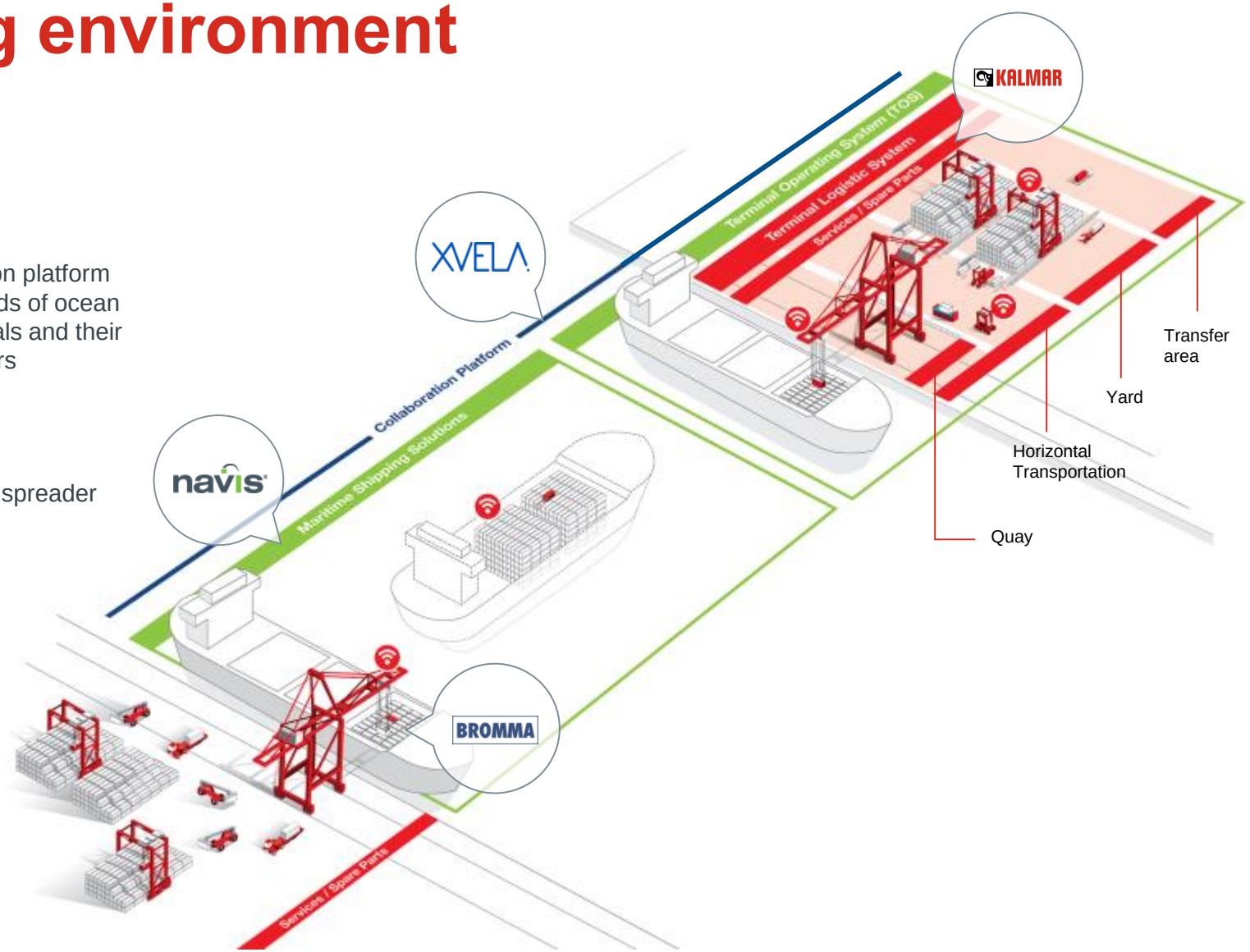
- Stowage planning
- Vessel monitoring
- Loading computer
- Route planning

XVELA

The collaboration platform serving the needs of ocean carriers, terminals and their shipping partners

BROMMA

Industry leading spreader manufacturer



Our complete offering

Equipment

Service

Automation

Industry megatrends imply that there are needs for better efficiency, transparency and guaranteed performance

Mega vessels

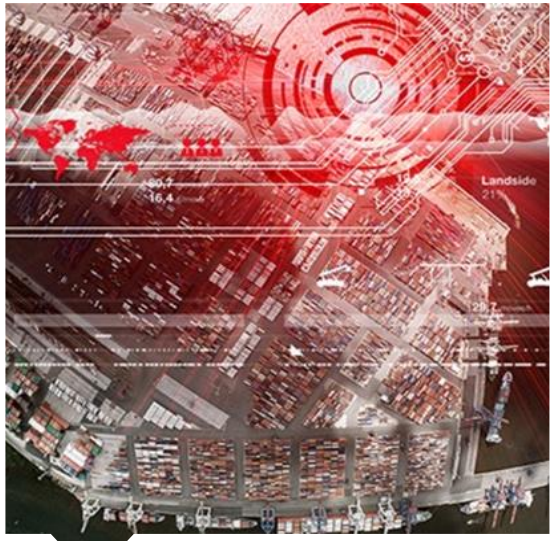
Efficiency demands increase as marine transport continues to grow. Larger ships require capacity improvements from port operators.

Sustainability

Strict emission requirements & growing concern for the environment increase the demand for more intelligent machines with smaller environmental impact.

Industry consolidation

New alliances between shipping lines are impacting container traffic flows and setting new efficiency standards for port operators.



Digitalisation & automation

Digital and automated solutions provide new possibilities for port operators to improve efficiency, safety and sustainability.

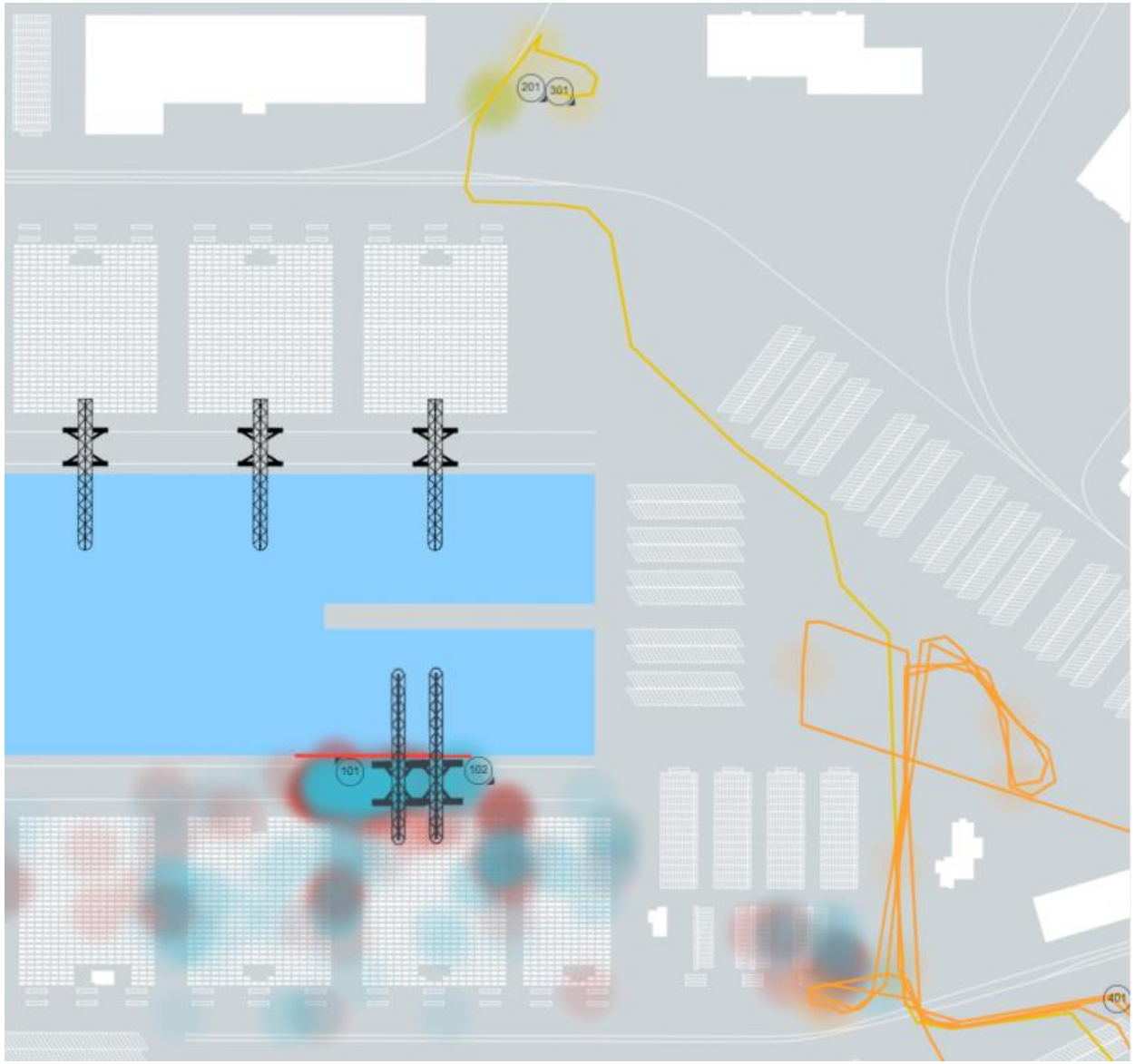
Some key challenges related to equipment fleet management

- Multiple OEMs providing the terminal equipment, multiple systems to monitor equipment performance. Single system preferred.
- Managing the maintenance of multi-brand equipment
- Overall, low level of digitalization in maintenance management
- Variance in digital capabilities of equipment make it complicated to offer harmonized digital services (long lifetime)

Terminal equipment data is a key ingredient for optimized performance and maintenance strategy

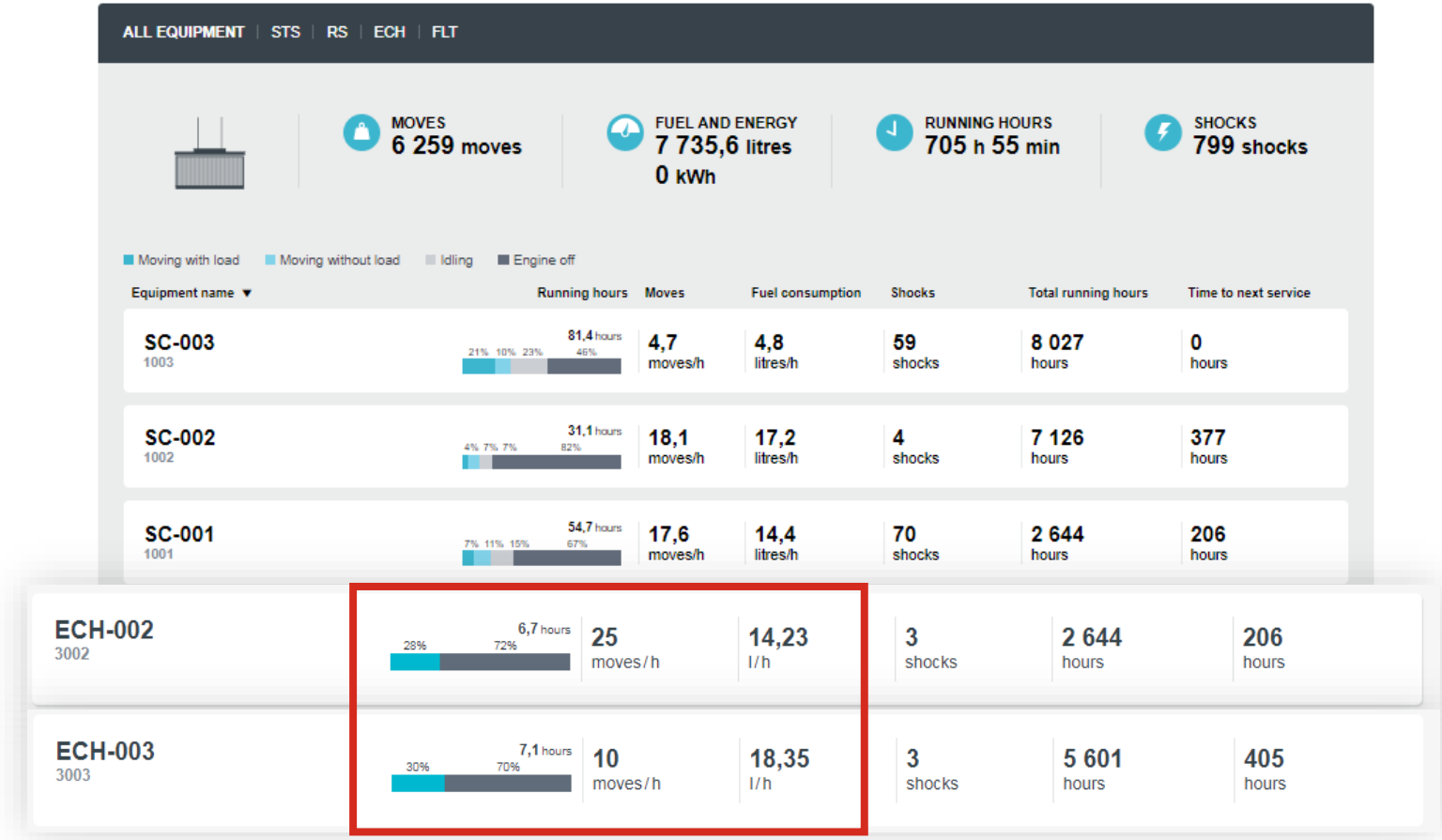
What does equipment data tell us?

Automatic bottleneck detection



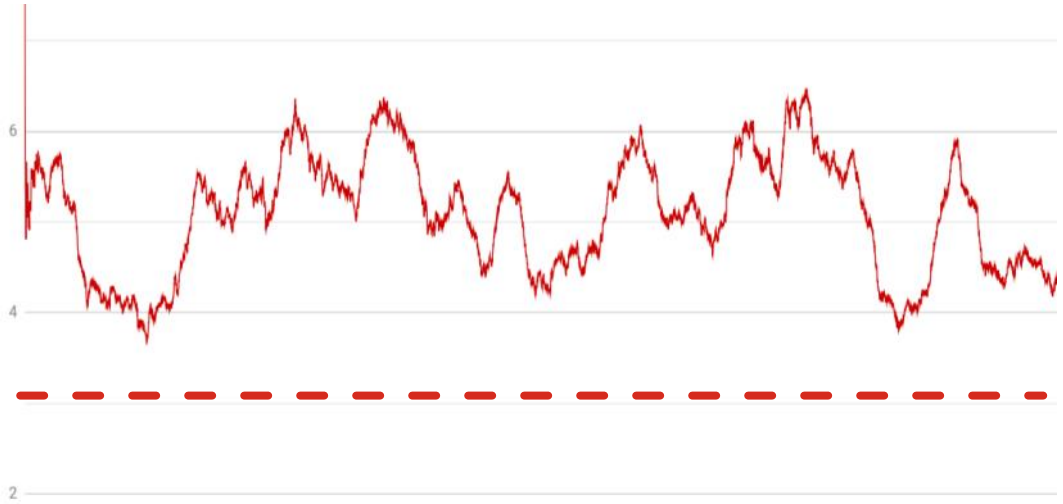
Fleet and driver performance monitoring and comparison

Operational and fuel performance

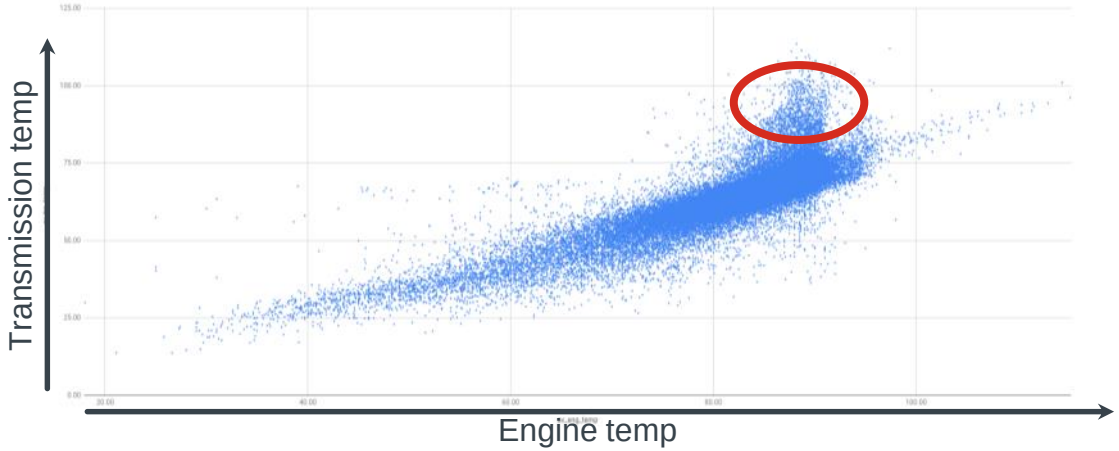


Predictive mantenance

Threshold values indicating downtime risk



Identification of peak loading of components with temperature monitoring



Automating service flow

Field service tools
Service technician logs and confirms performed maintenance

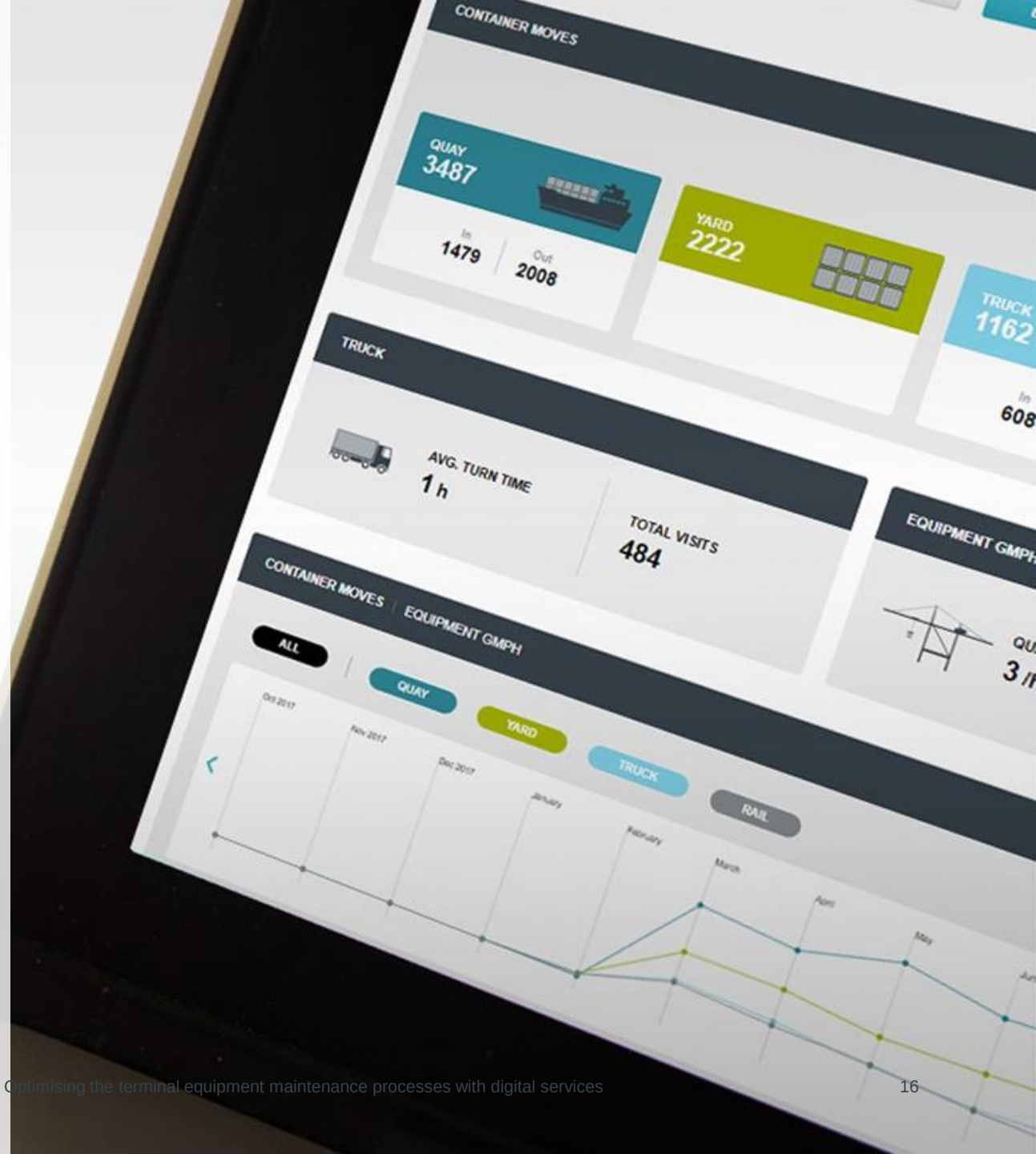
Kalmar Insight
Operations performance and maintenance management

Automated service flow
Automated maintenance need planning and scheduling, parts delivery

Connectivity
Availability of real-time information, KPIs and maintenance need indicators

Automating the service flow

- Connecting real-time information of machine usage to maintenance plans and parts delivery process enables automating the service flow
- Maintenance manager receives automatically a notification of an approaching maintenance need
- Availability of the correct set of materials (maintenance parts) is confirmed with delivery times
- Automated scheduling of the job
- Automated delivery of the needed parts at the right time in the right place
- The platform may be extended to cover predictive maintenance



Service flow automation – benefits

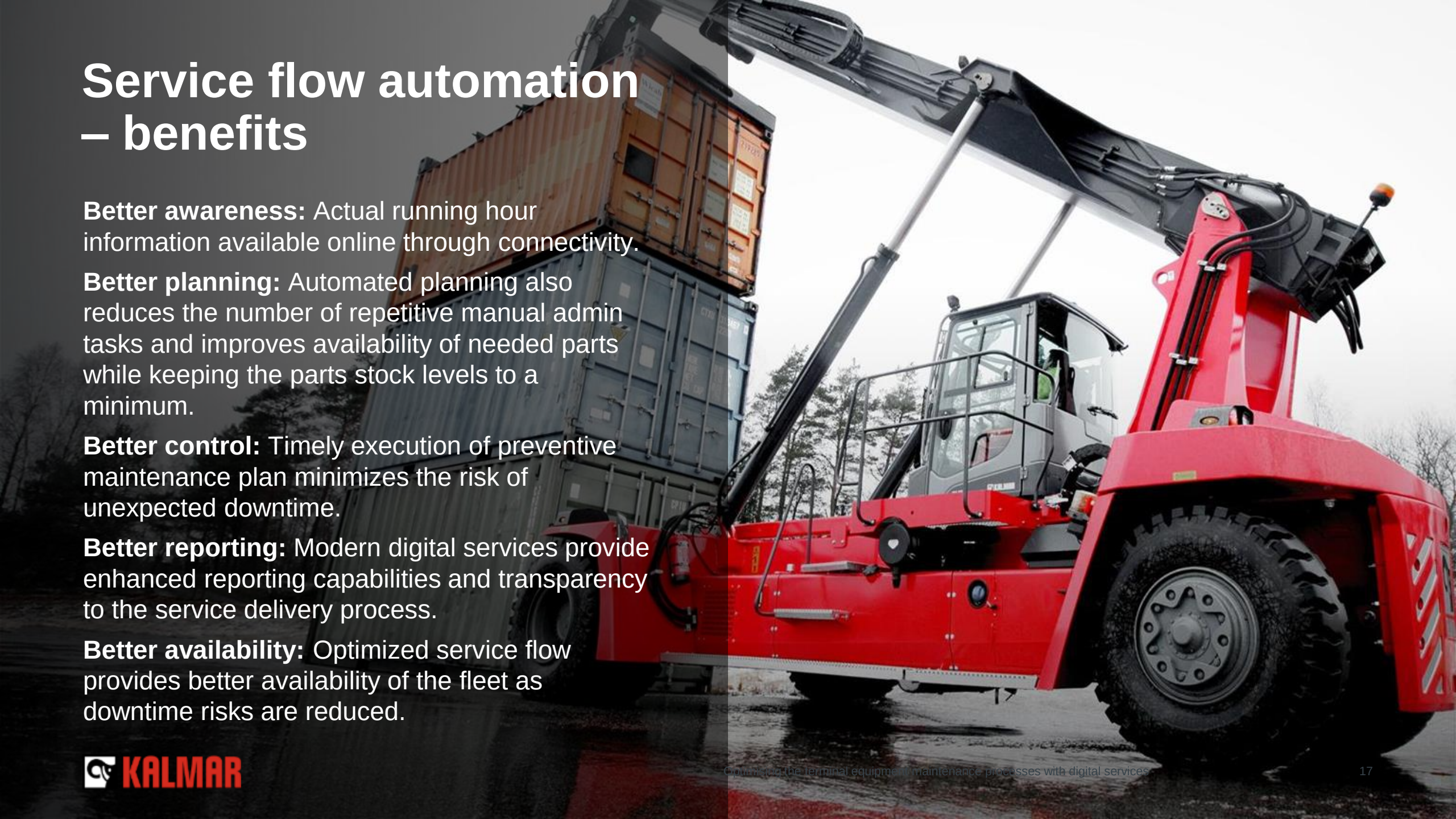
Better awareness: Actual running hour information available online through connectivity.

Better planning: Automated planning also reduces the number of repetitive manual admin tasks and improves availability of needed parts while keeping the parts stock levels to a minimum.

Better control: Timely execution of preventive maintenance plan minimizes the risk of unexpected downtime.

Better reporting: Modern digital services provide enhanced reporting capabilities and transparency to the service delivery process.

Better availability: Optimized service flow provides better availability of the fleet as downtime risks are reduced.



Kalmar Insight

Turning data into actionable, impactful insights.

Data integration with other systems

TOS · ERP · MMS · DATA WAREHOUSING

Kalmar Insight™

Performance data from operations

6 249 Moves · Lifts/h · 705 h 55 min · Moves/h · KWh · Moves · Fuel consumption · 7 735,6 litres · Shocks · Running hours

Maintenance scheduling and management

Easy maintenance planning: Maintenance module enables automated spare parts recommendations and ordering.

Playback mode of historical data

Shows process bottlenecks and help to identify areas for improvement.

Single view for all equipment types and brands

Kalmar Insight™ interface

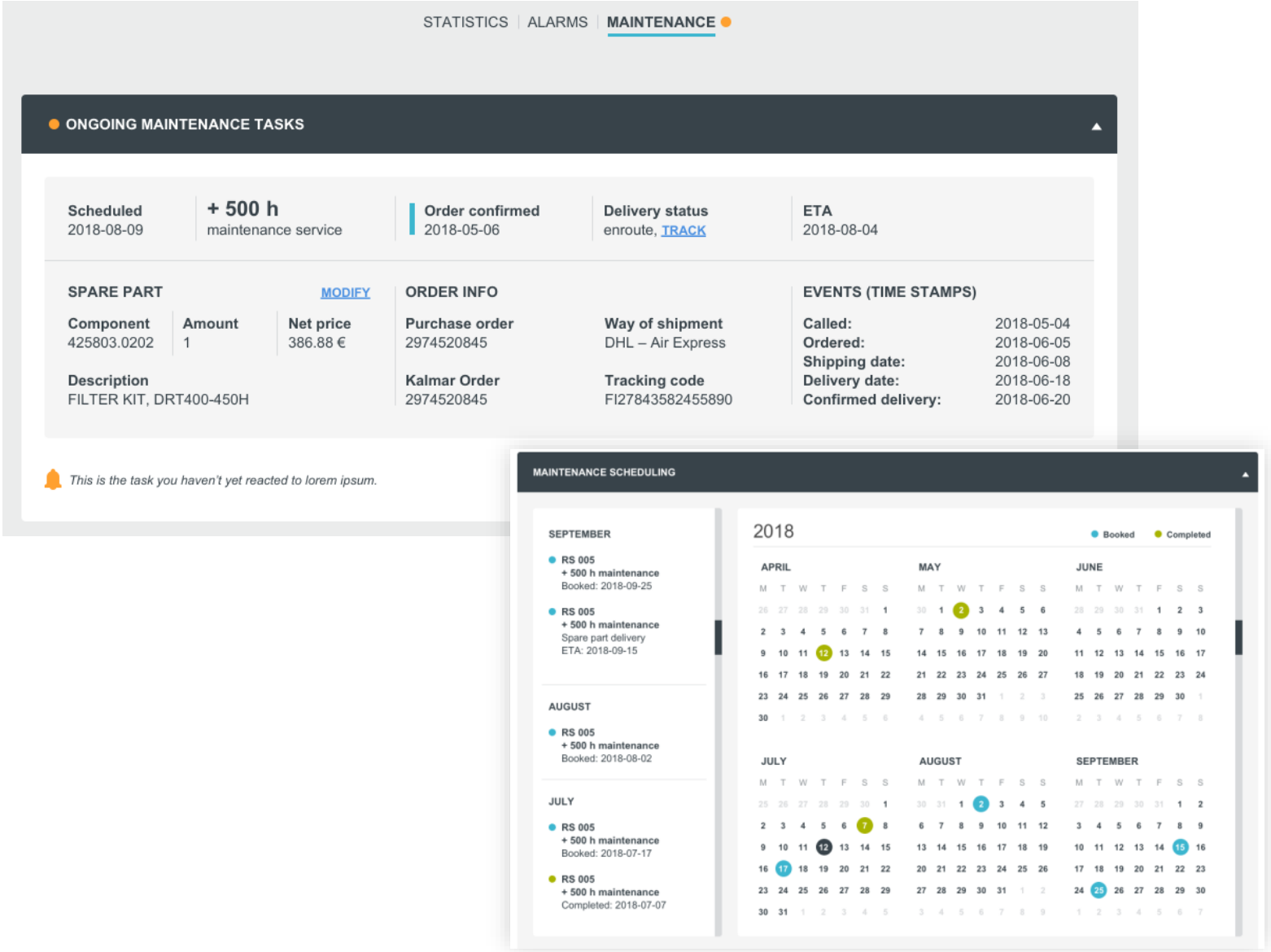
INTERMODAL · DISTRIBUTION CENTRES & WAREHOUSES · PORTS & TERMINALS · FORESTRY & METAL HANDLING

Everything at a glance

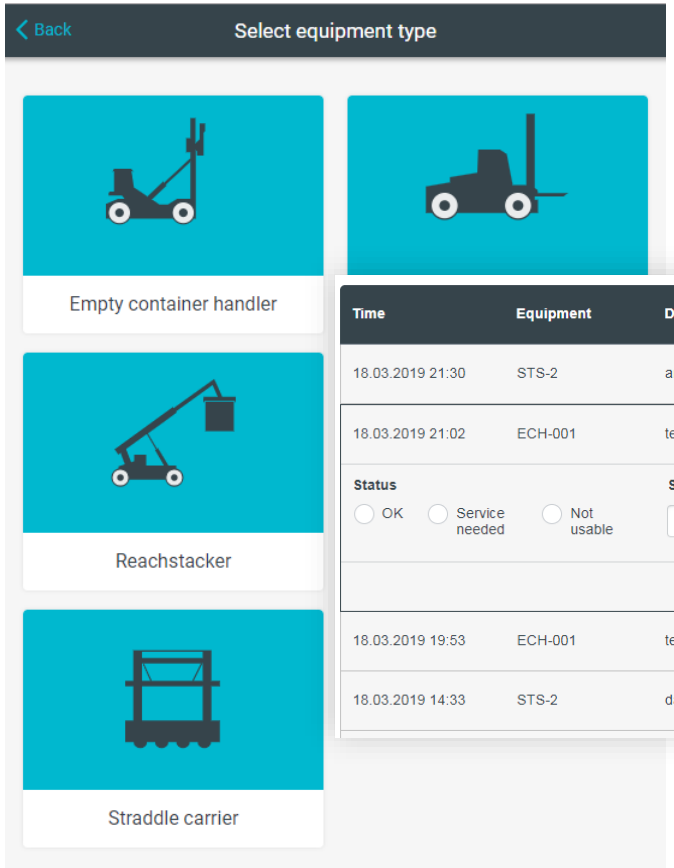
Simple to use and understand: data can be accessed with any device – smartphone, tablet, laptop or desktop.

KALMAR

Maintenance scheduling and management

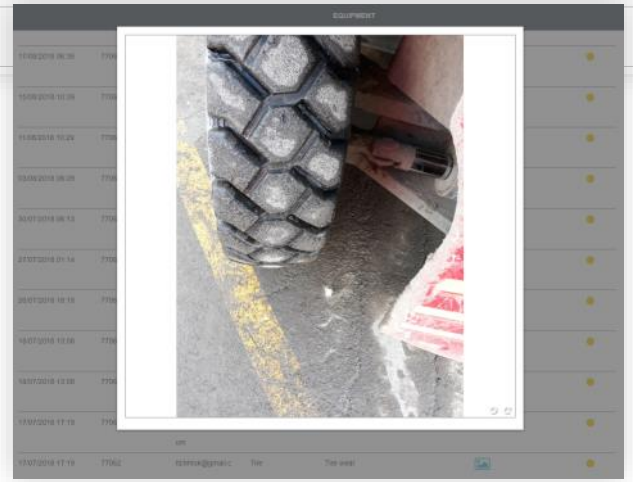


Machine health checks and issue management

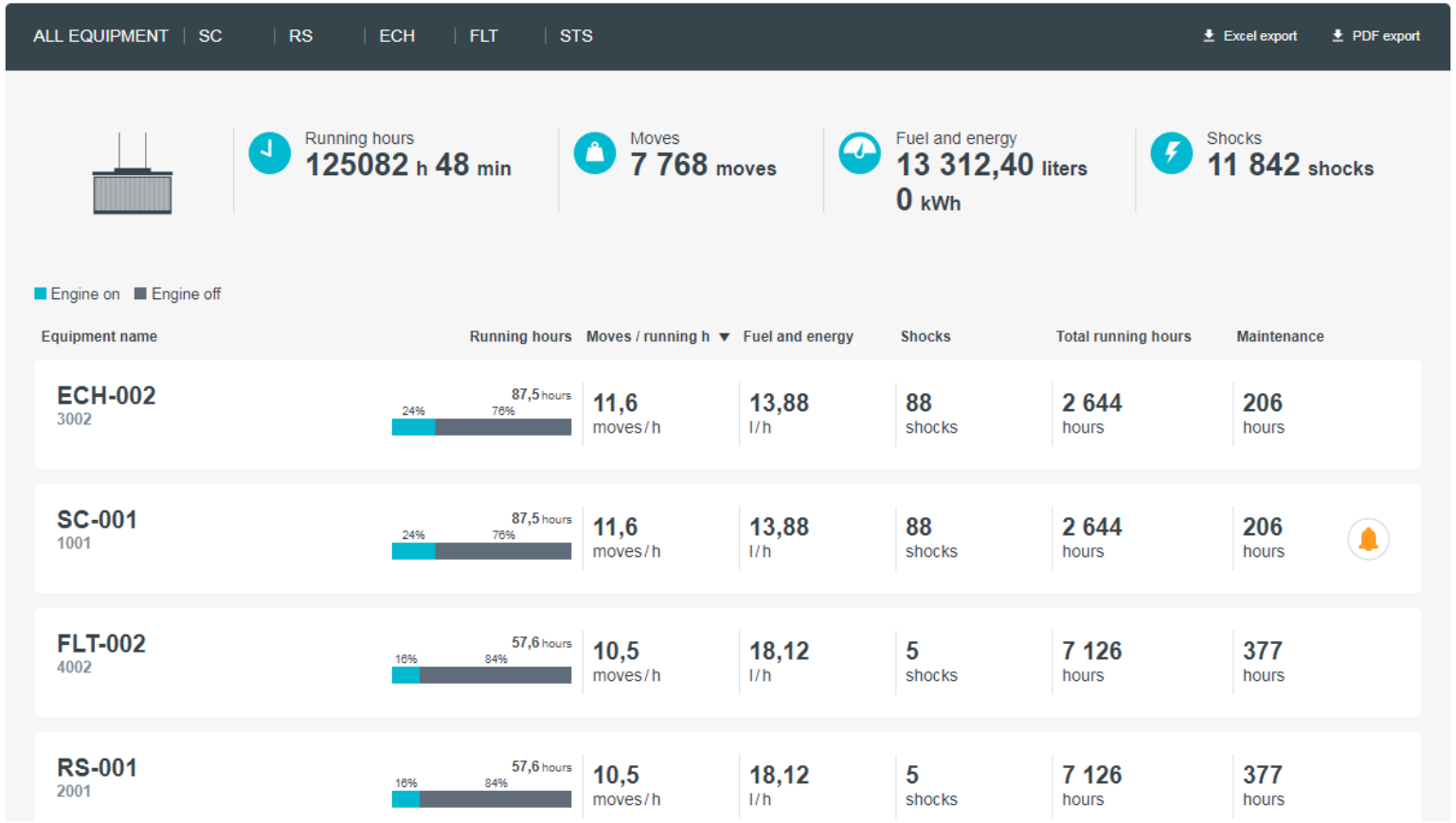


Time	Equipment	Driver	Group	Question	Media	Status
18.03.2019 21:30	STS-2	armi	Tyre	Tyre condition		
18.03.2019 21:02	ECH-001	teppo	Tyre	Tyre condition		
18.03.2019 19:53	ECH-001	teppo	Tyre	Tyre condition		
18.03.2019 14:33	STS-2	danny	Tyre			

Status: OK / Service needed / Not usable
Status description: Write comment
Cancel | Update status



Connecting real-time operational information of the fleet with maintenance management



Customer and users

Customers

Kalmar Insight can serve variety of different size and type of customers

- **Port terminals:** automated, manual
- **Intermodal terminals**
- **Industrial sites** (forestry, metal)
- **Distribution centers**
- **Equipment dealers**
- **Any business with a cargo handling equipment**

Users

Kalmar Insight provides valuable information for different user groups

- **General Management** - up-to-date business information on site or fleet performance, easily accessible with mobile devices
- **Operations Management** - identify bottlenecks and improvements for site and fleet operations, maximize equipment utilization
- **Maintenance Management** - easy way to actively follow fleet performance and health status, assisted maintenance planning
- **Health & Safety Management** - remote monitoring of processes and events to improve safety

Equipment data availability

Kalmar equipment

Full equipment data available via Equipment Management System

- Location and routes
- Running hours (production vs. idle)
- Fuel and energy consumption data
- Shock and overload events
- Moves, pick and ground events
- Lifts and load spectrums, container sizes
- Idling, travel and speed data
- Alarms and error codes
- SOLAS reporting and tyre pressures*
- Driver identification*

3rd party equipment

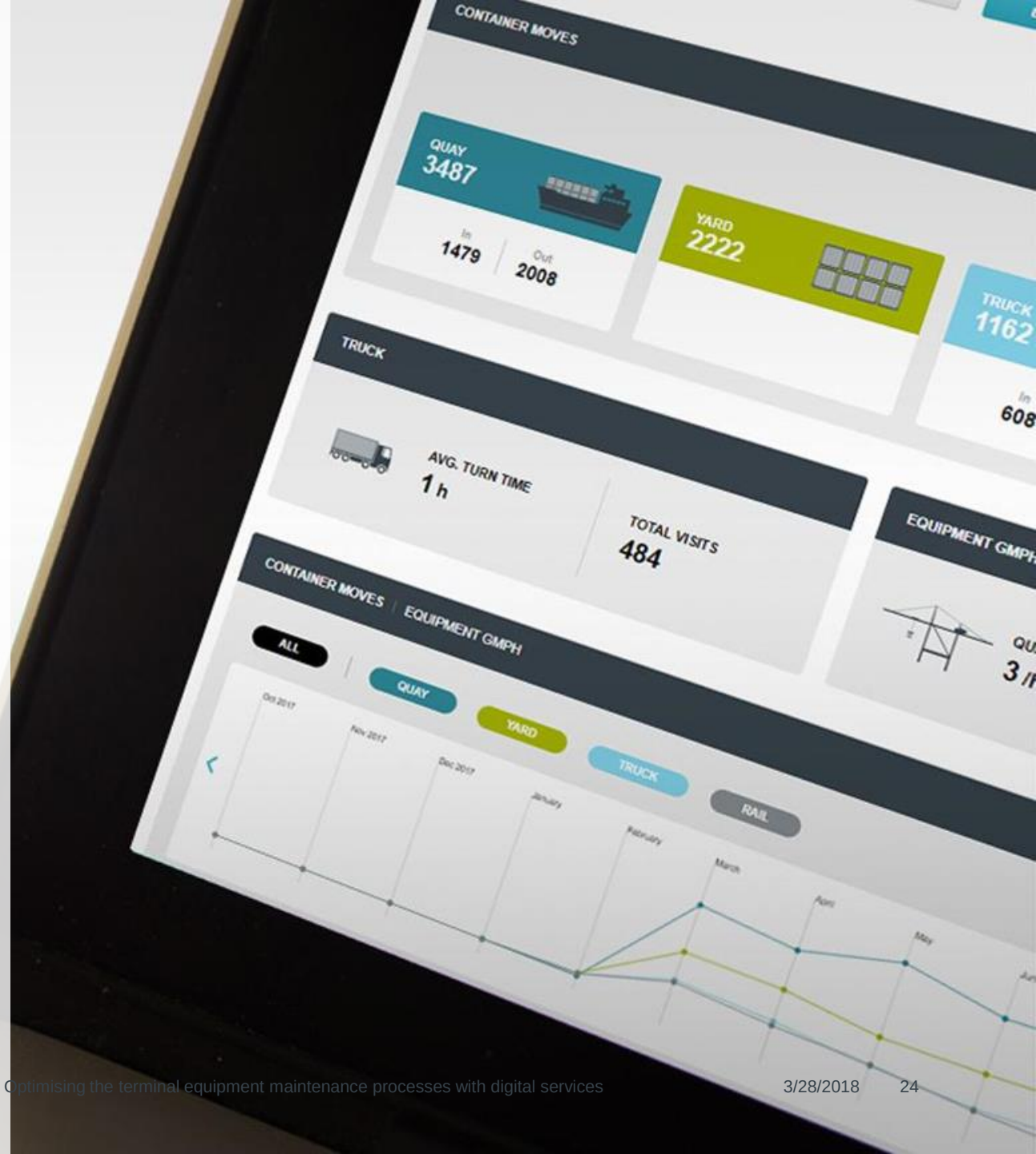
Basic equipment data set available from any type of equipment

- Location and routes
- Running hours
- Fuel consumption**
- Shocks***
- Moves, pick and ground events****
- Lifts, container sizes****

* requires additional HW
** availability depends on fuel tank setup
*** accuracy dependent on installation location
**** with Kalmar SmartPort system

Summary

- Equipment data is a valuable asset to optimize operations and maintenance processes
- Automating the service flow brings tangible benefits in terms of reduced admin work, process efficiency and better availability
- Kalmar Insight combines operations and maintenance management into a single tool allowing to optimize the performance



More information about Kalmar Insight:

www.kalmarglobal.com/showrooms/insight/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