

# LiDAT<sup>®</sup> smartApp

SmartApp – Leveraging on technologies to increase productivity

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**LIEBHERR**

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# Liebherr Maritime Cranes

- STS Cranes
- Harbour Mobile Cranes
- Ship Cranes
- Offshore Cranes
- Reachstacker
- Crane Cabin Simulators LiSIM



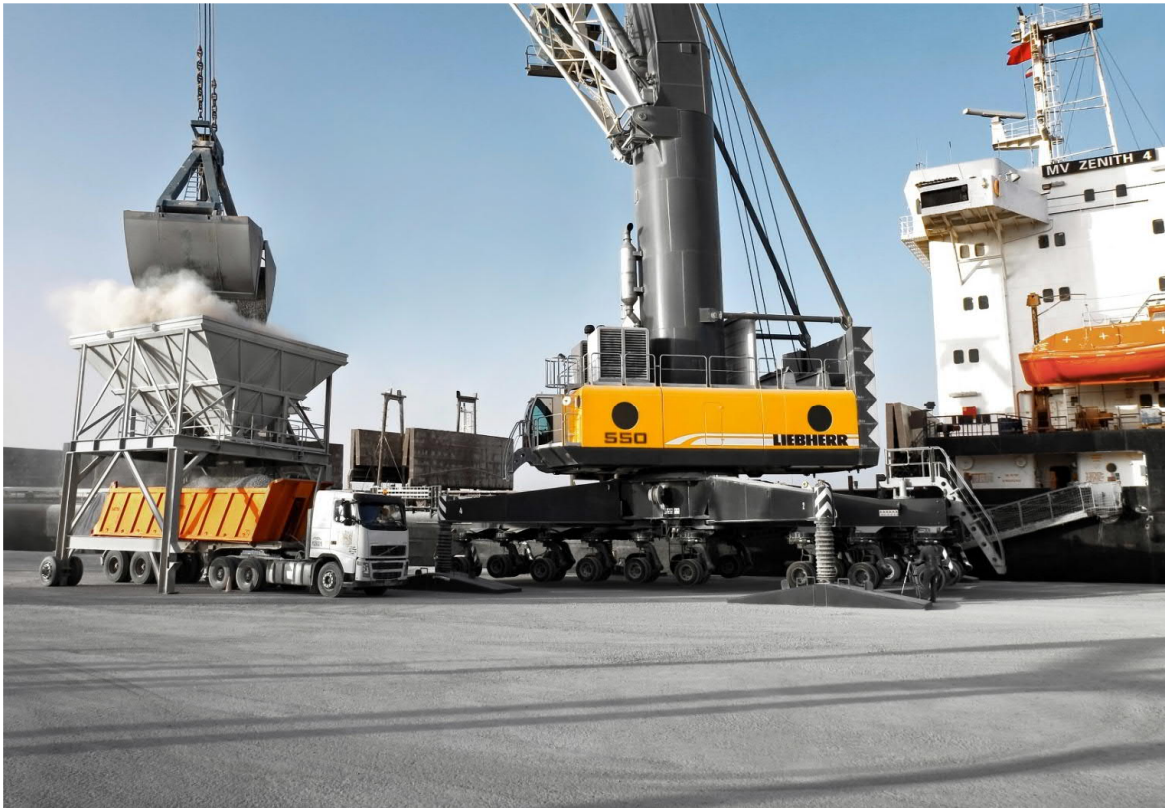
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## Liebherr Offshore Cranes

- “Liebherr is to build its largest ever offshore crane for DEME’s new vessel, Orion” March 2017



# LiDAT® smartApp Content



- What it is
- Technical description
- Packages
- Upgrade and Retrofit
- Business Cases

# LiDAT® smartApp

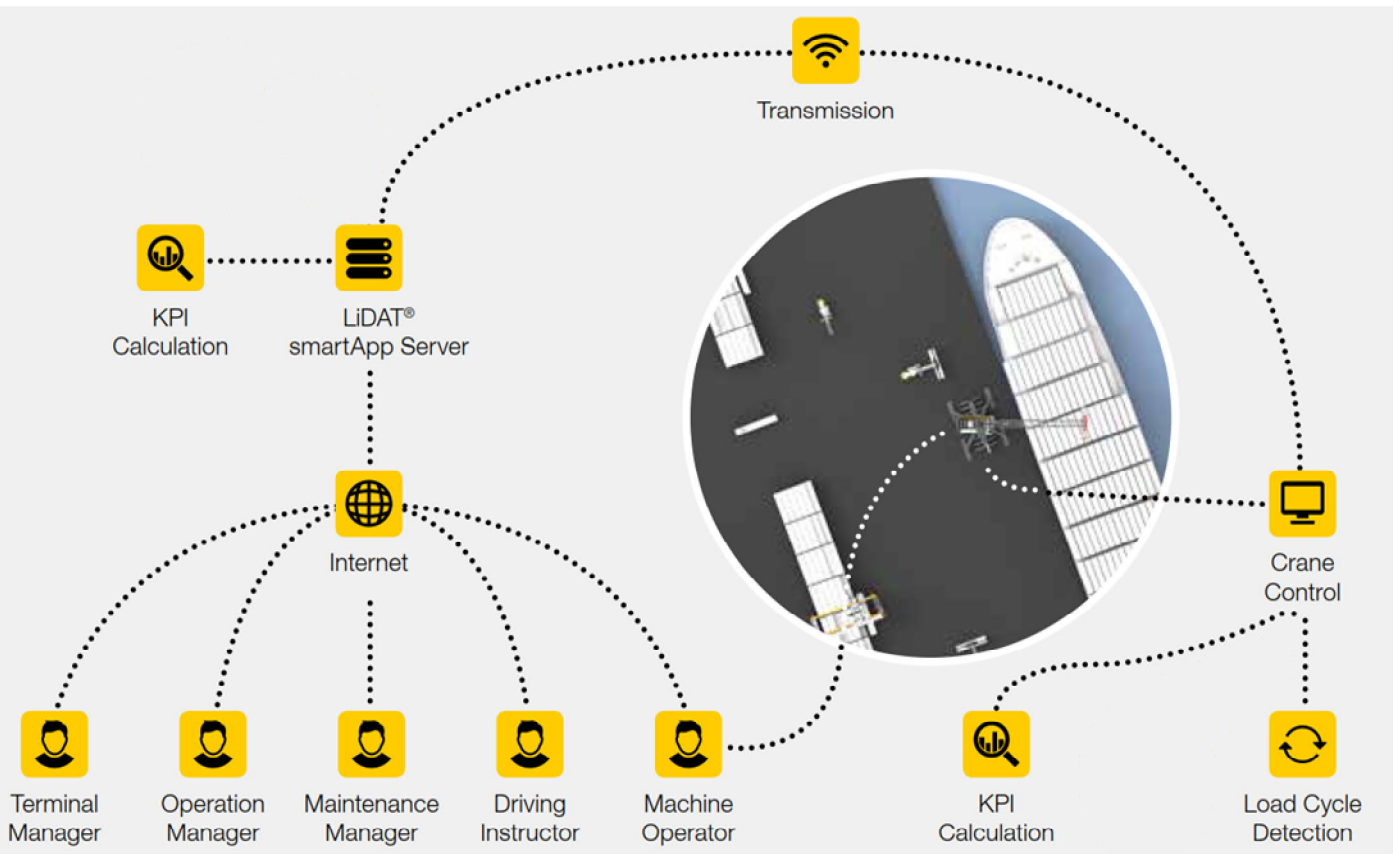
## What it is

The screenshot displays the LiDAT smartApp interface for a scenario named 'MV Patricia'. The interface is organized into several data panels:

- General Information 'MV Patricia':**
  - Machine Type: 4\* LHM 550, 7\* LHM 600
  - Time Range: from 2018-01-21 08:00 to 2018-01-23 18:07
  - Data Coverage: exact 100%
  - Handled Cargo: sum 114,694 t, count 4,905 cycles
- Operation:**
  - Waiting Time: avg 31 s
  - Wind Speed: avg 4.0 m/s
  - Performance: sum 504 t/h
  - Performance: count 22 cycles/h
  - Operation Mode: main Four Rope Grab
- Optimization:**
  - Waiting Time: sum 18 %
  - Crane Utilization: avg 74 %
  - Hoisting Gear Speed: avg 50 %
  - Load Path: avg 87 m
  - Slewing Angle Path: avg 110 °
  - Luffing Path: avg 19 m
- Location:** A map showing the location of the machine in the Baltic Sea region, with markers for 999004 and 999005.
- Machine Health:**
  - Fuel Level: min of latest 59 %
  - AdBlue Level: min of latest 0.0 %
  - Hydraulic Oil Level: min of latest 51 %
  - Overloads: sum 77 per cyc
- Load Recorder:**
  - Turnover: sum 88,783 t
  - Turnover: count 3,316 cycles

- IT-solution for analysing and optimising cargo handling processes
- Real-time overview of the equipment status and the progress
- Makes the processes faster, more environmentally friendly and more cost effective
- The Optimization Package additionally recommends specific optimisation actions.

# Technical description

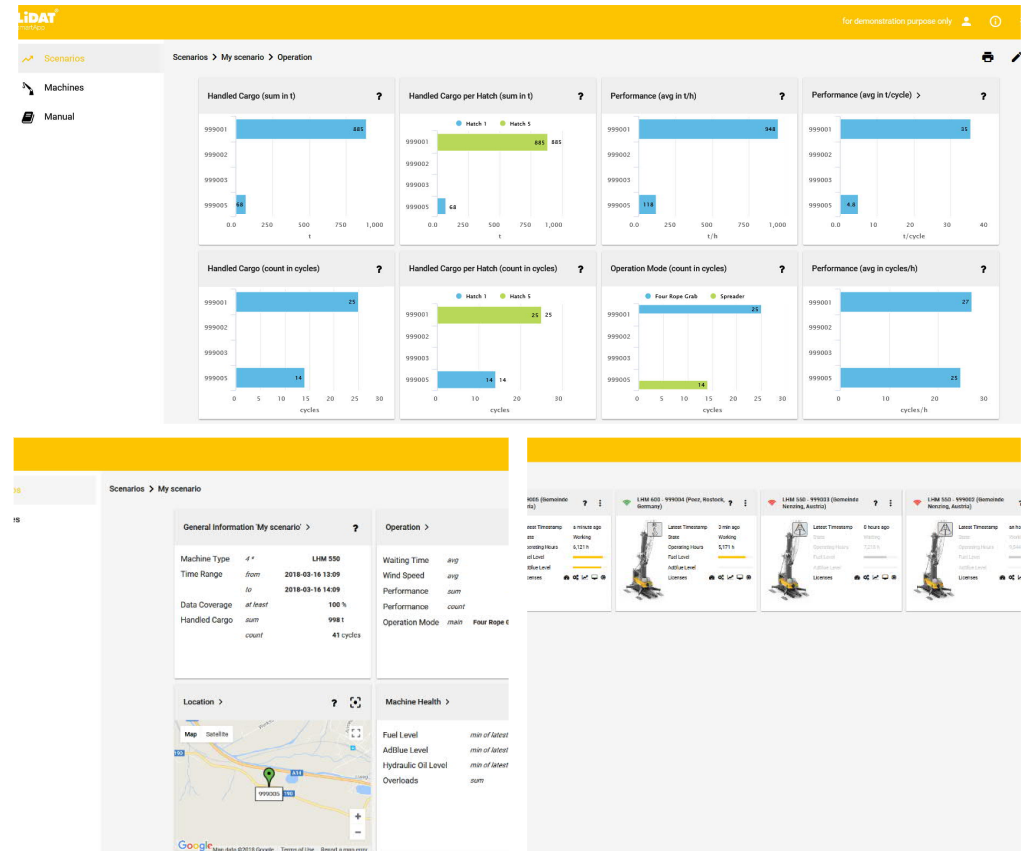


- The relevant data transmitted to the LiDAT® smartApp server
- Authorised users can access and download the processed data via LiDAT® smartApp
- Liebherr handles the setup and support of the transmission link, hosts the data and maintains the software during the active user subscription

# LiDAT® smartApp Packages

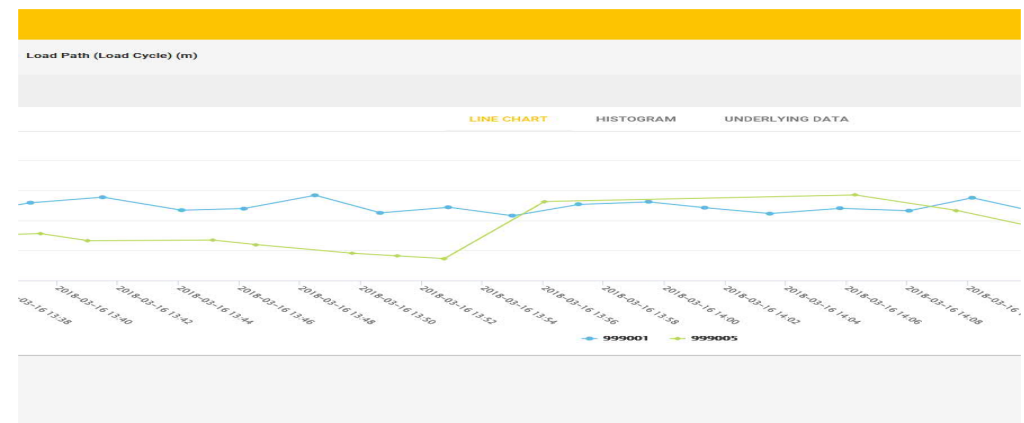
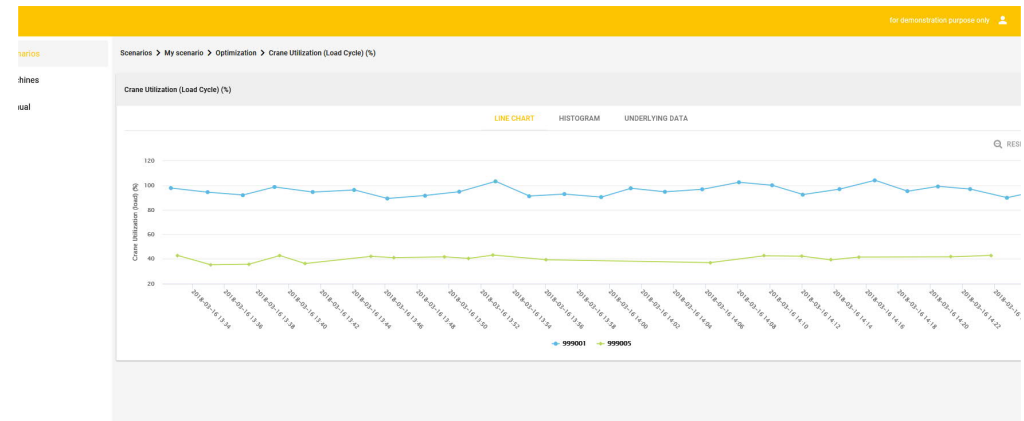
## Basic

- Web based IT-solution
- Optimised for mobile devices
- Intuitive use
- Worldwide data recording and transmission in real-time
- Significant reports in PDF-format available as download
- Integrated user manual
- Transparency of processes by figures and charts
- Comparability of cranes and processes across locations



# Optimisation

- Turnover and optimisation orientated figure spectrum
- Detailed graphic representation
- Load Recorder turnover analysis
- Detection of optimisation potential by figures and charts
- Automatic load cycle detection
- Performance comparison inside the fleet

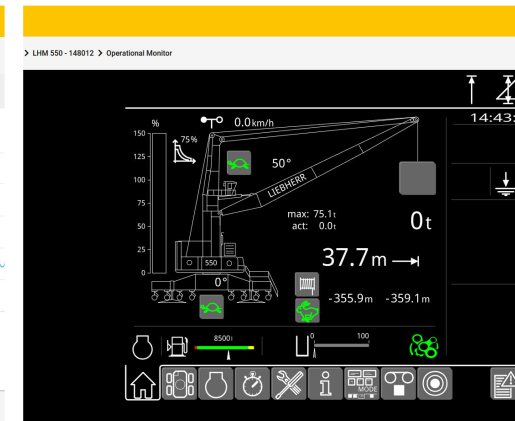
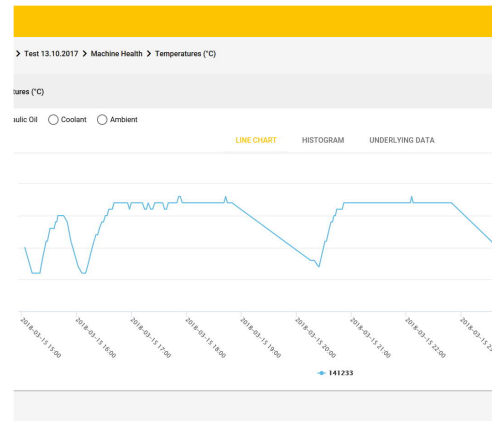
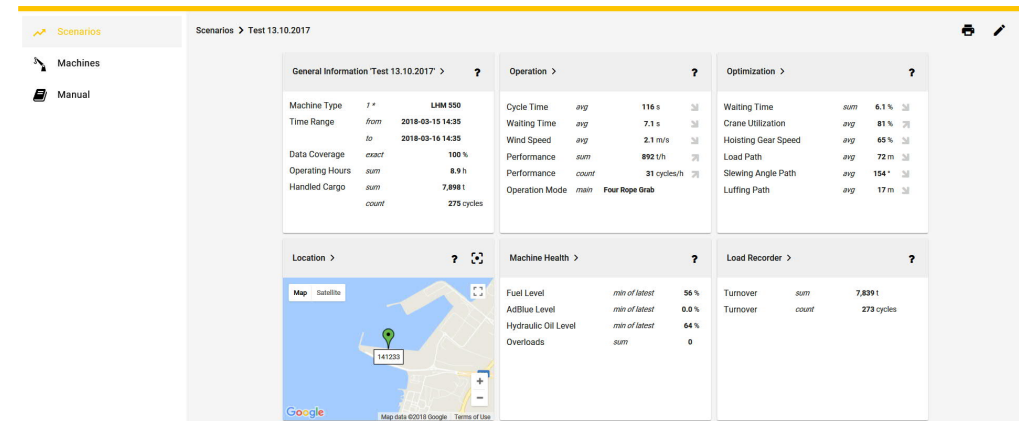




# LiDAT® smartApp Packages

## Maintenance

- Display of important operating data (e.g. operation hours, fluid levels)
- Crane control display visible via user interface
- Enables Teleservice
- Higher machine availability by improved planning of maintenance and fill-up interventions
- Remote support by Operation Monitoring
- Reduction of service interventions by Teleservice
- Graphic presentation of machine display via mobile devices



# Package overview

	Basic	Maintenance	Optimisation
<b>Machine Data</b>			
Current Location, Dataset and Environment	◆		
Current Operating Hours and Resources		◆	
<b>Process Data (Scenario)</b>			
General Information (machines, location handled cargo, operation hours, data coverage)	◆		
Machine Health (filling levels, temperatures)		◆	
Operation KPIs (Handled Cargo, Performance, Cycle Time, Wind Speed)	◆		
Operation KPIs (Split of Cycle Time, Handled Cargo per Hatch)			◆
Optimization KPIs (Crane Utilization, Gear Speed, Split of Cycle Times, Load Path, Outreaches, Luffing Path, Slewing Angle Path, Drive Configuration)			◆
<b>Machine Reports</b>			
Dashboard Report (Location, Environment, and Dataset)	◆		
Dashboard Report (Resources and Operating Hours)			
Machine Use	◆		
Machine Logbook	◆		
Safety Report	◆		
Customer Maintenance Planner	◆		

# Package overview

	Basic	Maintenance	Optimisation
<b>Process Data Report (Scenario)</b>			
General Information, Operation, Data Coverage, Handled Cargo, Operating Hours, Operation Mode, Performance, Wind Speed, Cycle Time	◆		
Machine Health		◆	
Optimization (Split of Cycle Time, Handled Cargo per Hatch, Crane Utilization, Gear Speed, Load Path, Luffing Path, Slewing Angel Path, Drive Configuration, Outreaches, Turnover per Hatch)			◆
<b>Features</b>			
Operation Monitoring		◆	
Load Recorder			◆
Teleservice		◆	

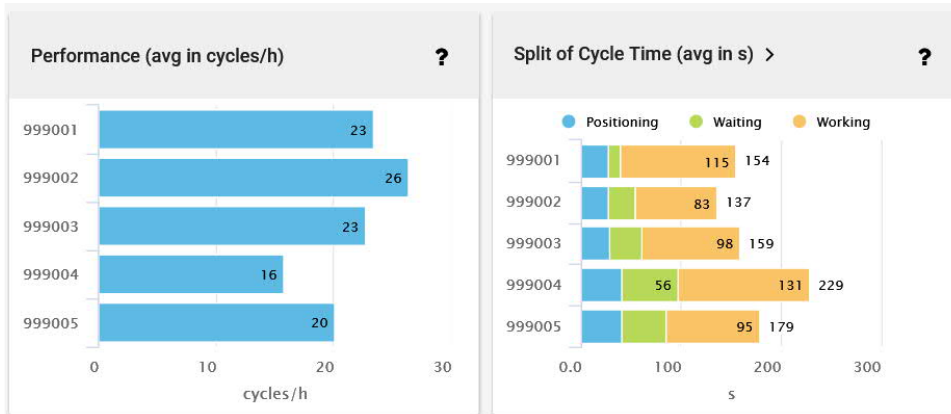
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## Upgrade and Retrofit

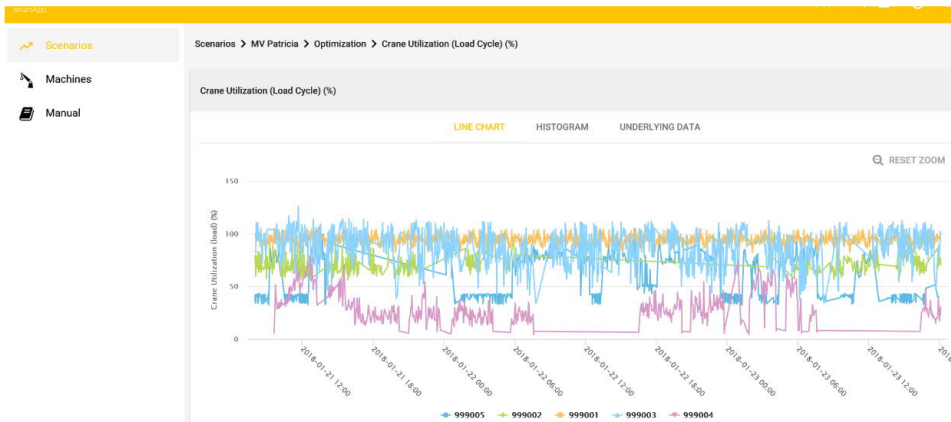


- Upgrades from existing LiDAT® packages available
- Retrofit depending on machine software and crane generation

# LiDAT® smartApp Business Cases

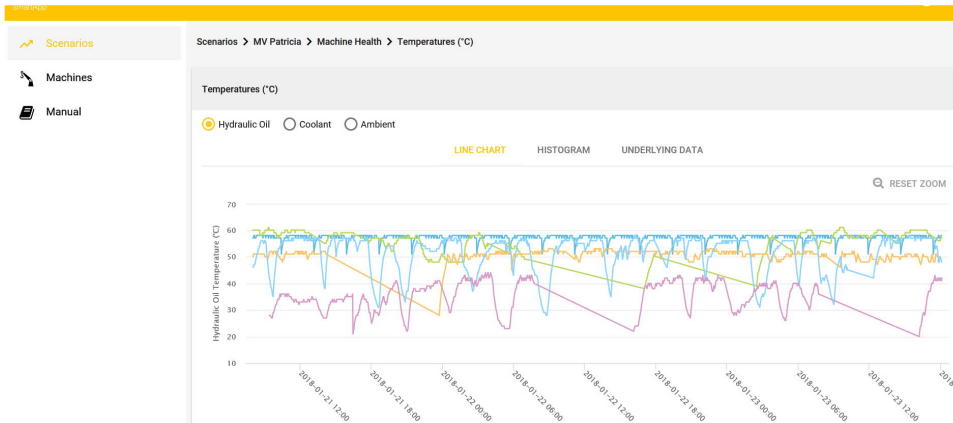


**Comparison:** Direct comparison of multiple cranes during definable time periods with the feature „Scenario“



**Analysis:** Detailed analysis of cargo handling process in real-time.

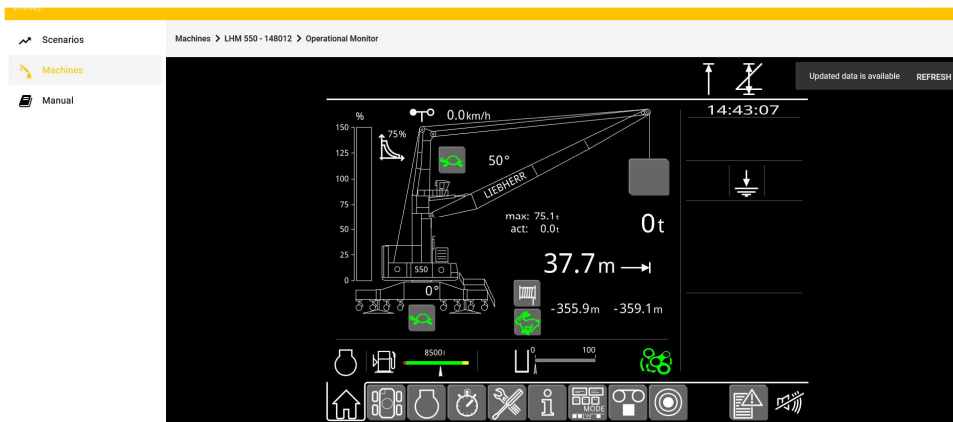
# LiDAT® smartApp Business Cases



**Tracking:** Comprehensive, informative data collection on process and machine statuses



**Direct access:** Information obtained directly from crane control system rather than from external sensors



**Web app:** Intuitive web application, available for different devices

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## Benefits



- Increased turnover efficiency
- Cost saving
- Eco-friendliness
- Good process and machine overview



Thank you for your kind interest