# SMART GEAR AT THE DOCK: DIGITALIZING PORT EQUIPMENT FOR TOMORROW

How smart technologies drive efficiency, sustainability and safety.


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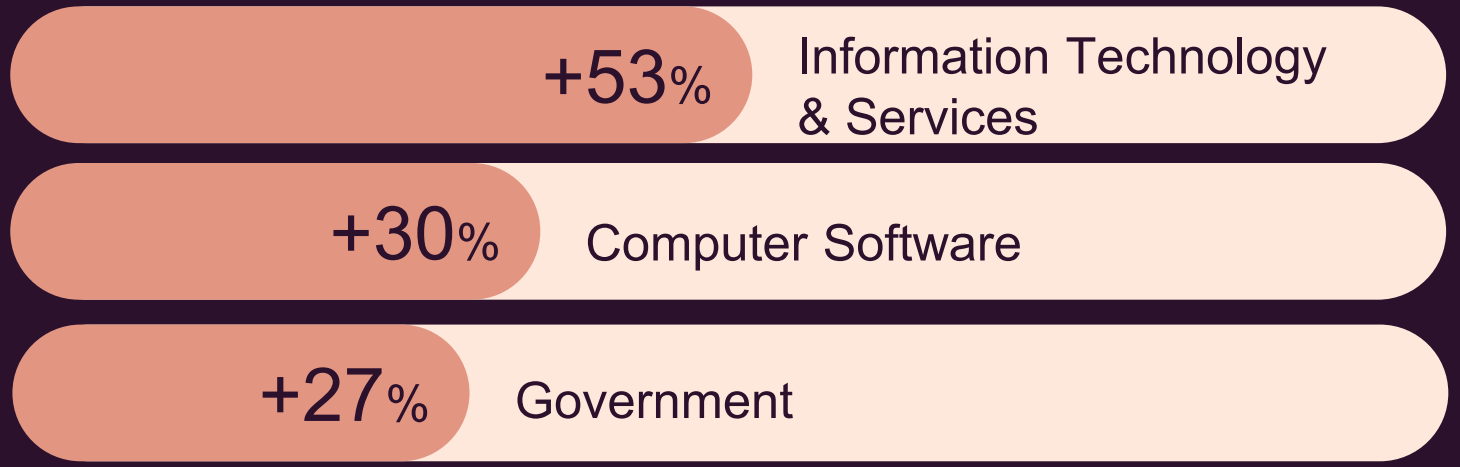
Sales Engineer, Solution Sales, South and Southeast Asia

# Background: digitalisation age

DATA, AI, knowing / information

**Since 2022, an increased interest in business insights is observed:**




Disruptions in supply chain, tariffs, global conflicts and political climate changes. Labour shortage, pressure for cutting costs,
AI developments.

**If you want to be ahead of the game, you need to be prepared.**

If you want to look forward **you have to know what's going on NOW.**

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# Why Fleet Management and Asset Management and what value could this bring for terminal and depot operators?

**Minimized Downtime:**

Unplanned equipment downtime can be reduced by as much as 50%. *The International Association of Ports and Harbors (IAPH) 2024 report* indicates that AI-powered predictive maintenance can reduce unplanned downtime by up to 30%.

This is crucial as marine terminal operations can cost millions per day

**Reduced Maintenance Costs:**

Predictive maintenance cuts overall maintenance costs by 18–25% vs. reactive/preventive methods, and up to 40% vs. run-to-failure.

Case Study: A 45T RS costs SGD 210,000 in the first 20,000 operating hours (Parts, Lubricants, Major Components, Tyres, etc.).

In a Mid-sized container depot, MyKalmar INSIGHT could yield SGD 0.42M in savings across 8 RSes over 5 years

This is a stellar “ROI” of **~150% - 250%.**

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# Data Analytics in Port Operations

## Common market capabilities

- Vessel Traffic Optimization: Efficiently predict traffic patterns and allocate berths to reduce waiting times and increase throughput.
- Cargo Handling Optimization: Streamline cargo operations and reduce handling times to maximize port productivity.
- Supply Chain Visibility: Share data insights with stakeholders to improve logistics coordination and reliability.
- Enhanced Security: Analyze access control and CCTV data to identify and preempt potential security threats.
- Environmental Monitoring: Track emissions, water quality, and waste to support sustainability initiatives and ensure compliance.
- Disaster Preparedness: Analyze weather and historical data to enhance disaster response and ensure quicker recovery.

- **Predictive Maintenance:** Proactively schedule infrastructure and equipment repairs to prevent costly downtime.
- **Performance Benchmarking:** Use KPIs to measure performance against similar machine averages and drive continuous improvement.
- **Energy Management:** Monitor and analyze energy consumption & CO2 emissions across operations to identify inefficiencies and reduce costs.

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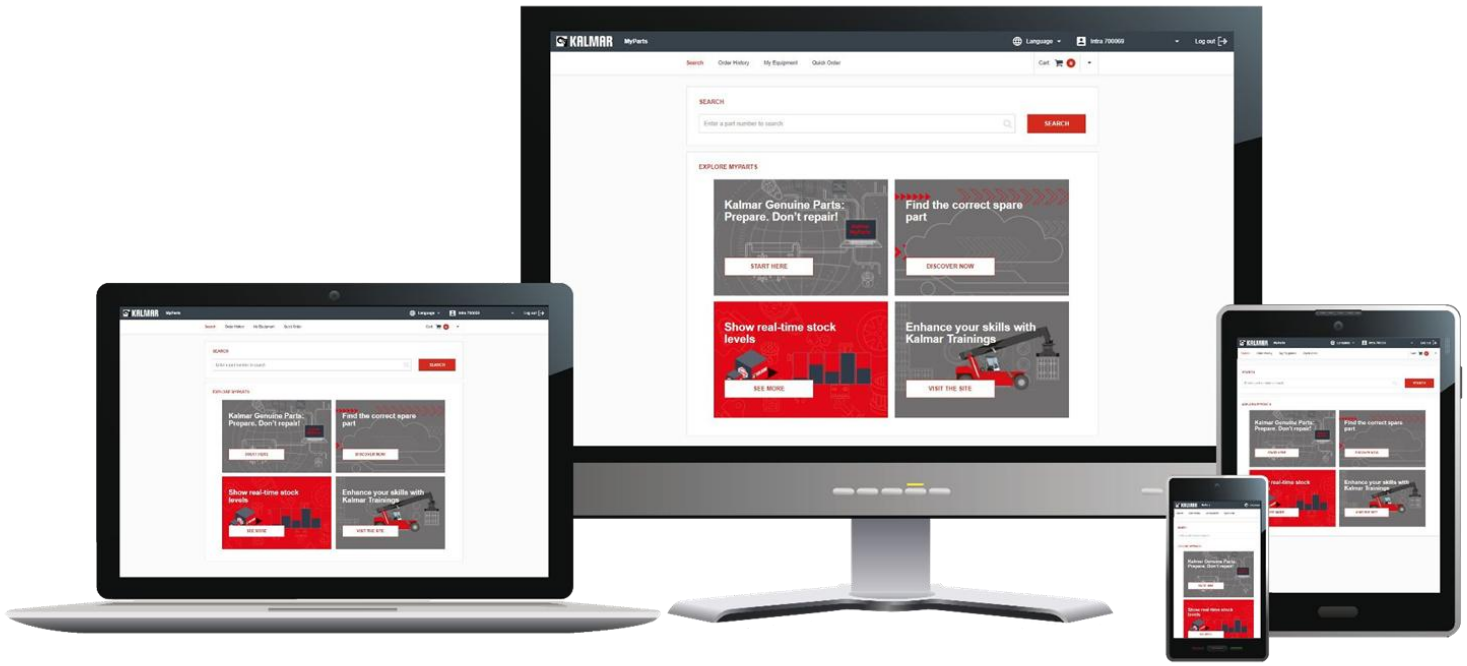
# MyKalmar INSIGHT

is a part of MyKalmar digital ecosystem

It helps enhance your business's safety, productivity, and sustainability.




- Monitor every move
- View shocks & alerts
- Manage machine access
- Check emissions & fuel consumption
- Analyze performance

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## Machines eligible for MyKalmar INSIGHT:

## How to install?

1

**New Kalmar Equipment** → **Easy add on:** software only

2

**Older Kalmar Equipment** → **Upgrade:** retrofit hardware + software

3

**3rd party** equipment → **Upgrade:** retrofit hardware + software

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# Inspector

Take control over machine inspections

Available as optional module

## Key benefits:

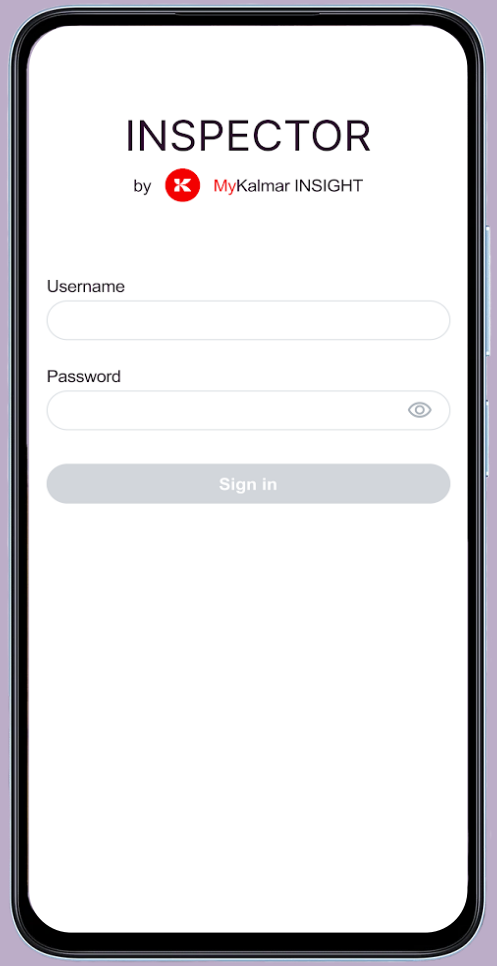
- Fleet inspections are managed digitally
  - steps are easy to follow in a checklist format
- Full transparency and control over inspections
- Fulfil legal local requirements

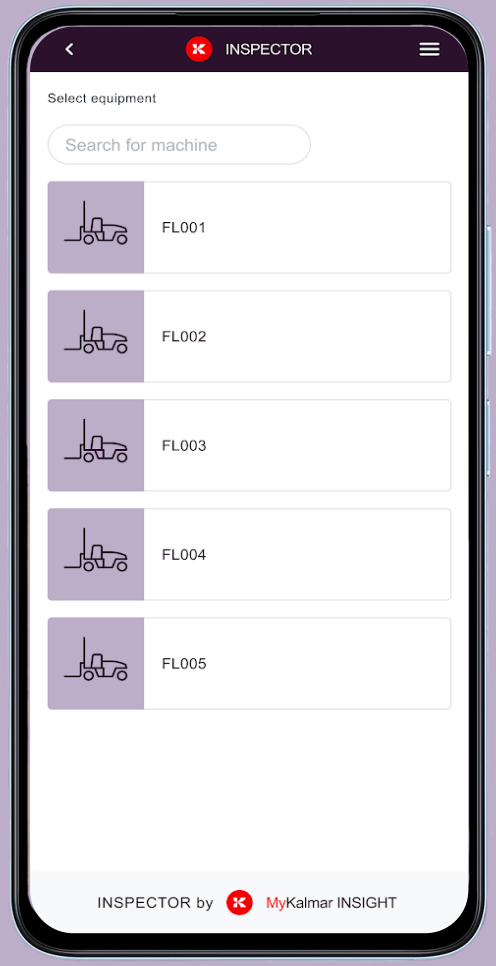
## How does it work?

Set up different inspection checklists for equipment safety or maintenance checkups, so your operators can easily follow instructions and provide more details (incl. photo/video). Optimal on mobile.

## Additional requirements:

- -

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# Driver access module

Digital key to your Kalmar machine

Available as optional module

## Key benefits:

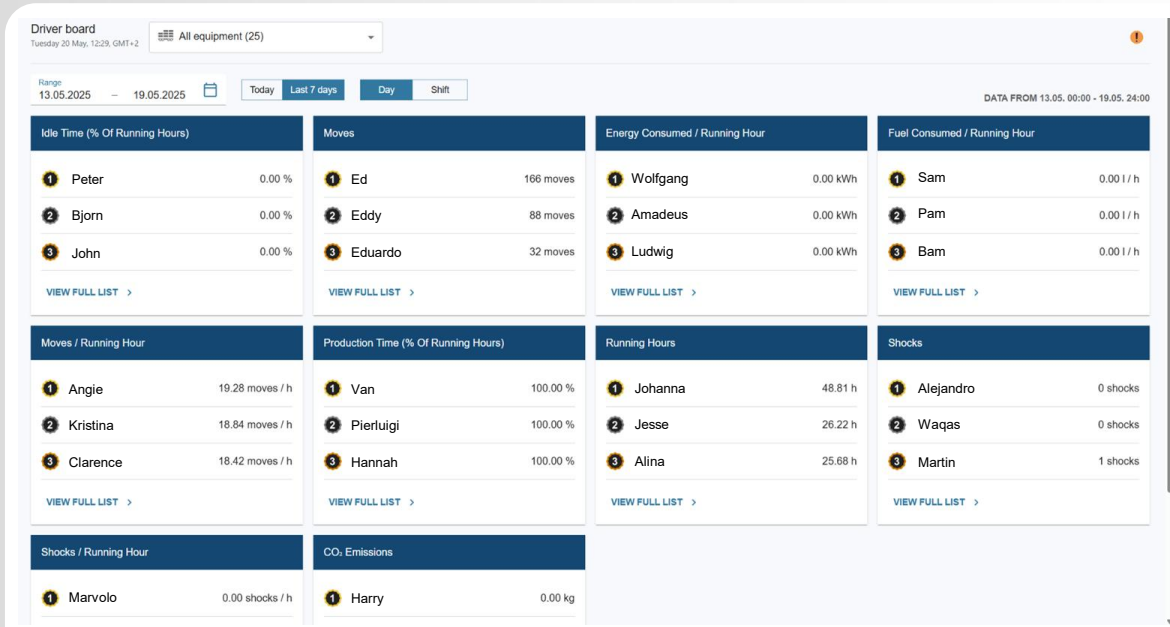
- Prevent unauthorized machine use
- Analyze equipment performance on driver level

## How does it work?

Operator needs to use RFID tag or card to authorize access to the machine.

## Additional requirements:

- Hardware




# Operational overview

## Digital performance comparison

Available as optional module

## Key benefits:

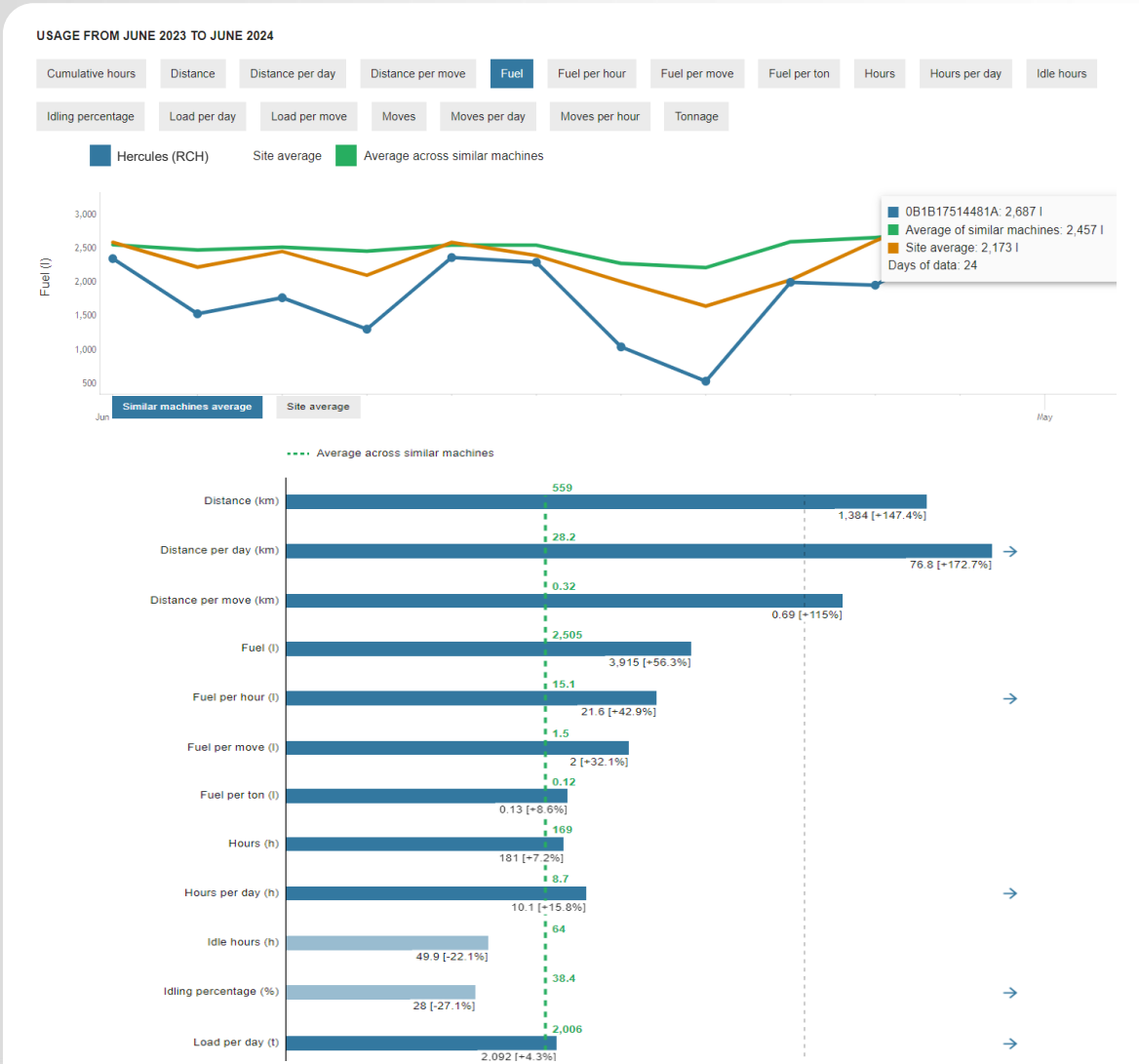
- Compare performances across own fleet and global equipment averages
- View and filter over 10 performance indicators

## How does it work?

Benchmark and analyze equipment performance data using performance indicators (i.e. fuel, idling time, distance, moves, etc,. )

## Additional requirements:

- -



MyKalmar INSIGHT

Chin Guan Tan

- Home
- Equipment
  - Status
  - Utilization
  - Availability
  - eModule (BETA)
  - Alarms
  - Emissions
- Positioning
- Drivers
- Reports
  - Custom report

Welcome Chin Guan!
Tuesday 18 Nov, 15:00, GMT+7

Reachstacker (63)

UPDATE DATA

## Attention

**Critical alarms**
1
Active alarms

**Refuel**
3
Equipment

**Check tyre pressure**
1
Equipment

**Next service due**
44
Equipment

**No connection**
10
Equipment

# Fleet Dashboard

## Map


## Recent events

Today

All events

Events from last 3 hours

**H11601633 SBP 057** stopped

# Kalmar's Eco Reachstacker

- Most powerful, quiet and fuel efficient diesel Reachstacker in Kalmar's portfolio
- Smart driveline developed by Kalmar, Volvo and Dana Rexroth with technical exclusivity
- Available with both Volvo and Cummins engines
- Proven technology with 10 years in operation
- **Fuel savings up to 40%**


"According to our data comparison between the Eco Reachstacker and traditional reachstackers, the fuel savings rate is around 20%, which means each machine can save more than CNY 100,000 per year on the basis of approximately 4000 running hours for each machine annually,"

**Wang Lei,**
General Manager
Ningbo Blue Dragon Logistics

"We are excited by the reduced fuel consumption promised in daily operation. Other than cost, it is also better for our working environment. We believe the combined effect would be beneficial for our business and environment. And it is also in line with our mission for green operations,"

**Benny Woenardi,**
Managing Director of
PT. Cikarang Inland Port

**HOW COULD YOU VERIFY THIS CLAIM?**

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# MyKalmar INSIGHT
empowers real-world performance comparisons against paper-based claims

## Average drive cycle*

- 64 meters per move
- 32 tonnes per move
- 30 moves per hour

## Assumptions

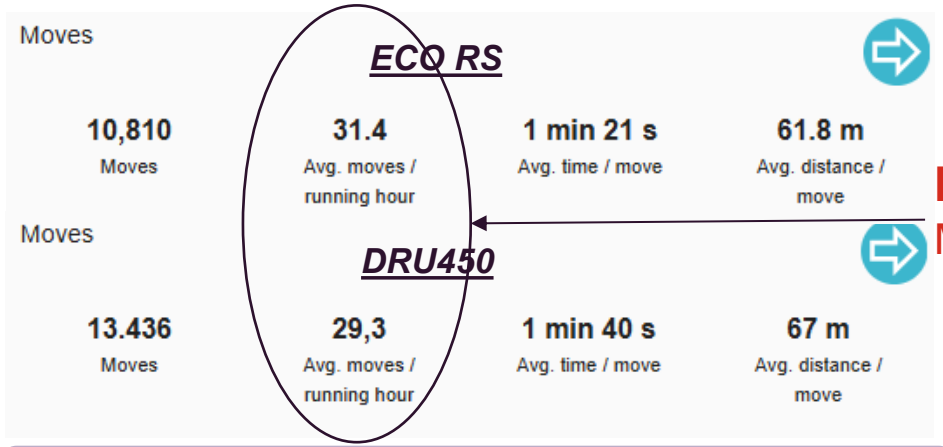
- Running hours per year: 4000 hours
- Average idling time of ~30%
- Fuel cost of 1 USD/liter


* For all Kalmar Reachstackers connected to Kalmar Insight

# Kalmar Insight - Utilization KPI

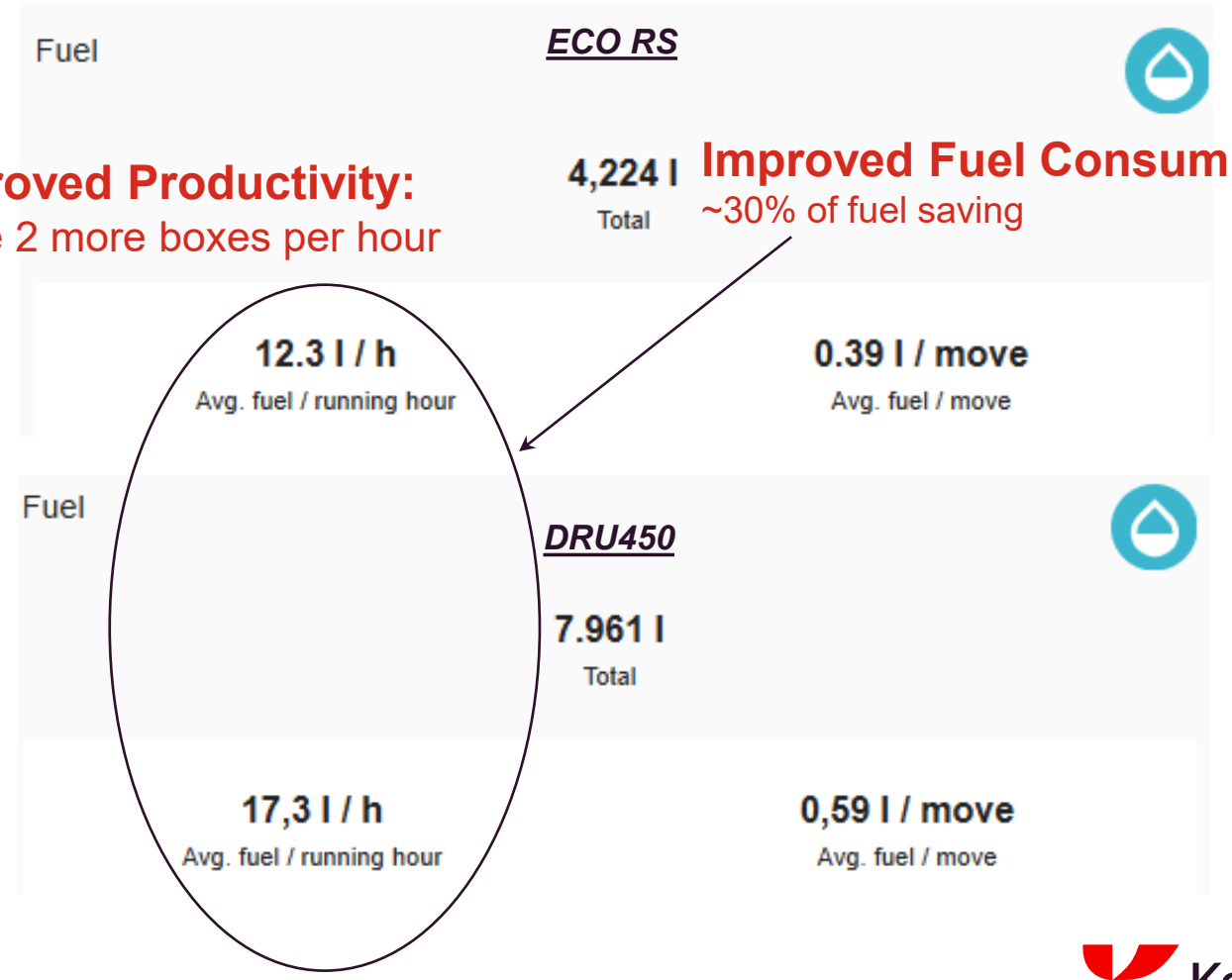
ECO vs DRU450 RS Information as extracted from Customer X, based in Indonesia

## Comparison: Average moves / running hour



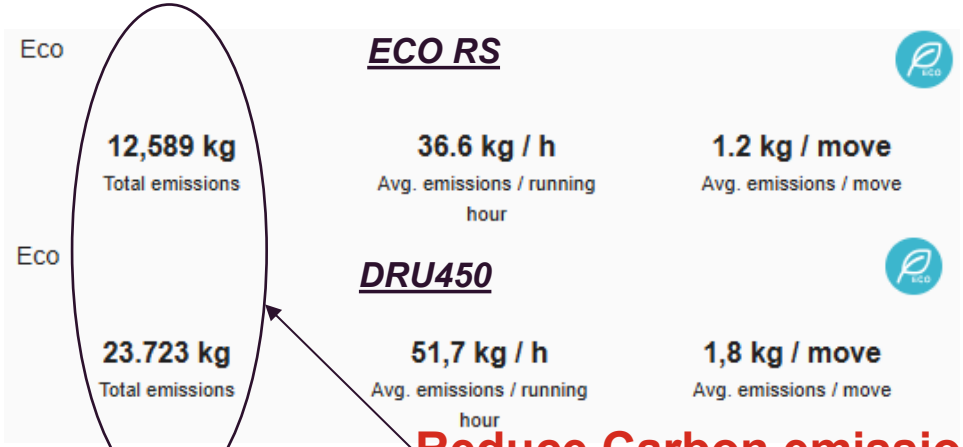

**Improved Productivity:**
Move 2 more boxes per hour

## Comparison: Average fuel / running hour




**Improved Fuel Consumption:**
~30% of fuel saving

## Comparison: Average emission / running hour




**Reduce Carbon emission:**
~30% lesser

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# Fuel Consumption Comparison

## ECO vs DRU450 RS Information as extracted from Customer X, based in Indonesia

- Traditional DRU450 reachstackers
  - **17.3 l/h in Power Drive Mode (only one selection)**
- The Eco Reachstacker
  - **12.3 l/h in Normal Drive Mode (default)**

**5 L/h difference**
at comparable performance/ power level

| 1 YEAR | Fuel consumption | Running hours/year | Fuel/year (liters) | Cost/year (~1 USD/L) | CO2 (tons) |
|---|---|---|---|---|---|
| **Eco Reachstacker** | **12.3** | **4 000** | **49 200** | **49 200** | **75.5** |
| DRU Reachstacker | 17.3 | 4 000 | 69 200 | 69 200 | 142.4 |


**USD 200,000**
saved on fuel cost*

**669 tons**
less CO2

**Higher residual value**
of eco-efficient machine

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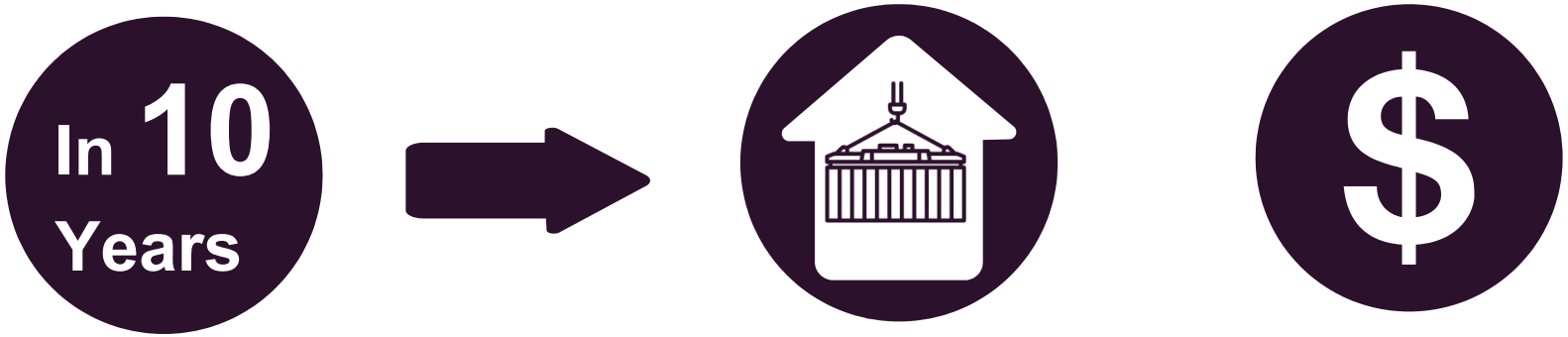
# Productivity Calculator

## ECO vs DRU450 RS Information as extracted from Customer X, based in Indonesia

- Traditional DRU450 reachstackers
  - **29.3 boxes per hour in Normal mode (single mode only)**
- The Eco Reachstacker
  - **31.4 boxes per hour in Normal Drive Mode (default)**

**2.1 additional boxes**
at comparable performance/ power level

| | Ave moves per hour | Running hours/year | Total boxes move/year | Revenue/year (~USD 200/box) |
|---|---|---|---|---|
| **Eco Reachstacker** | **31.4** | **4 000** | **125 600** | **25.12mil** |
| DRU Reachstacker | 29.3 | 4 000 | 117 200 | 23.44mil |

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# Total Business Case of Owning a Kalmar ECO RS Over 10 Years

ECO vs DRU450 RS Information as extracted from Customer X, based in Indonesia

**In 10 Years**

**USD 0.2mil**
saved on fuel cost*

**USD 16.8mil**
Additional earnings due to more boxes moved

**84,000**
additional boxes moved*

**669 tons**
less CO2

**Higher residual value**
of eco-efficient machine

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With MyKalmar INSIGHT we have access to real-time information that was previously impossible to obtain. It has helped us automate most reports.

**Rodrigo Enriquez**,
Equipment Supervisor
MEDLOG Chile

MyKalmar INSIGHT is easy and logical to use. The interface is user-friendly and not complicated, so you don’t need lots of training.

**Jurgen van Remoortere**,
Manager Automation & Projects
(Technical Dept.)
DP World Antwerp Gateway.

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# Key Takeaways

- The digital first terminal - a solution to support increasing demands for data processing, reporting, and automation
- Go beyond conventional equipment monitoring systems to a forward looking fleet management enterprise platform
- MyKalmar INSIGHT is compatible with older and 3rd party equipment
- Fact-check equipment performance claims
- Stretch your bottom line with MyKalmar INSIGHT & Kalmar ECO-Reachstackers

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Thank you for
your attention!
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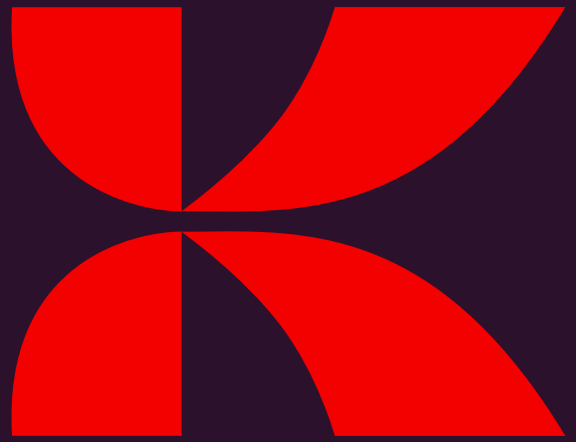

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