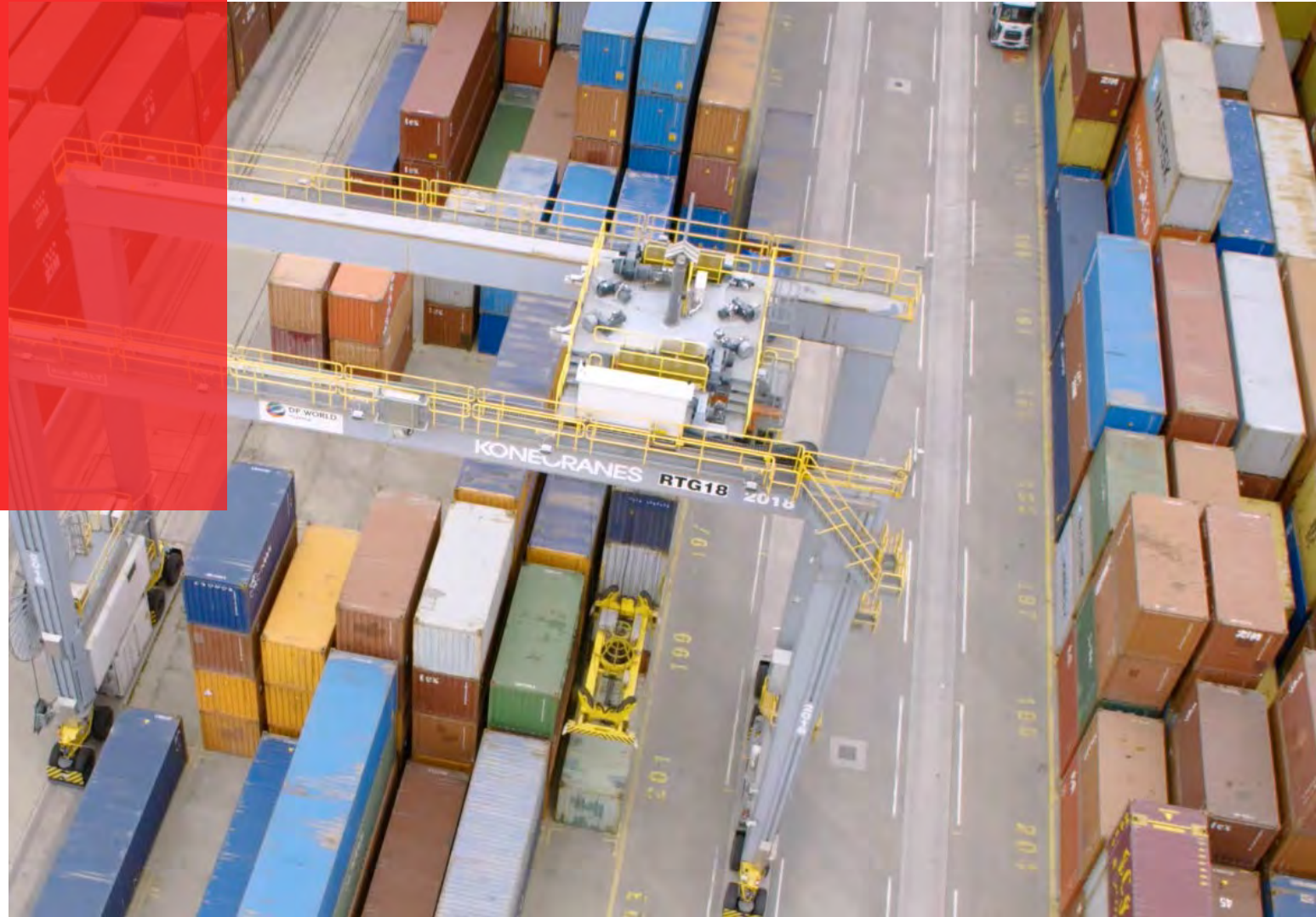


Path to Automation

At your speed
As you need





Path to automation
more boxes per operator

AUTOMATED

REMOTE

SUPERVISED

SMART

MANUAL

1. Manual Operation

Start with your existing manual equipment at the quayside, on the apron or in the container yard.

We know you probably have different brands of equipment – we can do retrofits on non-Konecranes equipment too.



2. Smart features

Add Smart Features to improve your performance and safety

For new equipment or as retrofits to existing equipment, ensuring that your operator experience is harmonized.



Auto-steering

Industry-leading accuracy and reliability

- Automatically steers the RTG along pre-defined drive lines
- Allows crane operators to focus more on load handling
- Add slow-down zones for extra safety

Auto-steering ▶ 



Auto-positioning

For faster, more precise container handling

- Automatically stops gantry and trolley motion over the target slot
- Increases positioning accuracy
- Decreases cycle times with fast approach
- Saves time and energy.
- Works with TOS job orders * TOS interface req

Auto-positioning ▶ 



Stack collision prevention

With dual scanning for redundancy

- Assists the driver in preventing container collisions and knock-downs
- Slows down the motion when there is a risk of collision
- Works with laser scanned profile of the container bay under the RTG
- Prevents unsafe loading in mixed bays

Stack collision prevention ▶ 



Auto-path optimizing

Boosts container handling efficiency

- Automatically calculates route from the start location to the end location
- Optimizes the travelling path in trolley direction thus saves time and energy
- Full control is seamlessly given over to the manual operator for final truck loading and unloading

Auto-path
optimizing ▶

YouTube



Auto-TOS reporting

Enables 100% accurate yard inventory

- Keeps TOS aware of what is happening at all times
- Updates container position in stack to TOS automatically in real-time

Auto-TOS
reporting ▶

YouTube



Auto-truck guiding

For faster truck turn-around

- Container scanning connected to traffic lights guide the truck driver into position
- Like entering a car wash
- Reduces need for gantry movement

Auto-truck
guiding ▶

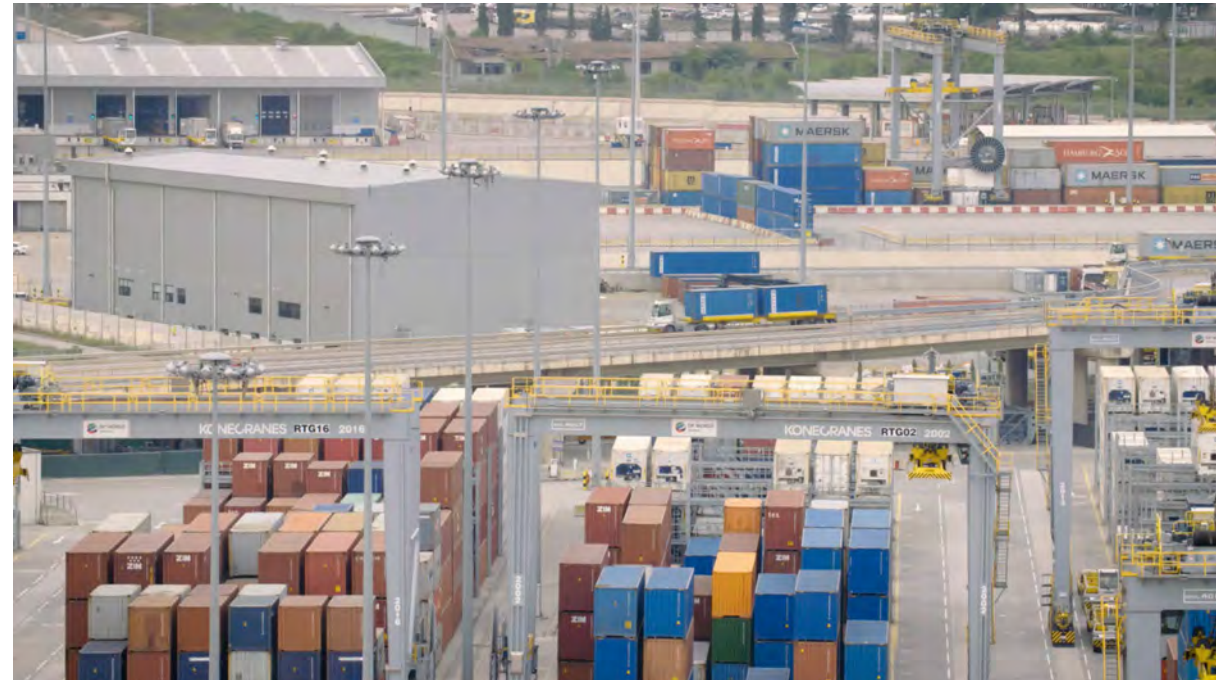


Truck lift prevention

Asphalt-level accuracy

- Assists to prevent the lifting of container with a truck
- Automatically stops the motion rapidly when a truck lift is detected

Truck lift
prevention ▶

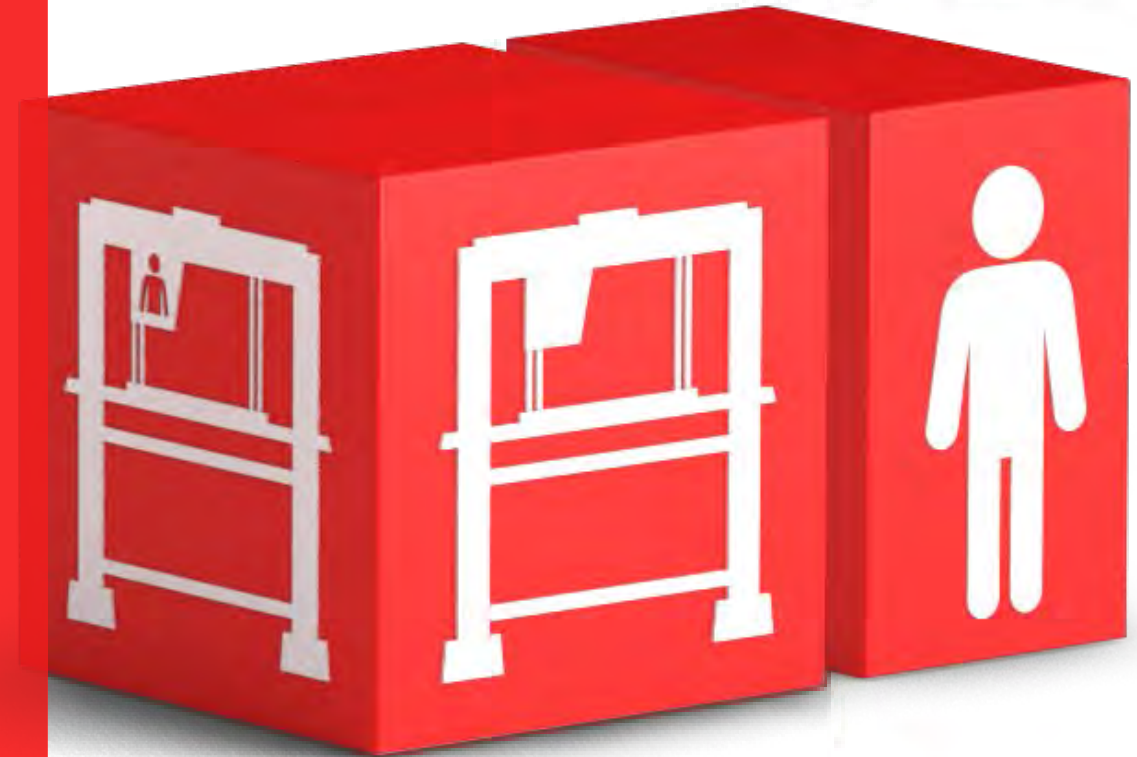


3. Supervised operations

Give your operators the power of automation technology to assist with demanding and repetitive tasks.

The on-board operator stays in control, working in a familiar cabin, and learns how the system works and behaves. Trust and understanding are built between the human and the machine.

From here, the transition to remote operation is easier. For example, automated RTG stacking and housekeeping in the yard.



Supervised operations

- Supervised concept is combination of manual, supervised and automated functions
 - Truck handling is performed manually
 - Gantry movement is performed in supervised mode by crane operator observing the surroundings and holding supervision pedal
 - Stack operation is performed in automatic mode
- Stack is fenced in supervised mode to avoid trespassing



4. Remote operations

Now you can apply remote operation as a natural next step. The crane and operator are decoupled.

This will significantly improve the remote operator's productivity and smoothen the transition.



Remote operations

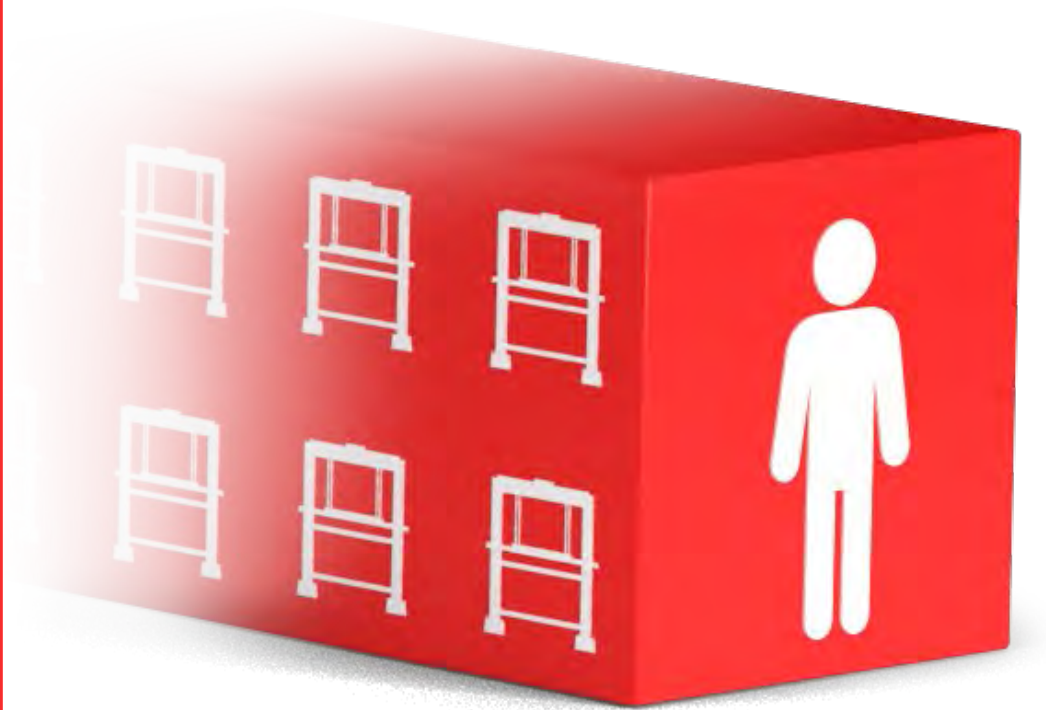
- In this operating model the crane and the operator are decoupled which makes possible to decrease the idling time of the operator.
- One operator is not any more bound to one crane, because the operator can freely select the controlled crane from the yard without any physical movement.

Case Yarimca ▶



5. Automated operations

If you move to automated operation, adding automation technology and system elements in the yard, it's a relatively simple transition that can be done in manageable phases, step-by-step at the pace you and your business need.



Automated operations

ARTG ▶



- Automated operations are combined with remote operation
 - Truck handling is performed manually by remote operator
 - Gantry movement is performed in automatic mode
 - Stack operation is performed in automatic mode
- Automation can be done by fencing the whole RTG operation or using fenceless truck lane solution
- With fenceless truck lane, truck operation and layout can be kept as it is

AUTOMATION FOR ANY CONTAINER YARD

The path to port automation more boxes per operator

1
Start with your existing manual equipment at the quayside, on the apron or in the container yard. We know you probably have different brands of equipment – we can do retrofits on non-Konecranes equipment too.

Manual operation



2
Add Smart Features to improve your performance and safety, with new equipment or as retrofits to existing equipment, ensuring that your operator experience is harmonized.

Smart features



3
Give your operators the power of automation technology to assist with demanding and repetitive tasks. The onboard operator stays in control, working in a familiar cabin, and learns how the system works and behaves. Trust and understanding are built between the human and the machine. From here, the transition to remote operation is easier. For example, automated RTG stacking and housekeeping in the yard can be done.

Supervised operation



4
Now you can apply remote operation as a natural next step. The crane and operator are decoupled. The basic Smart Features are recommended to make the remotely operated machines effective. This can also be done via supervised operation, which will significantly improve the remote operator's productivity and smoothen the transition.

Remote operation



5
If you move to automated operation, adding automation technology and system elements in the yard, it's a relatively simple transition that can be done in manageable phases, step-by-step at the pace you and your business need.

Automated operation



At your speed

As you need



**NOT JUST LIFTING
THINGS, BUT ENTIRE
BUSINESSES**