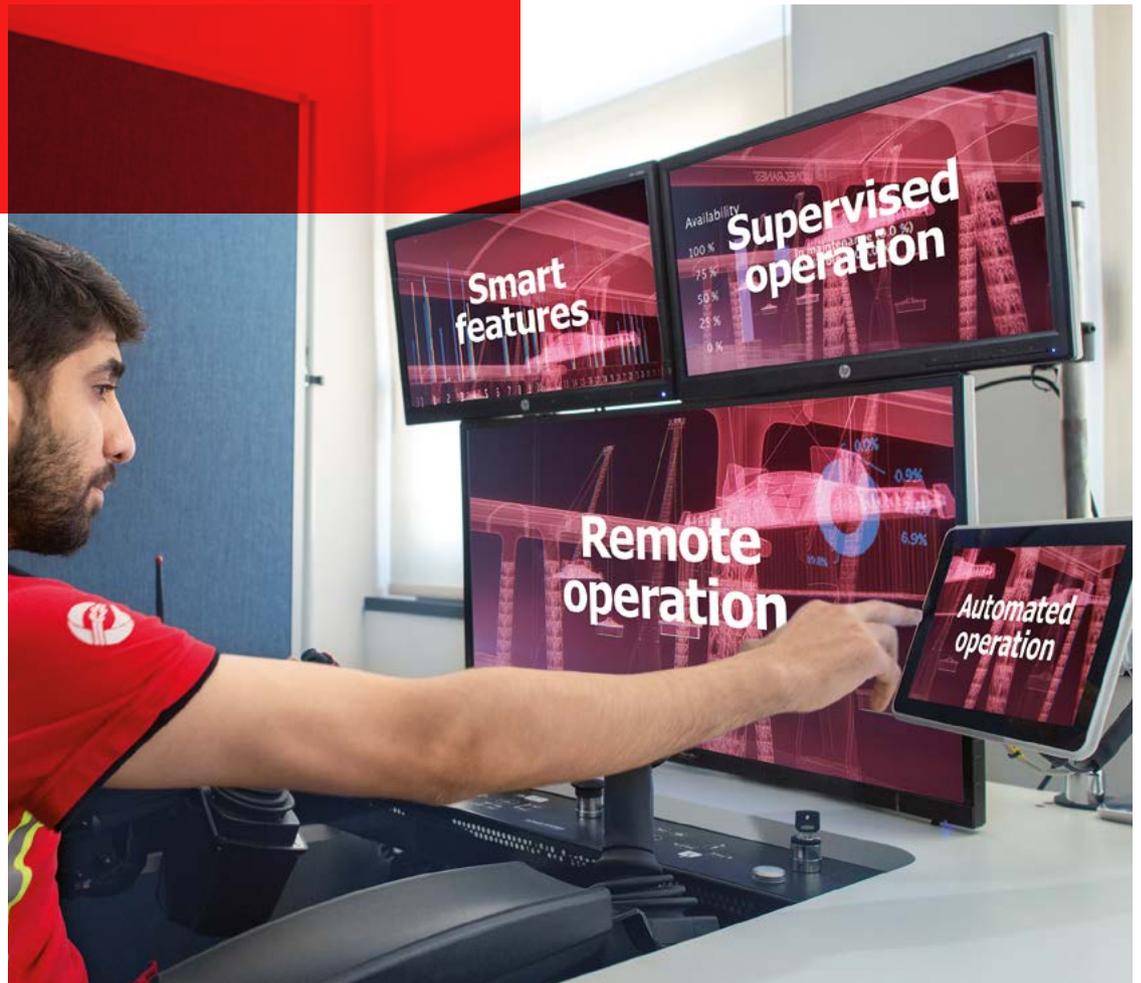


MORE BOXES PER OPERATOR

# The path to port automation



# 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.



**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.



**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.



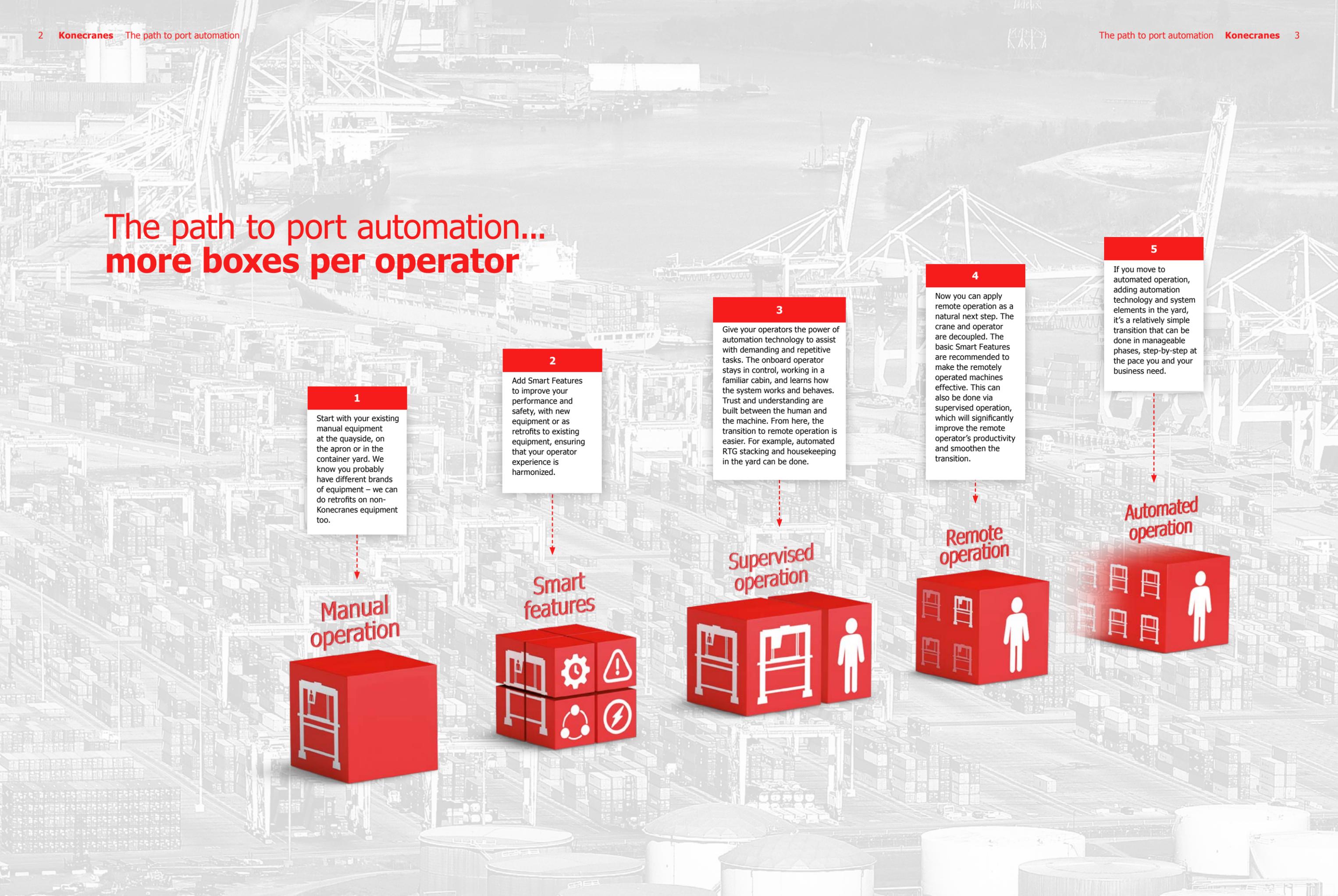
**4**

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.



**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.



# The path to port automation... some are already on it

## QUAYSIDE

### Ship-to-shore cranes

The Konecranes Ship-to-Shore cranes at **Kuala Tanjung** container terminal in Indonesia are equipped with our "Shipgate" feature. It detects the container IDs when ship loading and unloading, while connected to the TOS. It's the quayside equivalent to container ID detection at the terminal gate for road trucks. It can be retrofitted.



The Konecranes Ship-to-Shore cranes working in the **Port of Houston**, USA, are equipped with our Stack Collision Prevention feature, making container handling at this critical place safer.



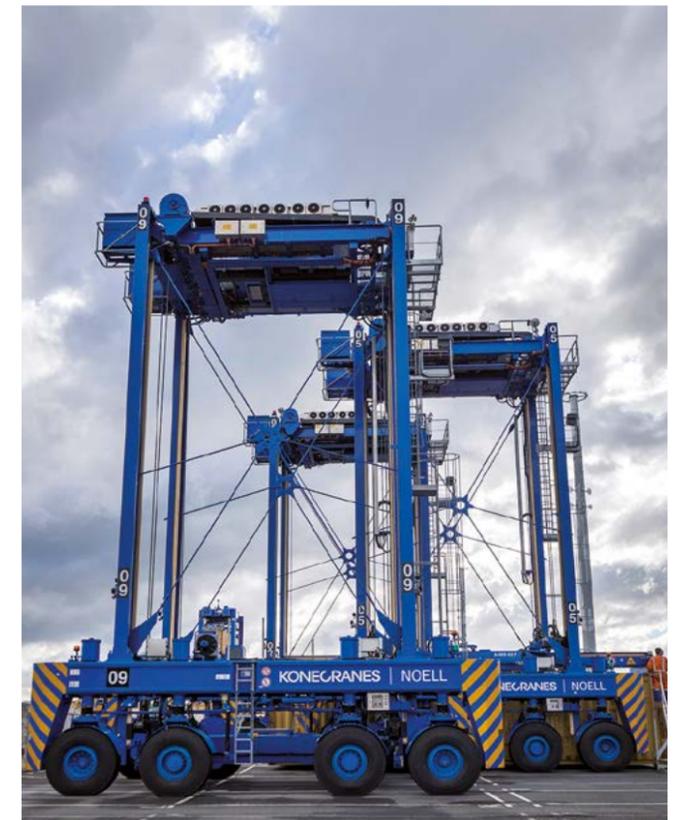
Our tandem lift feature in action with two Konecranes Gottwald Mobile Harbor Cranes at **Rendsburg Port**, Germany. The cranes have different maximum load handling capabilities, but they unite their strength as a team, each giving 100% of their lifting capacity. One operator handles everything very simply via radio remote control.

## HORIZONTAL TRANSPORT

### Straddle carriers



The 50 manually operated Konecranes Noell Straddle Carriers working in **Freeport, Bahamas**, are equipped with the Auto-TOS Reporting feature. This enables the port to keep a very accurate container inventory.



**The Ports of Auckland** in New Zealand operate a fleet of straddle carriers. We are upgrading 21 of them to automated operation, and we are delivering 27 new A-Strads.

## CONTAINER YARDS RTGs, RMGs

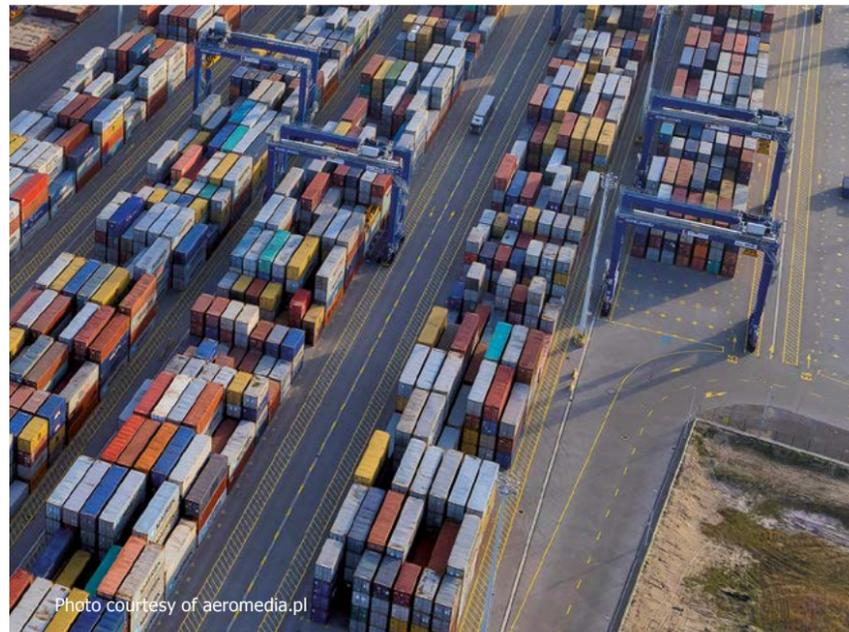


Photo courtesy of aeromedia.pl

The Konecranes RTGs working at **DCT Gdansk** in Poland are equipped with a range of Smart Features. These include Auto-steering, Auto-TOS Reporting, Auto-positioning, Auto-path Optimizing, Stack Collision Prevention, Auto-truck Guiding and Truck Lift Prevention.



**DP World in Yarimca**, Turkey, decided to step onto the path to automation by converting one container stack, with two manned Konecranes RTGs, to remote operation. The stack is working successfully after extensive testing leading to proof of concept.

The RTGs are equipped with a range of Smart Features including Auto-truck Guiding, Auto-steering, and others.



**Terminal Peti Kemas Semarang (TPKS)** in Semarang, Central Java, Indonesia, is the second-largest container terminal in the Pelindo III Group. It operates a large Automated RTG system from Konecranes. The system is built on a next-generation automation platform, including fully automated stacking in the yard, Remote Operating Stations (ROs) for truck handling and the related container yard infrastructure. The system went live in 2016. Major efficiency and safety benefits have been realized.



**Global Container Terminals (GCT)** expanded their RTG-based container terminal in Bayonne, New Jersey USA with a complete Automated RMG system from Konecranes. They now successfully combine manned RTG operation and automated RMG operation.

**Konecranes is a world-leading group of Lifting Businesses™, serving a broad range of customers, including manufacturing and process industries, shipyards, ports and terminals. Konecranes provides productivity enhancing lifting solutions as well as services for lifting equipment of all makes. In 2018, Group sales totaled EUR 3.16 billion. The Group has 16,100 employees at 600 locations in 50 countries. Konecranes shares are listed on the Nasdaq Helsinki (symbol: KCR).**

© 2019 Konecranes. All rights reserved. 'Konecranes', 'Lifting Businesses' and  are either registered trademarks or trademarks of Konecranes.

This publication is for general informational purposes only. Konecranes reserves the right at any time, without notice, to alter or discontinue the products and/or specifications referenced herein. This publication creates no warranty on the part of Konecranes, express or implied, including but not limited to any implied warranty or merchantability or fitness for a particular purpose.



### **More boxes per operator**

For detailed info on the Konecranes path  
to port automation  
[bit.ly/port-automation](https://bit.ly/port-automation)