



Smart Ports

How automation and digitalisation will revolutionise the shipping industry

Globally, ports and terminals are under pressure to become faster, more streamlined and more environmentally friendly.

While economic uncertainty means new capital investment projects are a challenge, there are major opportunities to drive efficiency through digitalisation and automation.

At Royal HaskoningDHV we're working with clients to establish 'Smart Ports' that harness these opportunities.

Our Smart Ports expertise uses collaborative thinking to achieve significant results, such as:

- Reducing energy consumption and associated greenhouse gas emissions
- Adopting a low-impact use of resources: fuel and electricity consumption in construction and carbon in raw materials
- Becoming better neighbours to communities near ports and terminals
- Tackling air quality, dust, sediment and water quality, invasive species and ballast water management
- Establishing consistency in measurement and reporting from all points in the logistics and transport supply chain
- Meeting requirements of national and regional governments and international bodies (such as the International Maritime Organisation and the EU)

What is a Smart Port?

Smart Ports use new technologies to maximise efficiency and productivity by making better use of their space, time, energy and resources.

Using innovations like Smart Asset Management, ports can use predictive maintenance, 3D modelling and digital data collection to perform digital simulations and scenario testing.

Saving both time and money, these simulations provide highly accurate results that aid decision making.



Real life examples of Smart Port activity

New innovations in the port and shipping industry are being developed daily. Applications that we have delivered for maritime clients – or are currently exploring – include:

- Using drone technology rather than manually climbing structures for inspection; relaying information more safely and accurately than ever before.
- Controlling terminal equipment such as trucks and cranes remotely, in place of drivers in a cockpit.
- Deploying sensors to underwater infrastructure to measure strain and report maintenance issues, without the need for commercial divers.
- Creating smart lock gates that assess and respond to weather conditions, strain and other key data.
- Realtime communications with haulage companies via GPS/online mapping to track vehicles and traffic conditions, sharing live information.
- Shore Power Supply or Cold Ironing: providing electrical power to ships to reduce their emissions at port.

IMPROVING PORT EFFICIENCY WITH THE INNOVATIVE SUSUPPORTS TOOL

We have developed a smart tool that predicts the cost and benefits of various energy storage solutions in container terminals – with the potential to create significant savings for ports all over the world.

Susupports improves port efficiency both for future and existing ports. For example, rubber tyre gantry (RTG) cranes consume huge amounts of diesel each year, costing port operators a lot of money and producing significant carbon emissions.

In partnership with Carbon Reducing Energy Storage Solutions (CRESS)

and the University of Reading we applied the tool at the Valenciaport Foundation and were able to reduce average RTG crane fuel consumption by up to 50 per cent.

For a typical container terminal with around 90 RTGs, that saves around 4.5 million litres of diesel each year – enabling port operators to recoup around €2.7m in fuel costs.

We are working with a number of ports to apply the Susupports tool to new scenarios, and dramatically improve port operators' energy use in the future.

135 years of experience

Our 6,000 colleagues, working on projects in 150 countries, are committed to our promise to enhance society together.

Royal HaskoningDHV has worked on maritime projects with clients worldwide including:

- container terminals
- general cargo, liquid and dry bulk terminals
- LNG facilities and jetties
- RoRo facilities
- dry ports
- inland container depots
- free zone areas and port industrial estates
- shipyards
- dockyards, naval and supply bases
- fishing ports
- cruise terminals

Nicola Clay

Director

T: +44 (0)7734 742344

E: nicola.clay@rhdhv.com