13 Smart Port Benefits to Increase ROI, Safety, and Smarter Choices

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As technology develops, ports need to evolve with technology. More efficient management will be created by communication systems that can share information. Ports need new technology to give them the best insights into their daily activities.

The video below represents six leading ports using the smart port model. Their model consists of intelligent data systems, transparency, sustainability, open innovation, big data, artificial intelligence, blockchain, non-stop service, efficiency, and automation.

Smart Ports: Piers of the Future
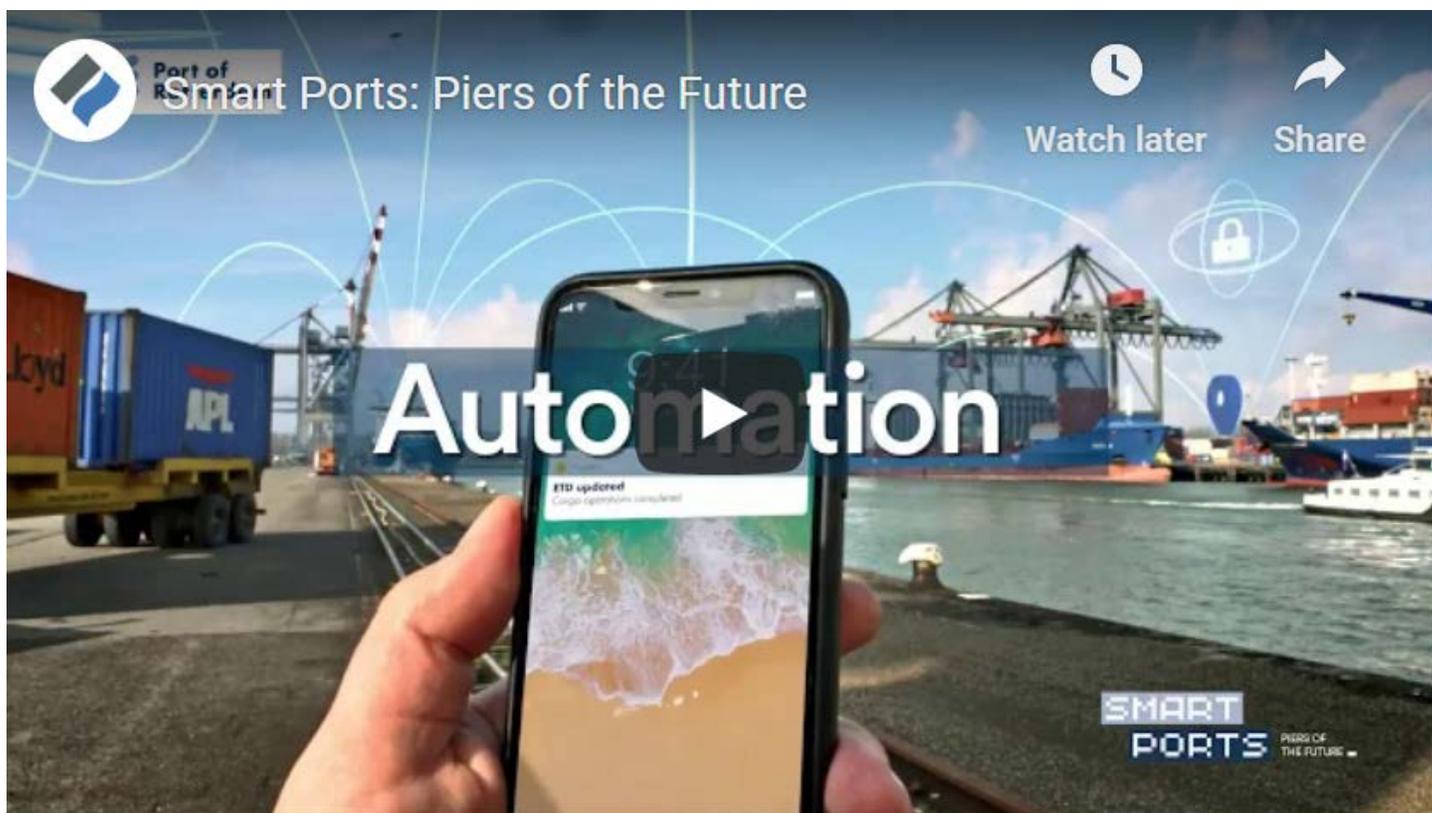
"Smart Ports: Piers of the Future," via YouTube July 1, 2019

1. Increase Efficiency

With the rise in volume, a port controls daily; technology can help improve warehouse logistics and inventory, resulting in increased efficiency.

Automatic identification and detection of containers in the smart port will help ports increase handling capacity.

Source: The Evolution of Maritime Blockchain

2. Safer Working Environment and Safer Shipping

Artificial intelligence and automation can mean a safer working environment. Accidents will become less common with automation. AI can analyze data to create a more risk-free environment and having this information in real-time can result in a safer working environment.

Source: How AI and Automated Shipping Could Improve Maritime Safety

The Maritime Executive cites,

> *"This covers entrance authorization, video surveillance and analytics, behavior analysis, anti-theft and anti-fraud, and biometric authentication solutions, and sensor-based systems that help vehicles and cargo-handling equipment to be properly aligned for safety, physical and cybersecurity."*
> *[source: Smart Ports to Become Global Logistics Information Exchange Hubs]*

3. Boost Productivity

More cargo can be cleared in less time with a reduction in load times (loading and unloading).

TT (Transport Topics) News reported,

> *"AI already is in use in automated loading cranes at ports in southern California, New Jersey, and Virginia in the United States; Shanghai in China and Rotterdam in the Netherlands. The AI makes decisions about which containers to stack or unload first based on a database and other analyses."*

4. Produce Higher Revenues

Mark Hillsdon, Author at Raconteur cites,

"It is estimated that using this real-time information could save operators as much as $80,000 each time they dock a vessel."

Source: How technology is creating the digital ports of the future

5. Faster Decision-making and Better Decisions Through Technology

Smart ports help make intelligent choices. Monitoring and data collection will help make better overall decisions. A virtual version of the port dubbed "the digital twin" can use real-time information to improve decision-making and problem-solving and support predictive planning.

Embracing the Internet of Things (IoT) will help support all decision-making aspects.

6. Improve Security

Artificial intelligence helps with security checks and other automated processes. Technology can control port access for security reasons.

7. Better Management of Resources

AI has the potential to track maintenance on ships and predict when parts may break down. Smart technologies are transmitting real-time data about operating conditions. This enables ports to proactively identify needed maintenance or repairs and thereby avoid unplanned downtime.

8. Integrated Communications System

5G technology enables fast and high bandwidth communication. It offers better energy efficiency and will be more reliable than older types of signals.

9. Enabling Just-in-Time Operations

With the introduction of appointment systems, just-in-time arrivals are enabled. JIT Arrival is a concept in which a ship maintains the optimal operating speed to arrive at its port only when the availability is ensured.

It is estimated that ships spend up to 9% of their time waiting at anchorage. This waiting could potentially be converted to reduced speed and result in less GHG emissions. [source]

10. GPS-based traffic monitoring systems

With the use of digital technology, notifications can provide the ship's movement close to the port.

"Digitalization is changing the way that actors associated with port operations operate. For example, the traditional role of a ship's master has

already begun to change with an increase in remote monitoring of a ships position leading to others providing advice or instructions on what speed to use or what route to take to avoid such things as weather or traffic congestion or to make an optimal arrival time at a port."

Source: Digitalizing the port call process

11. Streamline Customs Information and Documents

Ports will do a better job of handling cargo information and payments, including the processing of trade licenses, import and export permits, and customs clearances.

The leading European ports are experimenting with blockchain technology to reduce costs associated with paper-based cargo documentation and customs payments.

Source: To Get Smart, Ports Go Smart

12. Coordinate Intermodal Traffic Better

Coordinate vehicle movement to improve traffic flow between ports and cargo destinations.

Source: To Get Smart. Ports Go Smart

The shipping industry is responding with strategies to go "green." As IMO 2020 is fast approaching, shippers have some strategies prepared to become compliant.

From APC's perspective, using the right cargo tank coating in a chemical tanker can have a positive impact. APC's MarineLINE® cargo coating produces an ultra-smooth surface so tanks can be cleaned faster and use less fuel for heating, thus reducing fuel consumption and emissions.

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