Wärtsilä Voyage

Overview

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Voyage

Wärtsilä Voyage is focused on radically transforming how vessels perform their voyage by leveraging the latest digital technologies, to deliver a step-change in safety, efficiency, reliability and emissions.

We are developing a unique integrated infrastructure that combines the bridge systems, cloud data management, data services, decision support tools, and access to real-time information, and we will collaborate with you in creating the digital ecosystem of the future resulting in a smarter voyage.

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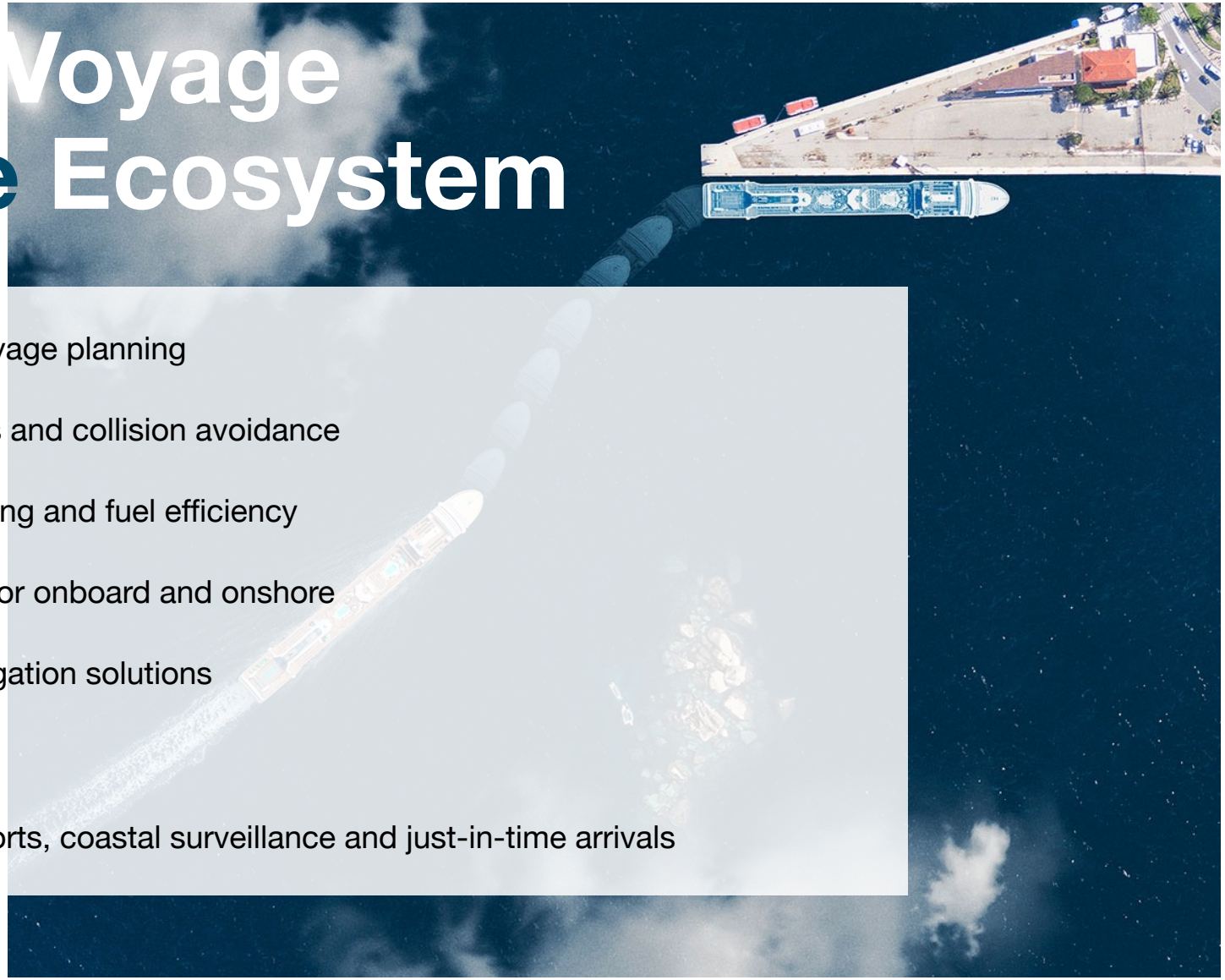
The Wärtsilä Voyage Smart Marine Ecosystem



- Smart routing and voyage planning
- Situational awareness and collision avoidance
- Performance monitoring and fuel efficiency
- Simulation solutions for onboard and onshore
- Automation and Navigation solutions
- Towards Autonomy
- Solutions for smart ports, coastal surveillance and just-in-time arrivals

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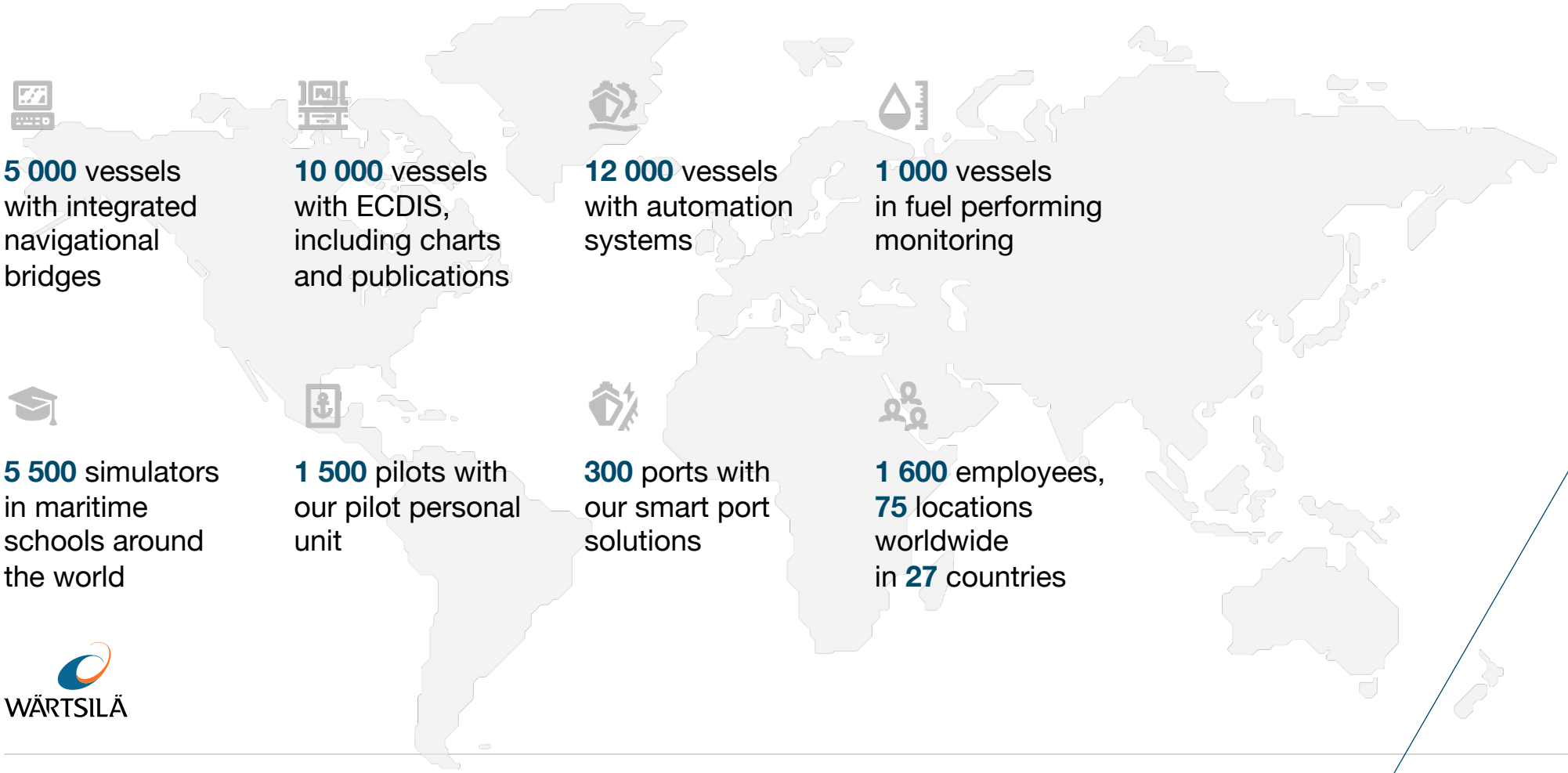
Harnessing digital transformation to unlock shipping's potential



5 000 vessels with integrated navigational bridges

10 000 vessels with ECDIS, including charts and publications

12 000 vessels with automation systems

1 000 vessels in fuel performing monitoring

5 500 simulators in maritime schools around the world

1 500 pilots with our pilot personal unit

300 ports with our smart port solutions

1 600 employees, **75** locations worldwide in **27** countries

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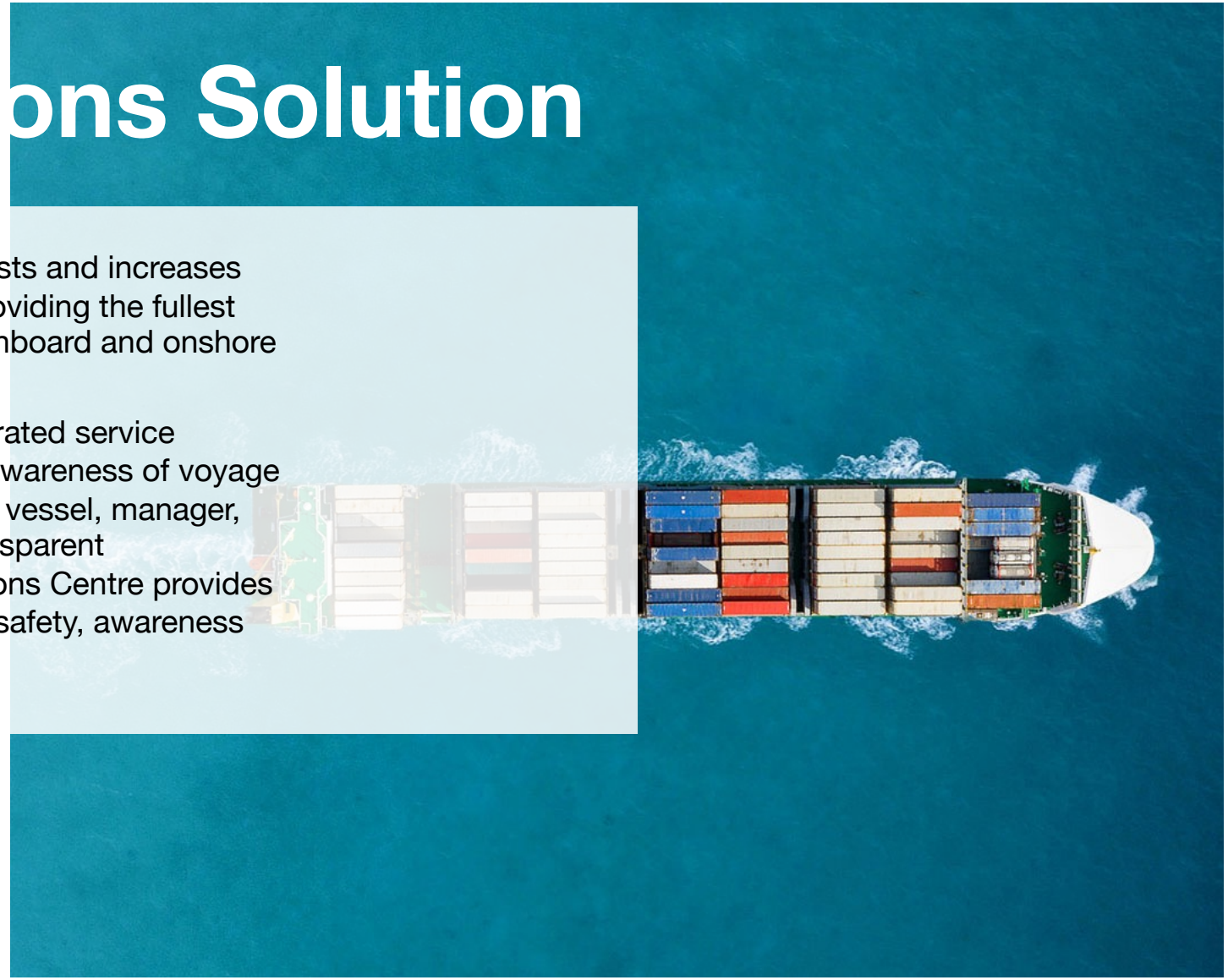
Fleet Operations Solution

Wärtsilä Fleet Operations Solution saves costs and increases safety by automatically optimising route, providing the fullest and latest voyage data, while keeping the onboard and onshore parties informed and notified.

Wärtsilä Fleet Operations Centre is an integrated service to help fleet operators increase safety and awareness of voyage planning and execution. The solution brings vessel, manager, operator and port working together in a transparent environment supported by AI. Fleet Operations Centre provides control of the whole voyage while fostering safety, awareness and efficiency.



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Performance Monitoring and Fuel Efficiency

Real-time fleet tracking

Environmental forecasts and databases

Forecasts for wind, waves, current, temperatures…

Engine model

SFOC curve (fuel-power curve) for different engines and fuels

Route benchmarking

Analyzes the route performance

Voyage simulator/ optimiser

Simulates/optimises: engines configurations, RPM profile, service and propulsion load

Uses: route, weather and current forecast, depth database, measured sensor data

Propulsion power decomposition

Breakdown of propulsion consumers: hydrodynamics (speed, trim, draft, waves, sea depth) aerodynamics (wind)

Optimum trim model

For trim optimization

Hull and propeller performance

Impact of fouling, dry-docks, vessel modifications

Service energy model

Non-propulsion related energy consumption (currently for cruise ships only)

Virtual STW sensing

Accurate STW estimate based on sensor fusion and hydrodynamic modelling

Business intelligence platform

Collections of data across the platform.

Dashboard KPI on performances, congestion, traffic density, emissions, dues…

Analytics for forecast, investment decisions and optimization of processes and infrastructure.

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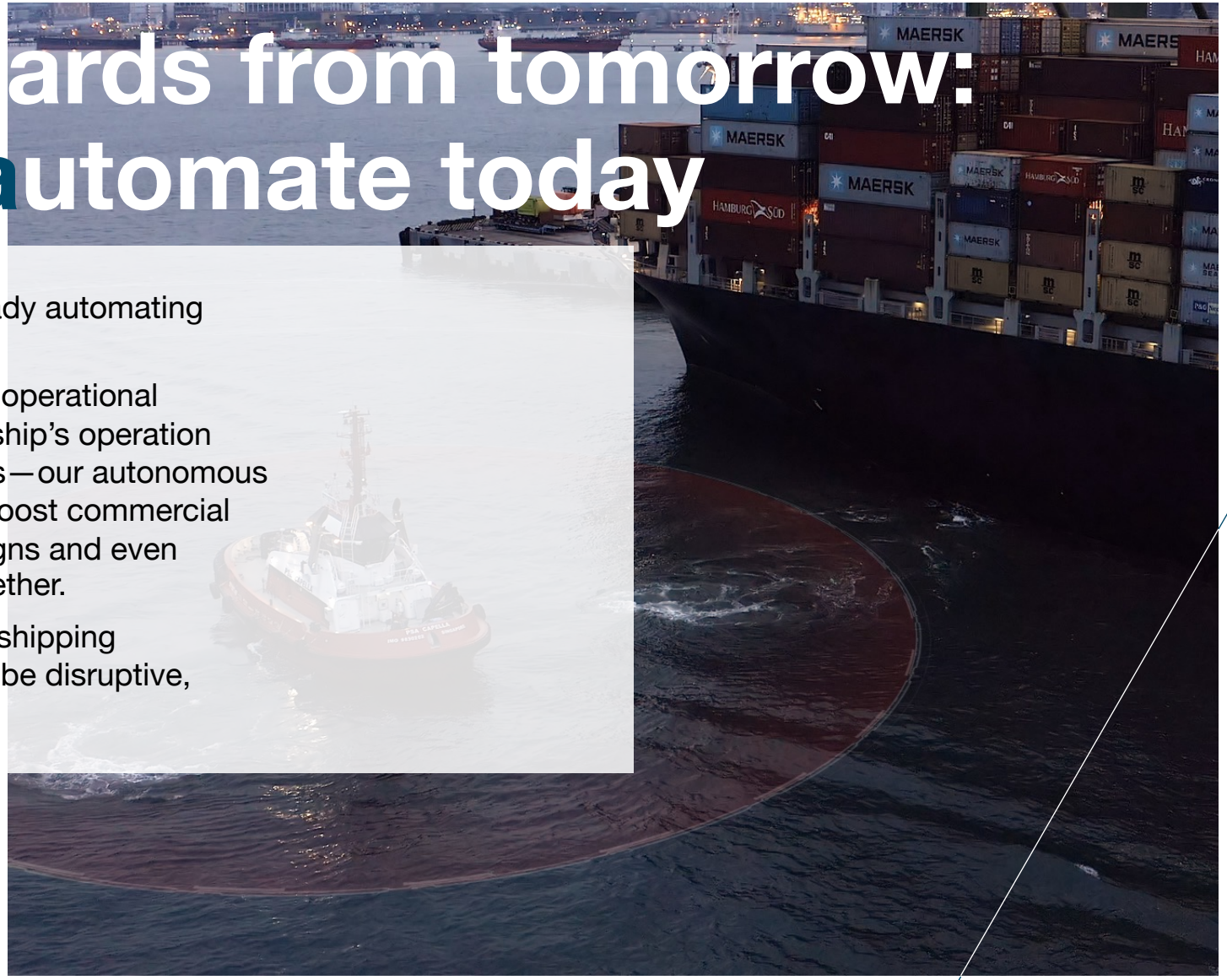
Moving Towards Smart Autonomy

With kind regards from tomorrow: solutions to automate today



On our way towards Autonomy, we are already automating operations today.

Be it about suiting up whole ships in limited operational scenarios or automating specific parts of a ship's operation through advanced decision support systems—our autonomous systems improve performance and safety, boost commercial viability, enable completely new vessel designs and even implement new ways of doing business together.

We are on a mission change the industry of shipping as we know it. Not just because we want to be disruptive, but because our future depends on it.

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Towards autonomous operations

SmartMove Suite

- The world's first commercially available auto-docking system
- Performs port-to-port operations and auto-docking manoeuvring for safer and more efficient operations
- Mitigates potential human errors in tight docking spaces

IntelliTug

- Intelligent harbour tug with autonomous navigation
- Collaboration with Singapore PSA & MPA
- Process supervised and approved by Lloyd's
- Joystick controlled manoeuvring system
- Advanced marine grade sensor suite
- Smart navigation system

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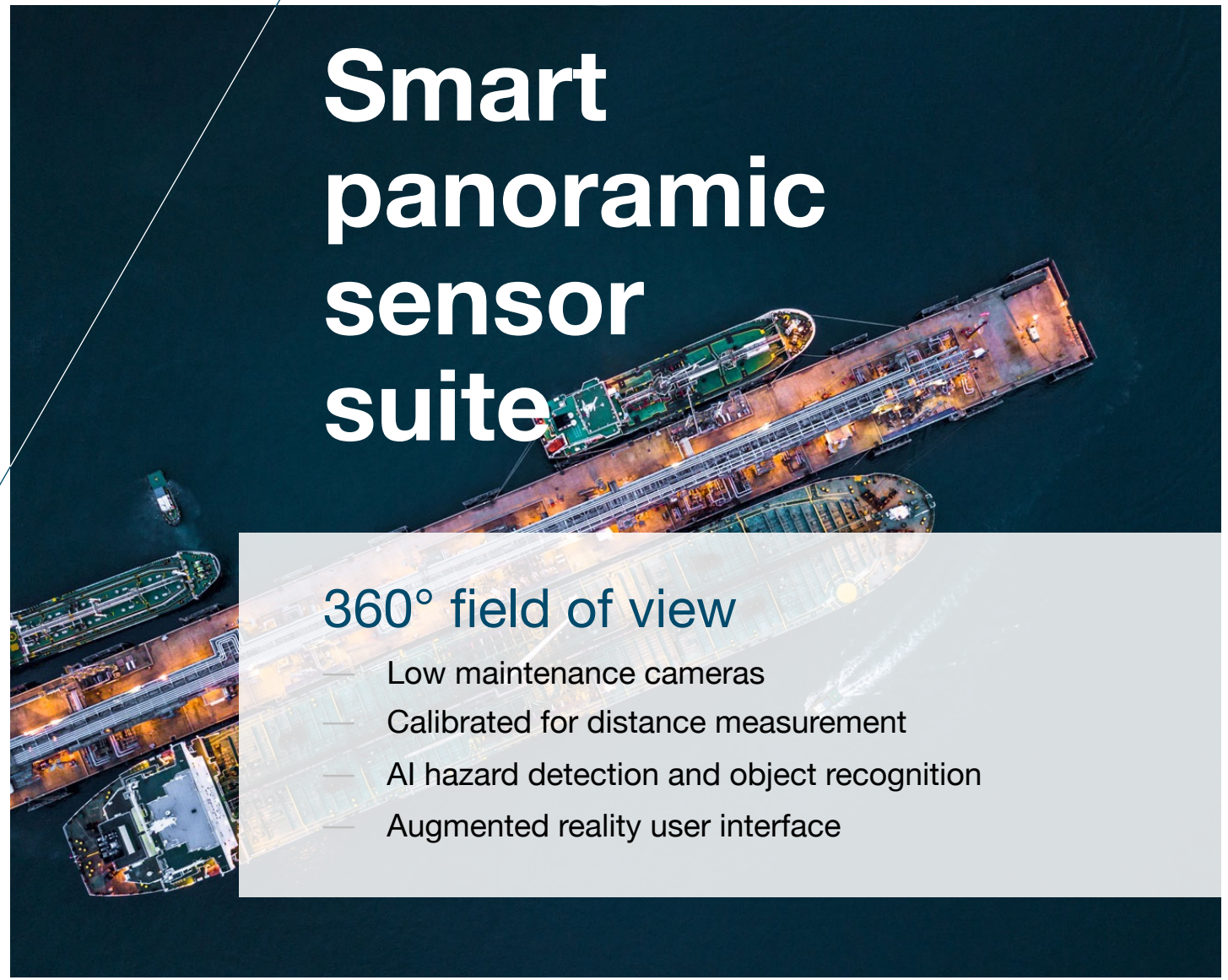
Situational awareness and collision avoidance

Sensor fusion

- Guard Circle
- Near field high resolution radar
- Maritime Video AI



Smart panoramic sensor suite

360° field of view

- Low maintenance cameras
- Calibrated for distance measurement
- AI hazard detection and object recognition
- Augmented reality user interface

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Future bridge innovation

Bridge and ECDIS

Wärtsilä NACOS Platinum is the core product for a complete series of next-generation navigation, automation and control systems, including dynamic positioning

- One common software platform for navigation and automation applications for all kind of ships
- Common HMI for navigation, automation and DP based on a user centred design (usability)
- Maximum flexibility, scalability and modularity on hardware and software side for the optimum customer approach

Wärtsilä Navi-Sailor ECDIS

Our ECDIS delivers proven usability while being fully integrated into our Fleet Operations Solution.

Wärtsilä Voyage delivers a full range of type-approved ECDIS solutions that can be stand-alone or part of the Integrated Navigation Systems or Multifunctional Display i.e. Radar, Conning, Bridge Alarm Management, Track Control in one workstation.

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Simulation and training solutions

Onshore and offshore

- Cloud Simulation
- Navigational simulators
- Technological simulators
- DP and offshore simulators
- Tug handling simulators
- Naval applications
- Virtual Reality solution for training

Wärtsilä Simulation and Training solutions connect maritime stakeholders by providing integrated solutions and high-quality content that bridges the gap between STCW and required level of competency.

Wärtsilä steps up to the challenges of providing training in a digital world characterised by increased emphasis on learning methods that accommodate flexibility and collaboration. Wärtsilä Simulation and Training solutions are built from the ground up to train and prepare seafarers of the future.

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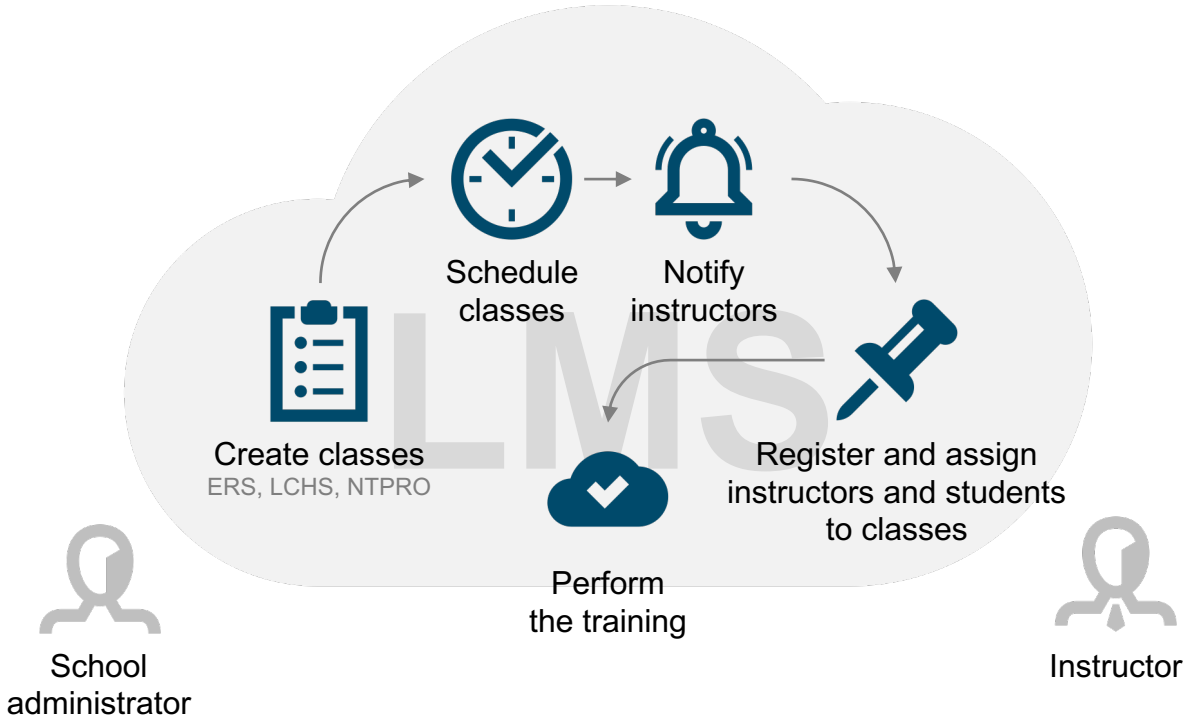
Wärtsilä Cloud Simulation

New opportunities for simulation and training providers

Train anywhere, anytime and with individually tailored content



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Ship Traffic Control

Ship Traffic Control provides tools for a coordinated, global approach to maritime traffic control, monitoring and decision support. It enables port-to-coast-to-country-to-country monitoring, control and support that is shared between relevant stakeholders, according to their needs and access level.

With the utilisation of automated self-learning decision support technologies, Wärtsilä Ship Traffic Control Solutions make it possible to operate a ship traffic control model similar to that available to the aviation industry. Ship movements can be advised and controlled by a country, even beyond territorial waters.

- Vessel traffic services
- Coastal surveillance systems
- Search and rescue solutions
- River information systems
- Pilot management solutions

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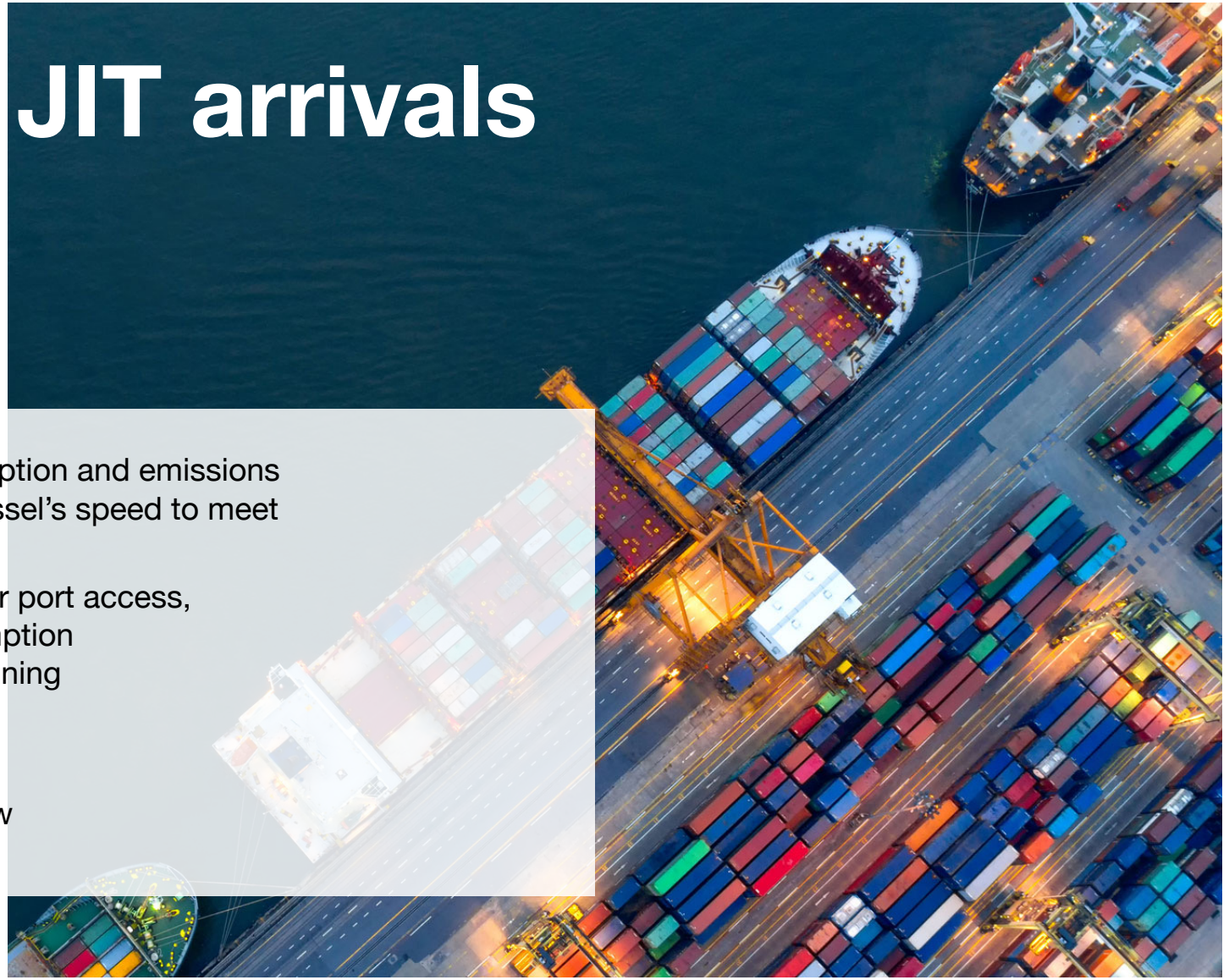
Navi-Port for JIT arrivals



- Reduces significantly both fuel consumption and emissions during the voyage by optimizing the vessel's speed to meet the expected arrival time
- Eliminates the time waiting at anchor for port access, thereby eliminating wasted fuel consumption and associated emissions while maintaining the basic power needs of the vessel
- Increases navigational safety
- Improves rest hour planning for the crew

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Global Service Network

Global Service Network 24/7, 365

Our service stations and service partners are always kept up to date on training to guarantee you the best support and top quality and performance wherever you are

Remote Service 24/7, 365

Immediate trouble to reach the vessel? Open your remote guidance kit, get connected and start a remote session with our experts in a cyber-secure way

Global Supply Chain

Even if our systems are very robust and made to perform under stress for years and years, our service stations are always supplied with the main components to ensure a quick response and delivery in time in the unlucky event that something breaks

Maintenance Contract

Flat tailormade maintenance contracts for your ship or for your fleet, where you can get all the benefits of a highly skilled and qualified global service network (service engineers and coordinators) without having to worry about unplanned invoices

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Digital Transformation of the industry is inevitable

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wartsila.com/voyage

Enabling shipping operations of the future