



SERIOUS ABOUT SUSTAINABILITY

Richard Hepworth, Business Unit President, Trelleborg Marine & Infrastructure



Climate change presents the single biggest threat to sustainable development in the marine and infrastructure industries and there is a need for action.

With increasing stakeholder expectations and regulations - such as the International Maritime Organization (IMO) Greenhouse Gas Strategy 2050 - the maritime industry finds itself at a pivotal point in the debate around sustainability. As the conversation continues to grow in both volume and reach, so do initiatives, such as the World Ports Sustainability Program, the Environmental Ship Index, and the UN's 17 Sustainable Development Goals (SDGs).

The events of 2020 have heightened the focus on the environment across the maritime sector. New research, conducted by Trelleborg's marine and infrastructure operation, reveals where sustainability sits on the maritime sector's priority list, the key business drivers for sustainability and which actions are having the most immediate impact.

THE VALUE OF SUSTAINABILITY

It has become apparent that sustainability remains a key consideration for businesses. 82% of organisations surveyed in Trelleborg marine and infrastructure operation's recent 'Serious About Sustainability' Report, ranked sustainability as 'very important' to their business. In fact, 76% of respondents introduced new sustainability initiatives in the last three years, from developing sustainable products, to appointing a dedicated sustainability practice lead, for example. This marks a major industry shift and highlights a link between sustainability, operational efficiency, and business success. However, there is still progress to be made. The 24% of respondents who claimed not to have adopted any new sustainable approaches could find themselves at a disadvantage commercially if they fail to adapt.

According to Trelleborg's report, the central element to long-term value creation and reputation is sustainability, as opposed to regulation, and sustainability

is the major driving force for change. Of those surveyed, 81% prioritised sustainability as integral to the strategic approach of their business and 56% emphasised long-term value creation over short-term performance. This signifies that putting sustainability at the heart of operations is vital to the success of those businesses. As a result, these corporations can more readily meet global challenges head-on and embrace opportunities for growth. Encouragingly, despite the global effects of COVID-19, 45% of respondents say they will press ahead and increase their focus on sustainability.

The calls for the inclusion of environmental and sustainability criteria in procurement and commercial processes are increasingly important and necessary, as evidenced by both the industry's actions and customers' expectations. According to the ESPO Environmental Report for 2020, seven out of ten European ports take climate change into account when developing new infrastructure projects.

DECARBONISING THE MARITIME SECTOR

When it came to setting performance targets to contribute to the wider industry's goal of tackling the impacts of climate change, 37% of respondents cited using the United Nations Social Development Goals (UN SDGs) to guide them. These have multiple focuses including building resilient infrastructure, promoting sustainable industrialisation, and fostering innovation.

With a firm belief that prioritising sustainability above everything it does is the right thing to do, Trelleborg's marine and infrastructure operation is committed to supporting five of the United Nation's goals, including that of SDG 7: Affordable and Clean Energy and SDG 13: Climate Action, which relate to the decarbonisation of the maritime sector through the development of cleantech.

Both SDG 7 and 13 align with Trelleborg's commitment to decarbonising the maritime sector by taking a smarter approach to port and terminal equipment optimisation. This has seen Trelleborg develop cutting-edge smart engineered solutions within its SmartPort portfolio, which enhances the efficiency and reduces the carbon emissions of vessels and port operations.

Digitising a significant piece of the port puzzle, SmartPort encompasses a package of capabilities, which addresses a range of client challenges at the port and vessel interface - the set of critical events from vessel approach, through to docking and mooring, on and offloading, and the final vessel departure. Its unique position connecting maritime and hinterland, along with its considerable complexity and multiple operators involved, makes it a vital component of the port. SmartPort enables all parties to corroborate each other's critical data points, such as position, speed, and angle, at any one moment in time. In turn, this is improving port operational efficiency



and safety, resulting in faster vessel turnaround, increasing throughput, as well as reduced fuel, power consumption and ultimately carbon emissions.

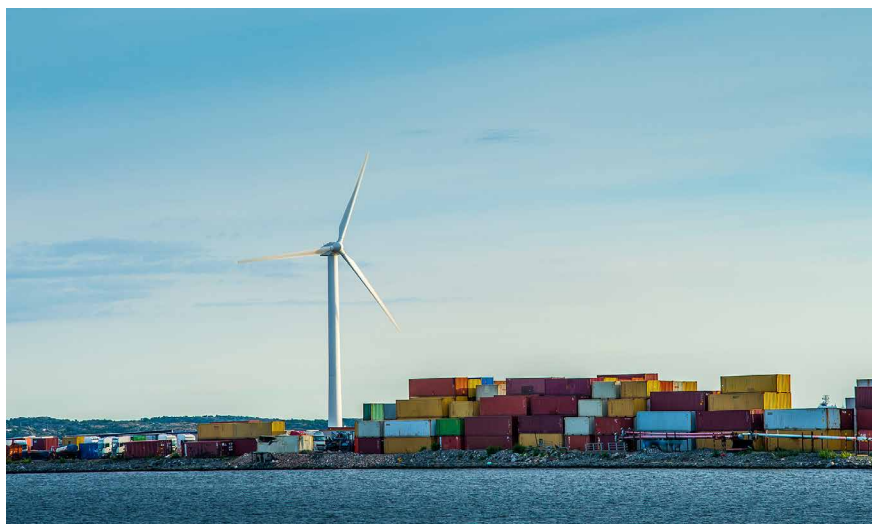
SmartPort integrates a number of intelligent sensor-equipped assets that turn operational data into actionable insights – including fenders, mooring equipment, ship performance monitoring and navigation systems. For more sustainable operations, these capture every aspect of the critical events at the port and vessel interface, from the time the vessel is at sea to approach, at berth, transfer, and departure.

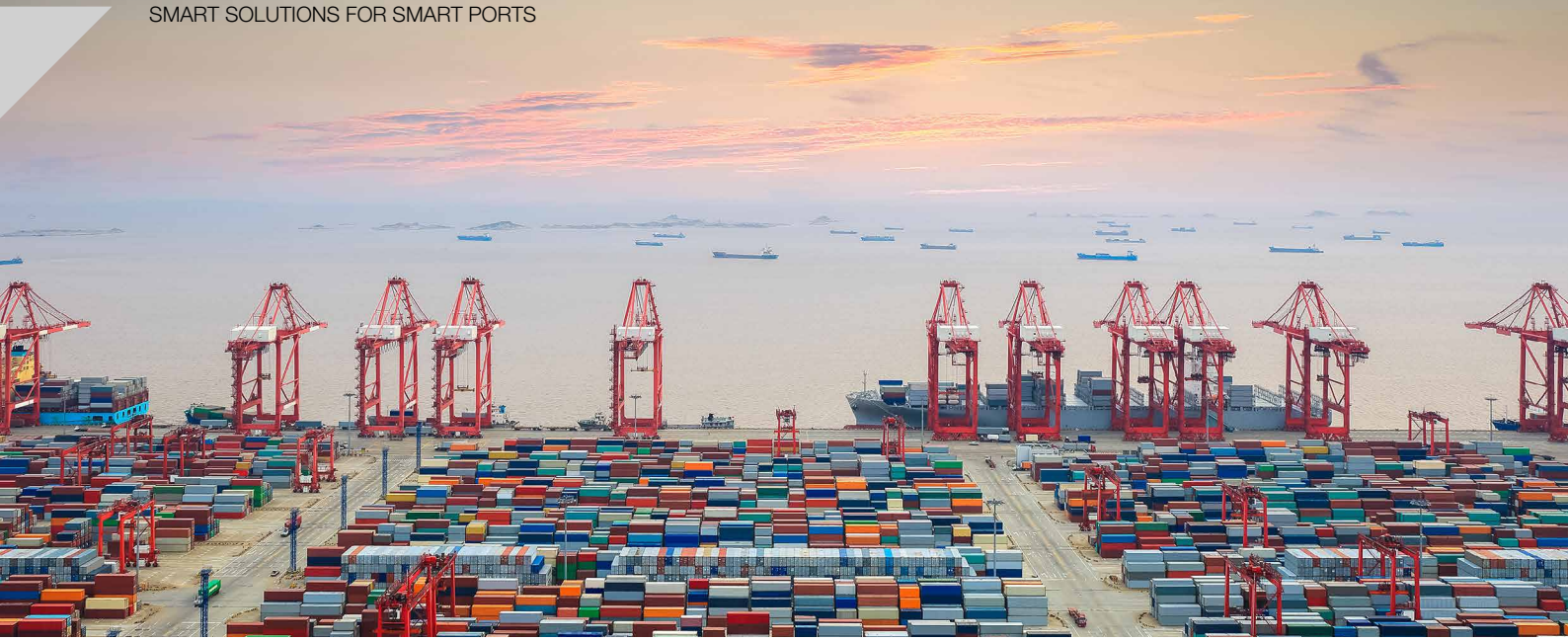
Fuel is the single largest operational cost of running a vessel. Trelleborg's Ship Performance Monitoring system (SPM) is a computer-based system that monitors performance efficiency and potential wastage, enabling a fuel cost reduction of up to 3%.

Trelleborg's SafePilot solutions enable high precision navigation and piloting, providing a real time view of port traffic, reducing manoeuvring times and vessel engine emissions, and making port approach, berthing and departure easier, safer, more efficient, and more sustainable.

AutoMoor is Trelleborg's rope-free automated mooring system, which reduces fuel consumption and engine emissions of berthing vessels. Actively damping vessel motion, DynaMoor is a safety focused intelligent mooring solution that increases the range of environmental conditions vessels can operate in. Trelleborg's SmartFender continuously monitors quay activity and fender performance, providing valuable insights to help operators improve vessel throughput, optimise maintenance schedules, and reduce downtime.

Accessed by operators using any handheld device, all assets connect through the SmartPort cloud. Critical performance data, captured in real-time, provides operators with the most important insights and recommendations in multiple areas of port operations. SmartPort analyses these data points to improve decision-making and long-term operational efficiency. Consistent monitoring generates critical data on vessel





and berth operational limits to reduce risk of vessel damage, maintenance spending and fuel cost, improving overall port performance.

SmartPort is already operating and adding value to ports and terminals around the globe, providing ports and operators with as much real-time intelligence and line-of-sight as the vessel they are managing into berth.

SMARTPORT IN ACTION

Langnas Ro-Ro Ferry Terminal

Trelleborg has helped to improve safety, increase efficiency and the sustainability of the mooring of roll on/ roll off (Ro-Ro) vessels during loading and unloading operations at the Port of Langnas, Finland. An excessive amount of pitch, roll and sway motions acts on Ro-Ro vessels as heavy road vehicles disembark, meaning mooring lines are frequently tended to by ship personnel to maintain adequate levels of tension. The installation of Trelleborg’s AutoMoor ensures a single operator can deploy and monitor all mooring operations, allowing vessel crews more rest time between work-shifts.



AutoMoor uses vacuum technology to rapidly attach to an Ro-Ro vessel in less than a minute, allowing the vessel to switch off its engines sooner, thereby reducing port-based emissions. Once the docking process is complete, an innovative passive damping system allows units to operate with no additional power consumption. The system actively monitors mooring forces to resist vessel movement – in some cases reducing sway to less than 50mm. Touchscreen operation from a wireless device provides real-time situational awareness of the mooring environment, observing mooring loads, vessel movement, vacuum pressure, and power usage.

UK Oil Terminal

At a UK port, skippers are responsible for berthing some of the world’s largest vessels safely. Using SafePilot and SafeTug from Trelleborg, tug skippers can push, pull and spin vessels with pinpoint accuracy to guide them safely into dock. Trelleborg’s ultra-precise portable navigation solution for marine pilots, SafePilot PRO, helps marine pilots navigate confined ports with precision, enhanced safety and greater efficiency, reducing fuel consumption.

Based on high end GNSS sensors and IMU, the key to lowering fuel consumption is the built-in prediction algorithm of SafePilot, which provides pilots with an accurate location of the ship several minutes in advance, ensuring that the pilot is on point with manoeuvring or identifying the need to adjust. Tests found that up to 25% less adjustments of rudder and speed occurs when utilising this system, not only saving time, but reducing fuel consumption. Additionally, it lowers the strain on the port’s underwater infrastructure, due to less use of thrusters.

ABOUT THE AUTHOR

Richard Hepworth is a Chartered Mechanical Engineer, having studied for his degree at the University of Manchester Institute of Science and Technology and now holds the position of President for Trelleborg’s marine and infrastructure operation, based in Dubai. Richard has over 30 years’ experience working in the offshore and marine construction industry and has held a number of roles both within Trelleborg and other large engineering companies in this sector, covering engineering, project management, sales, business development and general management.

ABOUT THE ORGANISATION

Trelleborg’s marine and infrastructure operation is a global leader in highly engineered polymer solutions in the marine, infrastructure and renewable energy industries. It manufactures and installs bespoke fender systems, docking and mooring equipment, oil and gas transfer technology and vessel efficiency technology for marine environments all over the world. Its polymer engineering expertise also extends to its range of general marine products, including navigation aids and buoys. Performing in some of the harshest environments on earth, its principal infrastructure and energy offerings are sealing systems for tunnels, dredging hoses, water management solutions, building vibration isolation, and polymer seals for offshore applications.