

SHELL MARINE

From inspection to understanding:
How technical expertise supports effective oil condition monitoring



Technical expertise makes the difference

Shell leverages the smart use of technology, long-standing know-how, unified data processing, and personalized recommendations in order to guarantee maximum reliability and optimal engine performance – a critical parameter, particularly for vessels operating on alternative fuels. Condition-based, not time-based maintenance by Shell Lube Monitor

For Greek ship-owners managing complex fleets, consistent engine performance is more than a technical priority; it is a long-term operational imperative. In addition, modern two-stroke engines operate under high pressure and with a wider range of fuels, therefore technical expectations are rising accordingly. Original Equipment Manufacturers (OEMs) are now placing increasing emphasis on structured cylinder condition monitoring to maintain engine health at high levels. However, monitoring only creates value when data is interpreted correctly and consistently. Solutions like Shell Lube Monitor promise to help companies reduce lubricant consumption and operating costs while supporting well-informed decision-making. Today, the differentiating factor is not the test itself, but the technical expertise required to select the appropriate tests, interpret the results, and provide actionable insights. Marcus Schaerer, General Manager Services & Technical at Shell Marine, explains how the company's team of experts helps transform data into clear and practical guidance for customers.

FROM DATA TO DECISION MAKING

Why has oil condition monitoring



become a necessity now, moving beyond simple routine checks?

"Modern two-stroke engines operate at higher pressures and temperatures than previous generations, meaning small deviations in cylinder condition can escalate more rapidly if not detected early. Furthermore, the increasing use of alternative fuels introduces different deposition patterns and wear behaviors that require closer technical supervision. Greek shipowners are investing significantly in dual-fuel and LNG newbuildings. These are long-life assets that must operate reliably for decades, making continuous risk management essential. What is more, OEMs

Marcus Schaerer, General Manager Services & Technical at Shell Marine, is responsible for promoting smart monitoring operations with market-leading innovations. He brings thirty years of experience to the maritime industry, starting as a ship chandler responsible for vessel supplies. Since joining Shell in 1997, he has held pivotal roles overseeing the company's Sales, Marketing, and Technical teams

–including Everlence and WinGD– increasingly recommend structured on-board monitoring alongside laboratory analysis. But what makes the difference is how this data is interpreted. Shell Marine has over a century of experience in marine fuels, lubricants, and technical services; this experience forms the basis of Shell Lube Monitor, our

DATA INTERPRETATION IS KEY FOR ENGINES



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cylinder oil condition monitoring service for two-stroke engines, supported by a team of experts who provide personalized recommendations based on data from thousands of engine profiles."

What differentiates effective monitoring from routine oil testing?

"Traditional time-based maintenance means inspection and overhaul at fixed intervals, regardless of how an engine is actually performing. In contrast, monitoring provides an evidence-based view of engine health, allowing for decisions based on real operating data rather than just precaution. Shell Lube Monitor supports this transition by combining Artificial Intelligence (AI) with technical expertise to help shipping companies move from time-based maintenance to a more efficient condition-based model. The platform integrates on-board oil tests, engine operating conditions, Shell Lube Analyst lab results, inspection photos, and recorded measurements into a single, comprehensive framework. With this centralized and constantly updated information, shipowners can make faster, better-informed decisions, optimize cylinder oil consumption, and extend component life. Also, the OEM guidelines are directly integrated into the interpretation process, yet the

real value lies in the way Shell experts use decades of experience to turn detailed data into clear recommendations for action. We recently launched the Shell Marine Sensor Service (SMSS), which builds on this framework, to provide continuous oil condition monitoring, combining on-board sensor data with sample-based laboratory analysis. As a real-time and easy-to-deploy monitoring solution, it supports shipping companies in proactively managing equipment health and transitioning toward condition-based maintenance."

INTEGRATED MONITORING SERVICES WITH SHELL LUBE MONITOR

Why is this framework so critical for interpreting cylinder oil data?

"Cylinder oil parameters such as Total Base Number (TBN), iron content, and feed rates only tell part of the story. To understand what they truly mean, they must be evaluated in relation to engine load, fuel type, sulfur content, and running hours. The same reading can signal very different conditions depending on whether a ship is running on conventional fuels, LNG, or other fuel options. For example, wear metal values only become meaningful when measured against established baselines for a specific engine and

tracked consistently over time. Therefore, effective monitoring depends on trend analysis rather than isolated data points. Shell Lube Monitor is supported by a global network of Shell's technical advisors who interpret results within their specific context, providing recommendations aligned with OEM guidelines. It is this combination of data that leads

to actionable insights designed to improve vessel resilience."

How do integrated monitoring services support effective expert recommendations?

"Expert recommendations depend on the availability of complete and reliable information. By consolidating on-board testing, inspections, and laboratory analysis,

integrated monitoring services provide technical advisors with the full operational framework required to evaluate engine condition and advise on corrective actions. Fleet-level dashboards allow for comparisons across vessels and cylinders, ensuring consistency in interpretation and highlighting patterns that may not be visible in individual

engines. ISO-accredited laboratory support reinforces analytical reliability, while embedded guidance from OEMs aligns maintenance decisions with the manufacturer's expectations. Shell Lube Monitor combines these elements into a single technical framework. By integrating data, interpretation, and advisory support, it helps

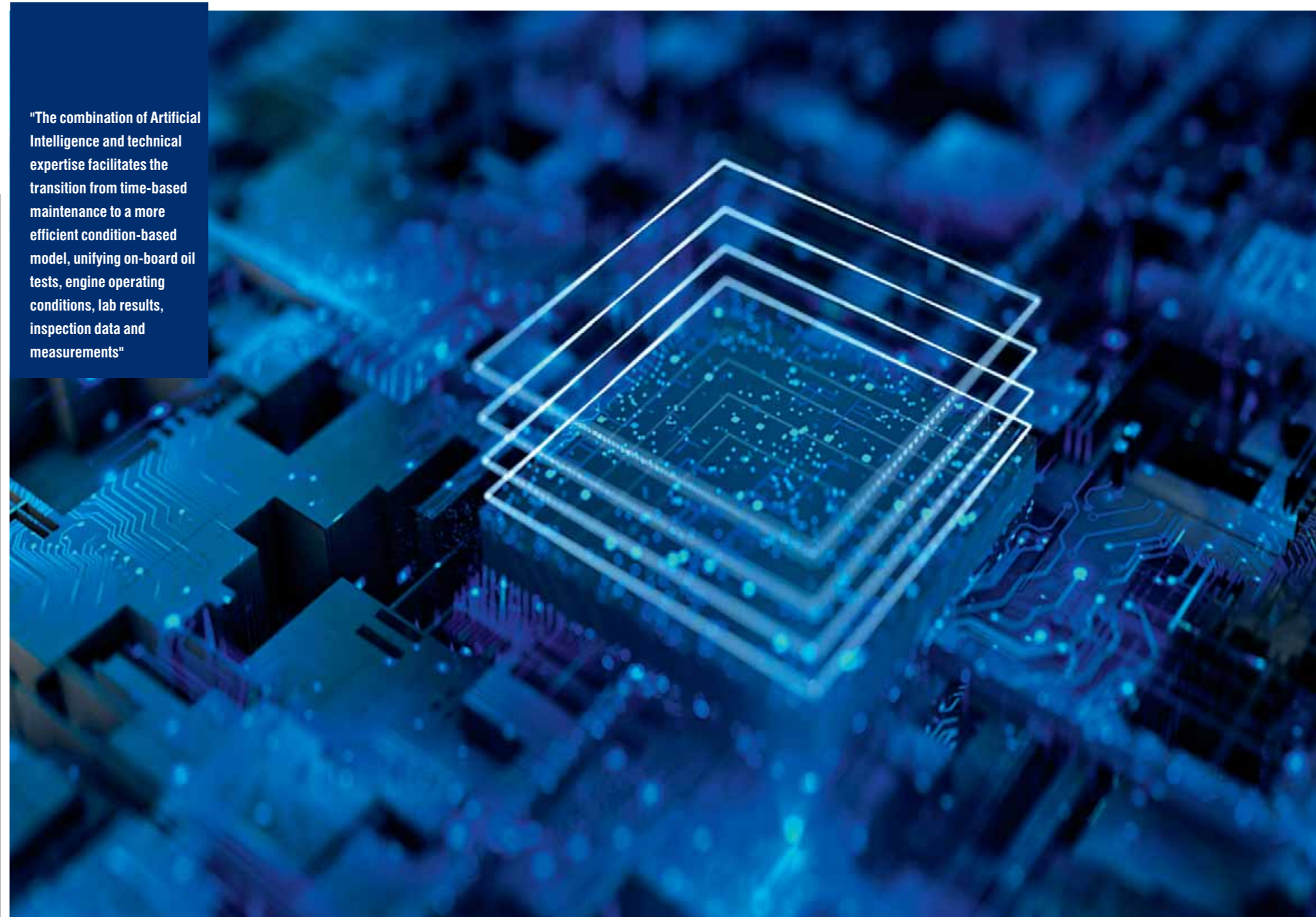
companies maintain stable engine conditions, intervene effectively, and achieve reliable performance for their fleet."

HIGH OPERATIONAL EFFICIENCY

How does this expertise translate into operational confidence in practice?

"Expert condition monitoring allows for early intervention

"The combination of Artificial Intelligence and technical expertise facilitates the transition from time-based maintenance to a more efficient condition-based model, unifying on-board oil tests, engine operating conditions, lab results, inspection data and measurements"



C O N S I S T E N T E N G I N E P E R F O R M A N C E I S A P R I O R I T Y

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"Through data-driven insights aligned with equipment manufacturers, Shell Lube Monitor supports strategies that can extend the time between overhauls – up to 32,000 hours under appropriate operating conditions – without compromising reliability or compliance". Photo: A Thenamaris vessel

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before emerging issues escalate into component failure. By identifying deviations in wear trends or deposit formation early, our advisors help shipping companies take proactive, preventative measures rather than reacting to breakdowns that lead to unplanned downtime. The impact on operational efficiency can be significant. While OEMs like Everlence may indicate overhaul intervals of approximately 16,000 running hours under traditional time-based approaches, effective cylinder monitoring allows maintenance decisions to reflect the engine's actual

condition. Through OEM-aligned, data-driven insights, Shell Lube Monitor supports condition-based strategies that can extend the time between overhauls – in some cases and under appropriate operating conditions, up to 32,000 hours – without compromising reliability or compliance."

"Expert analysis also supports the optimization of cylinder oil feed rates, balancing protection with efficiency. This becomes particularly important for vessels operating on LNG and other alternative fuels, where

confidence in lubrication performance is critical. Our experience of working with Thenamaris LNG Inc. demonstrates what this means in practice. Expert recommendations provided through Shell Lube Monitor offer an additional layer of assurance that cylinder lubrication remains within the optimal range, helping to prevent engine failures and minimize operating costs. Combined with high-performance products such as Shell Alexia 40 XC, this integrated approach enhances engine health and improves overall fleet resilience." 📄

"OUR EXPERIENCE OF WORKING WITH THENAMARIS"



Strategic actions, Ethics and Transparency

Meet us at Posidonia 2026
Panama Pavillion - Hall B - Stand 2.110

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