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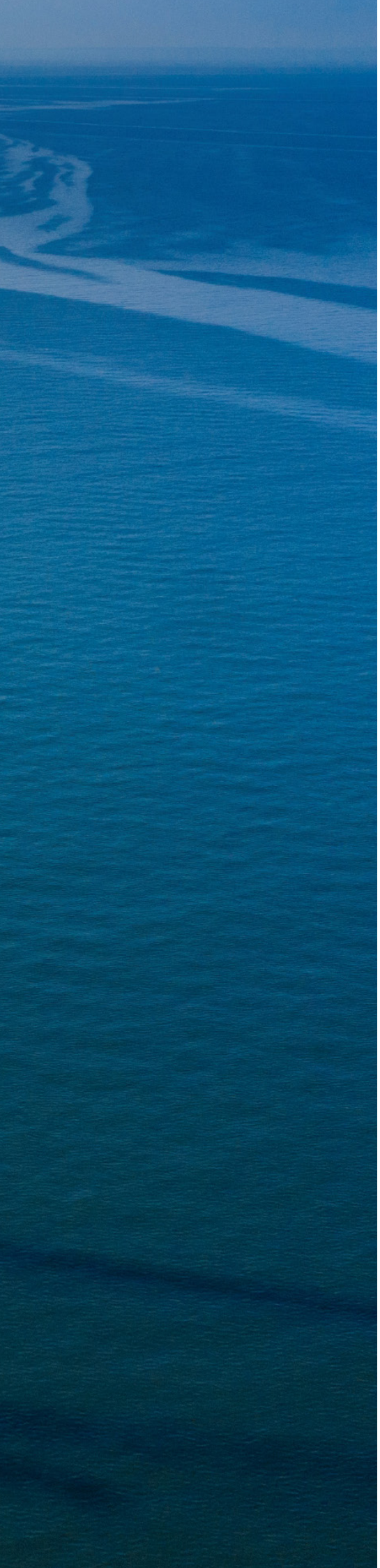

Forward-thinking maintenance

LiMain by Liebherr keeps changing our view on maintenance. At the beginning of this year and in a first for PES Wind, Gregor Levold, Sales Director Offshore, Ship and Port Cranes at Liebherr, introduced the system. It is the company's in-house solution for fast and reliable maintenance of offshore platforms. Since then, it has attracted a lot of interest from a wide scope of stakeholders recognizing the necessity for smart responsiveness in a rapidly changing offshore wind environment. Here, we pick up where we left off in early 2022 and take a closer look at the advantages it can represent.

Safety, service, sustainability and smartness will be essential features required for the future in global offshore wind. It may turn out to be decisive within this challenged market to adapt to a business changing ever so rapidly. Wind wheels and wind farms growing in size will produce increasing amounts of electricity, requiring even more powerful machines, as well as cranes. Broadly speaking, personnel on, or in charge of, platforms must have the tools to be in control, no matter how multifaceted and complex the situation at their given location is.

LiMain, short for Liebherr Intelligent Maintenance, is a remote maintenance system that brings digitalization to platforms worldwide. Its state-of-the-art features allow components, mechanics and maintenance workers to interact efficiently. It enables anyone to take charge of the platform crane entirely remotely. It also has enormous potential to enhance and simplify work on platforms. Consequently, it may change the way we think about maintenance in a fundamental way.

Up to 75% less mobilisation and up to 50 fewer man-days on platforms are possible. As a result, platform owners will save immensely on resources, whether personnel, material or transport. It is impressive how this unique system works and how it looks. https://www.youtube.com/watch?v=vD7oh-t1Hn4

The foundation of LiMain is its modular system architecture, consisting of four modules. They are called Automatic Greasing, Condition Monitoring, Predictive Maintenance and Remote Maintenance Cycle. Together, these enable operators to determine the scope of intelligent maintenance that meets their particular needs. With the Condition Monitoring and Predictive Maintenance modules offering crucial support for crane operators, particularly when it comes to maintaining full control in any location and/or situation.

Predictive maintenance and the scope of the future platform

It is true that in industry or service, the economy is increasingly benefitting from things such as big data and will vastly rely on it. 'Predictive Maintenance' can therefore provide knowledge of decades of Liebherr crane construction and servicing. The advantages are striking, even more so when combined with live-data from 'Condition Monitoring'.

The modules

Automatic Greasing will continuously check critical components, automatically lubricate them when needed, even in complexly installed positions.

Condition Monitoring benefits from sensor technology to give detailed data about the crane as well as its components, monitored in real-time to deliver an unprecedented level of insight.

Predictive Maintenance puts ad-hoc data into context, building on decades of experience from the construction of over thousand offshore cranes. The module serves as the foundation for an optimised product and component lifecycle.

Remote Maintenance Cycle combines and interconnects all of the modules, enabling the crane to be actively moved, with semi-automatic maintenance and self-diagnosis enabled.

Therefore, it will help to understand how components work most effectively or when they will require replacement. The information will also champion development in order to continuously improve already very good components in years to come. Furthermore, it will also enhance accuracy and safety in terms of transport, customer care or interaction between parts and personnel.

Simply LiMain where you are

The system decreases the need for service people on platforms and shortens the time spent there. Eventually, it brings a wider range of advantages too. For example, when an engineer flies to a distant installation to carry out an inspection, LiMain can inform him in advance about a part that needs to be replaced. This ensures that all parts are available. Consequently, the machine has no unnecessary downtime while additional travel or working time is also avoided, all while reducing the carbon footprint.

'LiMain and its compelling modular system is indeed priceless,' comments Stefan Schneider, Global Application Manager for General Purpose Offshore Cranes. 'This magnificent feature simply enables you to act whenever, wherever. Ideally, you have to visit your platform only once during an entire year, representing an extraordinary business advantage for each and every platform owner.'

This means that you can work more independently of time and space. As a fully digital, semi-automatic and remote maintenance system, LiMain represents a future workplace in a digitalized world. It empowers platform owners to remotely take decisive action anytime. With security in digitalization also being paramount, the system features a VPN-encryption embedded into a tunnel solution. Based on that the system and the crane data is protected from third party access.

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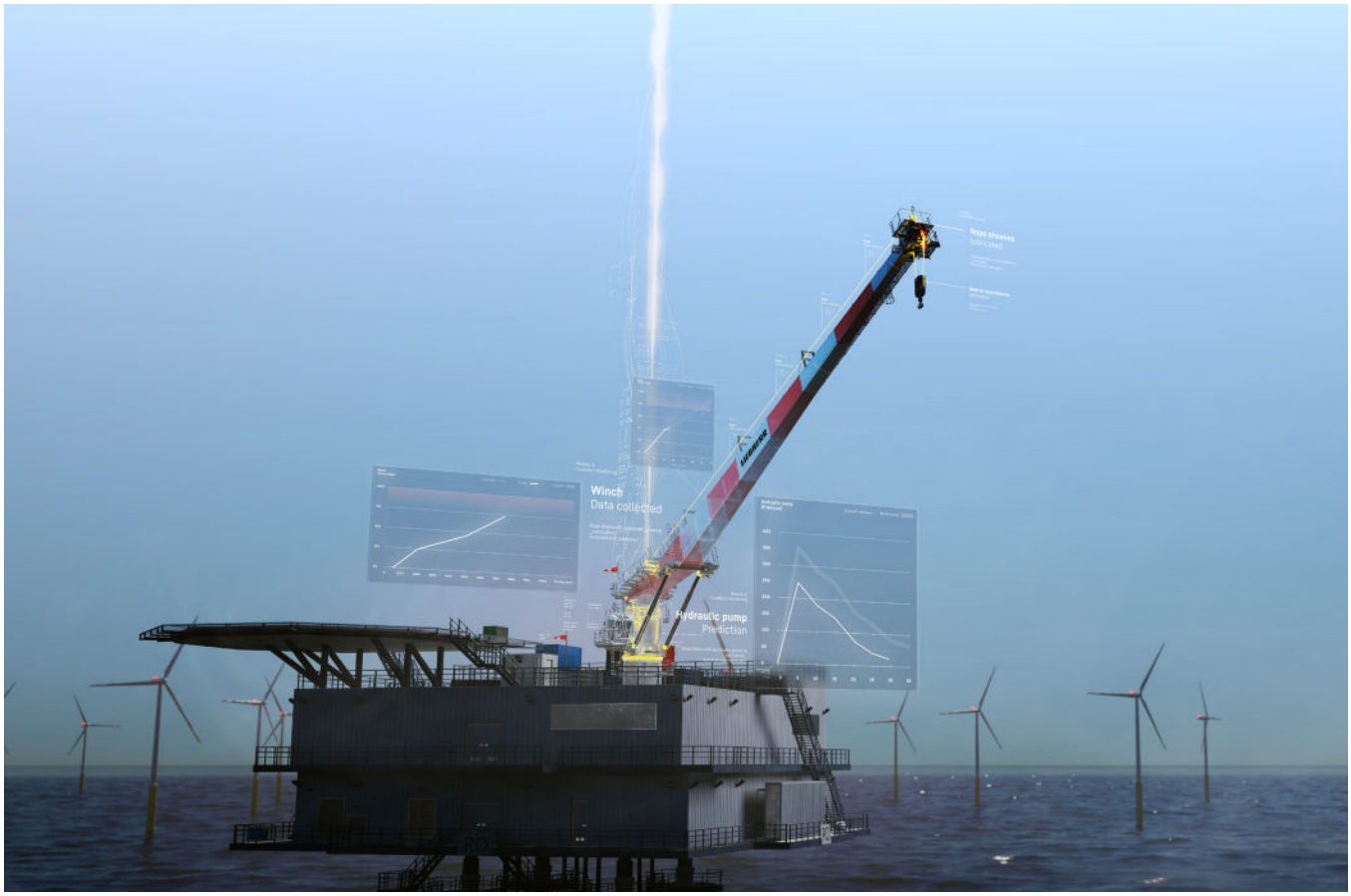

Providing opportunity for tomorrow's economy

This clearly demonstrates how LiMain can improve crane availability. Importantly, it can significantly lower operational costs (OPEX), which is key for platform owners since it defines their respective profit margin. In this context, it is worth mentioning that the installed overall turbine capacity will be more than sixfold in the global offshore wind market. Individual sizes of wind turbines are predicted to grow to up to 20 megawatts until the end of this decade.

In the long run, offshore wind will play a major role. Yet, the hunger for energy consumption is vast, so 'old energy forms still satisfy a huge demand. Nonetheless, new 'green jobs' could be found, being attractive particularly among younger job seekers and people finding it attractive to progress with 'change' for a greener environment.

As a consequence, people can be far away, while controlling components even from their hometowns. There's a shortage of qualified offshore workforce visible on the horizon. The ever growing absolute demand in operation and maintenance, due to the sheer expansion of future offshore wind, could be easier covered with the available quantity of staff. Beyond that, in a widely automated centralized maintenance infrastructure, as LiMain implies, less information gets 'lost in translation', thus improving data and process consistency.

In summary, LiMain can be defined as an outstanding game changer, paving the future of the platform market. Platform owners can save on resources while simplified maintenance is made possible. This will represent the opportunity to attract personnel too, needed for tomorrow's market share within a big energy business.

In this respect, LiMain is a technological step towards the future of global offshore wind, as new technologies and an increasing level of automated processes play a more important role in the years to come. For now, the system is a shining example of how the company is keen for technological progress with the development of smart, in-house built solutions. Liebherr is aiming at improvement and forward-thinking ideas within a changing offshore wind market.

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