

# Noble Corporation: Transforming maintenance and operations with IFS.ai

Following the completion of two transformative mergers, Noble Corporation decides to invest further with IFS Cloud.



Noble Corporation is on the path to more operational prowess with investment into IFS Industrial AI capabilities embedded into evergreen, composable IFS Cloud ERP platform.

Included in their IFS.ai investment is:

- Automated, unbiased analysis of anomaly detection data.
- Managing and automating Failure Modes, Effects and Criticality Analysis (FMECA).
- Optimizing and automating maintenance to create significant savings.

## AI-powered Big Data analysis

Monitoring assets, anomaly detection and failure reporting during drilling has become increasingly important and challenging. Explains Kristian Mortensen, Engineer at Noble Corporation, “We live in a world where we have an abundance of data: the volumes (often measured in petabytes) simply exceed what the human brain can absorb and process. IFS.ai capabilities, in contrast, offer a systemic, structured approach to analyze these data volumes.

Currently we can use robots, but it takes time, and they only look for what we tell them to expect, which introduces human bias. Often, we simply don't know what we should be looking for. Our CMMS analysis department is lean, focusing effort on looking at unscheduled work orders and trying to identify areas or patterns where anomalies are occurring that might affect production.

IFS.ai will offer a completely impartial view of the operational data we gather, and the analysis will have no human bias. This coupled with the experience of our engineers, gives us the best possible insight into what may be causing an issue.”

## Identifying causal links with confidence

Detecting completely unexpected causal links for failures means scrutinizing data with an open mind. Explains Mortensen, “I've previously spent some time in the aviation sector. An aircraft was experiencing a systems anomaly during flight which we simply couldn't get to the bottom of.

## About Noble Corporation

Noble is a leading offshore drilling contractor for the oil and gas industry. Providing contract drilling services, the company operates with a fleet of offshore drilling units focused largely on ultra-deepwater and high specification jackup drilling projects.

In October 2022, Noble Corporation plc merged with Maersk Drilling, and in September 2024 completed the acquisition of Diamond Offshore Drilling inc. creating the largest fleet of 7th generation dual-Blow Out Preventer (BOP) drillships in the industry, with 24% market share.

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Finally, after analyzing data from multiple flights, we stumbled on a correlation between the use of the coffee machine in the galley and the airplane acting up. It took a long time to discover because it was so unexpected and bizarre.

"If we'd had AI then, the system would have quickly compared the myriad various parameters, detecting and flagging the causal link immediately. IFS.ai will spot those obscure relationships automatically, providing us with instant insight, and a confidence level, which can be used to inform further focused investigation and action.

"Looking ahead I can see IFS.ai can provide specific maintenance recommendations and even, within safe operating parameters, automatically issuing work order instructions. For example, ordering an oil sample or running some vibration monitoring," he says.

### Transforming maintenance with IFS.ai predictions and confidence levels

Failure Modes, Effects and Criticality Analysis (FMECA) is the traditional process used to record and identify failure modes, their causes and effects and criticality. By applying AI, IFS allows users to mine the rich history of asset data held across the organization. Explains Mortensen, "IFS.ai offers powerful automated FMECA capabilities fully integrated with maintenance. It is able to maintain a FMECA library of analysis; search for documentation across structured and unstructured data; generate recommended maintenance changes and even create work orders. For low-risk assets it can even carry out FMECA autonomously," he says.

Compared to traditional maintenance regimes, relying on historical data and fixed schedules, AI offers the analysis and insight to inform powerful condition-based predictive maintenance. By extrapolating the likelihood of failure and the consequences, organizations can move from condition-based monitoring to predictive and prescriptive models to prevent failures occurring, minimizing breakdowns whilst reducing unnecessary labor and costs. As well as helping to extend asset lifetimes, AI models continuously learn and improve, further increasing prediction accuracy over time.

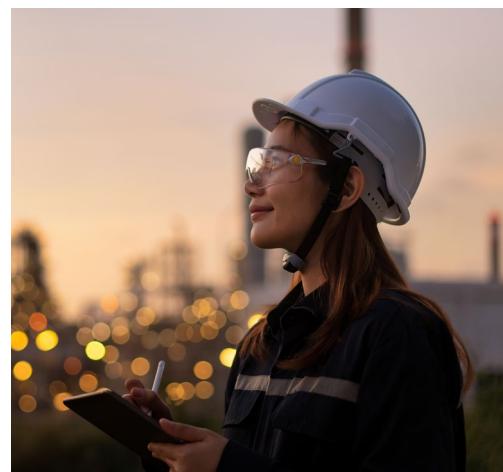
Observes Mortensen, "In fact, over time IFS.ai also has the potential to negate the need for the FMECA tool entirely. Today FMECA is a manual human exercise where we systematically go through all the possible failure modes and set up mitigations. But if the AI is already doing that, we may be able to eliminate the FMECA process, or at least make it more efficient by validating the output of AI with humans. The 'critical analysis' element simply becomes part of the whole monitoring system. Down the line, IFS.ai capabilities will mean systems will become capable of maintaining themselves. So, it's really just a matter of stepping back from total human control, and instead just contributing where we can add value, he says."

### Preventing failures for critical safety infrastructure

AI allows organizations to understand the risk of assets failing, and so prioritize maintenance and expenditure for those that are the most critical. Explains Mortensen, "One of the most important and complex asset types in the marine drilling sector are Blow Out Preventers.

### Benefits expected with IFS.ai capabilities

- Impartial analysis of Big Data to identify potential failure patterns and inform preventative maintenance
- Potential to automate Failure Modes, Effects and Criticality Analysis (FMECA) and issue automated work orders
- Scheduling maintenance to prevent failure of critical drilling rig infrastructure such as Blow Out Preventers
- Optimizing maintenance by predicting critical system failure points and intervals



These enormous (small house-sized) systems can be located on the surface on jack up rigs or up to 3-4 km underwater for floating rigs. The systems are designed to seal around, or if needed, sever the drillstring in order to isolate the wellbore, control and monitor oil and gas wells to prevent blowouts.

“Over time, while operating in a harsh saltwater environment, the condition of Blow Out Preventers has the potential to degrade, demanding careful monitoring of pressures and usage cycles to determine condition. IFS.ai is clearly ideal for this sort of monitoring, condition analysis and failure prediction. The full integration of these AI capabilities within the IFS ERP is paramount for us”.

### **Moving towards autonomous operation: why explainability matters**

Mortensen is confident that AI promises the possibility of safe autonomous operation for certain scenarios. “Our IT systems are already prescribing certain maintenance actions, for example condition-based maintenance for bearings,” he says. “But IFS.ai offers the potential, within agreed risk and confidence parameters, for the system to effectively execute certain actions on its own.

“IFS.ai recommendations to us will center on confidence levels for each recommendation coupled with our ability to query the IFS.ai to explain its reasoning. In this way we can decide when to grant certain permissions and autonomous actions. For example, where the system has a 90% or greater confidence for a finding, we might allow an autonomous action. Where the confidence is lower, we can instruct the system to send an email to a relevant engineer for investigation. Over time, that certainty level can be adjusted as the system proves its diagnostic reliability across different areas,” he says.

### **Transforming maintenance. Predicting critical system failure points and intervals**

The company currently allocates a significant amount of engineering time and money to regularly inspecting and assessing the condition of non-faulty equipment. Explains Mortensen, “These calendar-driven inspections can be daily, weekly or monthly. It means we waste a lot of resources – maybe up to 75% of our time – going out and simply seeing if systems are still OK.

“Ideally we only want to service or replace a component when it is within 80% of its predicted failure time or lifetime,” he says. “IFS.ai promises to help us get a lot closer to that more efficient maintenance scenario. It also promises to make our systems perform better because we know what it is that we need to do – the critical failure point – from the legacy and analytics projections. If we want to change the maintenance interval, IFS.ai will help us to justify decisions to authorities and OEMs based on the historic data and insight available within the system,” he says. “For example, IFS.ai could mean the difference between just spending 10 hours every five years to change a part or spending one hour every day to inspect it. Each time a rig needs to stop drilling for maintenance, the cost of lost production is immense. We think data coupled with IFS.ai can help us by removing work that we don’t need to. It will enable us, hopefully, to be more specific about what maintenance we need to do,” he observes.

To learn more about the ways IFS and embedded IFS.ai capabilities are poised to transform operations in the sector, please visit [here](#).

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**Kristian Mortensen, Engineer,  
Noble Corporation**



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