

# The Future of Aftermarket Services for Manufacturing OEMs

## Current state of the industry

It's an all-too-familiar experience for industrial operators in manufacturing: Unexpectedly, equipment essential to their process begins to underperform or fail, creating a scramble to stabilize the process and determine the impact on their production targets. With the process back under control, their next call is to you, the OEM, to assess the damage and plan the repair process. The operator is upset because the repair will cost more and take longer because the maintenance is unplanned. Even worse, your service technician was on-site two weeks ago, and there was no indication of the impending issue.

At the core of this problem is the simple truth that operators are at risk of asset failures due to lack of

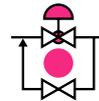
insights, and OEMs support is limited by the lack of visibility into commissioned assets. Most service models between OEMs and industrial operators still follow the traditional model illustrated below. OEMs own the designing, installation, and commissioning of equipment, and then hand it off to the operator to run and maintain the equipment with an optional service contract from the OEM to perform preventive maintenance and support. This approach does not prevent failures from occurring between maintenance activities and is inefficient as valuable time is often spent servicing equipment in good health.

But what is our alternative?



**ORIGINAL EQUIPMENT MANUFACTURER** *knows the equipment best*

Unique knowledge of the design, failure modes, maintenance requirements and diagnostics of the equipment



**INDUSTRIAL OPERATOR** *knows the process and organization best*

Knowledge & data of the surrounding process in which the equipment is installed.

Complex maintenance organization with unique work processes needs.

Service contracts



## Where the industry is heading

The next wave of aftermarket services will better align operators and OEMs in a common pursuit of operational excellence. The leading OEMs will be seen as partners with a holistic focus on their operators' needs, such as maximizing uptime and performance, reducing energy and resource usage, and eliminating unnecessary maintenance activities.

The leading factor enabling this shift is the availability and usability of operational data. As OEMs are able to apply their equipment expertise to operational data, they can generate insights that will support their operators' needs. Using our initial example, if the OEM had had access to the operational data in real-time, it could have seen the degradation of the asset and scheduled maintenance to address the

issue, eliminating an unexpected failure and enabling the operator to continue production according to schedule.

## Applying the right technology

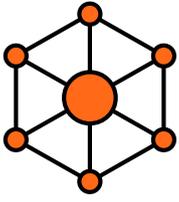
The easiest way to think about required technology is to identify the challenges commonly experienced when developing new aftermarket solutions and outline the functionality required to overcome these challenges.

At the highest level, delivering the next wave of aftermarket solutions requires trust from operators that any action taken from insights will achieve the desired results. The table below outlines the core capabilities required to build trusted solutions for operators.

Common challenges	Required functionality
Limited access to real-time operational data	Robust extraction capabilities, ingestion pipelines, and discovery tools for live access to structured and unstructured data, including asset hierarchies, time series, work orders, images, LiDAR, 3D files, and single-line diagrams.
Unknown data quality of parameters	Model governance and time series data quality monitoring that track data lineage, ensuring data completeness and solution-specific quality requirements.
Manual processes to contextualize data and keep contextualized data models updated	Automated contextualization and relationship mapping across IT, OT, and engineering data sets that can be used to populate industrial knowledge graphs and digital twins. Mapping continuously updated based on underlying source changes.
Solutions do not scale across assets or sites	Ability to scale a predictive model from one asset to many in a fraction of the time required to build the initial model. Templates that automate data population.
Lack of support for a range of solution approaches	Development support and hosting for process monitoring, physics-based modeling, and hybrid AI to enable a wide range of solution approaches for predictive problems.

## Delivering solutions into operator workflows

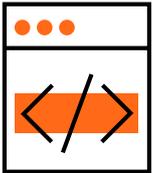
One thing we know to be certain, no single solution approach will be universally applied across all manufacturing operators. Workflows vary from site to site within organizations, and every site has streamlined workflows around their unique processes and environments. To enable the adoption of new aftermarket services, OEM offerings will need to be flexible in how their insights fit into operator workflows. For OEMs to be successful in meeting the flexibility requirements, solutions may need to support any of the following delivery methods:



### Connected service:

In this approach, the OEM or a service provider is responsible for monitoring the operator's assets in real-time. The ability to generate real-time insights with OEM expertise prevents unplanned downtime and can be used for working with operators to schedule maintenance. The advantage of this model is the low-touch requirement

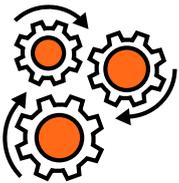
for operators and the ability for OEMs to efficiently scale to a fleet of assets across an operator's enterprise. This approach also creates an opportunity for new business models, such as performance-based contracts. This model will be appealing to organizations that do not have a team to own the monitoring of asset performance.



### OEM application:

This is the most common solution offered in today's market, where the OEM offers a comprehensive application connecting data from their assets into their application, generating insights from this data, and providing a user-friendly interface for operators to consume insights. This approach allows

operators to easily consume insights, and can be implemented quickly with minimal configuration. The biggest drawback to OEM applications is the potential of creating more data silos, but this offering will be attractive to teams that are responsible for teams that want low touch, easy-to-adopt solutions.



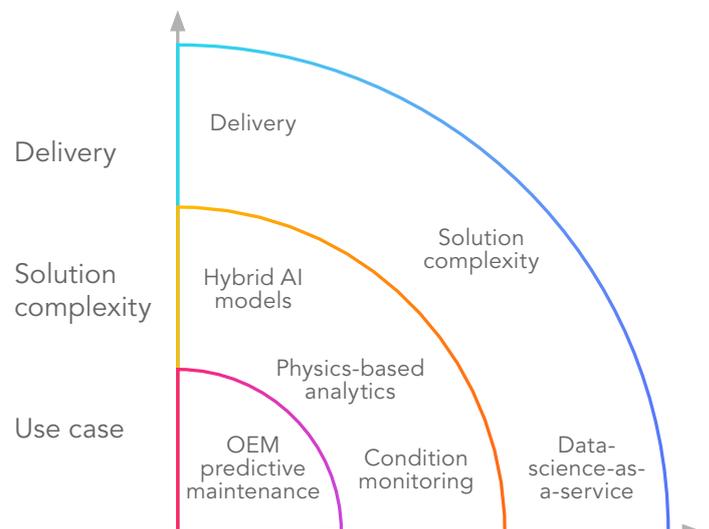
### Data-science-as-a-service:

An essential part of this approach is recognizing that many operators already have established workflows and solutions for managing assets. They need OEM expertise to manage their assets more efficiently but don't want to adopt a separate application to consume these insights. This approach requires a separation between OEM insights and the user interface, enabling performance monitoring results to be shared and

consumed in whichever way fits the operator's workflow. The advantage of separating insights from the user interface is the holistic and open approach this affords operators. Operators can benefit from OEM expertise without being limited to where they can consume insights. This approach will be most attractive for more mature customers looking to own their digital roadmap

At Cognite, we are enabling OEMs to deliver the future of aftermarket services by overcoming the technology challenges with our core Industrial DataOps platform, Cognite Data Fusion. Cognite Data Fusion is designed to be a scalable and open solution, allowing OEMs to develop insights across all levels of solution complexity and then deliver those insights to operators through the right delivery methods that fit their workflow.

Now that we understand the methodology, let's take a look at what OEMs have been able to achieve.



# Use Cases Examples

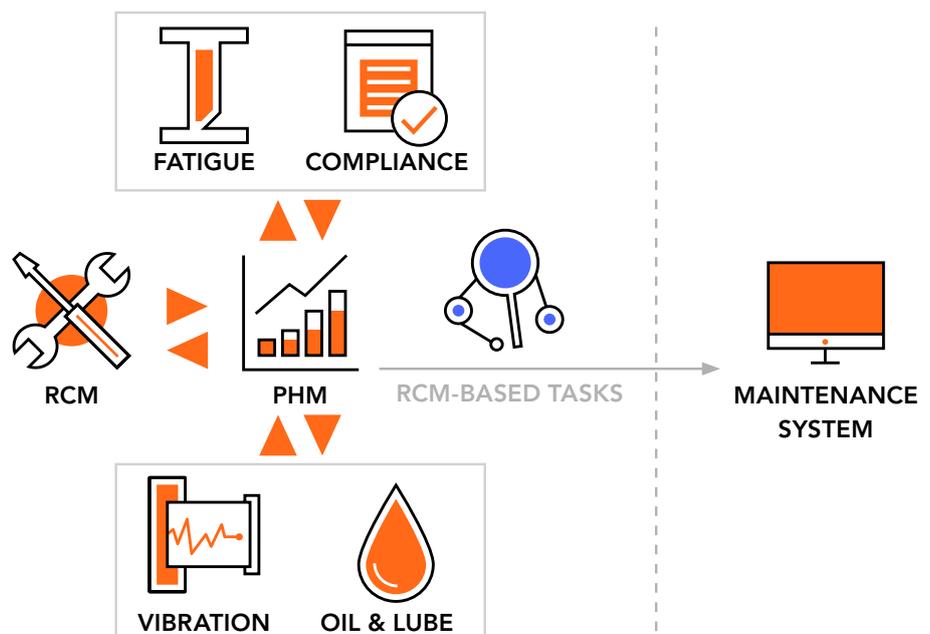
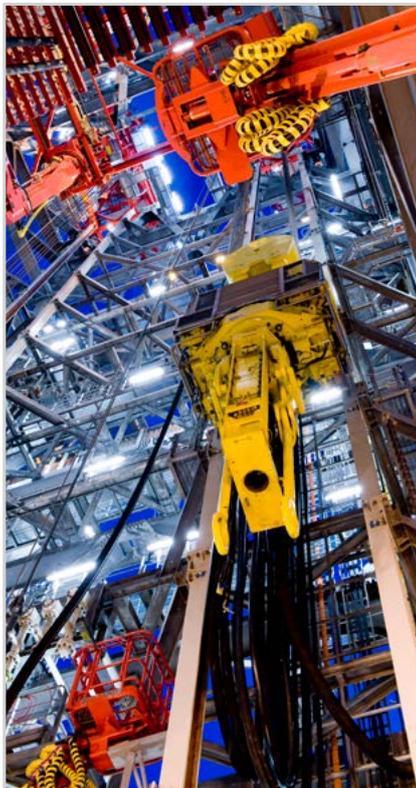
## MHWirth - Providing holistic asset management and automating customer workflows

**Challenge:** MHWirth is an advanced drilling manufacturer with over 40 years of experience supporting their customers with a variety of asset management services, including vibration, oil and lubrication analysis, and asset fatigue inspections. MHWirth wanted to deliver a single point of access for customers to provide a holistic health management solution and use this solution to streamline the planning and scheduling of maintenance tasks.

**Solution:** Providing a unified point of access for customers required a solution that can make many data types easily accessible, scale quickly across sites and assets, and allow MHWirth's intimate knowledge of their assets to create insight for their operators. MHWirth chose to build its Prognostic and Health

Management Solution (PHM) on top of Cognite Data Fusion, which enabled MHWirth to create a unified experience for their operators, provide the openness to automate workflows by integrating with maintenance systems, and deliver an open architecture that will allow the company to continue to build upon its comprehensive portfolio in the future.

**Impact:** MHWirth estimates that enabling a more predictive maintenance strategy with their Prognostic and Health Management Solution can help customers reduce their OPEX by up to 25%. With Cognite Data Fusion, MHWirth is empowering operators with the expertise needed to optimize their maintenance and production.



## Framo - Using connected services to increase pump availability for operators

**Challenge:** Framo has been a leader in pumping systems for the marine industry for more than 50 years. Framo wanted to increase pump availability, reduce shutdowns, and decrease maintenance costs for a key partner and operator, Aker BP. Framo's service contracts were driven by calendar-based preventive maintenance. The company had no insights into the operational data to assess when pumps needed attention and were reliant on a preventive schedule to catch potential failures. Occasionally, equipment would need attention between scheduled servicing, and preventive maintenance tasks were often performed on healthy pumps.

**Solution:** Framo needed a secure way to access live data from the Aker BP site. With access to the data, Framo would be able to build analytics models that incorporated their domain knowledge to analyze pump performance in real-time. Having visibility into the current status of operating pumps allows Framo to optimize their maintenance schedule while reducing the risk of pump failure for Aker BP. Framo chose Cognite Data Fusion to securely extract data from Aker BP and provide the data foundation from which they could build their performance model. Cognite Data Fusion was the preferred solution for its ability to quickly scale across assets and reuse pump performance models.

**Impact:** By monitoring pump performance, Framo helped Aker BP:

- Increase pump availability by 40%
- Reduce maintenance costs by 30%
- Reduce the number of shutdowns by 70%

In addition, by having real-time insights into pump performance, Framo was able to increase the performance of their pumps while reducing the number of service hours by about 130 hours per pump every year.

