

Digital transformation and enhanced data capabilities have enabled new relationships between OEMs, EPC contractors, owner-operators, and maintenance teams whereby data no longer needs to be siloed but drives shared improvement.

True Service Life-Cycle Management Demands a Shared View of the Truth

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Questions posed by: Siemens

Answers by: Aly Pinder, Program Director, Service Innovation and Connected Products

Q. What is the biggest challenge facing owner-operators in process industries regarding service life-cycle management in the digital age?

A. Several challenges currently face owner-operators within their maintenance operations, but three jump to the fore. First, safety and efficiency are always top of mind for owner-operators. The loss of expertise from an aging workforce makes safety concerns even more critical to maintenance operations. As new workers join the team, it is imperative that they can be experts on day 1, ensuring safety and reliability of the operations.

Another challenge is data silos. Specifically, owners need improved data integration, which enables operators to leverage shared knowledge and insights from engineering at the OEM to better inform maintenance operations and procedures. Independent decision making by the maintenance team based on past experiences or outdated methods as a result of siloed data streams can lead to inefficient operations, low asset utilization, and rising costs to maintain plants and assets.

The third notable challenge, which is related to the first two challenges, is declining operations and maintenance productivity due to unreliable data. Real-time or near-real-time decisions depend on project management and maintenance teams having accurate and reliable data when needed as they set up the plant for production and to improve the maintenance of assets throughout the life cycle. If information is out of date or not synched with the reality of the plant or facility, there will be negative effects on the planning and execution of maintenance operations. These three challenges, if not addressed, will be a missed opportunity for owner-operators. Worse yet, they could hinder production, productivity, and asset reliability — all of which are key to the success of a plant or facility.

Q. What is the impact of unreliable and inaccurate data being exchanged during handovers among OEMs, design firms, EPC contractors, owner-operators, and service providers?

A. The handover of data and insights from OEMs and design firms to EPC contractors, owner-operators, and maintenance teams is part of the operations and service life-cycle management process that is often overlooked in its importance. Unreliable, inaccurate, or outdated data is more than just a nuisance; it results in "workarounds" by the maintenance teams. This disjointed data transfer can lead to delays in resolving issues with maintenance operations and processes, which results in unplanned or extended downtime of assets. Unreliable asset and simulation data can also lead to a diminished ability to manage risks and the associated necessary changes to the asset that ensure safe, cost-effective, and timely maintenance.

Inaccurate data exchanged among OEMs, design firms, EPC contractors, owner-operators, and maintenance teams can also, importantly, limit the ability to plan and execute reliability, availability, and maintainability initiatives — impacting overall plant productivity. Separately, these three areas of impact would be striking, but combined, they provide a view into the gravity of the challenges that maintenance teams and owner-operators face when they are led to rely on inaccurate or outdated engineering data on assets that must be maintained, sometimes for decades.

Q. The exchange of unreliable data sounds like an area where technology can help. How should organizations enable the most rapid transformation in creating a continuous loop of knowledge exchange with maintenance?

A. Yes, unreliable and inaccurate data being handed over to maintenance teams and owner-operators is clearly a challenge. However, this risk can be mitigated by rethinking what technology capabilities can enable. Tools that can automate the data transfer and knowledge exchange between the engineering team and the maintenance team can enable better visibility through standardization around an enterprise system of record for the entire asset life cycle. Automated transfer leads to better integration for data sharing and rationalization, as well as enhanced collaboration across the partner ecosystem, which goes beyond just providing static manuals or snapshot points of view.

In times of crisis, it is necessary to evaluate and accelerate investments that allow businesses to rebound, recover, transform, and be more resilient. Rethinking how we work and collaborate remotely is reshaping businesses, even those that historically viewed remote work or collaboration as impossible, such as plant operations or field asset maintenance. But as work evolves, it will become only more critical that digital initiatives further enable collaboration, remote work, data access, and data sharing. With capital ROIs already razor thin, investing in these areas to improve maintenance operations decisions is a cost-effective approach to improving performance at the plant and asset levels.

But importantly, the digital transformation journey cannot involve just one or two parties across the service life cycle. It must be a shared transformation incorporating the needs, goals, and metrics of success of operators, OEMs, EPC contractors, third-party service providers, and frontline maintenance teams.

Q. Data integration and continuous improvement have been topics of discussion for some time. What are best practices of organizations that have successfully connected the enterprise with operators and maintenance teams?

A. An important consideration that successful organizations focus on regarding engineering, asset data transfer, and collaboration between OEMs and operators is the creation of a shared language and access to data. The ability to ensure that multiple views (e.g., process view, physical view, construction view, commissioning view, maintenance view, corrosion loops) of engineering data could be accessed and also easily incorporated into maintenance work orders enables this rich data to be used throughout the life of the asset.

Another key to success is creating a shared value proposition or buy-in. Transformation is difficult, but ensuring that OEMs, operators, and maintenance teams have bought into the value of a connected data integration model is essential. By building trust in engineering data quality, maintenance teams are confident that data is up to date and accurate. As issues are resolved more efficiently, plants can be turned on faster with lower maintenance costs throughout the life of the plant and its assets. In addition, improvements in asset utilization can be realized as a result of an integrated data flow between engineering data and maintenance work orders. Having a clear strategy around shared value and outcomes is critical to success and a long-lasting partnership.

Q. Disruption is impacting many industries, including the process industries. What is the risk of delaying action to connect operators with the sources of data from EPC contractors and OEMs, and what will be the ramifications for improving operations in the future?

A. Disruption is no longer headlined only by business-to-consumer industries. Process industries are finding a need to digitally transform and enable innovations to ensure tangible value such as improved safety and operational efficiency. Not enabling the valuable information from EPC stages or providing relevant engineering data on demand for maintenance and the owner-operator could lead to production delays and safety risk.

Rising costs are always a concern, but delaying investments in digital transformation can have much more far-reaching impacts on the viability of the plant and the business. Also, maintenance knowledge and best practices will be lost as workers age, retire, or leave the business, cutting off the innovation loop back to engineering from the plant.

Further, inefficient maintenance operations can lead to loss of asset productivity, output, and performance. Reliable and accurate data exchanges aren't a nice-to-have; they are a must-have as organizations look to better inform maintenance decisions and efficiently operate plants and assets for a longer useful life.

About the Analyst



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As Program Director, Service Innovation and Connected Products, Aly Pinder Jr. leads IDC research and analysis of the service and customer support market for the manufacturer, which includes topics such as field service, warranty operations, service parts management, and how these service areas impact the overall customer experience. Mr. Pinder Jr. is also responsible for research that aids manufacturers as they evaluate innovative technologies like 3D printing for service operations, augmented and virtual reality in field support, and the use of IoT and advanced analytics for remotely monitoring and managing assets.

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