



How Data Can Future-Proof MANUFACTURING MODERNIZATION

From attracting and retaining a quality workforce to improving maintenance and reliability, establishing the three pillars of a strong data foundation can help ensure a manufacturer's current and future success. | Dwaine Plaque, AspenTech

While most industrial leaders know the potential value the data across their enterprise holds, there's a growing divide between companies that are making the best use of that data and those whose data is still trapped in operational siloes and, therefore, not being used to its full potential.

So, what differentiates these two realities?

It often comes down to the strength of an organization's data foundation. To get the true value of data for years into the future, industrial leaders are prioritizing a data foundation that will set them up for success.

A strong data foundation ensures industrial leaders will be able to scale

their data and applications across the enterprise. Following are explanations of just a few of the ways manufacturers could be maximizing the value of their industrial data and related technology tools."

Close talent gaps

With nearly a third of the manufacturing workforce over the age of 55

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(according to Deloitte), industrial organizations face a looming talent shortage that could threaten business continuity. The National Association of Manufacturers notes that nearly three-quarters of manufacturing executives cite attracting and retaining a quality workforce as a top business challenge.

Accessible industrial data with context can empower non-technical personnel to use and collaborate around data-driven insights in their daily work. While data scientists will still play a critical role in data analyses, organizations won't have to rely solely on highly skilled, yet scarce, roles to fuel ongoing digital transformation goals. Similar to the way templated, self-serve graphic design tools have made it possible for the everyday marketer to create graphics for their own campaigns, democratizing data will reveal opportunities for non-technical individuals in various parts of a manufacturing business to find their own ways for data to improve the business.

Decision-making and innovation

Asset intensive industries like the energy industry are using advanced analytics to gain insights from complex, scattered plant data. Enterprise data consumers could request specific data analysis and visualizations, such as monitoring pump temperatures across the globe while taking into account critical information like context. This capability significantly reduces the time and expertise required to aggregate and analyze data from various sources, facilitating quicker decision-making and enhancing operational efficiency.

In another example, an industrial company could deploy generative artificial intelligence (AI) to deliver answers on reporting and benchmarking questions. Fueled by better access to quality data from across the organization, they can gain confidence in implementing new AI applications such as this across diverse business functions.

Improve maintenance and reliability

For instance, a manufacturing business's data can underpin maintenance for more than just one piece of equipment. A good data foundation gives industrial leaders the accuracy and scalability to support a comprehensive maintenance and reliability program for hundreds of pieces of equipment, based on verifiable data that's aggregated from many sources across the plant.

What makes for a strong data foundation?


For industrial organizations to capture their full data potential, a strong foundation backed by cohesive, centrally managed data at-scale ensures they can take full advantage of new opportunities. This foundation is built on three pillars:

- **Connect and centralize disparate data:** Industrial data has grown too big and too complex for single-point connections. Organizations can no longer rely on one-to-one connections to manage data-intensive applications. Sophisticated data management means vendor-neutral connectivity to all major IT and OT (operations technology) interfaces so data that would otherwise be disparate and siloed, is now centrally managed from one system.

- **Support data integration and scalability:** As organizations grow, their data infrastructure should evolve in tandem. When it doesn't, plants and facilities will quickly outgrow their existing systems and the resources required to catch-up will spiral out of control. Agile and flexible technology stacks make it possible to add new features and integrate value-added applications, such as analytics and AI, that will benefit the business well into the future.

- **Ensure data quality and governance:** To achieve useful and trustworthy results from their digital initiatives, industrial leaders require robust governance processes that ensure data is accurate, flexible, contextualized and secure. Critically, industrial organizations must adhere to governance practices that are enforceable, but flexible enough to adapt to evolving business priorities and growth.

A centralized data repository, coupled with flexible data management practices and user access control, streamlines reporting processes and data accuracy verification.

Well-managed industrial data allows organizations to achieve outcomes previously unachievable and to imagine innovations previously unimaginable. But to seize these opportunities in full, they need a strong industrial data foundation from which they can scale new opportunities and technologies across the enterprise. 



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