To Accelerate DataOps, Manufacturing Firms Have High Hopes for Data Fabric

The 451 Take

The manufacturing industry has unique considerations when it comes to data management and the subsequent generation of business insight. With numerous physical machines and systems generating large outputs of data, some of this data has historically gone underutilized. Yet, based on a 451 Research survey, 83% of manufacturing and construction industry respondents report that they are familiar with – and even use – the term "DataOps," which is the highest rate of any industry polled in the survey. However, challenges and opportunities remain.

When it comes to more agile and automated approaches to data management, manufacturing firms are much more likely to report that they are prioritizing the improvement of analytics/artificial intelligence (AI) delivery and operationalization. While 43% of total respondents cite this as a priority, 55% of manufacturing and construction respondents do. It's clear that data management automation is both a driver, and an enabler, for DataOps in the manufacturing sector.

In terms of DataOps improvement, manufacturing industry respondents disproportionately desire to enable real-time collaboration between data consumers (business analysts and decision-makers) and data suppliers (data management and IT staff). Looking toward data fabric architecture as an option to support DataOps, manufacturing respondents particularly expect to gain a more unified view of data resources, which can help accelerate business decision-making by helping data consumers stitch together the data context of highly diversified IT architecture.

Most Significant Manufacturing Benefits Expected From Data Fabric Adoption
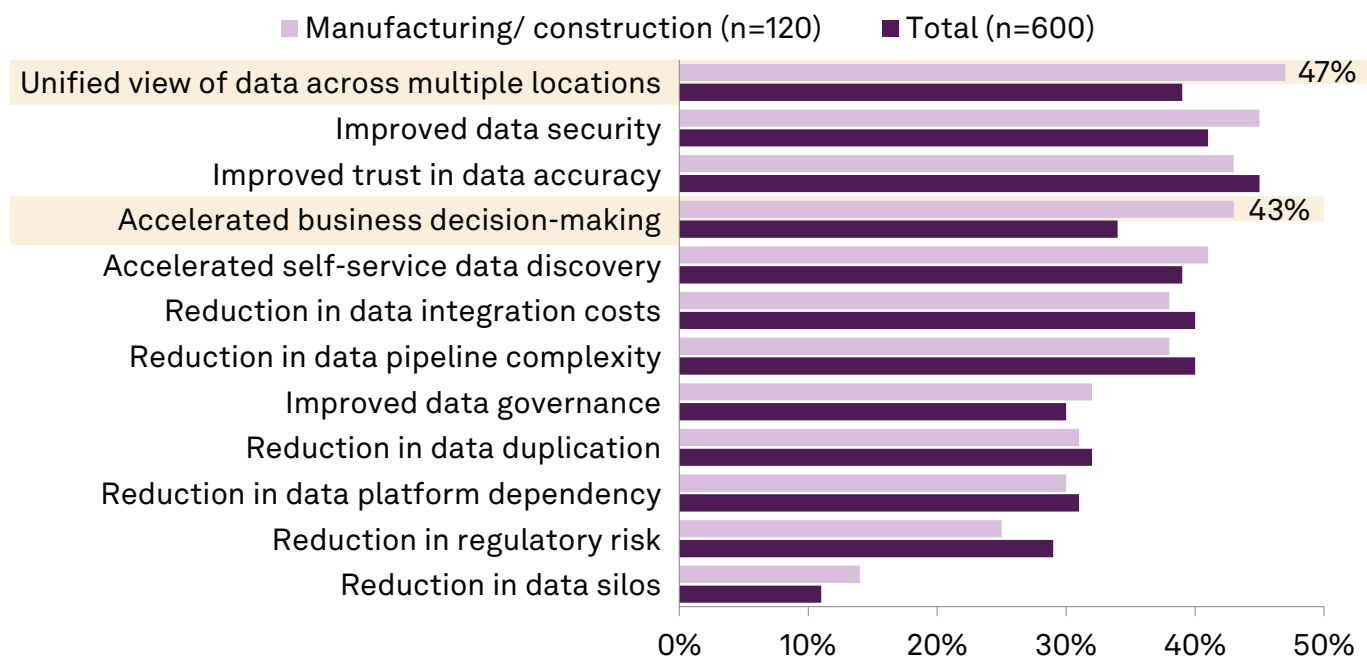
Source: Thought Leadership on DataOps, 451 Research, November 2021

To enhance the proportion of organizational data used for analytics, manufacturing firms are also making significant investments around data automation, real-time capabilities and skills. Relative to industry averages, manufacturing and construction industry respondents are more likely to report that their organization is investing in automated data classification and preparation tools (56%), real-time analytics tools (50%), and skills/tools to enable analysis of alternative data structure/formats (45%).

This all speaks to the reality of modern manufacturing, where data generation and collection at the edge often results in real-time streams, and multiple systems generate data in multiple formats. This additionally must be rectified with the reality of proliferating cloud environments. While manufacturing and construction industry respondents are somewhat more likely, relative to industry peers, to report that their organization uses only one public cloud, nearly half (48%) still report that they currently use three or more public clouds. DataOps methodology and data fabric technology can help to provide a cohesive, reliable corpus of enterprise data across cloud infrastructure.

Business Impact

DataOps is widely pursued and practiced in the manufacturing industry. Nearly nine out of ten (87%) manufacturing and construction survey respondents report that their organization will increase spending, investment or development around DataOps technologies over the next 12 months. More so than industry averages, manufacturing firms hope to increase competitive advantage and responsiveness to competitive threats via more agile and automated approaches to data management.

Improving analytics and AI is a priority for manufacturing firms as they adopt DataOps. The desire to improve analytics and AI capabilities is a key motivator for all industries as they look to adopt DataOps approaches, but this priority is especially pronounced in industrial sectors. Strategic opportunities such as predictive maintenance and digital twins rely on consistent data management practices and reliable analytics and AI outcomes.

Data fabric technology is seen as a promising support mechanism for DataOps. For manufacturing and construction survey respondents, the expected benefits of adopting a data fabric are often more pronounced than in other industries. Accelerated business decision-making, as well as a unified view of data across multiple locations, are particularly coveted outcomes. A total of 89% of manufacturing and construction industry respondents "agree" or "strongly agree" that DataOps is an accelerator for the adoption of data fabric.

Hybrid and multicloud architecture must be considered as manufacturers optimize DataOps efforts. The manufacturing and construction industry today, much like other industries, is likely to report using multicloud and hybrid IT architecture. The manufacturing sector's approaches to providing users with access to data across distributed clouds frequently focus on moving data to a centralized data lake/warehouse when appropriate and virtualizing access to data that remains in place: an approach taken more frequently than in other industries.

Looking Ahead

In the manufacturing sector, DataOps has become rooted philosophy. More agile and automated approaches to data management are a necessary reality, particularly as manufacturing firms look to reconcile countless data formats and sources across multiple systems, sites and physical locations.

However, there is still room for improvement. While data fabrics are frequently considered as a technological supporting mechanism for DataOps, just one-third (34%) of manufacturing and construction firms say their organization currently has a data fabric deployed and in use. Still, only 1% report being unaware of any plans to use a data fabric over the next three years, which bodes well for adoption.

For manufacturing firms, some of the most pressing data management challenges include data security, data privacy, integration with legacy or existing IT architecture, and accessing/preparing data. But automation holds promise, both as a facilitator for DataOps, and as a reward. DataOps programs depend on automation of underlying data management functions, but these automation capabilities likewise support business efforts to pursue development and deployment of in-house AI and ML models.

Cloud ecosystems will continue to become more complex and heterogeneous for all industries. In the pursuit of DataOps, manufacturing organizations need to select flexible supporting technology that can accommodate the reality of hybrid and multicloud architectures.