



# The Data Readiness Index: Maximizing AI Value on the Factory Floor

## Introduction

The push toward Industry 4.0 and 5.0 has brought significant innovation spanning instrumentation, connectivity, and Internet of Things (IoT) tools fueled by data and analytics. And now AI, the next transformative force, is quickly reshaping one of the most competitive industries.

AI has enabled organizations to fundamentally change much more than just internal workflows. Manufacturers are increasingly defined by how effectively, efficiently, and sustainably they can develop and advance product designs. With the introduction of AI, the opportunity has never been greater for organizations to optimize and streamline operations across the product lifecycle.

But the path forward is not without roadblocks. Despite strong momentum, many organizations are struggling to translate AI investments into measurable business value. According to [The Data Readiness Index 2026](#), while most enterprises believe their data strategies are well-defined, a significant majority (79%) report that their data-driven initiatives are hindered by limited access to the full breadth of their data.

So, as industries grapple with this contradiction, what's the state of data readiness in manufacturers? Let's explore.

## Data Readiness Meets the Factory Floor

Manufacturers store huge volumes of historical data, from maintenance and service logs to supply chain information to production records. As organizations grow and prioritize more AI integrations, many are pushing forward with an increased cloud spend. In fact, Cloudera's survey found that 72% of manufacturers are planning to do so in the near-term.

As IT leaders chase more impactful AI performance, cloud environments offer advantages to overall success. But it cannot be the only path forward. The data that trains AI is public, which, in a competitive market, brings limitations. What really adds value is when an organization can tap into its own data to feed into AI and analytics initiatives. But doing so requires organizations to have access to 100% of their data across the entire data estate. Most manufacturers understand how critical this is, and 82% said that they had complete visibility into where all of their organization's data resides.

Likewise, manufacturers signaled that their organizations have a handle on managing disparate data sources across systems and environments, with 84% saying data sources were mostly well connected. This is critically important in manufacturing, where a mix of unstructured and structured data offer important context to inform vital functions like predictive maintenance, supply chain optimization, and product development more broadly.

## Roadblocks to Readiness and the Need for Impactful Governance

While manufacturers are largely confident in their data architecture, there are signs of trouble lingering. Roughly one-in-six manufacturers (16%) said that operational initiatives were often obstructed by infrastructure performance problems, and more than half (53%) said that was sometimes the case.

84%

of manufacturers said their data architecture supports both structured and unstructured data.



Visibility into 100% of data can't just be an aspiration. The path to impactful AI starts with complete control over data sources."

JAKE BENGTON, SR. DIRECTOR OF INDUSTRY AI SOLUTIONS, CLOUDERA

Similarly, over half of manufacturers (54%) said that their organization's data-backed initiatives were hindered because they could not access 100% of the data across environments needed to be successful.

Manufacturers are confident in their ability to achieve 100% visibility into their data, regardless of where it lives. So, why do a majority also report operational hindrances due to data access limitations? One area that contributes to this reality is data governance. Nearly one-in-five (17%) of manufacturers said that data quality issues were responsible for poor ROI.

When dealing with massive organizations, with complex operations, fast-paced factory floors, and deep historical troves of data, the policies that are intended to manage all of that information must be mature enough to keep up. A small fraction (16%) of manufacturers said all of their data was fully governed. Forty-two percent said almost all of their data was fully governed, which is a promising start, but signals that there is still significant room for improvement. So, why does this matter when it comes to hindered data-backed initiatives? Without a clear framework for governance, manufacturers can't know for certain the quality of their data or even see where it is to begin with.

## Who's in Charge? Accountability and Strategic Alignment in Manufacturing

Data readiness isn't just a technical or solution-based challenge for organizations. Readiness requires deep strategic flexibility and cultural alignment from end to end. For manufacturers, most (83%) said their organization has a clearly defined data strategy tied to broader business objectives, with nearly one-third (30%) saying this was extremely true. Similarly, manufacturers showed faith in the ability of their senior leadership with 89% stating their senior leadership understands and prioritizes the necessary data infrastructure to enable AI at scale.

As we examine the role of senior leadership, another important element to data readiness and impactful AI emerges—accountability and ownership. Among manufacturers, responsibility was placed primarily with the CIO/CTO (68%), with the next closest being the Chief Data Officer (14%) and Chief AI Officer (12%).

## The Future of Data Readiness in Manufacturing

The potential for AI to redefine and shape the future of manufacturing is real. But organizations can only see meaningful ROI if they take steps to build an infrastructure that is truly ready for that future. Over the next two to three years, manufacturers are approaching that future with a good deal of optimism with 83% saying they believed their current data infrastructure could support the organization's strategic priorities over the next 2–3 years.

Ultimately, the key to making that optimism a reality is a focus on data over flashy AI models and complex systems.

Learn more about what it takes to achieve [data readiness](#) in manufacturing and talk to an expert today.

# 42%

of manufacturers said that siloed data was a barrier to sharing, managing, and using data effectively.



Today's enterprises are laser focused on AI implementation. But you can't skip steps to get there. Build the right foundation first, then reap the benefits."

JAKE BENGTON, SR. DIRECTOR OF INDUSTRY AI SOLUTIONS, CLOUDERA

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