



Informatica®

from  Salesforce

eBook

# 5 Signs Your Data Architecture Isn't Ready for Digital Twins

A leader's guide to avoiding failure and building a strong digital twin data foundation

Where data  
& AI come to 



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# The Reality Behind the Hype

Smart manufacturing is no longer optional. A recent Deloitte survey found that 92% of manufacturers<sup>1</sup> believe it will be the main driver for competitiveness over the next three years. At the heart of this transformation is the digital twin, powering a market projected to surpass \$149 billion by 2030.<sup>2</sup> A digital twin is a dynamic virtual replica of a physical asset, process or system. It uses real-time data from its real-world counterpart to simulate behavior, predict failures and optimize performance — all in a safe, virtual environment.

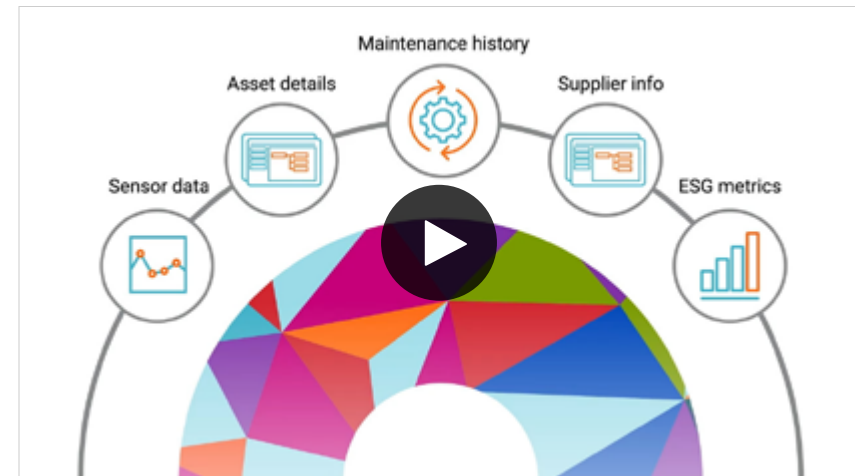
But there's a stark reality hidden behind the hype: many of these initiatives are stalling in the pilot phase.

Why? The failure point is almost never the 3D model or the simulation software. The single biggest barrier is the digital twin data itself. In fact, Deloitte's 2025 research confirms that a lack of a solid data foundation is a primary obstacle to advanced analytics.

The uncomfortable truth is that a digital twin is only as intelligent, accurate and profitable as the data that feeds it.

This guide is your diagnostic tool. Use these five signs to assess your readiness and build a blueprint for success.

**A digital twin is only as good as the data that feeds it.**



**Watch this short video** to see how a foundation of trusted, unified data transforms a digital twin from a simple guess into a proactive decision engine.

<sup>1</sup> <https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/2025-smart-manufacturing-survey.html>

<sup>2</sup> <https://www.marketsandmarkets.com/Market-Reports/digital-twin-market-225269522.html>

## Sign #1

# IT/OT Disconnect – A Core Digital Twin Data Integration Challenge

### The Problem:

Your digital twin needs a complete picture, but your data lives in two different worlds:

- **The OT (Operational Technology) World:** Real-time data from sensors, machines and production lines.
- **The IT (Information Technology) World:** Business context from ERPs (Enterprise Resource Planning), supply chain and asset management systems.

This disconnect is a core challenge in digital twin data integration. Without a bridge between these worlds, your twin is making decisions with only half the story. With 46% of manufacturers now deploying IIoT (Industrial Internet of Things),<sup>3</sup> solving this is a top barrier to success.

### Symptom in the Wild:



*A wind farm operator builds a digital twin to maximize energy output. But the project stalls because the twin can't integrate real-time weather data with stale operational data from the turbines. The two datasets live in separate, disconnected systems, making true optimization impossible.*

### The Diagnosis:

Your architecture lacks a modern, flexible data integration fabric that can unify high-speed streaming data with your core business systems.

<sup>3</sup> <https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/2025-smart-manufacturing-survey.html>

## Sign #2

# Poor Data Quality for Digital Twins

### The Problem:

The old saying "Garbage In, Garbage Out" is brutally true for digital twins. You can have perfect connectivity, but if the data itself is flawed, your twin will fail.

Poor data means:

- **Inaccuracy:** It doesn't reflect reality.
- **Incompleteness:** It's missing critical context.
- **Outdated:** It's too slow to be useful for real-time decisions.

Ensuring high data quality for digital twins isn't just a technical task; it's the foundation of trust. Without it, your twin is a faulty compass, confidently steering your business in the wrong direction.

### Symptom in the Wild:



*A logistics company's new supply chain twin consistently fails to accurately model disruptions. The reason? It's being fed poor-quality supplier and logistics data from partners, riddled with errors, duplicates and missing information. The twin can't predict the future because it can't understand the present.*

### The Diagnosis:

You lack an automated, enterprise-wide data quality framework to cleanse, standardize and monitor data before it reaches the twin.

## Sign #3

# No Single Source of Truth – A Master Data Management Digital Twin Problem

### The Problem:

Your digital twin can't build a complete history of an asset if it doesn't know which system the asset came from.

Does this look familiar?

- In maintenance, it's "**Pump-7B.**"
- In your ERP, it's "**Asset #84530.**"
- In engineering, it's "**Component P-501.**"

To your digital twin, these aren't the same thing. This is a classic **master data management** (MDM) digital twin problem. Without a single, trusted "golden record" for every asset, the digital thread is broken and your twin is operating in chaos.

### Symptom in the Wild:



*A twin production line gives false failure predictions, leading to unnecessary and expensive shutdowns. A deep dive reveals the cause: inconsistent asset master data between the EAM and ERP systems. The twin was confusing two similar, but distinct, pieces of equipment.*

### The Diagnosis:

Your architecture is missing an MDM discipline to create a single, trusted, 360-degree view of every critical asset.

## Sign #4

# Manual Processes that Can't Scale a Digital Twin Data Architecture

### The Problem:

Your digital twin pilot was a huge success. But *how*? A small team of "data heroes" likely spent weeks manually preparing a perfect dataset for a single asset.

This is the PoC (proof-of-concept) scalability trap.

Here's why it fails:

1. **Manual effort doesn't scale:** What took weeks for one asset will take years for a thousand.
2. **You can't hire your way out:** Deloitte's 2025 survey confirms a massive talent gap in data science and IT/OT roles.<sup>4</sup> The "data heroes" you need are not available.

A scalable **digital twin data architecture** cannot be built on manual heroics. The only path forward is automation.

### Symptom in the Wild:



*A pharmaceutical company pilots a digital twin for one bioreactor to optimize a drug manufacturing process. The pilot works because a PhD student manually curates batch records in spreadsheets. When they try to expand the twin to all 20 bioreactors, the **manual process becomes an insurmountable bottleneck**, preventing the real-time control needed to improve yield.*

### The Diagnosis:

Your data management processes rely on manual effort rather than a scalable, automated platform, making enterprise-wide deployment financially and operationally impossible.

<sup>4</sup> <https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/2025-smart-manufacturing-survey.html>

## Sign #5

# Lack of Governance for Your Digital Twin Data

### The Problem:

Your digital twin recommends a multi-million dollar change to a production process. A leader asks the one question that matters:

#### "How do you know?"

If you can't instantly show the end-to-end data lineage — the full journey from the original sensor reading to the final insight — you can't build trust.

This isn't just a technical issue. With **65% of executives** citing operational risk as a top concern,<sup>5</sup> a lack of governance for your **digital twin data** turns your powerful asset into an untraceable, black-box liability.

### Symptom in the Wild:



*An aerospace digital twin recommends extending the service interval for a critical landing gear component. During a regulatory audit, the FAA asks for proof that the recommendation is based on certified data. The team cannot produce an automated data lineage report, putting the company's compliance status and operational certificates at risk.*

### The Diagnosis:

You lack an enterprise **data governance** framework that provides the visibility, control and auditability required for mission-critical decisions.

<sup>5</sup> <https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/2025-smart-manufacturing-survey.html>

# From Red Flags to Real ROI

If you recognize your organization in any of these signs, don't be alarmed. Be empowered. You have successfully identified the real requirements for a high-impact digital twin initiative.

Recognizing these signs isn't just about avoiding failure; it's about unlocking real value. Deloitte reports that successful companies are already seeing **up to 20% improvement in production output** and **15% in unlocked capacity** from their smart manufacturing initiatives.<sup>6</sup>

By shifting the focus from the visualization to the digital twin data foundation, leaders can overcome the most common digital twin challenges. This allows IT to move from being service providers to strategic architects of the company's digital twin data architecture.

## Ready to build the right foundation?

To explore the solutions to these challenges in greater detail, read our blog post.



Why Digital Twins Fail Without the Right Data Foundation

[READ THE BLOG](#)

<sup>6</sup> <https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/2025-smart-manufacturing-survey.html>



# About Us

## About Informatica

Informatica from Salesforce is a leader in AI-powered enterprise cloud data management. Its Intelligent Data Management Cloud (IDMC) platform enables organizations to connect, manage and unify AI-ready data across the enterprise. With capabilities spanning data cataloging, integration, governance, quality, privacy, metadata management and master data management, Informatica supports a broad partner ecosystem and helps customers unlock the full value of their data and AI initiatives.

## About Salesforce

Salesforce is the #1 AI CRM, empowering companies to connect with their customers in a whole new way through the power of artificial intelligence, data, and trust. For more information about Salesforce (NYSE: CRM), visit: [www.salesforce.com](https://www.salesforce.com).

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