Addressing the Digital Twin Fragmentation Challenge

How Assai DMS, Assai Viewport, and Assai Enterprise enable a connected asset lifecycle.

Executive Summary

The Digital Twin concept holds enormous promise for asset-intensive industries across energy, resources, and infrastructure. Yet in practice, most Digital Twin initiatives stall because each stakeholder group (EPCs, operators, licensors, OEMs, and software vendors) builds its own isolated version, optimized for its own scope and disconnected from the rest. The result is fragmented data, broken information continuity, and digital ecosystems that fail to deliver value across the asset lifecycle.

Assai's product suite (Assai DMS, Assai Viewport, and Assai Enterprise) is designed to directly address these gaps. Rather than adding yet another silo, Assai acts as the connective layer that brings structured information management, cross-system data visibility, and intelligent orchestration into a single, lifecycle-aware platform.

The Fragmentation Problem: Where Assai Fits

The core issue is not a lack of technology. It is the absence of a shared information foundation that persists across engineering, construction, and operations. Every stakeholder contributes data in their own format, on their own timeline, with their own tools, and when they leave the project, that data rarely carries forward in a usable state.

Assai's products address this at three distinct but complementary levels:

assai dms

Assai DMS: Assai DMS provides the structured document and information repository that ensures engineering, construction, and handover data is organized, version-controlled, and auditable from project inception through the full operational life of the asset

assai viewport

Assai Viewport: Assai Viewport provides the operational visibility layer, connecting to existing transactional systems (SAP, Maximo, IBM Maximo) and real-time data historians (AVEVA PI) to surface a unified, contextualized view of equipment and process data, without replacing those systems.

assai enterprise

Assai Enterprise: Assai Enterprise ties both together with workflow orchestration, AI-powered search, and cross-system coordination, enabling users to find, act on, and route information efficiently regardless of where it originates.

Responding to the Root Causes of Digital Twin Misalignment

The following table maps each identified root cause of Digital Twin fragmentation to specific capabilities within the Assai product suite.

ROOT CAUSE	HOW ASSAI ADDRESSES IT
Fragmented objectives across the stakeholder ecosystem	Assai Enterprise provides a single orchestration layer that connects engineering, construction, and operations workflows. By centralizing document control, search, and approvals, it creates a common operational foundation all stakeholders can work from.
Stakeholder engagement that ends at project handover	Assai DMS is designed for the full asset lifecycle, not just project delivery. Structured document repositories, version histories, and audit trails ensure information continuity long after individual project contributors have exited.
Inconsistent data structures and semantic alignment	Assai DMS enforces configurable naming conventions, metadata schemas, and document classification standards. This ensures consistent tagging and retrieval across engineering, supplier, and operational documents.
Siloed, closed systems that resist integration	Assai Viewport connects to third-party systems via open APIs without locking data into proprietary formats. It reads from EAM systems, ERPs, and process historians to present a unified view, enabling interoperability rather than replacement.
No shared vision beyond the current project phase	Both Assai DMS and Assai Viewport are built around lifecycle continuity. Engineering data captured during project phases remains accessible and contextualized during operations, reducing the typical degradation of information quality after handover.

ROOT CAUSE	HOW ASSAI ADDRESSES IT
No designated owner for end-to-end data continuity	Assai DMS provides configurable approval workflows, role-based access control, and full audit trails. Ownership of documents and data is explicitly assigned, tracked, and enforced through the system.
Document-centric handover instead of data-centric lifecycle	Assai DMS moves beyond file storage by associating documents with tags, equipment, and functional locations. This transforms handover packages from unstructured folders into structured, queryable information assets.
Domain skill silos and cross-discipline blind spots	Assai Enterprise's AI search and natural language interface lowers the barrier to accessing complex engineering and operational data, reducing dependence on system-specific expertise and making information accessible across teams.
Conflicting stakeholder incentives	As a vendor-neutral platform, Assai does not compete with source systems; it complements them. This positions Assai as an enabler of standards-based interoperability rather than a proprietary ecosystem.
Geographically distributed and harsher operating environments	Assai DMS and Assai Viewport are built as centralized, cloud accessible platforms rather than site-bound tools, so dispersed teams across remote wind farms, multiple mine pits, or concurrent construction sites work from the same document repository and data view instead of maintaining local shadow copies.
Disconnected disciplines speaking different technical languages	Assai Enterprise's AI-powered search enables users across disciplines (engineering, operations, maintenance, procurement) to find relevant information in plain language, bridging the gap between technical domains without requiring system expertise.

Operational Visibility Without Replacing Existing Systems

A common concern in Digital Twin initiatives is the cost and disruption of replacing existing operational systems. Assai Viewport is explicitly designed to avoid this. Across asset-intensive industries, operators already rely on established EAM platforms, process historians, and operational management systems built up over years. Assai Viewport connects to these systems as a visibility layer, aggregating work orders, equipment history, and real-time process data into a single contextual view.

Oil & Gas

For example, for a given piece of rotating equipment, an operator using Assai Viewport can see:

- Recent and open work orders from SAP PM or Maximo
- Downtime trends computed within the AVEVA PI System and surfaced in context
- Associated documentation from Assai DMS, including maintenance procedures and inspection records
- Engineering metadata such as tag information, equipment specifications, and revision history

Renewables

The same principle applies across other asset-intensive sectors. For a wind turbine in a renewables environment, an operator can see:

- Active and historical work orders from an EAM such as SAP PM, alongside scheduled preventive maintenance cycles
- Real-time SCADA output and generation performance data surfaced from a process data historian such as AVEVA PI
- Associated documentation from Assai DMS, including OEM manuals, inspection certificates, and blade maintenance records

Mining

In a mining environment, for a crusher or belt conveyor, Assai Viewport surfaces:

- Open and completed corrective work orders from Maximo or similar EAM platforms
- Throughput and vibration trend data drawn from a process historian, enabling early identification of wear or misalignment
- Engineering documentation from Assai DMS, including as-built drawings, lubrication schedules, and OEM spare parts registers

Construction & Infrastructure

In construction and infrastructure, for a major installed asset such as a pump station or substation, Assai Viewport connects:

- Handover and commissioning records from the EPC contractor, as structured in Assai DMS, directly to the operational maintenance workflow
- Open defect and punch list status from project management systems, matched to the relevant equipment tag and documentation set
- Engineering metadata including functional location hierarchy, installed equipment specifications, and revision-controlled drawings

Importantly, Assai Viewport does not attempt to replicate analytical functions that are better performed in dedicated tools. Predictive maintenance recommendations, failure mode analysis, and optimization algorithms remain within purpose-built analytical platforms.

Assai Viewport surfaces the outputs of those systems in context, enabling better decisions without duplicating capability.

Enabling the Path to a Real Digital Twin

The industry consensus on what a real Digital Twin requires aligns closely with what the Assai suite delivers today:

01	A unified information platform accessible across stakeholders, provided by Assai Enterprise
02	Structured, machine-readable data handover, enforced by Assai DMS through naming conventions, metadata standards, and completeness validation
03	Interoperable, open-data connectivity, enabled by Assai Viewport's API-based integration layer
04	Continuous data quality from the start of the project, supported by Assai DMS's governance and workflow controls
05	A shift from document-centric to data-centric lifecycle management, the foundational design principle of the Assai platform

The Assai Proposition

Assai does not claim to be the entire Digital Twin. It provides the information management and operational visibility foundation that a real Digital Twin depends on, structured, connected, and sustained across the full asset lifecycle. Across asset-intensive industries, from Oil & Gas and Utilities to Renewables, Mining, and Construction, the defining challenge is the same: maintaining trusted engineering information and continuity from project delivery through the full operational life of the asset. Assai is positioned as the enabling layer that makes that continuity achievable.

Discover how Assai helps industrial organisations create trusted engineering information across the asset lifecycle. Schedule a demonstration with our team.

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