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... where Acumen drives Innovation



Acuvate + PNID.IO: Integrated Data & 2D Digital Twin

Modernize, optimize & transform your industrial operations with an end-to-end 2D digital twin solution





You have all that data but often not aligned and therefore making life very difficult for Operators, Maintenance & Engineering staff having to deal with this nonaligned data when doing their job. This is where PNID.IO, the Engineering → Asset Reality Layer, combined with Acuvate's AcuPrism enterprise data platform, delivers a cost-effective, deployment-ready 2D digital twin without laser scans, photogrammetry, or multi-year transformation programs.

No need for laser scans, etc., but using the relevant intelligent P&IDs as base. This means that all staff have this single User Interface as their base to work from with all data sources accessible via this User Interface.

PNID.IO and Acuvate have taken to the market this end to end integrated solution from reading out sensors; getting data direct or via AcuNow edge facilities to the AcuPrism Enterprise Data & AI Platform, where data contextualization and (AI) Analytics can be applied to get value out of the data and make all results available via PNID.IO your single User Interface for all staff.

Because the P&ID is already the language every operator, maintenance technician, and engineer is trained on, PNID.IO eliminates the adoption curve that kills most digital twin programs.

Example use cases that **turn insight into action:**



Enterprise-wide asset intelligence with site-level focus

Operational, engineering, maintenance, and sensor data from multiple sites are managed on a single AI-ready platform. PNID.IO provides a 2D digital twin environment that lets teams zoom into a specific site, asset, or system with full context.



Operational digital twin for daily work

Engineering, maintenance, operational, and sensor data are unified into a single, visual 2D digital twin. Teams work from one trusted view, reducing silos and accelerating day-to-day decisions.



Faster troubleshooting & incident response

Operational anomalies and alerts are linked to their 2D physical location on the plant. This enables quicker diagnosis, safer response, and reduced production losses.



Asset health & risk visualization

Decision-makers instantly understand risk levels and priorities without digging into complex dashboards.

PNID.IO brings value in investment projects

During investment projects, PNID.IO provides owner-operators with a single, shared 2D digital environment where engineering data, models, documents, and project status are accessible in context. This improves transparency across EPCs, engineering partners, and internal teams, enabling faster communication, fewer misunderstandings, and better control over schedule, cost, and scope.

PNID.IO supports continuous review and collaboration throughout the project lifecycle, reducing late changes typically discovered in milestone reviews.

The data generated during the project does not lose its value at handover. Instead, it becomes the foundation of a living operational digital twin, ensuring that investments made during the project directly support safer operations, efficient maintenance, and future improvements.

In a nutshell, PNID.IO:

- Connect data and documents so individual stakeholders can seamlessly access, compare, and interpret information without switching systems.
- Automate validation to expose inconsistencies instantly, reduce review fatigue, and empower teams to make confident, consistent project decisions.

What PNID.IO does

- **Intelligent P&ID digitization:** Automated extraction of every equipment, line, valve, instrument, and tag from any P&ID format (PDF, image, vector) into structured, queryable data
- **Engineering knowledge graph:** Every tag, line, and asset connected to its upstream and downstream relationships, so users can traverse the plant the way it actually works
- **2D digital twin interface:** The P&ID becomes the live workspace; click any asset to see its real-time data, documents, history, and AI insights
- **Multi-format output:** DEXPI, Excel, JSON, and direct API delivery into ERP, EAM, EDMS, and historian systems
- **MTO and Bill of Quantities:** Automatic material take-off generation from validated drawings, ready for procurement
- **ERP master data sync:** Clean, deduplicated, hierarchy-aware tag and equipment registers ready for SAP, Maximo, or any asset management system
- **Engineering recreation:** Rebuild outdated or inconsistent drawings into a single trusted source of truth
- **Document and data linkage:** Every asset linked to its datasheets, manuals, isometrics, P&ID revisions, inspection records, and live sensor feeds
- **Validation and consistency checks:** Automated detection of mismatches between drawings, ERP, and field data before they become incidents
- **Cloud-deployed, enterprise-secure:** Runs in your tenant, your cloud, your access controls; your data never leaves your environment
- **Continuous updates via MOC integration:** Every Management of Change feeds the twin, so the drawing never drifts from reality

Why teams choose PNID.IO

- **Faster troubleshooting:** Anomalies surface exactly where they live on the plant, not buried three dashboards deep
- **Cleaner master data:** Every tag flowing into ERP has been validated against the drawing it came from
- **Better investment decisions:** EPCs, owner teams, and engineering partners finally work from the same picture
- **A digital twin that survives handover:** By the time your project closes, the twin is already running



Connecting high-quality, contextualized data to PNID.IO is where **AcuPrism — Acuvate's Enterprise Data & AI Platform** plays a decisive role. AcuPrism is the intelligent intermediary that ingests, cleanses, contextualizes, and enriches data from across your enterprise before delivering it to PNID.IO.

AcuPrism supports the this digital twin in three critical ways:

1 Sensors selection and connectivity

Dependent on the type of data, location of the data, frequency of the data, etc. We can select the appropriate sensor for data collection including connectivity to the AcuNow edge services and / or to AcuPrism.

3 Medallion architecture

AcuPrism cleanses and refines data through a proven **Bronze → Silver → Gold** architecture — ensuring only high-quality, analytics-ready data reaches the digital twin layer.

2 Data contextualization

Naming conventions for the same physical component often differ across enterprise systems. AcuPrism resolves these mismatches — aligning naming standards across sources so the Digital Twin operates on coherent, trustworthy data.

4 Multi-flavour AI

AcuPrism enables a full spectrum of AI capabilities to extract value from your data before it reaches PNID.IO:

- Machine Learning (ML)
- Machine Vision (MV)
- Generative AI (Gen-AI)
- Agentic AI
- And more

The PNID.IO principle: Capture → Correct → Connect → Consume

Capture the engineering data from drawings and documents. Correct the inconsistencies and gaps. Connect every element into a live engineering knowledge graph. Consume that graph through the P&ID as the daily user interface, and through APIs into every downstream system.

“That is the Engineering → Asset Reality Layer.
That is PNID.IO.”

Data sources we connect

AcuPrism is designed to integrate with the diverse ecosystem of industrial and enterprise systems your organization already uses, including, just as examples, but not limited to:

- **(OT) Aveva PI Historian** — Time-series sensor data
- **Microsoft O365 SharePoint** — Documents and collaboration content
- **Assai EDMS** — Engineering document management
- **(Security) Camera Images** — Visual feeds processed via Machine Vision
- **SAP ERP** — Asset, maintenance, and operational data
- Additional enterprise and operational systems as required



“All data sources connect into AcuPrism, which then delivers enriched, structured, and AI-ready data to PNID.IO.”

Our approach to building the digital twin



You define use cases and related workflows — Determine which data sources are needed based on the specific operational use cases and digital twin scenarios.



We connect data sources to AcuPrism — Integrating all required systems into AcuPrism, where data contextualization and Medallion architecture cleansing take place.



We enable real-time and sensor data — For sensor-driven or real-time needs, **AcuNow** — Acuvate's Edge Platform — accelerates connectivity with support for multiple sensor and edge solutions, including high-speed Aveva PI integration.



We apply AI analytics — **AcuPrism** activates the required AI capabilities (ML, Machine Vision, Gen-AI, Agentic AI) before delivering outputs to PNID.IO APIs — meaning PNID.IO can present the results of AI-driven analysis directly to users.



We deliver to PNID.IO — All enriched, real-time, AI-processed data is made available to PNID.IO in a coherent and governed manner.

What PNID and Acuvate deliver together

As a jointly accountable partnership, PNID.IO and Acuvate offer you a complete, end-to-end managed experience:

Deliverable	What it means for you
Single 2D digital twin platform	One trusted environment where every engineer, operator, and maintenance lead works from the same live view of the plant
AcuPrism-powered data foundation	Cleansed, contextualized, AI-ready data from every source (sensors, ERP, EDMS, historian) flowing into the twin automatically
Engineering knowledge graph	Every tag, asset, and document connected; queryable in seconds instead of hours of document hunting
AI-enriched insights at the asset level	ML, Machine Vision, Gen-AI, and Agentic AI outputs delivered directly onto the P&ID, where decisions are made
End-to-end managed deployment	One contract, one accountable team, from data ingestion through to daily user adoption; no integration risk left to you

One partnership. One accountable experience.

PNID.IO and Acuvate are fully committed to delivering this as a seamless, integrated experience — not two disconnected products, but a single end-to-end solution you can rely on. From deployment to daily operations, from data ingestion to AI-enriched digital twin insights, you get **maximum business value, minimum complexity**.

Ready to explore what an end-to-end digital twin solution can do for your operations?

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