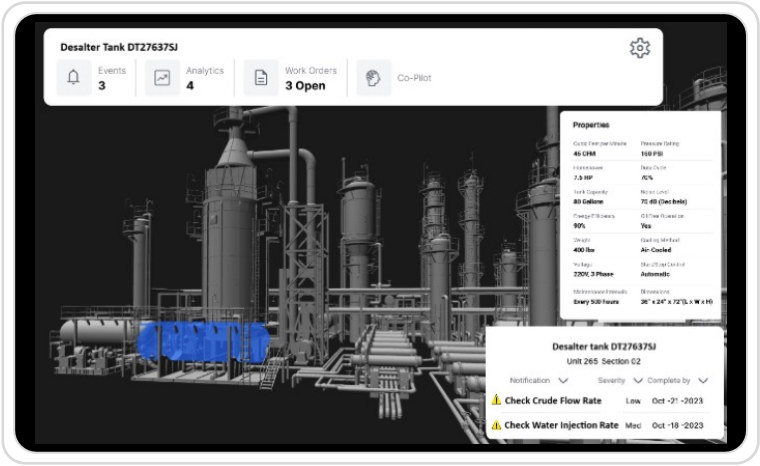
SymphonyAI

Digital Twins

Represent your industrial environment with an integrated, real-time operational model

Break down silos and bring clarity to complex industrial environments with digital twins designed for human understanding. By unifying diverse data — from time series and P&ID diagrams to 3D models, images, and beyond — you create a connected, contextual view of operations. Simplify the creation, deployment, and scaling of digital twins across assets and locations to accelerate transformation and boost efficiency.



Challenges faced by manufacturers

- **Data remains siloed and inaccessible:** Accessibility of industrial data poses a significant hurdle. Often confined within disparate systems, accessing the right data is laborious for data scientists and application builders when building, deploying, and scaling industrial solutions
- **Volume of data is rapidly increasing:** With an exponential increase in data generation, managing industrial data at scale is becoming increasingly difficult. Current estimates suggest data generation will increase by 50% over the next 2 years
- **Industrial data lacks context:** Current strategies to consolidate industrial data into a data lake or lakehouse result in data swaps unusable by onsite personnel or data science teams. Without context, finding and verifying trusted data becomes a near-impossible task
- **Digital initiatives are moving too slowly:** Many digital initiatives remain stuck, unable to scale beyond pilots or one-time use case deployments. Achieving digital initiatives at scale is hampered by inconsistent naming conventions, vendor lock-in, and generations of equipment and assets with varied protocols and available information

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Challenges faced by manufacturers (Cont.)

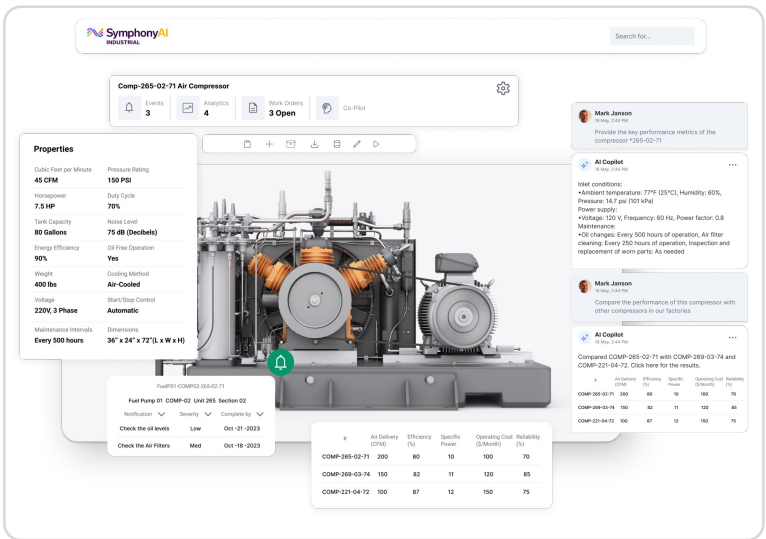
- **Industrial AI is missing production scale:** Predictive AI models cannot be deployed at scale without tedious manual processes to explore and clean data and time-consuming processes to test and iterate on models. AI/ML platforms lack industrial domain expertise. Generative AI chatbots are limited to search and code writing, lacking the industrial context required to solve operational use cases
- **Disconnected from Operational Context:** 3D models are typically created during design and engineering phases and are rarely updated to reflect changes during operations. As a result, they often lack alignment with live sensor data or current asset states

Industrial DataOps:
Powering the Digital Twin Ecosystem

A digital twin should not be viewed as a single, all-encompassing model. Instead, it should be understood as a modular ecosystem – a flexible network of interconnected models, each designed for a specific function within engineering, operations, or product management. This shift in mindset reflects how modern industrial businesses operate: through collaboration, adaptability, and specialization.

Rather than aiming to build one massive, all-knowing digital twin that attempts to represent every detail of the physical world, organizations benefit more from creating a family of smaller, purpose-built digital twins – called micro twins. These micro twins are developed from shared foundations—common data sources, tools, and methodologies but are independently focused on different objectives, such as condition monitoring, process optimization, or maintenance forecasting.

Each of these micro twins can evolve on its own timeline, scale according to need, and generate value without relying on a centralized, rigid architecture. This decentralized structure offers greater flexibility, autonomy, and domain-specific governance, which is essential when dealing with the constant changes and complexity of industrial environments.



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However, this approach raises a critical challenge: how do we efficiently manage and deliver high-quality, contextualized data across a distributed and dynamic system? As assets change, expand, or degrade, the data supporting these digital twins must keep up—accurately, in real time, and at scale.

This is where Industrial DataOps comes in. It acts as the foundational framework that supports and orchestrates data integration, contextualization, quality control, and governance.

SymphonyAI's innovative approach for industry

SymphonyAI IRIS Foundry provides the differentiating building blocks of industrial data management and governance needed to deploy AI-embedded manufacturing solutions at enterprise scale. IRIS Foundry has prebuilt connectors to extract data from IT, OT, and engineering data sources into polyglot data stores to ensure versatile handling and integration of multiple data contexts.

Data is organized into a structured asset hierarchy using AI-powered P&ID ingestion or through an existing asset historian framework. This process, enhanced with sophisticated contextualization services, automatically maps data into a unified namespace. The result is a dynamic industrial knowledge graph, simplifying information access and navigation.

The IRIS Foundry knowledge graph is the foundation for enriched analysis and insights. It empowers IRIS Copilots for user-based interactions, guiding the exploration and understanding of complex data landscapes. Industrial applications built on IRIS Foundry adhere to data governance, audit, and security standards.

To adopt industrial AI, IRIS Foundry offers productized generative and predictive AI capabilities, leveraging the Industrial LLM (large language model), role-based copilots, and ready-to-deploy-and-use domain models for a wide range of manufacturing industries. Robust out-of-the-box, industrial applications use these capabilities to improve process efficiency, reduce unscheduled asset downtime, and enhance connected worker decision-making.

Additionally, IRIS Foundry offers a low-code, drag-and-drop user experience, easy integration with programming tools, and an ability to deploy in various modes ranging from SaaS to customer-hosted models in a private cloud.

Up to 60%

Faster Decision-Making

Unified operational data visualization accelerates time-to-decision by up to 60%, enabling proactive management and rapid optimization of plant processes.

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What is an industrial digital twin?

An industrial digital twin is a dynamic digital representation of a physical asset, system, or process—such as equipment, a production line, or an entire facility. It integrates both real-time data (like sensor readings and operational alerts) and historical records (such as maintenance logs, performance history, and design specs) from across IT, OT, and engineering systems.

More than just a data repository, a digital twin organizes and contextualizes diverse data types—ranging from time series and 3D models to documents, images, and P&IDs—into a unified, searchable environment. This contextualization allows users to understand how assets are connected, how they behave, and how they impact overall operations—enabling smarter decisions, predictive insights, and scalable digital solutions.

Why IRIS foundry

1. **Break down data silos:** Seamlessly integrate IT, OT, and engineering data sources through pre-built industrial connectors and managed cloud and edge storage platforms. To reduce the time and effort to connect industrial data, out-of-the-box integrations exist for Microsoft Fabric, Azure IoT, Azure Event Grid, and Azure OpenAI, along with hundreds of prebuilt connectors to systems and protocols such as SAP, Kafka, MQTT, OPC-UA, OPC-DA, Aveva's OSI PI, AspenTech's IP.21, Rockwell's FactoryTalk, GE Proficy, and more

2. **Contextualize, unify & visualize industrial data:** Provide universal access to all enterprise data with a Unified Namespace, enabling employees of all levels to instantly understand and interact with contextualized information from any industrial network. Use AI-powered P&ID with 3D visualization to turn raw industrial data into insights that fuel smarter operations and sustainable growth

3. **Scale AI-powered insights:** Use advanced predictive models, which merge data science and physics principles, to create synthetic data and new insights. Scale insights with MLOps Studio to explore, test, deploy, and iterate on predictive models built for industry. Deploy role-based AI copilots within IRIS Foundry that provide the simplicity needed to interact with predictive models and gain actionable insights

Up to 80% Reduction in Incident Response Time

Organizations leveraging SymphonyAI integrated 3D/2D visualization have seen up to 80% faster response to operational incidents through real-time, contextualized data. access

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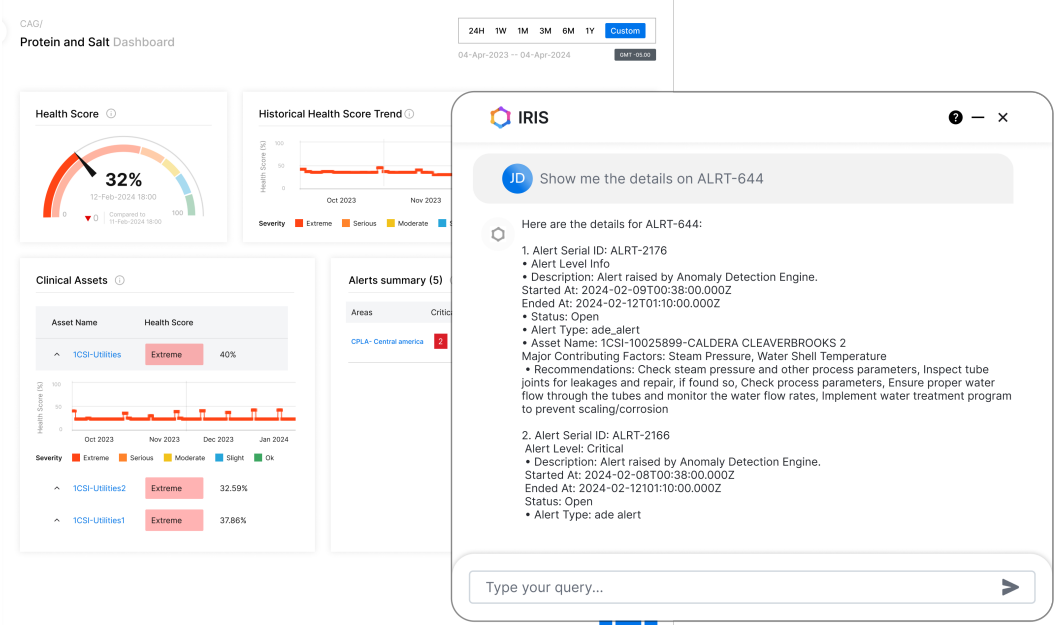

Role-based copilots to interact with insights and receive recommendations in pre-built applications

Solution highlights

1. **Industrial workflow applications:** Prebuilt applications for connected workers, operational efficiency, and asset performance are available out of the box. Tailor applications to the specific needs of each site with a composable architecture

2. **Industrial data connectors:** Connect seamlessly to various data acquisition systems with prebuilt connectors to common industrial sources

3. **Live Sensor Overlays in 3D Models:** Visualize real-time sensor values directly in 3D environments, allowing engineers to inspect performance and anomalies spatially, just like walking through the plant virtually

4. **Real-Time Fault Visualization in 3D:** Predictive models and rules-based analytics can “light up” problem areas in a facility’s 3D model, enabling proactive response to emerging issues or safety risks

5. **Unified namespace:** Create a single digital representation of operations and provide a foundation for adopting pre-built solutions or building tailored applications through a robust and open API

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Solution highlights (Cont.)

6. **Industrial knowledge graph:** Interact with unified data in a way that is easy to understand, facilitating data-driven decision-making and insights through charts, graphs, and other visual representations

7. **Multi-Perspective Twin Views (Ops, Maintenance, Engineering):** Different teams (e.g., operations, maintenance, engineering) can access tailored digital twins, each emphasizing the data and 3D context relevant to their specific roles and use cases

8. **Industrial Copilot with generative AI:** Simplify the interaction with plant data using the world's most potent, explainable, and reliable Industrial Copilot. Using natural language prompts, ask questions and generate visualizations, forecasts, and reports in your language

9. **Augmented Navigation Through Linked Context:** 3D visualizations are enriched with clickable links to related documents, time series, P&IDs, and inspection images—turning static models into navigable, insight-driven environments

10. **Seamless Integration with 2D and Engineering Diagrams:** Bridges 3D models with 2D diagrams like P&IDs and engineering drawings, letting users switch between views without losing data context

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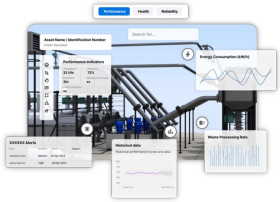
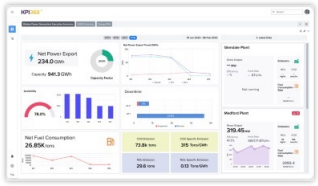
IRIS foundry

Proactively Monitor Assets



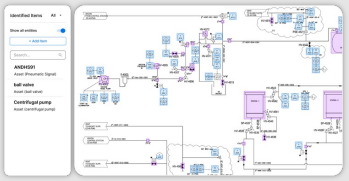
Increase operational efficiency

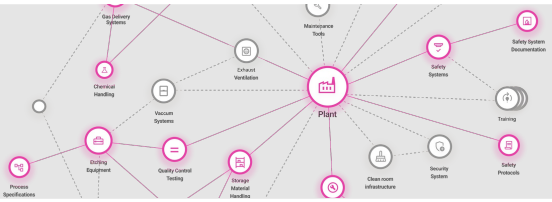


Streamline field work

Industrial Generative AI Copilots
Role-based copilots trained on industrial data

IRIS Foundry
Industrial Data Foundation





Conventional IT Data
- CMMS
- ERP

Operational Data
- Historian
- MES
- SCADA/ PLC
- IoT Platform

Engineering Data
- SOPs & Docs
- P&IDs & Drawings
- Images
- Simulation

About SymphonyAI

SymphonyAI is building the leading enterprise AI SaaS company for digital transformation across the most critical and resilient growth verticals, including retail, consumer packaged goods, finance, manufacturing, media, and IT/enterprise service management. SymphonyAI verticals have many leading enterprises as clients. Since its founding in 2017, SymphonyAI has grown rapidly to 3,000 talented leaders, data scientists, and other professionals. SymphonyAI is an SAIGroup company, backed by a $1 billion commitment from successful entrepreneur and philanthropist Dr. Romesh Wadhwani.

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