



# ProPlant AI

The future of industrial intelligence is here

<https://proplant.ai>

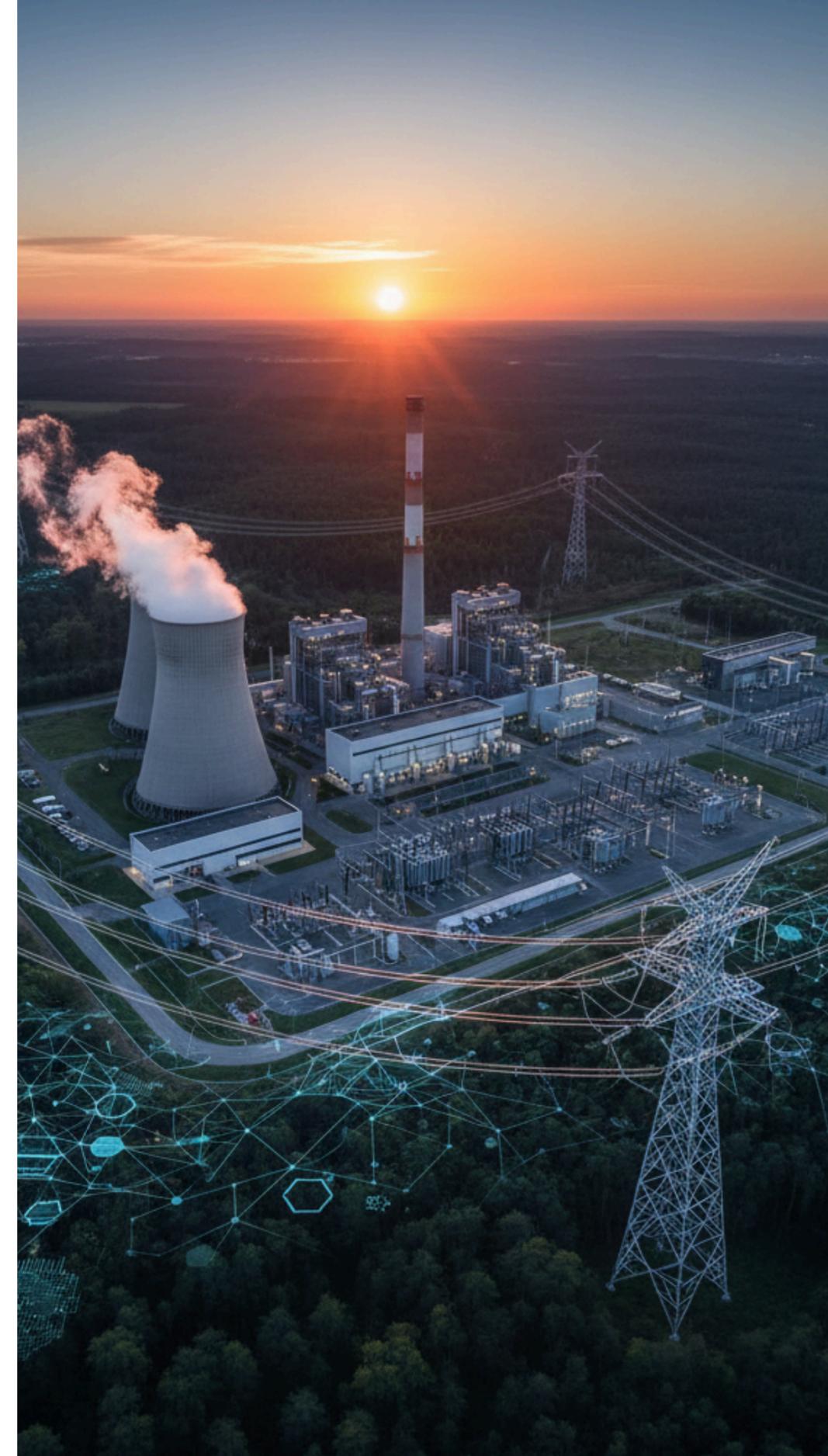
# The Changing Landscape

In today's competitive industrial landscape, every hour of unplanned downtime translates directly to lost revenue, missed commitments, and eroded margins. Process industries, manufacturing and power plants face a unique challenge: the convergence of aging **infrastructure**, retiring **expertise**, and increasing operational complexity

## Hidden Cost of Inaction

Plants globally experience significant financial losses due to **preventable failures** and **knowledge gaps**. Industrial facilities invest heavily in Distributed Control Systems (DCS) to collect real-time operational data from critical equipment. These systems generate thousands of data points every second—temperature, pressure, vibration, flow rate, and more. However, most organizations face a fundamental gap:

The ability to collect data far exceeds the capability to analyze it meaningfully.



DCS systems excel at monitoring and alarming based on threshold violations, but they lack the sophisticated analytical capabilities needed to identify subtle patterns that precede equipment failures. The data exists, but the insights remain hidden.

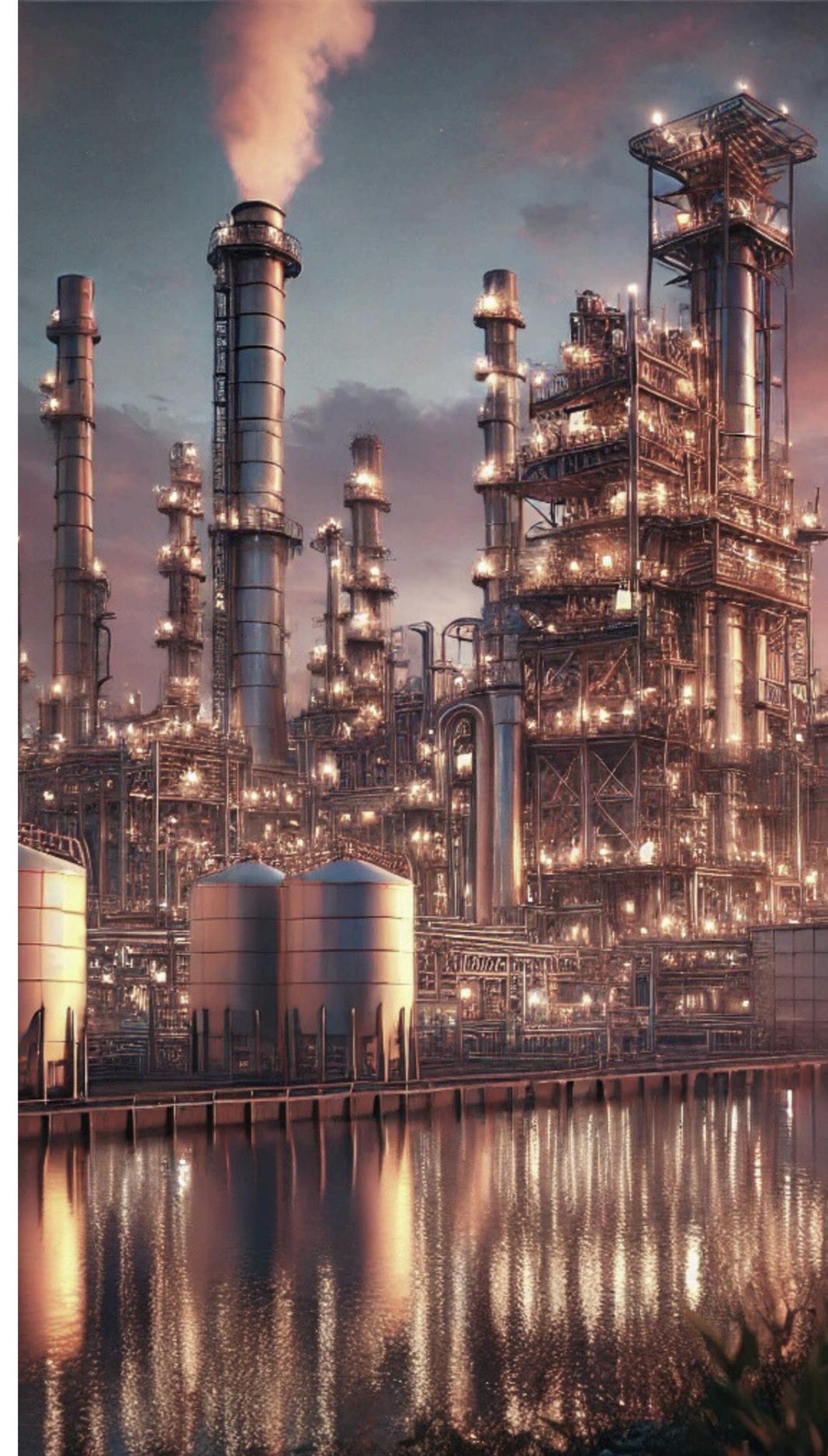
# ProPlant's Value

## Revenue Protection Through Proactive Asset Health Management & Workforce Upskilling

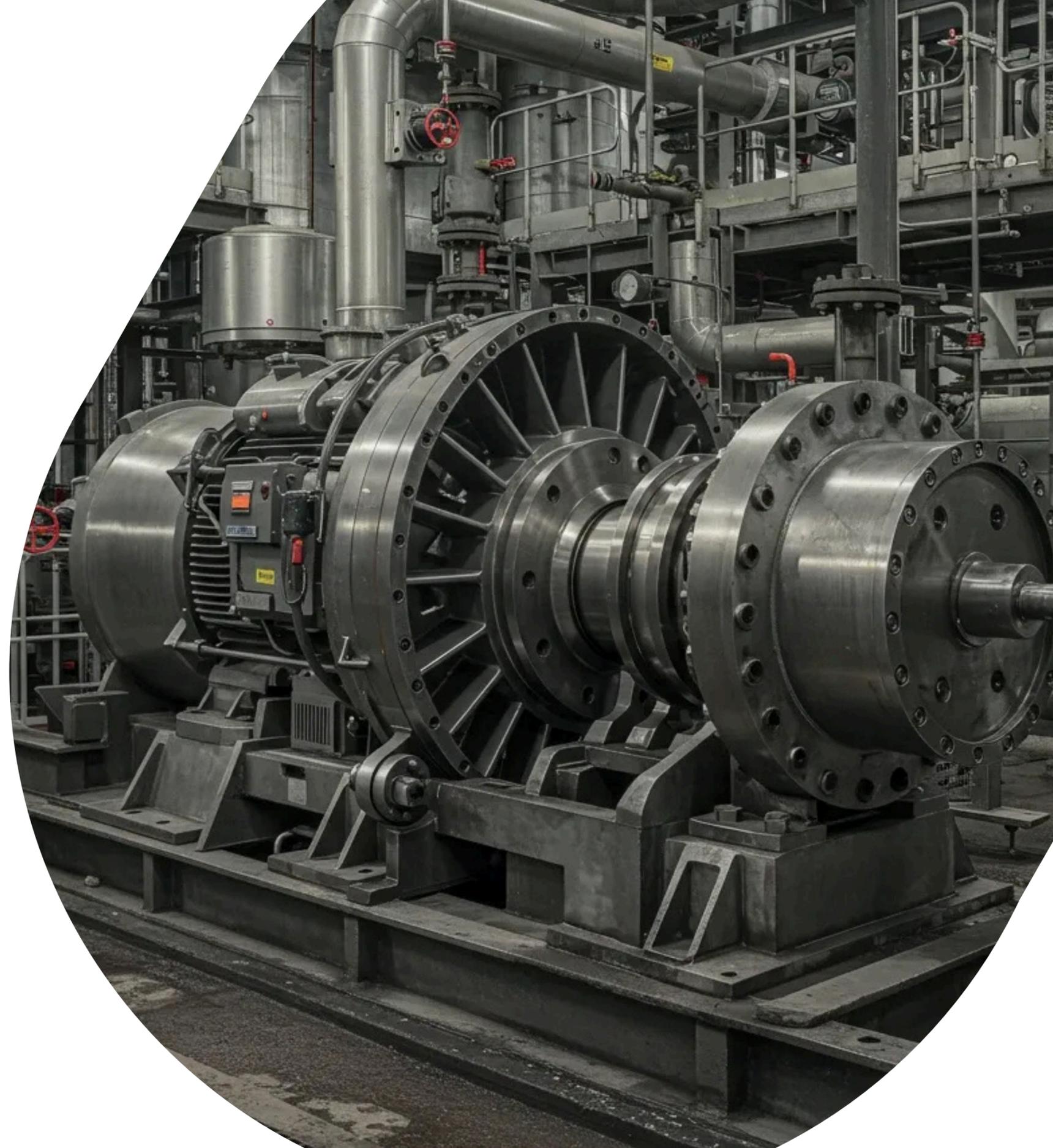
ProPlant directly addresses these challenges by combining **AI-powered asset health analytics and institutional knowledge preservation**.

Our holistic approach utilizes the best of analytics data with operational insights combined with workforce upskilling to empower your entire organization to be successful

*ProPlant transforms reactive maintenance approaches into predictive strategies that protect revenue streams and optimize operational efficiency.*



# ProPlant Asset Health



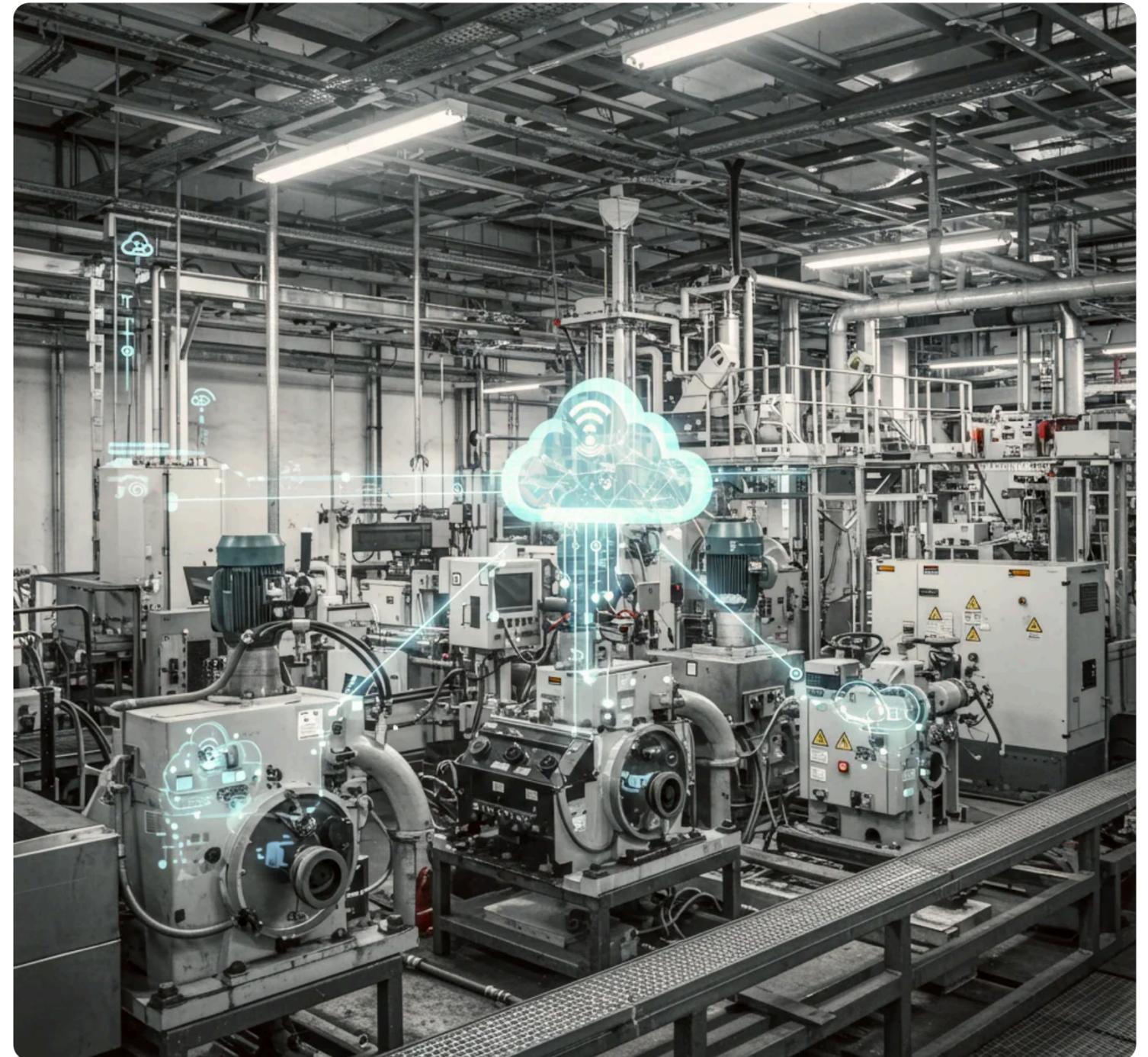
# AI-Powered Asset Health and Analytics

Our AI-powered platform combines **real-time equipment monitoring** with **comprehensive knowledge about your plant**, capturing **how equipment actually behaves in your company**.

ProPlant AI correlates sensor data from equipment monitoring with documented data that precedes failures in your unique environment.

The result: a Digital Brain that doesn't just detect anomalies, it understands why they matter in your company.

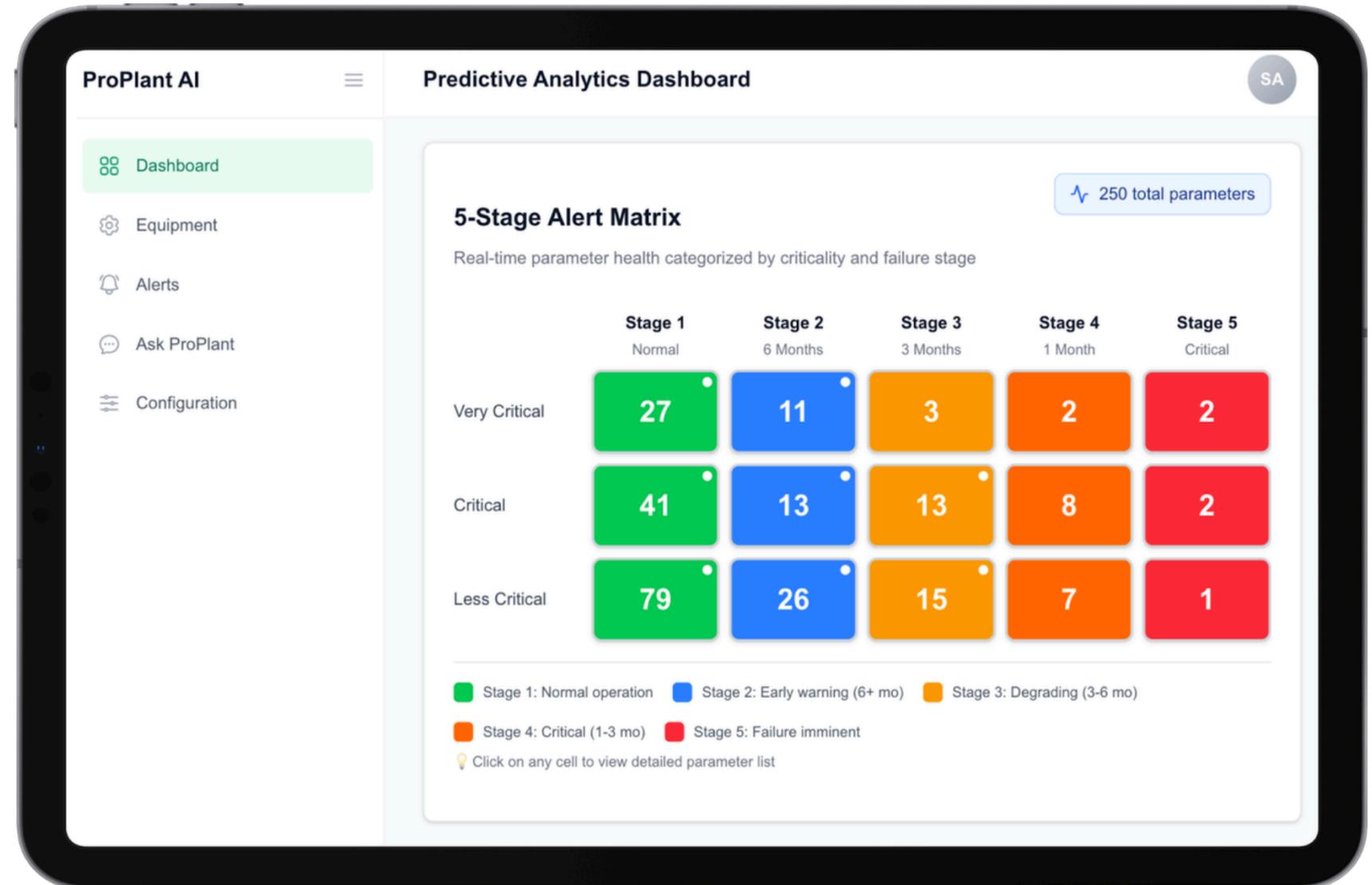
*Get deeper and meaningful AI powered Insights into your equipment health*



# Protecting Your Bottom Line

Consider a typical fertilizer plant operating at 90% capacity utilization. A single unplanned shutdown lasting 3 days results in direct production losses exceeding \$2M USD per day, not counting secondary effects such as expedited repairs, overtime labor, supply chain disruptions, and penalties.

ProPlant combines advanced AI technologies with deep domain expertise in process industries to deliver a comprehensive predictive maintenance and knowledge management solution.



*ProPlant enable plants to anticipate failures before they occur, schedule maintenance during planned windows, and ensure that critical institutional knowledge is available to every operator regardless of shift or experience level.*

# Intelligent Data Integration

ProPlant seamlessly integrates with existing plant systems through **ModbusTCP, OPC-UA**, and proprietary protocols. Our connectors support major DCS and PLC systems including **Honeywell, Yokogawa, ABB, Siemens, and Rockwell**, enabling deployment without disrupting existing infrastructure.

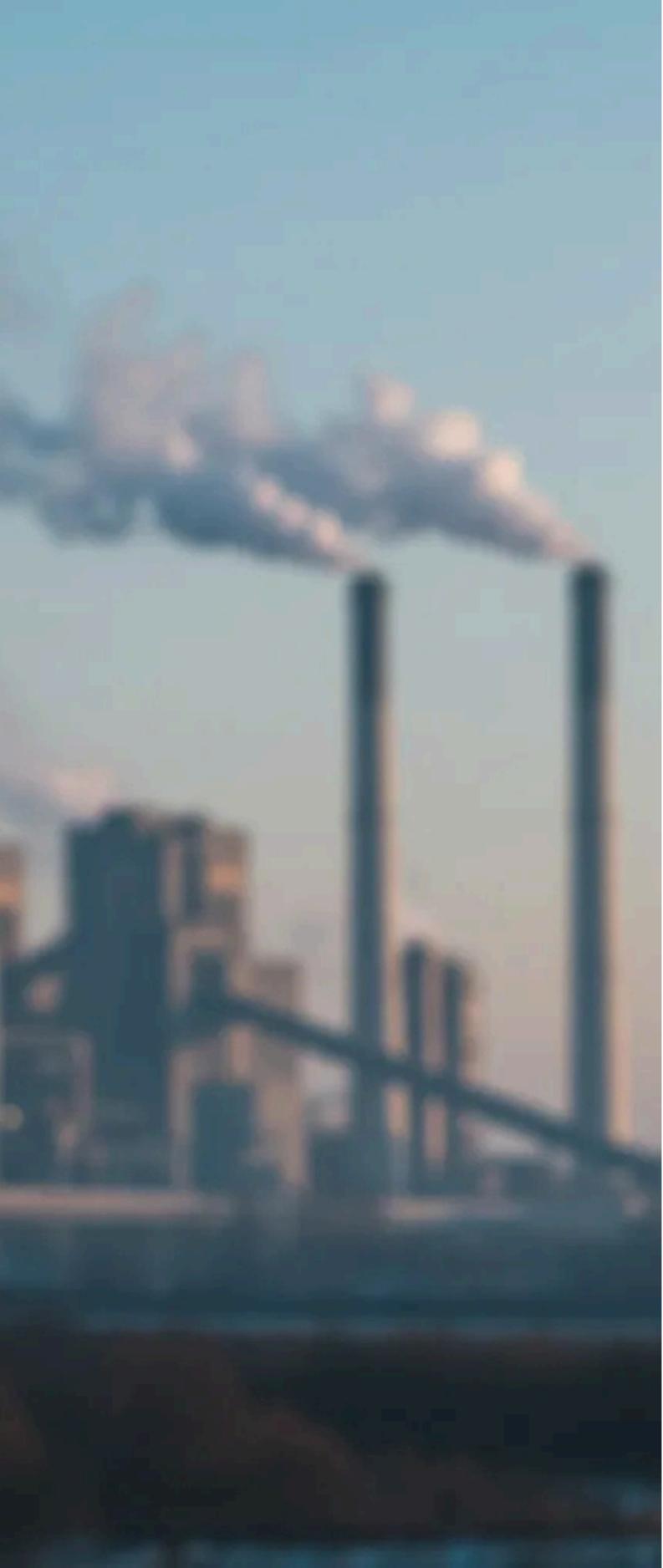
ProPlant's predictive models are built with **explainability** at the core. Every prediction includes clear reasoning that operators and engineers can understand and validate, building trust and enabling continuous improvement.

ProPlant provides:

- Attribution showing which sensor readings or patterns triggered the prediction
- Historical comparison to similar failure events with successful interventions
- Recommended actions with supporting documentation and expert guidance

*Our explainable AI approach addresses a critical barrier to predictive maintenance adoption: the "black box" problem. When an AI system recommends an inspection or predicts a failure, operators need to understand why.*





# Key Pillars

## Asset Health Monitoring

Real-time health scores for every monitored asset, calculated from multiple data streams including vibration, temperature, pressure, flow rates, and electrical signatures. Trend analysis identifies degradation patterns before they reach critical thresholds.

## Failure Mode Prediction

Machine learning models fine-tuned on industry-specific failure modes for fertilizer production equipment (reactors, granulators, coating drums, bagging systems), petrochemical processing equipment (distillation columns, crackers, heat exchangers), and common rotating equipment (pumps, compressors, fans, bearings, and conveyors).

## Intelligent Alert Management

Context-aware alerting that reduces alarm fatigue by correlating multiple signals and filtering false positives. Alerts include actionable recommendations and links to relevant troubleshooting guides and historical resolution data based on real incident reports at your plant.

## Knowledge-Assisted Troubleshooting

Conversational natural language interface allows operators to query the knowledge base. Ask questions like "What causes high vibration in the phosphoric acid reactor agitator?" and receive curated answers drawn from equipment manuals, historical incidents, and expert insights.

# **ProPlant Workforce Upskilling**



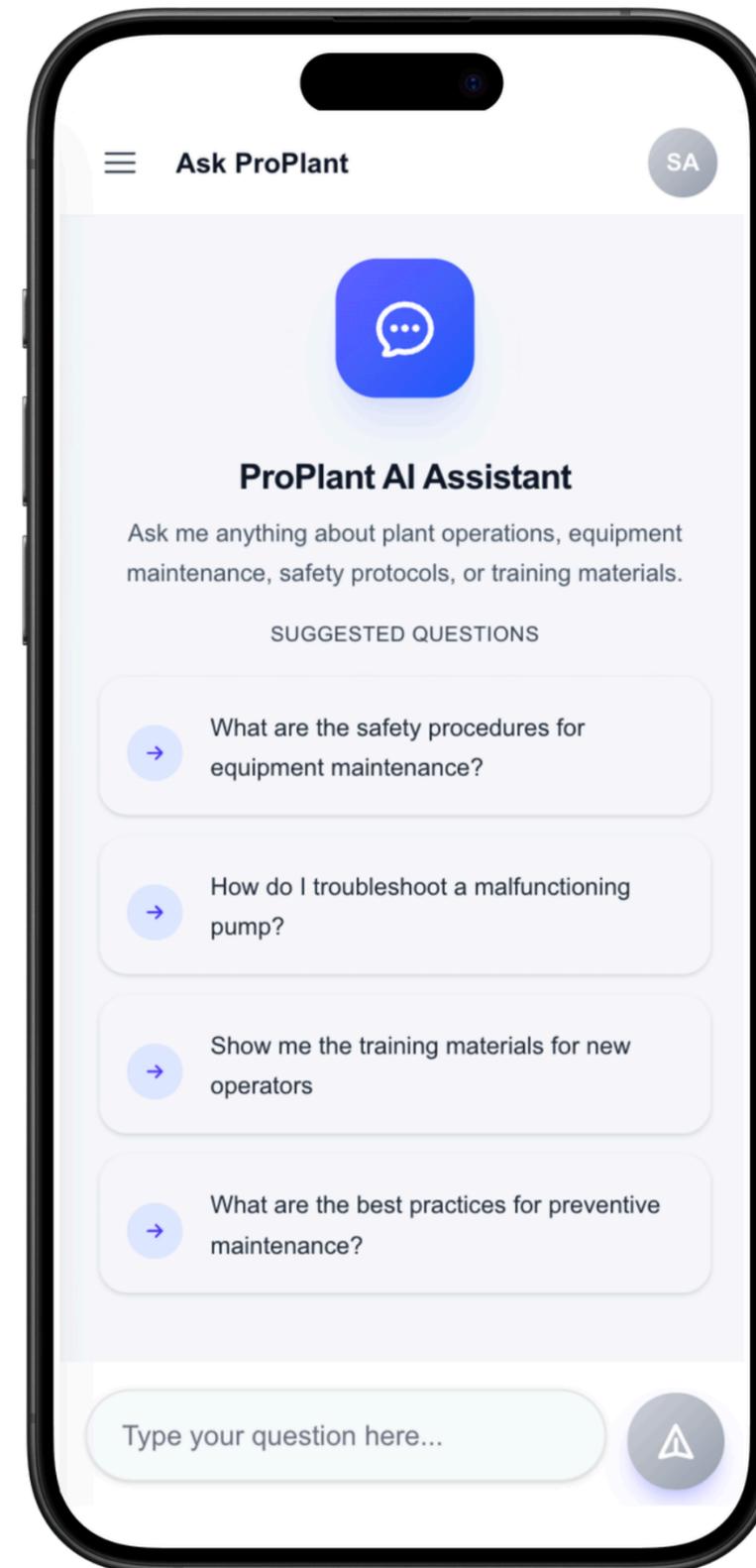
# Upskilling with AI-Powered Digital Brain

Our AI-powered platform captures **comprehensive knowledge about your plant**, capturing **documented and tribal knowledge**.

ProPlant AI captures knowledge from expert interviews, daily operations, email conversations, incident reports and other documents.

The result: a Digital Brain that understands the equipment within your company. Taking this further, ProPlant automatically creates individualized training to scale that intelligence across your workforce.

*Institutional domain knowledge now stays within your company forever!*



# Preserving Knowledge

## Conversational Knowledge Capture

ProPlant employs natural language voice agents that conduct structured interviews with experienced personnel, extracting decades of operational wisdom through guided conversations. Rather than forcing experts to document knowledge in formal reports, the system captures insights through the way they naturally communicate.

## Multi-Source Intelligence Integration

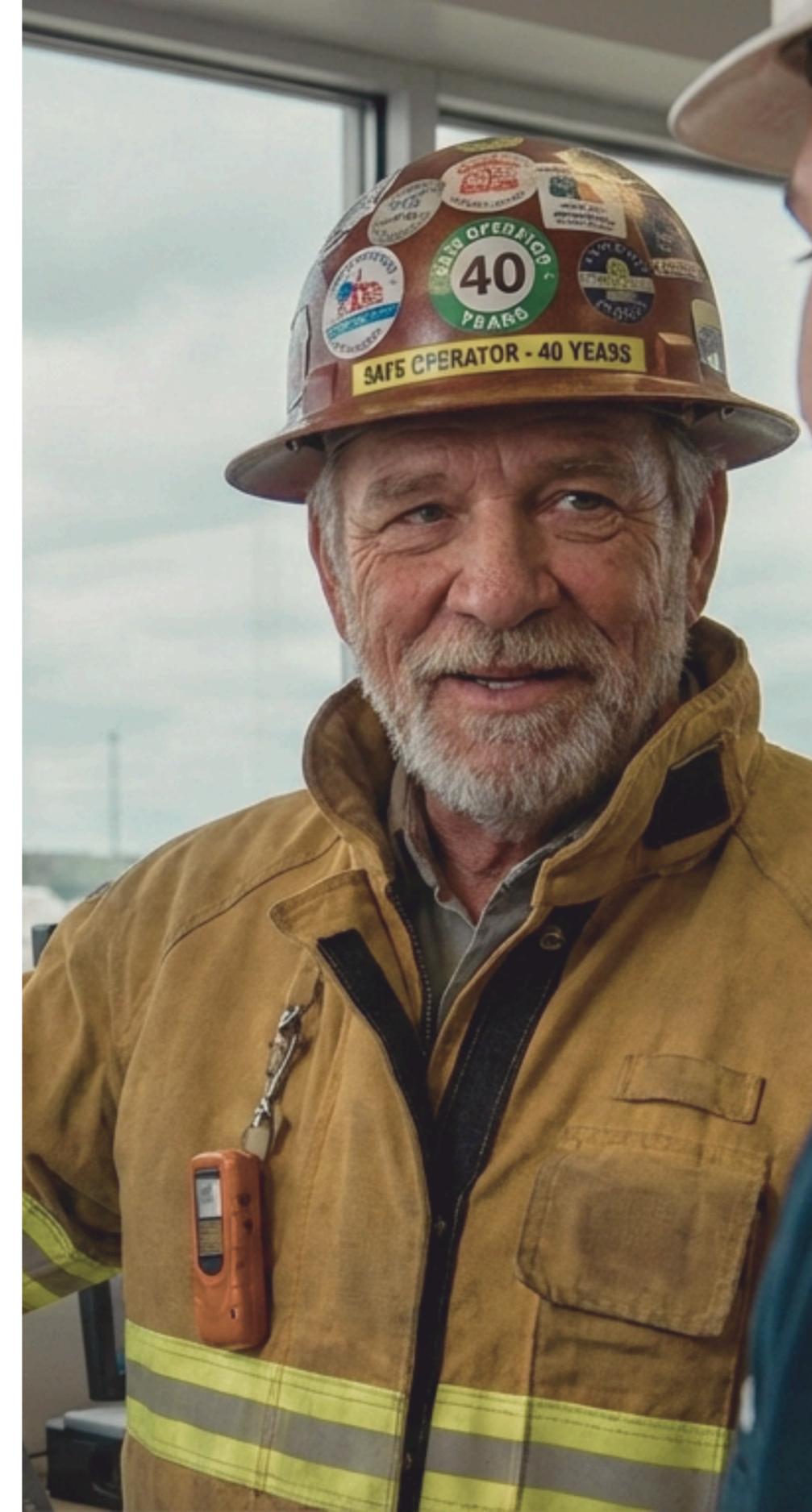
Our platform continuously ingests knowledge from diverse sources: incident reports that document what went wrong and how it was resolved, email threads containing troubleshooting discussions, shift handover notes capturing operational context, equipment manuals providing technical specifications, and standard operating procedures defining formal workflows.

## Living Knowledge Base

Unlike static training manuals that become outdated, ProPlant's knowledge base evolves continuously. As new procedures are developed, equipment is modified, or operational insights emerge, the system automatically incorporates these updates - ensuring every employee accesses current, relevant information.

## Validated Expert Reasoning

ProPlant doesn't just store information - it captures the reasoning patterns experts use to solve problems. When operators query the system about abnormal conditions, they receive not just procedures but the contextual understanding of why those procedures work, what indicators to monitor, and how to adapt when standard approaches don't apply.

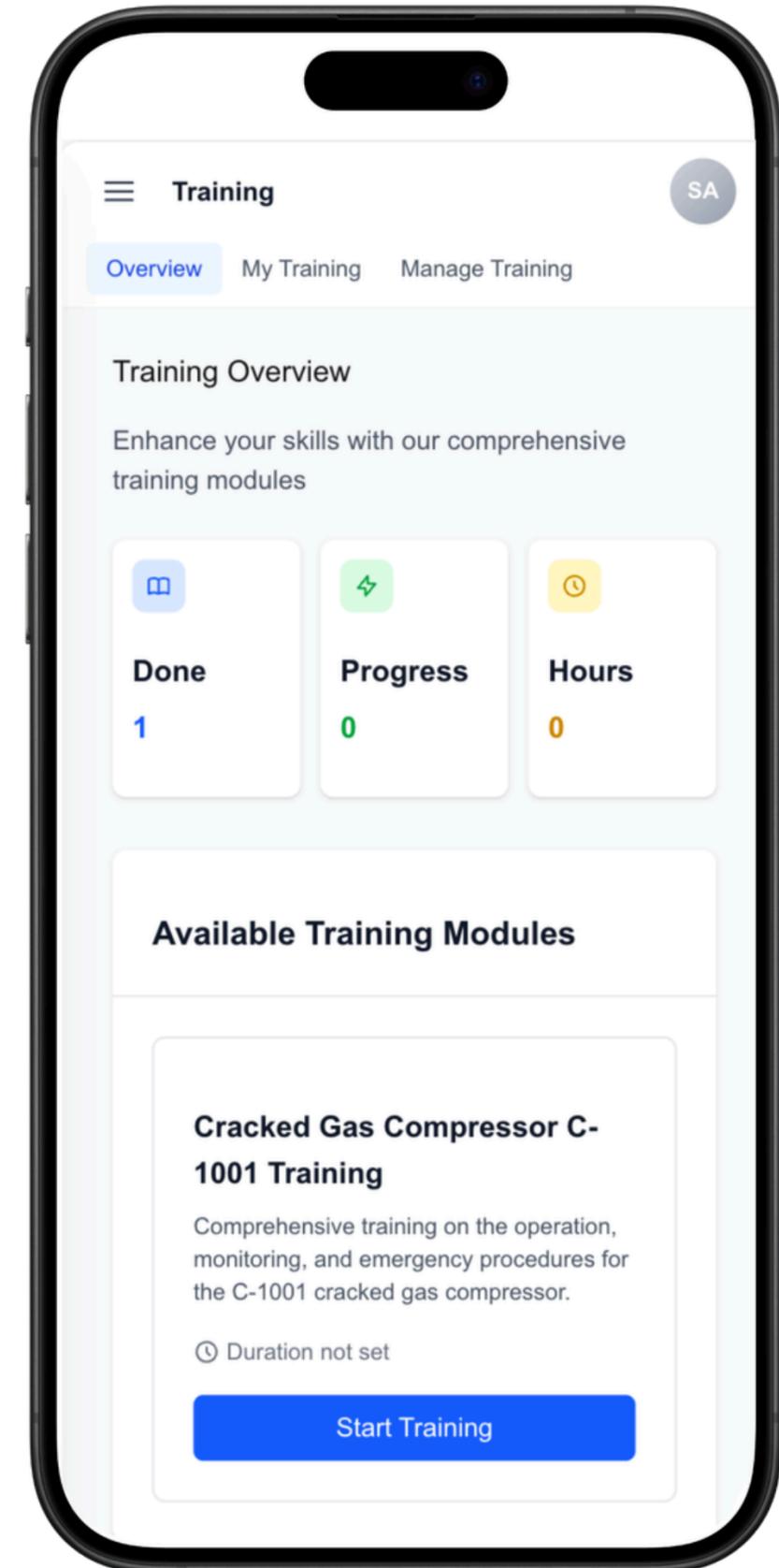


# Rethinking Employee Training with AI

Experienced operators approaching retirement hold decades of plant-specific knowledge—which pump cavitates under certain feed conditions, which valve tends to stick during startup, which pressure differential indicates impending fouling. When that knowledge leaves, troubleshooting time increases **3-5x across all shifts**.

New technicians require **6-12 months** to reach baseline competency, during which their troubleshooting attempts often extend equipment downtime. A junior operator unfamiliar with a reactor's normal vibration signature may miss early warning signs, turning a 2-hour bearing replacement into a 48-hour emergency shutdown worth \$50K (₹45+ Lakhs INR) in lost production.

ProPlant eliminates this knowledge gap by making expert-level insights available to every operator, every shift, every day. The result: faster troubleshooting, reduced downtime, and dramatically accelerated workforce competency regardless of experience level.



# Individualized Training & Assessments

ProPlant automatically generates personalized training content tailored to individual roles, experience levels, and knowledge gaps. The system analyzes each employee's current competency through baseline assessments, then creates customized learning paths that address specific gaps.

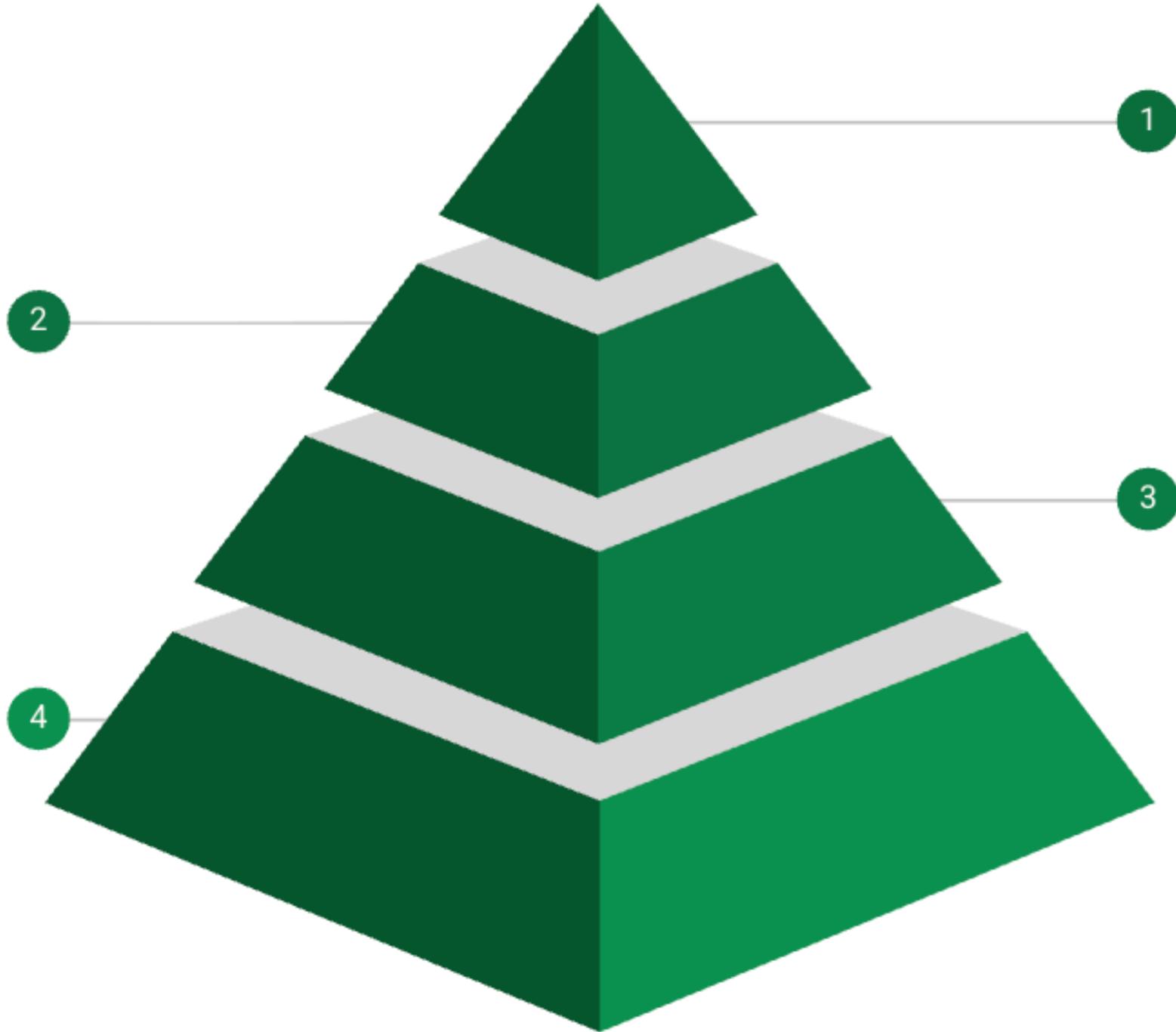
**Personalized Content:** Operators receive training on equipment operation and troubleshooting. Maintenance technicians get detailed technical procedures. Supervisors learn decision frameworks and incident management. Each role receives content calibrated to their responsibilities.

**Adaptive Learning:** Our system continuously evaluates comprehension through interactive assessments, adjusting content difficulty and focus areas based on performance. Employees who quickly master basic concepts move to advanced scenarios, while those needing additional support receive reinforcement training with alternative explanations.

**Real-World Scenario Training:** Rather than generic textbook exercises, ProPlant generates training scenarios drawn from your actual plant operations - specific equipment configurations, common failure modes, and operational challenges unique to your facility.

**Measurable Competency Validation:** Regular assessments verify knowledge retention and practical application ability. Management receives detailed analytics showing competency levels across teams, identifying training gaps before they impact operations.





### **1 Equipment Data**

Equipment real-time data from your existing DCS

### **2 Company Layer**

Energy, manufacturing, etc industry specific information and processes.

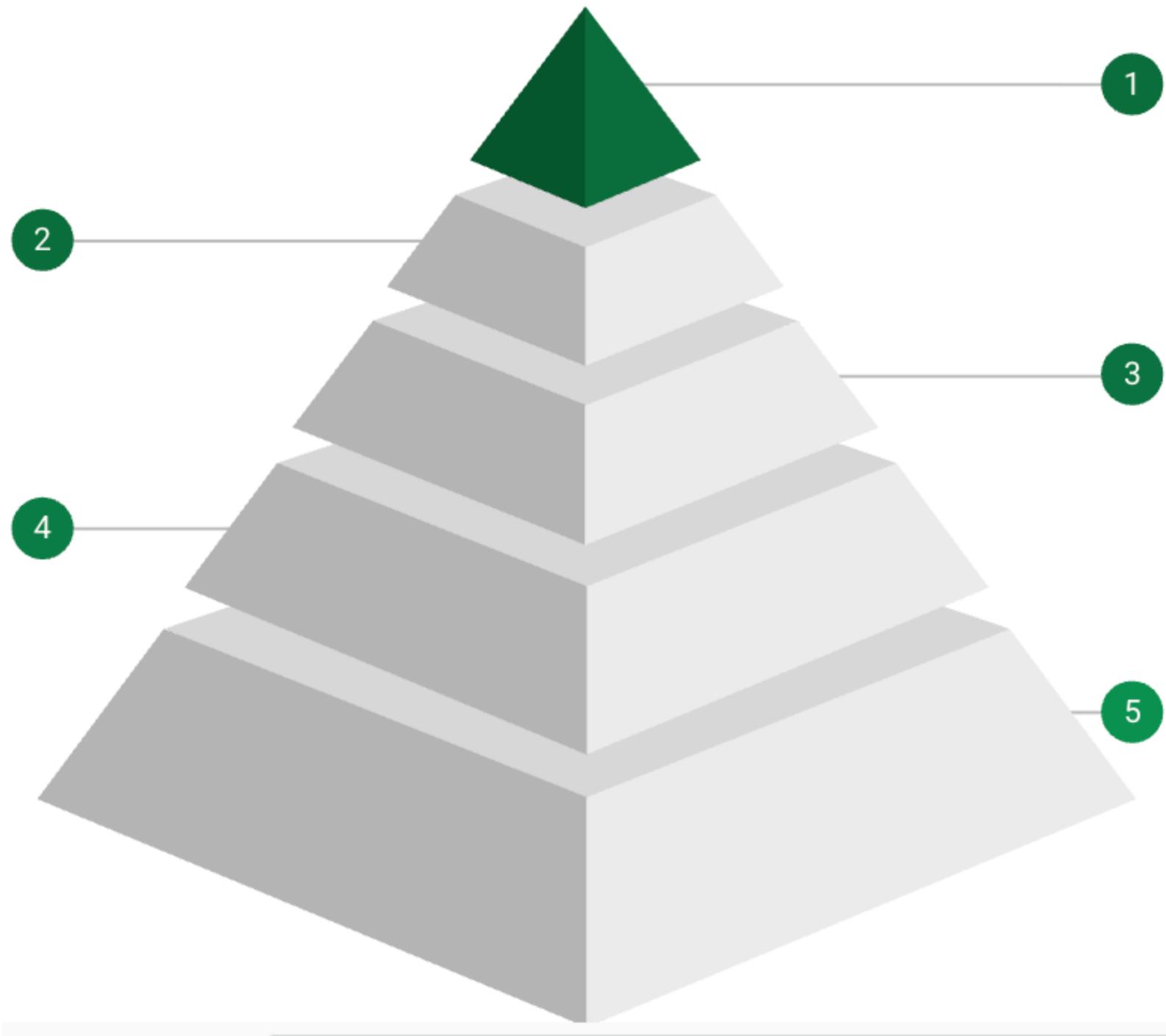
### **3 Industry Layer**

Energy, manufacturing, etc industry specific information and processes.

### **4 Foundation Layer**

World knowledge - advanced Large Language Model

# Comprehensive Knowledge Stack



### 1 Expert Layer

Conversation-based knowledge capture from company experts using Voice and Email

### 2 Company Layer

Energy, manufacturing, etc industry specific information and processes.

### 4 Foundation Layer

World knowledge - advanced Large Language Model

### 1 Equipment Data

Equipment real-time data from your existing DCS

### 3 Industry Layer

Energy, manufacturing, etc industry specific information and processes.

# Comprehensive Knowledge Stack

# Comprehensive Solution



## Knowledge Capture

ProPlant AI captures not only your real-time machine / equipment monitoring data, but also operational knowledge, standard operating procedures, maintenance logs, incident reports - and, our voice and email agents help capture expert insights. The complete knowledge base is an expert AI assistant that's available 24x7!

## Predictive Maintenance

ProPlant's predictive AI analyzes your past trends, anomalies, incident reports and references them against your SOPs and equipment manuals. Using historical trend analysis, and your documentation ProPlant automatically tracks degradation to predict equipment level failures, remaining useful life and provide early alerts.

## Workforce Upskilling

ProPlant's comprehensive Digital Brain has all the critical information. We use this to upskill your workforce by providing individualized training, automatically generating training and assessment, re-skill based on actual incidents, keep your workforce up-to-date with latest maintenance, safety and compliance procedures.