AI for Predictive Asset Performance and Process Optimization

SYMPHONY
INDUSTRIAL AI

INTRODUCTION

Symphony Industrial AI is the leader in artificial intelligence Predictive Maintenance (PdM) & Performance or Process Optimization. We listen to machines, analyze data in real-time, and provide accurate and actionable health and performance insights for **Industry 4.0**.

We have been in business for 50 years and have over 3,000 clients worldwide including the US Navy, Exxon, Cargill and many others.

Who We Serve

OIL & GAS
- ExxonMobil
- HUNT
- ALLIANCE pipeline
- Toledo Refining Company
- PLACID
- ENLINK MIDSTREAM
- Pacific Ethanol, Inc.
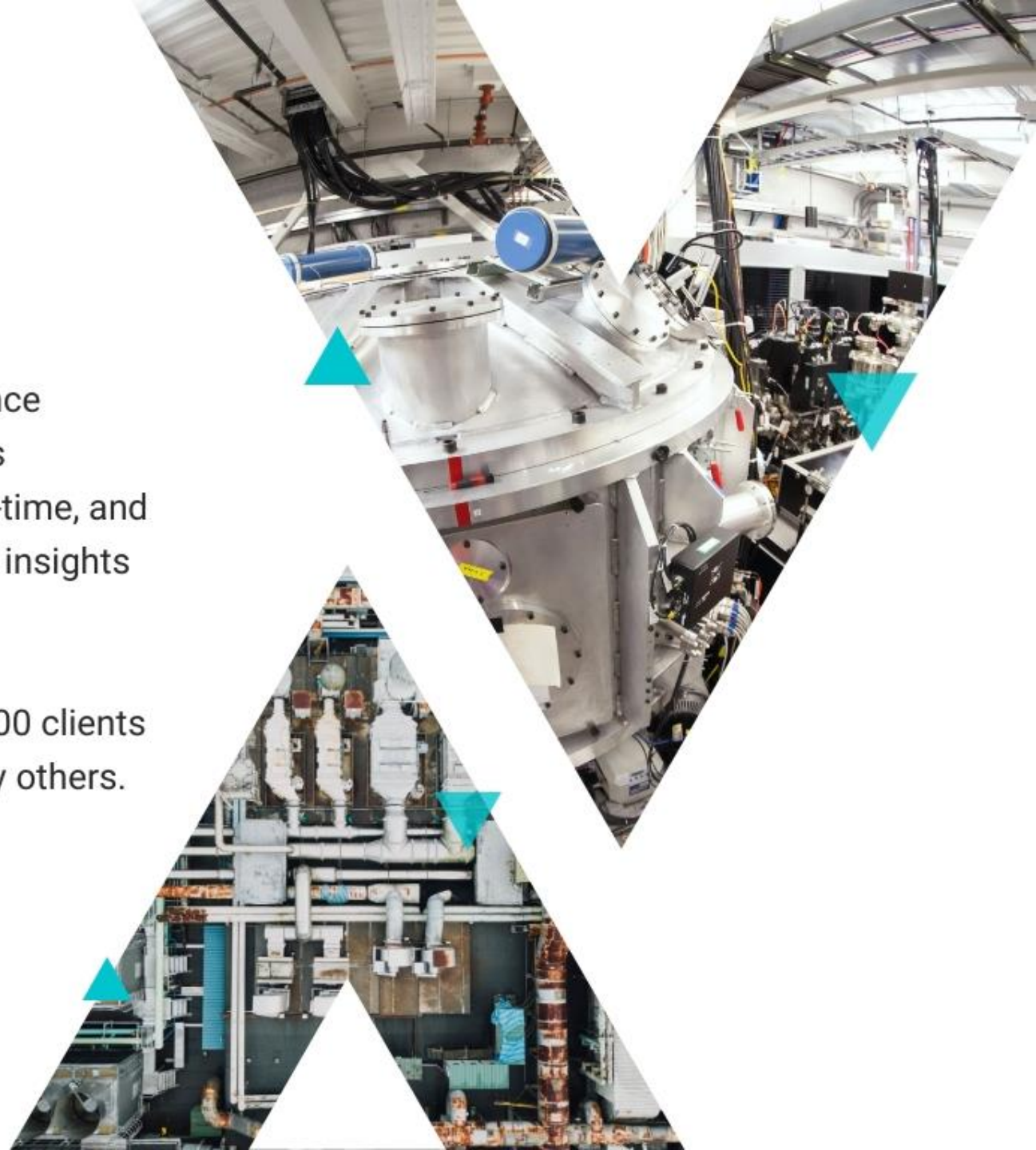
CHEMICAL, PHARMA, BIOTECH
- Airgas an Air Liquide company
- Air Liquide
- amri Complex Science. Expert Solutions.
- SHINTECH
- DOW
- Chevron Phillips Chemical Company LP
- AstraZeneca
- MESSER
- KUREHA
- OXY Occidental
- METHANEX
- PERFORMANCE PIPE A Division of Chevron Phillips Chemical Company LP
- everris.
- W
- Linde
- SOLVAY
- MATHESON TRI-GAS
- CLARIANT
- Chemours
- PRAXAIR

FOOD & BEVERAGE
- Cargill
- Kroger
- ADM

POWER GENERATION
- VISTRA ENERGY
- CAMS Consolidated Asset Management Services
- Cooperative ENERGY
- Cogentrix
- TALEN ENERGY
- Competitive Power Ventures, Inc.
- VEOLIA
- CenterPoint Energy
- nrg
- VICINITY

INDUSTRIAL, OEM, MANUFACTURING, SERVICES
- UNITED STATES NAVY MILITARY SEALIFT COMMAND
- IR Ingersoll Rand
- INENCO GROUP
- NALCO
- C&W SERVICES
- EMCOR
- AGC
- JamesHardie
- Qorvo
- Burlington
- FLOWSERVE
- Centro
- VT Group
- NAVSEA NAVAL SEA SYSTEMS COMMAND
- LOCKHEED MARTIN
- JACOBS

PAPER, METALS & MINING
- CANFOR
- VALE
- ATI
- INDEVCO
- TWIN RIVERS PAPER COMPANY
- Novelis
- Constellium
- IMERYS
- WESTMORELAND COAL COMPANY

CASE STUDIES

CASE STUDY

Client: Glass Manufacturer, India

Product: They choose Performance 360™ to get automatic and advanced prediction of furnace performance deterioration.

Situation: Valued at $10B, the Piramal Group has a broad presence across various sectors such as healthcare, life science, drug discovery and specialty glass manufacturing. They were looking to maximize the energy efficiency of the glass furnaces, stabilize operational variability, and resolve sensor issues while also increasing throughput.

Result:
- They recognized a 1% to 2% decrease in gas consumption that generated approximately $1.5M in savings per year.
- Increased throughput 3% to 5% per year by decreasing final product rejection rate by 5%.

CASE STUDY

Client: Food, Agricultural and Industrial Manufacturing, Minnesota

Product: Cargill chose WATCHMAN 360, a full suite of expert automated diagnostics, analytics, and reliability services.

Situation: Established in 1865, Cargill is the largest privately-held generating $114B in revenue and employing 155,000 across 70 countries. They needed to enhance their asset monitoring program in terms of reducing manual data collection and improving their overall data quality that was feeding their analytics.

Result:

- Elimination of 80-90% of manual review and diagnostic work load previously performed by analysts onsite, resulting in ~40% manpower cost reduction
- 10% overall equipment fault reduction with related unplanned downtime decrease
- Development of full asset database with images, description, nameplate information, and operating parameters
- Creation of a centralized team with five domain experts who coordinate program through the cloud
- Estimated savings is $4M per year.
- 95% decrease in emergency maintenance

CASE STUDY

Client: Large Oil & Gas Refinery, Texas

Product: They choose APM 360™ to get automatic and advanced prediction of pump performance deterioration.

Situation: As the second-largest privately held company in North America generating $60B in revenue, the refinery strives to be a world-class, cost-efficient operator of their many facilities. As such they found that the pump's in their Texas refinery consume 75% - 85% of the plant's energy. They were looking for the best way to reduce this percentage.

Result:
- Patented AI algorithms were able to predict anomalous pump behavior weeks in advance giving the Koch team plenty of time to take proactive measures.
- In one year, pump energy consumption decreased by 5% translating into a savings of approximately $5M.

CASE STUDY

Client: Large Petrochemical Manufacturer, at one of their global sites

Product: They choose Performance 360™ to get advanced detection of process condition anomalies across multiple data streams plus recommended corrective actions.

Situation: As part of a $1.3B conglomerate, the ammonia plant needed a cost-effective way to improve plant health. Although they had healthy, optimized production assets, the plant was experiencing shut downs because of process "trips". Specifically, high concentrations of CO_2 were increasing temperatures beyond the threshold limit. Restarting the plant post-process took 3-4 days causing production losses $1M/day and more.

Result:
- Early detection of process variation before the "trip" gives more time for corrective action
- Each outage has a maintenance cost avoidance of $300,000.
- Production loss avoidance is $1M/day. Typical outage is 3 days
- Total cost avoidance calculation is $3M+ for each shutdown.

CASE STUDY

Client: Largest Global Gold Mining Company

Product: They chose Performance 360 to predictively capture the mill's operating dynamics in real-time and guide the search for the best possible operating point while ensuring the mill's stability.

Situation: The ore grinding mill's control system in their US location was experiencing bottlenecks that resulted in decreased throughput. Issues such as significant & dynamic variability in ore properties, process uncertainties, and operator-to-operator variability all helped to create these bottlenecks.

Result: Increased grinding mill throughput by over 1% which translates to just over $8M per year.