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Canvass AI: A Platform Purpose-built for Process Engineers and Operations

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Keywords

Canvass AI, Operations and Maintenance, Reliability, Process Engineering, Industrial Engineer, Process Optimization, Asset Optimization, No code AI, Industrial AI, Predictive Maintenance, Sustainability, Energy Optimization

Summary

Industrial operations are under increasing pressure to meet new sustainability goals, reducing carbon intensity in operations while better managing production resources and energy. The challenges of legacy systems, aging assets and now spiraling costs brought on by global supply chain disruptions have created an opportunity for industries to look for new ways to improve decade-old processes and make better use of industrial data. Industrial data can be used more effectively to increase manufacturing and production efficiency or eliminate waste through the use of Industrial AI and machine learning technologies.

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During a recent briefing from Canvass, we learned the Canvass AI platform has been purpose-built for the industrial workforce to solve problems across a broad range of process industries - and does not require a data science department. Our key findings include:

- Industrial AI is built for process and manufacturing industries looking for better ways to connect their evolving workforce to data-driven decision tools and digitally augment work and business processes.
- Canvass AI platform has been purpose-built for Process & Reliability Engineers and Unit Engineers to solve industrial problems across a broad

range of process industries and capture the experiential knowledge through the user-centric problem-solving approach.

- Canvass AI's new patent announcement shows a commitment to innovation with a new AI architecture that helps Process & Reliability Engineers and Unit Engineers better understand the relationships among process variables and other data (machine data, ambient conditions, upstream and downstream data variables).

The Race to Build AI Capability in Manufacturing

Industrial AI is built for process and manufacturing industries looking for better ways to connect their evolving workforce to data-driven decision tools and digitally augment work and business processes. However, leveraging AI requires data science capability, adding additional complexity to an already complex operational environment. The current state of AI in the process industries has some success; however, most industries have struggled to scale AI. Most companies highlight the need to better use data already collected and improve collaboration between functional organizations. They want to reduce data complexity and break down organizational silos and combine domain expertise with data science at scale, so the industrial workforce can solve complex problems efficiently, and in a timely manner, improving operations efficiency and profitability.

While engineering-operational roles are skilled in analyzing large amounts of data, setting up and creating AI environments is not so common. Process manufacturers will maintain a level of competency to build and launch AI pilot programs; however, the capability to build software at scale seldom exists. Asset owners look to industrial AI software companies to scale expertise by packaging domain knowledge in software.

The Canvass AI Platform: Built for Industrial Workforces

During a recent briefing from Canvass, we learned the Canvass AI platform has been purpose-built for Industrial Engineers to solve industrial problems across a broad range of process industries. According to Canvass, the platform provides quick time to value. It can easily be immediately integrated into existing functional workflows to augment and simplify decision-making at scale across the organization, not limited to AI pilots. The Canvass platform also allows experiential domain knowledge to be captured and

embedded into the AI models to empower process engineers to leverage AI to generate tangible business value and solve various process challenges.

Category	Use Case	Benefits
Reliability	Predictive maintenance for gearbox failure.	Enhance maintenance activities and avoid unplanned production losses by preempting future asset failure events.
Reliability	Optimize maintenance schedule for crusher systems.	Maximize uptime of crushers and build intelligent maintenance schedules.
Reliability	Predictive maintenance for greasing systems.	Reduce unplanned bearing and equipment failure in operations using AI powered models to predict failure of greasing systems.
Reliability	Predicting camber in cold rolling processes.	Predicts anomalies and eliminates the abnormal coils from the process to reduce production loss, lower rolling failures, and improve safety.
Production Optimization	Predict batch impurities.	Predict impurities to recommend timely process parameter changes to lower batch impurities.
Production Optimization	Optimizing drying process in food processing and production.	Optimize drying setpoints to meet proper temperature and humidity levels to improve product quality and reduce waste.
Sustainability	Optimizing boilers to cut energy consumption.	Predict boiler thermal efficiency to optimize gas loading and reduce energy consumption and CO2 emissions.
Sustainability	identify events and variables that caused their exchangers to operate at max capacity and to prescribe pre-emptive actions to manage production while reducing electricity demand.	Decarbonization by more efficient operations and proactive workforce. Reduced electricity demand led to significant savings and reduced emissions, with a time to value of under 2 months.

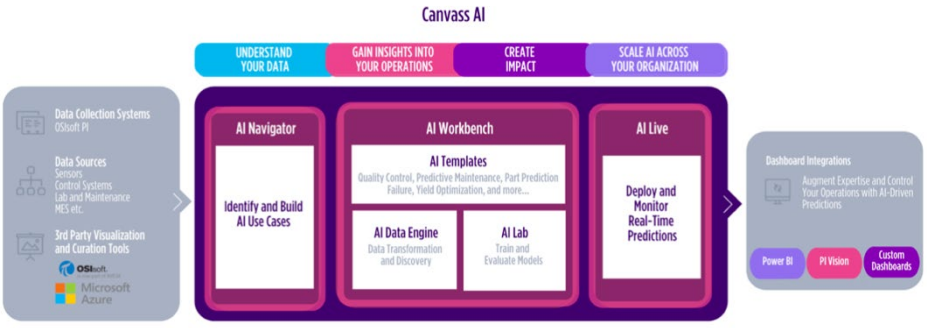
Sample of Canvass AI Platform Use Cases

Canvass AI further explained their industrial customers don't require a data science department by augmenting the organization's need to apply AI and

data science across the board. Data science becomes usable and accessible for the engineers on the plant floors. Canvass, in turn, is helping to meet the modernizing requirements of the workforce with digital technologies, which is viewed by the executive team as an essential capability for engineers. The platform improves cross-functional collaboration in solving industrial problems and creating a mindset shift to proactive operations and precise maintenance with an example of the following benefits:

- Using the platform mitigates failures, improves operational safety and protects against personnel or environmental incidents.
- Providing precise operations improves efficiency.
- Reduces emissions and conserves natural resources.
- Reduces chemicals and raw materials consumption or increases material recycle.

The Canvass AI platform provides an AI navigator tool to identify and build use cases from multiple data sources. These include process historians, SQL data sources and other third party visualization and curation. The AI Workbench offers AI templates to expedite model configuration, which is supported by AI Data Engine that connects, contextualizes and reduces noise in data. The AI Workbench feeds this to AI Live or software agents to deploy and monitor for real-time predictions. The AI outputs may also integrate with Power BI, AVEVA PI Vision and custom dashboards.

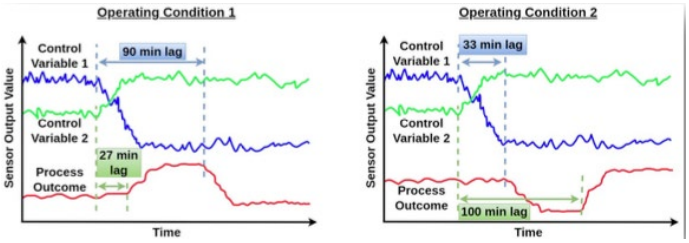


The Canvass AI SaaS Platform

A Predictive Platform That Addresses Multi-dimensional Time Variability

Asset degradation, process variability and product quality often impact operating conditions and create variability in time lags, which is challenging to model with traditional optimization tools. Time has a multi-dimensional impact on process outcomes when a controlled variable affects the outcome and

how relationships of multiple variables affect the outcome too. Traditional analytics have difficulty analyzing the multi-dimensional variability in time-series data relationships and can lead to inaccurate results.



Different Operating Conditions Can Lead to Control Variables Affecting the Process Outcome with Variable Time Lags and/or Delays

According to Canvass, their patented technique enables industrial companies to use AI in everyday operations to unlock meaningful value from operational data. It allows engineers and operators to understand better the relationships among process variables, especially in cases where there are delays or time lags in how to control variables that affect process outcomes. With accurate time-series forecasts and predictions, users can make real-time adjustments to their processes and assets.

Conclusion

Scalable machine learning environments are not easily accomplished. Industrial manufacturers have a workforce inefficiency with a widening experiential knowledge gap. Engineers are busy reacting to maintenance or process issues and cannot run reliable, predictable operations. The current tools and technologies are often too generic, don't serve the needs of process and reliability engineers and hence can't drive the efficiencies needed. Canvass AI addresses these issues through a purpose-built AI Platform that provides a usable and scalable solution. The Canvass AI platform allows industrial organizations to capture experiential knowledge through the user-centric problem-solving approach. This approach enables industrial organizations to capture the knowledge and share and scale it digitally at multiple facilities by leveraging existing help to deploy and scale.

Canvass AI's new patent announcement shows a commitment to innovation with a new AI architecture to help process engineers and industrial data scientists better understand the relationships among process variables. The capability of the Canvass solution to provide accurate time-series forecasts

and predictions will be a valuable tool to complement Advanced Process Control and other real-time process optimization technologies.

Industrial AI solutions like Canvass AI promise measurable business outcomes for capital-intensive industries. Industrial organizations don't need to be convinced about the value of Industrial AI; instead, the challenge is realizing it. The Canvass Industrial AI software is purpose-built for engineers in operations to simplify problem-solving and enable faster decision making. Adapting AI to the real-time control environment will help industries reach net-zero goals, find and solve process and asset problems throughout the production process, and align engineers and operators to achieve their full potential.

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