DIGI I4.0

Turning **TECH Investments** into **Predictable ROI**

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We **Offer**

Make an Asset Efficient

EFFICIENCY

Optimized asset efficiency

- **Reduce energy & carbon**
- **Minimize production cost**
- **Track ESG performance**

Monitor Health of the Asset

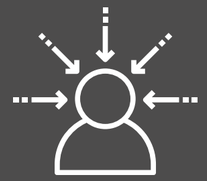
PERFORMACE

Pinpoint assets that needs attention

- **Detect anomalies**
- **Minimum downtime**
- **Prevent asset degradation**

Service the Asset

RELIABILITY



Orchestrate end to end repair workflow

- **Codify approval policies**
- **Benchmark processes & resources**
- **Extend asset life**

How we **do it**

Optimizing Operations & Proactive Management : Details

What We'll Do

- Leverage real-time data to dynamically adjust operational parameters.
- Fine-tune production settings, resource allocation, and energy consumption using continuous feedback loops.

Outcome:

- Maximizes process efficiency and reduces operating costs.

Smart Optimization

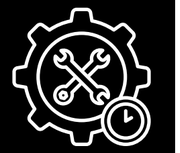
What We'll Do

- Develop predictive analytics to monitor equipment health and detect early signs of potential failures
- Implement a predictive maintenance module that schedules timely maintenance actions.

Outcome:

- Minimizes unplanned downtime and extends asset lifespan.

Proactive Maintenance



What We'll Do

- Build a centralized management console that aggregates and monitors data from all facilities in real time.
- Integrate with existing systems to ensure seamless coordination across the entire fleet.

Outcome:

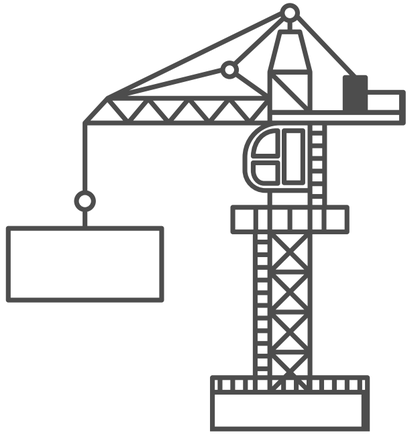
- Streamlines operations, improves resource management, and enhances responsiveness.

Comprehensive Fleet Management

DigiTwin Workflow

How our Solution works? **- Unlocking hidden values of assets from day one**

STEP - 1

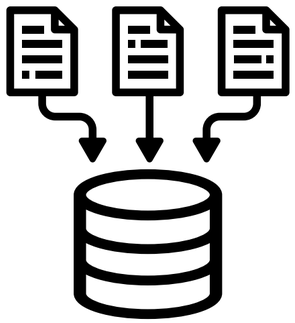


Connecting to Industrial Equipments

PLCs SCADA/DCS/MES
EAM Aveva PI

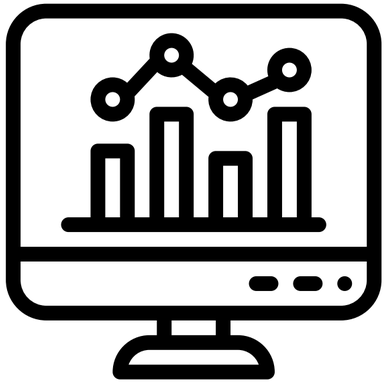
STEP - 2

Collect production and enginnering data



Power (W) Flow rate (m3/s)
Pressure (kPa)
Temperature (deg. C)

STEP - 3



Monitor & Optimize equipment

Visualisation AI Insights
Recommended Actions
Closing the control loop

Connecting to Industrial Equipments

5-20% Energy cost saving

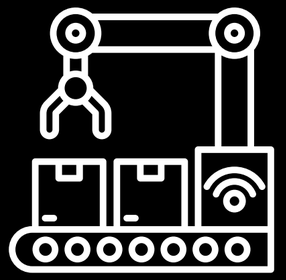
8-10% Co2 Reduction

15% Maintenance cost saving

10% Down time reduction

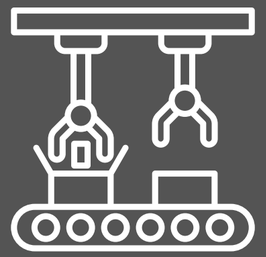
Industries **We Serve**

Process Manufacturing



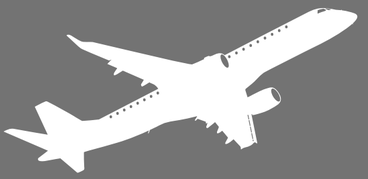
- Steel
- Glass
- Chemicals
- Cement
- Bricks/Construction

Discrete Manufacturing



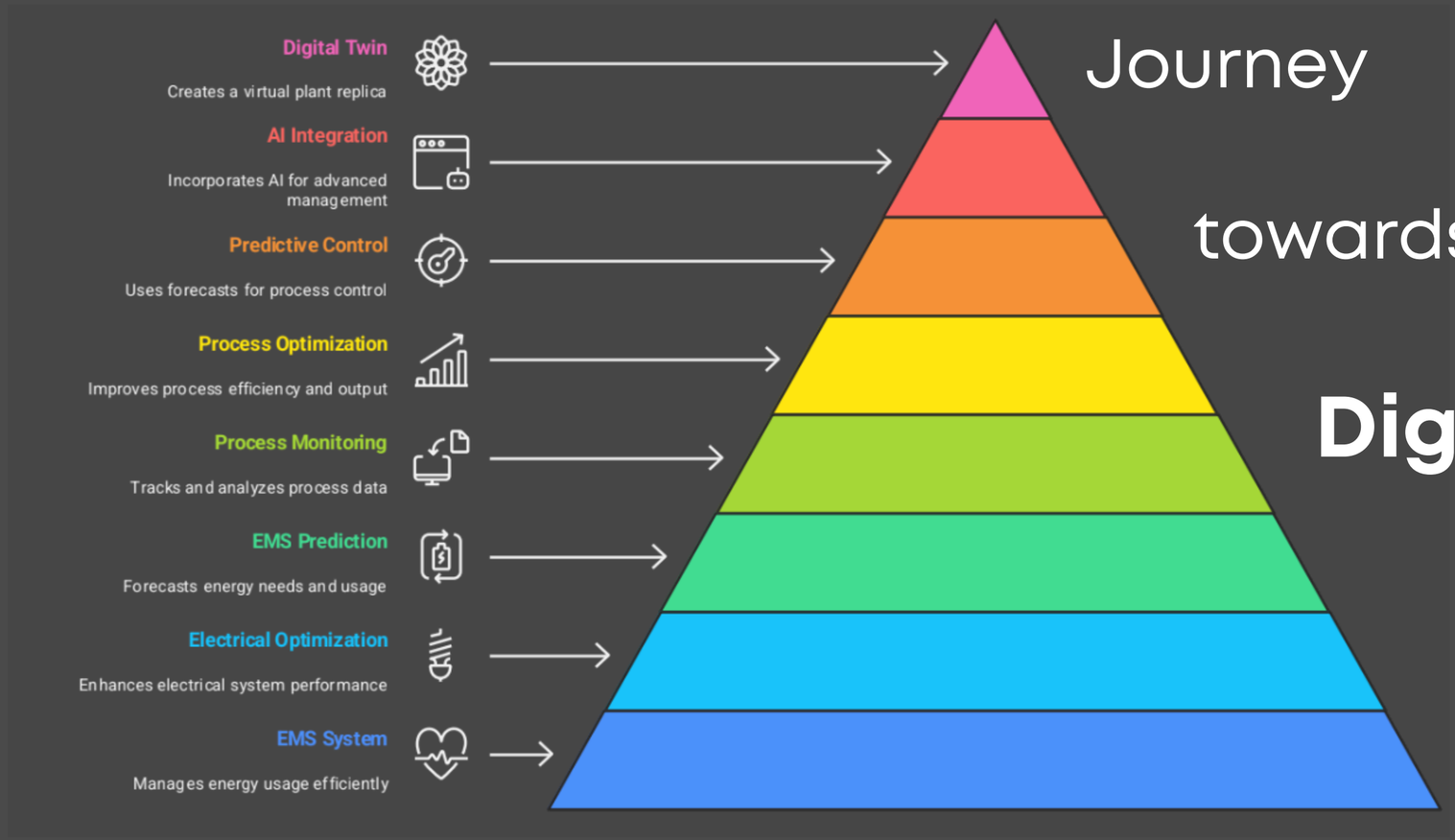
- Automotive
- Electronics
- Assembly line

Aviation & Shipping Fleet



- Jet engines
- Marine vessels
- Logistics
- Warehousing
- CFD
- ICD

Journey towards **DigiTwin**



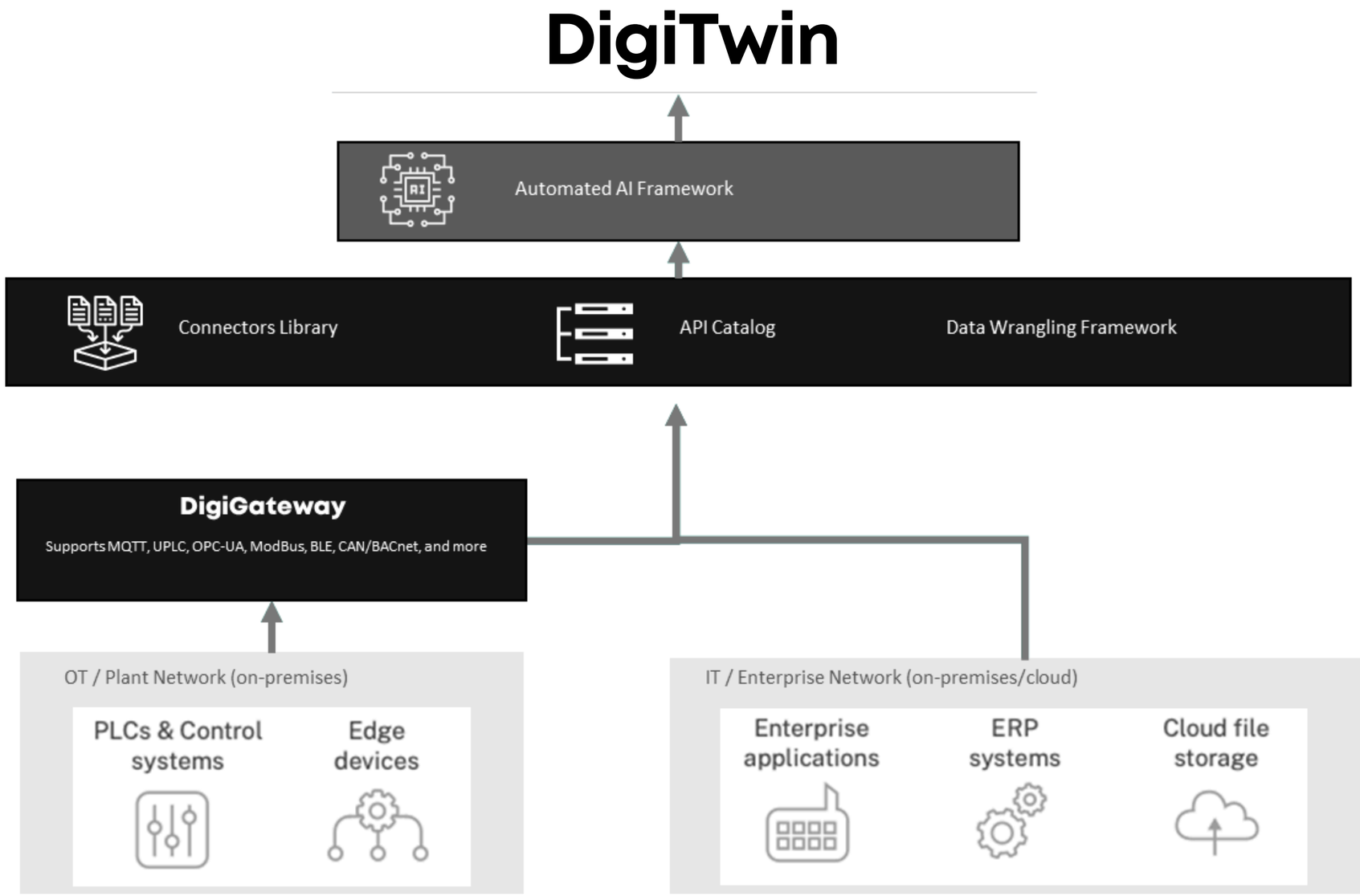
Solution **Deployment**

High Level Architecture

Portable – Kubernetes based architecture runs on any cloud platform

Modular – all datasets and algorithms can be called as APIs from client or 3rd party applications

Edge-compatible – miniaturized versions of pre-trained algorithms can run locally for low-latency and closed-loop control



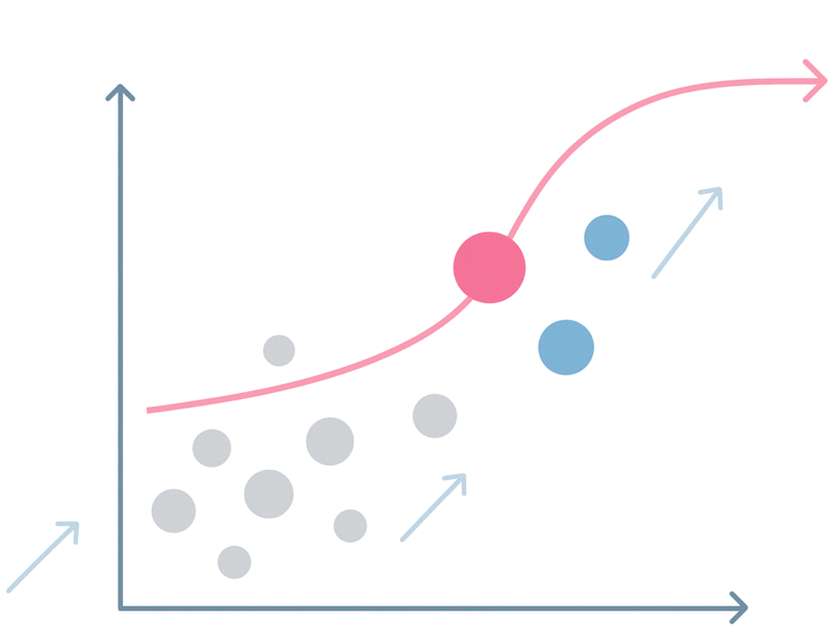
How we **do it**

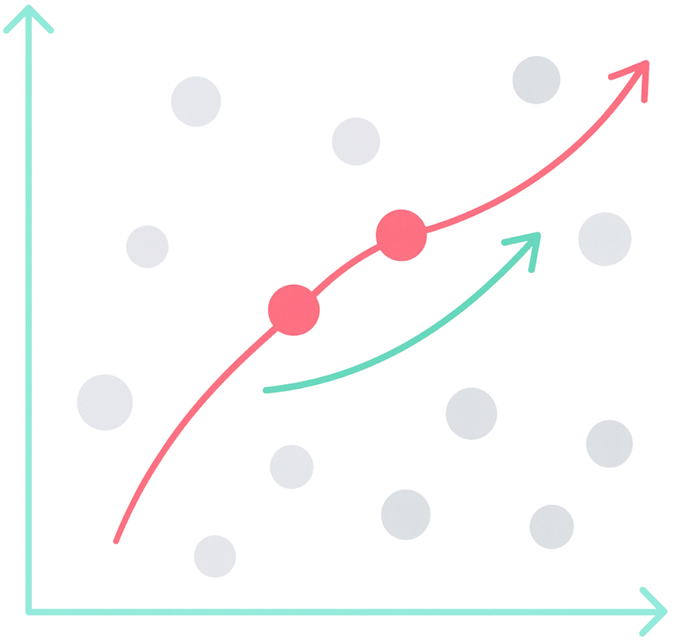
Continuous learning from **historical data** as well as **mathematical simulation.**

Search and recommend **best closest historical** performance - golden batch parameters

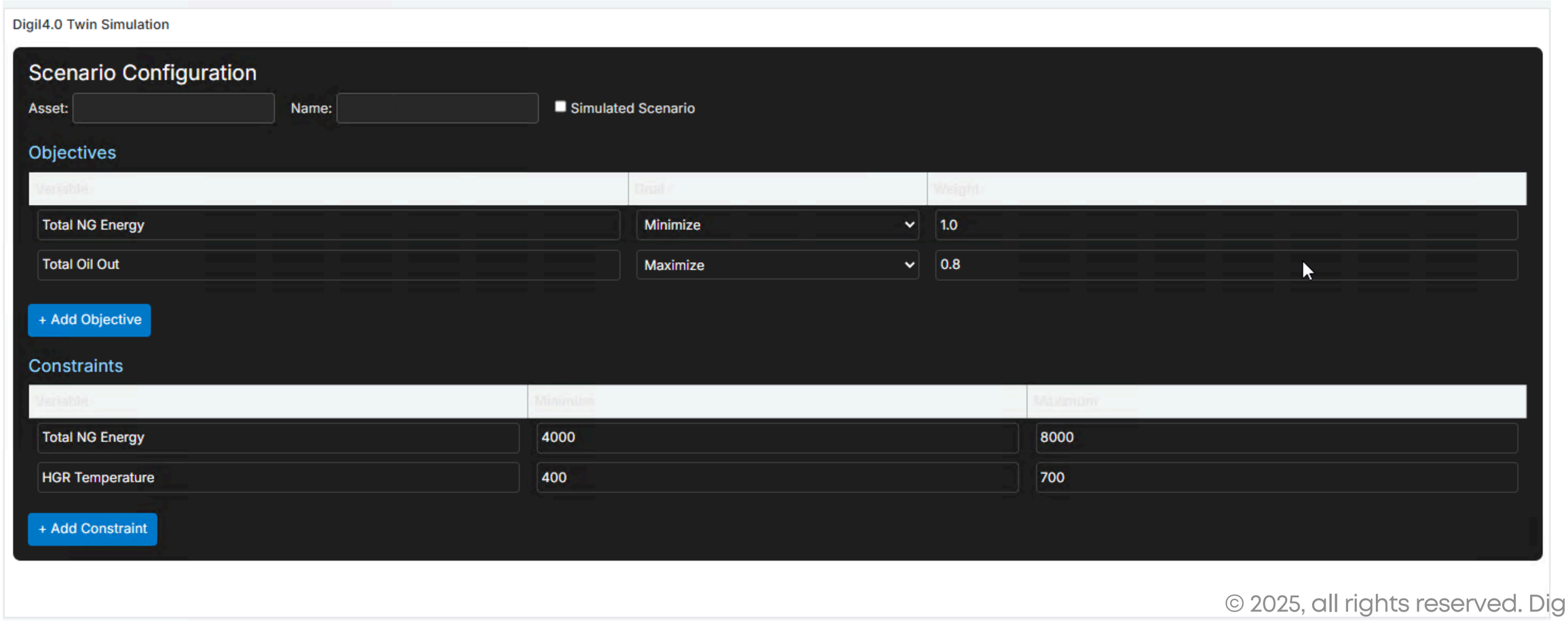
Simulate even better performance using pareto front optimization

Meet all quality targets and process limits.



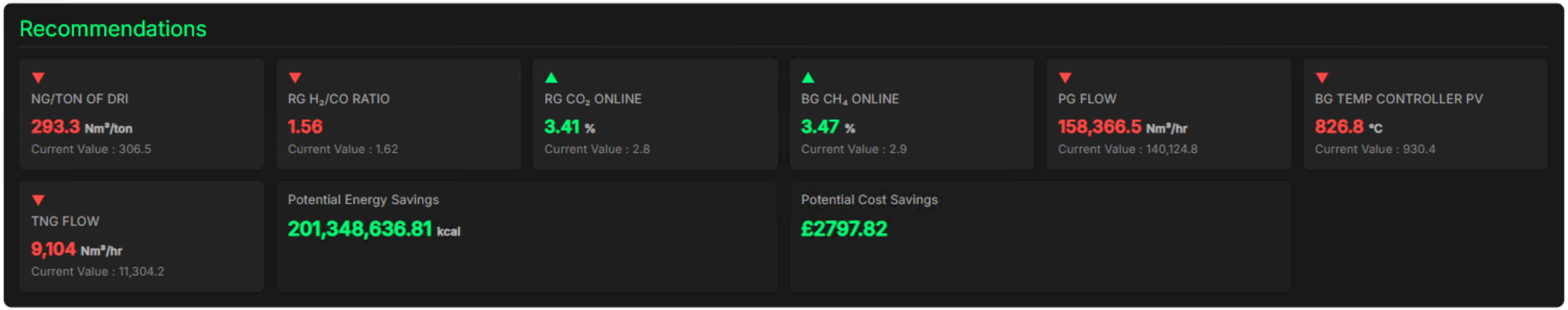


Our **AI searches** for the **most efficient ways** to operate **industrial equipment**.
Subject to **unlimited, user-defined constraints.**



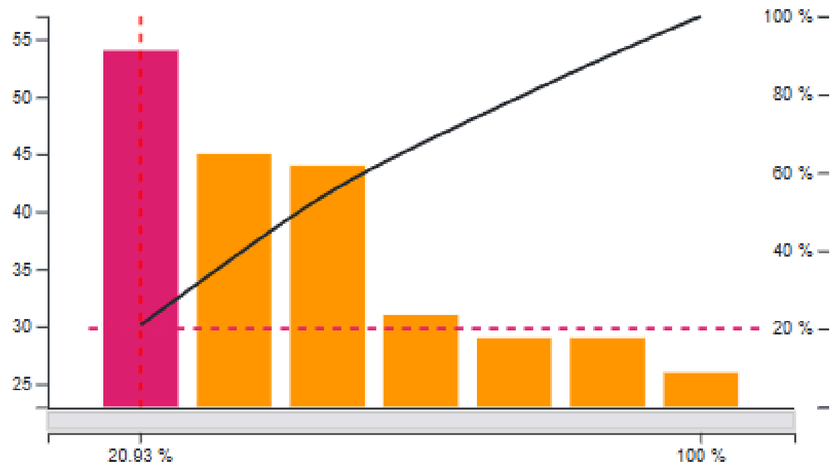
Our **AI recommends control setpoints** in **real-time.**

Resulting in **immediate energy, cost** and **carbon emissions savings.**



Our **AI dynamically scores** and **ranks asset performance.**
Allowing **engineers** to **prioritize** and **plan maintenance efficiently.**

Pareto

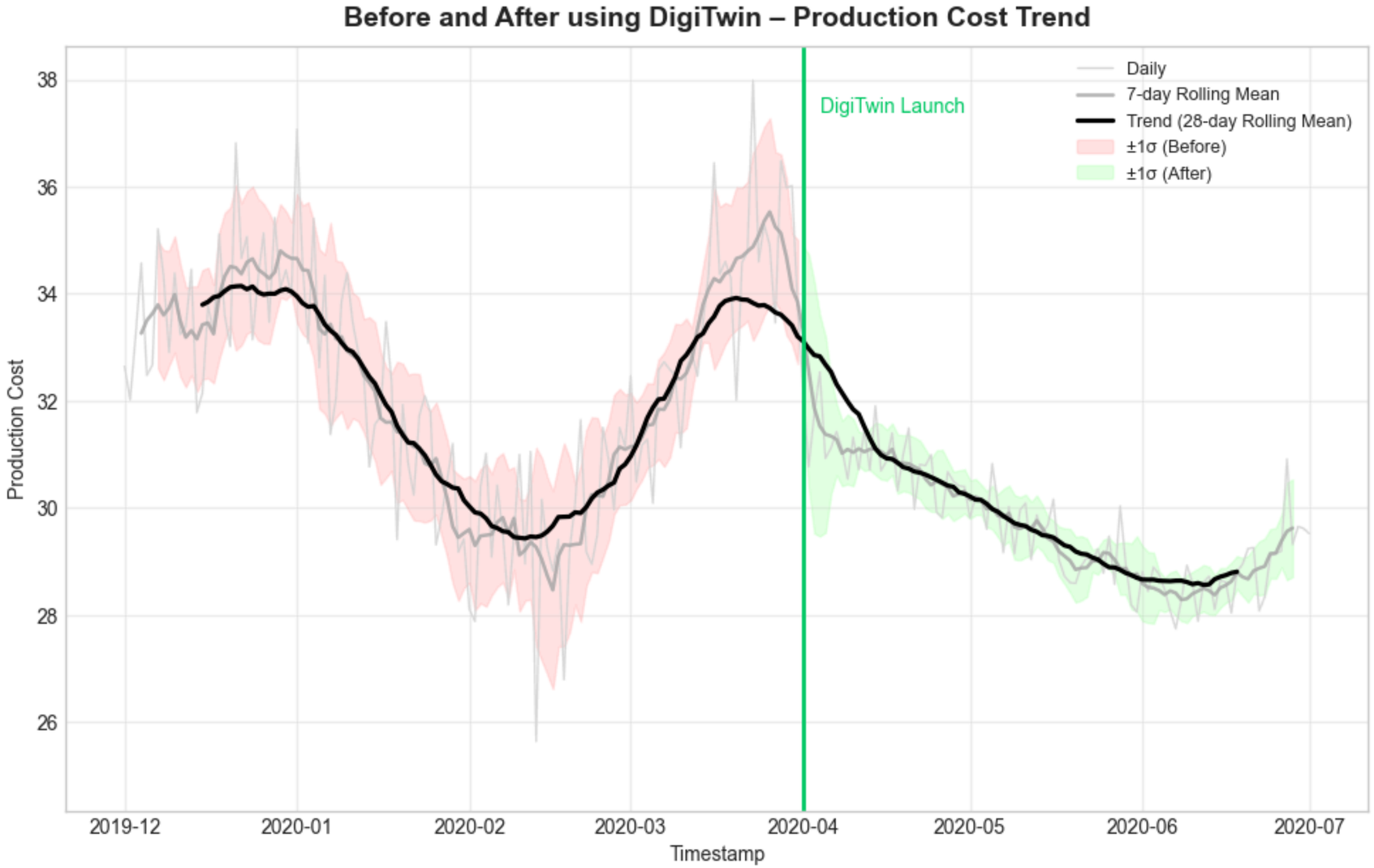


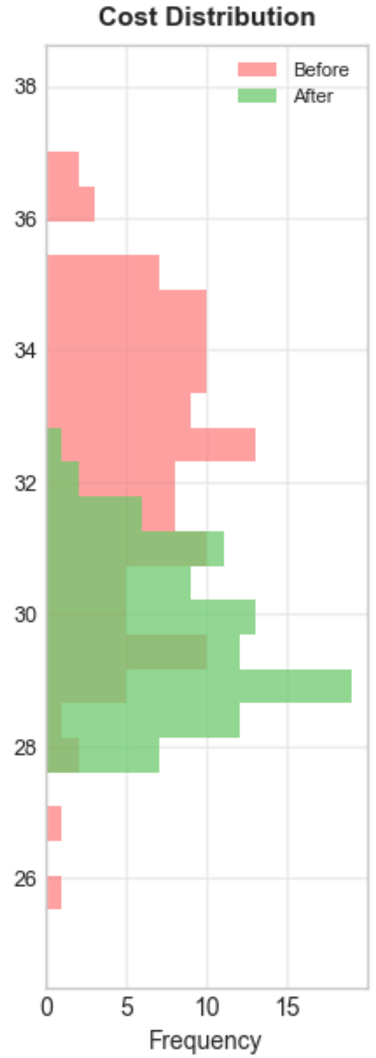
Summary Table

OEE / TEEP Summary

Asset	Availability %	Performance %	Quality %	OEE %	TEEP %
B390	96.2	94.7	98.8	92.4	85.7
K878	94.1	91.3	98.1	89.3	83.2
B386	92.3	90.0	96.4	86.7	81.1
B354	90.5	88.2	95.1	83.2	78.9
K866	89.0	85.6	93.8	80.5	74.2

What the **result look like**

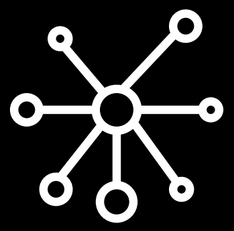
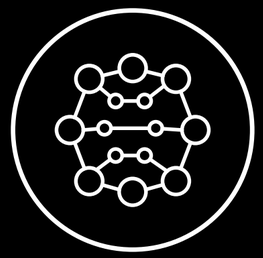




What makes **us unique?**

AUTOMATION: Fully automated AI model creation and training.
No need to staff data scientists on each project.

SPEED: Results in hours, not weeks.

1	2	3	4	5	6
Connectivity	**Apply Template**	**Automated Data Classification**	**Algorithm Selection**	**AI Model Management**	**Augmented Applications**
					

Digi I4.0 : **Solution Architecture**

Simpler architecture, lower ops risk, same outcomes

Risk Management Approach

Threats & Context

- Asset Variance
- External Environment
- Usage Pattern Shits
- Wear and Degradation
- Data Quality Gaps

Preventive Barriers

Guardrails
- Policy Limit
- Safe Envelopes
- Data Validations

Control Gating
- Approvals
- Interlocks
- Rules

Operations
Observe & Learn

Mitigative Barriers

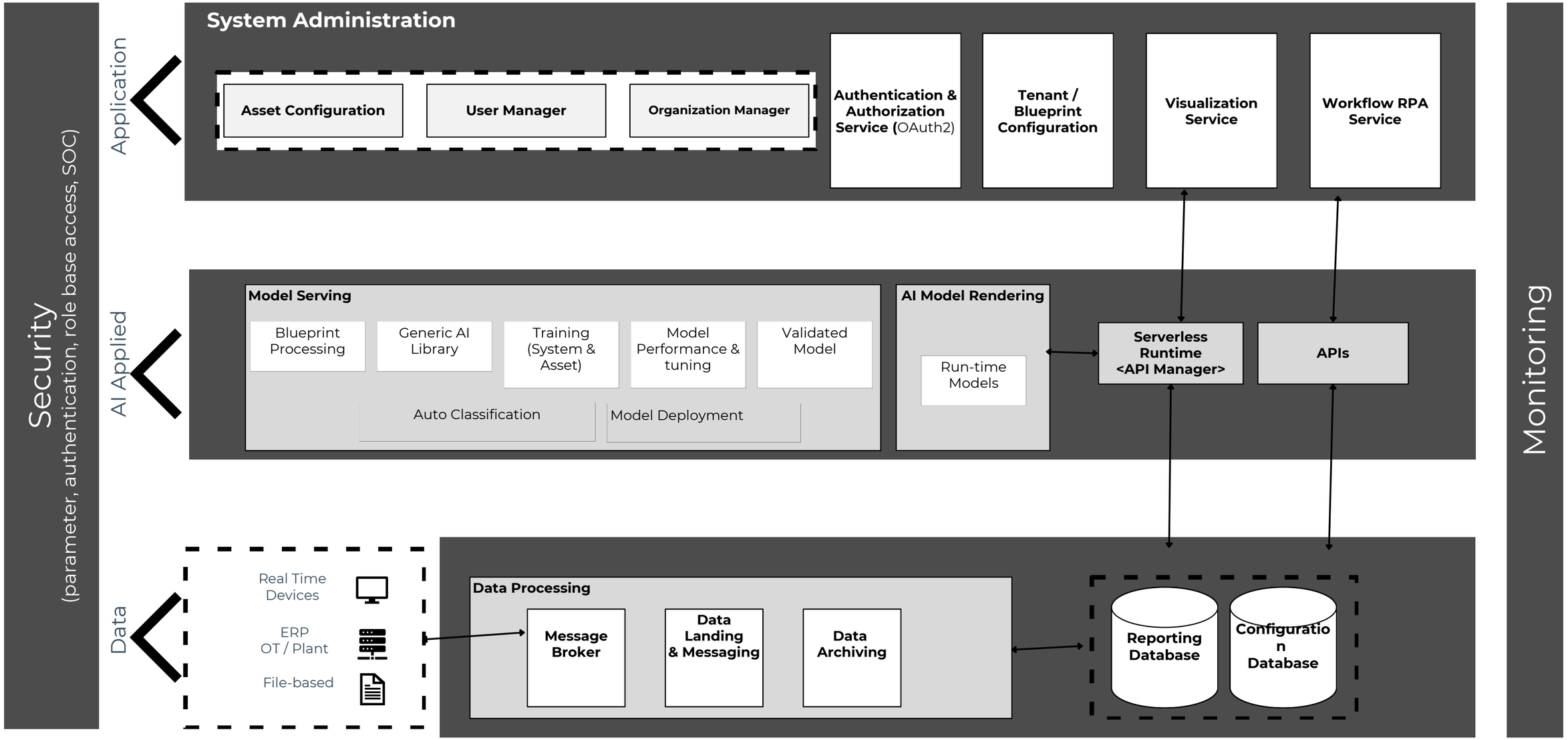
Operations Intelligence
- Closed loop control
- Digital twin simulation

Reliability Intelligence
- Anomaly triage
- Risk Scoring

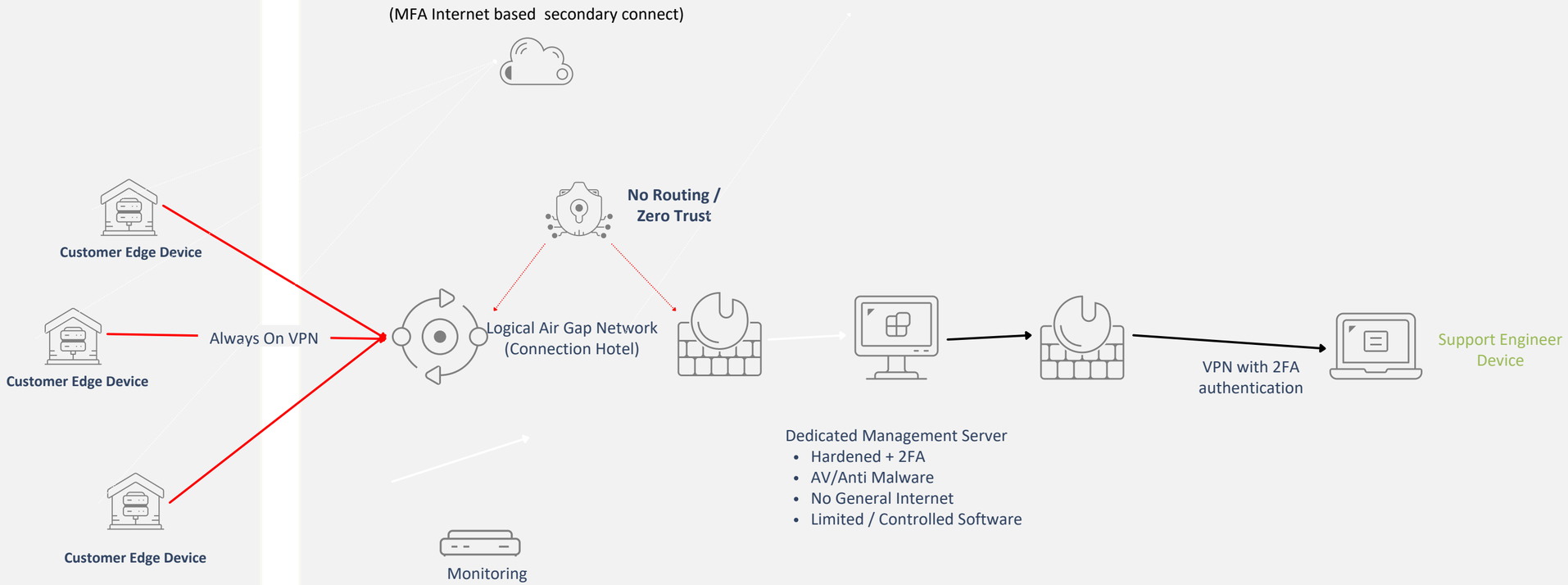
Consequences

- OEE and Throughput
- Energy and Cost Impact
- Quality/Scrap
- Compliance
- Unplanned Downtime

Application **Architecture**



Security **Management**



- Security Management System (ISMS) End-to-end controls audited annually; scope covers edge devices, cloud platform, and support operations.
- Hardened, Segmented Network Topology Edge gateways connect to exclusively via an “always-on” IPSec VPN; devices are allocated to a dedicated VLAN with no east-west routing.
- Strict Port-Level Isolation Firewalls permit only explicitly authorised TCP/UDP ports and IP addresses; inter-gateway communication is technically impossible.
- Inbound-Only Data Flow All traffic is initiated from the customer site toward . No reverse sessions or remote desktop channels are permitted into the OT network.
- Zero-Trust Connection-Broker (“Logical Air-Gap”) An intermediate connection-hotel terminates VPN sessions; routing to management services is policy-based, providing an additional inspection layer.
- Two-Factor Authenticated Administrative Access Support engineers reach the management plane solely via a bastion host protected by MFA and Just-in-Time privileges.
- Comprehensive Audit Trail All administrative sessions, configuration changes, and data transfers are logged centrally and retained for a minimum of 12 months evidence requirements.

Case **Study**

Energy Optimization at Brick Manufacturing

Client

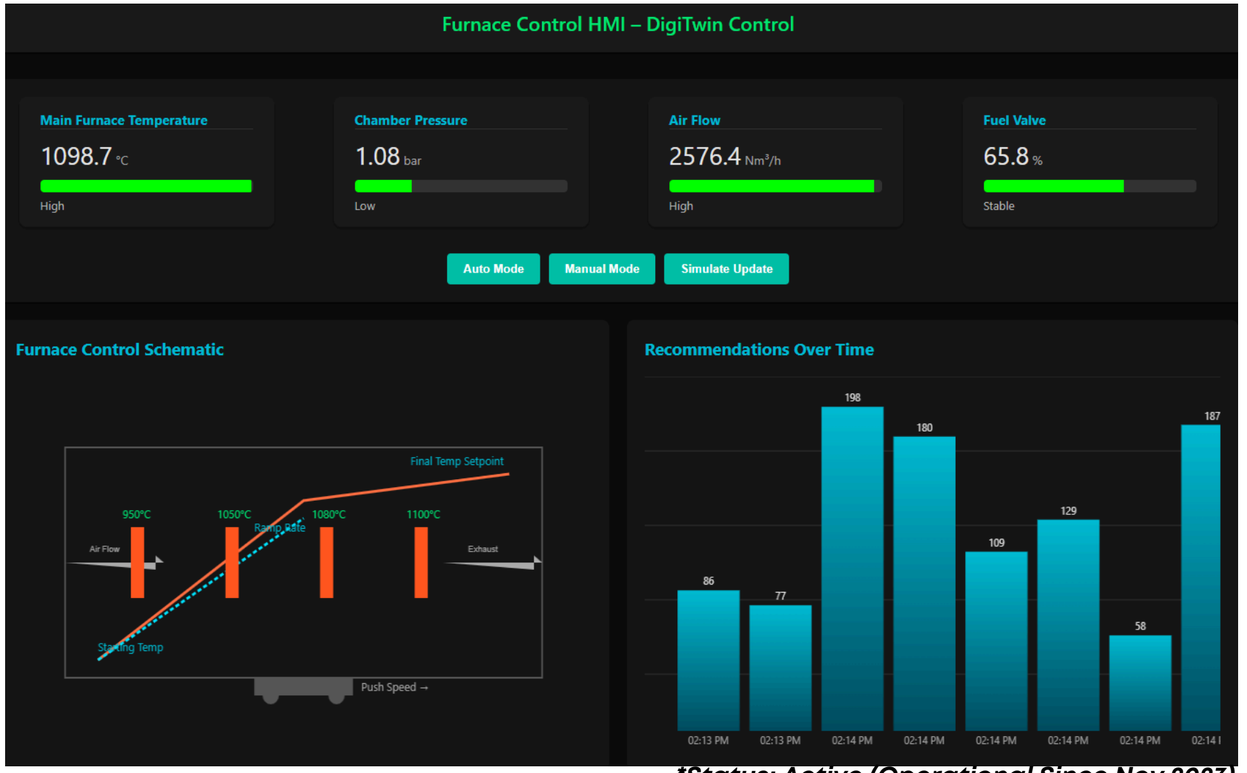
Europe's leading manufacturer of Building Supplies & Building Materials

Problem Definition

High natural gas costs in the UK. Need to reduce energy consumption in brick kiln operations while maintaining quality and throughput.

Next Steps

Expanding scope to additional burnerzones on current plant
Continue scaling the solution to additional10 plants with potential of £400K savings.



Status: Active (Operational Since Nov 2023)

Solutions & Benefits:

Industrial Closed-Loop Control: Optimized gas consumption for burner zones. Over 2000 real-time setpoint adjustments per day for optimal performance.
Achieved 2.2% plant-wide gas savings, translating to 9-10% savings at the burner zone level.
Adaptive Process Optimization: Tailored operational profiles for slurried and non-slurried bricks.

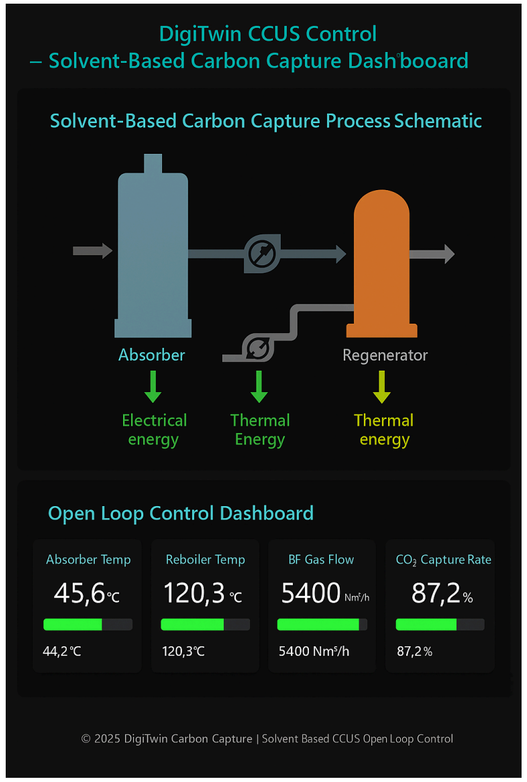
Case Study

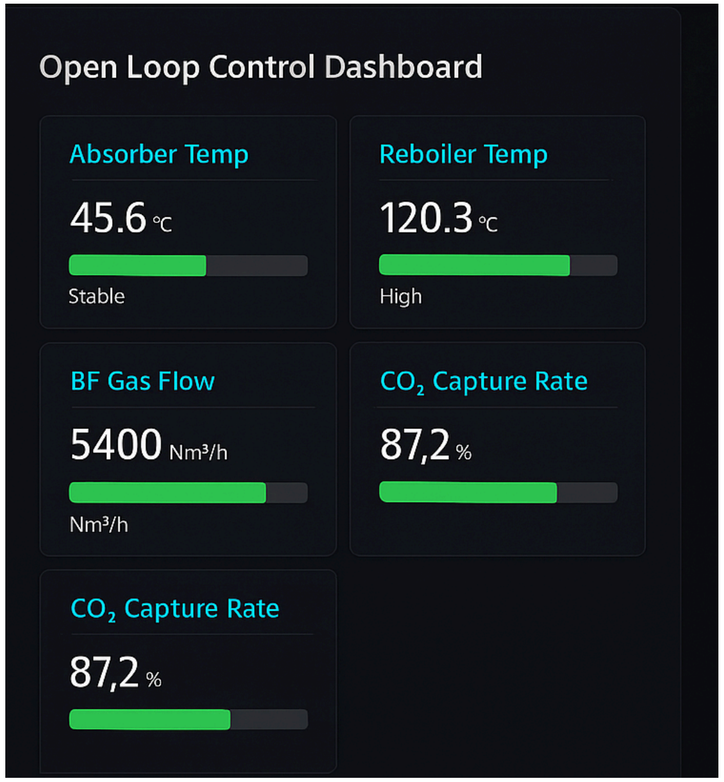
Enhancing Efficiency in Process Optimization

Client
Leading provider of Carbon Capture solutions.

Problem Definition
Optimize process efficiency to increase carbon capture rates.
Target: Increase carbon capture to ~7 TPD with at least a 10% improvement.

Next Steps
Ongoing monitoring to track efficiency gains and carbon capture improvements.





Status: Active (Operational Since Nov 2023)

Solutions & Benefits:
Industrial Platform: Provided real-time visibility of plant performance across the enterprise via a cloud-based dashboard.
Set up closed-loop control interfacing with OPC for direct integration with plant systems.
Open-Loop Recommendations Delivered actionable insights for process optimization focusing on enhancing carbon capture
Remote Monitoring Enabled: Operators can now remotely monitor and analyze plant performance.
Improved enterprise-wide decision-making and situational awareness.

Get in Touch

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