

FactoryAI

Fully packaged solution driving proof-of-value for a digitally integrated supply chain in weeks instead of months

The digital age of manufacturing allows a plant to be more efficient, traceable, predictable, and manageable than ever before

Sources of Variation

- Equipment Performance**
When will the machine break down? Are setpoints out of tolerance? Is there internal contamination buildup?
- Process**
Is there process non-conformance? Are setpoints out of spec?
- Materials**
Is there quality variation? Is the material mix out of spec? Are there impurities?
- Environment**
Are there deviations in the humidity or temperature? Are the conditions appropriate for product storage?

Unlocking Smart Factory Capabilities

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- Production Tracking**
Track the quantity of usable WIP and sellable finished goods produced over time in terms of pounds, units, cases, and pallets
- OEE Insights**
Provide actionable insights into the three elements of OEE in real time: equipment availability, performance, and yield
- Material Traceability & Prediction**
Traceability of materials from goods receipt through goods issue
- Setpoint Optimization**
Continuously monitor setpoints in comparison to the default conditions specified in standards
- Component Health Monitoring**
Continuously monitoring operational effectiveness and wear-and-tear based on run time and physical attributes
- Continuous Product Inspections**
Continuously monitor key characteristics of product quality instrumentation & precise algorithms
- Recipe Optimization**
Provide the optimal "recipe" based on variations in material specs and environmental conditions
- Plant Control Tower**
Create the optimal summary of overall plant performance with targeted and actionable insights

Augmenting the human worker

- New Ways of Working**
Plant leaders and personnel will need to adopt new ways of working and act on data insights to realize the full business benefits of the technology
- New Talent and Skills**
Sustaining the digital manufacturing transformation requires talents with a blend of OT, Process, and Analytics skills
- Plant Leadership**
Use real-time and historical data to optimize production performance and create incentives for change
- Process / Quality Leads**
Preventing human errors and increasing performance by monitoring and guiding operators real-time on the shop floor
- Material Handlers**
Use data to maintain material flow and blend control
- Shift Supervisors**
Monitoring and analyzing shop floor performance through real-time data flows and making informed decisions based on data-driven insights
- Maintenance**
Transition from reactive and preventative maintenance to condition-based and predictive maintenance that maximizes OEE

FactoryAI Solution

The FactoryAI solution loops together the physical and digital world through the use of preconfigured sensors, application, technology stack, and methodology

Solution Components

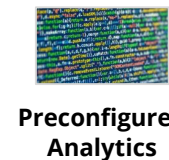
Sensors

Comprehensive guide of non-invasive sensors categorized by use case ready to be deployed for secondary data capture



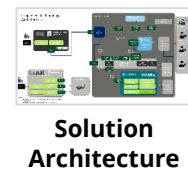
Application

Preconfigured analytics and pre-developed application ready for plug-and-play deployment



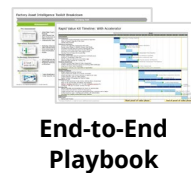
Technology Stack

Preconfigured, on-prem server, solution architecture, and hardware prepared for rapid integration and deployment

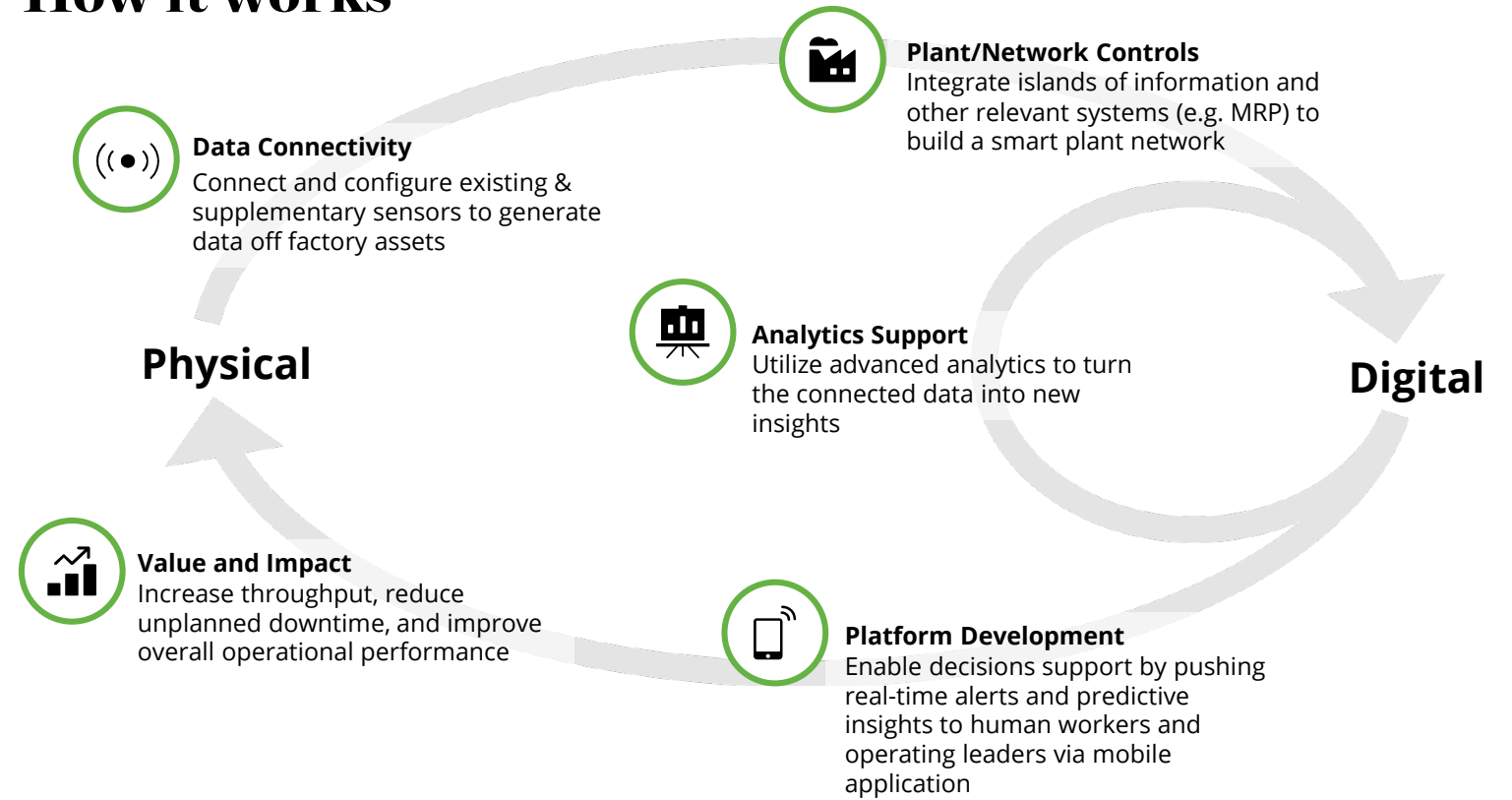


Methodology

End-to-end FactoryAI playbook built on best practices designed to accelerate the proof-of-value from months to weeks



How it works



Potential Value* it drives

5% – 15% (availability, performance, quality) Increased OEE	10% – 20% Increased Throughput	20% – 30% Reduced Maintenance Costs	15% – 30% Reduced Unplanned Downtime
10% – 20% Increased On-Time Delivery	2% - 5% Improved Profitability	10% – 35% Improved Quality	

*Deloitte experience

To learn more please reach out to: DigitalSupplyNetworks@deloitte.com

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