



**THE REYNOLDS
COMPANY**
ELECTRICAL SUPPLY

User Group
Online Seminars

Introduction to Innovation Suite

August 18, 2021

Online Events

Register to receive a calendar invite



TECH TALK

- **Encompass Partner Update: Spectrum Controls**
Wed, August 25, 2021 @ 10am
- **Configuring Drives with CCW**
Wed, September 15, 2021 @ 10am
- **ControlFlash Plus**
Wed, September 29, 2021 @ 10am

USER GROUP

- **Augmented Maintenance & Safety for MCC's**
Wed, September 22, 2021 @ 10am



reynoldsonline.com

Other Events



A Rockwell Automation Virtual Event

All Sessions Available Now On Demand



Automation Fair®



**SAVE
THE DATE**

NOV 10-11, 2021 • HOUSTON, TEXAS & ONLINE

With your health and safety top of mind, we are excited to welcome you to participate in the 2021 Automation Fair® event in-person in Houston, Texas or online in our hybrid experience.

The Automation Fair experience will feature engaging keynote presentations, interactive hands-on labs and technical sessions, industry-centric panel discussions, an exciting show floor showcasing the latest innovations and solutions from Rockwell Automation and members of our PartnerNetwork™, and the opportunity to participate in networking activities with your peers in the field.

Join us this November to experience the value and power of our IT/OT expertise.

[LEARN MORE >](#)

Our Guest Panelists

Brianne Murray
Rockwell Automation
Solution Consultant
Information & Analytics



expanding **human possibility**™

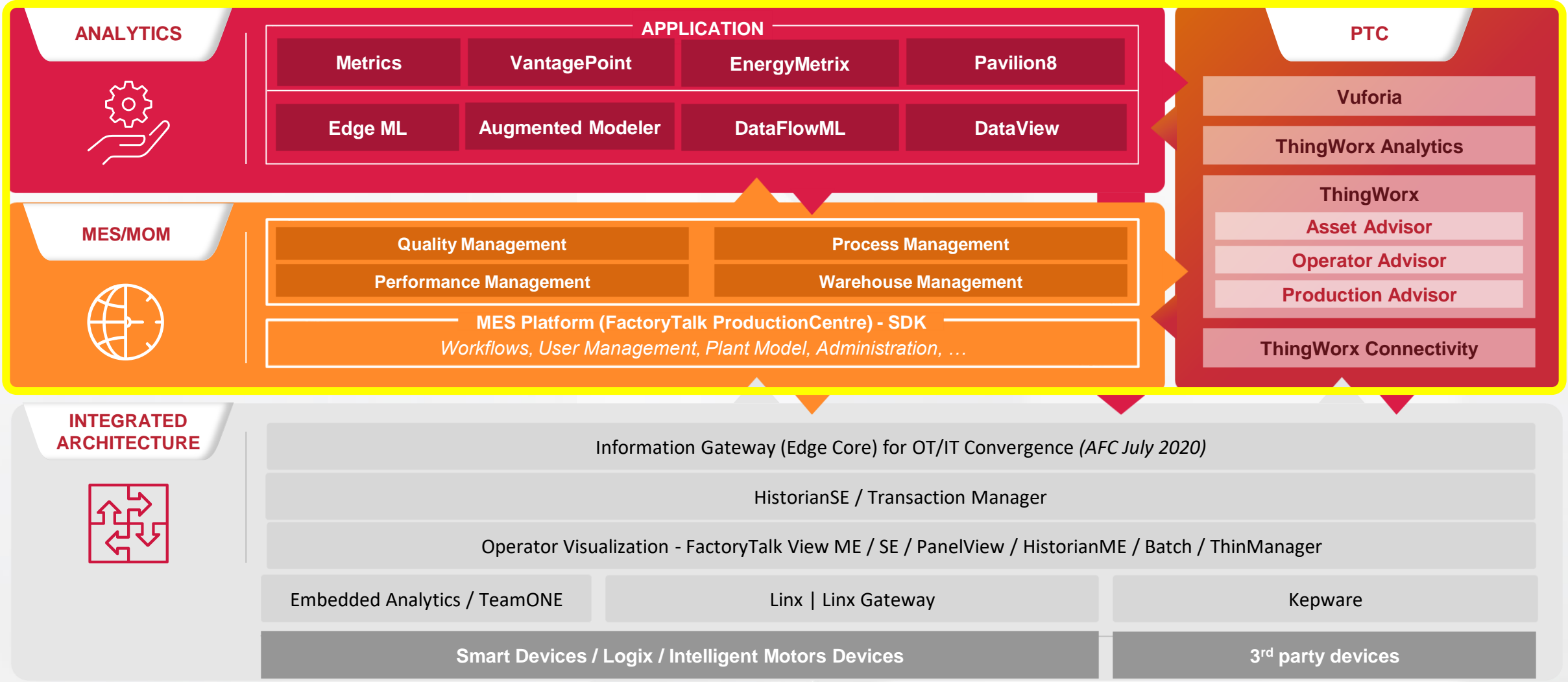
FactoryTalk Innovation Suite

Brianne Murray | Information & Analytics Solution Consultant



PUBLIC

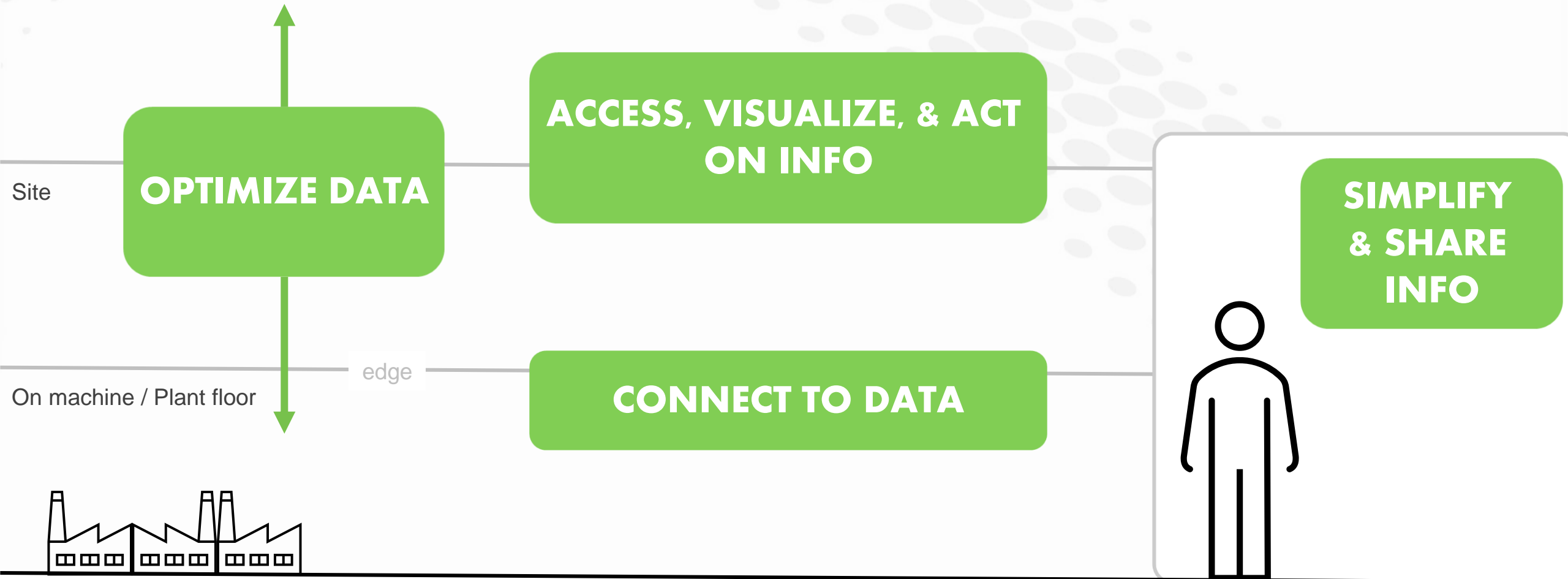
A Full Stack Approach to Information and Visualization



FT Innovation Suite Breakdown

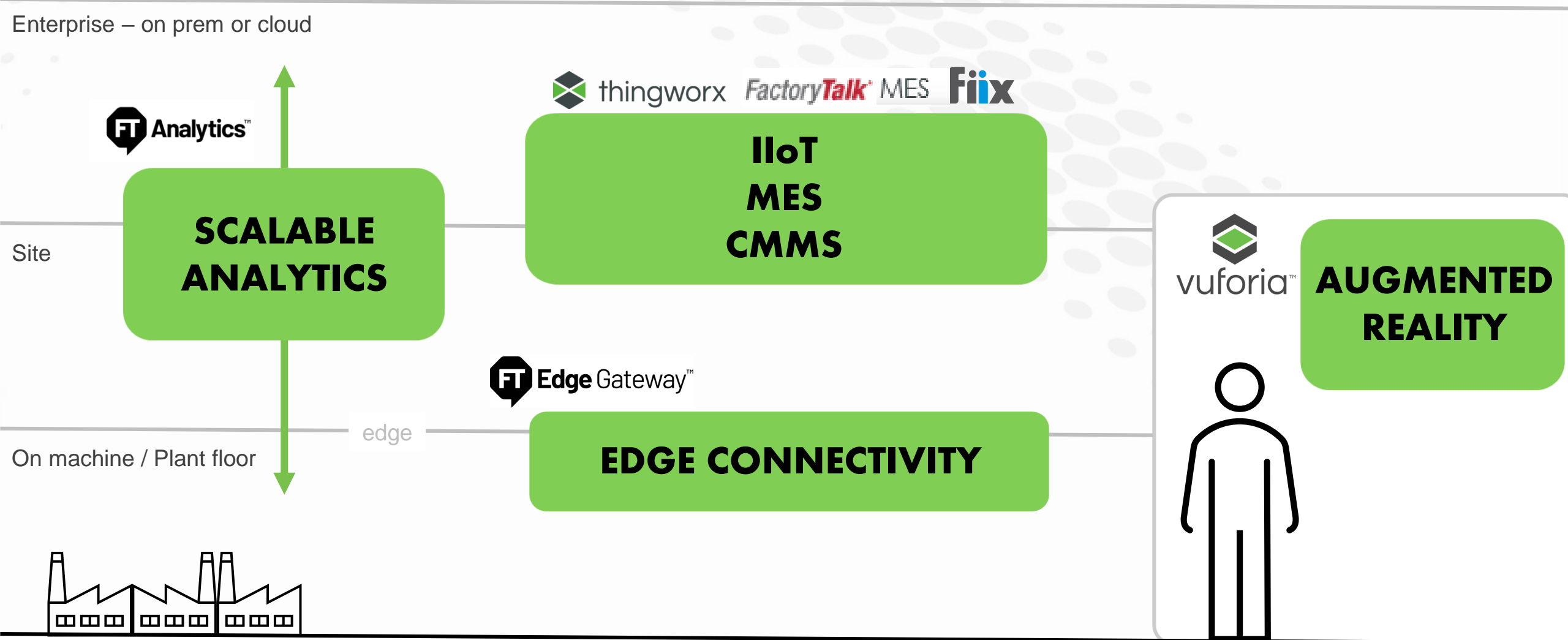
INFO & DATA

Enterprise – on prem or cloud



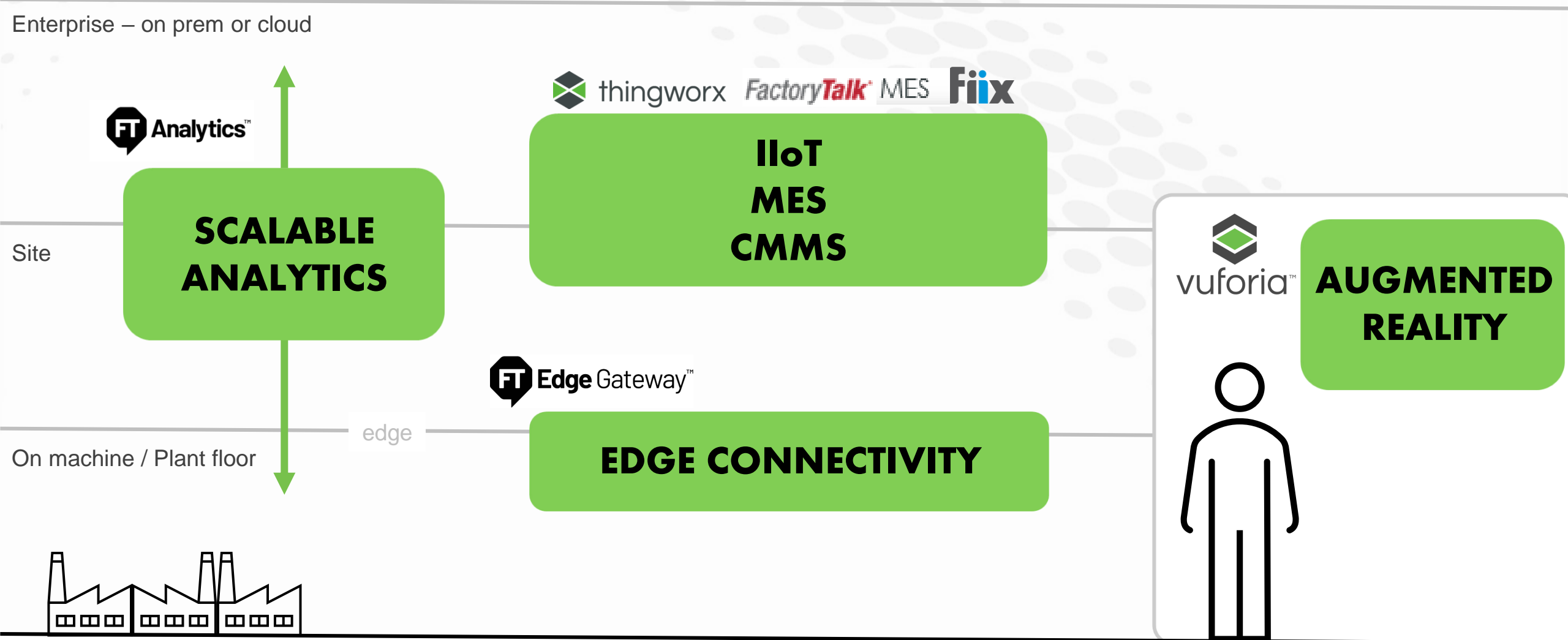
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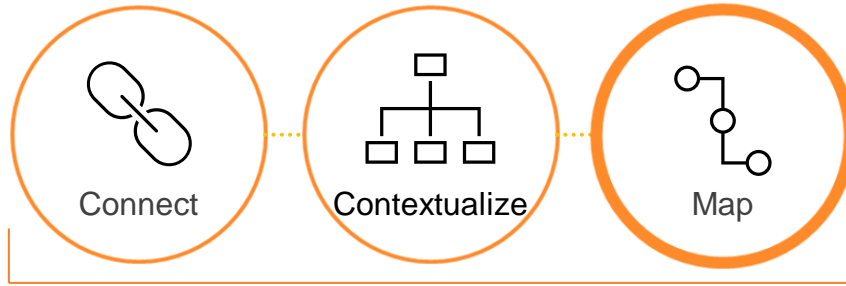
INFO & DATA



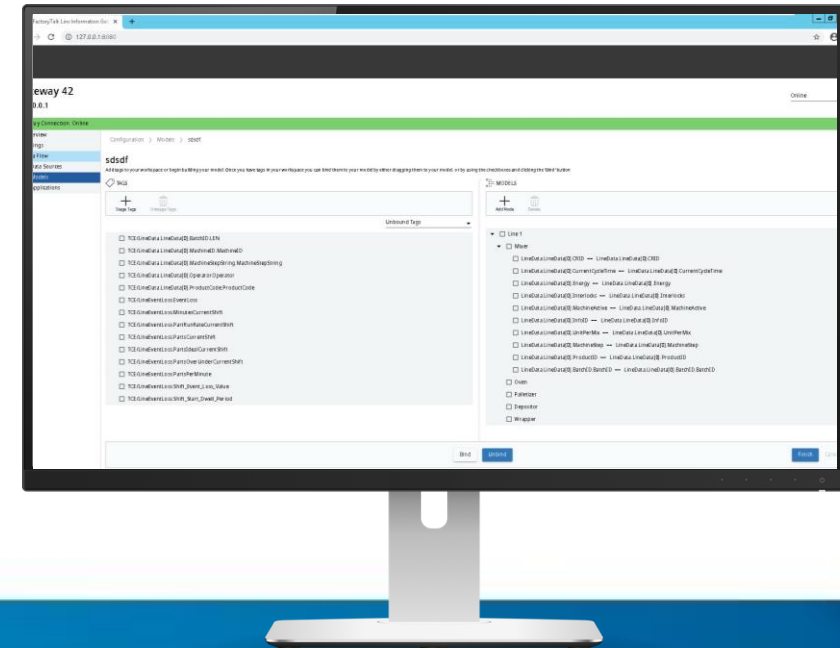
FT Innovation Suite Breakdown

INFO & DATA





EMPOWERS CONTROLS ENGINEERS TO CREATE INFORMATION MODELS WITHOUT TRADITIONAL IT SKILLS



Connect disparate data sources

- FactoryTalk Smart Object Information Models and Data
- Ethernet/IP
- FactoryTalk Live Data
- OPC DA
- KEPServer Enterprise

Apply application context

- Contextualize data sets for big data analysis projects
- Allow OT engineers to organize data in context as it pertains to the OT assets
- Increase engineering efficiency for project deployment
- Simplify maintenance and updates

Enable contextual data delivery

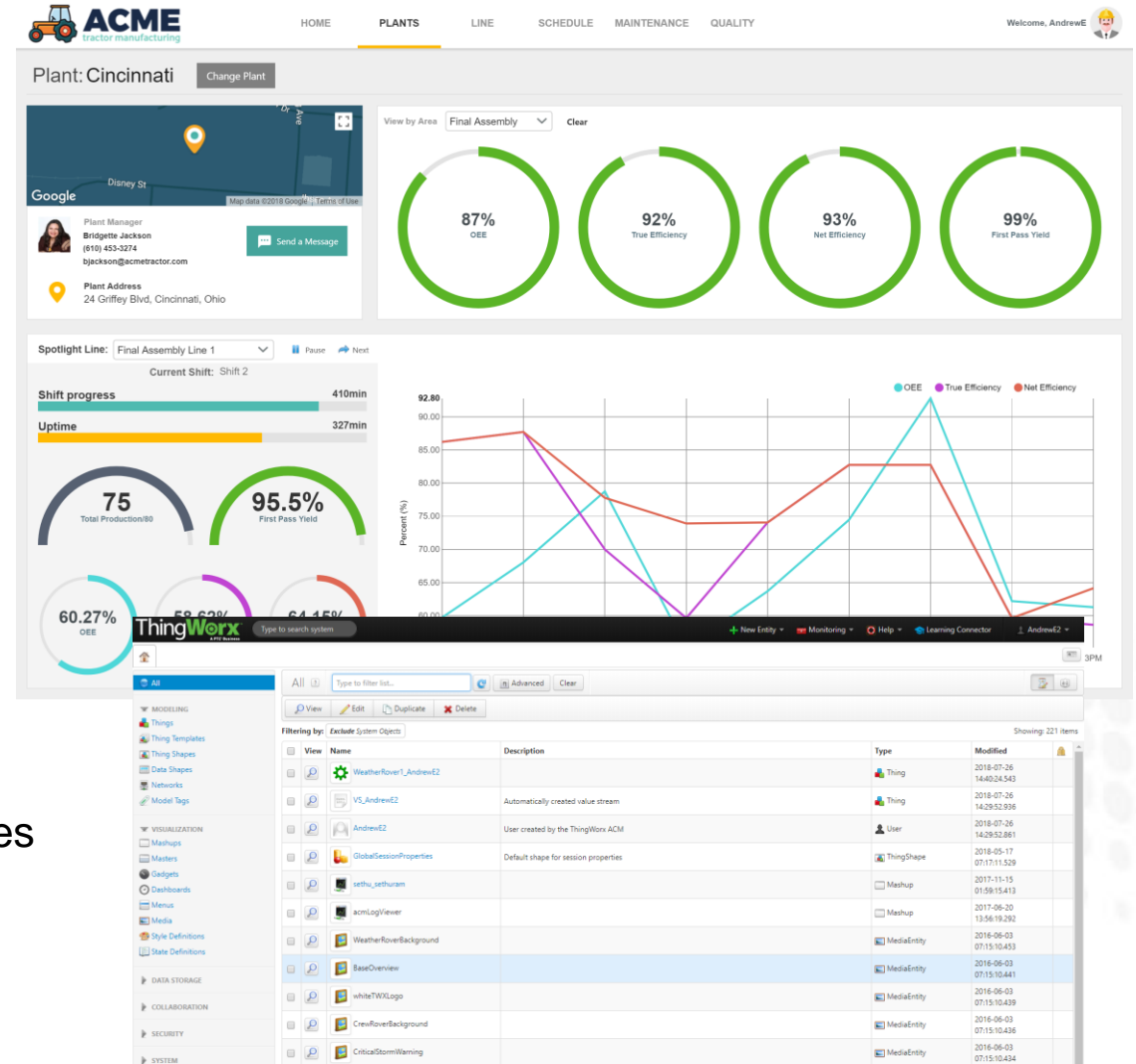
- MSSQL
- Azure IoT Hub/Edge
- ThingWorx
- Store and Forward

Supports OT / IT collaboration by empowering control engineers to identify the most appropriate data sets and send information directly to the IT layer

ThingWorx Industrial Internet of Things Platform

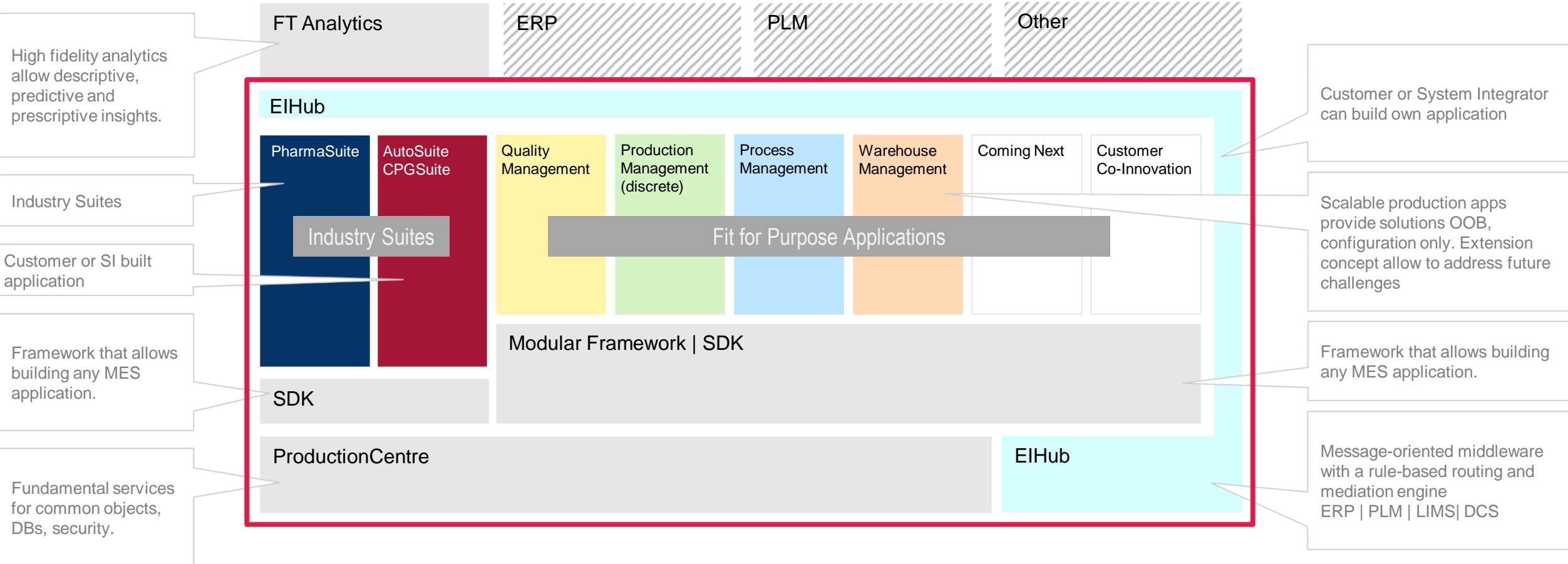
High-Level Overview

- ThingWorx is a platform, that enables:
 - Data Connectivity – live data, transactional and time series
 - Computation – perform calculations on the data
 - Analytics – leveraging their Analytics engine (prediction...)
 - Visualization – in the form of mashups
 - **Customize and Extend** – via APIs and configurations
- ThingWorx Industrial Connectivity
 - Expands the number of Industrial and Enterprise data sources



Manufacturing Execution System Overview

A transformation journey in progress



Scalable | Role based UIs | Extensible by SDK | Data Integrity | Cloud ready | Evergreen | Agility | Secure

Modules and capabilities

Fiix provides a complete CMMS platform powered by the first and only **AI engine for maintenance** allowing teams to manage their maintenance operations, differentiated by a **cloud-based, easy-to-use, mobile-first, integrated platform which supports our “land and expand” GTM motion**



Fiix Foresight

First and only AI engine for maintenance

- Analyze data to make recommendations on planning, purchasing, & scheduling maintenance



Fiix Integration Hub

Connect Fiix CMMS to any system

- Connect, collect, and share data, and trigger work across any system with an open API



Work order management

Gain maintenance efficiency

- Submit work orders and easily search, sort, and track orders
- Schedule maintenance using date, time, meter, and event of condition-based triggers
- Attached SOPs, task lists, and suggested parts to work orders for technicians



Asset management

Ensure asset performance

- Single-system for collecting asset information
- Complete view of assets including status, repair history, SOPs, and failure codes
- Track equipment usage and trigger work orders with real-time meter readings



Parts & supplies management

Optimize inventory and costs

- Get alerts when parts run low and submit, approve, and send purchase orders
- Perform cycle counts, log, and view stock levels across multiple facilities
- Search for parts, calculate cost of each work order or asset, and build automated reports



Reporting & analytics

Make data-driven decisions

- Collect maintenance data on demand and generate actionable intelligence
- View real-time metrics across sites, projects, assets, and users
- Audit logs capture and track what maintenance was performed, who performed it, and when

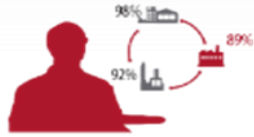
Scalable Analytics

Basic Analytics

Advanced Analytics

ENTERPRISE

DESCRIPTIVE



Which plant performed the best?

DIAGNOSTIC



Why is Site A throughput behind plan?

PREDICTIVE



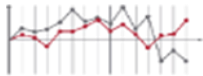
I predict that Site A will be behind plan soon.

PRESCRIPTIVE

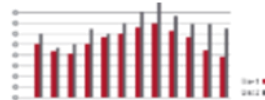


What action should I take to avoid Site A from falling behind plan?

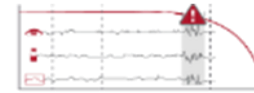
SYSTEM



Is Line 1 running ok?



Why is Line 1 quality poor?



I predict that Line 1 quality is moving out of tolerance.



What action should the operator take to avoid poor quality?

DEVICE



Am I running ok?



Why did a fault happen?



I predict a fault will happen soon.



What action should be taken to avoid the fault?

Scalable Analytics Technologies

Data Visualization

Machine Learning

DESCRIPTIVE

DIAGNOSTIC

PREDICTIVE

PRESCRIPTIVE

ENTERPRISE

 **Analytics™** DataView

 **Analytics™** DataFlowML

SYSTEM

PAVILION8

DEVICE

 **Analytics™** for Devices



 **Analytics™** Edge ML
Built on  **Edge Gateway™**

 **Analytics™** LogixAI®



Scalable Analytics Technologies

Data Visualization

Machine Learning

DESCRIPTIVE

DIAGNOSTIC

PREDICTIVE

PRESCRIPTIVE

ENTERPRISE

 thingworx® & thingworx® analytics™

 FT Analytics™ DataFlowML

 FT Analytics™ DataView

SYSTEM

PAVILION8

 FT Analytics™ Edge ML
Built on  FT Edge Gateway™

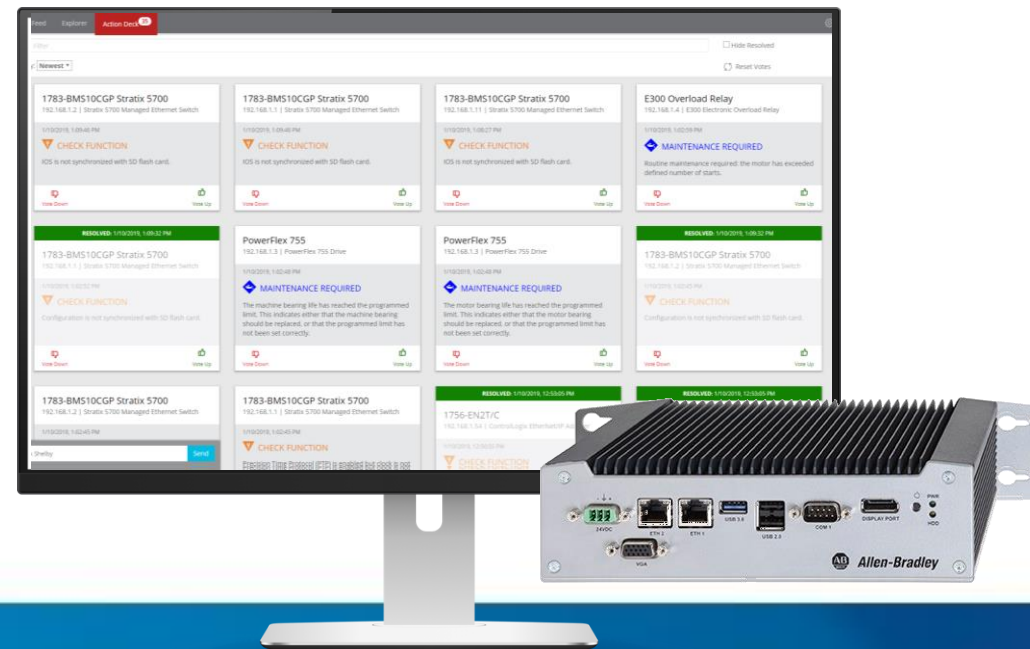
DEVICE

 FT Analytics™ for Devices



 FT Analytics™ LogixAI®


Analytics™ for Devices



Minimize downtime

Diagnostic dashboards can deliver answers faster than traditional, manual troubleshooting

Take action and solve issues sooner without expensive downtime

Analytics Without the Analysts

Automatically processes raw data so you and your team can skip the computing and start learning from the analytics.

Spot hard-to-find problems

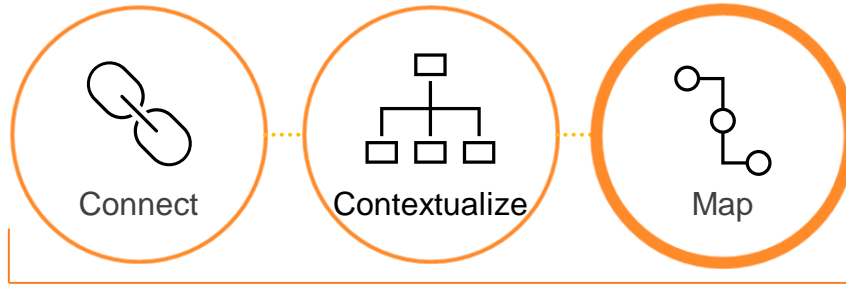
Some problems on the plant floor can be hard to detect, may be intermittent or may even go unnoticed

Small inefficiencies become apparent when FT Analytics for Devices digitizes the complete network of information

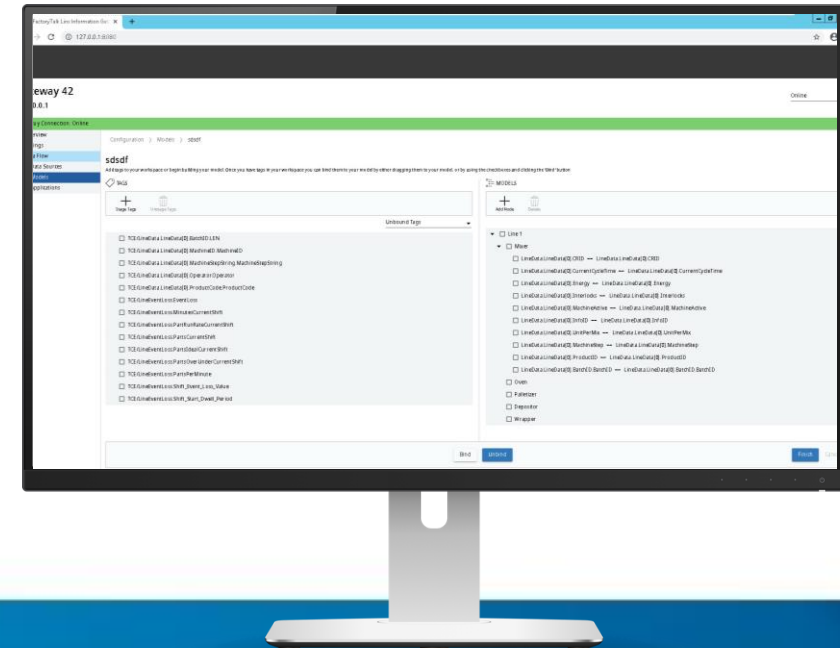
FT Analytics™ LogixAI®

Descriptive | Diagnostic | **Predictive** | Prescriptive





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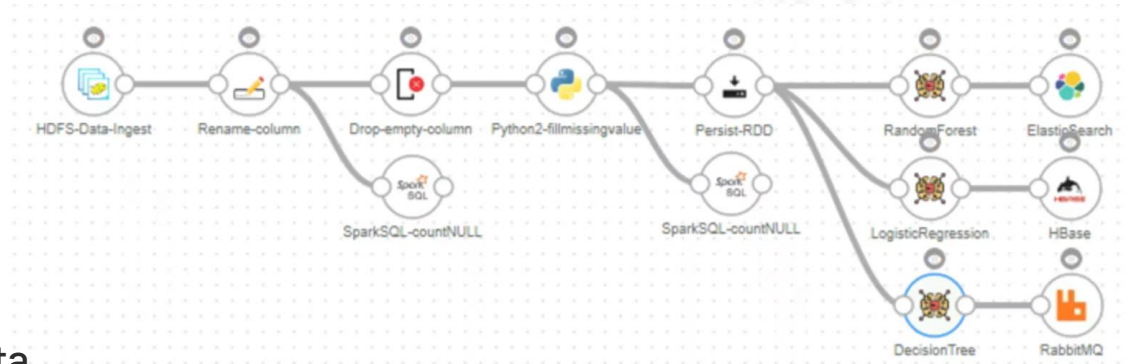
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Purpose built for Data Scientists

- Visual Workflow-based Data Pipelines
- Design models for OT *and* IT data
- Flexible ML algorithm options to apply to real time or batch data
 - Python, Spark, H2O.ai, PMML
- Comprehensive Model Lifecycle Management
- Out-of-the-box Ingress, Egress, Transformation & Analytical Processors
- Open Programmable Platform
 - Built on language of choice – Python, Jupyter, etc.



FT Analytics™ Augmented Modeler

Application built on DataFlow ML – designed for the plant engineer

- Workflow wrapper to build, deploy and monitor machine learning solutions
- 3 powerful ML applications
 - Anomaly Detection
 - Predictive Maintenance
 - Predictive KPI's
- Visually Interactive Machine Learning



- Connect with manufacturing data
- Visualize data for evaluation and preparation
- Validate your model development with visual tools
- Verify and deploy without programming
- Perform online visual diagnosis
- Receive email alerts

Machine Learning Solutions at-a-glance

Rockwell Automation offers Machine Learning solutions for wide variety of use cases



Need	<ul style="list-style-type: none"> Allow engineers to run ML models close to controllers 	<ul style="list-style-type: none"> Run ML capabilities in plants on local infrastructure 	<ul style="list-style-type: none"> Allow citizen data scientists to build and run ML data models easily 	<ul style="list-style-type: none"> Empowers operations with process optimization solutions 	<ul style="list-style-type: none"> Empower engineers with equipment knowledge and limited ML skills to visually build ML models 	<ul style="list-style-type: none"> Enable data scientists to leverage an Enterprise ML platform that is open-stack and optimized for batch/streaming data to operationalize and execute pipelines
What	<ul style="list-style-type: none"> Find deviations Estimate values 	<ul style="list-style-type: none"> Build ML model externally Run/score ML models at edge nodes Write back to control systems 	<ul style="list-style-type: none"> Open machine learning toolset Automatically generates the best model by combining different algorithms Deploy models with FTA 	<ul style="list-style-type: none"> Closed loop prescriptive analytic. Drives value without operator intervention. 	<ul style="list-style-type: none"> Visual data modelling/cleansing Visualize and interact with models 	<ul style="list-style-type: none"> Visual pipeline building Open connectivity Data wrangling Model building/training Scalable to big data Operationalize models and pipelines
Who	<ul style="list-style-type: none"> Control engineers 	<ul style="list-style-type: none"> Process engineers 	<ul style="list-style-type: none"> Citizen data scientists 	<ul style="list-style-type: none"> Operations via solution delivery 	<ul style="list-style-type: none"> Continuous Improvement engineers Process engineers 	<ul style="list-style-type: none"> Data scientists
Where	<ul style="list-style-type: none"> Edge (control) 	<ul style="list-style-type: none"> Edge (system) 	<ul style="list-style-type: none"> Edge (via Edge ML) On-prem Cloud 	<ul style="list-style-type: none"> On-prem Edge (via PlantPAx MPC) 	<ul style="list-style-type: none"> On-prem Cloud Edge (future offering) 	<ul style="list-style-type: none"> On-prem Cloud



Vuforia Chalk

*Remote collaboration
mobile application*



Vuforia Expert Capture

*Build augmented expert
guidance & work instruction
experiences*



Vuforia Instruct

*Fastest and easiest way to
author and scale 3D work
instructions*



Vuforia Studio

*AR application
development platform*

