

Build a resilient supply chain

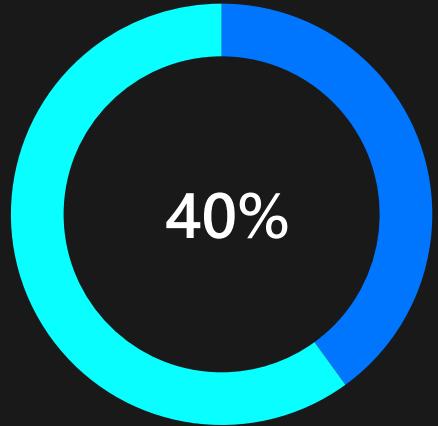
# Maximize asset uptime

**Murray Fife**

Microsoft Dynamics Global Black Belt

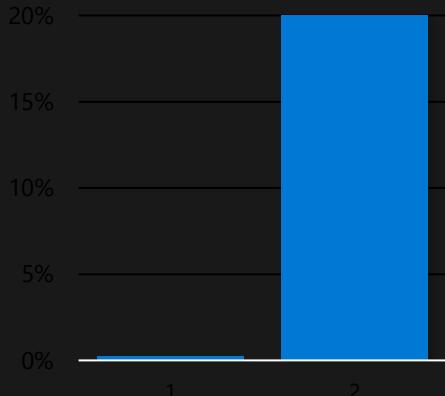
# Industry trends

IoT data to reduce unplanned downtime.



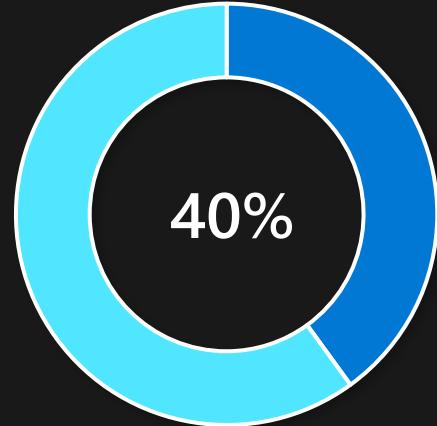
By 2024, 40% of OEMs will leverage field asset IoT data to reduce unplanned downtime 25%.<sup>1</sup>

Supporting new business models



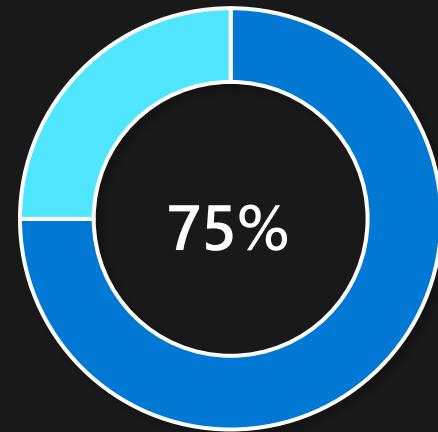
By 2023, 20% of industrial equipment manufacturers will support EaaS with remote Industrial IoT capabilities, up from a current base of near zero.<sup>2</sup>

Mixed reality improving productivity.



By 2023, 40% of organizations will blend virtual and physical experiences, leading to increased workforce productivity and customer reach.<sup>3</sup>

Quality management across the value chain.



By 2024, 75% of manufacturers will embed quality management across the value chain, reducing overall cost of quality by 25%.<sup>4</sup>

<sup>1</sup> IDC FutureScape: Worldwide Manufacturing 2020 Predictions, # US45594819, Oct 2019.

<sup>2</sup> Gartner®, Top 5 Strategic Business Trends in Manufacturing Industries for 2021, 4 June 2021.

<sup>3</sup> Gartner®, Top 5 Strategic Technology Trends in Manufacturing Industries for 2021, 4 June 2021.

<sup>4</sup> DC Futurescape worldwide manufacturing 2021 predictions, #US46912620, Oct 2020.

# Business challenges



**Asset downtime** results in not being able to produce the product in a timely manner, missing out on on-time delivery of customer orders.



**Reactive maintenance** leads to expediting parts and overtime to fix broken assets.

## Direct costs

- Maintenance related costs are approximated to be 25% of overall operating costs.<sup>1</sup>
- An estimated 30% of maintenance costs are related to unnecessary expenditures associated to bad planning, overtime, spare parts inventory carrying costs, etc.<sup>2</sup>
- Variable costs are associated with bad yield or poor quality due to equipment malfunction

## Indirect costs

- Equipment availability and performance is a significant contributor to indirect value drivers
  - Quality issues can impact brand image and reduce profit margin
  - Late delivery decreases customer satisfaction and customer lifetime value

# Maximize asset performance

Manage the full asset lifecycle, measure and improve OEE, and optimize asset care and maintenance from anywhere.

## Maximize useful service life

Perform predictive maintenance on geographically dispersed assets driven by intelligence from sensor data and sophisticated AI powered scheduling.

## Automate work orders and critical spares replenishment

Optimize and plan spare parts inventory in real-time based on maintenance plans. Enable employees initiate and automate work orders leveraging Microsoft Teams and Chatbots.

## Improve Overall Equipment Effectiveness

Visualize the shop floor in real time and accurately measure quality and throughput by generating actionable insights from integrating parametric and sensor data.

## Reduce costly downtime

Resolve unpredicted machine failures in real time with remote experts using mixed reality and Dynamics 365 Remote Assist.

## Transform the shop floor

Improve worker safety, increase efficiency, and accelerate learning using mixed reality leveraging interactive, handsfree holographic work instructions.



# Field Asset Management & Execution

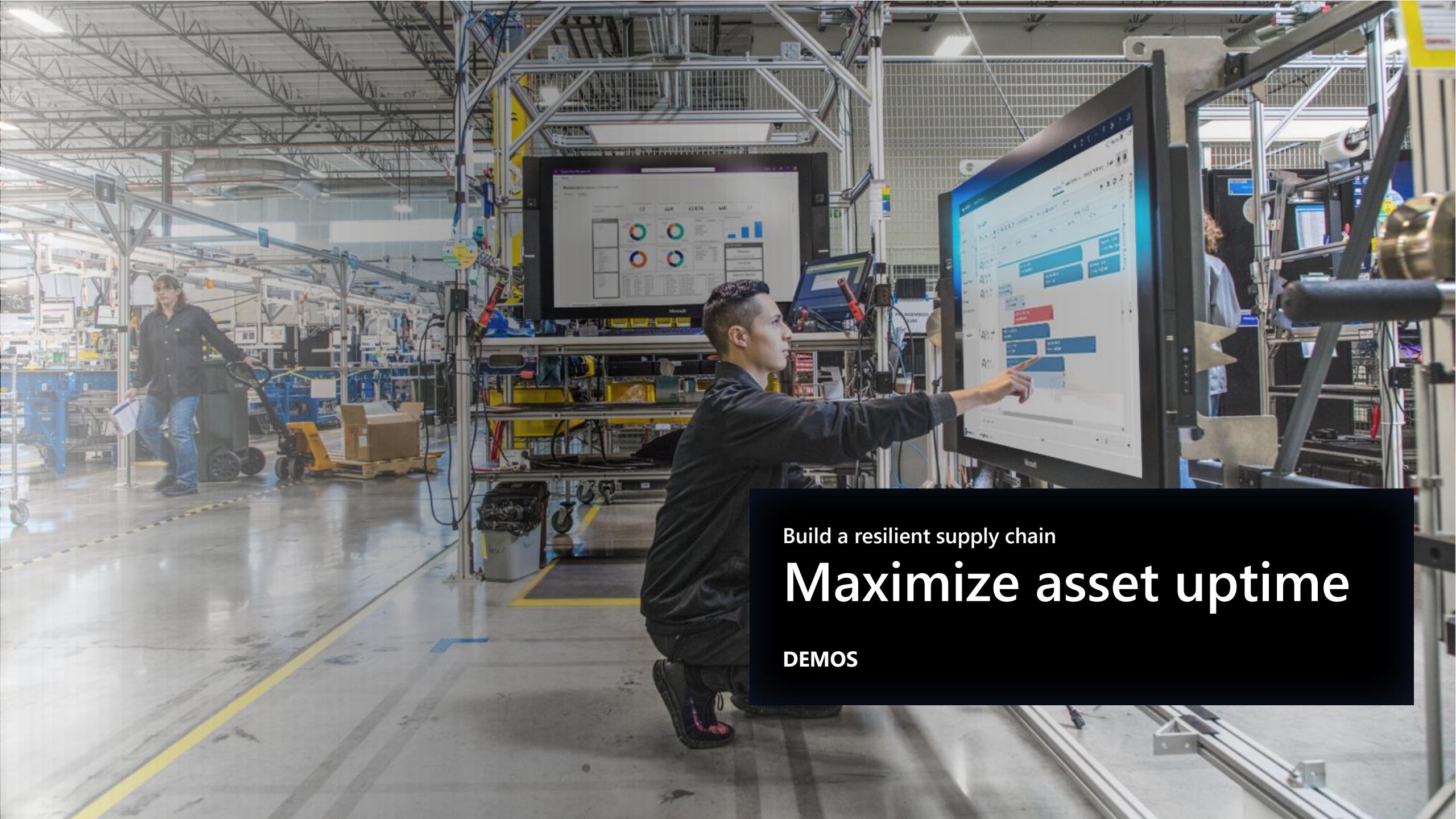
## Solution Overview

Dynamics 365

# Uniquely composable

- Offering end-to-end solutions in a wide range of industries to meet specific business challenges
- Accelerated deployment that supports changing business models for fast ROI





Build a resilient supply chain

# Maximize asset uptime

**DEMOS**

# Track Asset Lifecycle and Details

Multi level Locations and Asset hierarchies

Asset BOM management

Complete Asset and Location Activity history

Asset Documentation

Asset Warranties

The screenshot shows the Dynamics 365 Supply Chain Management interface for the Asset view. On the left, a tree view displays a multi-level location hierarchy under item 3:

- [LOCATION] 3 : Foam production line 1
  - [LOCATION] AK : Alaska
  - [LOCATION] AK-B5 : Bearing Sea
  - [LOCATION] AK-DH : Dutch Harbor, Alaska
  - [LOCATION] AND : Anderson DC
  - [LOCATION] AP : Amusement Park
  - [LOCATION] BELLEVUE : Bellevue Campus
  - [LOCATION] BLRI : Blue Ridge Parkway
  - [LOCATION] CL-StayWell : Stay Well Clinic
  - [LOCATION] CM : Louisville Facility
  - [LOCATION] CORP : Corporate Office
  - [LOCATION] DAL : Dallas
  - [LOCATION] DC : Distribution Center
    - [LOCATION] DC1 : Distribution Center 1
    - [LOCATION] DC2 : Distribution Center 2
    - [LOCATION] DC3 : Distribution Center 3
    - [LOCATION] DC4 : Distribution Center 4
  - [LOCATION] DEF : Default location
  - [LOCATION] DR : Dan Ryan Branch
  - [LOCATION] DW : Distribution Warehouse
    - [LOCATION] DW1 : Perrysburg OH Distribution Warehouse
    - [LOCATION] DW2 : Bolingbrook IL Distribution Warehouse
    - [LOCATION] DW3 : Orlando FL Distribution
    - [LOCATION] DW4 : Distribution Warehouse 4
  - [LOCATION] EAST : EAST Zone
  - [LOCATION] EBR : East Brunswick
  - [LOCATION] FPK : Forest Park

The main area contains several tabs and sections:

- Functional location**: Shows functional location 3, functional location type Site, active work orders, and assets.
- Functional location attributes**: A table with columns for Attribute type, Description, Value, and Unit.
- Asset**: A table with columns for Asset, Asset type, Serial number, Active work orders, Name, Manufacturer, Active maintenance requests, Children, Model, and Items.
- Asset attributes**: A table with columns for Attribute type, Description, Value, and Unit.

# Efficiently manage spare parts

Fully integrated inventory planning of spare parts with real-time visibility

Flexible and configurable to support various inventory and procurement policies

Supports shared services vs decentralized inventory management

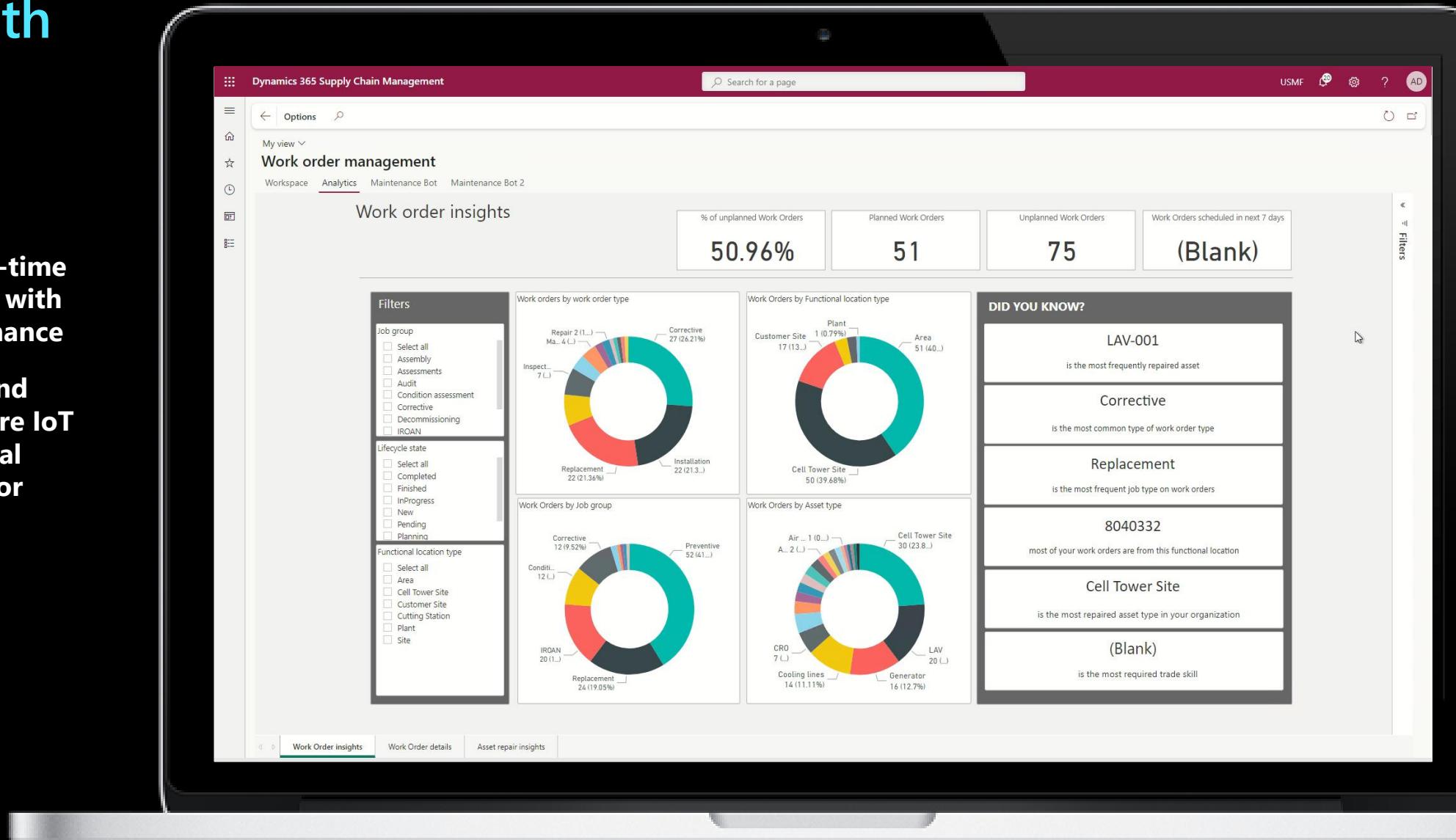
Seamlessly work with different procurement systems and automate orders with Power Automate/RPA

Work order	Work order type	Description	Lines	Services	Criticality	Start date/time	Current lifecycle state	Active	All maintenance jobs scheduled to	Work order po...	Main
WO-000285	Installation	Installation Request for CRO Module	1	4	2 Medium	8/11/2022 9:54:00 AM	Released	✓			
WO-000286	Installation	U... Installation of CROM284 Containerized Rev...	1	4	2 Medium	8/11/2022 11:35:15 AM	New	✓			
WO-000291	Installation	U... Installation of CROM		4		8/11/2022 3:52:17 PM	New	✓			
WO-000292	Installation	CROM Installation	1	4	2 Medium	8/11/2022 3:54:36 PM	New	✓			
WO-000293	Installation	CRO Installation		4		8/11/2022 3:56:06 PM	New	✓			
WO-000294	Installation	Containerised RO System Installation	1	4	2 Medium	8/11/2022 3:57:05 PM	New	✓			
WO-000295	Installation	Installation of CRO System		4		8/11/2022 3:58:46 PM	Released	✓			
WO-000296	Installation	Installation of Containerized Reverse Osmos...		4		8/11/2022 4:01:33 PM	New	✓			
WO-000297	Installation	Installation of Containerized RO System	1	4	2 Medium	8/11/2022 4:09:57 PM	New	✓			
WO-000298	Installation	U... Installation of Containerized RO System	1	4	2 Medium	8/26/2022 4:00:00 AM	Scheduled	✓	Murray Fife		
WO-000299	Installation	Installation of M284 Containerized Reverse ...	1	4	2 Medium	8/24/2022 4:00:00 AM	Scheduled	✓	Murray Fife		
WO-000301	Inspection	Unexpected Rapid Battery Degradation	1	4	2 Medium	8/24/2022 2:01:33 PM	New	✓			
WO-000301-01	Replacement	Replace Battery Cell	1	4	2 Medium	8/24/2022 9:16:05 PM	New	✓			
WO-000302	Inspection	Temperature warning	1	4	2 Medium	8/24/2022 9:00:00 AM	Scheduled	✓	Pierre Hezi		
WO-000303	Installation	NG-SW-LG-00014 Installation	1	4	2 Medium	9/26/2022 10:09:33 AM	Scheduled	✓		1	
WO-000305	Installation	Generator Installation	1	4	2 Medium	9/29/2022 3:22:25 PM	New	✓		1	
WO-000308	Maintenance	PS-001 Blades need to be sharpened	1	4	2 Medium	11/4/2022 11:35:50 AM	New	✓			
WO-000309	Maintenance	Panel Saw PS-001 Blades need to be sharpe...	1	4	2 Medium	11/4/2022 4:50:22 AM	Scheduled	✓	Julia Funderburk		
WO-000310	Maintenance	Panel Saw Maintenance	1	4	2 Medium	11/7/2022 7:57:25 AM	Planning	✓			
WO-000310-01	Maintenance		1	4	2 Medium	11/8/2022 4:53:00 AM	Completed	✓	Julia Funderburk		
WO-000313	IROAN	LAV-001 Repair	67	4	2 Medium	12/5/2022 2:00:00 AM	Planning	✓			

# Increase useful service life with improved maintenance insights

Eliminate machine down-time and increase throughput with condition-based maintenance

Ingest parametric data and sensor telemetry via Azure IoT Hub to provide contextual visualization and alerts for maintenance scenarios



# Cost Analysis

Full cost tracking

Multi-level Roll Ups

Cost Analysis

Dynamics 365 Supply Chain Management

Project Plan Manage Control Options

New Process Bill Related information

Item task Service Adjust transactions Post costs Project invoice proposals On-account transactions Item tasks Service

Invoice proposal Case Estimates Post service orders Invoice journals Customer advance Pending transactions Cases

Project quotation Accrue revenue Index subscription

All projects My view \* Show projects Show levels Legal entity

Filter Active All USMF

Project ID	Project name	Legal entity	Project contract ID	Customer name	Project type	Project stage	Integration source
000338-23	WO-000193: FL-01	usmf			Internal	In process	
000338-24	WO-000200: CID 8040333	usmf			Internal	In process	
000461	Tarja Laine	usmf	000208	Contoso Europe + Angola	Time and material	In process	
000537	FY22 Project	usmf	000233		Time and material	Created	
000661	Cash Flow Project	usmf	000258	Contoso Retail San Diego	Time and material	In process	
000787	Asset Management - Forecast Work Orders	usmf			Internal	In process	
000836	Cell Site NG-SW-LG-00001 Project	usmf			Internal	In process	
000836-01	Cell Site NG-SW-LG-00001 Construction Project	usmf			Internal	In process	
000836-01-01	Cell Site NG-SW-LG-00001 Project	usmf			Internal	In process	
000836-02	Cell Site NG-SW-LG-00001 Work Order	usmf			Internal	In process	
000836-03	Cell Site NG-SW-LG-00001 Work Order	usmf			Internal	In process	
000836-04	Cell Site NG-SW-LG-00001 Work Order	usmf			Internal	In process	
000836-05	Cell Tower NG-SW-LG-00001 Maintenance	usmf			Internal	In process	
000836-05-01	WO-000215: 6040336	usmf			Internal	In process	
000836-05-02	WO-000215-01: 6040336	usmf			Internal	In process	
000836-05-03	WO-000218: NG-SW-LG-00001	usmf			Internal	In process	
000836-05-04	WO-000221: NG-SW-LG-00001	usmf			Internal	In process	
000836-05-08	WO-000231: 6040336	usmf			Internal	In process	
000836-05-09	WO-000233: NG-SW-LG-00001	usmf			Internal	In process	

# Manufacturing Maintenance Strategies

Aligning maintenance approach to asset/equipment requirements



## Strategic impact of predictive maintenance

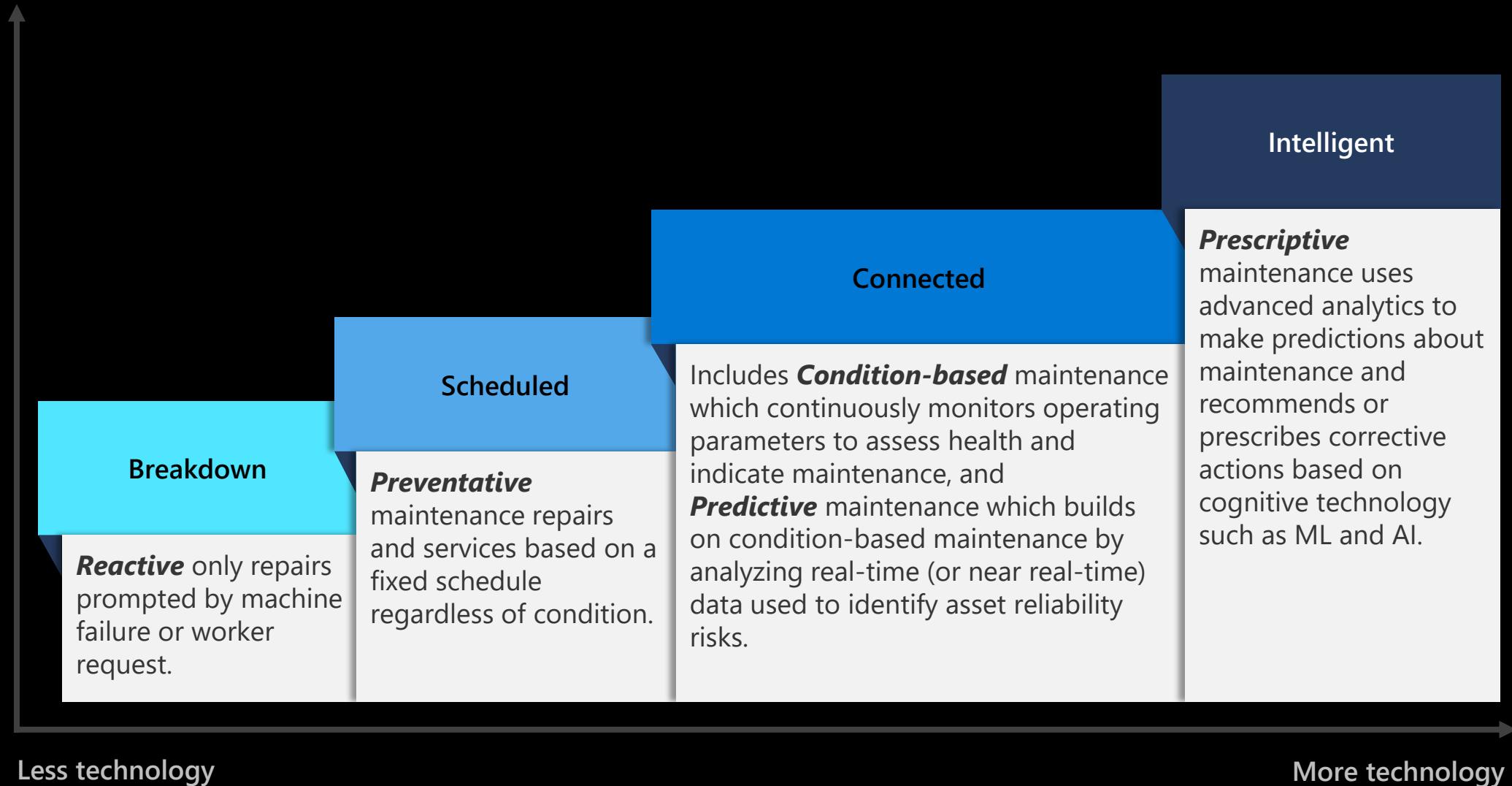
Improve overall equipment effectiveness (OEE) for mission critical assets where failure patterns are discernable.



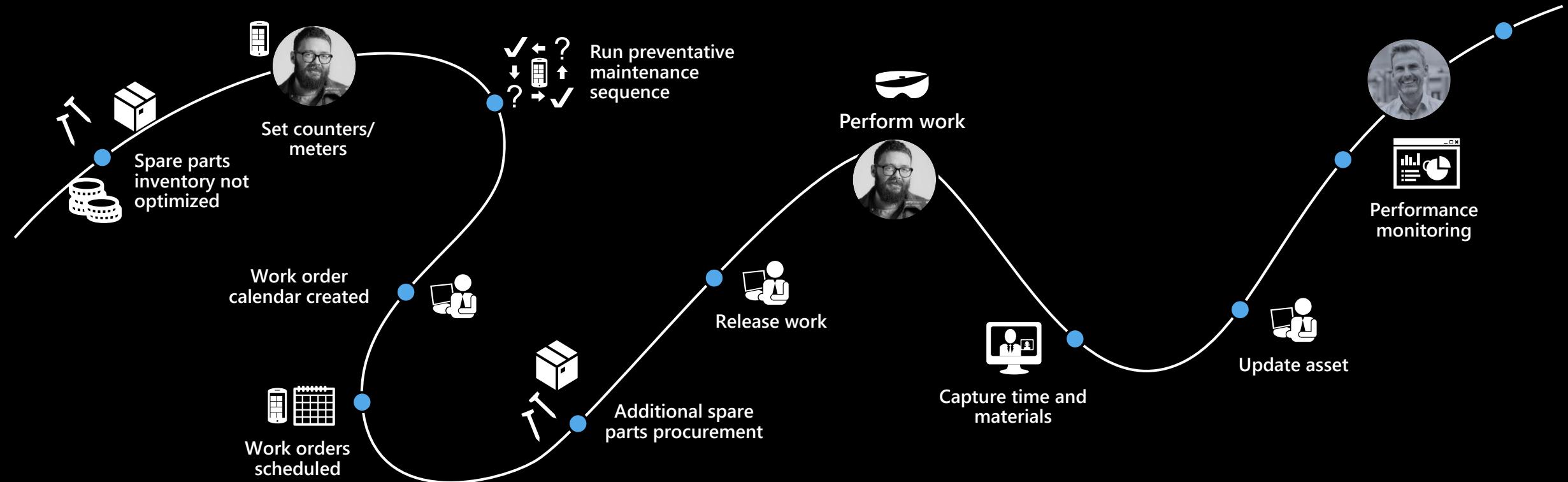
## Responsiveness of preventative maintenance

Minimize production downtime and associated variability for monitored assets that exhibit typical failure patterns.

# Business value insights



# Goal: Scheduled maintenance



## Desired business outcomes

- Meet service life expectations
- Improve worker safety with hands free work instructions
- Real time monitoring
- Optimize spare parts inventory
- Improve throughput
- Reduce labor costs
- Reduce costly machine downtimes

# Meet useful service life of an asset

Reduce unplanned asset downtime with preventative maintenance

Schedule maintenance with work orders

Plan for spare parts procurement

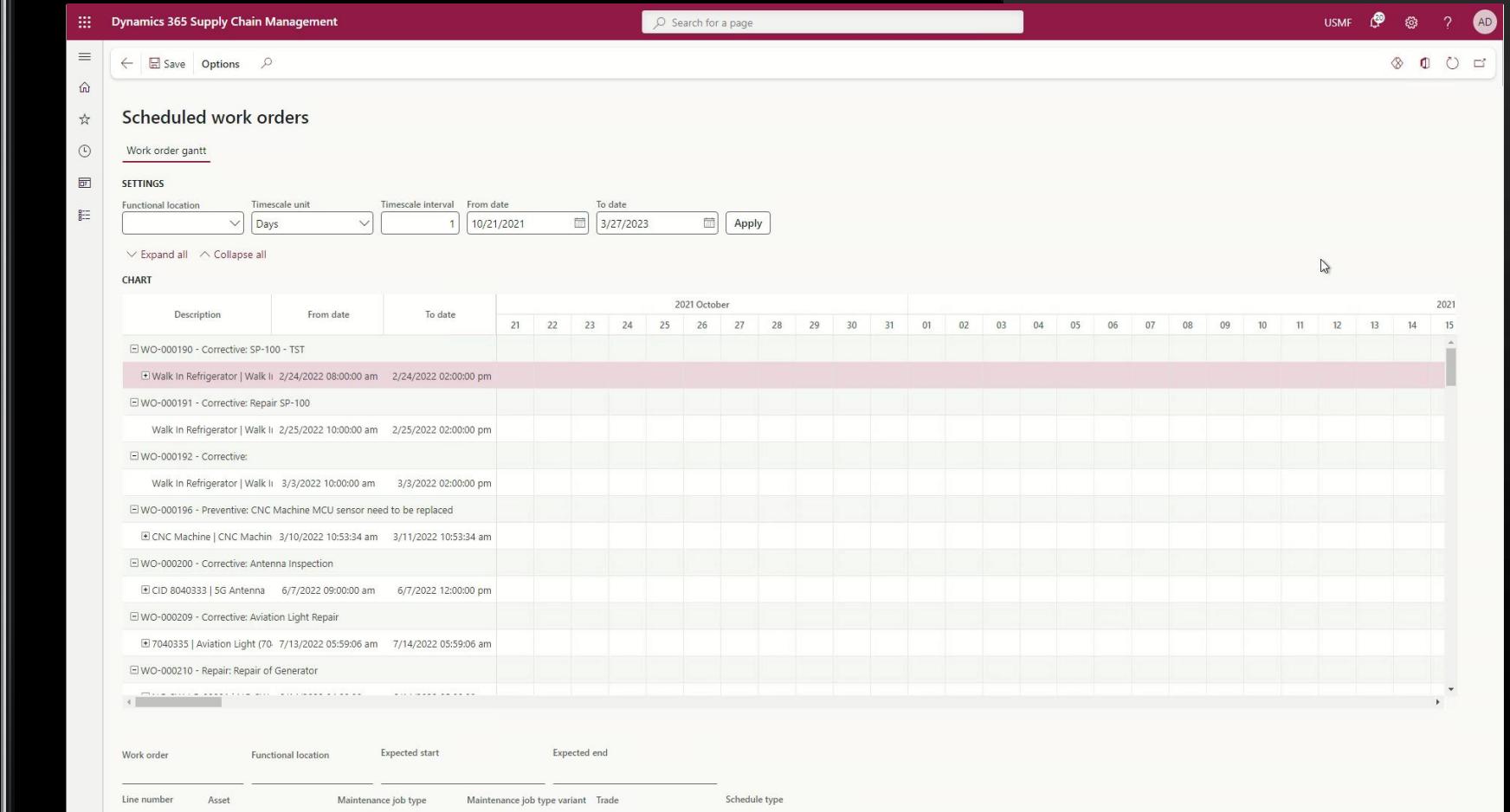
Expected start	Asset	Maintenance job type	Maintenance job type vari...	Trade	Maintenance f...	Functional location	Reference type	Reference ID	Description	Service level
10/30/2019 3:06:58 AM	EX-101	Lubrication		Mechanic	0.00	PP-02-01	Maintenance requests	MR-000008	Line 1 has High friction on the s...	3
10/30/2019 4:43:18 AM	GB-101	Inspection	Quarterly	Operator	0.00	PP-02-01	Maintenance requests	MR-000014	Line 1 Gearbox check due to scr...	4
7/7/2020 6:28:13 AM	SP-BOM1002	Facility assessment	Annual	Electrician	0.00	CM-00-01-01	Maintenance requests	MR-000022	Heating element	4
6/22/2022 12:00:00 AM	6040336	Refueling		Fuel Tanker Driver	0.00	NG-SW-LG-00011	Maintenance plans	GEN-REFUEL	Generator Refueling	2
6/22/2022 12:00:00 AM	6040338	Preventive			0.00	NG-SW-LG-00003	Maintenance plans	GEN-REFUEL	Generator Inspection	4
6/22/2022 12:00:00 AM	6040340	Preventive			0.00	NG-SW-LG-00005	Maintenance plans	GEN-REFUEL	Generator Inspection	4
8/2/2022 3:00:00 AM	CNC	Inspection			0.00	DEF	Maintenance rounds	Daily	Daily Round	4
8/2/2022 3:00:00 AM	COM-001	Inspection			0.00	PP-04-02	Maintenance rounds	Daily	Daily Round	4
8/2/2022 3:00:00 AM	SP-600	Inspection			0.00	CM-00-01-01	Maintenance rounds	Daily	Daily Round	4
8/3/2022 3:00:00 AM	SP-600	Inspection			0.00	CM-00-01-01	Maintenance rounds	Daily	Daily Round	4
8/4/2022 3:00:00 AM	CNC	Inspection			0.00	DEF	Maintenance rounds	Daily	Daily Round	4
8/4/2022 3:00:00 AM	COM-001	Inspection			0.00	PP-04-02	Maintenance rounds	Daily	Daily Round	4
8/4/2022 3:00:00 AM	SP-600	Inspection			0.00	CM-00-01-01	Maintenance rounds	Daily	Daily Round	4
8/5/2022 3:00:00 AM	SP-600	Inspection			0.00	CM-00-01-01	Maintenance rounds	Daily	Daily Round	4
8/6/2022 3:00:00 AM	CNC	Inspection			0.00	DEF	Maintenance rounds	Daily	Daily Round	4
8/6/2022 3:00:00 AM	COM-001	Inspection			0.00	PP-04-02	Maintenance rounds	Daily	Daily Round	4
8/6/2022 3:00:00 AM	SP-600	Inspection			0.00	CM-00-01-01	Maintenance rounds	Daily	Daily Round	4
8/7/2022 3:00:00 AM	FL-01	Preventive			0.00	CM-00-01	Maintenance rounds	Daily	Daily Round	4
8/7/2022 3:00:00 AM	SP-600	Inspection			0.00	CM-00-01-01	Maintenance rounds	Daily	Daily Round	4
8/8/2022 3:00:00 AM	CNC	Inspection			0.00	DEF	Maintenance rounds	Daily	Daily Round	4
8/8/2022 3:00:00 AM	COM-001	Inspection			0.00	PP-04-02	Maintenance rounds	Daily	Daily Round	4
8/8/2022 3:00:00 AM	SP-600	Inspection			0.00	CM-00-01-01	Maintenance rounds	Daily	Daily Round	4
8/9/2022 3:00:00 AM	GEN-000005	Inspection	Monthly	Mechanic	0.00	NG-SW-LG-00001	Maintenance rounds	Daily	Daily Round	4
8/9/2022 3:00:00 AM	SP-600	Inspection			0.00	CM-00-01-01	Maintenance rounds	Daily	Daily Round	4

# Schedule Maintenance

## **Effectively manage the maintenance schedule**

**View all the preventive maintenance plans /requests**

Create and view all the maintenance rounds to be carried out

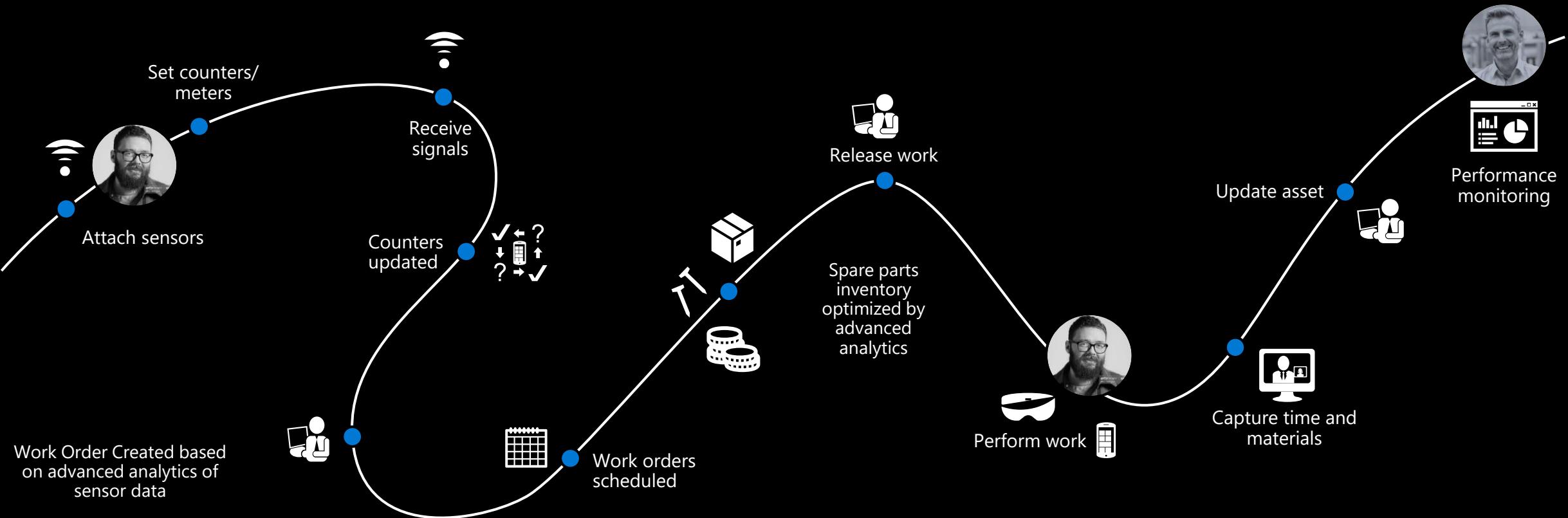


# Business value of scheduled maintenance



maintenance cost savings over  
reactive or breakdown maintenance  
with scheduled maintenance.

# Goal: Connected maintenance



## Desired business outcomes

- Higher machine uptime and reduced labor costs compared to preventative maintenance
- Much improved throughput and service life compared to preventative maintenance
- Better optimization of spare parts, procurement and work order automation

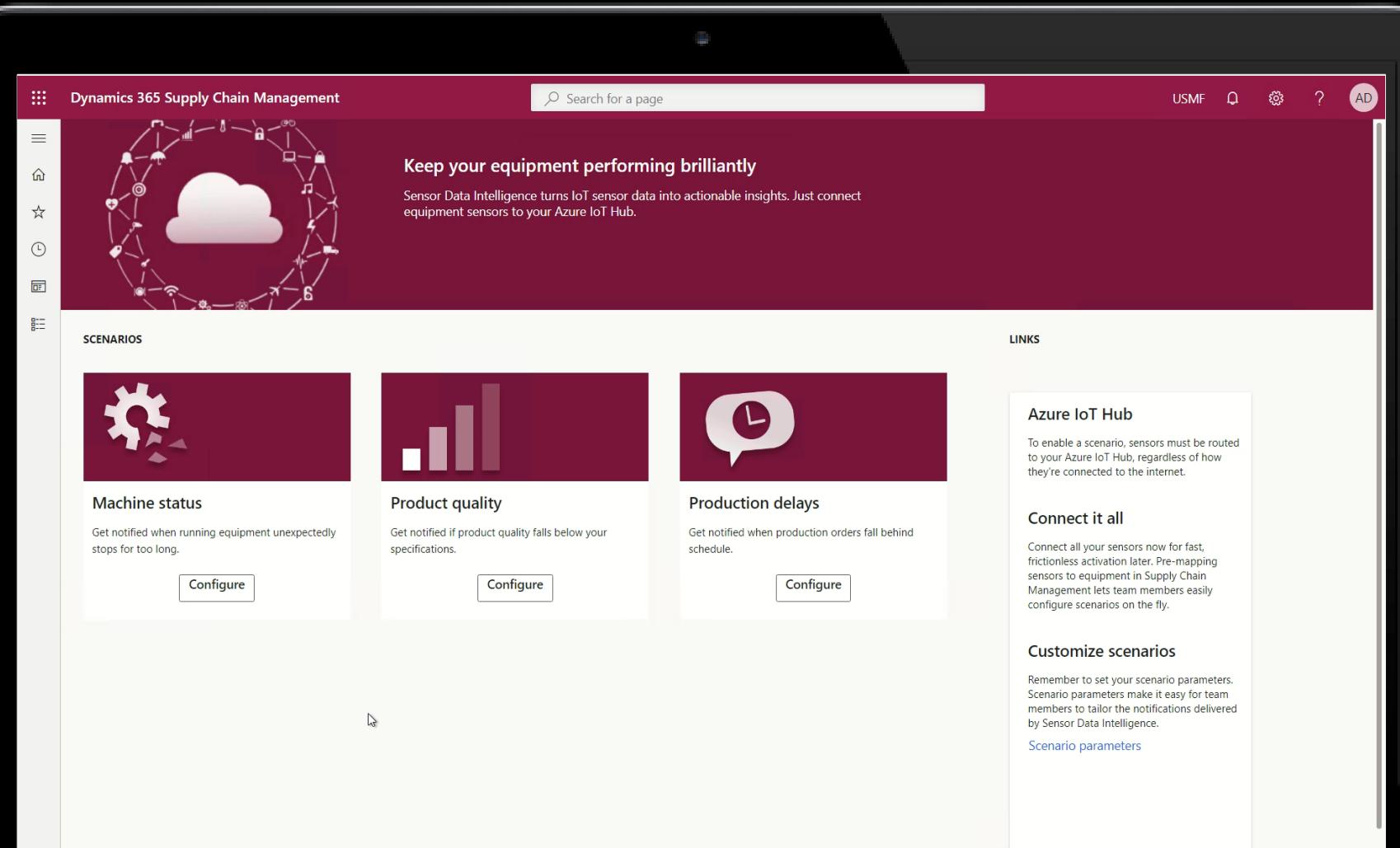
# Leverage Sensor Data Intelligence

Achieve real-time visibility of production and inventory with an end-to-end solution.

Connect mission-critical assets with business transaction data for proactive management.

Use predictive analytics to determine maintenance needs for business-critical equipment and avoid downtime.

Leverage IoT machines and devices to create a digital feedback loop and provide real-time information.

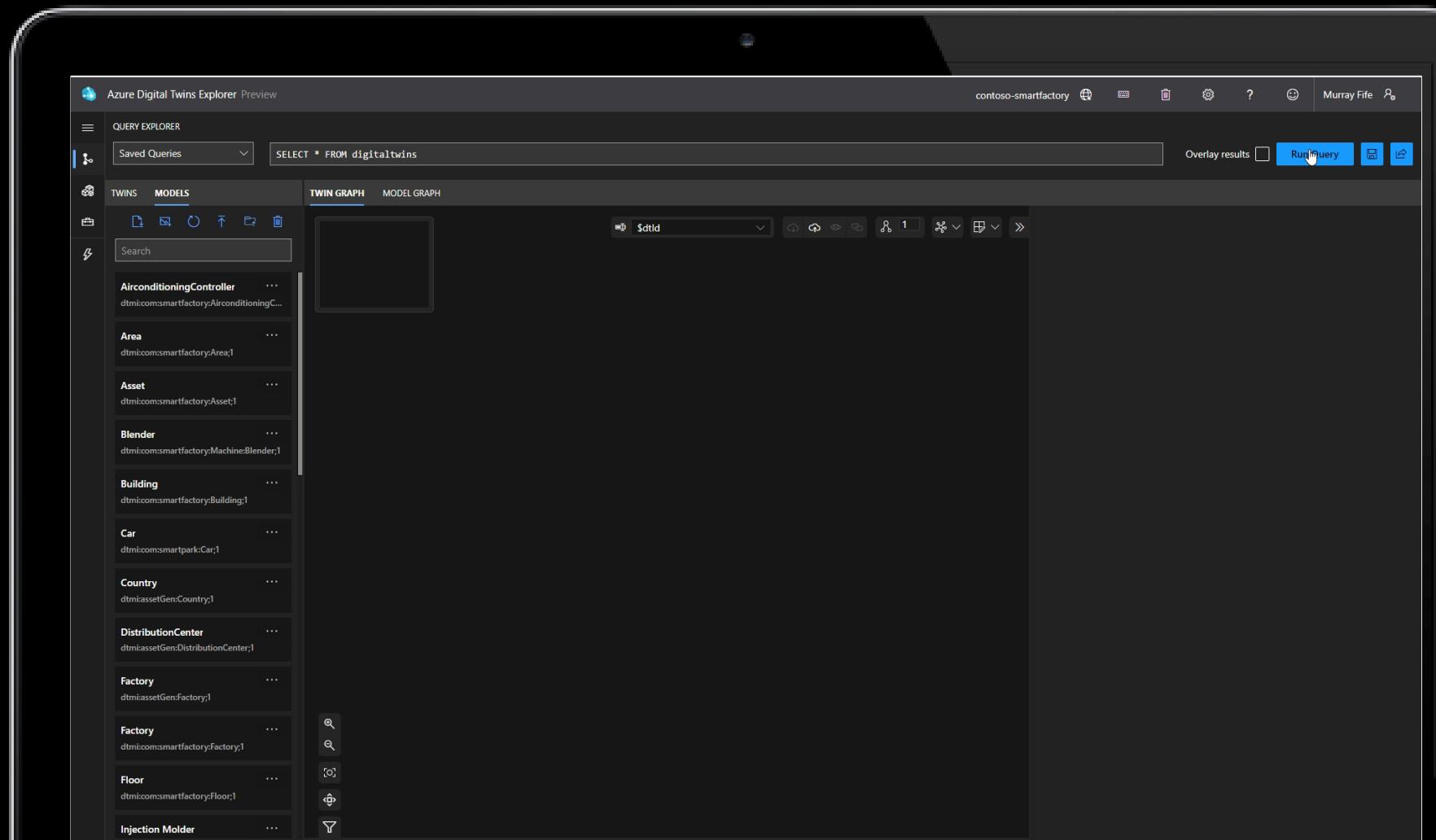


# Leverage Digital Twins

**Enhanced Efficiency and Productivity by optimize their operations, streamline processes, and reduce costs.**

**Improved Decision-Making by simulating various scenarios and test potential changes before implementing them in the physical system.**

**Increased Innovation and Agility with experiments without disrupting the physical system.**



# Track IoT Devices in IoT Central

Simplifies IoT solution creation.

Provides real-time visibility and control over IoT devices.

Enables data-driven decision making through advanced analytics.

Offers scalable and secure cloud infrastructure.

Reduces time to market for IoT solutions.

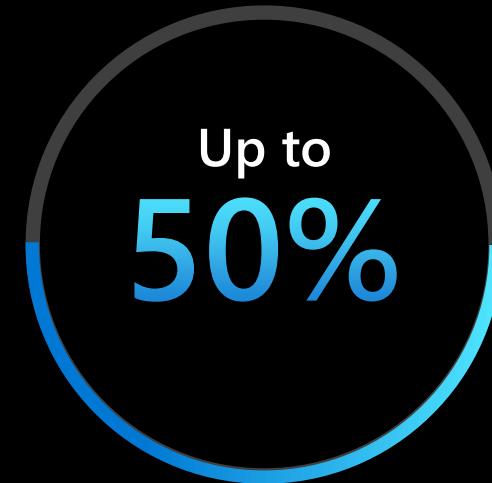
The screenshot shows the Microsoft Azure IoT Central interface. The left sidebar menu includes options like Connect, Devices, Analyze, Data explorer, Dashboards, Manage, Jobs, Extend, Rules, Data export, Security, Audit logs, Permissions, Settings, Application, Customization, and IoT Central Home. The main content area is titled 'All devices' and displays a table of device information. The table columns are: Device name, Device ID, Device status, Device template, Organization, and Simulated. The data in the table is as follows:

Device name	Device ID	Device status	Device template	Organization	Simulated
2fdvvbf7djd	2fdvvbf7djd	Registered	IoT Plug and Play mobile	smartmaintenance-iotc	No
nhxkylu5zu	nhxkylu5zu	Provisioned	RS40 Occupancy Sensor	smartmaintenance-iotc	Yes
1xktf8edj7v	1xktf8edj7v	Provisioned	IoT Plug and Play mobile	smartmaintenance-iotc	Yes
1pab2sq1ouu	1pab2sq1ouu	Provisioned	Smart Home Basic Pack	smartmaintenance-iotc	Yes
Rod Pump - DEVICE003	DEVICE003	Provisioned	Rod Pump	smartmaintenance-iotc	No
Rod Pump - DEVICE002	DEVICE002	Provisioned	Rod Pump	smartmaintenance-iotc	No
Rod Pump - DEVICE001	DEVICE001	Provisioned	Rod Pump	smartmaintenance-iotc	No
MXCHIP - aqfdd5wcor	aqfdd5wcor	Provisioned	MXCHIP Getting Started G...	smartmaintenance-iotc	Yes
JISWIE	JISWIE	Blocked	Battery	smartmaintenance-iotc	Yes
IHMHKQ	IHMHKQ	Blocked	Battery	smartmaintenance-iotc	Yes
MXCHIP - 7g88zfoc4i	7g88zfoc4i	Blocked	MXCHIP Getting Started G...	smartmaintenance-iotc	Yes

# Business value of connected maintenance



reduction in  
maintenance costs.



decrease in  
equipment downtime.



**Customer**  
Majans

**Industry**  
Manufacturing

**Size**  
50–999 employees

**Country**  
Australia

**Products and services**  
Dynamics 365  
Dynamics 365 Supply Chain Management  
Dynamics 365 Asset Management  
Power BI

[Read full story here](#)



“We’re using the same production machinery to deliver a higher volume of a higher-quality product. In our case, we estimate about a 15 percent improvement in availability through optimized scheduling.”

**Amit Raniga, Director, Majans**

### Situation

Snack manufacturer Majans wanted to transform its production processes to meet lean manufacturing goals, improve snack food quality, increase production, and drive innovation to create snack magic for customers.

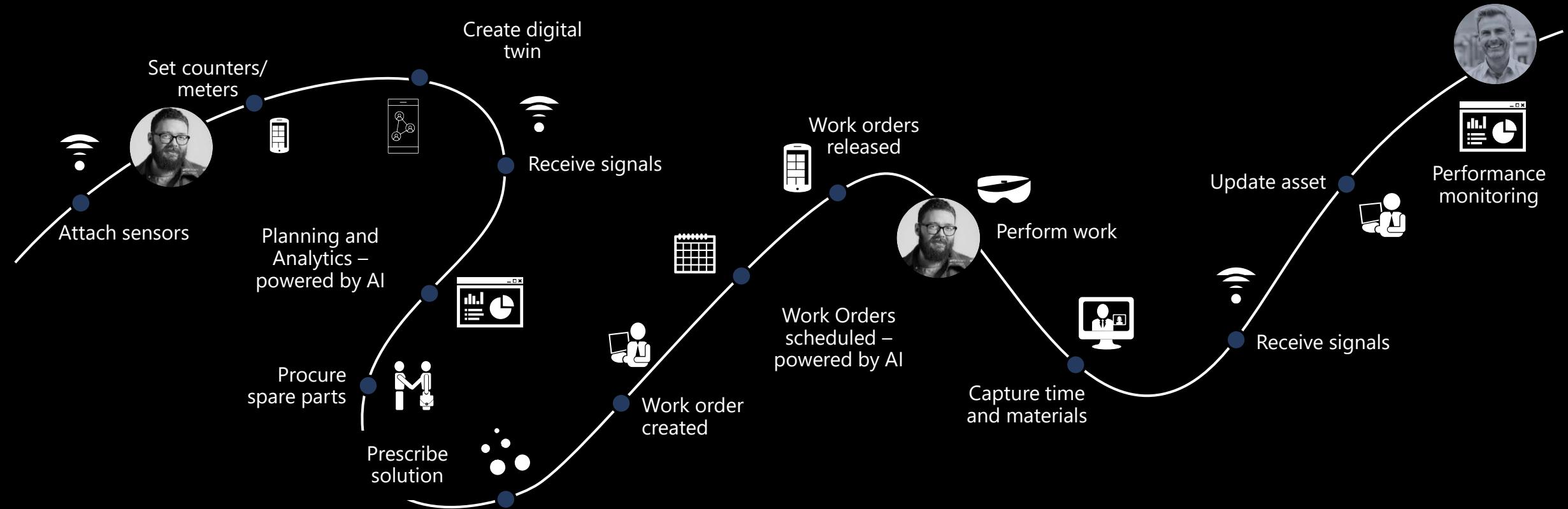
### Solution

Majans implemented Microsoft Dynamics 365 Supply Chain Management and Sensor Data Intelligence to turn data from IoT-enabled devices into actionable insights on the production line.

### Impact

Majans is creating data-driven manufacturing processes that extend from the farm to the factory to the consumer experience. It now provides its frontline workers, management, and C-level decision makers with near-real-time data offering meaningful signals and insights.

# Goal: Prescriptive/Cognitive maintenance



## Desired business outcomes

- Maximize asset service life with prescriptive corrective actions before failure occurs
- Improve throughput, quality and uptime with advanced analytics and optimized resource scheduling powered by AI
- Maximize asset utilization and efficiency with autonomous actions leading to a reduced response time

# Predictive Maintenance with Machine Learning

Move from predicting problems to prescribing a solution

Utilize sensors and advanced analytics

Integrate assets and maintenance systems

The screenshot shows a Microsoft Azure Databricks notebook interface. The title bar reads "Microsoft Azure databricks Q Search CTRL + P". The notebook is titled "Anomaly Detection" and is set to Python. The code in the notebook includes:

```
1 %pip install azureml-sdk
2 %pip install keras
3 %pip install tensorflow==2.2.1
4 %pip install statsmodels
5 %pip install joblib
6 %pip install seaborn
7 %pip install h5py==2.10.0
8 %pip install cryptography==3.3.1

Python interpreter will be restarted.
Collecting azureml-sdk
  Downloading azureml_sdk-1.44.0-py3-none-any.whl (2.7 kB)
Collecting azureml-pipeline==1.44.0
  Downloading azureml_pipeline-1.44.0-py3-none-any.whl (2.4 kB)
Collecting azureml-train-autml-client==1.44.0
  Downloading azureml_train_autml_client-1.44.0-py3-none-any.whl (135 kB)
Collecting azureml-core==1.44.0
  Downloading azureml_core-1.44.0-py3-none-any.whl (2.7 MB)
Collecting azureml-dataset-runtime[fuse]==1.44.0
  Downloading azureml_dataset_runtime-1.44.0-py3-none-any.whl (2.3 kB)
Collecting azureml-train-core==1.44.0
  Downloading azureml_train_core-1.44.0-py3-none-any.whl (8.6 MB)
Collecting azure-common<2.0.0,>=1.1.12
  Downloading azure_common-1.1.28-py2.py3-none-any.whl (14 kB)
Collecting ndg-httpsclient<0.5.1
  Downloading ndg_httpsclient-0.5.1-py3-none-any.whl (34 kB)
Requirement already satisfied: pytz in /databricks/python3/lib/python3.8/site-packages (from azureml-core==1.44.0->azureml-sdk) (2020.5)
Collecting docker==6.0.0
  Downloading docker-5.0.3-py2.py3-none-any.whl (146 kB)
Requirement already satisfied: requests[socks]<3.0.0,>=2.19.1 in /databricks/python3/lib/python3.8/site-packages (from azureml-core==1.44.0->azureml-sdk) (2.25.1)
Command took 1.63 minutes -- by admin@d365demots0333160.ommicrosoft.com at 8/25/2022, 9:05:03 AM on Smart Maintenance Cluster
```

Cmd 3: Import the necessary libraries/namespaces.

```
1 import requests
2 import os
3 import uuid
4 import pandas as pd
5 import numpy as np
```

# Business value of prescriptive maintenance



reduction in in-plant  
resource needs.



improvement in issue  
response time.

# Transform your workforce

Enable frontline workforce adapt to increased business complexity

Improve workforce safety with handsfree delivery of work instruction

Eliminate costly errors with detailed work instructions

Increase workforce efficiency





**Customer**  
Kruger

**Industry**  
Manufacturing

**Size**  
1,000–9,000 employees

**Country**  
Canada

**Products and services**  
Microsoft Dynamics Guides  
Mixed Reality  
HoloLens

[Read full story here](#)



"[Dynamics 365 Guides] is like taking the whole factory handbook and bringing it to life."

**Jonathan Montplaisir:** Project Manager

"We're going to have the tools to solve potential problems before they happen."

**Jean-François Dumais:** Quality Control

### Situation

Kruger is nearly 120 years old, but the company takes a modern approach to technology, giving employees innovative tools to make them more confident and effective in their work.

### Solution

With Microsoft HoloLens 2 and Microsoft Dynamics 365 Guides, Kruger is bringing its factory handbook to life using sophisticated features like spatial triggers and branching to guide the employee where the work happens.

### Impact

Now the information that employees need to operate and maintain complex equipment is always right at their fingertips. Kruger's most experienced workers can easily document in mixed reality their expertise in operating and maintaining the complex equipment.

# Create Virtual Agents to Initiate Work Orders

**Improved Customer Service:** Chatbots and PVA can provide customers with quick and accurate responses to their queries, improving their overall experience and satisfaction.

**Increased Efficiency:** Chatbots and PVA can handle multiple customer inquiries simultaneously, reducing the workload for customer service representatives and freeing up their time to handle more complex queries.

**24/7 Availability:** Chatbots and PVA can be available 24/7 providing customers with support outside of regular business hours and reducing wait times.

The screenshot shows the Microsoft Power Virtual Agents platform. At the top, it says "Power Virtual Agents | Maintenance Bot". On the left, there's a sidebar with options: Chatbots, Overview, Topics (which is selected), Entities, Analytics, Publish, and Settings. Below the sidebar is a "Test bot" card with a "Chat" button. The main area is titled "Topics" and shows a table of existing topics. The table has columns for Type, Name, Trigger phrases, Status, Errors, and Editing. There are 9 existing topics listed:

Type	Name	Trigger phrases	Status	Errors	Editing
utterance	Maintenance Request	(4) Equipment issue	On		
utterance	Thank you	(4) thanks	Always on		
utterance	Start over	(3) start_over	Always on		
utterance	Escalate	(65) Talk to agent	Always on		
utterance	End of Conversation	No trigger phrases	Always on		
utterance	Greeting	(52) Good afternoon	Always on		
utterance	Confirmed Failure	No trigger phrases	Always on		
utterance	Confirmed Success	No trigger phrases	Always on		
utterance	Goodbye	(67) Bye	Always on		

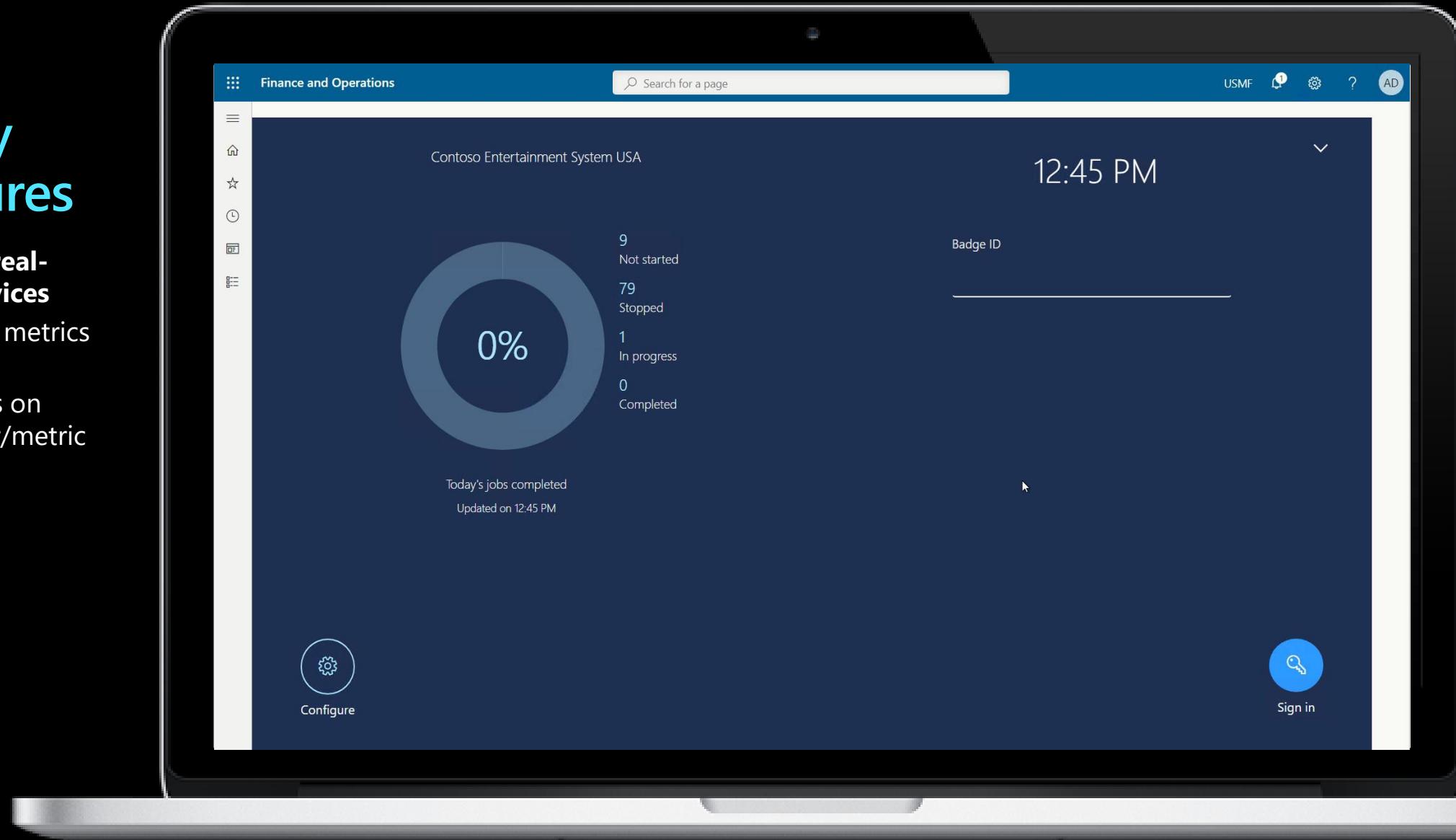
At the bottom, there's a message input field with "Type your message" and a send button. The top right corner shows the environment name "muffie-msd365demo" and user profile icons.

# Reduce costly machine failures

**Monitor asset health in real-time with connected devices**

Track IoT counters and metrics real-time

Replace worn out parts on assets on a set counter/metric



# Field Service

Use Field Service with Asset Management to service Remote Assets

Geofencing

Resource Optimization

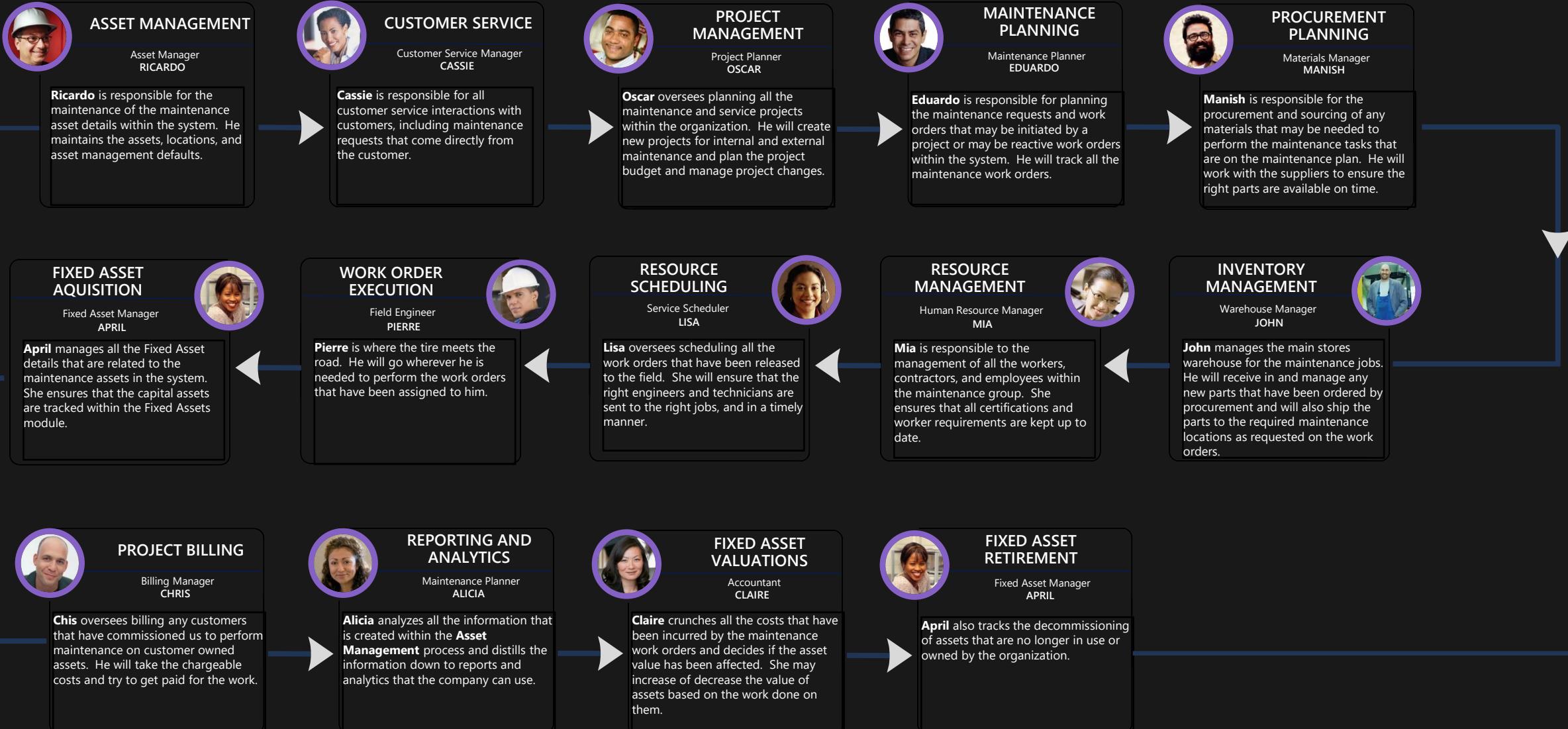
Travel Time

Field Mobile Client

The screenshot shows the Microsoft Dynamics 365 Field Service application running on a tablet. The interface is dark-themed with blue highlights. At the top, there's a navigation bar with icons for search, refresh, and user profile (SA). The main header reads "Dynamics 365 | Field Service". On the left, a vertical sidebar menu lists various modules: Home, Recent, Pinned, My Work (selected), Get Started (highlighted in blue), Dashboards, Scheduling (Work Orders, Schedule Board, Bookings, Resource Requirements, Requirement Groups, Time Off Requests, Time Entries), Customers (Accounts, Contacts), Service Delivery (Cases, Agreements), Assets (Assets, Functional Locations, IoT Alerts), and Service (selected). The main content area starts with a greeting "Hello, System Administrator!" followed by a welcome message: "Welcome to Microsoft Dynamics 365 Field Service. Resolve customer issues the first time, every time." To the right is a colorful illustration of a person working with a clipboard, a truck, and a smartphone. Below this, there are two "Learn about" sections: "Discover new features" (with a video thumbnail showing a worker using a tablet, duration 04:05) and "Optimize operations" (with a video thumbnail showing two people at a computer, duration 02:03). Further down, there are two "Get up and running" sections: "Set up your frontline workers" (with a video thumbnail showing three workers, duration 04:05) and "Create your accounts" (with a video thumbnail showing a smartphone, duration 02:03). Each section includes a "View all", "Watch tutorial", and "Set up" button.

# Enterprise Field Asset Management & Execution

## Journey Map



# Enterprise Field Asset Management & Execution

## Journey Map



**RICARDO**  
Asset Manager



**CASSIE**  
Customer Service Manager



**OSCAR**  
Project Planner



**EDUARDO**  
Maintenance Planner



**MANISH**  
Procurement Manager



**JOHN**  
Inventory Manager



**MIA**  
Human Resource Manager

MANAGEMENT		CUSTOMER SERVICE	PROJECTS	PLANNING		PURCHASING	INVENTORY	RESOURCES
Functional locations	Asset Lifecycle Management	Opportunity Management	Budget & cost control	Breakdown maintenance	Downtime Reporting	Master Planning	Item Master	Worker Management
Multi-Level Asset structure	Multi-level Location structure		Installation Project Management	Preventive maintenance	Condition Based Maintenance	Purchase Requisitions	Service Items	Worker Skills and Certifications
Asset register	Asset Counters		Work Breakdown Structures	Predictive maintenance ML models*	Maintenance rounds	Purchase Orders	Serialized Items	Resource Calendars
Asset Attributes	Fault Codes		Project Forecasts	Cognitive maintenance*	Work Order Release	Supplier Management	Inventory Costing (LIFO/FIFO/MAC/WAC)	Capacity Management
Spare parts control	Service Level Agreements		Capital Projects	Maintenance schedules	Inspections and Audits	Supplier Agreements	Consigned Inventory	Worker Proficiency
Asset BOM	Warranties		Time & Material Projects	Maintenance Forecasts	Workplace Safety & Permits	Supplier Contract Management	Storeroom Management	Resource Geolocation
Job Templates	Asset Defaults		Collaboration Workspaces	Maintenance Requests	Maintenance Forecast	Supplier Evaluation	Inventory Zones	
Meter Assets	Default Labor Rates			Master Planning Reservation	Planning Board	Supplier Collaboration	Inventory Transfers	
Asset and Location Geocoding	IOT Device Management			Work Order Planners	Project Work Orders	Supplier Portal	Inventory Reservations	
Tools Crib	Fleet Management*			Shutdown, Turnaround & Outage	Lock-Out & Tag Outs	Supplier Receipts		
Linear Assets	IoT Central			Risk & Criticality Management	Maintenance Procurement	Three Way Matching		
Azure Digital Twins	Digital Twin Visualization and Alerts			Lifecycle Status Permissions		Supplier Asset Relationships		

# Enterprise Field Asset Management & Execution

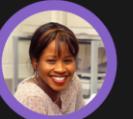
## Journey Map



LISA  
Service scheduler



PIERRE  
Field engineer



APRIL  
Fixed asset  
Manager



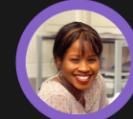
CHRIS  
Billing Manager



ALICIA  
Maintenance  
Planner



CLAIRE  
Accountant



APRIL  
Asset Manager



PRAKASH  
IT Manager

SCHEDULING		EXECUTION		ACQUIRE	BILLING	REPORTING	VALUATION	RETIRE	INTEGRATION
Schedule board	Worker Management	Maintenance checklists	Work Order Notes	Acquire Fixed assets	Invoicing	Analytics & KPI's	Depreciate fixed assets	Dispose off fixed assets	AM+FS Connect
Resource Optimization	Certificates and Qualifications	Fault reporting	Mixed Reality Guides	Capitalize Fixed Assets	Credit and Collections	Asset history	Capitalize fixed asset improvements	Electronic reporting	
Resource Capacity	Permit to Work	Knowledge articles	Contractor Management	Derived Books	Revenue Recognition	Fault Reporting	Transfer, revalue, split Fixed assets	Asset Sale	
Schedule board	Travel Time Estimation	Inbound Asset Tracking	Outbound Asset Tracking	Customer Asset Acquisition	Payment Terms	Supplier Contract Spend Analysis	Split & Combine fixed assets		
Resource Optimization	Route Planning	Loaned Assets	Depot Repair	Create/Link Maintenance Asset from Fixed Asset	Payment Schedules	Budget Management	Asset Tax Books		
Crew Management	Capacity Management	Electronic Signatures	Lock In / Tag Out		Revenue Recognition	Azure Data Explorer			
Certificates and Qualifications*	Work Zones	Intercompany Asset Transfers	Intercompany Work Orders		Subscription Billing				
Power Roster		Safe Work	Checklist Actions						
		Mobile Asset Management Client	Work Order Kitting						
		Mobile execution	Connected Service (IOT Insights)						
		Maintenance checklists	Work Order Notes						
		Fault reporting	Geofencing						
		Knowledge articles	Contractor Management						
		Remote Assist	Asset Walkthrough Notes						
			Mixed Reality Guides						

# Capital Project Management

Full Project Management Capabilities

Unlimited Levels In WBS

Project Capitalization

Asset Capitalization

Multiple Levels of Projects

Budget and Forecast Planning

The screenshot displays the Dynamics 365 Supply Chain Management interface, specifically the Project Management screen. The top navigation bar includes links for New, Delete, Project, Plan, Manage (which is currently selected), Control, Options, and a search bar containing the text "maintenance pl". Below the navigation is a toolbar with various icons for actions like New, Delete, Project, Plan, Manage, Control, Options, and a refresh symbol. The main content area shows a grid of project records. The columns include Project ID, Project name, Legal entity, Project contract ID, Customer name, Project type, Project stage, and Integration source. A filter bar at the top of the grid allows users to Show projects (Active or All), Show levels (Top or All), and select a Legal entity (USMF). One specific project record is highlighted with a red border and a checkmark icon, and a hand cursor is positioned over its "More" (three-dot) menu icon.

Project ID	Project name	Legal entity	Project contract ID	Customer name	Project type	Project stage	Integration source
000889	Cell Site NG-SW-LG-00004	usmf			Investment	In process	
000890	Cell Site NG-SW-LG-00005	usmf			Investment	In process	
000891	Cell Site NG-SW-LG-00006	usmf			Investment	In process	
000892	Cell Site NG-SW-LG-00007	usmf			Investment	In process	
000893	Cell Site NG-SW-LG-00008	usmf			Investment	In process	
000900	Cell Site NG-SW-LG-00009	usmf			Investment	In process	
000901	Cell Site NG-SW-LG-00010	usmf			Investment	In process	
000961	NG-SW-LG-00011 Cell Tower Site Construction	usmf			Investment	In process	
001011	US-SE-GA-00001 Cell Tower Site	usmf			Investment	Created	
001036	Cell Site NG-SW-LG-00014 Project	usmf			Investment	Created	
001037	WWT Maintenance Projects	usmf			Investment	Created	
001061	WWT Assembly Projects	usmf			Investment	Created	
001086	Trey Research Maintenance Projects	usmf		Trey Research	Internal	Created	
001087	Trey Research TM Maintenance Projects	usmf	000283		Time and material	Created	
001111	Birch Company Projects	usmf	000308	Birch Company	Time and material	Created	
001136	Default Maintenance Project TM	usmf	000333	Water Technology Systems	Time and material	Created	
001161	Solar Farm Maintenance Projects	usmf	000283		Time and material	Created	
001187	Home Builder Maintenance Projects	usmf	000283		Time and material	In process	
001211	IROAN Maintenance Projects	usmf			Internal	Created	

# Thank you

Demo



# High Level Business Value – Better Together

CHALLENGES - PILLARS	VALUE (GOAL)	TACTIC (HOW)	CAPABILITY (WITH WHAT)
<b>Reduce Cost &amp; Mitigate Risk</b> <u>Damaged equipment</u> being used during patient care, facilities breakdowns which trigger emergency service and medical service postponements or cancellation. <u>Recalls</u> .	Reduction in maintenance costs, breakdowns, downtime, and increasing equipment and facilities efficiency / lifetime, labor productivity, and asset performance. Optimize quality and usage of assets. Fast out-of-service for recalled asset.	Implementing an EAM system to deliver corrective, preventative, and condition-base maintenance, for both facilities and equipment. Integrate physical asset with inventory, finance, HR, and procurement, with a seamless platform, and integrated processes. Auto Workflows for recalls.	Dynamics 365 Field Service Power Platform Teams
<b>Reduce Cost &amp; Mitigate Risk</b> <u>Mishandling, misuse</u> , and improper cleaning or routine of asset, leading to patient harm. Failure to adhere Best Practices for asset usage.	Training asset maintainers and users on both service steps and best practices, aiming to near-to-zero Preventable incidents. Collaboration between nurse educator, equipment servicers, clinical engineering and manufacturers to share knowledge and keep patients safe.	Delivering documentation, training, remote support, and instructions to all actors involved in the service of use of the asset. Sharing content amongst different teams/departments, and vendors.	Guides & HoloLens D365 Remote Assist Virtual Agent SharePoint
<b>Adapt Faster &amp; Reduce Costs</b> <u>Lack of repair/issues history</u> . <u>Lack of automated strategies</u> to act fast in preventing downtimes and breakdowns. Lack of decisions based on asset data.	Collecting and analyzing maintenance, conditions and trend data to make decisions based on facts. Developing automated strategies to optimize operating efficiency, calculate its depreciation, and timely planning its replacement/procurement.	Implementing an analytics/reporting solution which delivers insights on asset health and performance, service and issues history, future trends, and leveraging existing maintenance data and IT investments.	Power BI 400+ Connectors Security

Source: Department of Energy's (DOE's) "Operations and Maintenance Best Practices, Release 3.0 — A Guide to Achieving Operational Efficiency" - Facilities

Source: U.S. Department of Commerce Wilbur L. Ross, Jr., Secretary National Institute of Standards and Technology Walter Copan, NIST Director and Under Secretary of Commerce for Standards and Technology.

**(DO NOT SHOW)**

## Maximize asset performance use case in Build a resilient supply chain salesy play

<b>Speaker:</b>	Account Team Member (AE, ATS , IA, IE) or Microsoft Spokesperson (Leader/Exec/SME)
<b>Audience:</b>	CXO, BDM, LOB Owner
<b>Title:</b>	Maximize asset performance
<b>Length &amp; Version:</b>	30 minutes, last updated Sep 2021
<b>Content Level:</b>	Level 150-200 for external & internal use – Customer 1:1, Executive briefings
<b>Deck Contacts:</b>	Vignesh Balasubramanian; Ali Aksut
<b>Sales Cycle:</b>	0–20% Win mindshare
<b>Desired Outcomes:</b>	Customer Workshop, BRSC Demo or Envisioning workshop with Microsoft Services or Partner.
<b>Usage Guide:</b>	1. Use the subsequent slides to dive deeper into each type of maintenance with product demos