



Prophecy IoT®

Your Manufacturing World is Living on the Edge – Industrial IoT Can Help!

Presenter Name
Role

Date 0000.00.00

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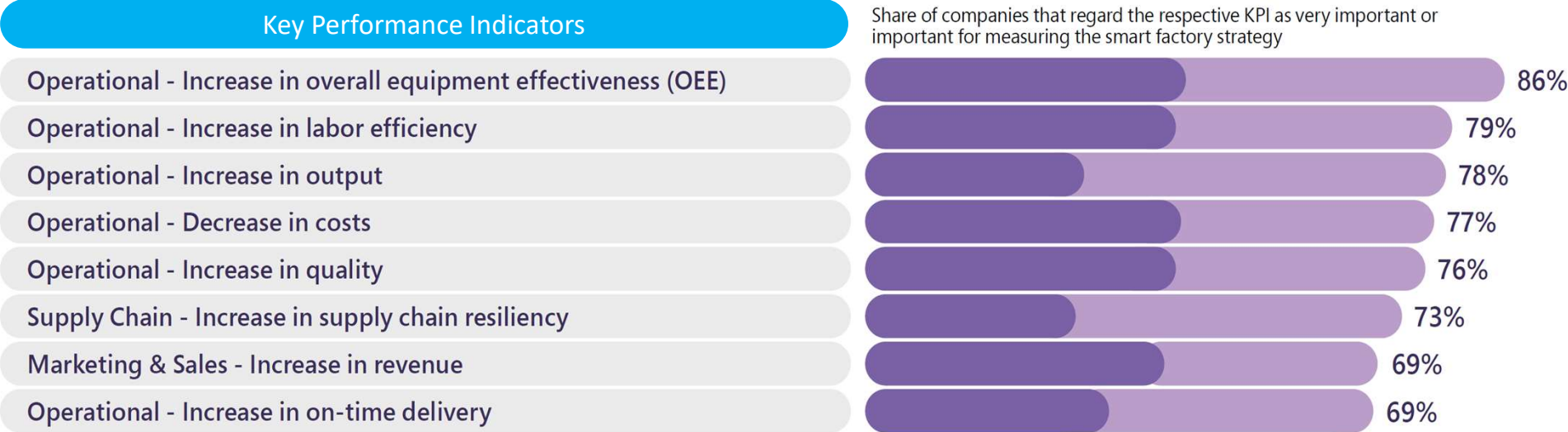


CLOUDSUITE SOLUTIONS



INDUSTRY SPECIFIC

Operational Improvements are Biggest Manufacturing Goals

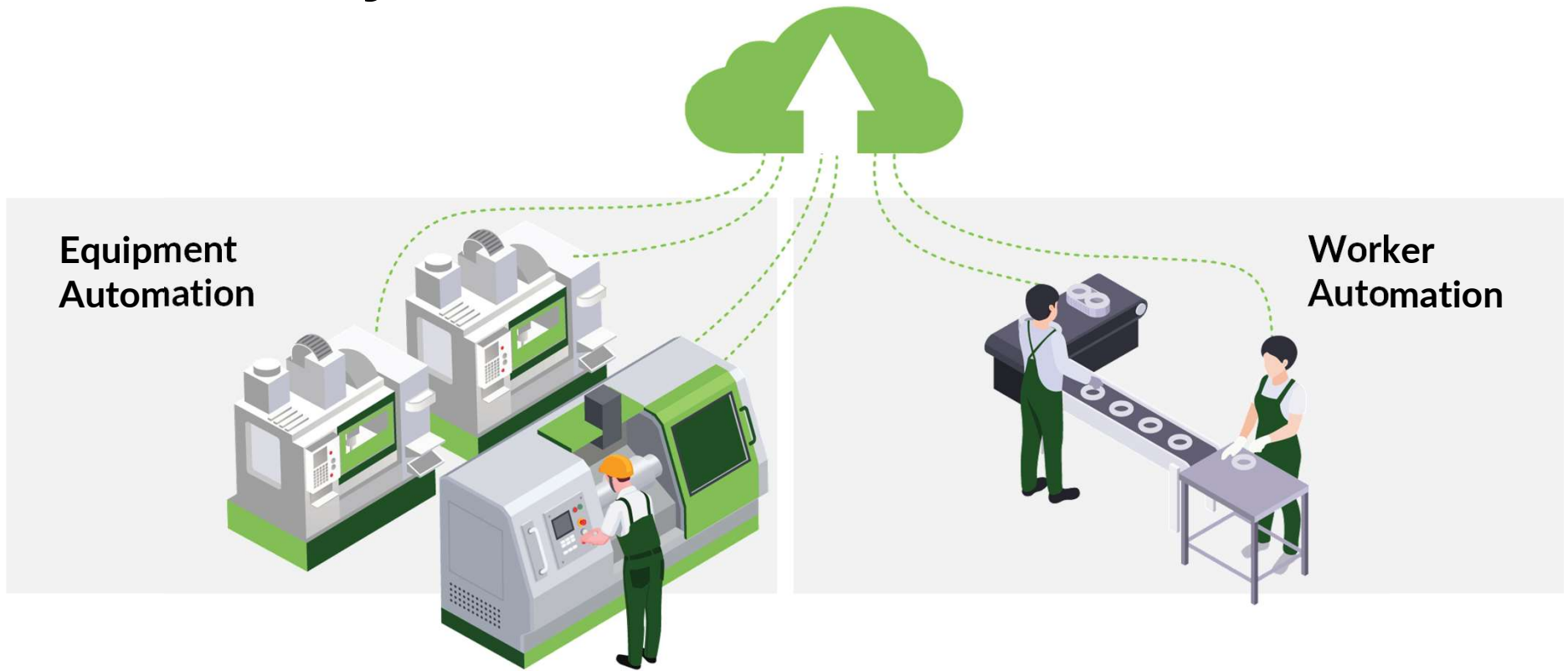


Microsoft Report
2022

Smart Factory - Connectivity



Smart Factory



Equipment Automation



Live Streaming Connectors

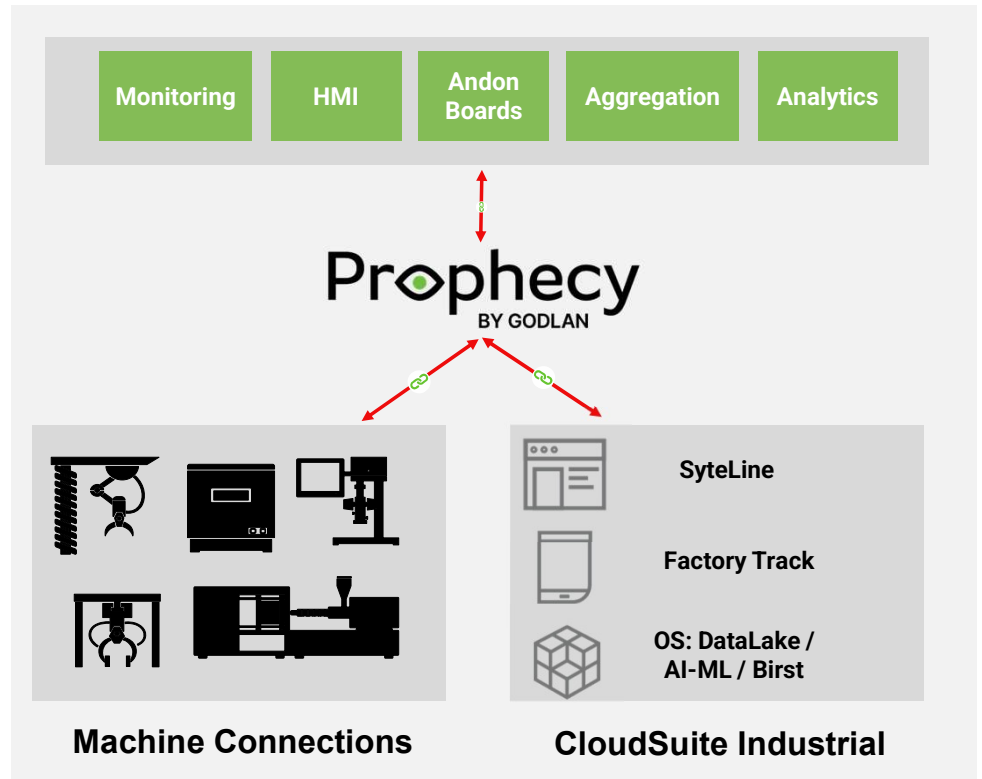
PLC Connectors

- Allen Bradley
- Modbus
- Siemens
- OPTO
- MT Connect
- OPC & OPC UA
- MQTT
- CANbus
- Kepware

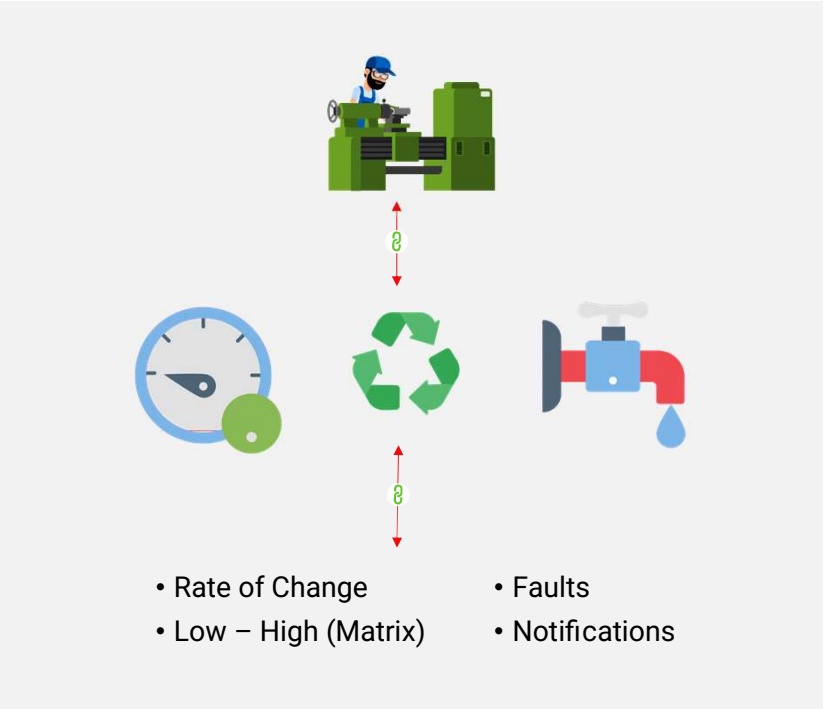


Edge Connectors

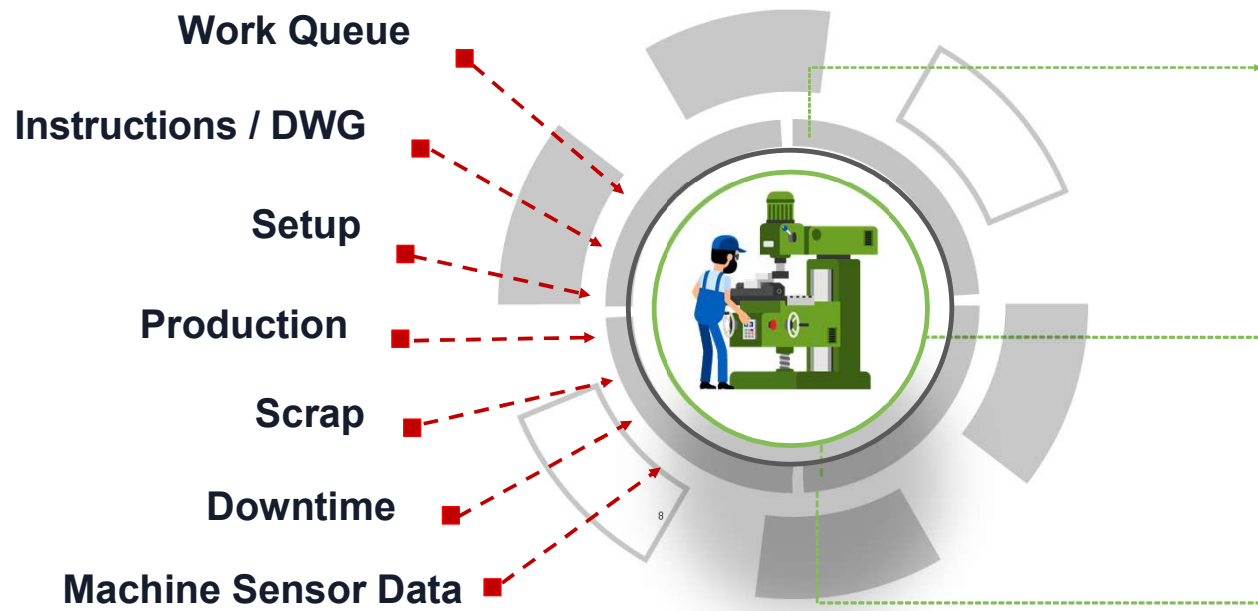
- Stack Light State
- Voltage
- Pressure
- Temperature
- Motion
- Humidity
- Speed
- Vibration



Live Monitoring – Change Detection & Notifications



Smart Factory - Connected Workplace



Operator HMI



Andon Boards



Asset Health

Visualization – Andon Boards

Manufacturing Plant Floor

- Display LIVE on Shop Floor
- TV – Web Link

Production

- Work Center Status
- Equipment / Mechanical Room



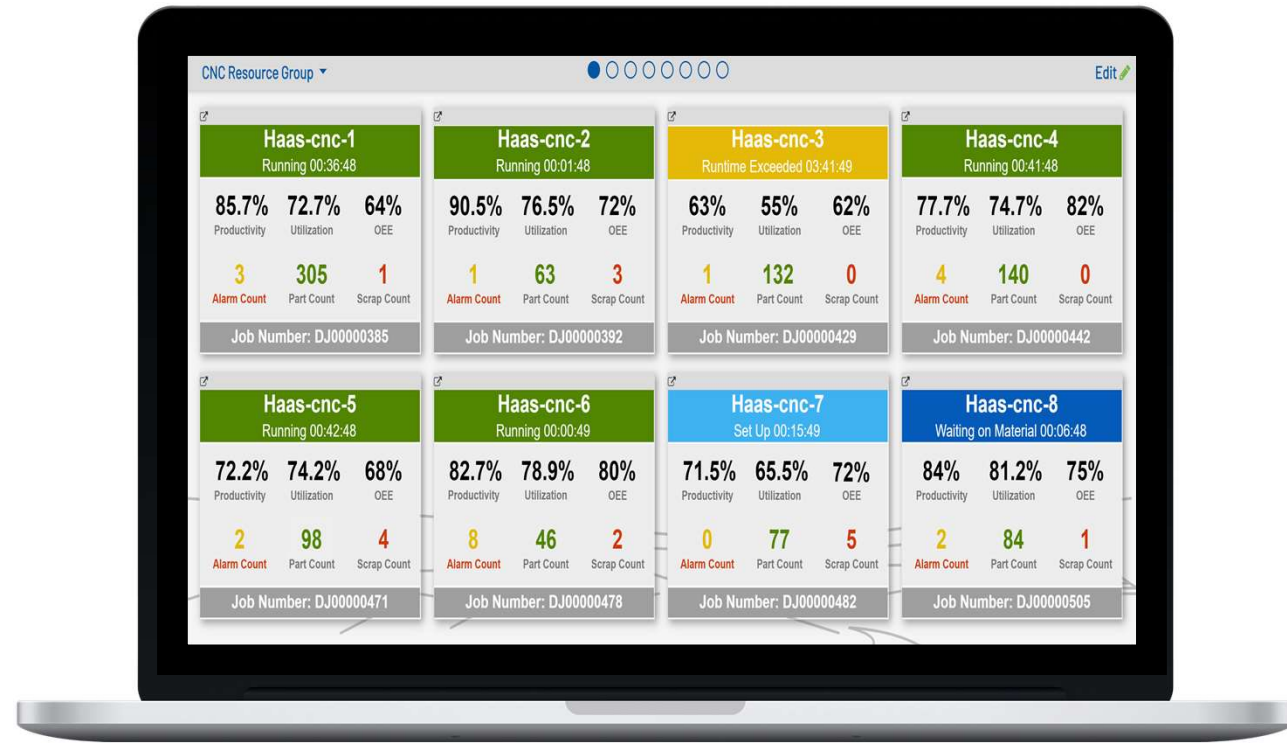
IoT - Real Time Factory Visualization

Manufacturing Work Groups

- Display LIVE on Shop Floor
- TV – Web Link

Production

- Work Center Status
- Job Status
- Targets - Hours (plan vs actual)
- Targets - Qty (plan vs actual)
- Target Scrap % by reason
- Downtime % by reason



Real Time HMI & Visualization

Simple Engagement on One Screen

Reduce complexity by combining multiple operator tasks into a single view

- Live Machine State
- Downtime - Reasons
- CSI Job Interaction
- Quality / Scrap
- Label Printing
- IDM - View Drawing & Work Instructions
- Trigger Maintenance
- Transaction Automation
- Alert Supervisor



IoT - Real Time Asset Card Visualization

Simple Engagement on One Screen

Live— Asset Monitoring

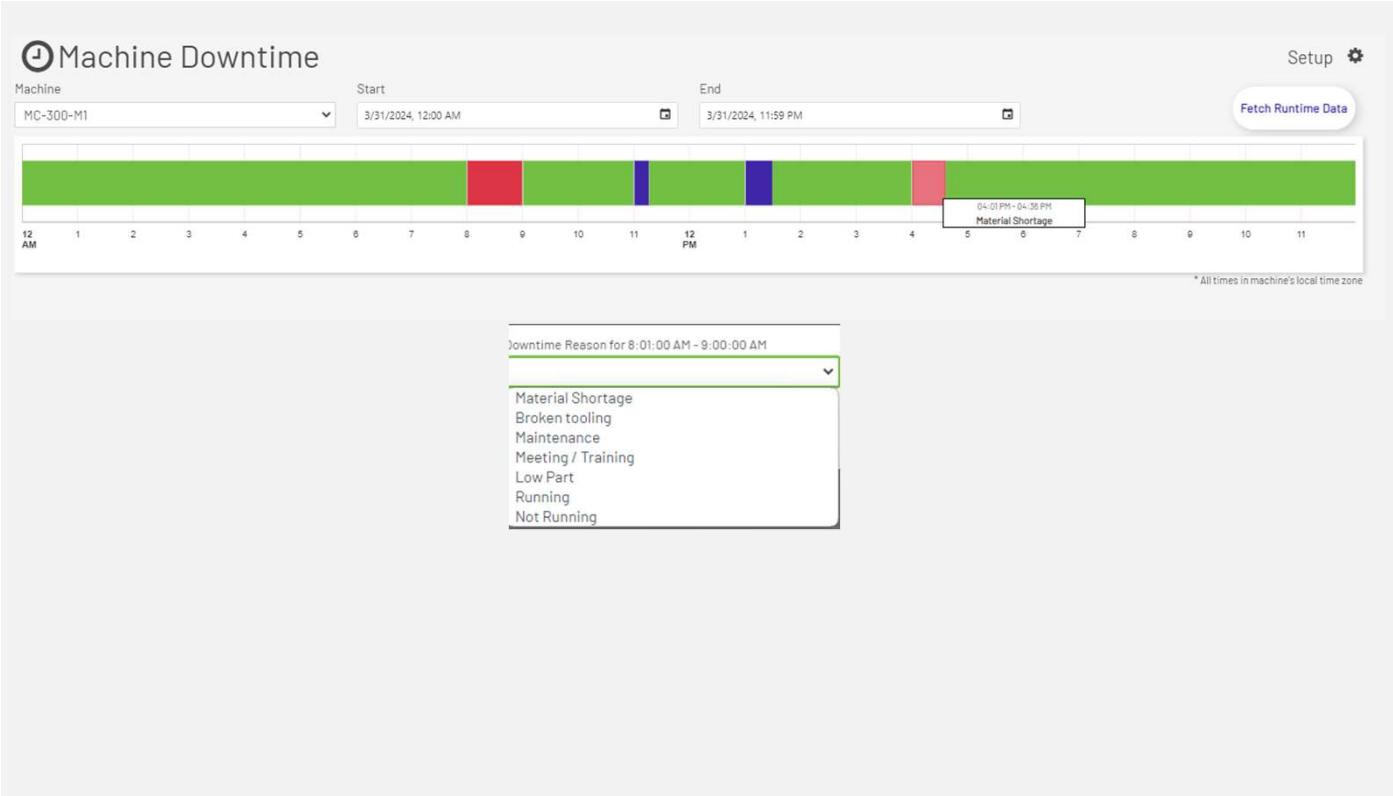
- Alarms
- Job information
- Run vs. Downtime
- Maintenance schedule
- Stats
- Quality
- Productivity
- Utilization
- OEE



Downtime Reasons – Operator Prompt

Downtime - Ribbon

ID	State Name	Color
1	Running	Green
2	Not Running	White
3	Shift Exception	Orange
4	Off-Shift Default	Black
5	In Setup	Yellow
6	Broken Tooling	Blue
99	Missing Sensor Data	Red



Downtime Management

Downtime - Ribbon

ID	State Name	Color
1	Running	Green
2	Not Running	White
3	Shift Exception	Orange
4	Off-Shift Default	Black
5	In Setup	Yellow
6	Broken Tooling	Blue
99	Missing Sensor Data	Red

Downtime Management Setup

Select user to manage:

[Edit User Schedule](#) [Assign Machines](#)

Machines

Name	Description	Grace Period	Enabled
cnc	cnc	0	<input type="checkbox"/>
MC-300-M1	Haas	0	<input checked="" type="checkbox"/>
MC-300-M2	Haas	0	<input checked="" type="checkbox"/>

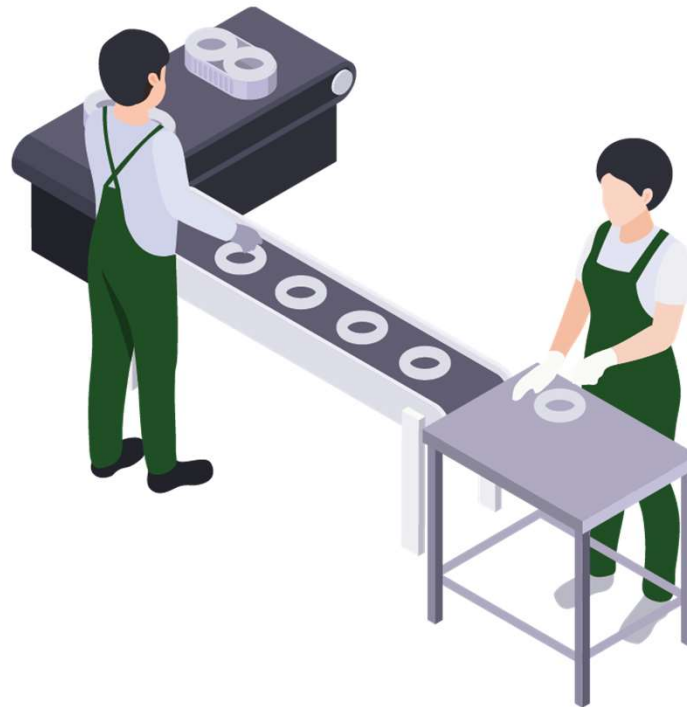
[Add Machine](#) [Edit Machine](#)

Machine States

Id	Name	Color
1	Running	
2	Not Running	
3	Material Shortage	
4	Broken tooling	
5	Maintenance	
6	Meeting / Training	
9	Low Part	
10	Setup	
11	Scheduled Off Shift	

[Add Machine State](#) [Edit Machine State](#)

Empowering Workers



Connected Workplace

Factory Track – WM & SF

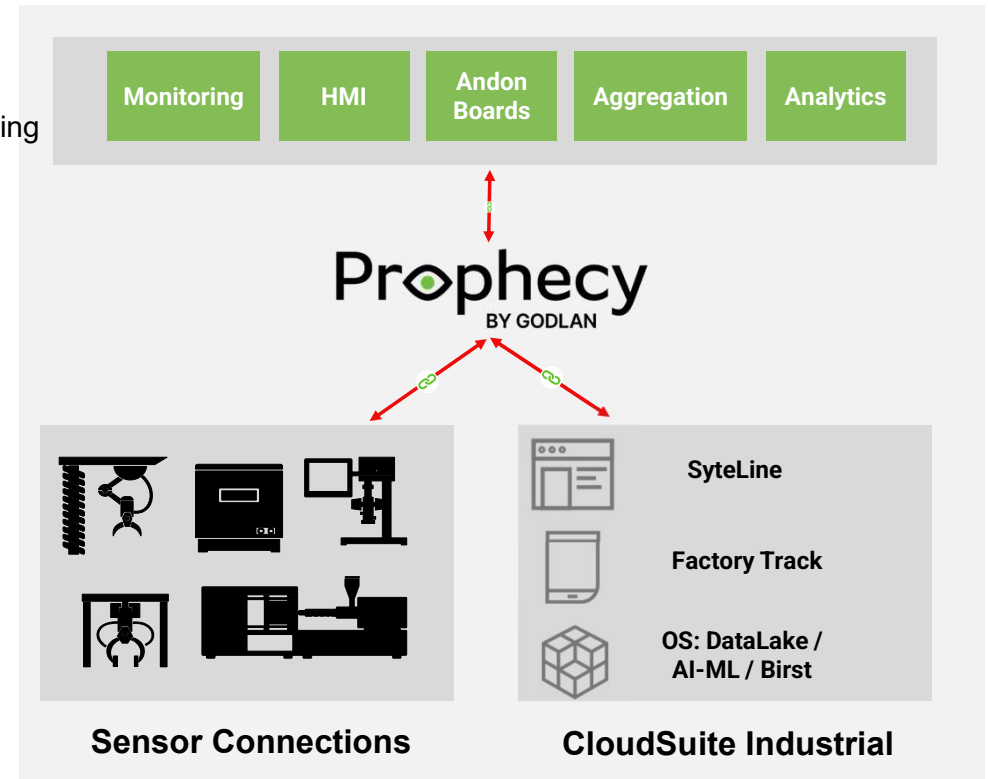
- Live machine state
- Downtime detection
- Operator / transaction engagement
- Maintenance ticket / exceptions
- Scrap detection & label printing
- Labor production reporting
- Control Tower – LIVE data

SyteLine & CloudSuite Industrial

- Material usage
- Visualize drawings
- Set up and production engagement

Prophecy

- LIVE Andon boards
- Asset health
- Machine alerts & monitoring



Factory Track

Factory Track Integration

- Control Tower – Live Data
- Downtime
- Qty & Scrap detection
- Maintenance tickets

The screenshot displays the Infor Factory Track interface. At the top, it shows 'Active Tasks' for user RICKY NICHOLS on 8/15/2023. A table lists tasks with columns for Start Time, Quantity Left, Accepted, Rejected, and Moved. The first task is selected and has a green checkmark.

Task ID	Start Time	Quantity Left	Accepted	Rejected	Moved
200-1033 HULL-H22 JX00001878/0/10	8/15/2023 8:50:00 PM	9	0	0	0
200-1033 HULL-H22 JX00001878/0/10	8/15/2023 8:50:00 PM	5	0	0	0
200-1033 HULL-H22 JX00002582/0/10	8/15/2023 8:50:00 PM	162	18	0	15

Below the table, a 'Production Control Tower - Work Center Detail Display' shows 'FTWC1 : FT Work Center 1' with a status of '12:06 / 02:25' and resources 'SF0006330 / 30' and 'FTWM04'. A 'Report Quantity' dialog is open, showing '18/180 Produced'. The dialog includes a numeric keypad, 'Accept' and 'Reject' buttons, and a summary: '18 Accepted', '15 Moved', '0 Rejected'. A 'Complete' checkbox is also present.

Key Performance Metrics – Prophecy & Factory Track



View Range: Default - Trailing (3)		Total Shift Time	Total Job Time	Goal	Efficiency		
Set Filter:		56.0	45.1	60.0%	82.1%		
Employee	Date	Employee Number	Name	Shift Time	Job Time	Goal	Efficiency %
✓ (HR)	7/4/2023	1	David Davidson	0.0	5.5	60.0%	91.6%
✓ David Davidson	7/5/2023	1	David Davidson	0.0	6.3	60.0%	104.5%
	7/6/2023	1	David Davidson	0.0	6.3	60.0%	104.5%
	7/7/2023	1	David Davidson	0.0	6.3	60.0%	104.5%
	7/8/2023	1	David Davidson	0.0	6.3	60.0%	104.5%
	7/9/2023	1	David Davidson	0.0	6.3	60.0%	104.5%
	7/10/2023	1	David Davidson	0.0	6.3	60.0%	104.5%

Job to Shift Time

The Labor Comparison dashboard displays a bar showing the total hours per day employees spent on jobs and a line chart showing the total time employees were on shifts for a day.

Total Job to Shift Time

The Labor Total dashboard displays a bar that compares the total time employees spent on jobs for the set time frame to the total time employees spent on shifts for the set time frame. were on shifts for a day.

Labor Efficiency – Employee Engagement

- Shift Time: Total time an employee was on a shift for the day.
- Job Time: Total time an employee spent actively working on jobs for the day.
- Goal: Goal set for efficiency.

Key Performance Metrics – Prophecy & Factory Track



Production Data Report															
Date Range (Default: Today - 30)	Total PPH	Total APPH	Total Hours Planned	Total Actual Hours	Total Released	Total Move (Job)	Total Complete (Job)	Daily Scrap	Average Yield						
Set Filter:	71.8	63.1	21.8	26.1	703.7	469.7	160.8	0.2	82.7%						
Op Complete	Date	Job	Shift	Operation	Work Center	PPH	APPH	Hours Planned	Actual Hours	Released	Moved	Complete	Scrapped	Op Complete	Yield
✓ No	7/4/2023	0100002176	0	40	Warehouse Staging	10.0	9.0	3.00	3.00	113.0	105.0	105.0	0.0	No	81.8%
✓ No	7/5/2023	0100002177	0	40	Warehouse Staging	10.0	11.0	3.00	4.00	85.0	85.0	85.0	0.0	No	100.0%
✓ No	7/6/2023	0100002178	0	40	Warehouse Staging	10.0	9.0	3.00	3.00	103.0	103.0	103.0	0.0	No	100.0%
✓ No	7/7/2023	0100002179	0	40	Warehouse Staging	10.0	7.0	3.00	4.00	103.0	78.0	78.0	22.0	No	75.7%
✓ No	7/8/2023	0100002120	0	40	Warehouse Staging	10.0	9.0	3.00	4.00	95.0	85.0	85.0	5.0	No	84.9%
✓ No	7/9/2023	0100002121	0	40	Warehouse Staging	6.0	5.0	3.00	3.00	125.0	100.0	100.0	15.0	No	80.0%
✓ No	7/10/2023	0100002122	0	40	Warehouse Staging	10.0	9.0	3.00	3.00	115.0	115.0	115.0	0.0	No	100.0%

Parts Per Day

The Parts Per Day dashboard displays a bar chart with a goal line showing the parts completed per day and how that number measures up to a set completion goal.

Planned to Actual Hours

The Planned To Actual Hours dashboard displays a bar chart with a line. The bar is planned job hours per day and the line is the actual hours spent on those jobs for the current day.

Completion to Scrap

The Completion to Scrap dashboard displays a bar chart with the total completed parts and reported scrap. The bar is the completed parts and scrap for the current day.

Throughput Optimization

- Total PPH: Total planned parts per hour.
- Total APPH: Total actual parts per hour.
- Total Released: Sum of all released quantities for the jobs.
- Total Move (Job): Sum of all moves at the last job operation for the filtered time period.
- Daily Scrap: Sum of all scrap quantities in the Main Grid for the filtered time period.
- Average Yield: Average Yield from the Main Grid.

Key Performance Metrics – Prophecy & Factory Track



Production Data Report																
Task Range (Default: Today)	Total PPH	Total APPH	Total Hours Planned	Total Actual Hours	Total Released	Total Move (Job)	Total Complete (Job)	Daily Scrap	Average Yield							
Get Data	71.0	63.0	21.0	20.0	720.0	600.0	600.0	0.0	82.7%							
Op Complete	Date	Job	Shift	Operation	Work Center	PPH	APPH	Hours Planned	Actual Hours	Released	Moved	Complete	Scrapped	Op Complete	Yield	
<input checked="" type="checkbox"/>	5/4/2023	000000219	0	40	Warehouse Shipping	10.0	9.0	3.00	3.00	110.0	100.0	100.0	10.0	No	91.0%	
<input checked="" type="checkbox"/>	5/5/2023	000000219	0	40	Warehouse Shipping	10.0	11.0	3.00	3.00	6.00	80.0	80.0	80.0	0.0	Yes	100.0%
<input checked="" type="checkbox"/>	5/6/2023	000000219	0	40	Warehouse Shipping	10.0	9.0	3.00	3.00	100.0	100.0	100.0	0.0	No	100.0%	
<input checked="" type="checkbox"/>	5/7/2023	000000219	0	40	Warehouse Shipping	10.0	7.0	3.00	3.00	6.00	100.0	70.0	20.0	No	70.0%	
<input checked="" type="checkbox"/>	5/8/2023	000000220	0	40	Warehouse Shipping	10.0	9.0	7.00	6.00	90.0	80.0	80.0	5.0	No	80.0%	
<input checked="" type="checkbox"/>	5/9/2023	000000221	0	40	Warehouse Shipping	6.0	9.0	3.00	3.00	100.0	100.0	100.0	10.0	No	100.0%	
<input checked="" type="checkbox"/>	5/9/2023	000000222	0	40	Warehouse Shipping	10.0	9.0	3.00	3.00	110.0	110.0	110.0	0.0	No	100.0%	

Top Scrap Items

The Top Scrap Items dashboard displays a bar chart showing the top items contributing to scrap over a period. This dashboard defaults to a date range of 7 days and the top 5 contributing items.

Top Scrap Reasons

The Planned To Actual Hours dashboard displays a bar chart with a line. The bar is planned job hours per day and the line is the actual hours spent on those jobs for the current day.

Completion to Scrap

The Completion to Scrap dashboard displays a bar chart with the total completed parts and reported scrap. The bar is the completed parts and scrap for the current day.

Throughput Optimization

- Total PPH: Total planned parts per hour.
- Total APPH: Total actual parts per hour.
- Total Released: Sum of all released quantities for the jobs.
- Total Move (Job): Sum of all moves at the last job operation for the filtered time period.
- Daily Scrap: Sum of all scrap quantities in the Main Grid for the filtered time period.
- Average Yield: Average Yield from the Main Grid.

Prophecy & Infor Augmented Intelligence - AI/ML



Asset Intelligence

Maximize Life of Assets

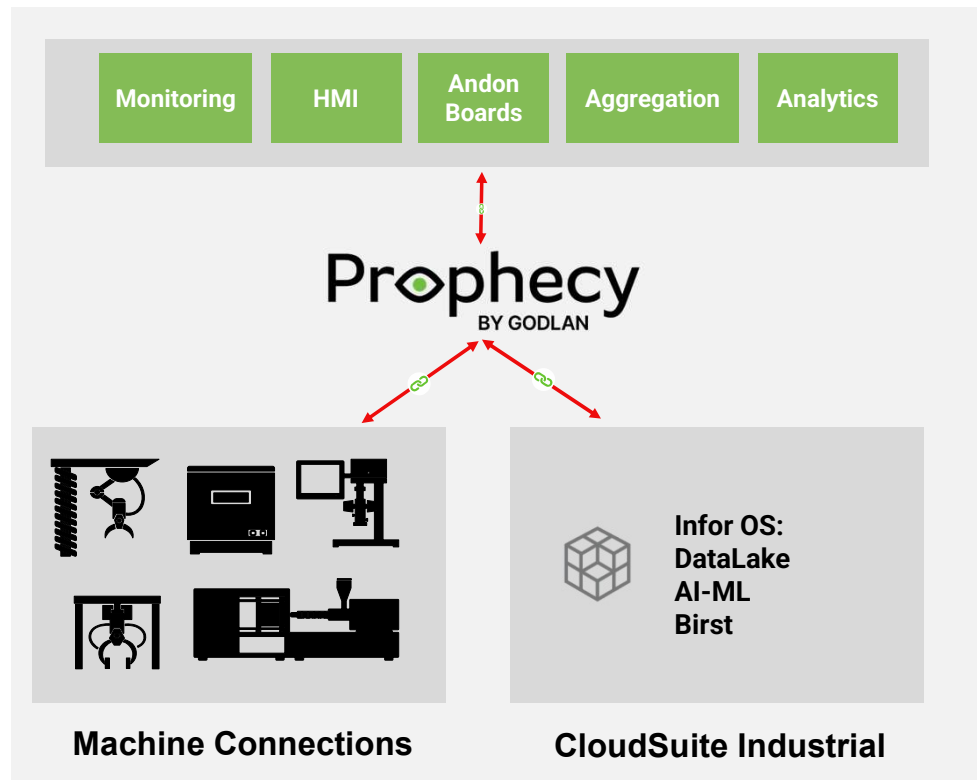
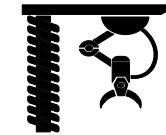
- Predictive vs. Reactive Maintenance
- Parts Planning

Reduce unplanned downtime and Associated costs

- Monitoring

Root Cause Correlation Data

- Part
- Operator
- Machine
- Tooling



AI / ML - Asset risk/criticality

Objective

- Predict risk of asset failing to reduce unexpected equipment failures, increasing machine availability
- Move maintenance from time basis to risk/reliability basis
- Forecast new equipment failures by leveraging PROPHECY IoT data and/or maintenance history

Outcomes

- At-risk equipment highlighted in a simple, understandable dashboard
- Users notified when risk levels exceeded, prompting action
- Enabled transition from time-based or event driven to predictive maintenance for assets

Impact & Key Results

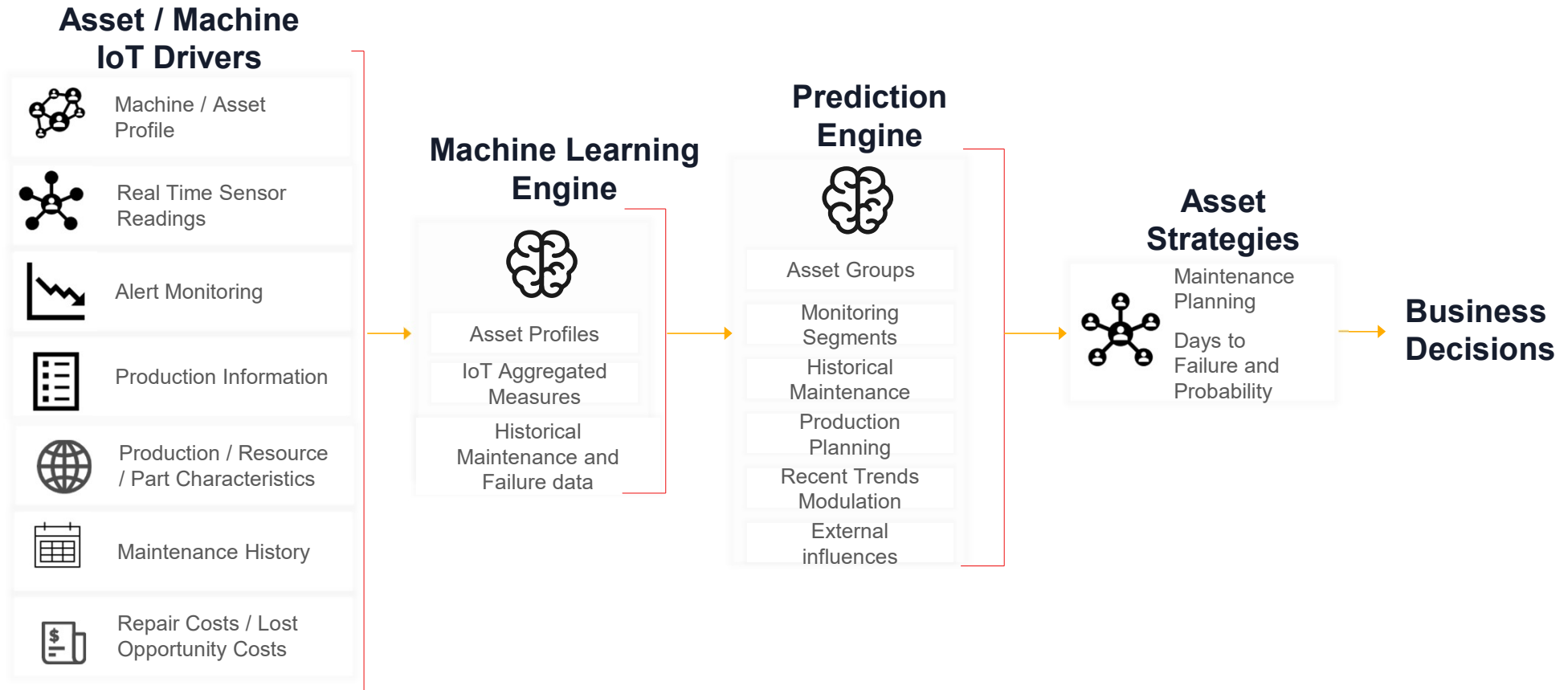
Reduce
unplanned downtime
and costs

Improve
failure prediction accuracy
and maintenance labor
planning

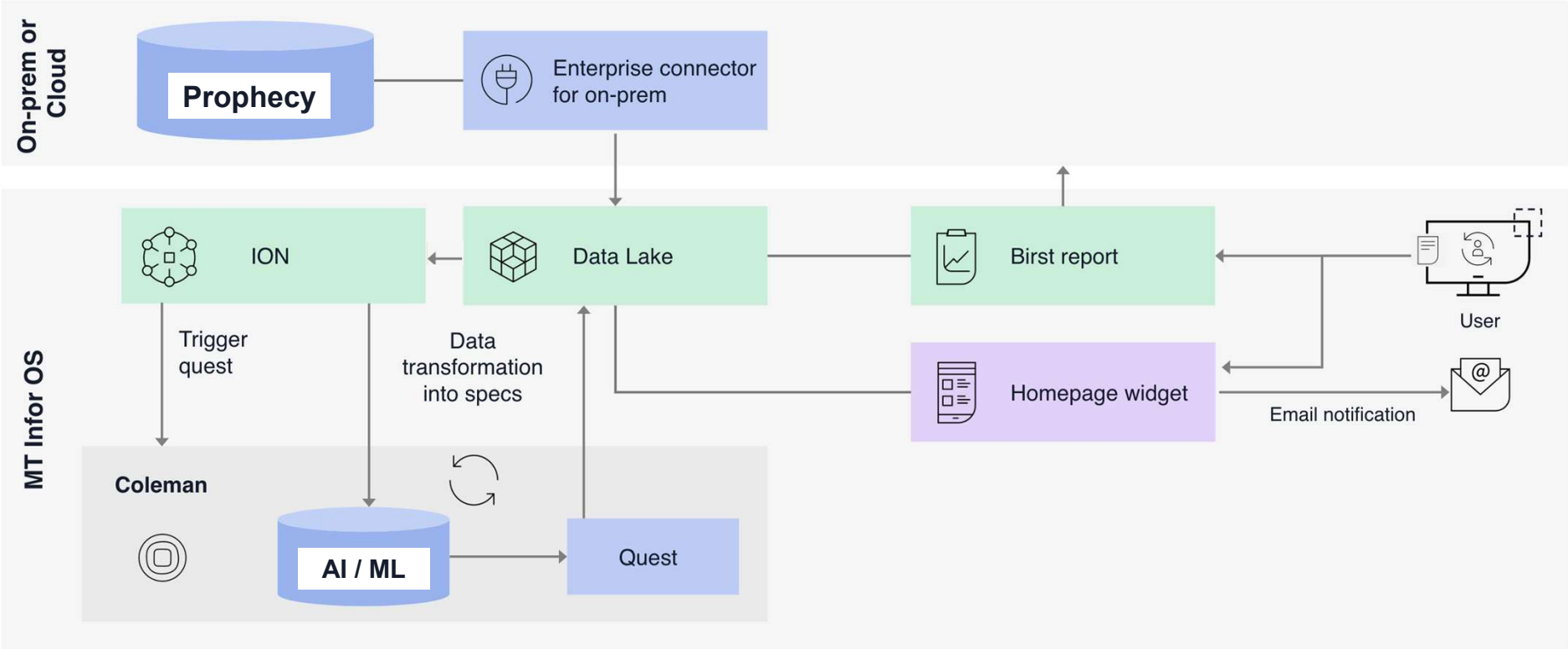
Ease
manual suboptimal user
processes

Asset criticality

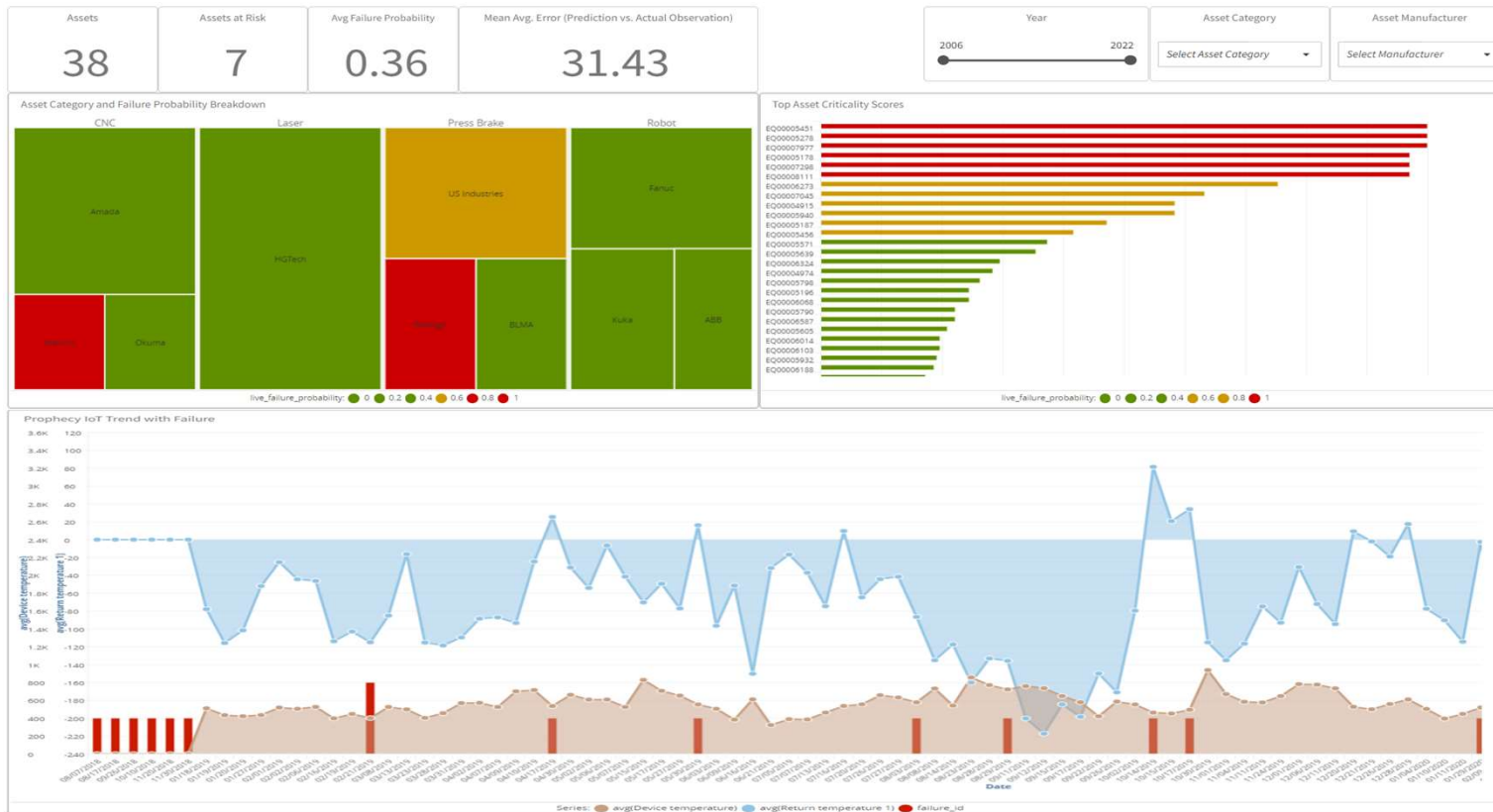
Intelligent Data drives the AI/ML Engine – Data Journey



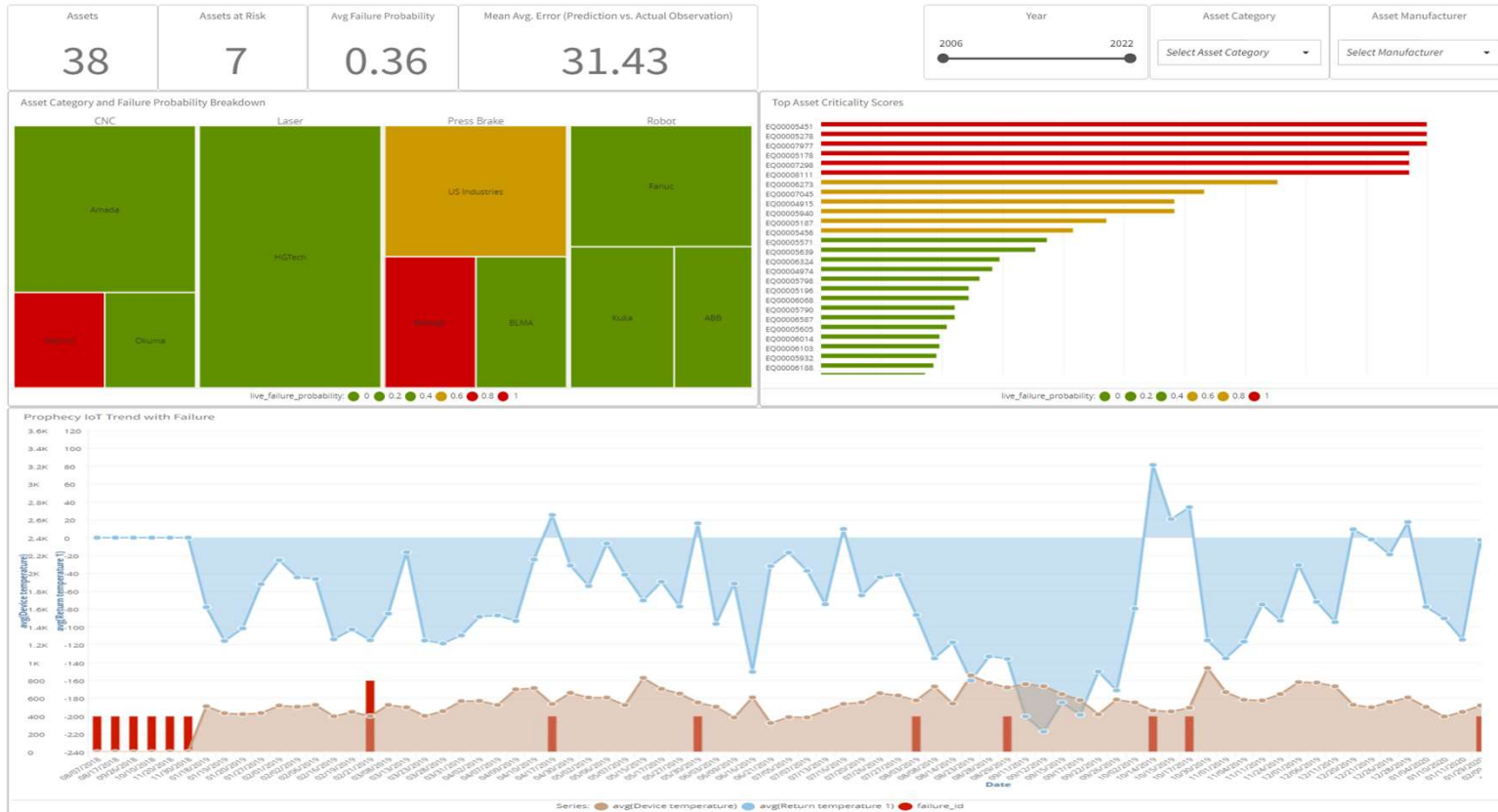
Infor Augmented Intelligence - Data Journey



Real-time Trends and Analytics – Risk & Event Correlation to IoT Data



Real-time Trends and Analytics – Event Correlation to IoT Data



Executing AI Model Recommendations

Connected CloudSuite for work order generation + email notification

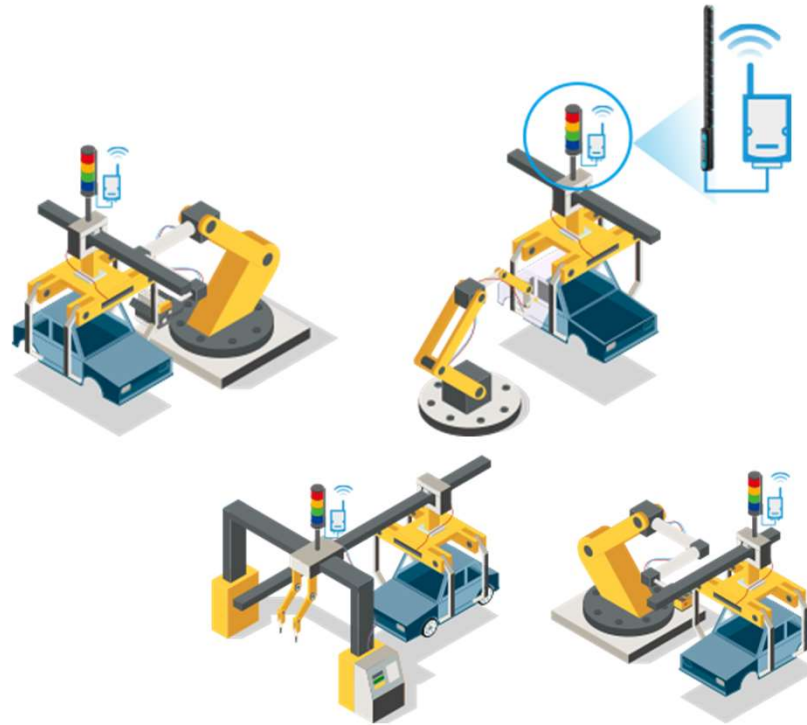
Detail Report with Prediction Date

predicted_CM_date	Equipment	Prediction Date	Repair Code	EQUIP_TYP
08/13/2018	EQ00005895	07/23/2018	PRE ASV WAS	TY00001
08/25/2018	EQ00007696	08/02/2018	STR RPN nan	TY00006
09/02/2018	EQ00007696	08/10/2018	nan ASV WAS	TY00006
09/08/2018	EQ00004897	09/08/2018	RPR RPR	TY00006
09/08/2018	EQ00004426	08/24/2018	RPN	TY00009
09/26/2018	EQ00007674	08/30/2018	WEL RPR SEC RPR	TY00006
10/10/2018	EQ00005895	09/19/2018	WAS	TY00001
10/11/2018	EQ00007674	09/21/2018	INS ASV	TY00006
11/02/2018	EQ00007814	10/11/2018	ASV RPN	TY00006
11/02/2018	EQ00004426	11/02/2018	(is missing)	TY00009
11/09/2018	EQ00007820	11/05/2018	RPR	TY00006
11/12/2018	EQ00007691	10/04/2018	RPN	TY00006
11/13/2018	EQ00007814	11/07/2018	WAS	TY00006
11/15/2018	EQ00004585	09/27/2018	RPN	TY00006
11/16/2018	EQ00007691	11/16/2018	nan WAS	TY00006
11/20/2018	EQ00007691	11/02/2018	nan WAS ASV	TY00006
11/23/2018	EQ00004500	10/11/2018	PAT RPR nan PAT	TY00009
11/24/2018	EQ00007790	10/12/2018	nan PRE WAS nan ...	TY00006
11/27/2018	EQ00004500	10/13/2018	PRE ASV WAS	TY00009
12/02/2018	EQ00004539	10/25/2018	RPN	TY00006
12/02/2018	EQ00004423	11/02/2018	PRE WAS ASV SUR ...	TY00009
12/05/2018	EQ00004375	11/26/2018	RPN	TY00009

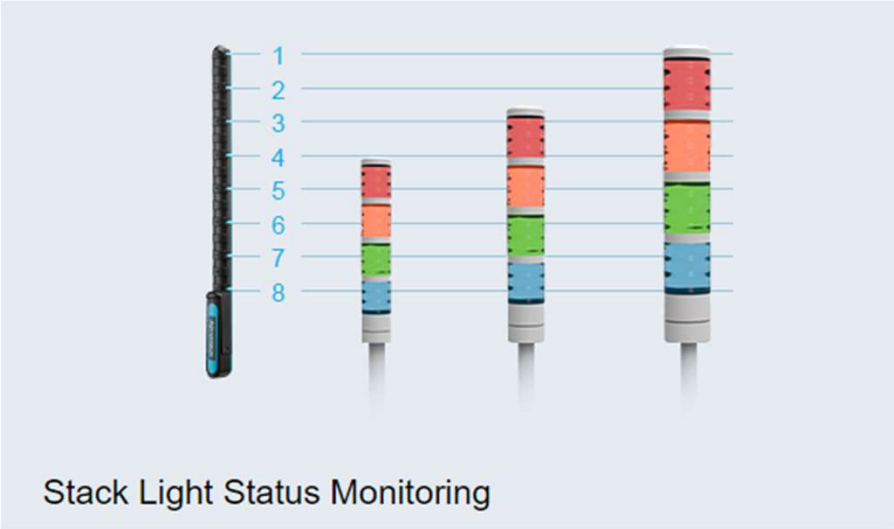
The screenshot illustrates the workflow for executing AI model recommendations in Infor CloudSuite. It is divided into three main sections:

- Top Left: Detail Report** - A table showing equipment details with a blue circle '1' highlighting the 'Equipment' column.
- Top Center: Work Order Creation** - A 'WorkOrder' form with a blue circle '2' highlighting the 'Create WorkOrder' button. A blue arrow points from the 'Equipment' column in the report to this form.
- Top Right: Email Notification** - An email interface showing a message titled 'Asset Failure Probability.pdf' with a 'Create WorkOrder' button highlighted by a blue circle '2'. A blue arrow points from this button back to the 'Create WorkOrder' button in the Work Order form.
- Bottom Left: Asset Failure Probability Report** - A bar chart titled 'Top 50 Assets Failure Probability Report' showing a horizontal bar chart of asset failure probabilities.
- Bottom Center: Work Order Details** - A 'Work Orders' screen showing details for a specific work order, including fields for Work Order Number, Equipment, Location, Type, and Department.

Prophecy Rapid Implementation Approach



Quick Time to Value



Stack Light - Machine Utilization

Stack Light - Machine States

ID	State Name	Color
1	Running	Green
2	Not Running	White
3	Shift Exception	Orange
4	Off-Shift Default	Black
5	In Setup	Yellow
6	Broken Tooling	Blue
99	Missing Sensor Data	Red





Company
SpillTech

Location
Mobile, AL

Industry
Smart Spill Solutions,
Manufacturing

Implemented Solution
Prophecy IoT®

Top Challenges

- Eliminate manual processes by measuring manufacturing with automated data capture
- Present the actual performance of our manufacturing equipment
- Capture what is actually occurring in real-time
- Provide analysis of historical reporting

Why Prophecy?

We needed a solution to help us **resolve a number of key challenges**, while **working seamlessly with our ERP**.

“Prophecy is a great product that has given us the tools to make data-driven decisions. It also is a great diagnostic tool for our production lines!”

– **Brandon Marceaux**, Plant Manager

Implementation

What was your experience with Prophecy Professional Services?

- Services stayed within budget
- The team is competent and consultative
- Very efficient and responsive

Benefits

We now receive accurate, automated, real-time, and historical production data from our continuous extrusion production line. Having visibility to our actual production quantities **strongly supports data drives decisions, and greatly improves focus**.

ROI

We now have internally driven conversations regarding how to best move forward using the data being provided. These conversations lead to planning and executing continuous improvement, and **continuous improvement leads to increased production in less time**.



Company
EuroKera

Location
Fountain Inn, SC

Industry
Glass-Ceramic Cooktop

Implemented Solution
Prophecy IoT®

Top Challenges

- The need to understand true downtime levels.
- Previously spending excess time logging tool changes by hand and entering production numbers manually, resulting in more errors.
- Needed better data availability for predictive maintenance.
- The need for real time process metrics and visual Indicators for performance (day/shift) due to lack of accurate and timely data for analysis.

Benefits

- Once EuroKera engaged with Godlan for Prophecy IoT®, they achieved direct connectivity to existing PLCs and infrastructure without adding extra hardware.
- Data now being collected from PLCs at very high speed.
- Meaningful data now can be logged in SOL database (many opportunities in itself.)
- Prophecy IoT® provides direct PLC connections that reveal detailed production data for analysis and understanding of production issues.
- Graphical display of data is achieved with easy to create charts and graphs that present better information to management for decision making.

“One of the immediate advantages we’ve seen is now a machine can tell us when a lot is finished, and we can then issue that lot out in our ERP system. For us that is a huge financial benefit- to make sure that our material is assigned to the correct job and that we are accounting for every sheet of material that we use.”

– **Jackie Collins**, Manufacturing Systems Manager

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– **Jackie Collins**, Manufacturing Systems Manager

infor

Questions?