



**PICO**  
**MES**

## PICO MES Connected Supply Chain

Software solutions empowering **all factories** to eliminate mistakes and rapidly improve operational efficiency

# Pico's Customers

Our client's range from SMB owner/operator facilities, technology startups, and the Global multi-national Enterprise.

## Industries Served:

- Commercial Equipment OEMs
- Automotive Suppliers (Tier 1-3)
- EV Battery Packs & Vehicles
- eVTOL & Aerospace
- Industrial Sensors & Controls

Sample of Pico's publicly traded customers





## Pico's Purpose

To solve today's supply chain challenge of - "death by a thousand cuts"

The vast majority of factories **do not** suffer from one or two large issues. They are held back by dozens of small issues that add up to 30%+ in lost output

People



*"Hiring, training & retaining employees is a constant challenge"*

Equipment



*"We lost hours in rework because my supplier did not torque a fastener correctly"*

Data



*"My supplier found a last minute assembly error on their end that delayed a critical shipment, this forced me to pause my assembly line"*

# Pico's Record

“11 out of 10. It's a pretty compact / adaptive system which does all the things many multi million dollar systems still can't figure out.”

Sr. Manufacturing Engineer  
San Rafael, CA

“That was one of the smoothest installs I've done”

System Administrator Team Lead  
Chillicothe, OH

“Even though we weren't utilizing Pico across our full production line, [my company] saw a **3x-4x** increase in output within the first quarter of Pico's rollout within the factory.”

Production Engineer  
San Francisco, CA

“Pico makes it easier to integrate an MES system into an organization that does not understand systems.”

Sr. Manufacturing Engineer  
Hayward, CA

“For the first time in my career, I don't feel held hostage by my MES”

Head of Operations  
Burlingame, CA



## Case Study:

### RV manufacturer error-proofs assembly processes, boosting production by 50%

- » 50% more in production output
- » 20+ connected workstations
- » 500+ processes digitized
- » Payback period in months, not years



# What is Pico Connected Supply Chain?

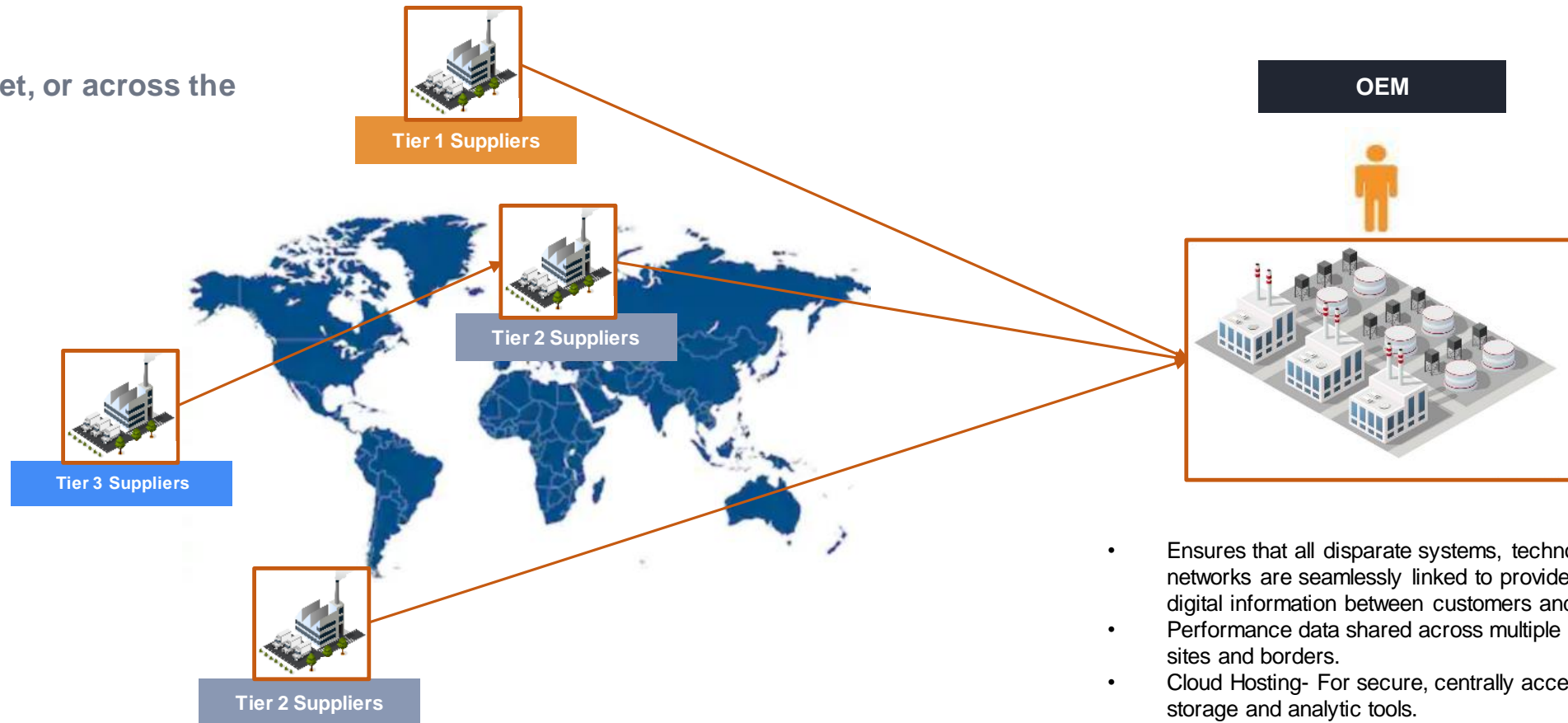
Enables seamless integration of supplier product/process  
visibility into the Digital Ecosystem

Promotes efficiencies throughout the entire supply chain

# PICO MES Connected Supply Chain

Leverage IIoT to Monitor and Error-Proof Your Supply Chain In Real Time- Wherever They Are...

Across the street, or across the  
Globe....



- Ensures that all disparate systems, technologies, and networks are seamlessly linked to provide a flow of digital information between customers and suppliers.
- Performance data shared across multiple operating sites and borders.
- Cloud Hosting- For secure, centrally accessible data storage and analytic tools.

Centralized Data Location for a Decentralized Supply Base

### Supply chain challenges:

- Parts may be delivered “on-time” but if they aren’t to spec, it will still impact:
  - On time starts -> your customer deliveries
  - Utilization (direct labor with no work)
  - Indirect labor (having to rapidly re-plan the shop)
  - Increased costs, decreased profits when having to expedite replacement parts for the defective units
  
- We are fundamentally missing the opportunity to have production and inspection data transparency at their point of creation.

## Pico’s Connected Supply Chain Differentiator:

### Provides Complete Visibility of Your Supply Chain

Competitor supply chain solutions may tell you if parts have shipped, **they can’t tell you if the parts you’ll receive are good. Pico can....**

You’ll have live data from the supplier process- and **know they are to spec.**

Create a proactive plan and collaborate with suppliers to **Prevent Poor quality from impacting you** and your production on-time starts.

### Increases supplier capacity

**Error proof supplier’s factory** by digitizing the shop floor into a single platform and enabling **higher KPI performance.**

### Improve the Supplier Relationship

Cost of Disruption: Create a **proactive plan and collaborate** with suppliers to **Prevent Poor quality from impacting your own production on-time starts.**

With a connected supply chain and data at your finger tips, you can **stop being reactive and become proactive and predictive.**

This enables you to partner with your existing suppliers rather than constantly investing in the onboarding of new ones.

# Real Time Supply Chain Monitoring Improves Supplier Visibility and Predictability

Increasing Digital Connectivity from Suppliers to OEM Improves Visibility and Predictability  
Along the Whole Supply Chain

## Shared Across all Tiers of Suppliers

- Delivery Timelines **within the entire chain**
- Quality Product Reviews
- Improved Digital Manufacturing Processes for Suppliers
- Real-time process data access and error **awareness and escalation**



## OEM

**Pico  
Dashboard**  
Real Time Data Visibility



People



Equipment



Data

“Virtually monitor supplier processes and product health like you are there”



# Connected Supply Chain OPX Focus Areas and Benefits



## Cost Savings

- Average overall **operating cost savings** 10-20%
- Annual **CapEx savings** 5-20%
- Labor **cost reductions** Up to 20%
- Indirect **headcount reduction** 10-20%

## Efficiency

- Average **productivity improvement** 5-10%
- Typical volume **increase through OEE** 5-10%
- Reduced **energy consumption** Up to 50%

## Agility

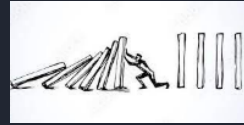
- Improved **plant capacity** Up to 30%
- **Inventory reductions** 5-20%

## Quality

- Improved **finished product quality** *Industry dependent*
- **Defect cost / scrap reduction** Up to 30%

What you **measure**, you can **control**....

With PICO you can identify and improve the weakest links in your supply chain, providing cascading results.....



What you **measure**, you can **control**....

Tier 2 Small Business



Tier 1 Medium Business



OEM Enterprise Multi National



Factory 1 implements Pico MES

- Improves finished good yield and deliveries by 15%
- Achieves:
- Improved delivery performance to next supplier in the chain
- Overall op savings
- Energy reduction
- Labor efficiencies
- CapX/OpX efficiencies

Factory 2 benefits from operational improvement from Factory 1- implements its own Pico MES Solution and Connected Supply Chain Solution

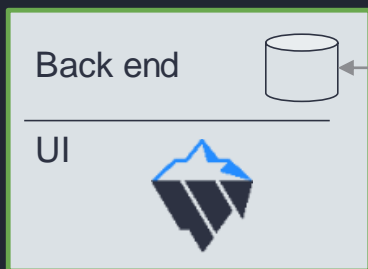
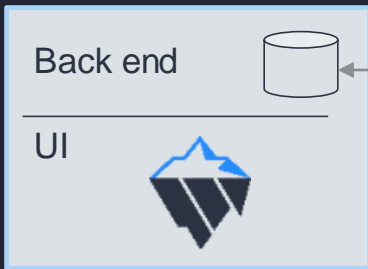
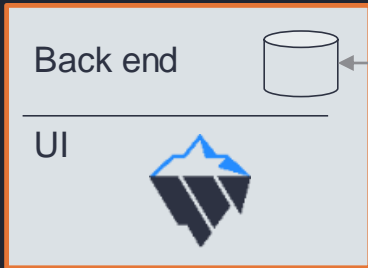
- Also improves finished good yield by 15%
- Achieves
- Inventory reduction
- Overall op savings
- Energy reduction
- Labor efficiencies
- CapX/OpX efficiencies

OEM implements Pico MES and the Connected Supply Chain Solution

- Improves internal operating efficiencies and financial returns
- Achieves compounded operating and financial gains due to the CSC solution
- Improved efficiencies and confidence in JIT logistic models

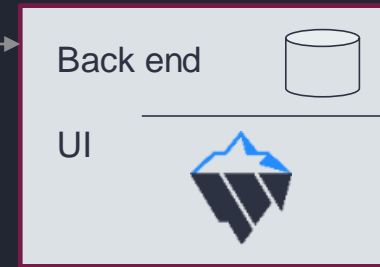
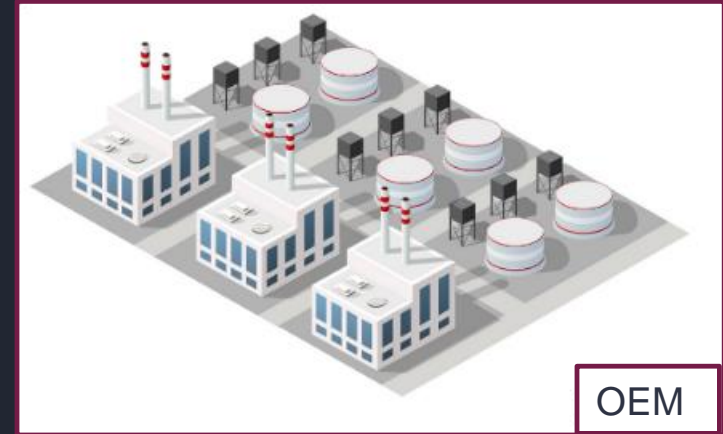
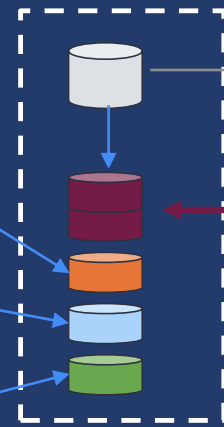
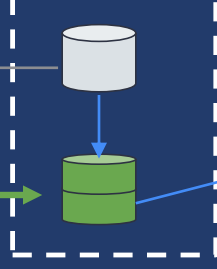
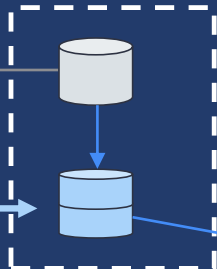
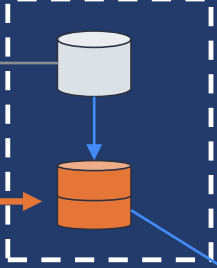
**Cascading Exponential Rewards**

# Pico Cloud Architecture



Orchestrator

- Triggers ETL
- Data transferred is configured in Supplier UIs

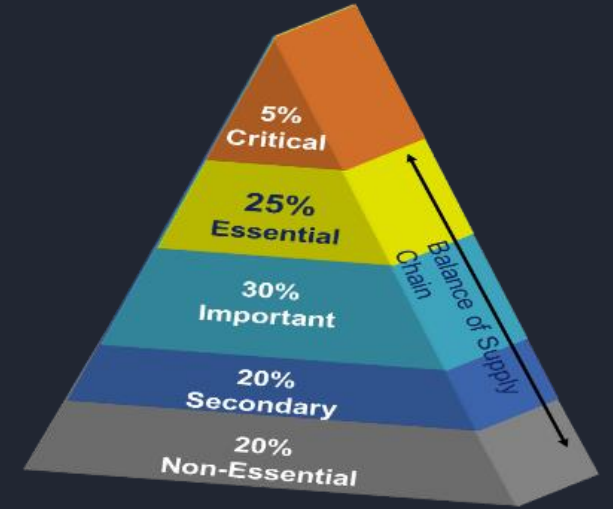


## Legend

- ETL process
- Replication process
- Customer data access



# PICO Onboarding



**STEP ONE** | Identify priority areas and suppliers

**STEP TWO** | Pico works directly with your supplier to implement the right solution(s)

**STEP THREE** | Error Proof, Increase Predictability and Reliability with your supplier

**REPEAT | SCALE**



# Connected Supply Chain Deployment Categories

- Specific to your operating environment
- Simple, flexible pricing model

## Deployment Type 1: Control plans / work instructions / documentation & version control

- This type is for suppliers where how they build something is the most important, as opposed to measuring details with connected tools. This is also a lightweight and easy to get started with solution. It includes support via email or shared Teams/Slack channels.
- Standard pricing is \$24,000 per year per factory

## Deployment Type 2: Critical processes but a small footprint

- This type is for suppliers who perform critical operations with data collection that is desired, and may be implementing serialization for assigning data back to each build. It includes our full IoT package + all of the base package above. This tier has up to 15 stations associated with it. (10 is the average)
- Standard pricing is \$42,000 per year per factory

## Deployment Type 3: Large Deployment

- This type is for those suppliers who use the majority of the factory to create the products of interest. It is effectively an SMB unlimited plan. We assume up to 50 stations for this model, and can adjust as desired. Typically these deployments have some conversation ahead of time and may require integration with other business systems (ex: ERP) to be successful.
- Standard pricing is \$84,000 per year per factory

# Connected Supply Chain Deployment Categories

- Specific to your operating environment
- Simple, flexible discounting model

## Pricing Discounts:

### Discount Bracket 1: 1-5 Deployments

- This is the getting started tier, effectively covering a pilot / emerging issues and enabling tactical/rapid deployments without a paperwork issue
- Up to 25%

### Discount Bracket 2: 6-30 Deployments

- This tier is designed to cover the critical suppliers within a given company. The numbers for the size of the tier and the associated discount would be developed together
- Up to 35%

### Discount Bracket 3: 31+ Deployments

- We know most OEMs are approaching this as a strategic initiative for supply chain visibility and will have an upper tier to meet them at scale
- Up to 50%

# The Pico Foundation- What's at the Supplier...

## Speed and simplicity are critical for an agile and sustainable supply chain

- **Station Edge:** Non-networked devices are integrated using Pico's microcontroller-based Hubs, providing a low-cost method for integration.
- **Factory Edge:** For on-prem deployments, the Pico Server hosts the application and aggregates all station data to one location for secure transfer to the cloud.
- **The Cloud:** Used for off-prem hosting, data backup + analytics, and remote support + updates. All the benefits of the cloud without the latency.
- **Connect Tools and Machines in minutes:** Plug and Play collection of tools enables deployments in hours instead of weeks.

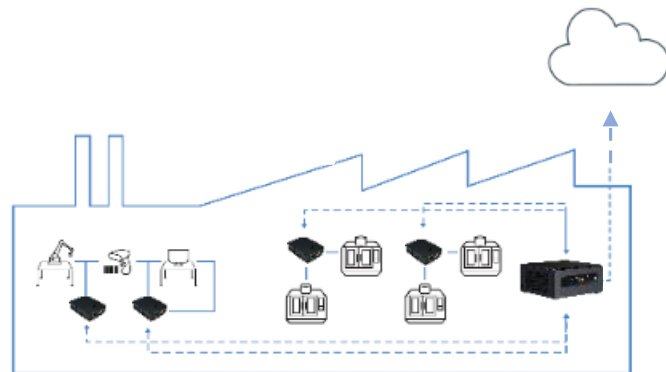
## Rapid Rol...



Station Edge



Factory Edge



# Quick Setup

(On Premise Example)

Kit Arrives ●

System Setup  
( Hours 1-2 )



(\$600 in Hardware)



Create a process  
( Hour 3 )

Test at a Station  
( Hour 4 )



● Release to Production

Continuous Improvement

# The Pico Foundation- What's at the Supplier

## A Treasure Trove of Data Captured Automatically

Data flows seamlessly from operators & tools, fully traceable for every product produced. **No programming or setup required.**

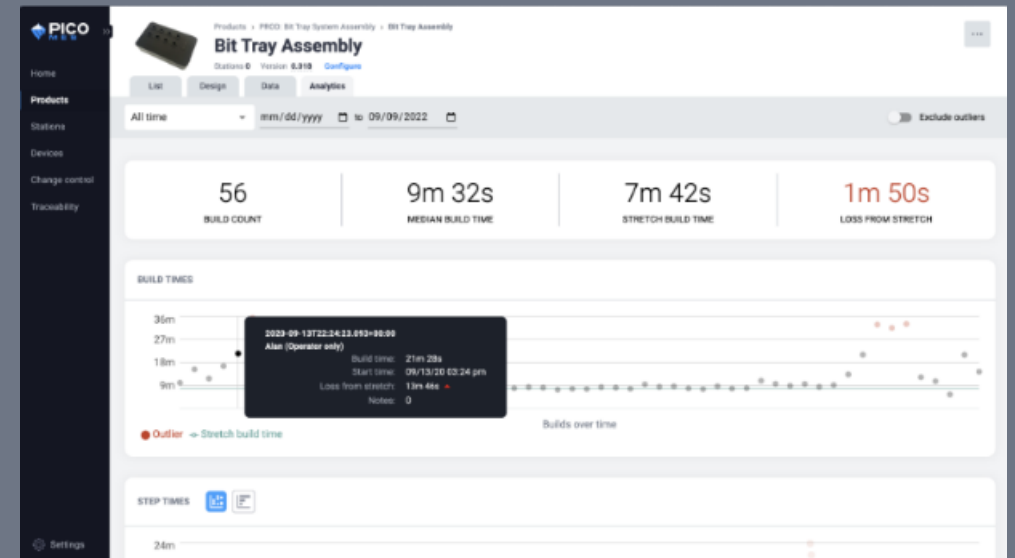
An integrated suite of analytics tools then reports answers to the questions every factory team asks.

Build data is replicated to the cloud for additional analytics & reporting by the customer using the BI tool of their choice.

Readily available data streams can also drastically shorten “first article” approval processes.

The screenshot displays the 'Bit Tray Assembly' analytics page. It features a table with columns for 'BUILD ID', 'Start Time', 'Serial Number', 'Operators', 'Station', 'Notes', 'Build complete', 'Status', 'Process Version', 'Cycle Time', and 'Pause Time'. The table lists 16 build records, each with a unique serial number and operator name (e.g., Ryan, Alan). The status for all builds is 'Complete'. The interface includes a sidebar with navigation options like Home, Products, Stations, Devices, Change control, and Traceability. At the bottom, there are settings for 'Items per page' (25) and a page indicator '1-25 of 56'.

BUILD ID	Start Time	Serial Number	Operators	Station	Notes	Build complete	Status	Process Version	Cycle Time	Pause Time
5 Apr 2021 12:34 PM	130001-O-A1-0062	Ryan	FZers, Station 1 (L,H)	0	5 Apr 2021 12:45 PM	Complete	v0.018	14:21.8	0:00.9	
5 Apr 2021 12:07 PM	130001-O-A1-0063	Ryan	FZers, Station 1 (L,H)	0	5 Apr 2021 12:32 PM	Complete	v0.009	20:56.6	4:44.4	
3 Jan 2021 9:28 PM	130001-O-A1-0002	Ryan	FZers, Station 1 (L,H)	0	3 Jan 2021 9:33 PM	Complete	v0.009	5:24.3		
6 Oct 2020 9:51 PM	130001-O-A1-0053	Ryan	FZers, Station 1 (L,H)	0	6 Oct 2020 10:21 PM	Complete	v0.008	10:25.5		
6 Oct 2020 9:37 PM	130001-O-A1-0024	Ryan	FZers, Station 1 (L,H)	0	6 Oct 2020 9:48 PM	Complete	v0.008	12:10.5		
14 Sep 2020 10:38 AM	130001-O-A1-0022	Alan	FZers, Station 1 (L,H)	0	14 Sep 2020 10:51 AM	Complete	v0.005	13:17.0		
14 Sep 2020 10:25 AM	130001-O-A1-0028	Alan	FZers, Station 1 (L,H)	0	14 Sep 2020 10:37 AM	Complete	v0.005	9:07.6		
14 Sep 2020 10:17 AM	130001-O-A1-0029	Alan	FZers, Station 1 (L,H)	0	14 Sep 2020 10:25 AM	Complete	v0.005	8:23.0		
14 Sep 2020 10:04 AM	130001-O-A1-0012	Alan	FZers, Station 1 (L,H)	0	14 Sep 2020 10:13 AM	Complete	v0.005	9:33.5		
14 Sep 2020 9:54 AM	130001-O-A1-0021	Alan	FZers, Station 1 (L,H)	0	14 Sep 2020 10:02 AM	Complete	v0.005	8:47.8		
14 Sep 2020 9:42 AM	130001-O-A1-0035	Alan	FZers, Station 1 (L,H)	0	14 Sep 2020 9:52 AM	Complete	v0.005	9:27.2		
14 Sep 2020 9:23 AM	130001-O-A1-0057	Alan	FZers, Station 1 (L,H)	1	14 Sep 2020 12:42 PM	Complete	v0.005	21:31.0		





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Thank You

**Take an interactive tour of Pico MES:** <https://hello.picomes.com/tp/manufacturingexecutionsystem>

**The value of a Connected Shop Floor (filmed at MORryde):**  
<https://www.youtube.com/watch?v=mgWJCCN6PUA>