



3DEXPERIENCE®

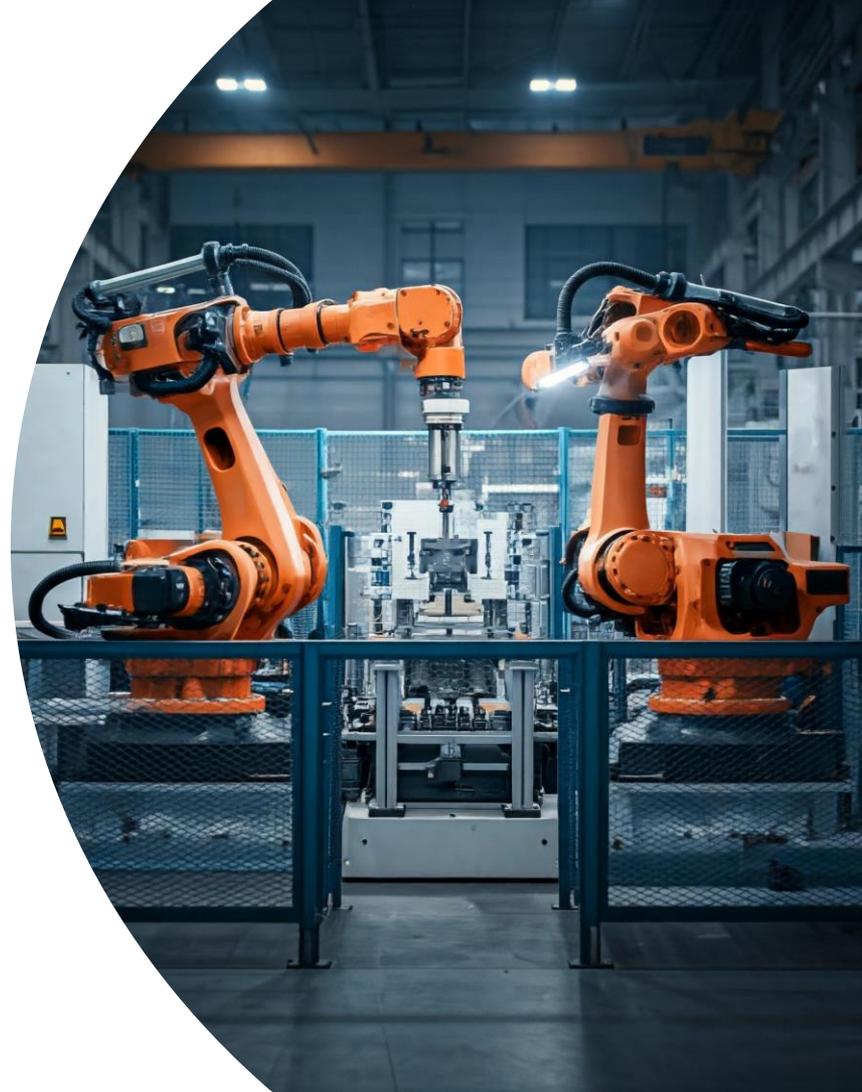
# SMARTER AUTOMATION

Bridging Your Process Equipment and  
Enterprise Management Solution

 | The 3DEXPERIENCE® Company



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Industry Process Sr. Consultant  
DELMIAWorks



# WHY ARE WE HERE?



Drastic shift towards automation

- Creating a gap between equipment and process



Closing the gap – Design and Implement

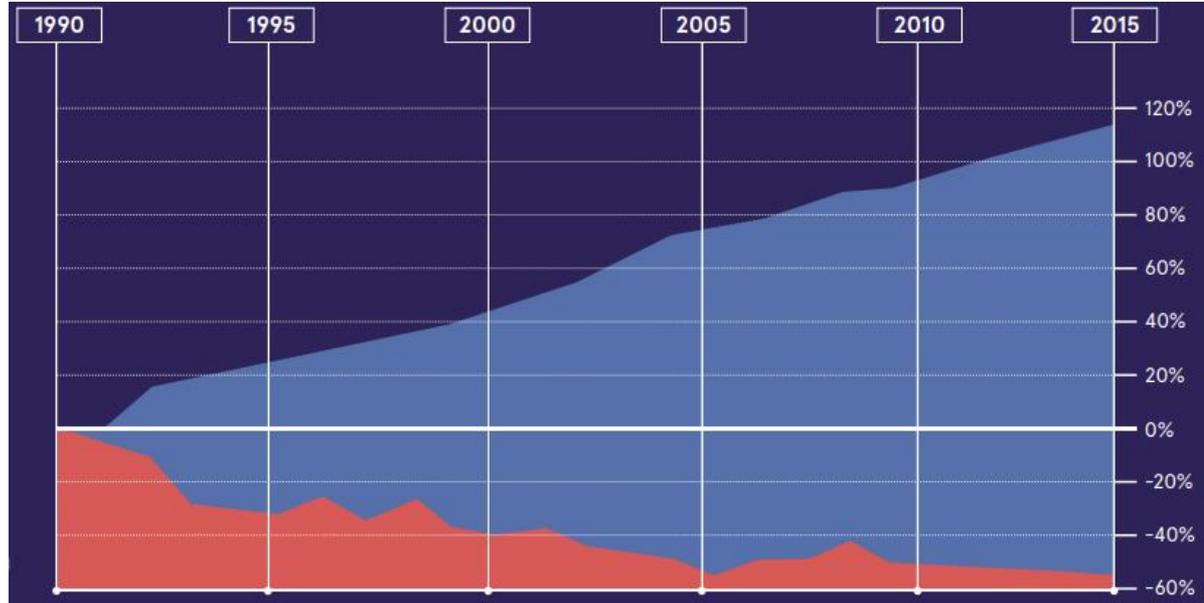


The Age of Data

# AUTOMATION EQUIPMENT MARKETPLACE



€ ¥ Costs Continue to Plummet  
£ \$ ➤ 58% reduction in prices since 1990 ~ McKinsey



# AUTOMATION EQUIPMENT MARKETPLACE



## Equipment Integration



# GAPS IN AUTOMATION LANDSCAPE



Under Utilised Equipment

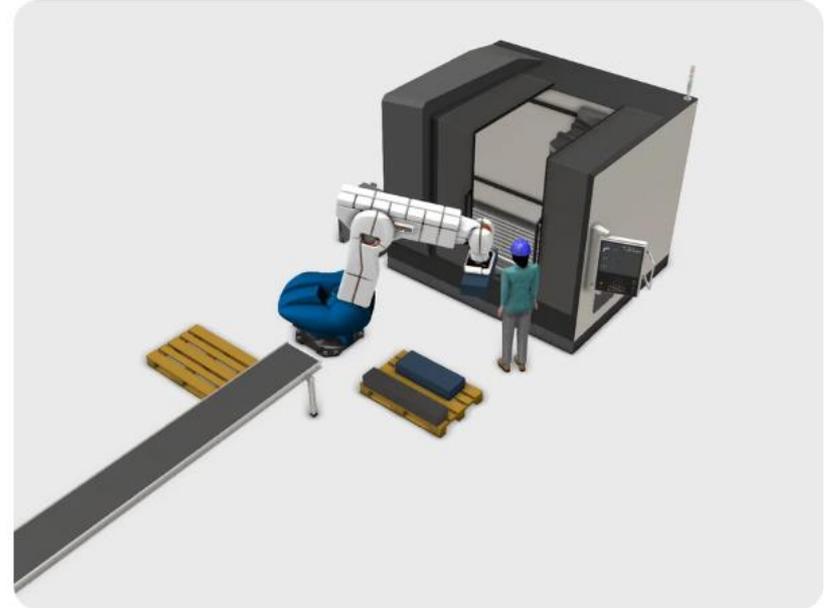
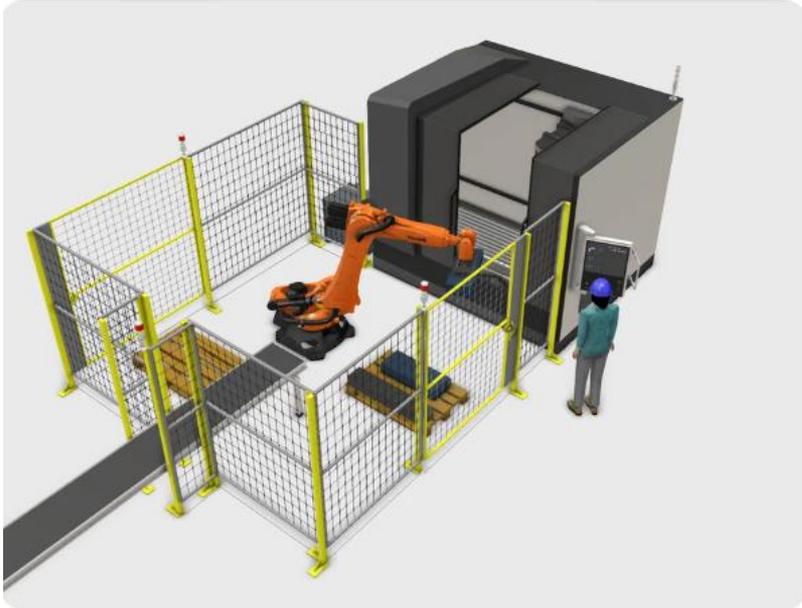


Creation of Siloed Systems



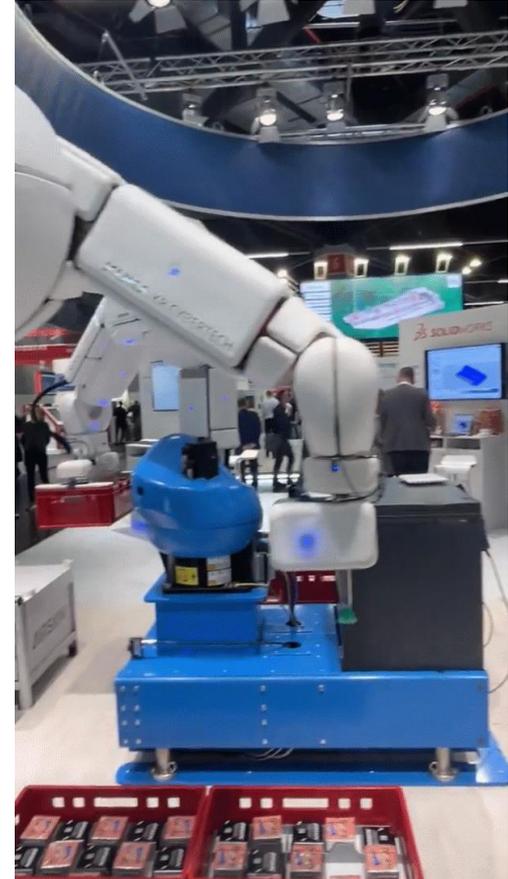
# INTRODUCTION TO AIRSKIN

- Industrial automation company based in Vienna, Austria
- Airskin develops patented pressure sensitive skin that is sturdy and mounted onto standard industrial robots such as KUKA, Stäubli or Epson



# MACHINE INTEGRATION WITH AIRSKIN / KUKA

- Created a Virtual Twin of the robotic cell
- Connected KUKA Robot with DELMIAWorks
- Robotic Task / Application
  - Palletization
  - Visual Inspection

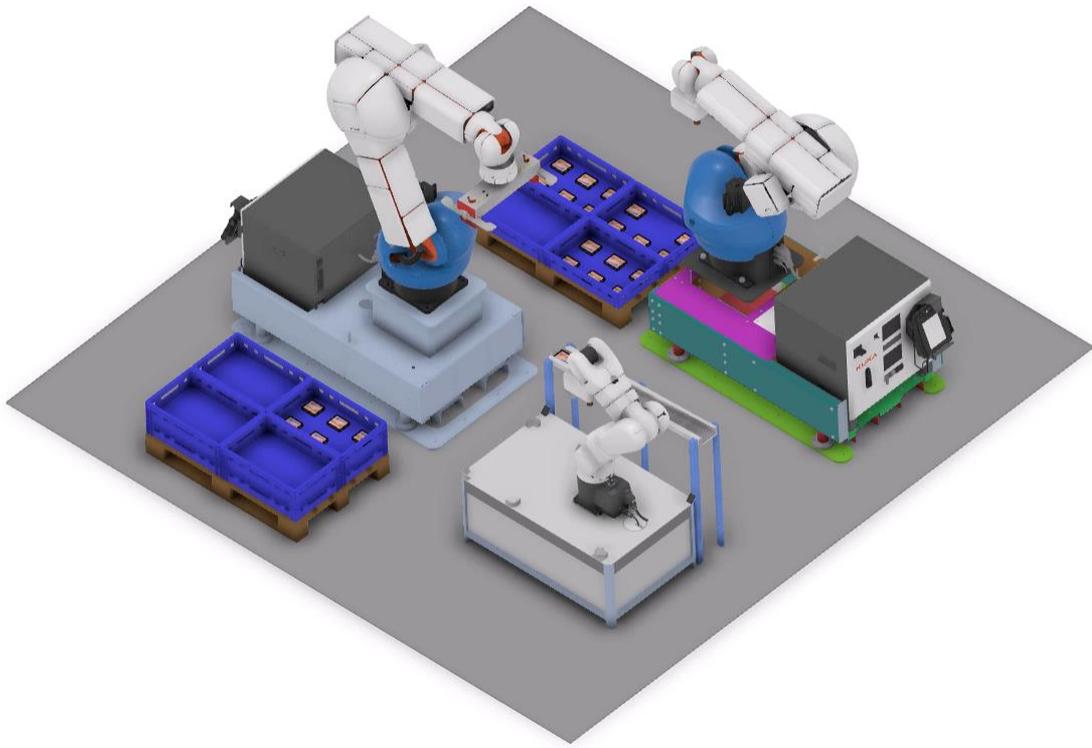


Sequencing

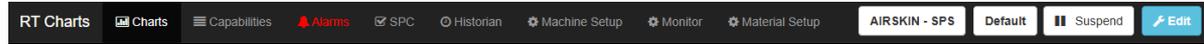
Resource

- AIRSKIN SPS Showcase Cell A
  - Master
  - Showcase Area
    - Robot Cell KR10.1
    - Robot Cell KR16.3
    - Boxes.1
    - Mannerschnitten.1
    - Robot Cell KR20.1

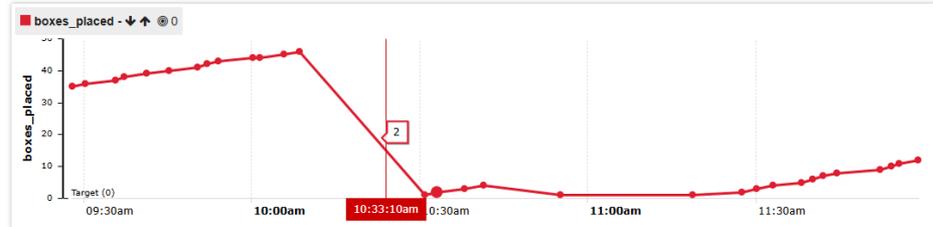
Navigation icons: Home, Back, Forward, Stop, Play, Pause, Refresh, Full Screen



# BRIDGING THE EQUIPMENT TO PROCESS GAP



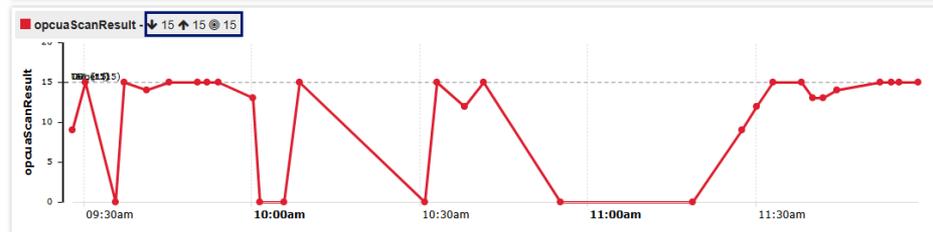
➤ **Chart 1 – No. Of Boxes Placed** ➔



➤ **Chart 2 – Box Position** ➔

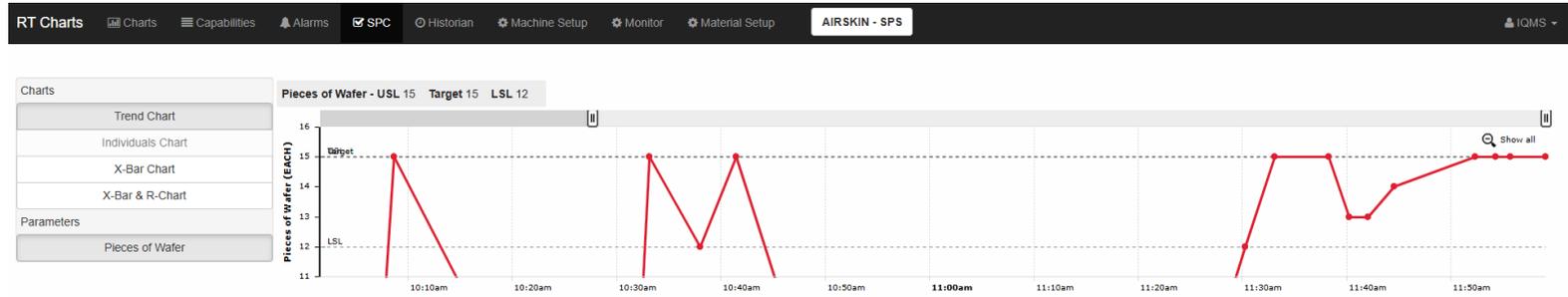


➤ **Chart 3 – Visual Inspection** ➔

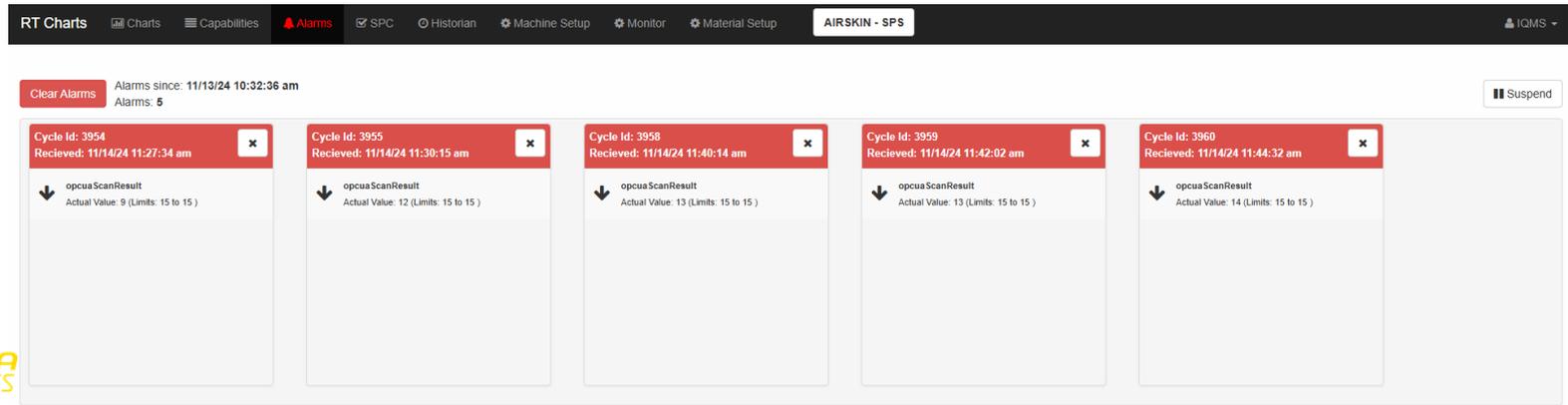


# BRIDGING THE EQUIPMENT TO PROCESS GAP

## ➤ SPC Inspection Set-up and Trend Chart Analysis



## ➤ Monitoring Alarms



# MACHINE INTEGRATION WITH AIRSKIN / KUKA

- Connected to Siemens SIMATIC controller
- Used OPC-UA Server to establish connectivity
- Monitored required variables / tags

The screenshot displays the Unified Automation UaExpert interface. The main window shows a 'Data Access View' table with the following data:

#	Server	Node Id	Display Name	Value	Datatype	Source Timestamp	Server T...
1	KUKA_DeviceConnector.OpcUaServ...	NS8 String ...	opcuaScanTrigger	true	Boolean	16:47:36.090	16:47:36...
2	KUKA_DeviceConnector.OpcUaServ...	NS8 String ...	opcuaScanResult	15	Int32	16:46:43.075	16:46:43...
3	KUKA_DeviceConnector.OpcUaServ...	NS8 String ...	opcuaBoxNumber	2	Int32	16:46:43.075	16:46:43...
4	KUKA_DeviceConnector.OpcUaServ...	NS8 String ...	boxes_placed	6	Int32	16:48:05.685	16:48:05...

The 'Address Space' pane on the left shows a tree view of the OPC-UA address space. A bracket highlights the following nodes: XP4, \_chCommandString[], bSpeedUpAllowed, boxes\_placed, dataBox, dataPalLinks, diAcknowledge, diAgAccessReq, diAgilusFinished, diAgilusHome, diAgilusWaiting, diBoxProvidedAgilus, diBoxProvidedCybertech, diCtAccessReq, diCybertechFinished, and diCybertechHome. A blue arrow points from the 'boxes\_placed' node in the address space to the 'boxes\_placed' row in the data access view table.

# MACHINE INTEGRATION WITH AIRSKIN / KUKA

DELIMIA WORKS | Shopworks AIRSKIN - SPS ✎ ? 🏠 👤 IQMS

### General Job Info

SET ACTUAL CAVITATION CHANGE FG LOT #

00-RAW51306002 ▾

Job Order #	707453
BOM/Routing	AP-006-A
Part No.	00-RAW51306002
Part Description	BAGS BIG 26x21x56
Lot #	
Customer	ABCO001 - ABCO INCORPORATED
Must Start Date	2/7/2024, 2:27:36 PM

  
OPEN TASK CLOCK

  
OPEN PRINT LABELS

  
OPEN FLOOR DISPOSITION

### Job Progress

Remaining Parts	4,045
Estimated Hours to Go	261 hour(s) 18 minute(s)
Cycles Required	4,417
Parts Required	4,417

### Change FG Lot #

Current FG Lot #	
Next FG Lot #	<input type="text" value="Enter FG Lot #"/> <span style="font-size: 0.8em;">GENERATE</span>

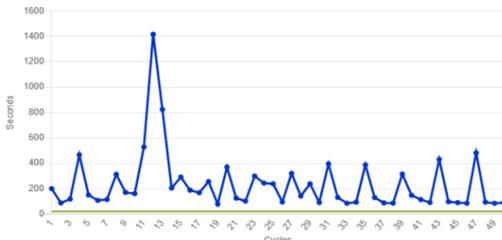
SAVE

### Start Next Setup

Work Order #	0
Mfg #	Downtime
Item #	N/A
Lot #	N/A
Setup Hours 1	0

### Cycle Graph

200.008  
Last Cycle
232.55  
Average Cycle
20  
Standard Cycle
4045  
Cycles to Go



### Downtime

Status: RUNNING 🟢

Shift Downtime: 0:00

Downtime Intervals

🔍 SPLIT
➕ ADD
⊗ CLOSE
➖ REMOVE

Interval Start	Interval End	Time Down	Code - Description
11/14/2024 10:33:04 A	11/14/2024 10:33:10 A	0 days, 00:00:06	PIDLE - IDLE/NO WO

# SUMMARY & WRAP UP



## Drastic shift towards automation

- Creating a gap between equipment and process

*This gap represents a significant risk to the successful adoption of these technologies*



## Closing the gap – Design and Implement

*Successful design, planning, and implementation maximizes ROI*



## The Age of Data

*Eliminating silos drives continued adoption and builds data for future improvement projects*

Q&A  
Thank You!



