

 Drammen, September 2026

WATS UP 2026

Welcome to Drammen

increase quality and reduce cost in electronics manufacturing



«Fun facts» about Drammen

Drammen Bandy

The Double 2026 –
Cup and series champions!





«Fun facts» about Drammen Drammens Pølsa

«Alt for pølsa!»



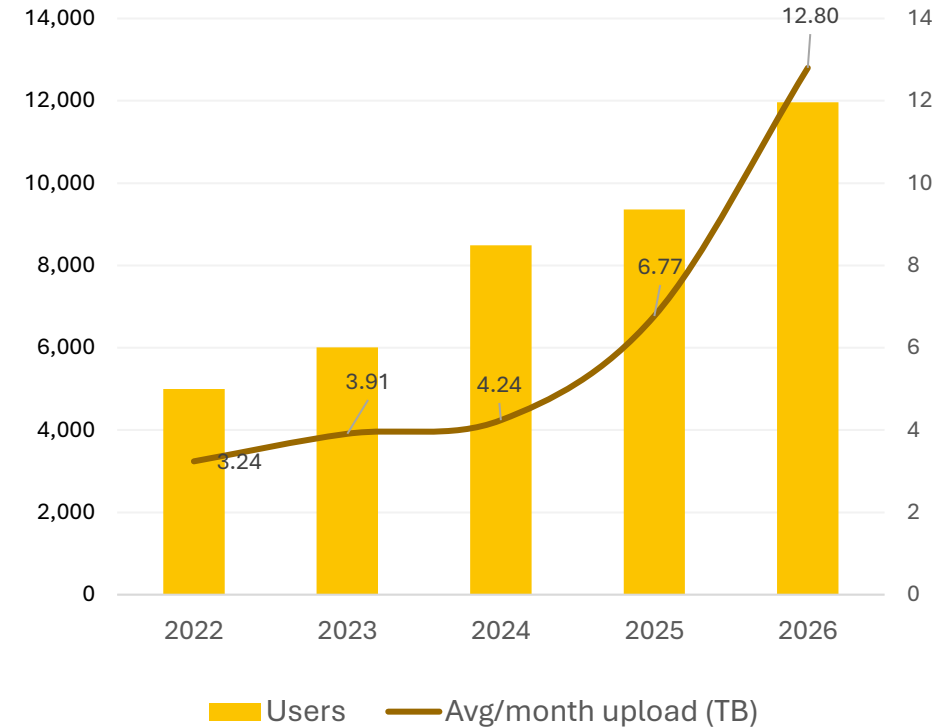
Company update



- We changed our company name from **Virinco** to **The WATS Company**
- Part of Virinco Group
- Strong business position
- Customers in 30+ countries
- Users in 1000+ locations
- Strong growth



Users and data uploaded per moth is growing strong

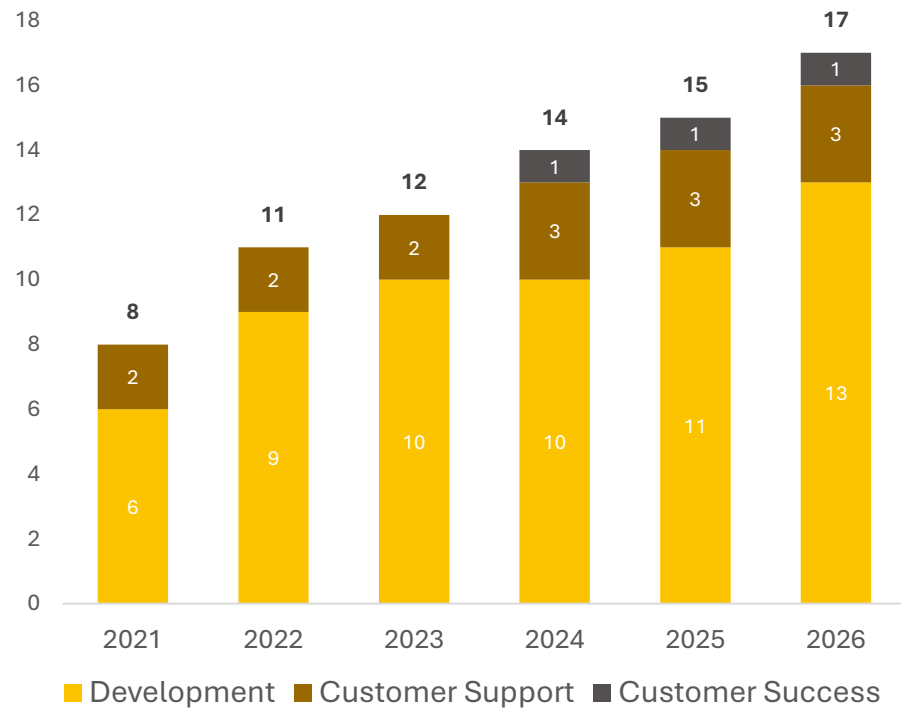


We are investing heavily in product development and customers support and success



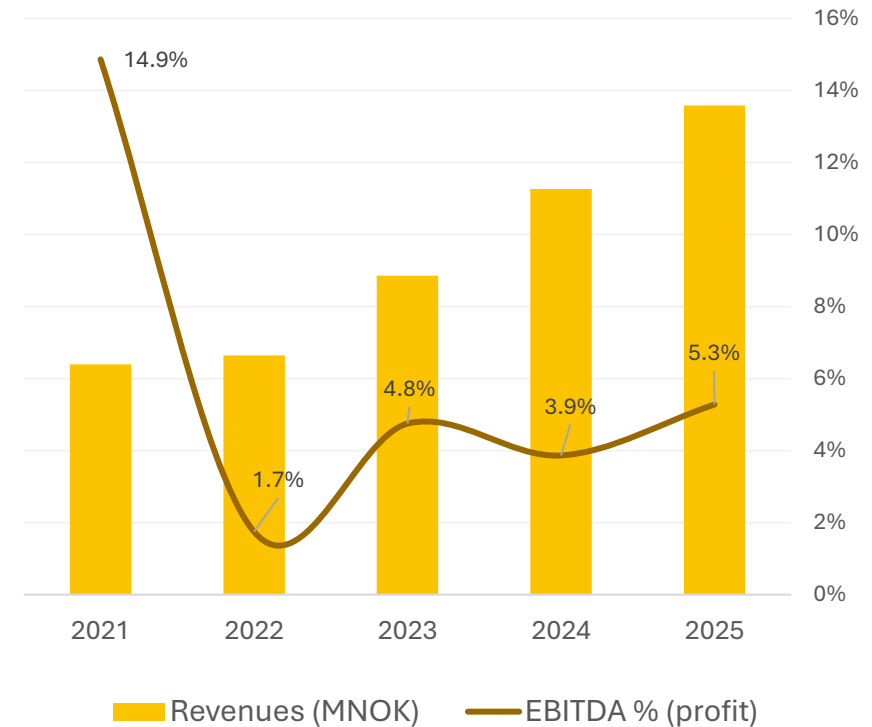
We have > doubled no of employees working with product and customer follow up the last 5 years.....

No of employees per employee category



....and maintained modest margins despite good revenue growth

Revenues and profit per year



 WATS NEW

You asked, we
LISTENED

You asked, we LISTENED!

Test Data Platform



- WATS Idea Exchange
- Planned and Complete

WATS Support Center > Community > WATS Idea Exchange

WATS Idea Exchange

Ideas and requests for new features. Suggest ideas. Vote for the best.

Follow 18

Show completed ▾ Sort by newest post ▾

<u>Sorting Dashboards</u> Completed	0 Votes	3 Comments
Jouni Reinikainen · 9 months ago		
<u>Measurement of Dashboards charts show histogram</u> Completed	6 Votes	2 Comments
Lance Yuan · 10 months ago		
<u>Alarms and notifications - show more columns in the rule overview</u> Completed	0 Votes	1 Comment
Tue Lunde Schultz · 1 year ago		
<u>Addition of TRY (test report yield) to periodic yield chart widget.</u> Completed	1 Vote	3 Comments
Corey Rotunno · 1 year ago		
<u>Group by date</u> Completed	0 Votes	4 Comments
Milosz Hermanowicz · 1 year ago		

You asked, we LISTENED!

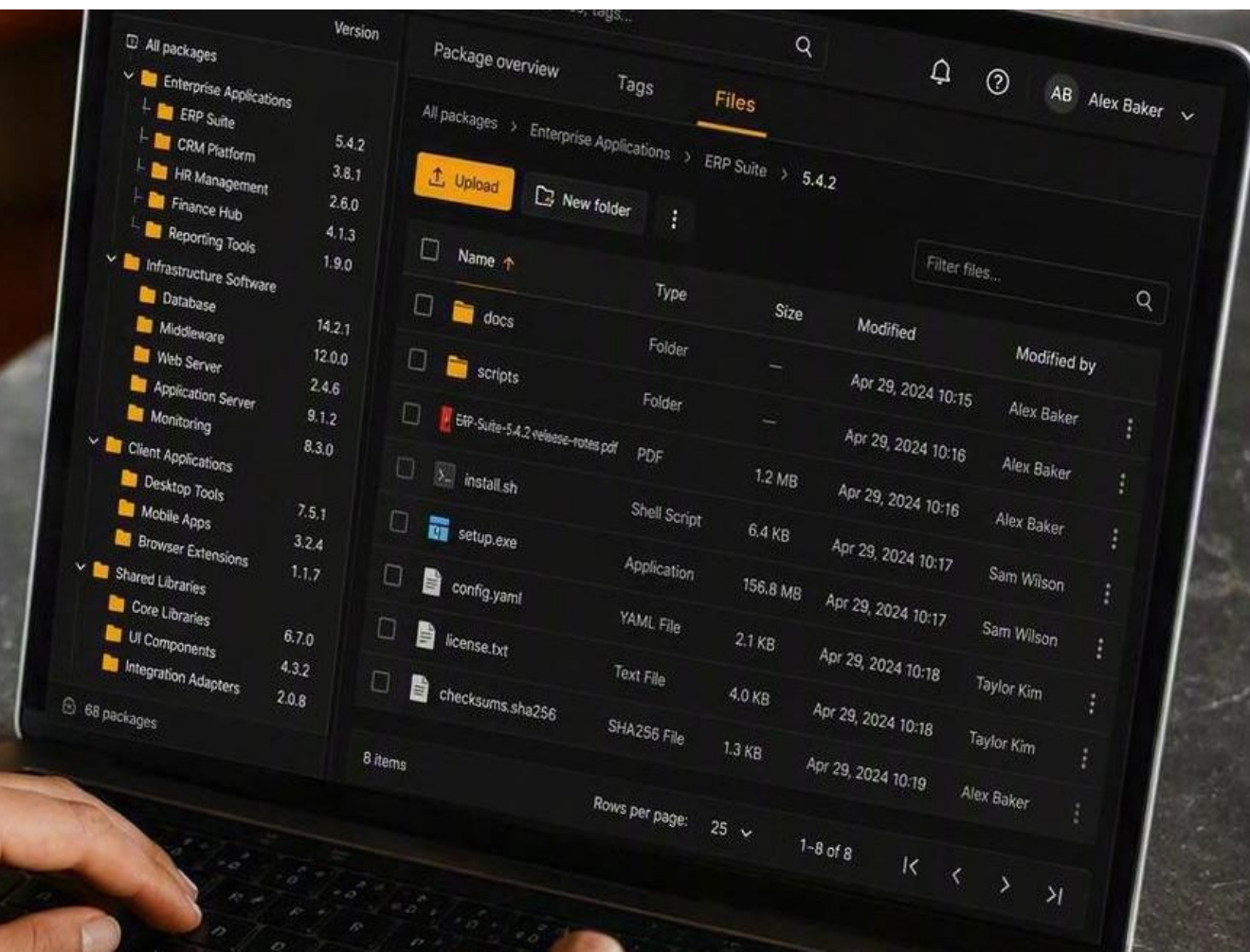
RnD update



- released 689 Product Backlog items
- And 316 bug fixes

Software Distribution

Software, where you need it

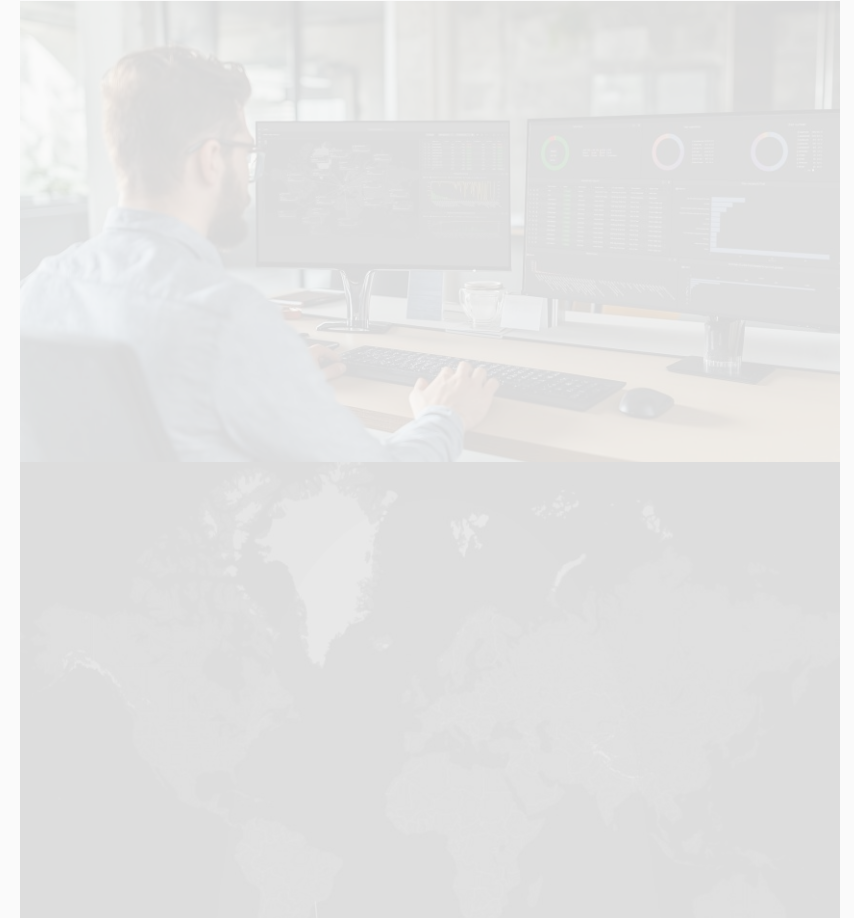


You asked, we LISTENED!

Software Distribution



- Cleaned up and modernized the Package Manager GUI
- Moved Package Manager settings to the Client Config GUI
- Added new auto-install options for packages
- Allow background downloads of packages
- Added the ability to edit Package Manager settings from the System Manager
- AND set individual auto-install options per package
- Added a new “Map View” in the System Manager
- Added multithreaded file downloads in the Package Manager – 10X faster
- Several other minor improvements and miscellaneous updates



Software Distribution



- Cleaned up and
- Moved Package Manager GUI
- Added new au
- Allow backgro
- Added the abil
- from the System
- AND set individ
- Added a new “
- Adde multithre
- Manager – 10X
- Several other r
- updates

The image shows the 'WATS Client Configuration' window, specifically the 'Software Distribution' tab. The window has a dark theme and a sidebar on the left with various configuration categories. The main area is titled 'Software Distribution' and contains several settings. A yellow box highlights the 'Package Manager' section, which includes checkboxes for 'Active', 'Prefetch packages', and 'Delete revoked packages', all of which are checked. Below these are dropdown menus for 'Package status' (set to 'Released') and 'Check interval' (set to '1 hour'). Another yellow box highlights the 'Package install options' dropdown, which is currently set to 'None'. A context menu is open for this dropdown, showing options: 'None', 'Bring to front', 'At computer startup', and 'When ready'. Below the dropdown is a text field for 'Package tag filter' containing the text 'ComputerName=<ComputerName>;'. At the bottom of the window, there are buttons for 'Test filter', 'Explanation', 'Apply', 'Ok', and 'Cancel'. The status bar at the bottom left shows 'WATS.com | 7.1.0.14'.

WATS Client Configuration

General
Connection
Proxy Settings
Yield monitor settings
Converters
Location services
NI TestStand add-on
NI LabVIEW add-on
.NET API
Software Distribution
Serial number handler

Software Distribution

Root folder: C:\Users\Public\Documents\SoftwareDistribution Browse
Software distribution root folder. Local path to where all software packages are installed.

Package Manager
Settings for the Software Distribution Package Manager application. Settings can also be updated from the WATS server.

Active ☒ Enable to run the Package Manager as a background process.

Prefetch packages ☒ Allow the Package Manager to download packages as a background process to a temporary folder.

Delete revoked packages ☒ Automatically delete revoked packages.

Package status: Released
Select what package status to check (default Released).

Check interval: 1 hour
How often the Package Manager will check for available packages at the server.

Package install options: None
Select how packages will be installed by default, whether to install package the operator.

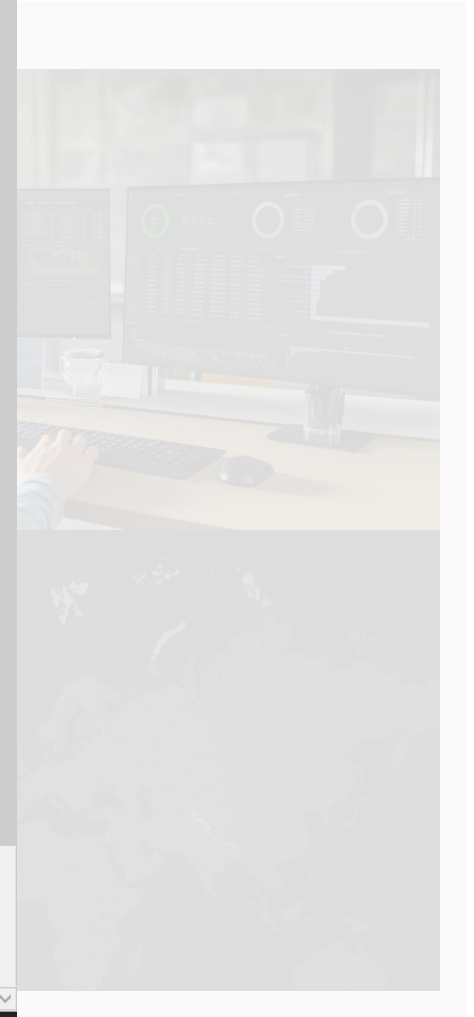
Package tag filter
ComputerName=<ComputerName>;

Test filter Explanation

Advanced options

WATS.com | 7.1.0.14

Apply Ok Cancel



Control panel

System manager
108 entities

+ New Virtual level

+ New Web client

Move clients

Delete

Search

	Display name	Status
	DESKTOP-N9BCJU1	Offline
	DESKTOP-NN4PACI	Offline
	DESKTOP-R4MRJDI	Offline
	DESKTOP-RVUQ22S	Offline
	DESKTOP-UH2E7U2	Offline
	DESKTOP-UV05BJU	Offline
	FMC-ESS-X	Offline
	HP-VIRINCO-AB	Offline
	IA-1HF5450NK9	Offline
	KDP00086715	Offline
	PIROCH-NB	Inactive
	ProxyClient	Offline
	TALHPELITEBOOK	Inactive
	TestStandDebug	Offline
	TS-2016-BETA	Offline
	TS-2021-BETA	Offline
	VIC-DEV-TAL-1	Offline
	VIC-DEV-TAL-6-0	Offline
	VIC-LT-JCF	Offline
	VIC-LT-KA	Offline

TALHPELITEBOOK Inactive

Location
PurposeThe WATS Company
Develop

General

Station names

Yield monitor

Converters

Software distribution

Settings

Root folder

C:\Users\Public\Documents\SoftwareDistribution

Package manager

Active

Prefetch packages

Delete revoked packages

Package status

Check interval

Package install options

Package tag filter

Released

1 hour

Bring to front (pop-up)

ComputerName=<ComputerName>;

Discard changes Save

Test filter

Installed packages

Production manager

50 entities

+ New...

Create copy

Move to draft

Release

Tag manager...

Delete

Move to pending

Revoke

Move entity

Visible items

Search

	Name	Version
	JC Test	2
	JC Test	3
	Manual Inspection	
	New Package	1
	New Package (1)	1
	New Package (2)	2
	Root	
	Software	
	Anders	
	Demo	
	100200_A_SW Debug	2
	New Package (2)	1
	SCC115110411_SW Debug	1
	Solar_Charger_Assembly_Test	2
	some new updates on HEXProtocol	1
	Test	2
	Test	3
	New folder 2	
	PRP and CSV files example	2

Package overview

Tags

Files

Software distribution package

Name: SCC115110411_SW Debug

Description: Sequence and parameter file

Status: Draft

Created by (UTC): asbjorn.vinje@virinco.com, 2022-Feb-07 18:08:56

Modified by (UTC): asbjorn.vinje@virinco.com, 2022-Feb-14 17:32:32

Version: 1

Install on root: ☐

Priority: 1000

Install options: Use Package Manger settings

- Use Package Manger settings
- None
- Bring to front (pop-up)
- At computer startup
- When ready



🟡 Breakout session - TRACK 6-7



Software, where you need it with WATS Software Distribution

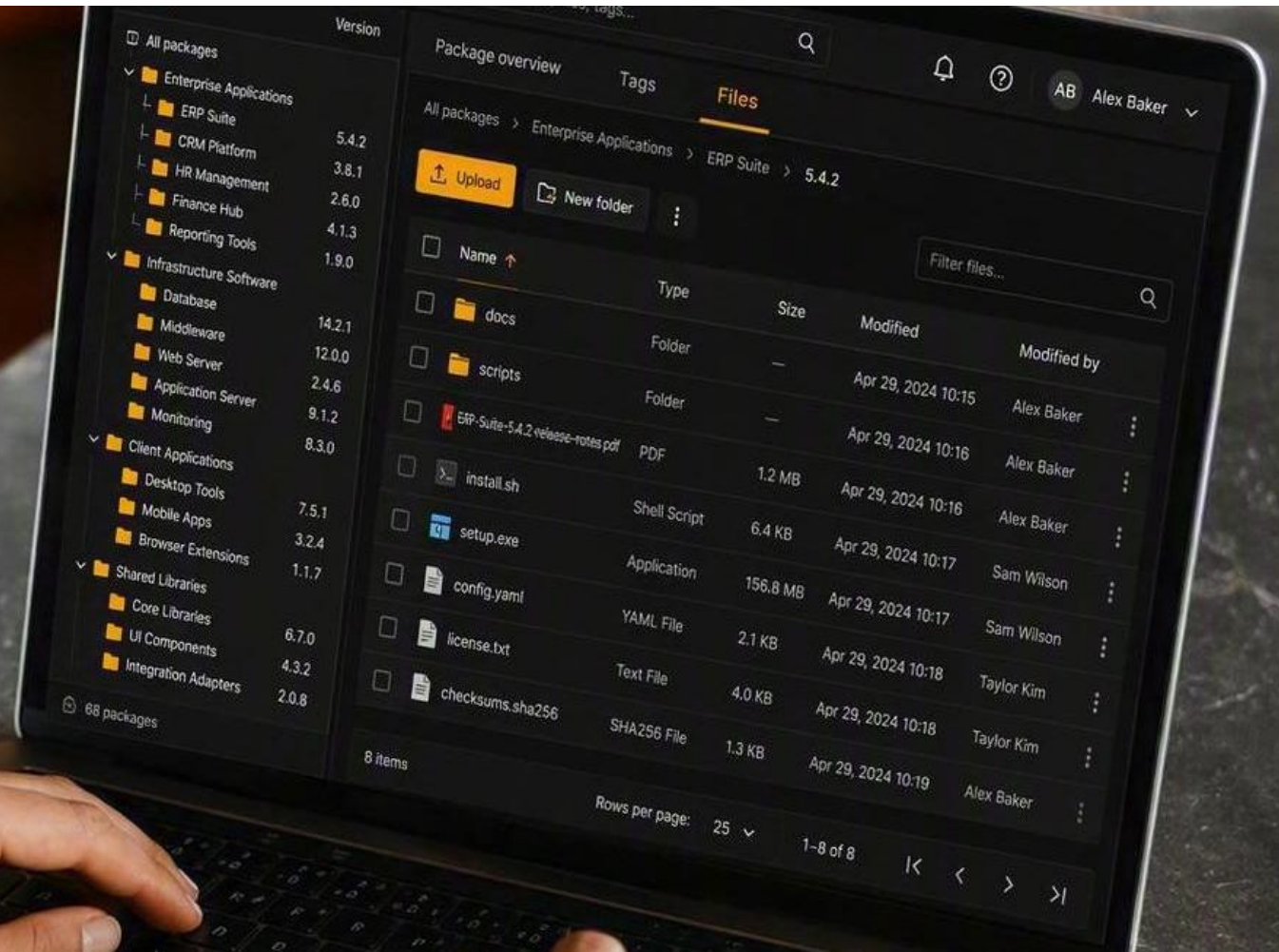
Asbjørn Vinje, Virinco Technology

Asset Management

Track, maintain, calibrate and manage your test assets

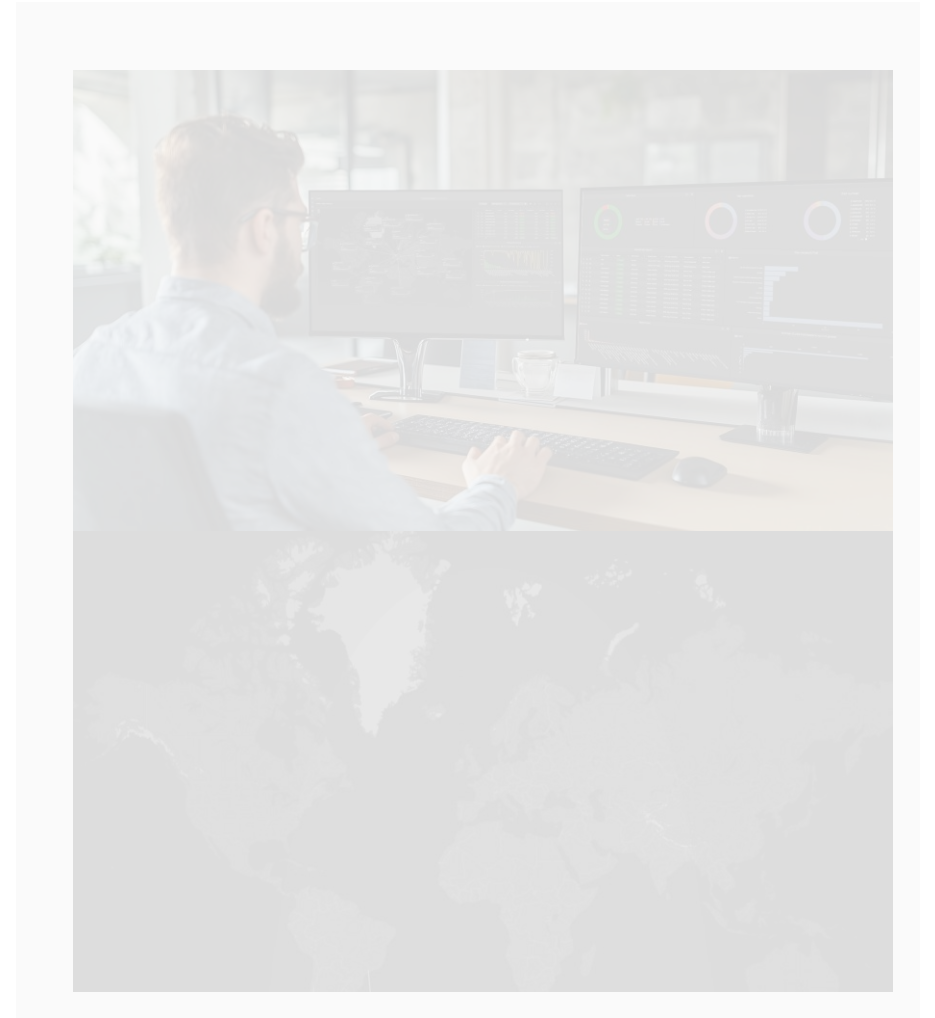


You asked, we LISTENED!



Asset Management

- Allow external (3rd party) Calibration and Maintenance data
- Reset Total Count
- New REST API endpoints to support new features



Control panel

Asset types23 types

+ New typeDelete typeManage assets

Drag a column header and drop it here to group by that column.

		Name	Icon	Running count limit	Total count limit	Calibration interval (days)	Maintenance interval (da...	Warning threshold (%)	Alarm threshold (%)
☐	☐	Fixture		100	1 000 000	300	90	95.00 %	100.00 %
☒	☐	clt_ExtraTest1		100	1 000	100	External	0.80 %	1.00 %
You have 0 changes in this row									
☐	☐	tfmc_TestMachine		Unlimited	Unlimited	Unlimited		90.00 %	95.00 %
☐	☐	DMM		Unlimited	Unlimited	365	Unlimited	90.00 %	95.00 %
☐	☐	clt_ExtraTest2		Unlimited	Unlimited	Unlimited	Unlimited		
☐	☐	Instrument		Unlimited	Unlimited	Unlimited	Unlimited	90.00 %	95.00 %
☐	☐	Python_API_Test_Asset_Type		Unlimited	Unlimited	365	90	90.00 %	95.00 %
☐	☐	withoutinterval		90	1 000	External	External	90.00 %	95.00 %
☐	☐	clt_InstrCalib		Unlimited	Unlimited	30	Unlimited	80.00 %	95.00 %
☐	☐	clt_InstrCL_MI		Unlimited	Unlimited	30	30	80.00 %	95.00 %
☐	☐	clt_InstrCountLim		100	Unlimited	Unlimited	Unlimited	80.00 %	95.00 %
☐	☐	clt_InstrMaint		Unlimited	Unlimited	Unlimited	30	80.00 %	95.00 %
☐	☐	clt_InstrRC_CI		100	Unlimited	30	Unlimited	80.00 %	95.00 %
☐	☐	clt_InstrRC_MI		100	Unlimited	Unlimited	30	80.00 %	95.00 %
☐	☐	clt_InstrRC_TC		100	1 000	Unlimited	Unlimited	80.00 %	95.00 %
☐	☐	clt_InstrTC_CI		Unlimited	1 000	30	Unlimited	80.00 %	95.00 %
☐	☐	clt_InstrTC_MI		Unlimited	1 000	Unlimited	30	80.00 %	95.00 %

Unlimited

Days90

External

DoneCancel

Asset manager

33 assets

+ New asset

Create copy

Tag manager...

Delete asset

Manage types

Move Assets

Displaying 33 of 33 assets

Visible items

Search

	Name	Serial number	Status
		test	Alarm
	DESKTOP-481H3JI		
	DESKTOP-7GVK22C		
	> DESKTOP-HBR2GBQ		
	> Domo - Test	ATE2	
	> ESS Temp	9416521	
	KM fixture1	56756345345878787...	Alarm
	M5090	23227063	
	PYTEST	73957657222	
	Python API	999888777	
	Rest test	rest test	Alarm
	SN50_ingun_dev	PN25645-123	
	> TALHPELITEBOOK		
	> VTP-3042-003	VTP-3042-003	
	> ZANTA_NB		

Info

Counters and limits

Tags

Files

Log

Running Count

79 used of 100 (21 remaining)

79%

+ Increase count

+ Set count

Reset

Total Count

79 used of 1 000 000 (999 921 remaining)

0%

+ Set count

Reset

Calibration

147.4 days used of 300 (152.6 remaining)

49%

Last calibration (UTC)

2026-Apr-02 00:00:00

Next calibration (UTC)

2027-Jan-27 00:00:00

Set calibration

Maintenance

117.4 days used of 90 (27.4 days overdue)

100%

Last maintenance (UTC)

2026-May-02 00:00:00

Next maintenance (UTC)

2026-Jul-31 00:00:00

Set maintenance

Asset has alarms

🟡 Breakout session - TRACK 3-4



Track, maintain, calibrate and manage your test assets

Mads Dahl, Virinco Technology

Analytics Dashboard

Visualize data and insights

You asked, we LISTENED!



Dashboard



- Added Individual and Aggregated measurements chart widgets (from TSA Workbench)
- Added Image widget
- Added Factory map widget

X-axis

Index

Show

Show markers

Auto

Y-axis

Multiple

Type

Line

Line width

1

Trend lines

Hide

Add to dashboard

Add this chart to a dashboard

Visible series

Σ

✓

Measurement value

✓

High limit

✓

Low limit

✓

Avg

+3σ

-3σ

Measurement status

Step status

Report status

Report execution time

Step execution time

>

■

Measure +3.3V supply curre



Analytics

Search and navigate

Assistant

3

?

TL

Go to start page

Step 1 Step measurements

Manage

2026-Jul-29 00

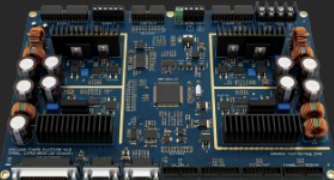
YYYY-MM-DD HH

Power Module



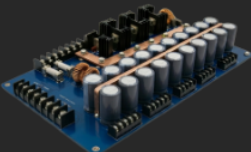
11 705 units

PCB 1



5 874 units

PCB 2



2 933 units

Individual measurements chart

Measure fixture temp

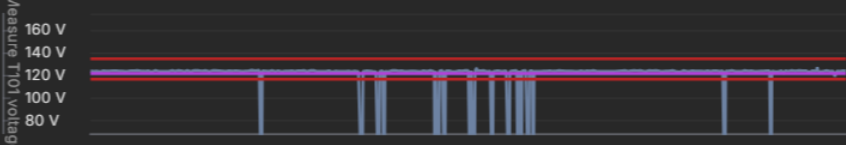
Measurement value High limit Low limit Avg



Individual measurements chart

Measure T101 voltage

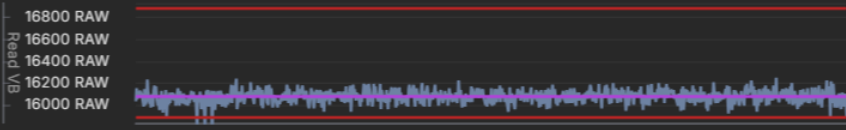
Measurement value High limit Low limit Avg



Individual measurements chart

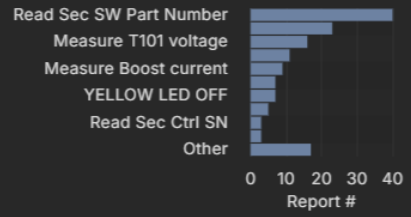
Read VB

Measurement value High limit Low limit Avg



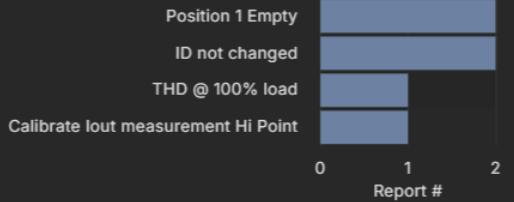
Step caused UUT fail chart

Report #



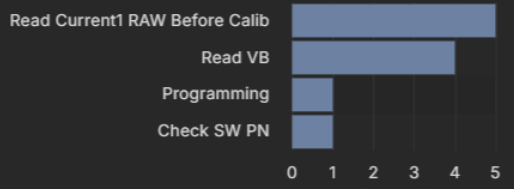
Step caused UUT fail chart

Report #



Step caused UUT fail chart

Report #



UTC 2026-Aug-27 11:55

WATS/Local 2026-Aug-27 11:55

Browser/Computer 2026-Aug-27 13:55

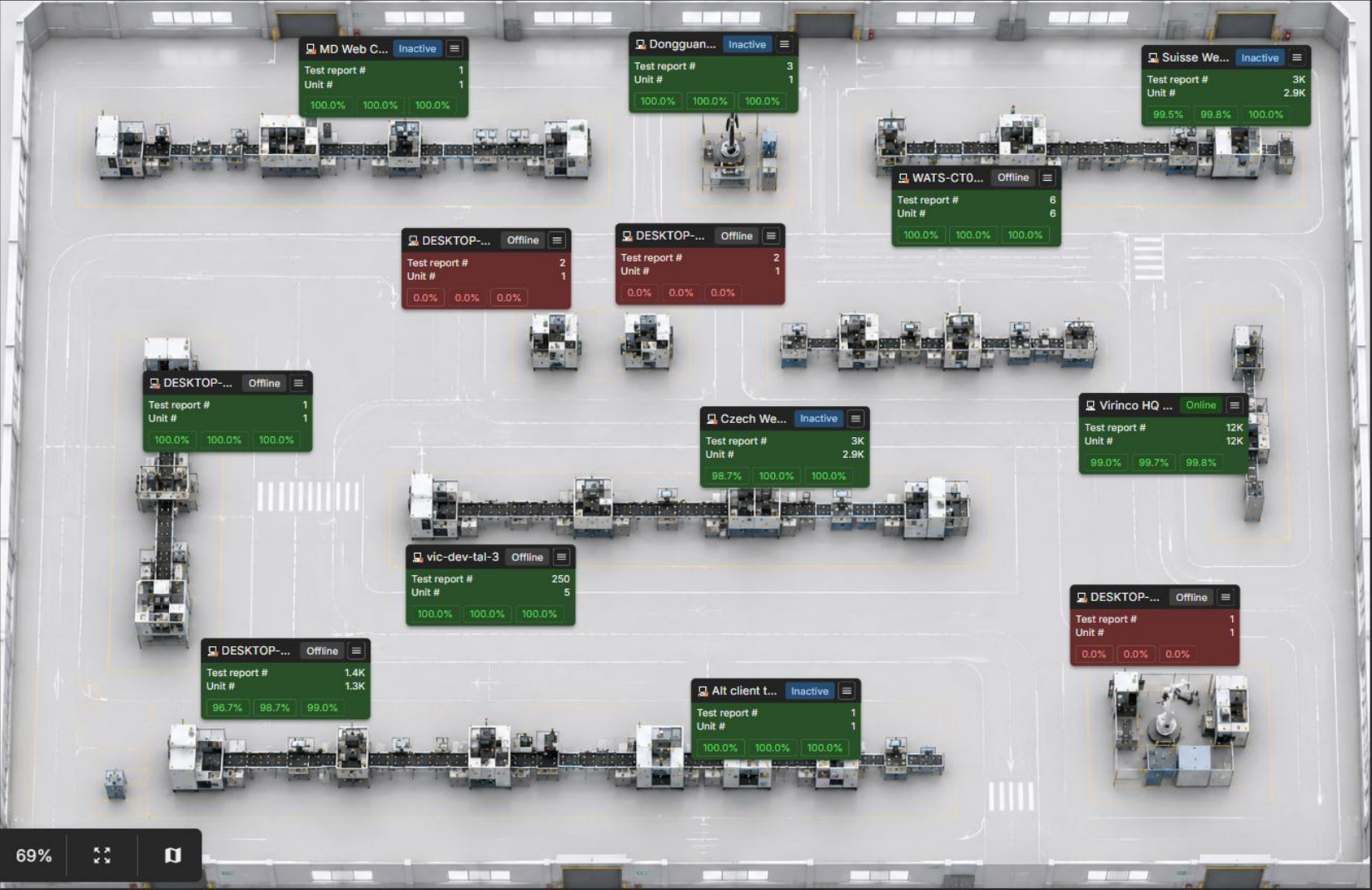
Factory Map test

Manage

2026-Jul-29 00

YYYY-MM-DD HH

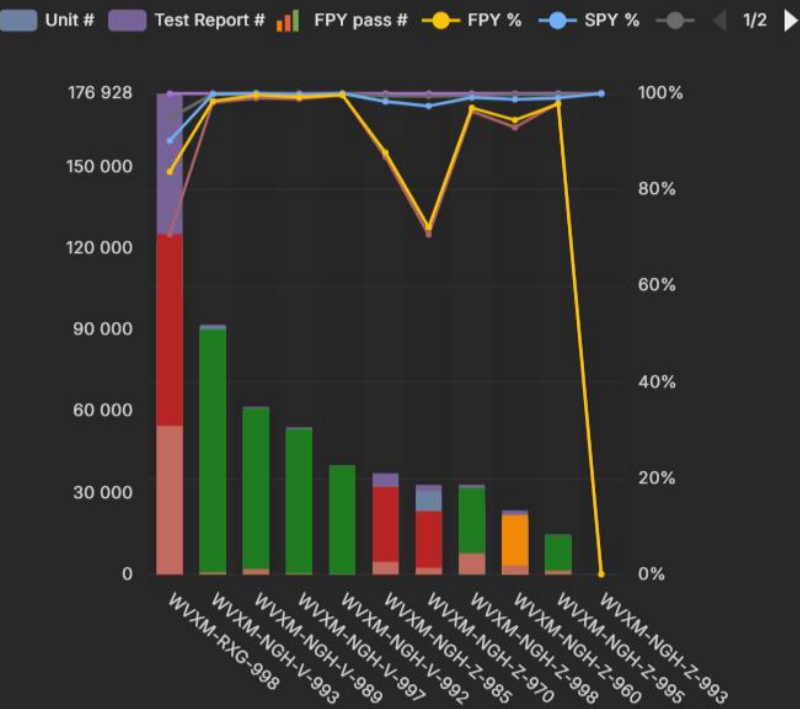
Factory map



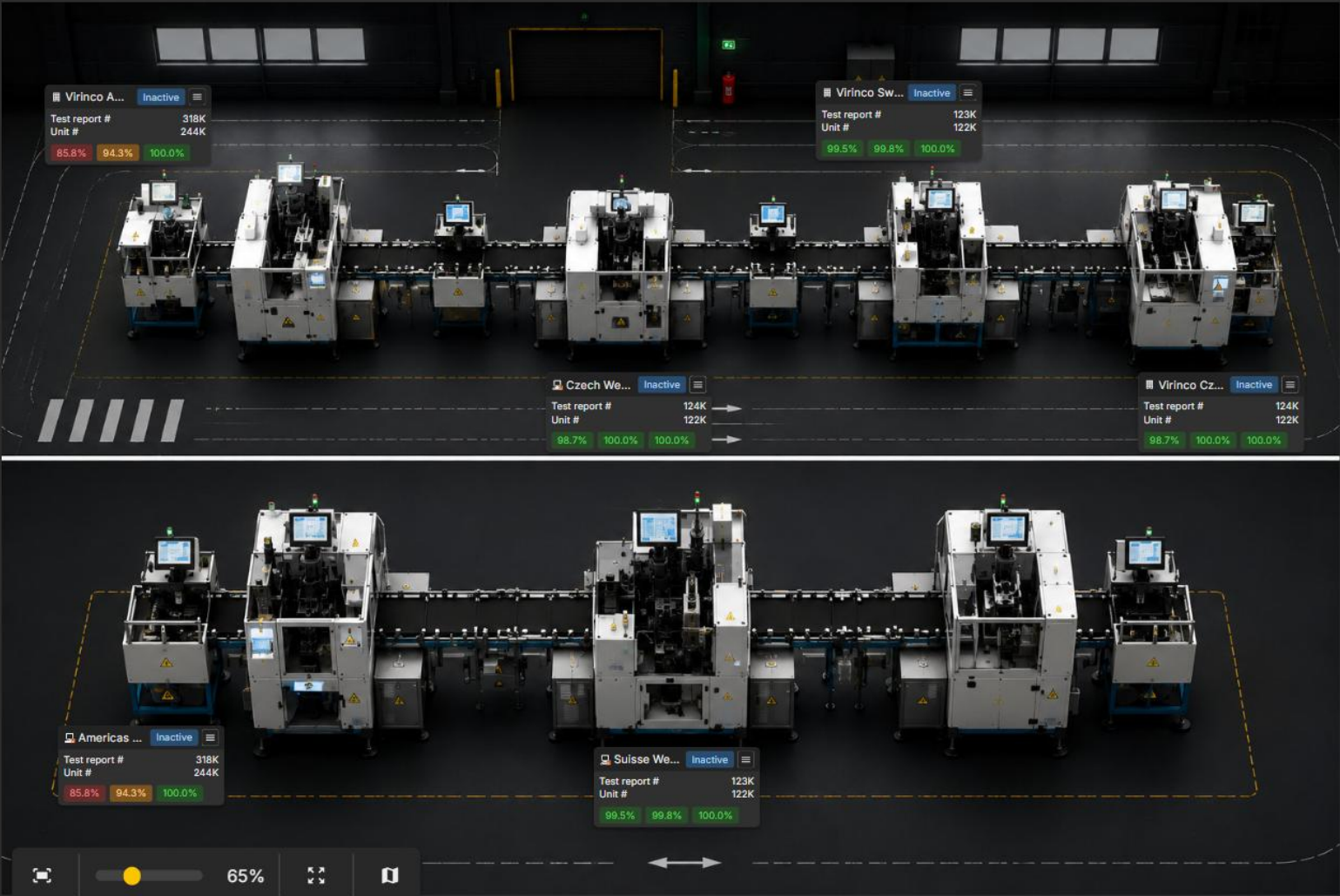
Factory Map A

Test statistics	Test reports	Repair reports
Today	0	0
Last 24 hours	0	0
Last 7 days	3	0
Current month	13 570	103

Dynamic yield chart



Factory map



🟡 Breakout session - Main Hall 2



Monitor performance with Dashboards and WATS Mobile APP

Dennis Schweikart, The WATS Company

Some BIG minors

Idea exchange



You asked, we LISTENED!



Some BIG minors!



- Allow multi edit of UUT and UUR reports header data
- **Shared** and **Global** (Public) Process Heatmaps
- New generic export from analytics

Target release Q4 2026

Test Reports

Edit reports

UndoRedo

You have unsaved changes. SaveCancel

Serial number

(Multiple values)

Operator

Technician

Part number

4494394417

Execution time

(Multiple values)

Revision

03

Fixture ID

290468 #101

Batch number

(Multiple values)

Test operation

(Multiple values)

Station name

(Multiple values)

Test socket index

-1

Location

Drammen, Norway

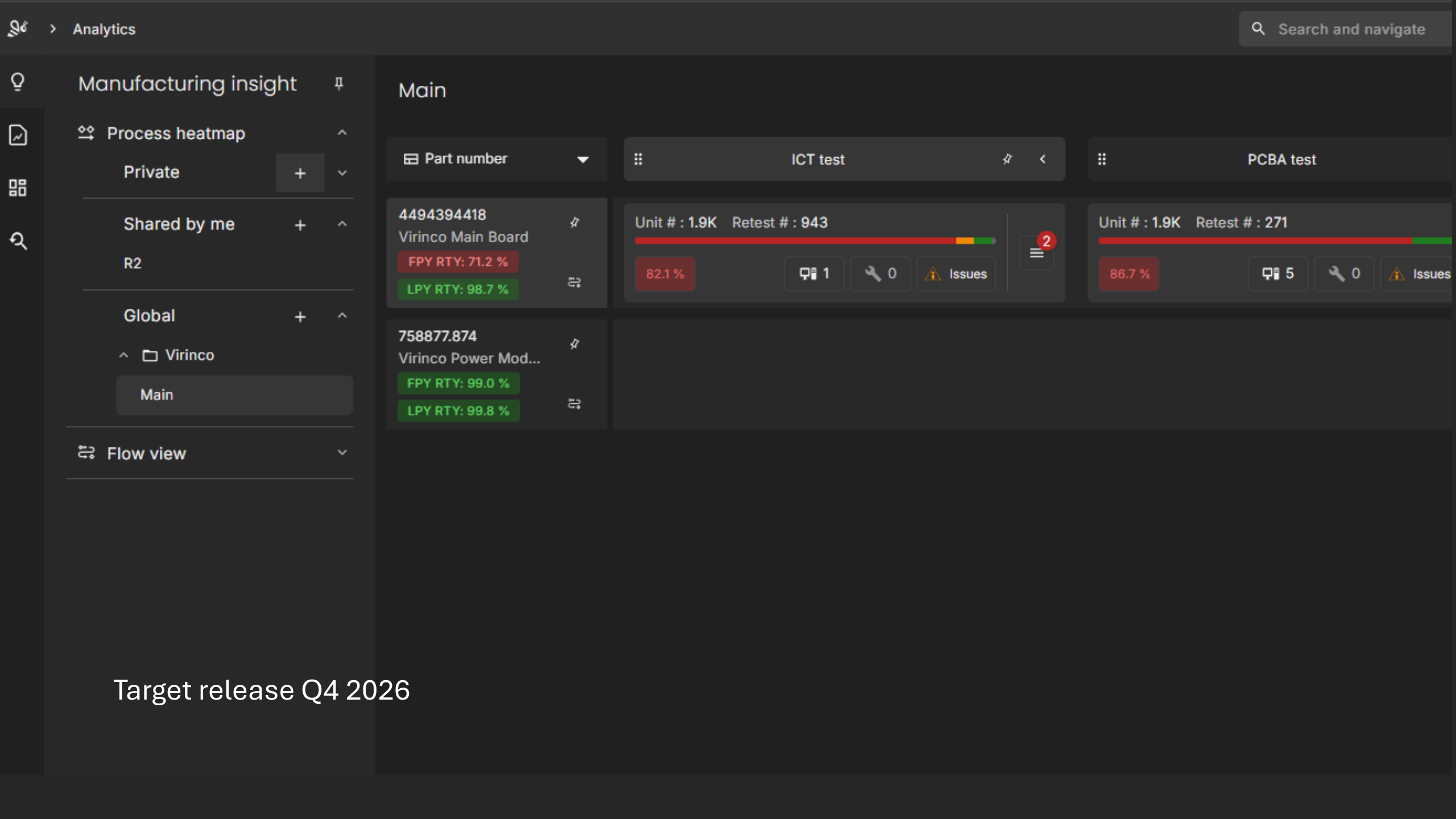
Purpose

Debug

9 reports selected for new values.

Serial number	Status	Part number	Product name	Revision	UTC Start date/time	Test operation	Operator	Station name
241450003240	Passed	4494394417	Virinco Secondary Board	03	2025-Dec-03 13:28:55	Burn In test	PiaTest	WVXM-NGH-Z-951
241450003252	Passed	4494394417	Virinco Secondary Board	03	2025-Dec-03 13:28:45	Burn In test	PiaTest	WVXM-NGH-Z-950
241450003257	Passed	4494394417	Virinco Secondary Board	03	2025-Dec-03 13:28:19	End of line test	PiaTest	WVXM-NGH-Z-963
241450003244	Passed	4494394417	Virinco Secondary Board	03	2025-Dec-03 13:28:09	End of line test	PiaTest	WVXM-NGH-Z-971
241450003217	Passed	4494394417	Virinco Secondary Board	03	2025-Dec-03 13:25:50	End of line test	PiaTest	WVXM-NGH-Z-963
241450003224	Passed	4494394417	Virinco Secondary Board	03	2025-Dec-03 13:25:45	End of line test	PiaTest	WVXM-NGH-Z-971
241450003222	Passed	4494394417	Virinco Secondary Board	03	2025-Dec-03 13:25:09	End of line test	PiaTest	WVXM-NGH-Z-950
241450003235	Passed	4494394417	Virinco Secondary Board	03	2025-Dec-03 13:24:33	End of line test	PiaTest	WVXM-NGH-Z-951

Target release Q4 2026



Manufacturing insight

Process heatmap

Private



Shared by me



R2

Global



Virinco

Main

Flow view

Main

Part number



ICT test



PCBA test

4494394418

Virinco Main Board



FPY RTY: 71.2 %

LPY RTY: 98.7 %



Unit #: 1.9K Retest #: 943

82.1 %

1

0

Issues

2

Unit #: 1.9K Retest #: 271

86.7 %

5

0

Issues

758877.874

Virinco Power Mod...



FPY RTY: 99.0 %

LPY RTY: 99.8 %



Target release Q4 2026

Test Reports

Product groups

(Any)

Test operations

(Any)

Levels

Any

Status

(Any)

Serial number

Run in process

All

Part number

Misc info desc

Revision

Misc info value

Batch number

Time range (UTC)

2026-Jul-22 00:00

-

YYYY-MM-DD HH:mm

Station name

Max results

1000

✓ Apply filter

✕ Clear filter

↗ Share

🗑 Enable delete mode

⌵ Select filter

Displaying 1 000 of 7 948 reports

✓ 880

✕ 112

✕ 8

Drag a column header and drop it here to group by that column.

	Serial number	↑	Status	↑	Part number	↑	Product name	↑	Revision	↑	UTC Start date/time	↓	Test operation	↑	Operator	
🔍 ☰ 🗑	241350007962		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 14:52:10		End of line test		ha75	
🔍 ☰ 🗑	241350008133		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 14:35:40		End of line test		ha75	
🔍 ☰ 🗑	241350008607		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:41:08		End of line test		tal33	
🔍 ☰ 🗑	241350007556		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:39:15		End of line test		tal33	
🔍 ☰ 🗑	241350007903		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:38:03		End of line test		tal33	WVXM-NGH-Z-950
🔍 ☰ 🗑	241350007906		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:35:33		End of line test		tal33	WVXM-NGH-Z-950
🔍 ☰ 🗑	241350007957		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:35:13		End of line test		tal33	WVXM-NGH-Z-951
🔍 ☰ 🗑	241350008682		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:33:14		End of line test		tal33	WVXM-NGH-Z-950
🔍 ☰ 🗑	241350007891		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:32:54		End of line test		tal33	WVXM-NGH-Z-951
🔍 ☰ 🗑	241350009226		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:30:56		End of line test		tal33	WVXM-NGH-Z-950
🔍 ☰ 🗑	241350007886		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:30:35		End of line test		tal33	WVXM-NGH-Z-951
🔍 ☰ 🗑	241350007946		✓ Passed		758877.874		Virinco Power Module		8		2026-Aug-04 13:28:38		End of line test		tal33	WVXM-NGH-Z-950

22

Target release Q4 2026

2

2

2

4

11

11

Step caused UUT fail chart

Report #

Passed in run chart

Unit #



Export to PDF

Include

✓ Filters

✓ Company logo

Mode

Content

Layout

Columns

Visible columns

All columns

Paper size

A4

Letter

A3

Layout

Portrait

Landscape

Export

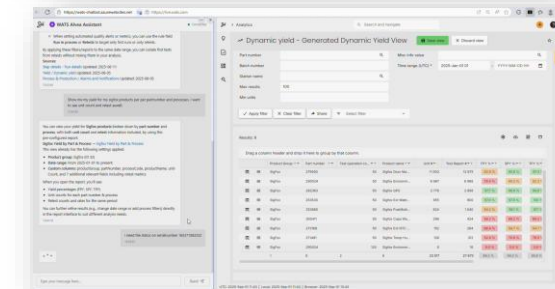
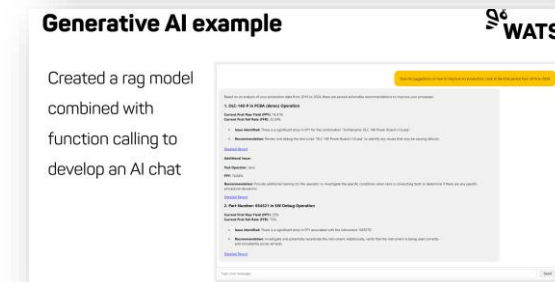
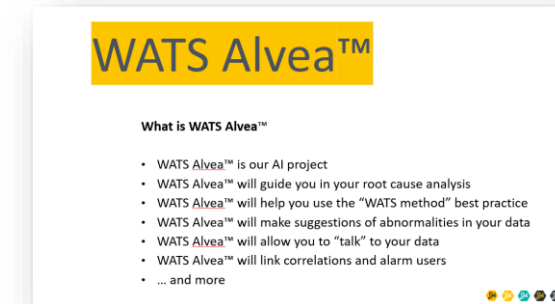


WATS Alvea™

WATS Alvea™



- 2023 - introduced WATS Alvea Suggestions and Manufacturing Insight
- 2024 - introduced Unit Flow and showcased a AI LLM
- 2025, Correlation, introduced WATS Alvea Assistant



Major update

- WATS Release 26.2 - Platform Upgrade, - Platform Upgrade from .NET Framework 4.8 to **.NET 10**
 - Stability and security
 - improved performance
 - better memory management
 - and a more efficient execution pipeline

A large, blue, rounded hexagon with a subtle gradient and a shadow effect, containing the text ".NET 10" in white, bold, sans-serif font.

.NET 10



WATS Alvea™

- **WATS Alvea - Suggestions**

- Deviation
- Unit
- Navigation
- Root Cause tickets
- Correlation

- **WATS Alvea - Assistant**

- Help and support
- Navigate WATS
- Full data analytics and MCP connection



Vidar Grønås

Chief Sales Officer, WATS



Jon Grendstad

AI Lead RnD, WATS

What we have built

One toolset · one system prompt · two paths

Alvea Assistant

Our own agent, inside WATS. We pick the model, give it its abilities, tune the loop, and we have tested the whole thing.



Toolset

Over 60 tools. The functions the agent can execute.

MCP server

Your agent of choice: Claude, Copilot, ChatGPT, or one you built yourself.



System prompt

Gives the agent context: your instance, your permissions, how WATS thinks, and more.

Both paths use the same toolset and the same system prompt. It is the same code.



WATS REST API

What it can do today

Alvea Assistant, right now

The goal: anything a human can do in WATS, an AI should be able to do.



Every route in WATS

It hands you the page with the filters already set.



All documentation

Picked up every day.
Always up to date.



Over 60 read tools

From overall production health down to a single test report.



...and growing

The toolset grows with WATS.

Every answer is grounded in WATS. Conclusions link to the reports behind them.

Where this is going



More tools

Write tools, so the AI can act, not just read.



Smarter agent

Custom prompts, memory, planning, MCPs, background jobs.



More WATS

Every new feature is reachable. We just write the tool.



AI is the top layer.
WATS is the stack.

Test data analytics · Dashboards · Traceability & unit flow · Repair & root cause
Asset management · Manual inspection · Software distribution · Process heatmap · OEE
Security · Enterprise control · 30+ integrations · API & pyWATS · + *more*

Preview for everyone, early Q4

available now via early access

9. What's bad?

Comments can be about Alvea Assistant, MCP, or both.

Don't think anything is "bad" when developing a great tool such as this!

 Breakout session - Main Hall 2



WATS Alvea Assistant

Chris Nelson, WATS Americas

 WATS UP

Break

 WATS UP

Part 2

Reducing costs with test data



Chris Nelson

Managing Director, WATS Americas



Haldor Åsheim

Customer Success Manager, WATS

Financial Fundamentals



Chase Fearing  • 1st

A Higher Standard of Test at Sub-Zero, Certified LabVIEW Architect

3d • Edited • 

Just finished Finance and Accounting for Non-Financial Professionals at [Wisconsin School of Business Center for Professional & Executive Development](#) taught by [Ann Martel Petashnick](#).

I'm becoming increasingly convinced that finance is a critical competency for an engineer to develop. So often we're connected to the real challenges facing a business, know the projects and solutions to solve them, yet struggle to articulate their value in a language that makes sense to business and finance leaders. It's also easy for us to become emotionally invested and lose sight of what the business really needs.

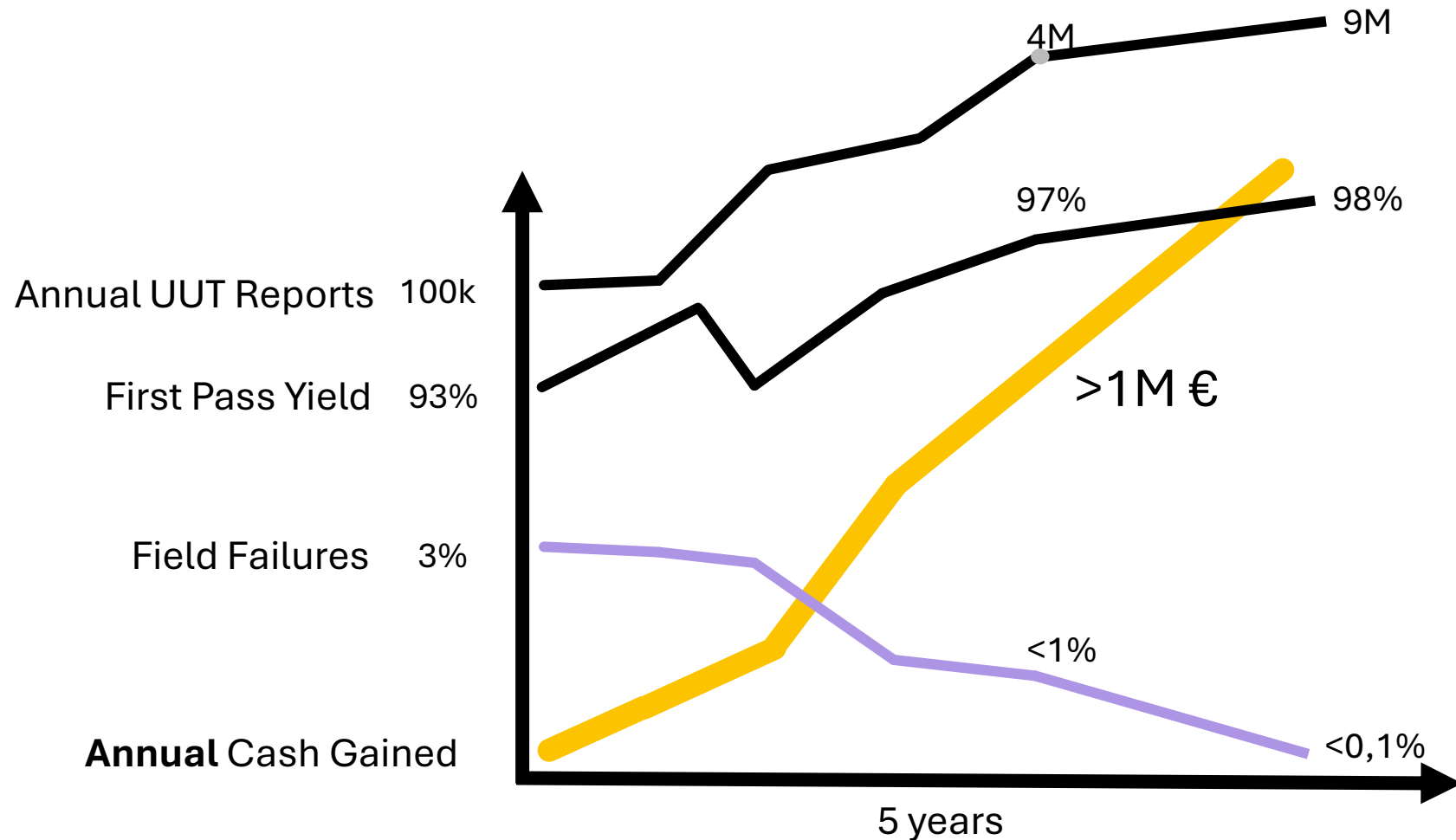
...

Thanks Ann and UWCPED! I feel armed with the knowledge and tools to identify and advocate for projects that will create meaningful results and build value.

What is your experience with finance in the engineering profession?



Customer example: Eltek / Delta Group



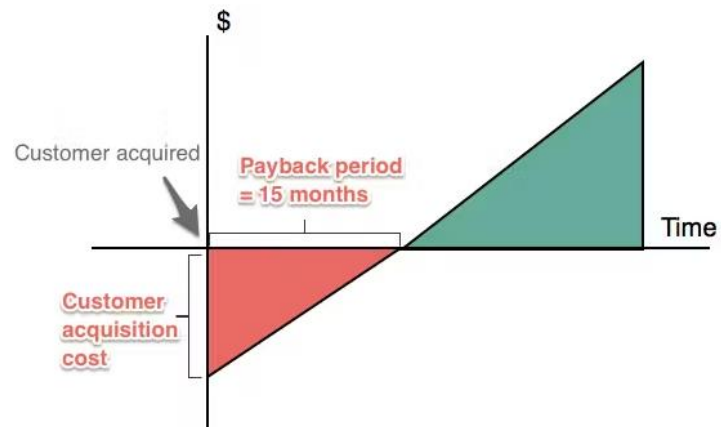
**2.9% points
decrease in
field
failures**

Financial Fundamentals



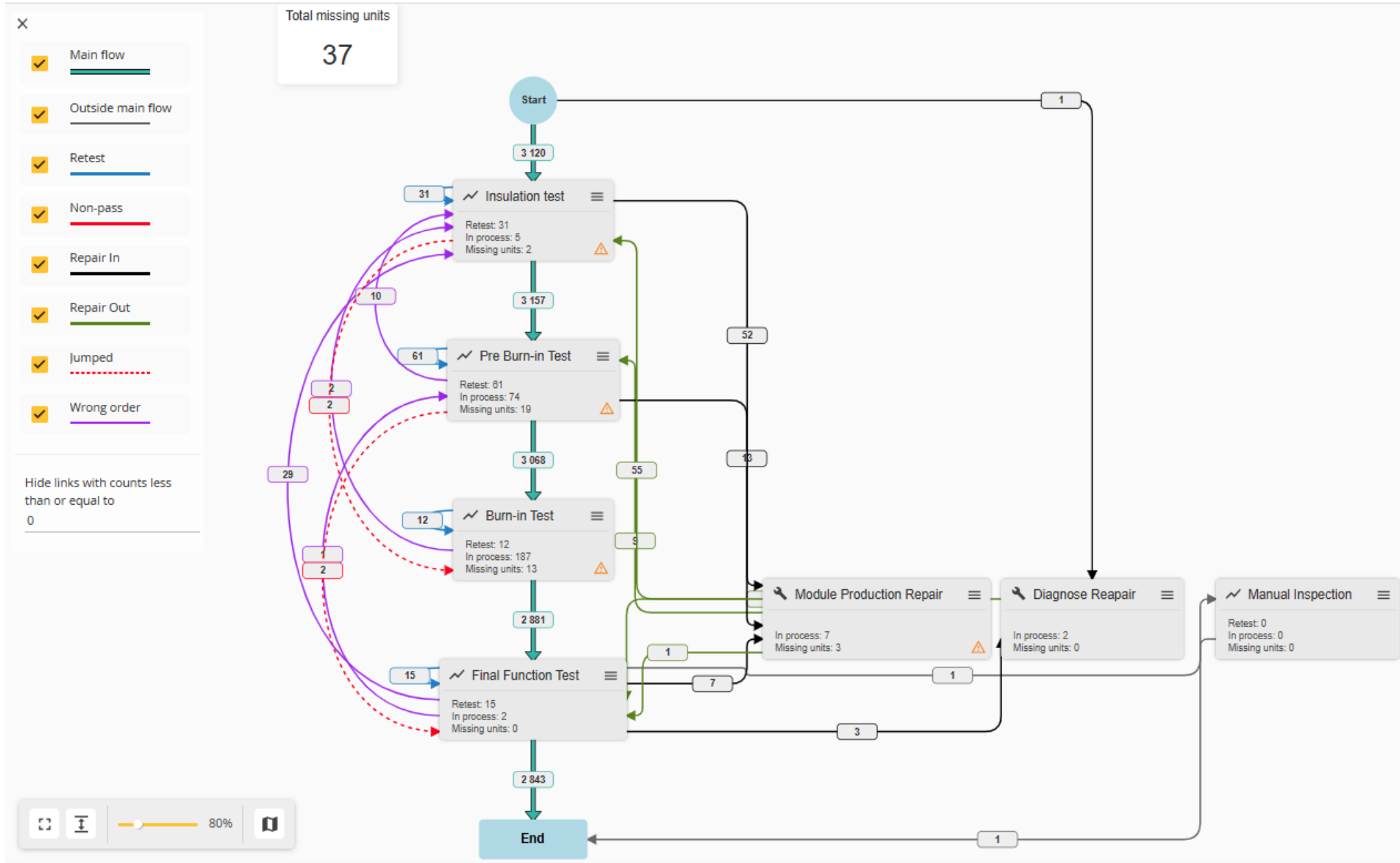
$$\frac{\text{Net Profit}}{\text{Cost of Investment}} \times 100 = \text{ROI}$$

Net Profit = Reduced Re-test + Reduced Scrap
(operator & machine time) (lost material cost)



Payback Period = Initial Investment / Annual Cash Flow

Re-test example (Unit Flow)



X

Main flow

Outside main flow

Retest

Non-pass

Repair In

Repair Out

Jumped

Wrong order

Hide links with counts less than or equal to 0

80%

Pre Burn-in Test

The diagram illustrates the flow of units through the Pre Burn-in Test phase. Units are represented by boxes with their IDs and status: Retest, In process, and Missing units. Arrows indicate the flow between units, with some arrows labeled with counts. The units are: WVXM-NGH-Z-949, WVXM-NGH-Z-957, WVXM-NGH-Z-959, WVXM-NGH-Z-963, WVXM-NGH-Z-971, WVXM-NGH-Z-951, and WVXM-NGH-Z-956.

Unit ID	Retest	In process	Missing units
WVXM-NGH-Z-949	1	23	5
WVXM-NGH-Z-957	4	27	8
WVXM-NGH-Z-959	2	5	3
WVXM-NGH-Z-963	0	5	1
WVXM-NGH-Z-971	0	5	1
WVXM-NGH-Z-951	0	3	0
WVXM-NGH-Z-956	-	-	-

Out

The diagram shows the flow of units from the Pre Burn-in Test phase to the Out phase. The Out phase includes: Insulation test, Burn-in Test, Module Production I, and Final Function Test. Arrows indicate the flow from the Pre Burn-in Test phase to these tests.

FPY Improvement Savings Calculator.xlsx



This calculator is only intended to highlight the measurable labor and equipment costs in manufacturing - namely re-test and scrap. This model does not account for repair/rework costs, nor other very important 'soft' savings (i.e. more difficult to measure), such as improved Overall Equipment Efficiency (OEE), fewer man-hours reactively 'fighting fires' (i.e. all-hands on deck!), less manual data collection / calculating / forming / reporting, reduced warranty costs, improved brand perceptions,				
Legend: Yellow => user input assumptions				
Blue => calculation				
	FPY	SPY	TPY	LPY
Current True Yield	87.0%	91.33%	94.22%	98.07%
Enter your current First Pass Yield (FPY). The remaining yield metrics will be suggested based on this, but you can over write them. These can be directly analyzed in WATS.				
Annual Quantity	20000	pieces		
How many units do you sell per year of the chosen product/family?				
Cost of Goods Sold (COGS)	\$ 25			
What is the approximate cost of goods sold per unit, including manufacturing labor, overhead, etc.?				
Cost of factory/hr	\$ 100			
What is the hourly cost of running the test station? This should include salary costs, periodization of capital costs, overhead, etc.				
C&E Time per test	4	minutes		
What is the approximate connection and execution time per tested unit. This can be directly analyzed in WATS.				
Test Processes/unit	4			
Number of test processes that this yield metric and C&E time is relevant for, and that the calculation will be based upon. Ex: 2 for PCBA Test & Final Functional Test.				
# of Retests	23496	times		
A conservative estimate of how many times in total your products are retested <i>after</i> the first test attempt. This can be directly analyzed in WATS.				
Retest time	1566	hours		
This is the amount of hours spent retesting in total, after the first test attempt. This can be directly analyzed in WATS.				
Retest total cost	\$ 156,642			
The total cost of this conservative retest estimate. This can be directly analyzed in WATS.				
Scrap total cost	\$ 9,630			
The total number of boards that never passed (i.e. scrap)				
Retest & Scrap cost/unit	\$ 8.31			
The total cost divided by the total number of units manufactured.				
Retest & Scrap cost as % COGS	33.25%			
The retest-cost component of the cost of goods sold (COGS).				
Yield Target	90.0%	93.33%	95.56%	98.52%
Applying Data Driven Decision Making to test-specific parameters such as refactoring test limits, tackling the top failing test steps, operator awareness training, etc. can lead to this improvement.				
# of Retests (for Yield Target)	18074			
A conservative estimate of how many times in total your products are retested <i>after</i> the first test attempt. This can be directly analyzed in WATS.				
Reduced Retest #	5422	times		
If you could follow the pareto-principle (ex: fixing the few testing parameters that causes the most failed tests), it is highly likely that you can cut the first-test failures by 50%.				
Reduced Retest time	361	hours		
If you improved your yield by the above factor, you would save this amount of time retesting.				
Reduced Scrap cost	\$ 2,222			
The reduction in scrap because of the improvement in Last Pass Yield (LPY)				
Total Savings of FPY increase	\$ 38,370			
The reduced total cost of retesting your products. This does not account for other potential 'soft' savings (as noted at the top), such as fewer product recalls.				
Reduced cost/unit	\$ 1.92			
Improving your testing and yield would mean that the cost of goods sold would be reduced by this amount.				
Reduction in Unit Cost	7.67%			
The reduction of Unit Cost as a percentage.				
WATS Subscription Cost	\$ 10,000			
WATS Subscription cost, relevant to the production volumes detailed in rows 10 - 14.				
Labor hours to setup & maintain WATS	120			
Setup & maintenance costs, relevant to the production volumes detailed in rows 10 - 14.				
Training hours on WATS	15			
Training hours, relevant to the production volumes detailed in rows 10 - 14. Example: most standard users are sufficiently trained with an introductory 1.5 hour WATS training.				
Average engineering hourly rate	\$ 80			
Fully loaded engineering hourly rate. Example: \$120K salary X 1.35 for overhead = \$162K / 2000 hours/yr = \$81/hr.				
WATS setup, maintenance, training costs	\$ 20,800			
Cost of implementing WATS for the production volumes detailed in rows 10-14.				
Return on Investment (ROI) %	184%			
ROI = Total Savings (Row 28) / Investment Cost (Row 49), relevant to the production volumes detailed in rows 10-14 and the increase in yield between Row 8 and Row 24.				
Payback Period (months)	7			
Payback Period = Initial Investment / Annual Cash Flow (i.e. FPY savings)				

Escalation costs — the hidden hourly rate

The model prices a defect at one operator's rate. An escalated failure is paid for by 3+ people at once.

Business as usual

One operator, one station, one pass of rework.



Operator

\$25.00 / hr

- No technician callout
- No engineering investigation

TOTAL LABOR COST

\$35.00

1 role involved

Fire-fighting mode

The same failure, escalated: three roles on one unit.



Operator

\$25.00 / hr



Technician

\$30.00 / hr



Engineer

\$60.00 / hr

TOTAL LABOR COST

\$161.00

\$115.00 / hr blended on the problem

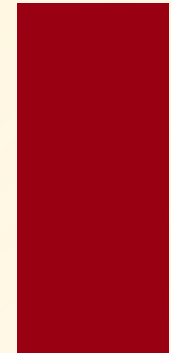
Labor cost of one failure

\$35



Normal fix

\$161



Escalated fix

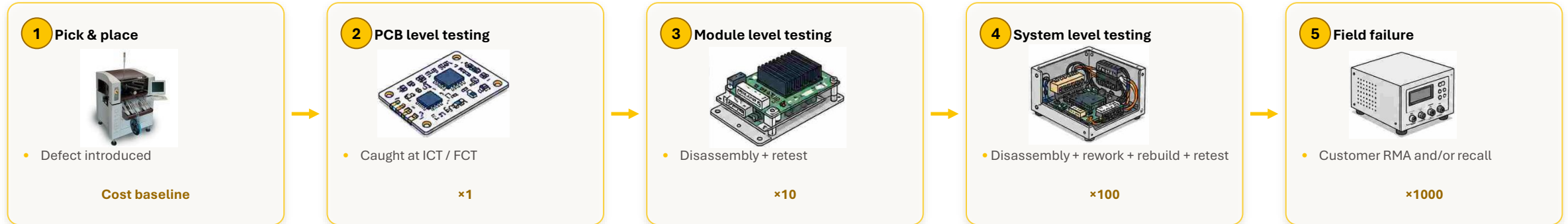
4.6× the labor bill for the same defect



Escalation is a cost our ROI model does not capture — **and it compounds by the hour.**

The 10× cost factor

Every stage a defect escapes multiplies the cost of fixing it by an order of magnitude.



Cost to fix the same defect, by stage of detection



Logarithmic scale — each step up is one order of magnitude. Illustrative industry figures, not WATS data.



Move detection one stage left and you take a **10× saving on every escaped defect.**

 Use-cases

Reducing costs with test data

CONNECT GROUP

A close-up, slightly blurred photograph of a circuit board with various electronic components, including gold-colored pins and integrated circuits, serving as the background for the text.

“We focus on efficiency, from design to finished product, constantly checking whether the quality can be increased even more and the time-to-market made even shorter.”

MAKING YOUR PRODUCT MORE SUCCESSFUL

Summary 2020-2026 (July)

		Period		Unit # 	FPY % 	FPY +/- 	SPY % 	TPY % 	LPY fail # 	LPY % 	Test Report # 	Retest # 
		2026		77 786	97.6 %	1.3 % 	99.1 %	99.4 %	306	99.5 %	84 350	5 429
		2025		100 377	96.3 %	1.3 % 	97.9 %	98.2 %	1 630	98.4 %	107 963	7 056
		2024		34 938	95.0 %	3.1 % 	98.2 %	99.2 %	43	99.9 %	40 381	5 173
		2023		12 551	91.9 %	3.3 % 	97.1 %	98.5 %	26	99.8 %	14 578	1 642
		2022		514	88.6 %	5.3 % 	95.5 %	97.2 %	3	99.5 %	443	117
		2021		1 495	83.3 %	8.2 % 	94.3 %	97.2 %	5	99.7 %	1 256	381
		2020		100	75.1 %		89.1 %	93.0 %	1	99.4 %	100	36

Product groups showing FPY improvements > 5 pp	15+
Product groups with retest ratio halved	8+
Overall retest ratio reduction 2023-2026 (21+ Product Groups)	0.22 → 0.07 (68% reduction)
Product Groups at >95% FPY (2026)	12 (vs 3 in 2023)

Periodic yield YEAR

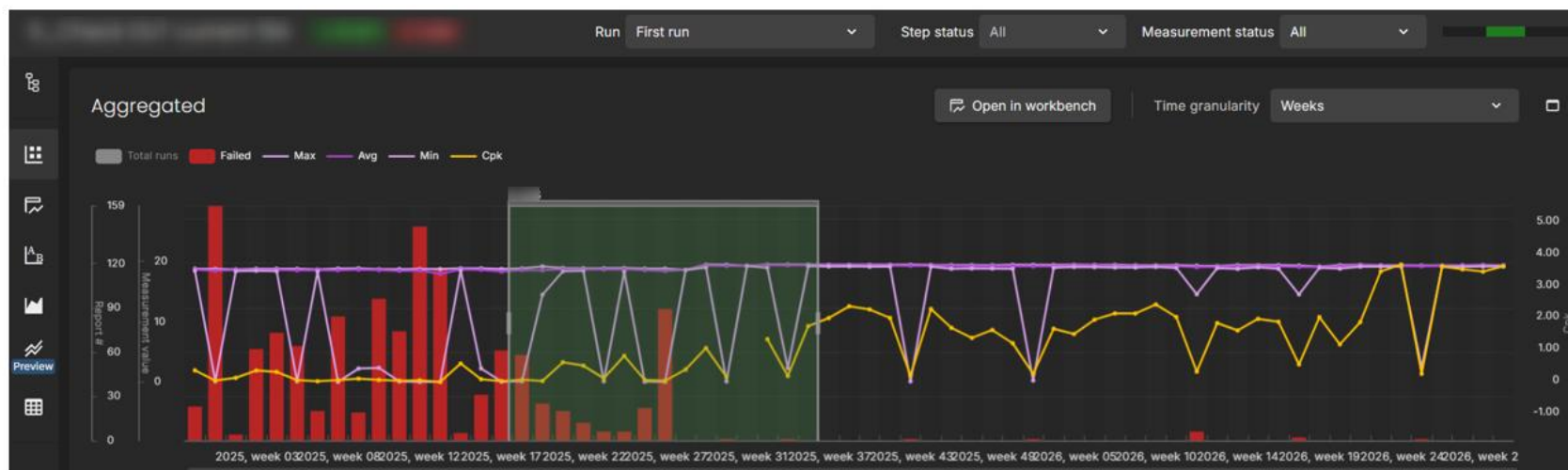


Case 1

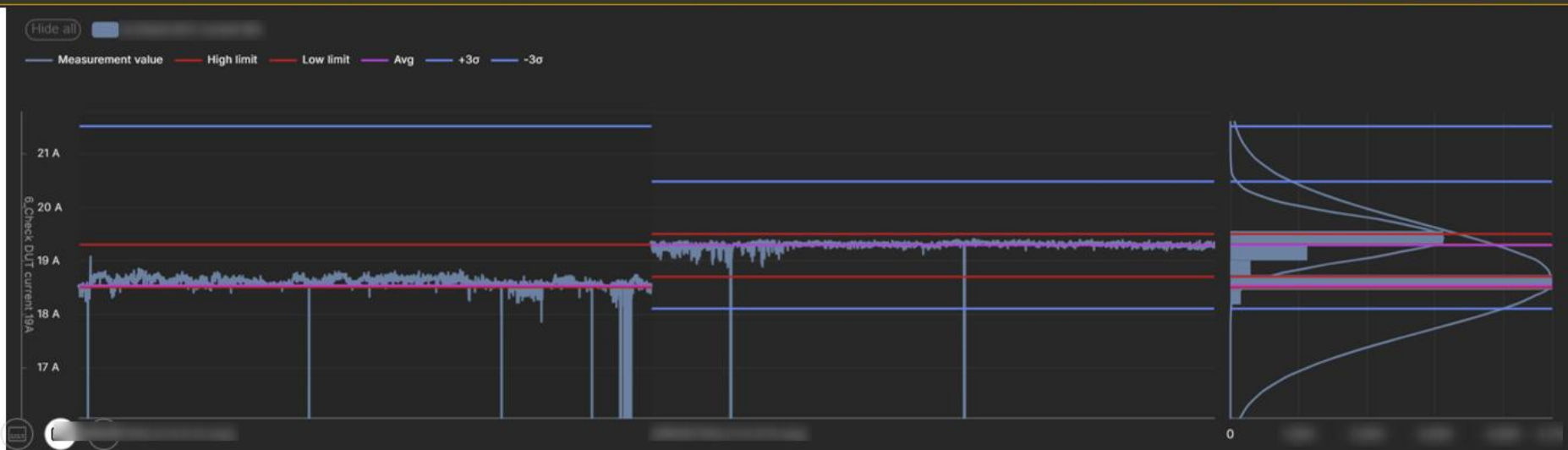
	Product group	Period	Unit #	FPY %	FPY +/-	SPY %	TPY %	LPY fail #	LPY %	Test Report #	Retest #
Eq		2026	1,000	96.4 %	4.9 % ↑	98.9 %	99.5 %	7	99.7 %	1,200	90
Eq		2025	760	91.5 %	3.0 % ↑	97.3 %	98.9 %	3	99.9 %	980	130
Eq		2024	590	88.5 %	0.2 % ↓	96.2 %	98.2 %	3	99.8 %	790	130
Eq		2023	430	88.7 %	3.0 % ↓	96.1 %	98.1 %	2	99.8 %	570	100
Eq		2022	130	91.7 %	8.2 % ↑	97.9 %	99.0 %	1	99.7 %	160	20
Eq		2021	450	83.5 %	8.2 % ↑	94.5 %	97.4 %	4	99.7 %	680	150
Eq		2020	30	75.3 %	—	89.3 %	93.2 %	0	99.6 %	60	20

- +21 pp FPY improvement while volume grew
- Retest ratio dropped from 0.52 → 0.08

Think lean – analyze, improve, control



	Part number	Product name	Test operation	Software filename	Unit #	Test Report #	FPY %	SPY %	TPY %	LPY %	TRY %	Retest #
							89.7 %	95.4 %	98.3 %	99.9 %	84.7 %	
							76.0 %	87.4 %	93.4 %	99.9 %	65.4 %	

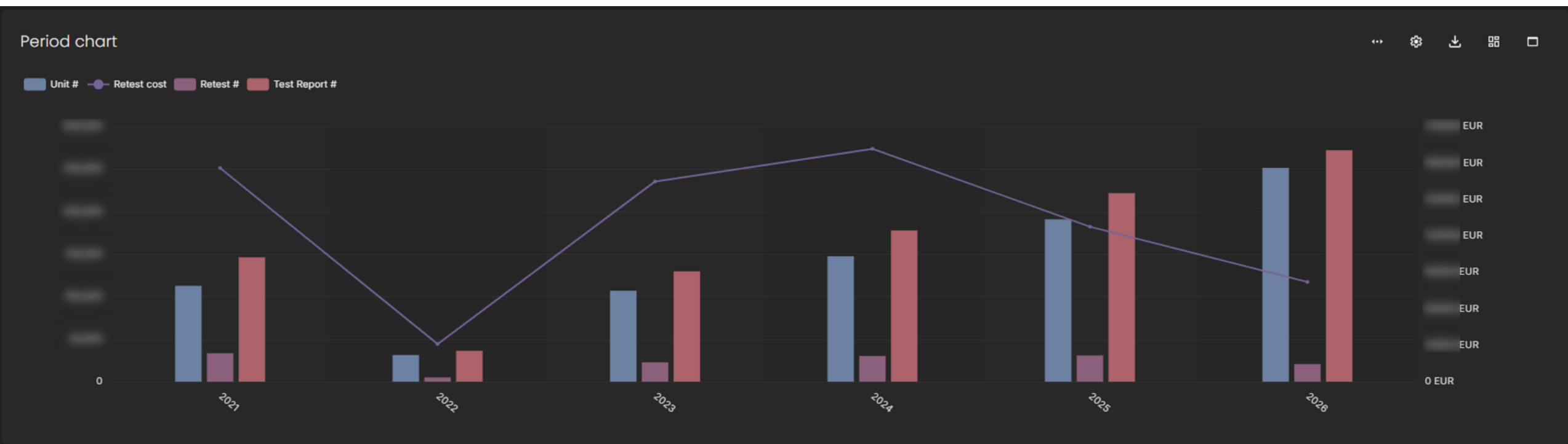


Use WATS Alvea to identify issues



Part number ↑	Product name ↑	Test operation ↑	Batch number ↑	Unit # ↓	Test Report # ↑	FPY % ↑	SPY % ↑	TPY % ↑	LPY % ↑	Retest # ↑
				2 489	2 529	99.2 %	99.7 %	99.8 %	100 %	40
				994	1 061	98.0 %	98.8 %	100 %	100 %	67
				984	1 008	99.3 %	99.4 %	99.8 %	100 %	24
				967	994	99.4 %	99.7 %	99.9 %	100 %	27
				958	982	98.7 %	99.3 %	99.8 %	100 %	24
				835	872	98.0 %	98.8 %	99.4 %	100 %	37
				804	822	99.3 %	99.5 %	100 %	100 %	18
				804	852	100 %	100 %	100 %	100 %	48
				804	1 244	65.8 %	87.8 %	94.7 %	99.6 %	440
				803	827	99.1 %	99.4 %	99.6 %	100 %	24
				800	807	99.9 %	99.9 %	100 %	100 %	7

Case 1 – Product group 1 – Retest cost



Product group 1 – Savings estimate

- Estimate on cost savings from improvements 2021 vs. 2026
- 2026 vs. 2026 with 2021 performance

	2021	2026
FPY%	83.5%	96.4%
C&E test time (median)	3m	2m 16s
Unit #	100,000	223,089
Retest ratio (retest#/unit#)	0.3	0.08

Driver	Retest avoided	Hours saved	EUR saved
Yield improvement	49,079	1,854	185,400
Faster test time		2,851	285,100
Total		4,705 hrs/year	470,500 EUR/year

 OEM

Second example

Summary 2019-2026 (july)

		Period		Unit # 	FPY % 	FPY +/- 	LPY fail # 	LPY % 	Retest # 
		2026		100 000	99.2 %	0.4 % 	301	99.7 %	5 660
		2025		180 000	98.8 %	0.1 % 	558	99.7 %	18 845
		2024		205 000	98.8 %	0.4 % 	1 189	99.4 %	22 243
		2023		179 000	98.4 %	0.8 % 	1 360	99.2 %	32 928
		2022		148 000	97.6 %	1.4 % 	691	99.5 %	23 141
		2021		119 000	96.2 %	1.6 % 	1 184	99.0 %	34 116
		2020		68 000	97.7 %	0.9 % 	171	99.7 %	10 437
		2019		45 000	96.9 %		211	99.5 %	10 650

PCBA process improvement

		Period	Part number	Product name	Test operation	Unit #	FPY %	SPY %	LPY %	Retest #
		2026, Q2				1 636	97.3 %	98.0 %	99.7 %	129
		2026, Q1				454	93.7 %	96.5 %	98.0 %	105
		2025, Q4				1 194	93.3 %	97.2 %	99.6 %	134
		2025, Q2				546	80.0 %	94.6 %	99.6 %	162
		2025, Q1				536	94.0 %	97.5 %	100 %	63
		2024, Q4				593	94.4 %	96.7 %	97.9 %	233
		2024, Q3				647	88.2 %	93.2 %	98.8 %	288
		2024, Q2				724	81.7 %	86.8 %	98.5 %	482
		2024, Q1				424	88.9 %	94.1 %	98.0 %	167
		2023, Q4				350	87.9 %	93.1 %	99.1 %	263
		2023, Q3				308	92.5 %	96.0 %	99.1 %	66
		2023, Q2				474	84.5 %	90.5 %	98.8 %	406
		2023, Q1				447	79.9 %	86.8 %	98.4 %	213
		2022, Q4				678	77.7 %	85.0 %	99.3 %	732
		2022, Q3				172	68.8 %	81.6 %	99.3 %	106

Process Heatmap & Test Step Analysis



	Part number	Product name	Test operation	Test socket index	Unit #	Test Report #	FPY %	SPY %	TPY %	TRY %	Retest #
EQ			ICT test	0	132	185	94.2 %	99.2 %	100 %	94.1 %	44
EQ			ICT test	1	132	185	100 %	100 %	100 %	100 %	44
EQ			ICT test	2	132	185	100 %	100 %	100 %	100 %	44
EQ			ICT test	3	132	185	100 %	100 %	100 %	100 %	44
EQ			ICT test	4	132	185	100 %	100 %	100 %	100 %	44
EQ			ICT test	5	132	185	100 %	100 %	100 %	100 %	44
EQ			ICT test	6	132	185	97.1 %	100 %	100 %	96.4 %	44
EQ			ICT test	7	132	176	84.2 %	95.8 %	97.9 %	80.1 %	37
EQ			ICT test	8	132	185	99.6 %	100 %	100 %	99.7 %	44
EQ			ICT test	9	132	185	100 %	100 %	100 %	100 %	44
EQ			ICT test	10	132	185	100 %	100 %	100 %	100 %	44
EQ			ICT test	11	132	185	100 %	100 %	100 %	100 %	44
	1	0	1	11	1 584	2 035	97.9 %	99.6 %	99.8 %	97.6 %	503

Process Heatmap & Test Step Analysis



Part number

ICT test

Unit # : 1.6K Retest # : 61

FPY RTY: 96.8 %

LPY RTY: 96.9 %

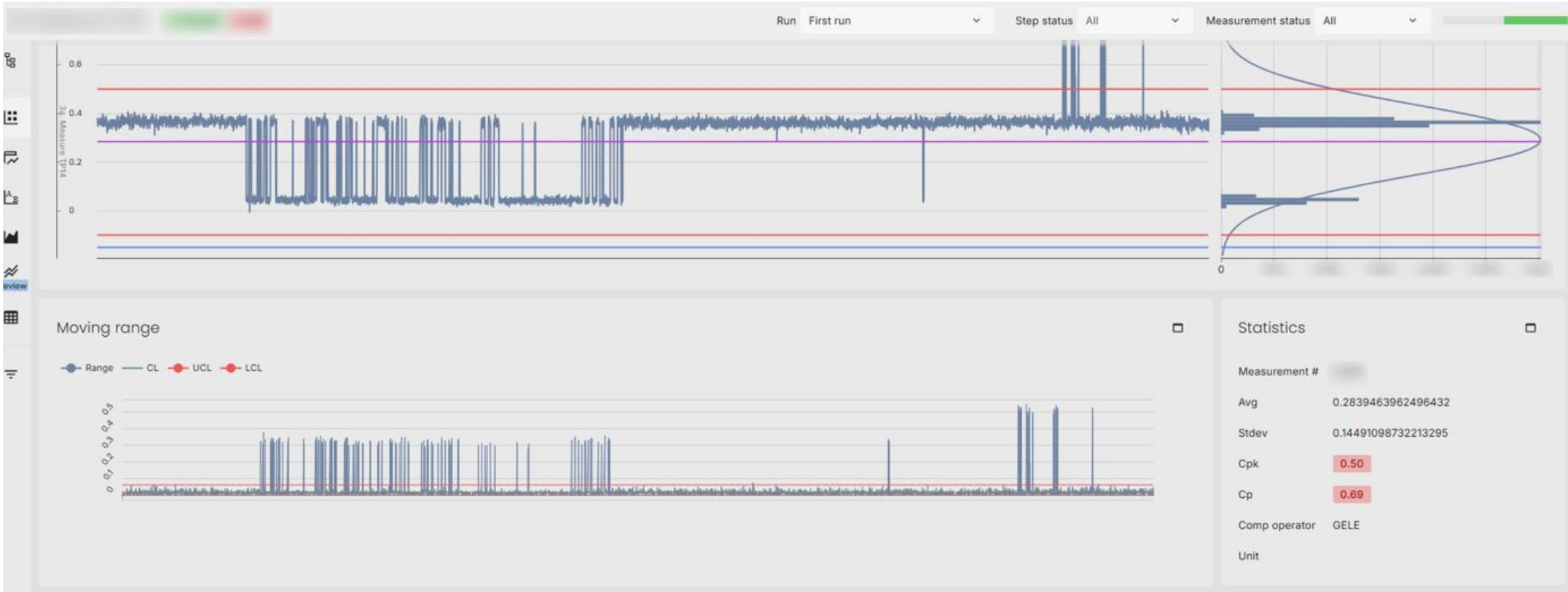
96.8 %

2.5 % ↓

1

0

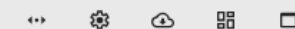
Issues



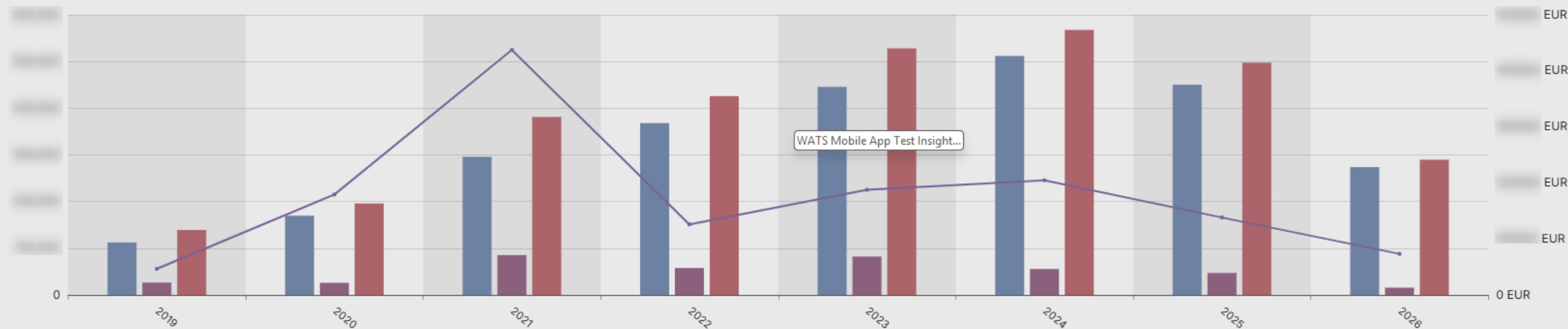
Maintain yield targets, keep costs under control

		Period	Unit #	FPY %	FPY +/-		LPY fail #	LPY %	Retest #
Eq	≡	2026	100 000	99.2 %	0.4 % ↑		301	99.7 %	5 660
Eq	≡	2025	180 000	98.8 %	0.1 % ↑		558	99.7 %	18 845
Eq	≡	2024	205 000	98.8 %	0.4 % ↑		1 189	99.4 %	22 243

Period chart



Unit # Retest cost Retest # Test Report #



Cost analysis

- **Retest:** retest time x retest cost
- **Scrap:** LPY fail # x COGS
- **Repair:** repair time x operator cost x material
- **FPY improvement:** Represents reduction in cost and improvement in quality
 - Consider the difference in yield now vs before.
 - Improve and maintain FPY%

Unit Flow

Unit Flow **VISION:** *MES like* flow routing with existing data and instant access

Scope:

- Insight into material flow and production
- Finding bottle neck
- Compare factories, products, etc.
- Track if products follow a valid flow
- WATS Alvea suggestions and more



Jenny Gramdal

Frontend developer RnD, WATS

🟡 Breakout session - TRACK 3-4



Improve yield faster with AI-powered suggestions for Root Cause Analysis

Natanya Sukkot, The WATS Company

 Use case 1

Satel

Satel finds a better way to manage testing

In conversation with Petri Reiman, Production Engineering Manager, Satel

WATS UP Keynote



Knut Bjarne Askim

Areas Sales Manager, WATS



Petri Reiman

Test Specialist and Test Team Manager, Satel

Satel in brief

Finnish radio technology since 1986

- Founded 1986, Salo, Finland
- High quality Radio technology for mission-critical connectivity
- SCADA, GNSS, machine connectivity, transport
- Products designed and manufactured in Salo
- Global, private held company
- Part of Topcon Positioning Systems since 2023



The DIY years



- In-house SQL tools
- Constant updates, constant maintenance
- Couldn't keep up as Satel grew

Before and after WATS



Homegrown SQL tools

- Built in-house
- Updated for every change
- Hard to scale

WATS

- All test data, one place
- Trends spotted early
- Daily workflow

From one test station to nearly all of them



- Etteplan
- One test station, 2016
- Nearly all test systems today
- Confidence in limits and performance
- Faster answers
- Nothing to maintain

In Petri's words

- "Having easy access and oversight of all test data gives insights that support both production and R&D."
- Petri Reiman, Satel

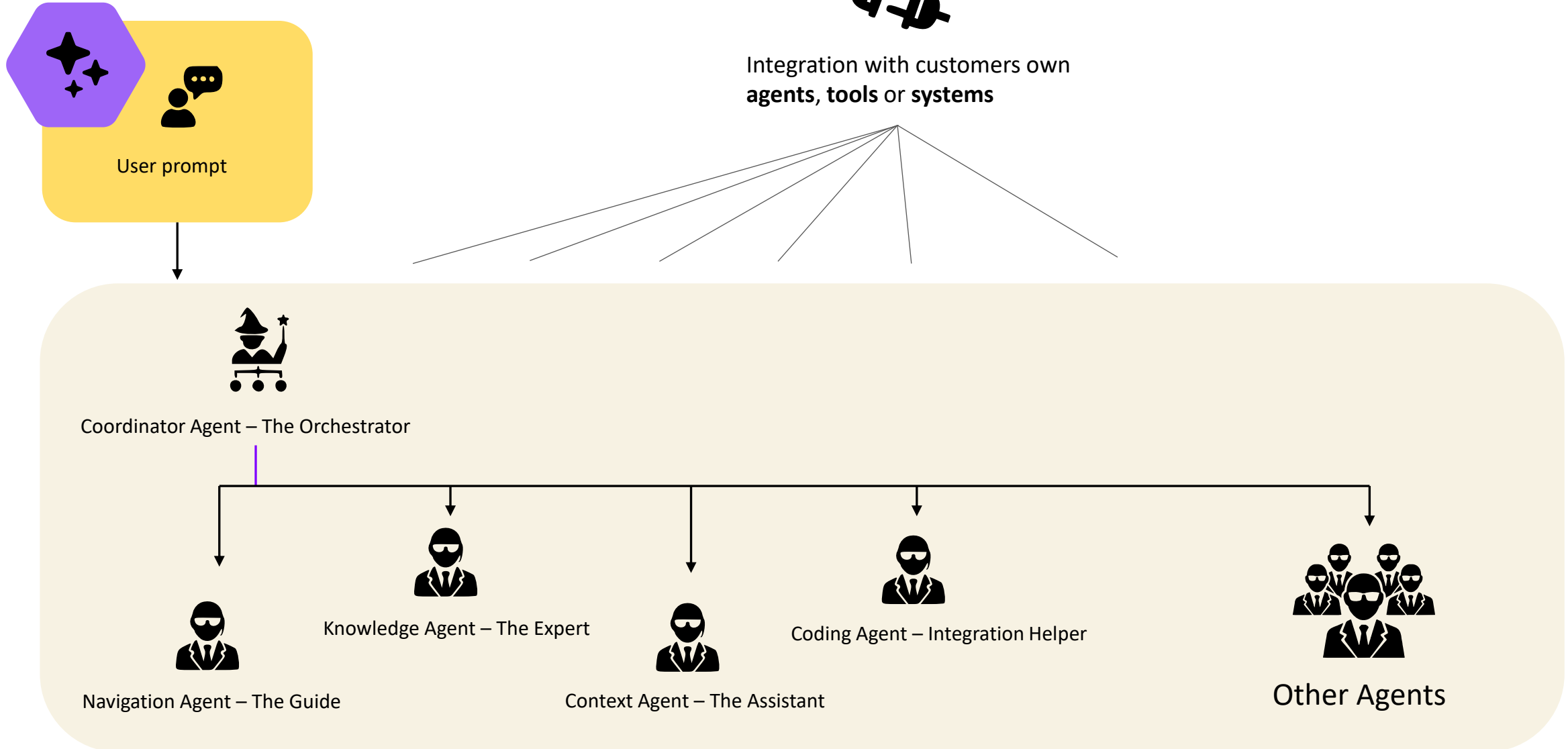
A large, yellow hexagon with rounded corners, serving as a background for the text.

Part of the daily
workflow

Use case 2

MCP – Model Context Protocol

WATS Alvea Assistant – ~~Future~~ NOW





Ola Lund Reppe

Integration Architect and AI enthusiast, WATS

Automating analysis & monitoring with AI agents

A proof of concept — an AI agent watching a real process for 28 days through the WATS MCP

Real production data · nothing staged

We pointed an AI agent at **28 days of production**

One question: can an agent run the analysis itself — on a schedule, unattended, on real data — and be worth reading?

What we set up

1

One process, 28 days

277288 · PCBA Test · 3 – 31 Aug 2026 · 5 777 units across 4 stations.

2

Scheduled runs, no human in the loop

Each run is a fresh AI session: it looks at the data, judges it, and writes.

3

It writes the reports

An hourly watch, a daily floor page, weekly deep dives, a monthly read.

4

It raises the alarms

With the evidence it used, and the role that should act on it.

All it had

- The WATS MCP, against live.wats.com
- No export, no copy of the data
- No database access
- No log files
- No dashboards built for it

Everything it found, it found by asking WATS the same questions you can.

28 days · 35 evaluation windows · alarms, findings and reports. This talk shows a selection of what the analysis found.

Nine reports • **four cadences** • six audiences

Every schedule wakes a fresh AI session: it reads the live data, writes the report, and updates the page.



Hourly

A drift watch on the line's key measurements — six independent statistical checks, and only a real, explainable shift reaches a human.

AI-SPC drift monitor



Daily • 06:00

The floor's morning page: yesterday against the last four weeks, plus a watchlist with named owners.

Production status & watchlist • Line brief



Weekly

Five deep dives, one per question worth asking every week — written only when there is something to say.

Capability • Unit flow • Repair & components • R&D design signals • Gauge R&R



Monthly

The management read: where yield went, what retesting cost, and where the next engineering hour pays back most.

Executive review

What it found — **three weeks, compressed**

The next film replays real production. Three things to watch for:

1

Problems appear

A red mark the moment something real starts going wrong in the data.

2

The reports catch them

A gold mark when a scheduled report flags it — usually the same day.

3

Nothing gets forgotten

Each finding becomes a tracked item with an owner, followed until the data says it is gone.

Every number in the film is read live from wats — nothing is staged or simulated.

The agent is already in Alvea — **what's missing is small**

Everything in the films ran on the Alvea assistant's toolset. The gap to a built-in version is two features — not a new system.

The Alvea assistant

IN THE PRODUCT TODAY

- The full agent, on the complete WATS toolset
- Everything in the films, available on demand
- Ask it the same questions — same analysis

This proof of concept

WHAT WE ADDED

- Schedules — it runs without being asked
- Persistent documents — reports and memory between runs
- Nothing else. The analysis was already there.

The gap to built-in

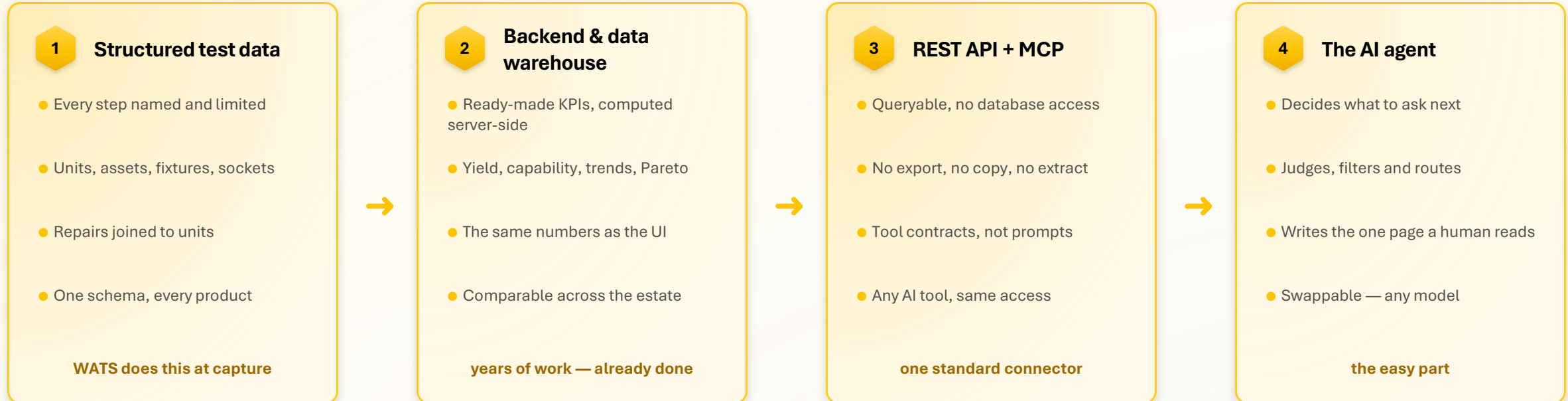
TWO FEATURES

- Scheduling inside Alvea
- Persistent documents inside Alvea
- The analysis is proven — plumbing, not research

Nobody needs to work blind on test data. You already own the part that took years.

The crucial link: **your data platform**

Not the agent — that's the last link, and the most replaceable one. Everything it can do, it can do because of the three before it.



Swap the model — the analysis still works. Remove the structure — there is nothing to reason about.

Comparable the same property, measured the same way, everywhere — apples to apples

Complete measurements, limits, repairs and assets in one place, joinable by unit

Current queryable now, not after somebody prepares an extract

• THE POINT •

The agent is **the easy part**

The hard part — structured, comparable test data — you already have. Years of it, live, in WATS.

Proof of concept · every figure a tool return · live.wats.com

You already own the part
that took years

🟡 Breakout session – Main Hall 2



MCP and Integrations

Jon Grendstad, The WATS Company

 WATS UP

WATS Next

Operator Interface improvements - Repair and Processes.



- Added features to the Repair Operation Process (non BOM binding)
- Added more inputs in the repair and rework GUI (Operator Interface)

The screenshot displays the WATS Operator Interface, specifically the 'Repair Operation' process. The interface is divided into several sections:

- EDIT PROCESS SW Debug:** Includes 'Undo' and 'Redo' buttons and a 'Save' button.
- REPAIR OPERATION:** Contains a 'UIT binding' dropdown set to 'Optional'.
- MISCELLANEOUS INFORMATION:** A table with columns 'Active', 'Miscellaneous field', 'Input mask', and 'Order'. It lists five miscellaneous fields (Misc 1 to Misc 5) with active status indicators and input masks.
- BOM & COMPONENT DATA:** A section for component data with fields for 'Component reference', 'Component number', 'Component revision', 'Component description', 'Function block', and 'Vendor binding'. Each field has a 'Show' button and a 'Mask' dropdown. A 'Validation text' field is also present for each component field.
- REPAIR CATEGORIES:** A section with a 'Repair' dropdown and a 'Submit' button.
- Repair Process Repair:** A section with a 'Select repair operation' dropdown and a 'Identify UUT report' button.
- Repair Details:** A table with columns 'Step name', 'Category / Code', 'Component reference', 'Comment', 'Component number', and 'Component revision'. It shows a 'Boolean step to log pass or fail' with a 'Boolean step 1' checkbox.
- Failure Properties:** A section with a 'Step name' dropdown and a 'COMMENT' field. It includes input fields for 'Category / Code', 'Component reference', 'Component number', 'Component revision', 'Component description', 'Function block', and 'Component vendor'.
- Serial number history:** A table with columns 'Serial number', 'Part number', 'Code', 'Step name', 'Comment', and 'Attachment'. It shows a 'Boolean step to log pass or fail' with a 'Boolean step 1' checkbox.

The sync endpoint

Getting WATS data where you need it

WATS REST API

WATS data, wherever you need it

Test reports and repair reports – raw structured data.

You choose what, how much, and how often.



Keep your other systems current

Your software calls the endpoint on a schedule you set. New data lands in your MES, ERP, PLM or BI tool as it arrives.



Collect it in a store of your own

The same sync, pointed at a store of your own. It fills with what you ask for, ready for analytics or a model.



No code needed

Apps for Zapier and Power Automate, so you can wire WATS into other tools yourself, with clicks instead of code.



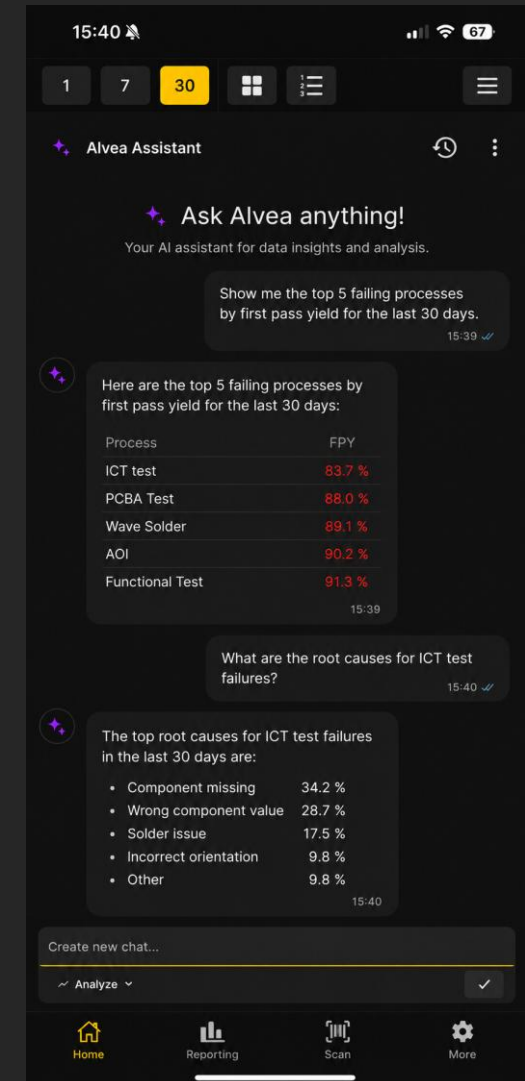
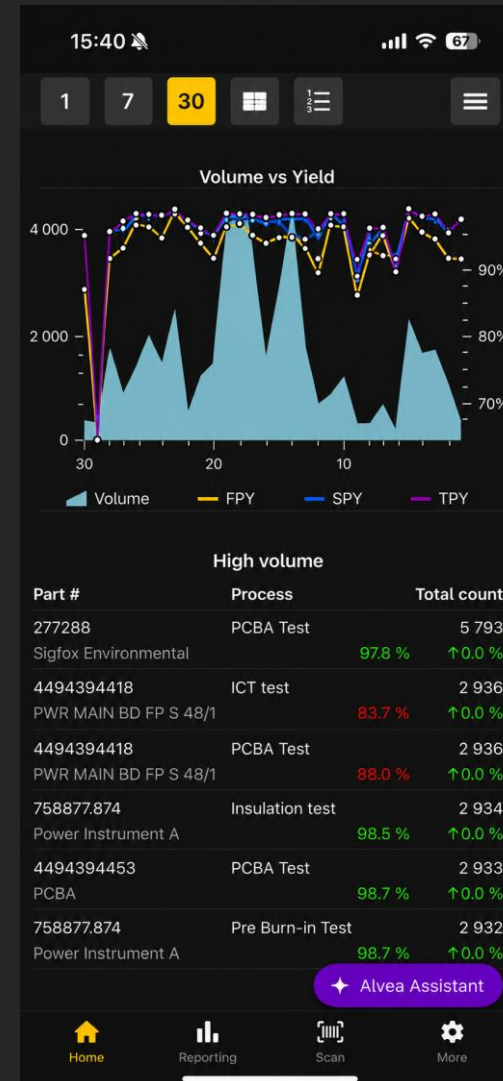
Alvea Assistant in Mobile APP



WATS Alvea™

Alvea Assistant in your pocket!

Target release to your iOS and
Android mobile app Q1 2027





WATS Alvea™ - the Platform

- More and **Suggetions**
- **More tools** - Write tools, so the AI can act, not just read
- **Smarter agent (agentic)** - Custom prompts, memory, planning, MCPs, background jobs
- Connect other **Sources** and **MCP's** – Test procedures, PCB schematics, BOM, etc.

AI Chat Experiment



Takeaways

- When your manager and C-level executives say, “Find AI and invest in it” — you already have!
- WATS WILL GUIDE YOU in the world of AI!
- WATS is “not a cost”, it’s a cost-saving tool!
- And THANK YOU to Lise and Anne for planning and hosting the event!





Make your Test Data Buzz