



KNEO AUTOMATION PVT. LTD.

MAPP

Monitor & Analyze Plant Performance

A modular, MES-driven smart manufacturing platform that connects planning, execution, quality, maintenance and traceability.

ZEN

ADEPT

EYE

VITA

TRAIL

Quality · Planning · Performance · Maintenance · Traceability

One Platform. One Digital Thread.

Presented by Nithish S | Office 501-505, Highway Heights, Warje, Pune 411058, India



What is MAPP?

Monitor & Analyze Plant Performance — a modular, MES-driven smart manufacturing platform.

UNIFIED ECOSYSTEM

Every function on one platform, one data model

MAPP unifies **Planning, Execution, Quality, Maintenance and Traceability** into a single closed-loop MES ecosystem — connecting intent to execution and proof.



Unified Ecosystem

Every function on one platform, one data model



End-to-End Visibility

Intent to execution, tracked at every step



Closed-Loop Control

Every action leaves complete operational proof

MAPP
ZEN

Quality

MAPP
ADEPT

Planning

MAPP
EYE

Performance

MAPP
VITA

Maintenance

MAPP
TRAIL

Traceability

The five pillars of MAPP

Five connected modules — deploy one, or run the full closed loop.

MAPP ZEN Quality Management - IATF 16949 / AIAG compliant - SPC with anomaly detection - PFMEA & DFMEA integration - Inline inspection & hold/release - Pareto & trend analysis - Quality dashboards & alerts	MAPP ADEPT Advanced Planning & Scheduling - Production order sequencing - Model mix & variant handling - Constraint-based scheduling - Changeover optimization - Resource allocation - Real-time plan adjustments	MAPP EYE Performance Management - Real-time OEE ($A \times P \times Q$) - Downtime & root cause tracking - MTTR / MTBF analysis - Energy monitoring - Machine utilization metrics - Dashboards & KPI alerts	MAPP VITA Maintenance Management - Preventive maintenance scheduling - Condition-based monitoring (CBM) - Predictive maintenance with IoT - Work order management - Asset health monitoring 24/7 remote monitoring	MAPP TRAIL Product & Process Traceability - Complete product genealogy 4M traceability - VIN & serial number tracking - Part marriage validation - Recall management - Supplier traceability integration
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From Planning to Proof.

One platform. Total factory intelligence.

MAPP value proposition

From planning to proof — what changes on the shop floor.

Traditional Factory		With MAPP
✕ Disconnected systems	➔	✓ Unified MES platform
✕ Reactive firefighting	➔	✓ Predictive & preventive
✕ Manual audits	➔	✓ Always audit-ready
✕ Delayed root cause	➔	✓ Instant cross-domain insight
✕ Costly recalls	➔	✓ Targeted containment

Quality is engineered, not inspected — and every claim is backed by data the platform already holds.



M A P P

ZEN

Quality 4.0 & Governance

| "Quality is engineered, not inspected."

WHAT IT DOES

- 1 Auto ballooning directly from drawings
- 2 DFMEA / PFMEA with risk scoring
- 3 Control Plan & inspection linkage
- 4 Digital inspections & NCRs
- 5 Closed-loop CAPA and compliance

OUTCOME

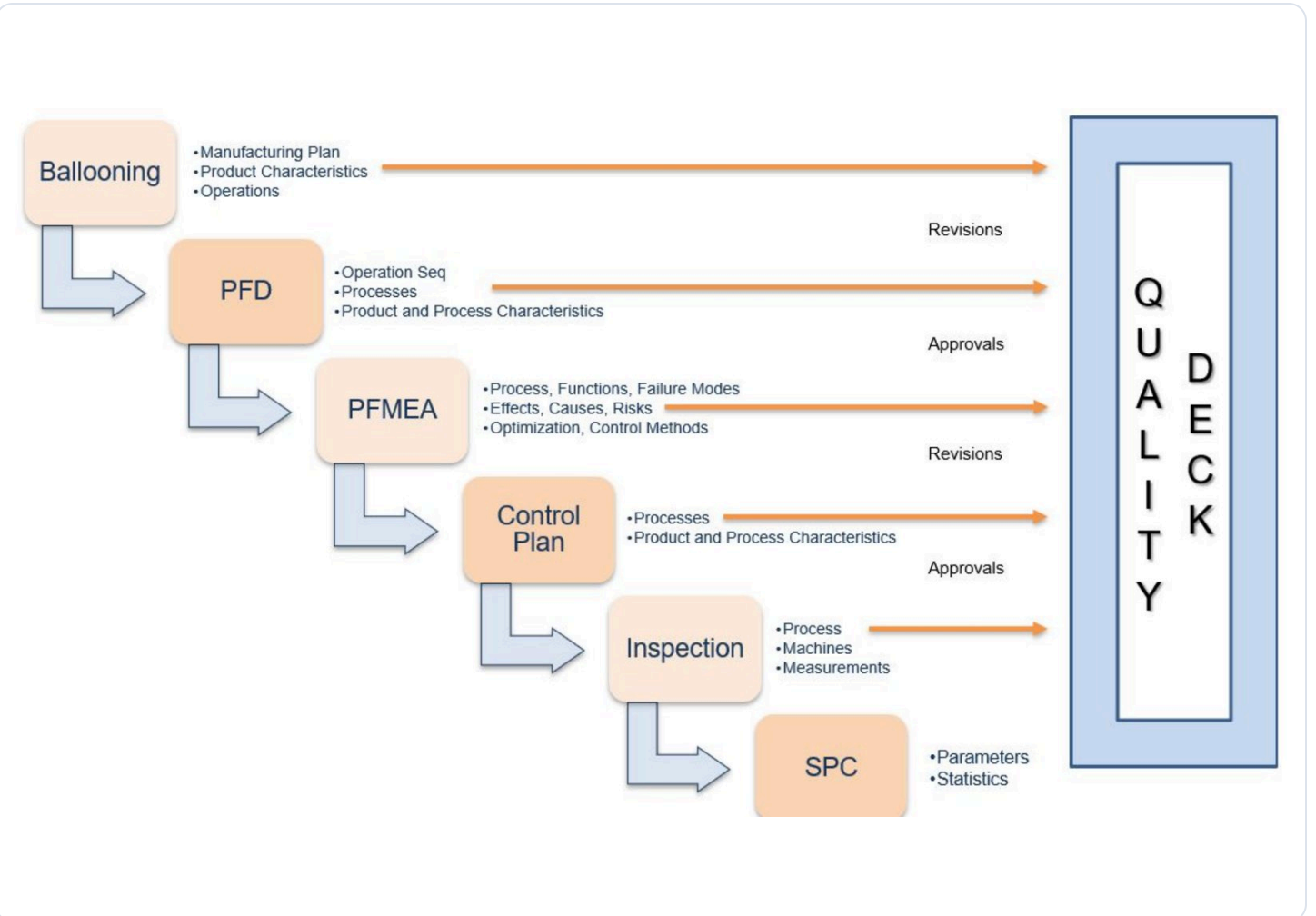
- ✓ **Audit-ready at all times**
- ✓ **Fewer escapes & rework**
- ✓ **Risk-driven process control**

Quality digital backbone

One connected data flow — every artefact feeds the next, no re-keying.

- ✓ Ballooning captures the manufacturing plan, product characteristics and operations.
- ✓ PFD inherits the operation sequence, processes and characteristics.
- ✓ PFMEA adds functions, failure modes, risks and control methods.
- ✓ Control Plan and Inspection inherit processes, characteristics and methods.
- ✓ SPC closes the loop with live parameters and statistics.

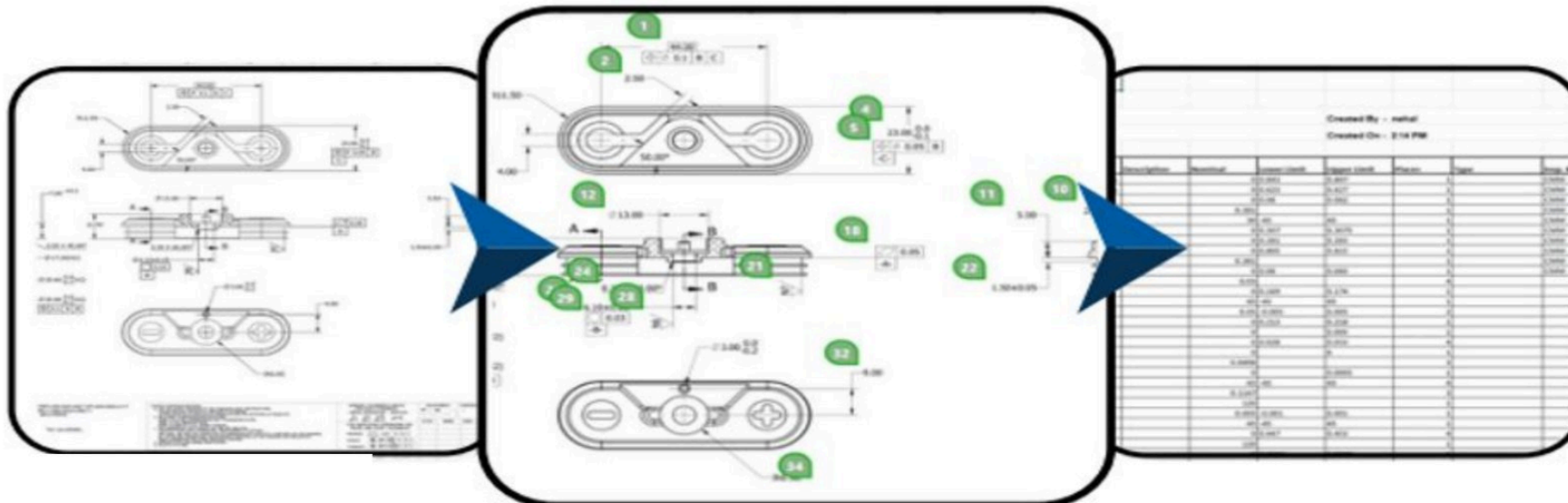
Revisions and approvals are controlled at every stage and published to a single Quality Deck.



Auto Ballooning — structured drawing intelligence

Reduced time and effort, saved cost, increased productivity.

- ✓ Web-based — access anytime, anywhere
- ✓ Instant and precise balloon creation
- ✓ Captures Nominal, $\pm$ Tol, Min/Max, GD&T, notes, sheet & zone
- ✓ Characteristic linkage: Drawing → PFD → PFMEA → Control Plan
- ✓ Customizable balloon numbering and formatting
- ✓ Configurable customer-defined tolerances
- ✓ Auto-generated detailed inspection plans
- ✓ Suitable for both in-process and final inspection

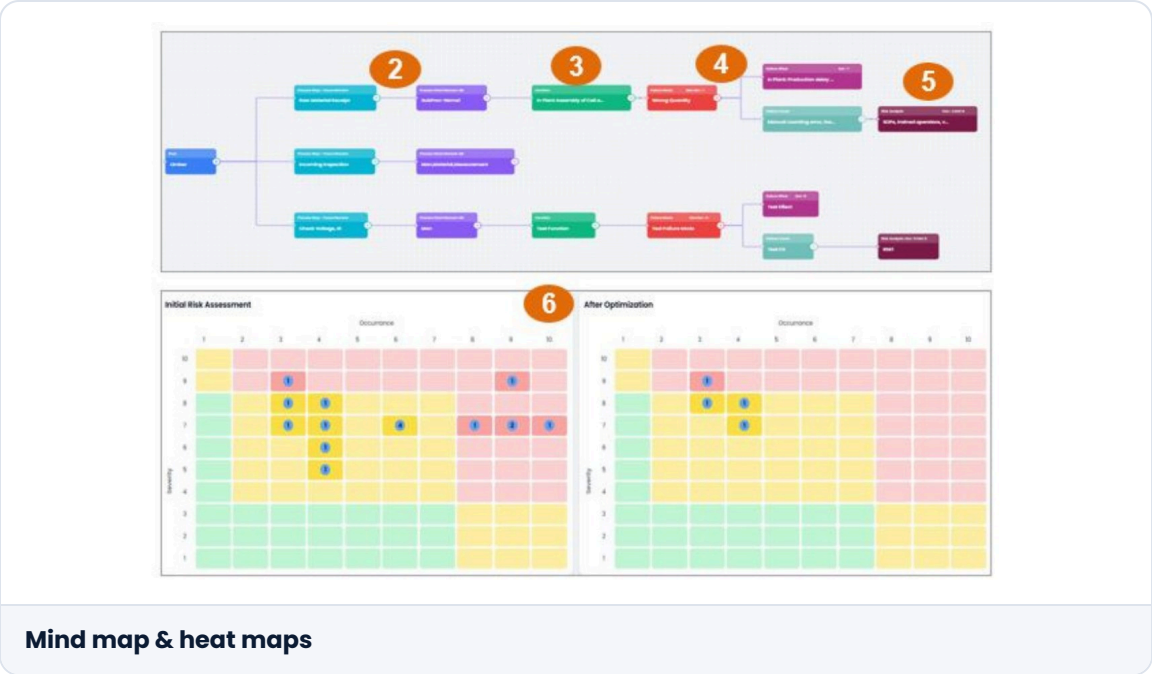


Drawing → Auto-ballooned drawing → Manufacturing plan

PFMEA — visualize, prioritize, control

Built to the AIAG-VDA seven-step approach.

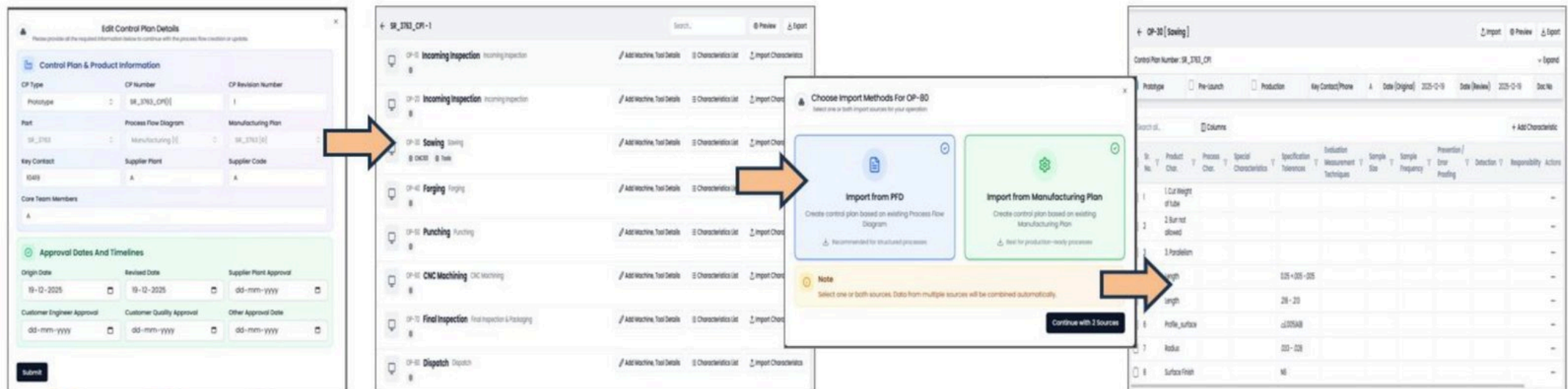
- ✓ Linkages to PFD and manufacturing plan
 - ✓ Processes imported directly from PFD
 - ✓ Mind map for functional, failure and risk analysis
 - ✓ Add, modify and delete nodes seamlessly
- ✓ Colour-coded nodes for visual risk reading
 - ✓ Optimization using action-priority heat maps
 - ✓ Process master templates for instant detail creation
 - ✓ Preview and export in standard Excel formats



Control Plan — from planning to controlled execution

Standard revision and approval controls, as per AIAG-VDA.

- ✓ Linkages to PFD, manufacturing plan and PFMEA
- ✓ Processes imported directly from PFD
- ✓ Product & process characteristics imported automatically
- ✓ Control methods imported from PFMEA
- ✓ Machine, tool and jig information at process level
- ✓ Fully editable characteristics list
- ✓ Standard revision and approval controls
- ✓ Preview and export in standard Excel formats

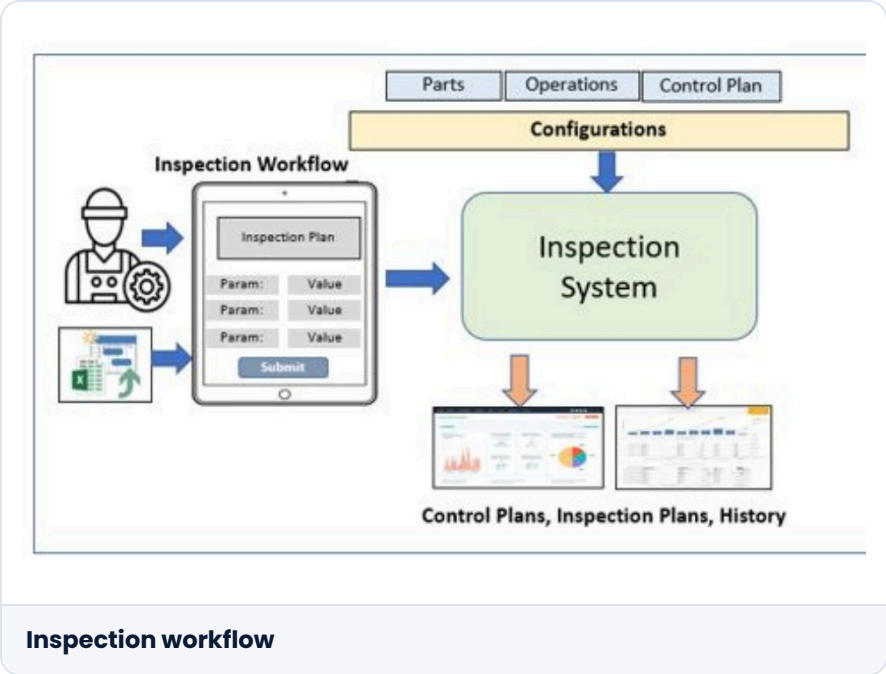


Control plan workflow

Inspection — from Control Plan to shop-floor evidence

Digital forms, live data, supervisor-controlled approval.

- ✓ Plans created per machine, shift and operation
 - ✓ Imported directly from the Control Plan
 - ✓ Characteristics carried with their tolerances
 - ✓ Inspection types fully integrated
- ✓ Digital forms data entry at the station
 - ✓ Automatic submission at end of shift
 - ✓ Supervisor controls approval or rejection
 - ✓ Reports generated on real-time data



The screenshot shows the MAPP ZEN inspection data entry interface. At the top, there is a header bar with the following information: 'KK29727 #KK29727', '# OP-20', and a user icon. To the right of the header are buttons for 'Export', 'Attachments', and 'Expand'. Below the header is a table with the following columns: 'PRODUCT CHAR', 'PROCESS CHAR', 'SPECIFICATION', 'METHOD', 'FREQUENCY', 'CRITICAL', 'SETUP', 'IN-PROCESS', and 'REMARKS'. The 'SETUP' column has sub-columns for 'Supervisor' and 'QA Engineer'. The 'IN-PROCESS' column has sub-columns for 'Operator' and 'Operator'. The table contains several rows of data, including 'Total Length', 'Face Perpendicularity', 'Dent & Damages', 'Speed', 'Feed', and 'Cutter Resharpener/cu...'. The 'CRITICAL' column has a dropdown menu with options like 'Pass', 'Fail', 'N/A', etc. The 'REMARKS' column has a text area for notes.

M A P P

ADEPT

Advanced Planning & Scheduling

| “Plan with reality, not assumptions.”

WHAT IT DOES

- 1 Visual Gantt-based scheduling
- 2 Priority & constraint handling
- 3 What-if simulations before you commit
- 4 Real-time plan vs actual feedback
- 5 ERP-integrated order flow

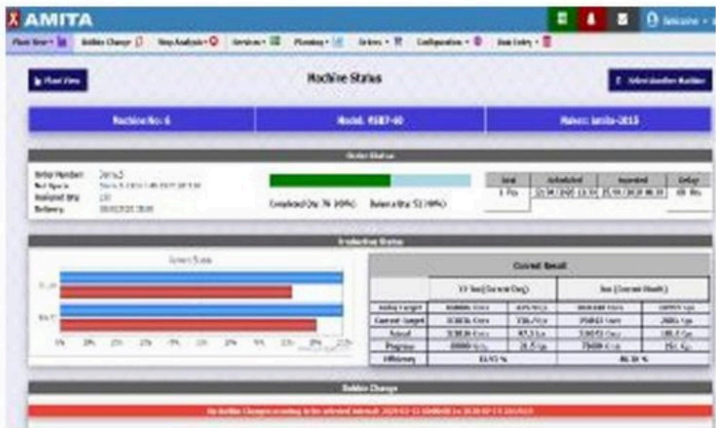
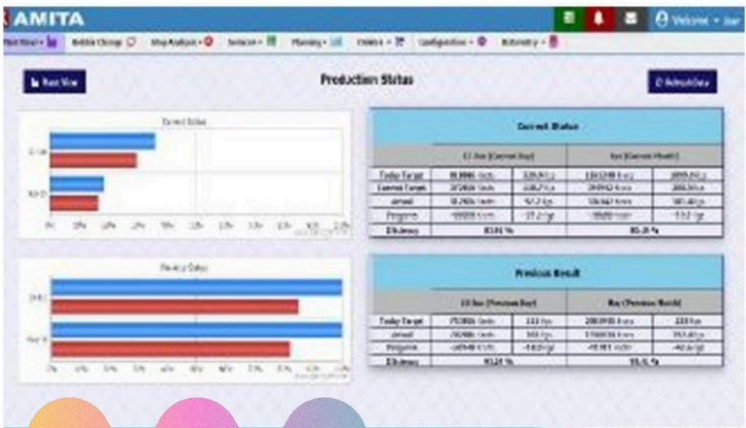
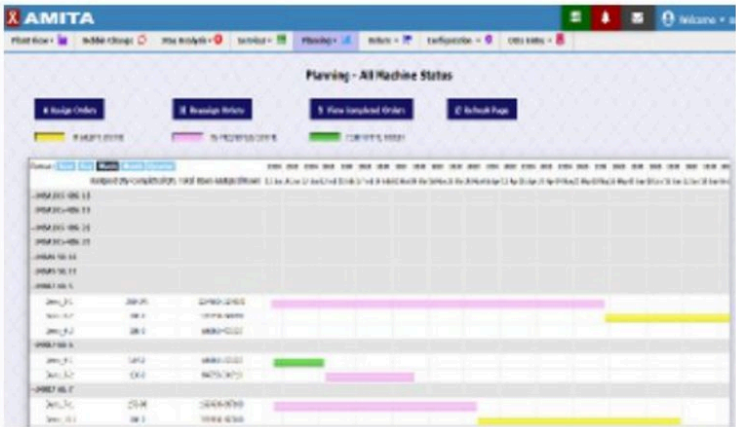
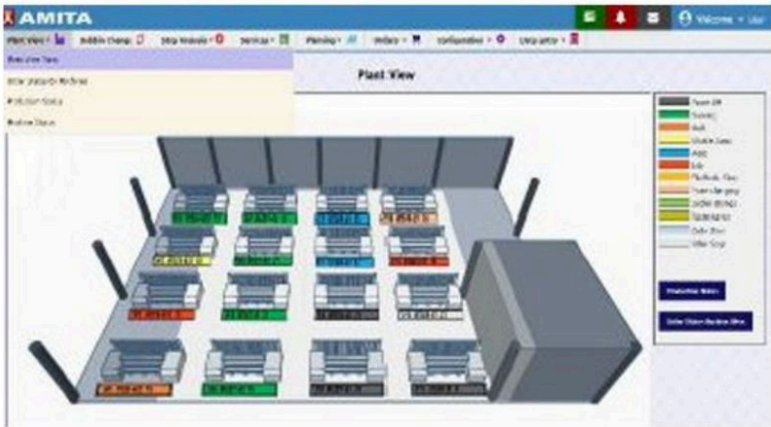
OUTCOME

- ✓ Improved delivery adherence
- ✓ Faster response to disruptions
- ✓ Optimized capacity utilization

MAPP ADEPT in action

Plant view, machine-wise planning, production status and live machine state.

- ✓ Plant view with live machine status by zone
- ✓ All-machine planning board with Gantt sequencing
- ✓ Production status against current and previous shift
- ✓ Machine-level status with efficiency and reject counts





M A P P

EYE

Performance & OEE Intelligence

| “Expose the gap between plan and reality.”

WHAT IT DOES

- 1 Automatic OEE computation
- 2 Downtime categorization & Pareto
- 3 Bottleneck identification
- 4 Shift, line and plant benchmarking
- 5 Alerts & KPI tracking

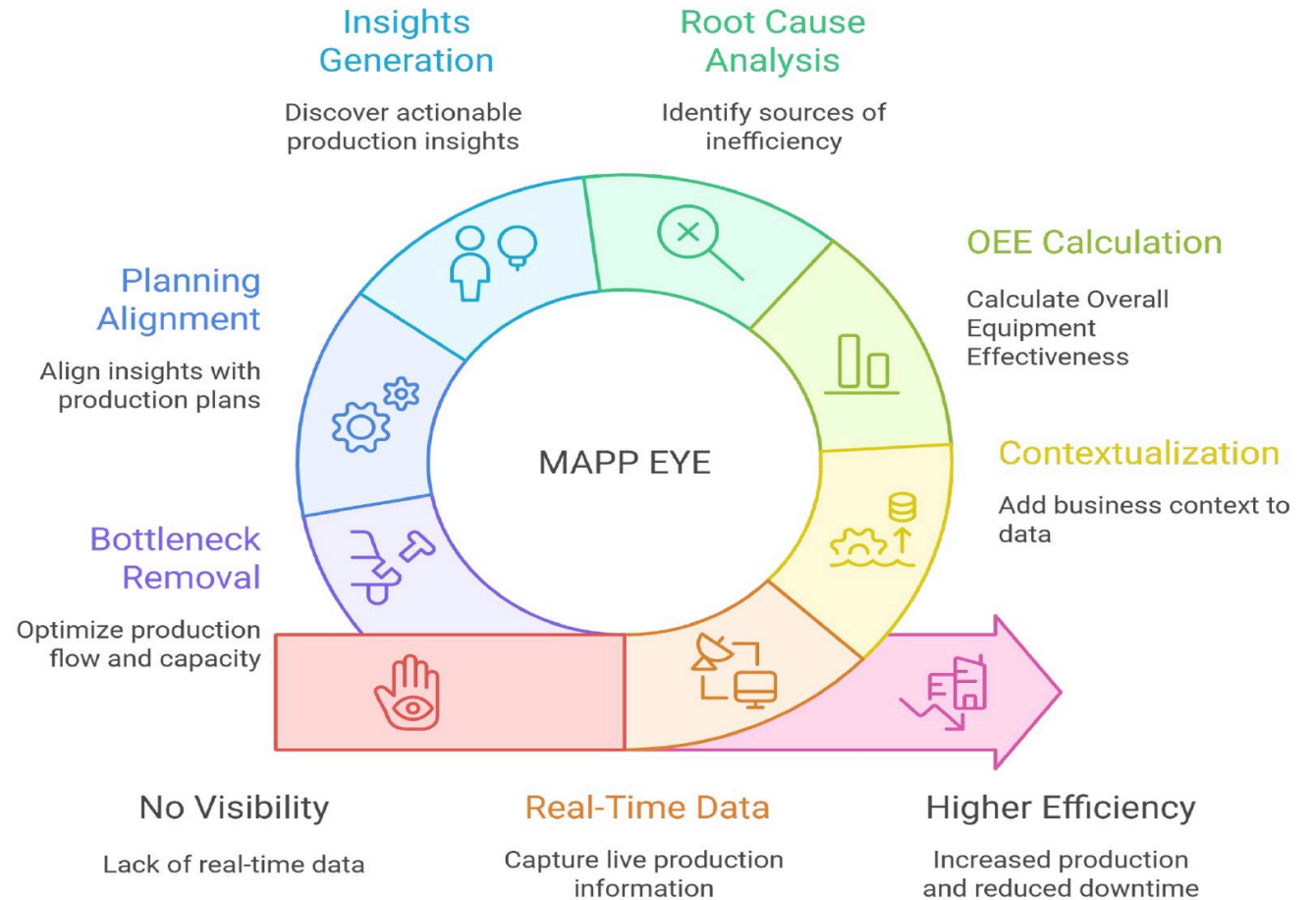
OUTCOME

- ✓ Higher OEE
- ✓ Loss transparency
- ✓ Faster decision-making

MAPP EYE — data-driven efficiency

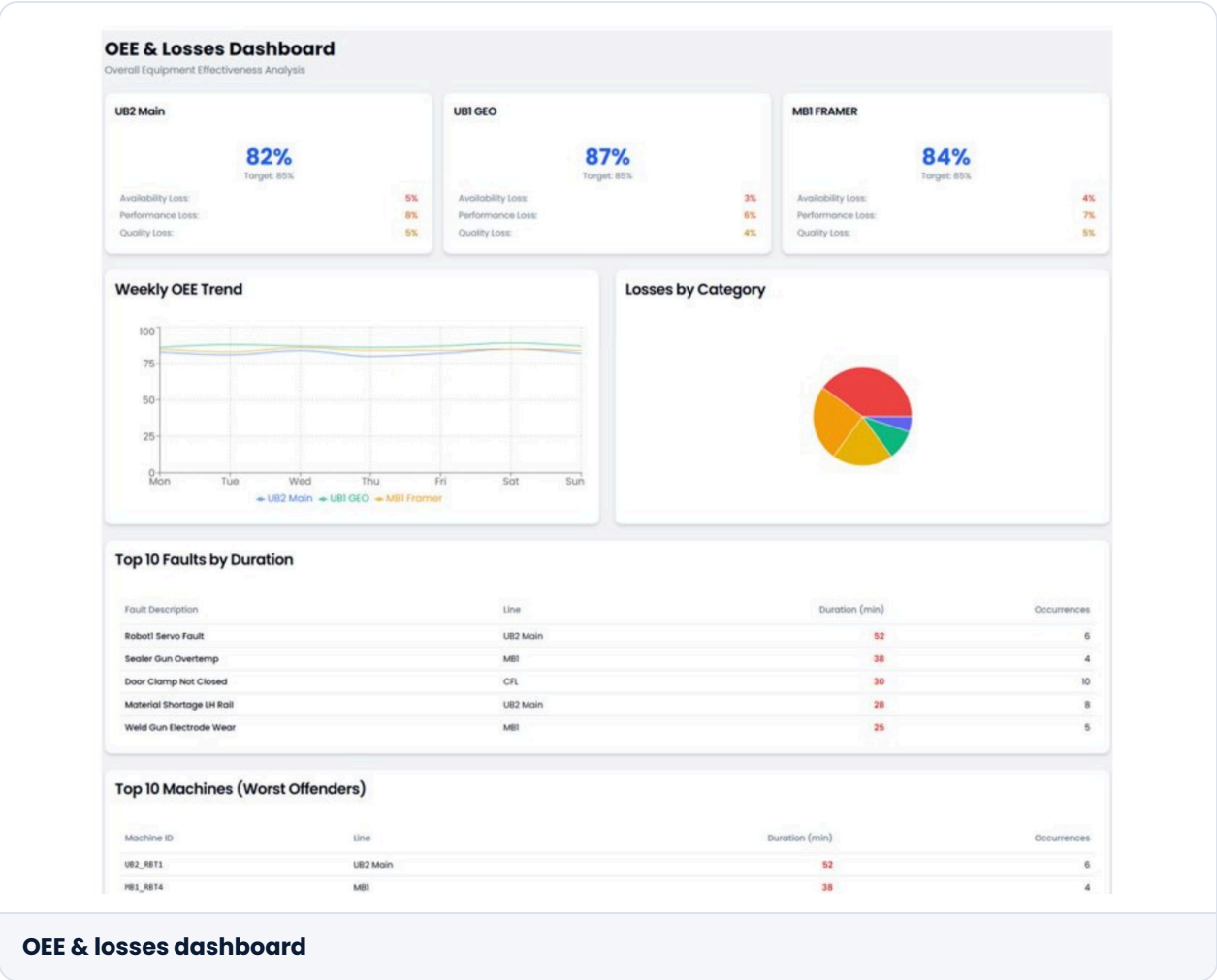
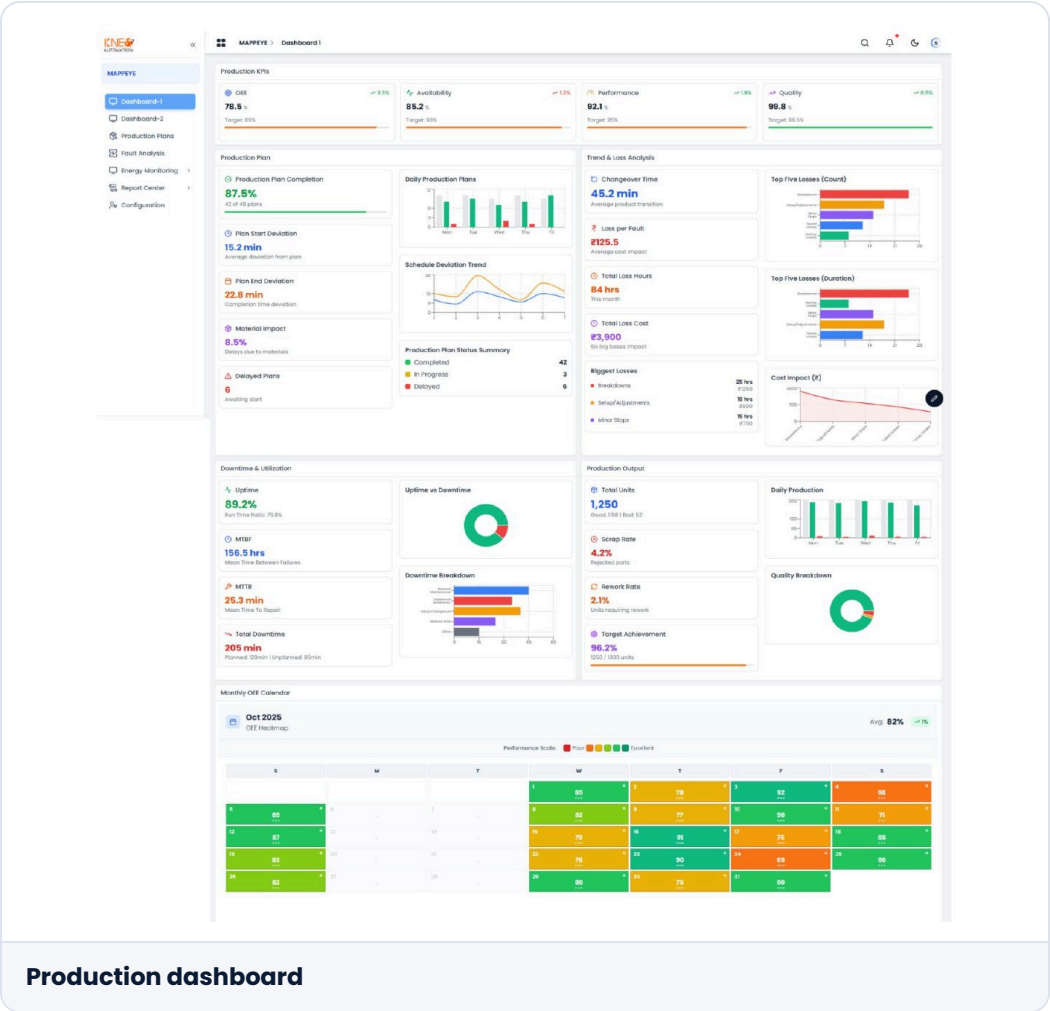
From no visibility to higher efficiency, in one closed loop.

- ✓ Real-time data captured live from every machine
- ✓ Business context added to raw signals
- ✓ OEE calculated automatically ($A \times P \times Q$)
- ✓ Root causes of inefficiency identified
- ✓ Actionable insights aligned to the production plan
- ✓ Bottlenecks removed, capacity released



MAPP EYE — production & OEE dashboards

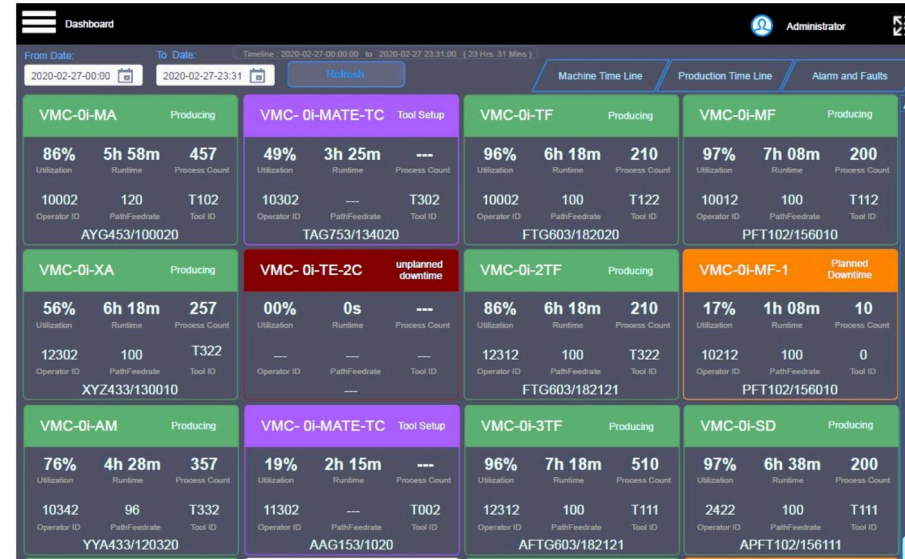
Plan completion, loss analysis, downtime breakdown and worst-offender ranking.



MAPP EYE — live machine monitoring

Utilization, runtime, process count and fault state for every asset.

- ✓ Producing, tool-setup, planned and unplanned downtime shown at a glance
- ✓ Utilization, runtime and process count per machine
- ✓ Operator ID, path feed-rate and tool ID captured live
- ✓ Machine, production and alarm timelines on one screen



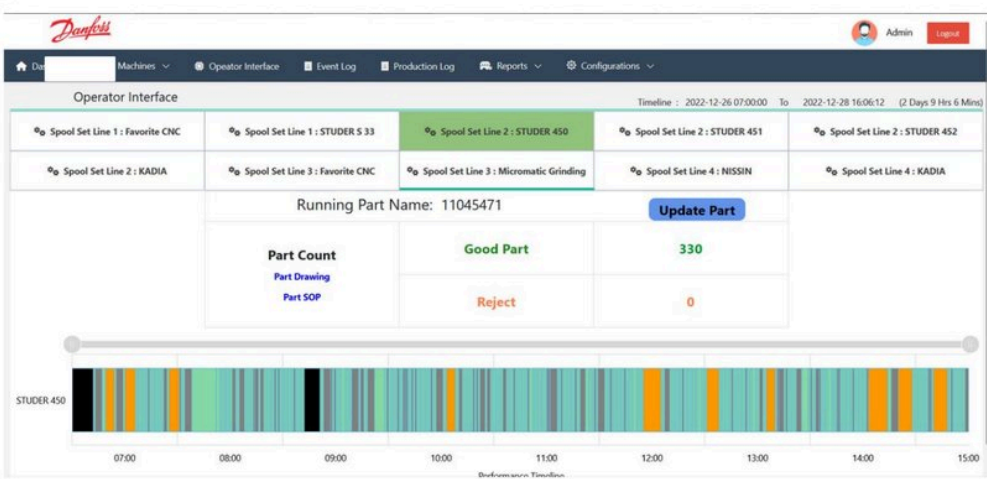
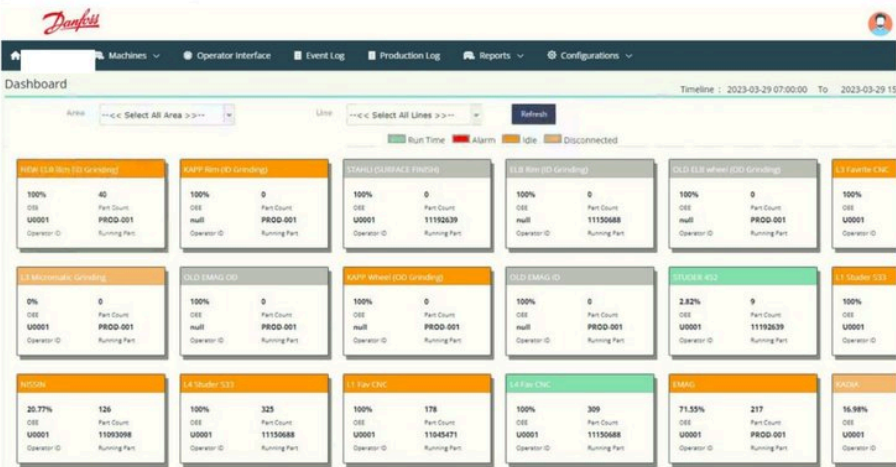
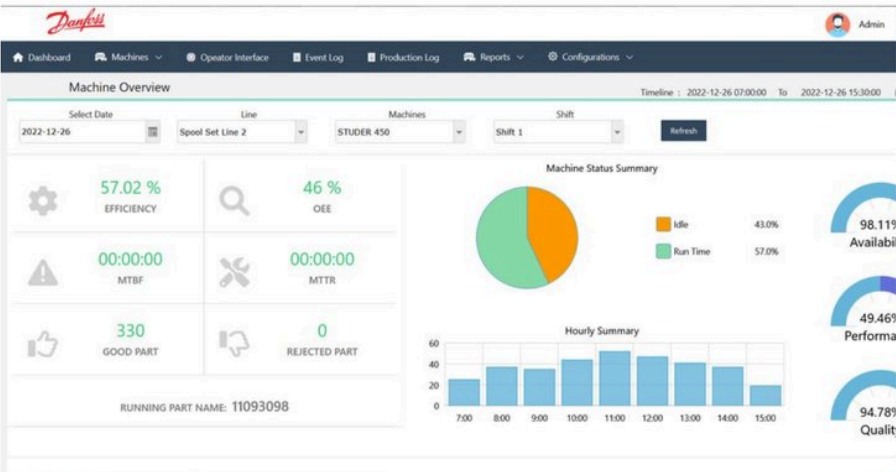
Live machine status board



Connected CNC assets

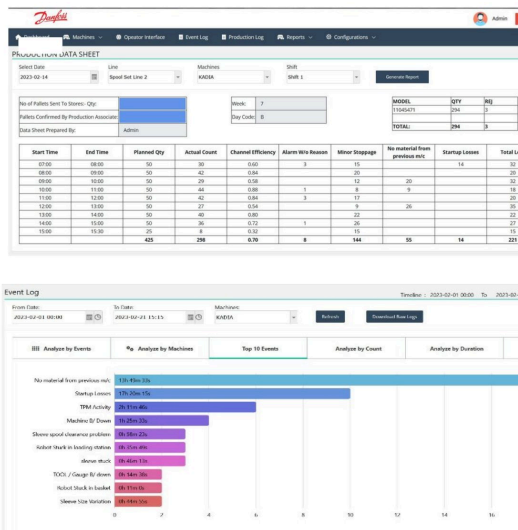
MAPP EYE — line & shift performance

Machine overview, performance timeline, operator interface and area dashboard.



MAPP EYE — reporting & machine connectivity

Shift data sheets, event analysis and direct CNC / PLC integration.



Shift reports & event analysis

Fanuc MTLINK Software parameters

Sr.no	Mandatory Signals	Description
1	MainProgram	MainProgram
2	ActProgram	Executing program
3	CncState	State of CNC
4	CncWarning	CNC alarm information
5	Alarm	Alarm message
6	Mode	Mode
7	PartsNumAll	The total number of machined parts
8	PowOnTime	Power-on period (sec)
9	RunTime	Operation time (sec)
10	SpindleLoad	Spindle motor load (%)
11	SpindleSpeed	Speed of spindle motor (rpm)
12	SpindleTemp	Temperature of spindle motor (deg C)
13	ServoSpeed	Speed of servo motor (rpm)
14	ServoTemp	Temperature of servo motor winding (deg C)
15	ServoError	Deviation value of servo position
16	ServoLoad	Servo load (%)
17	ServoCurrent	Servo load current (A)
18	ServoCurrentPer	Servo load current (%)
19	PulseCoderTemp	Temperature of servo pulse coder (deg C)
20	CncState	State of CNC: "EMERGENCY", "ALARM", "OPERATE", "SUSPEND", "STOP", "UNKNOWN"
21	CncWarning	Without warning: "NONE" With a following warning: "BATTERY LOW", Fan warning: "F"
22	CncBatLow	CNC battery low
23	CncFan1Status1	CNC FAN1 exchange information 1
24	CncFan1Status2	CNC FAN1 exchange information 2
25	CncFan1Status3	CNC FAN1 exchange information 3
26	CncFan1Status4	CNC FAN1 exchange information 4
27	SpindleTotalRev1	Spindle total rotation1
28	SpindleTotalRev2	Spindle total rotation2

FANUC MTLINK-i parameters



EMAG



KAPP



STAHLI



Studer Machine



KADIA



Micromatic

CNC/PLC Controller Type :
FANUC **SIEMENS** **MITSUBISHI ELECTRIC**

Connects natively to FANUC, SIEMENS and MITSUBISHI ELECTRIC controllers



M A P P

VITA

Predictive Maintenance & Asset Intelligence

“Prevent breakdowns before they impact delivery or quality.”

WHAT IT DOES

- 1 Preventive & condition-based scheduling
- 2 AI-driven predictive analytics
- 3 Digital work orders & history
- 4 MTTR / MTBF tracking
- 5 Spare & BOM management

OUTCOME

- ✓ Reduced unplanned downtime
- ✓ Longer asset life
- ✓ Lower maintenance cost

MAPP VITA — maintenance module

Work orders, schedules, employee performance and spare consumption.



TRIA

Login to access your Preventive Maintenance Project account.

Username

admin

Password

Login

COMPLETED MAINTENANCE SUMMARY (LAST 15 DAYS)

COMPLETED WORK ORDERS

1

SPARE CONSUMED QUANTITY

0

SPARE CONSUMED COST

0.00

EMPLOYEE PERFORMANCE (LAST 15 DAYS)

ON TIME

6

OVERDUE

6

DIFFERED

3

PLANNED MAINTENANCE FOR NEXT 15 DAYS

TASKS DUE

64

WORK ORDERS CREATED

0

WORK ORDERS NOT CREATED

64

OPEN MAINTENANCE SUMMARY (LAST 15 DAYS)

Pending Completion: 33.3%

In Progress: 14.3%

Not Assigned: 14.3%

Completed: 4.8%

Cancelled: 33.3%

TOTAL DUE WORKORDERS

21

NOT ASSIGNED

3

IN PROGRESS

3

WORK DONE

7

COMPLETED

1

CANCELLED

7

TRIA

Dashboard Schedules Tasks Open Work Orders Closed Work Orders Configurations

Work Order Details

Back To Workorder List

Artlog Assembly	Model#	2023-01-01	COMPLETED	1
NAME	MODEL NAME	ORIG. SCHEDULE DATE	CURRENT STATUS	WORK ORDER ID
Priority: Low	Deferred Count: 0	Last Scheduled Date: 2023-01-01		
Assigned To: Administrator		Work Done By / Date: PM_Eng_1 / 2023-08-01		
WO Special Instructions: SPI		Completed By / Date: PM_Supervisor_1 / 2023-08-01		

WORK ORDER HISTORY

#	NEW STATUS	NEW DUE DATE	NEW PRIORITY	NEW USER	CHANGED BY	CHANGE DATE	REMARK
1	CREATED	2023-01-01	3		Admin	2023-08-01 16:40:40	Work Order Created
2	ASSIGNED	2023-01-01	3		Admin	2023-08-01 16:40:58	Assigned
3	WORK_DONE	2023-01-01	3		PM_Eng_1	2023-08-01 16:43:04	Work Done
4	COMPLETED	2023-01-01	3		PM_Supervisor_1	2023-08-01 16:43:38	PIR Activities

ACTIVITY LIST

#	ACTIVITY NAME	COMMENT	PHOTO
1	Act 1		
2	Act 2		

SPARES CONSUMED

#	SPARE'S NAME	CONSUMED QTY
1		

TRIA

Dashboard Schedules Tasks Open Work Orders Closed Work Orders Configurations

Schedule Configuration Parameters

Back To List

Daily

Weekly

Monthly

Yearly

DAILY

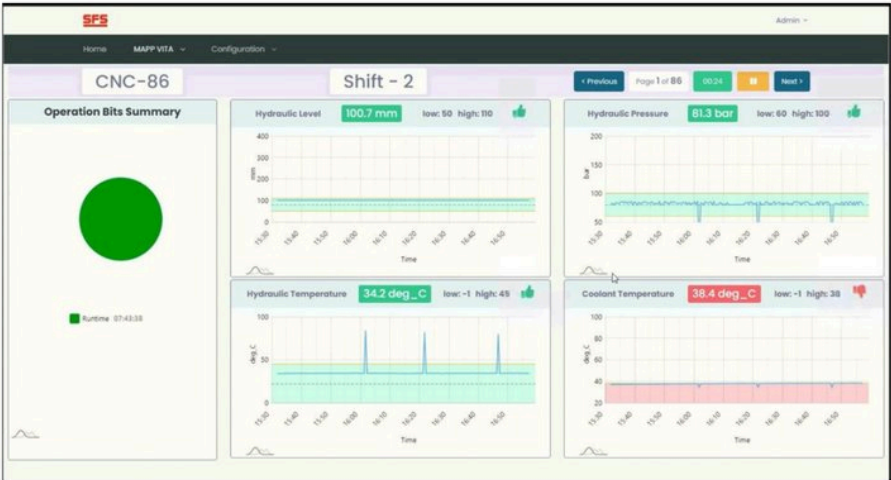
HMT Machine Daily Schedule

Repeat Every 1 Days

Submit Configuration

MAPP VITA — condition-based monitoring

Live machine parameters with configurable low / high alarm bands.



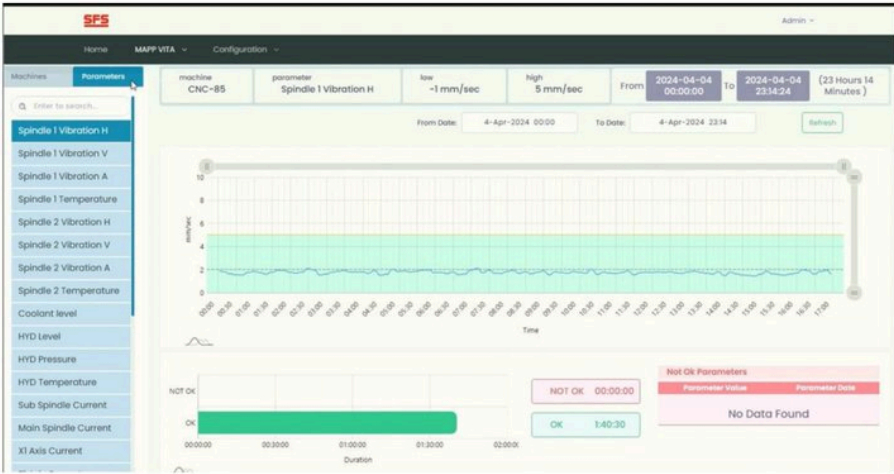
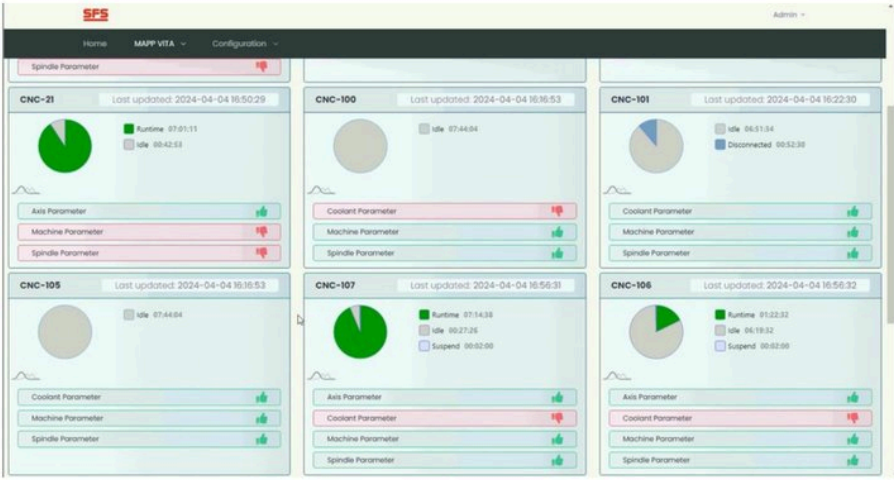
Machines

Assigned Parameters

Name	Low	Low	High	High
Hydraulic Level	0 mm	50 mm	100 mm	400 mm
Hydraulic Pressure	0 bar	60 bar	100 bar	200 bar
Hydraulic Temperature	0 deg_C	-1 deg_C	45 deg_C	85 deg_C
Coolant Temperature	0 deg_C	-1 deg_C	38 deg_C	85 deg_C
Main Spindle Current	0 Amps	10 Amps	120 Amps	200 Amps
Sub Spindle Current 1	0 Amps	-1 Amps	60 Amps	200 Amps
Sub Spindle Current 2	0 Amps	-1 Amps	10 Amps	200 Amps
SI Spindle Current	0 Amps	-1 Amps	10 Amps	200 Amps

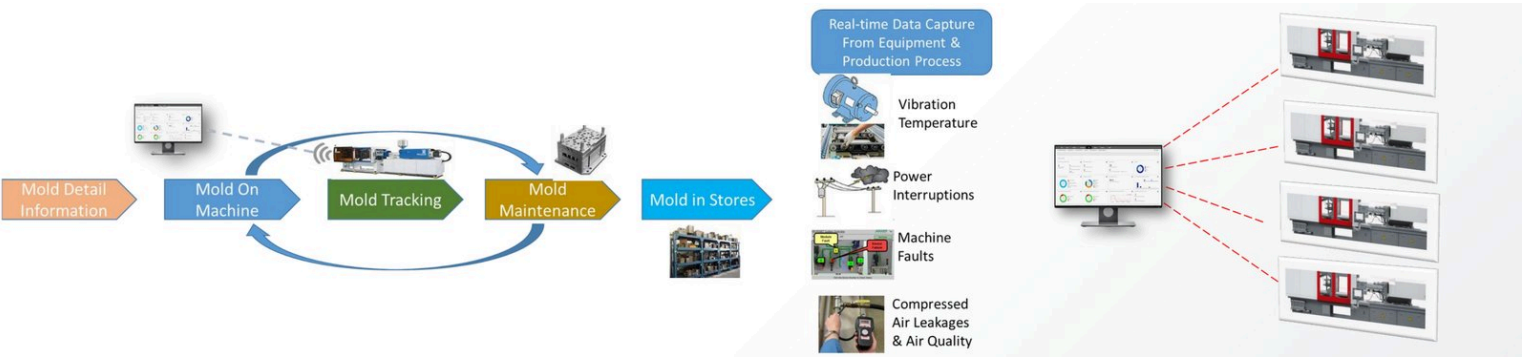
Parameters

Name	Low	Low	High	High
Hydraulic Level	0	100.6	150	500
Hydraulic Pressure	0	75	80	200
Hydraulic Temperature	0	-10	40	85
Coolant Temperature	0	-10	35	85
Main Spindle Current	0	-1	300	200
Sub Spindle Current 1	0	-1	30	200
Sub Spindle Current 2	0	-1	150	200
SI Spindle Current	0	-1	150	200
X1 Axis Current	0	-1	150	200
Z1 Axis Current	0	-1	150	200

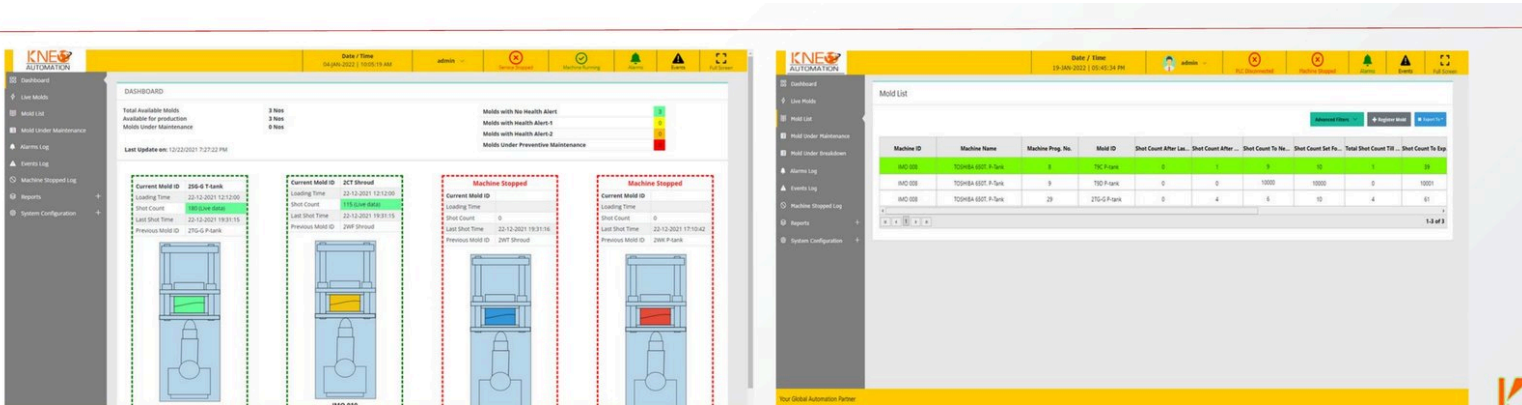


MAPP VITA — tool & mould maintenance

Shot-count based mould health, from stores to machine and back.



Mould lifecycle flow



Mould maintenance screens



M A P P

TRAIL

End-to-End Traceability

| "If it's not traceable, it's not controllable."

WHAT IT DOES

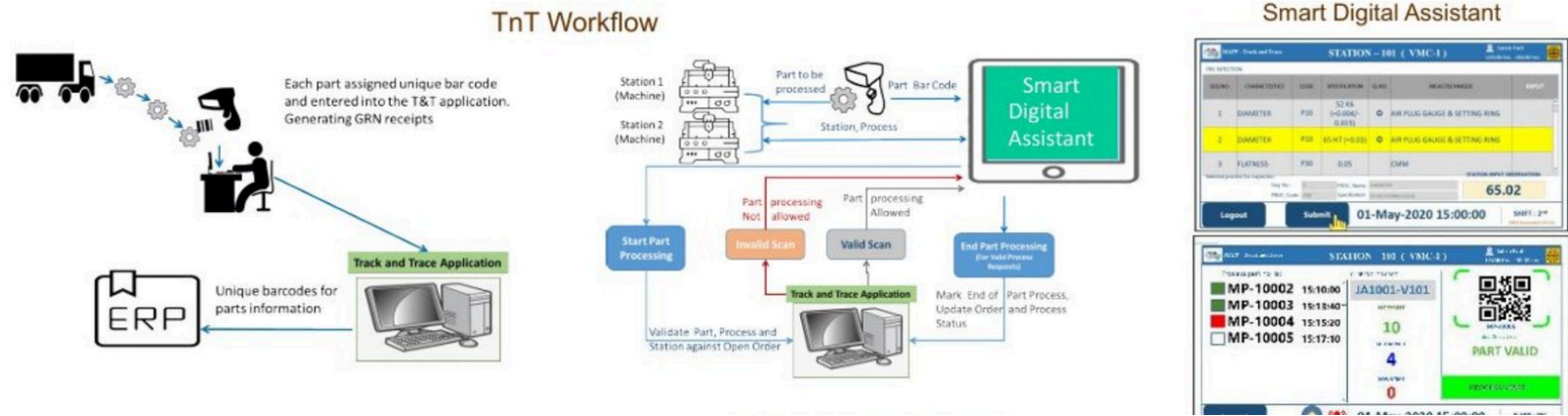
- 1 4M traceability — Man, Machine, Material, Method
- 2 Lot, serial & batch tracking
- 3 Parent-child part relationships
- 4 Recall & audit management
- 5 Supplier-to-customer linkage

OUTCOME

- ✓ Instant recalls
- ✓ Warranty risk reduction
- ✓ Complete compliance proof

MAPP TRAIL — track & trace workflow

Unique barcodes, station-level validation and a smart digital assistant.



Track & trace workflow

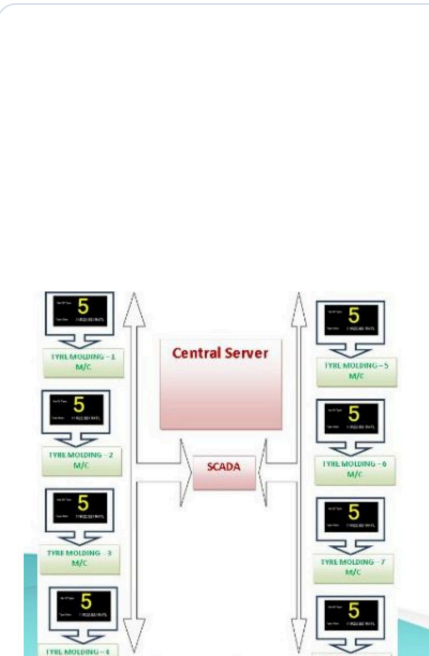


Station screens

MAPP TRAIL — deployed at scale

Tyre manufacturing: 200 machines, 10 PLCs, central server and Andon display.

- ✓ Machine PLC program upgradation
- ✓ Data logging from 10 PLCs
- ✓ 200 machines under data collection
- ✓ Data archived on a central server
- ✓ Automated report generation
- ✓ Visualisation on Andon displays



System architecture



Andon & shift reports

MAPP TRAIL – operator station

Scan-driven assembly: main part, child part, DC tool and cycle control.



जयश्री

Op1Logout

Dashboard

Production Plans

LINE

MAIN ASSEMBLY

STATION

MAIN ASSEMBLY -1

PART

Parent-Part-SW-4020HL22

PROD PLAN

1

PLANNED

5

DONE

0

Image



Scanned Code

FG0001

Refresh

Read SOP

Timeline

Raise Alarm

DC Tool

Cylinder Down

Abort Cycle

DC Reset

00:00

Main Part Id - 1

Next Scan Part: D/9013-1/2/1

Main part scan

Child part scan

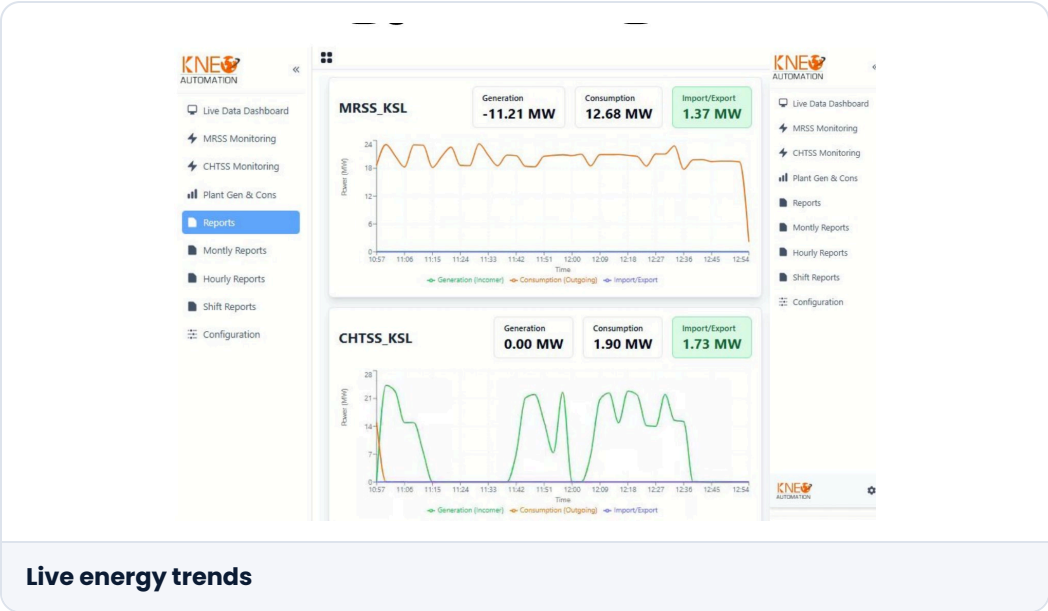
DC

Main part scan

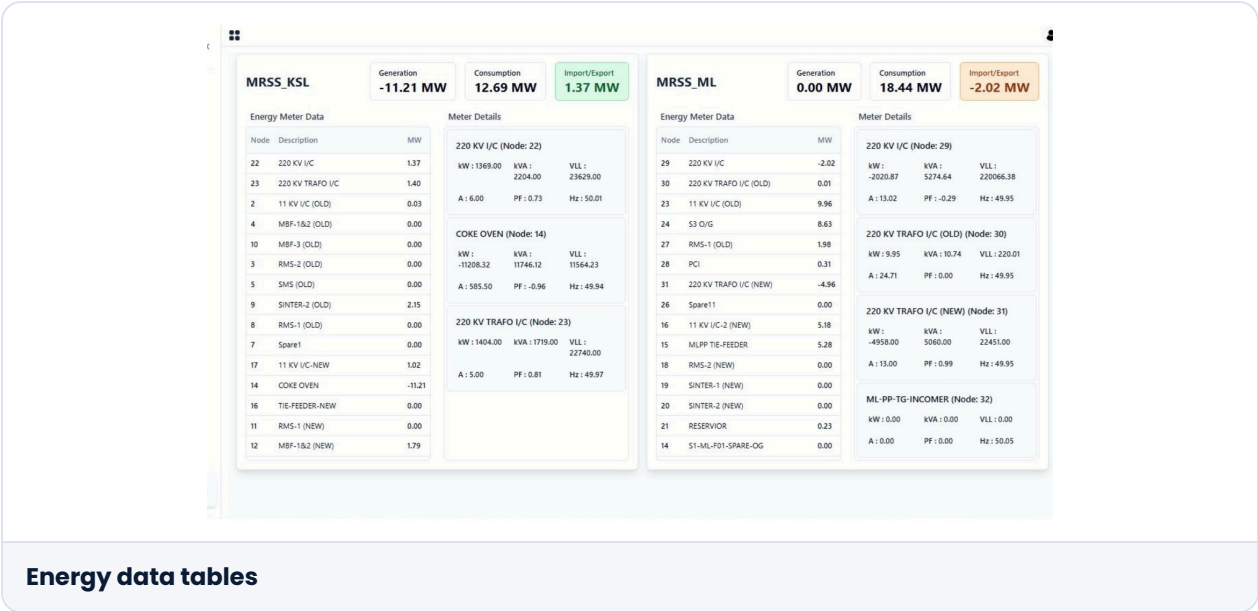
Energy Management System

Multi-utility monitoring across electricity, gas, water, steam and compressed air.

- ✓ Real-time energy data acquisition
 - ✓ Visualization & dashboards
 - ✓ Equipment & zone-level monitoring
 - ✓ Alerts & alarms
 - ✓ Multi-utility monitoring
- ✓ Energy KPIs & benchmarking
 - ✓ Historical data analysis
 - ✓ Integration with other systems
 - ✓ Automated reporting
 - ✓ Data security & cloud accessibility



Live energy trends



Energy data tables

THE MAPP PROMISE

MAPP is a unified MES platform that connects quality intent (**ZEN**), production planning (**ADEPT**), execution visibility (**EYE**), asset intelligence (**VITA**) and end-to-end traceability (**TRAIL**) into a single closed-loop system — ensuring compliance, efficiency and confidence.

From Planning to Proof.
One Platform. Total Factory Intelligence.

Trusted by leading manufacturers

150+

Satisfied customers

400

Projects delivered

30

Countries

20+

Years in industry





LET'S TALK ABOUT MAPP

Thank You

We can walk your team through a live demo of any module, or scope a pilot on one line.

One Platform.
Total Factory Intelligence.

MAPP · MONITOR & ANALYZE PLANT PERFORMANCE

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