

## Rayterton Industrial IoT Monitoring Suite

Turn machine signals into daily operational control with faster improvement cycles and audit-ready evidence across lines and plants. The suite connects edge data capture and a standardized production model with real-time visibility, downtime and loss insights, alert-driven actions, and enterprise integrations in a single operating flow.

**All in one monitoring platform.**

### From Signals to Operational Execution

Plants often face challenges with raw tags and busy charts that don't drive actionable insights. **Rayterton** addresses these challenges by starting with the **KPI and Taxonomy Governance Studio**, which establishes shared KPI definitions, defines downtime taxonomy, and provides escalation templates for more structured operations.

Next, we move into **Industrial Connectivity and Edge Gateway**, which includes a Device and Signal Reliability Layer that ensures data stays consistent even when the network drops. This ensures that plant operations remain uninterrupted and reliable. After that, **Data Capture and Context Builder** converts signals into events tied to line, shift, SKU, and order. This process ensures that all systems in the suite run on the same definitions, providing uniformity across sites.

Our operating loop is designed to be repeatable across sites, covering key steps such as governance setup, device onboarding, tag mapping, data readiness, real-time monitoring, OEE and loss analysis, andon escalation, shift review, quality and energy analytics, and predictive analytics. The Integration Hub then connects seamlessly with systems like MES, CMMS or EAM, QMS, ERP, and BI, ensuring all data is integrated and actionable. Finally, change control loops back into governance to ensure improvements stay standardized and aligned across sites.

## KPI and Downtime Governance

KPI and Taxonomy Governance Studio sets the rules once so every plant runs the same scoreboard. Site and line structure, KPI definitions library, downtime reason codes, thresholds, escalation policy templates, and versioning with change log are managed as controlled releases, so benchmarking across sites stays valid. Governance outputs stay traceable through a versioned KPI definition pack, downtime taxonomy catalog, and a recorded change log for audits.

Rayterton Apps  
KPI and Taxonomy Governance Studio

Last sync: 22 Jun 2026 11:55 OS

**Standard governance and a shared KPI model**  
Controlled releases for KPI definitions, downtime taxonomy, and escalation policy templates across plants.

**Active release**  
**GOV-1.7.0** (18 Jun 2026)  
Signed by Ops Excellence and Plant Finance.

**KPI definitions** (LIBRARY) 8 Definitions versioned (Includes calculation windows, thresholds, and owners.)

**Downtime reason codes** (TAXONOMY) 10 Used for OEE availability loss and alarm triggers. (Codes and groups)

**Escalation templates** (POLICY) 6 Rules drive who gets notified and when. (Reusable paths)

**Governance flow**  
KPI rules map to downtime codes, which map to escalation rules used by alerts.

**KPI rules pack** (KPI-DEF-1.7.8) → **Downtime taxonomy** (DT-TAX-1.7.8) → **Escalation rules** (ESC-POL-1.7.8)

**Link examples**  
KPI → Downtime group → Escalation template → Owner

**Coverage snapshot**  
KPI library mix and downtime impact distribution. (Last 7 days)

**KPI definitions by category**  
Availability, Reliability, Performance, Quality, Energy

**Downtime minutes by group**  
Maintenance, Material, Process, Quality, Utilities, Safety

**Escalation policy templates**  
Reusable routing for abnormal events.

**ESC-L1-L2** (TEMPLATE) → **Line to supervisor** (Channels: Andon board, Teams)  
Trigger: Stop > 5 min  
Line Leader → Shift Supervisor

**KPI definitions library**  
Standard scoreboard definitions used across lines and plants.

**KPI** Category Window Unit Threshold Downtime group Template Owner Version

OEE Availability AVAILABILITY Shift % >= 80% UNPLANNED STOP ESC-L1-L3 Ops Excellence 1.7.8

MTTR RELIABILITY 70 min >= 45 MAINTENANCE ESC-MTN Maintenance Lead 1.7.8

MTBF RELIABILITY 300 hrs >= 10 MAINTENANCE ESC-MTN Reliability Eng 1.7.8

Changeover Loss PERFORMANCE Shift % >= 30 PLANNED STOP ESC-OPV Production Lead 1.7.8

Scrap Rate QUALITY ESC-QA Quality Manager 1.7.8

**Controlled release change log**  
Every change captured for audit and benchmarking integrity.

**Version** Date Area Change Requester Approver Impact

GOV-1.7.0 18 Jun 2026 KPI definitions Aligned Availability planned time rule for all plants Ops Excellence Manufacturing Director BENCHMARK LOCK

GOV-1.7.0 18 Jun 2026 Downtime taxonomy Split Maintenance into Mechanical and Electrical codes Reliability Eng Plant Maintenance Head REASON CODE UPDATE

GOV-1.6.2 05 Jan 2026 Escalation policy Added Utilities escalation for compressor instability Facility Manager Plant Manager NEW TEMPLATE

GOV-1.6.1 22 Dec 2025 KPI definitions Updated Energy per Unit unit conversion to kWh/unit Energy Champion Ops Excellence CHART RECALCULATION

GOV-1.6.0 10 Dec 2025 Downtime taxonomy Introduced Micro stop group for short jams Production Lead Ops Excellence LOGS FREE DETAIL

**Governance evidence pack**  
Traceability matrix linking KPI governance to plant finance signals for audit review.

**Plant** Work center Period GL Cost element KPI Variance Impact Owner Status

PL01 NC-ASBY-01 2026-01 510100 CE-510100 OEE Availability Covered definition pack -Rp 185,000,000 D. Hidayat IN REVIEW

PL02 NC-PAINT-02 2026-01 530200 CL-530200 MTTR Covered definition pack -Rp 92,500,000 A. Proselyo PENDING

PL03 NC-MACH-03 2026-01 520310 CL-520310 MTBF Covered definition pack -Rp 44,250,000 M. Puri SIGNED

PL04 NC-PACK-01 2026-01 510410 CE-510410 Changeover Loss Covered definition pack -Rp 36,000,000 N. Wulandri IN REVIEW

**Variance impact by plant**  
Aggregated from the evidence rows.

Currency IDR

Rp 50M Rp 30M Rp 20M Rp 10M Rp 5M Rp 2M

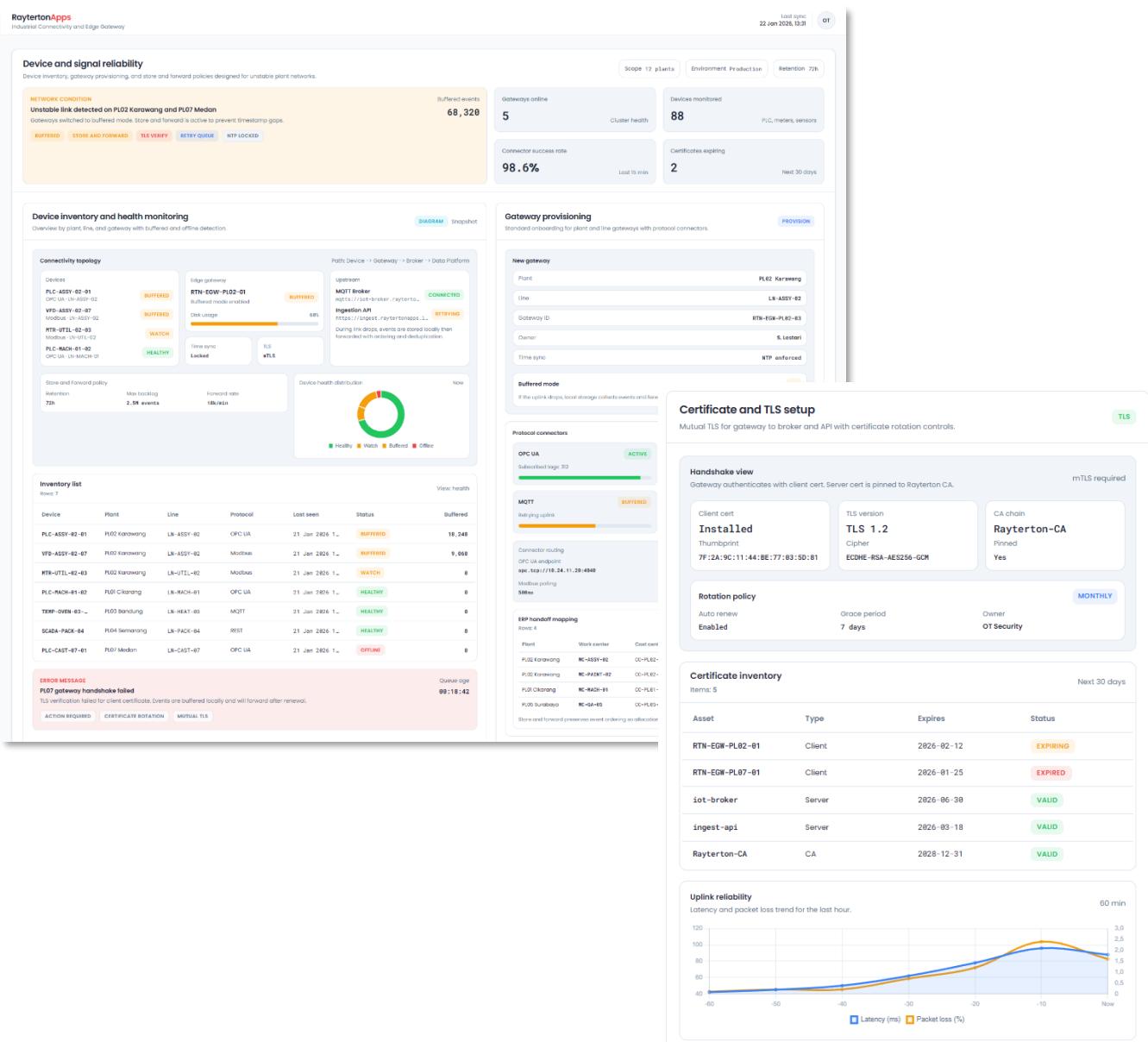
PL01 PL02 PL03 PL04 PL05 PL06 PL07 PL08 PL09 PL10

Default owner SLA Maintenance 30m Maintenance 30m Quality 45m Supply Chain 60m Utilities 45m

**Catalog**

# Industrial Connectivity and Edge Gateway

Industrial Connectivity and Edge Gateway, paired with the Device and Signal Reliability Layer, focuses on stable ingestion instead of “best effort” streaming. Device inventory and health, gateway provisioning, protocol connectors like OPC UA, Modbus, MQTT, and REST, plus certificate and TLS setup keep OT and IT controls aligned. Buffer and store and forward policies protect continuity when connectivity is unstable, so the control tower and OEE calculations do not collapse from timestamp gaps.



## Production Context and Data Modeling

Data Capture and Context Builder and the production context mapping layer turn tags into a usable operating model. Tag catalog and mapping, signal normalization rules, production context mapping to job, order, SKU, and shift, operator input terminals, and event schema setup make downtime, cycle, quality, and energy events comparable across lines. Data Quality Validation and Readiness Gate, driven by completeness checks, latency and gap monitoring, and anomaly review, prevents go live on bad data and records approval so teams trust the numbers.

**Data capture and context builder**

Tag catalog, normalization rules, and mappings turn field events to line, shift, SKU, and order.

**Tag mapping** Event schema Readiness gate View selector

**Event schema setup**

Validation steps before events are admitted to KPI calculations.

**Event type** machine\_status\_event v.8.0

Required fields: timestamp, plant, line, tag\_id, state, shift\_id, sku, order\_id

**Validation steps**

**Step 1: Schema match** Validate required fields and JSON types.

**Step 2: Timestamp sanity** Detect future timestamps and apply timezone normalization.

**Step 3: Unit and enum checks** Confirm unit set and state dictionary compliance.

**Step 4: Context binding** Attach line, shift, SKU and order from mapping tables.

**Step 5: Anomaly tagging** Flag outliers

**Data quality validation and readiness**

Completeness, latency, and gap monitoring prevent go live on bad data.

**Readiness check indicators**

Key checks shown per line with SLA style thresholds.

Plant	Line	Completeness	Latency p95	Gap monitor	Last event	Status	Owner
PL-B1	L81-ASSY	99.2%	8s	0 GAPS	22 Jan 2028 15:42	PASS	D. Hidayat
PL-B2	L82-PAINT	97.1%	14s	1 GAPS	22 Jan 2028 12:41	WATCH	A. Prosetyo
PL-B3	L82-ROCH	95.4%	22s	3 GAPS	22 Jan 2028 12:39	FAIL	M. Putri
PL-B4	L84-PACK	98.4%	12s	0 GAPS	22 Jan 2028 15:41	PASS	N. Wulandari
PL-B5	L84-ASSY	96.9%	16s	1 GAPS	22 Jan 2028 15:40	WATCH	B. Nugroho

**Production context mappings**

Mapping connects events to line, shift, SKU, and order via line definition set.

**Line mapping** Shift mapping SKU and order mapping

**Shift mapping** Shift calendar and exceptions

**SKU and order mapping** SKU keys and order context

**Readiness gate**

Approval and rejection of batches recorded for

**Latency trend**

Ingestion latency across a sample line group.

**Financial context binding (sample)**

Line production context to cost objects for variance management and reporting.

Plant	Line	SKU A	SKU B	Plant	Line	SKU	Order
PL-B1	L81-ASSY	87-00-15-00	15-00-22-00	PL-B1	L81-ASSY	FS-AX12-450	PLD-268122-00184
PL-B2	L82-PAINT	87-00-14-00	14-00-22-00	PL-B2	L82-PAINT	FS-AX12-450	PLD-268122-00176
PL-B3	L82-ROCH	87-00-15-00	15-00-22-00	PL-B3	L82-ROCH	COPP-AX12-0047	PLD-268122-00205
PL-B4	L84-PACK	87-00-15-00	15-00-22-00	PL-B4	L84-PACK	FS-AX12-450	PLD-268122-00222

**Mapping coverage**

Share of active tags mapped to normalized events.

**Event schema**

Event Governance Lead

**Financial context binding (sample)**

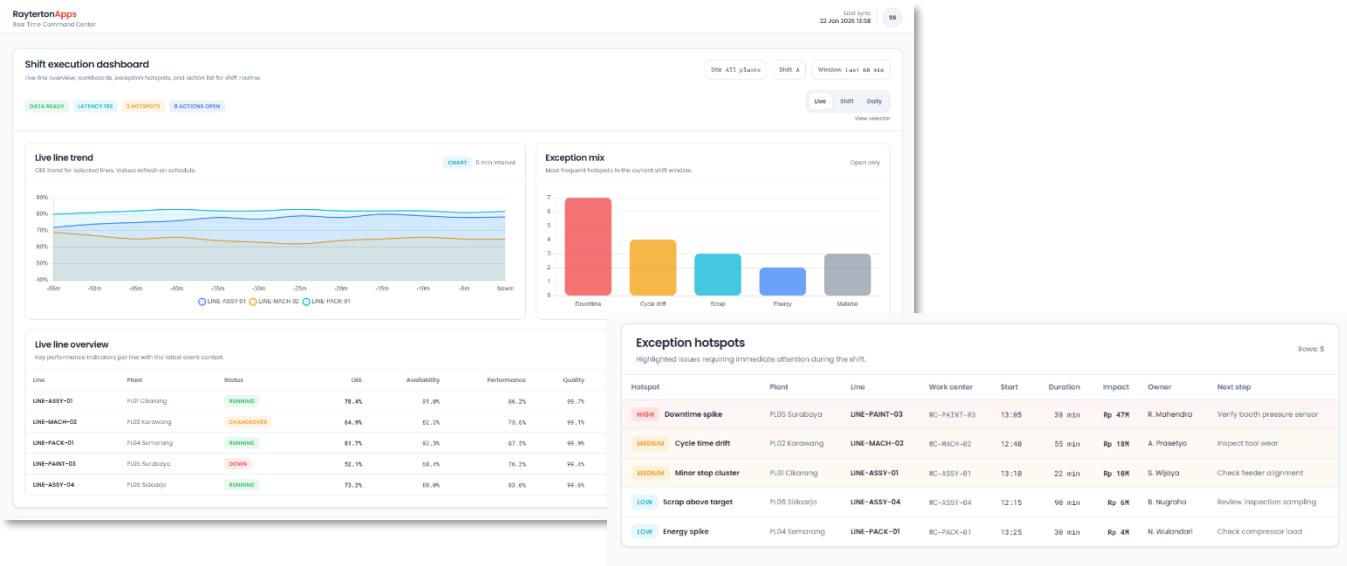
Line production context to cost objects for variance management and reporting.

Plant	Line	Cost center	Cost element	GL account	Period	Variance	Owner
PL-B1	L81-ASSY	CC-L81-ASSY	CE-518108	510208	2028.01	LAGGING	D. Hidayat
PL-B2	L81-PAINT	CC-L81-PAINT	CE-520018	520018	2028.01	OVERHEAD	A. Prosetyo
PL-B3	L82-ROCH	CC-L82-ROCH	CE-520238	520238	2028.01	RATE	M. Putri
PL-B4	L84-PACK	CC-L84-PACK	CE-520408	520408	2028.01	USAGE	N. Wulandari

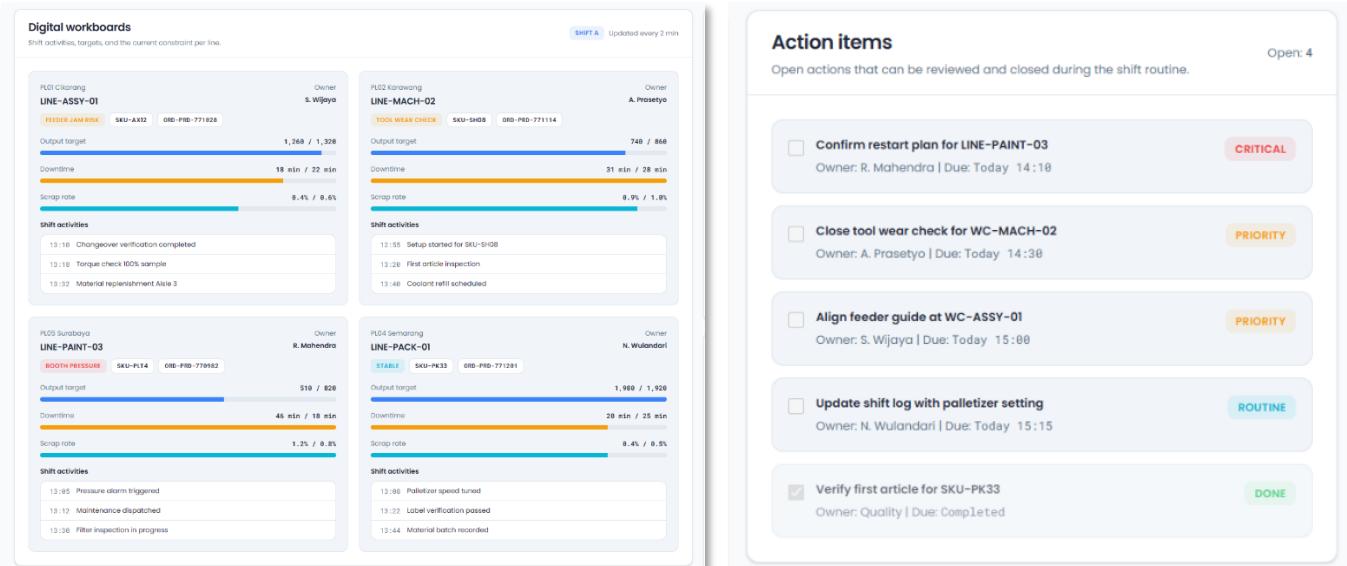
**Mapped** 12 **Unmapped** 2

## Real-Time Monitoring and Shift Management

Real-time Machine Visibility Control Tower and Digital Workboards for Shift Execution give supervisors a single operational view that is built for action. Live line overview, cell and line workboards, target versus actual views, and exception hotspots keep attention on what is breaking flow right now.

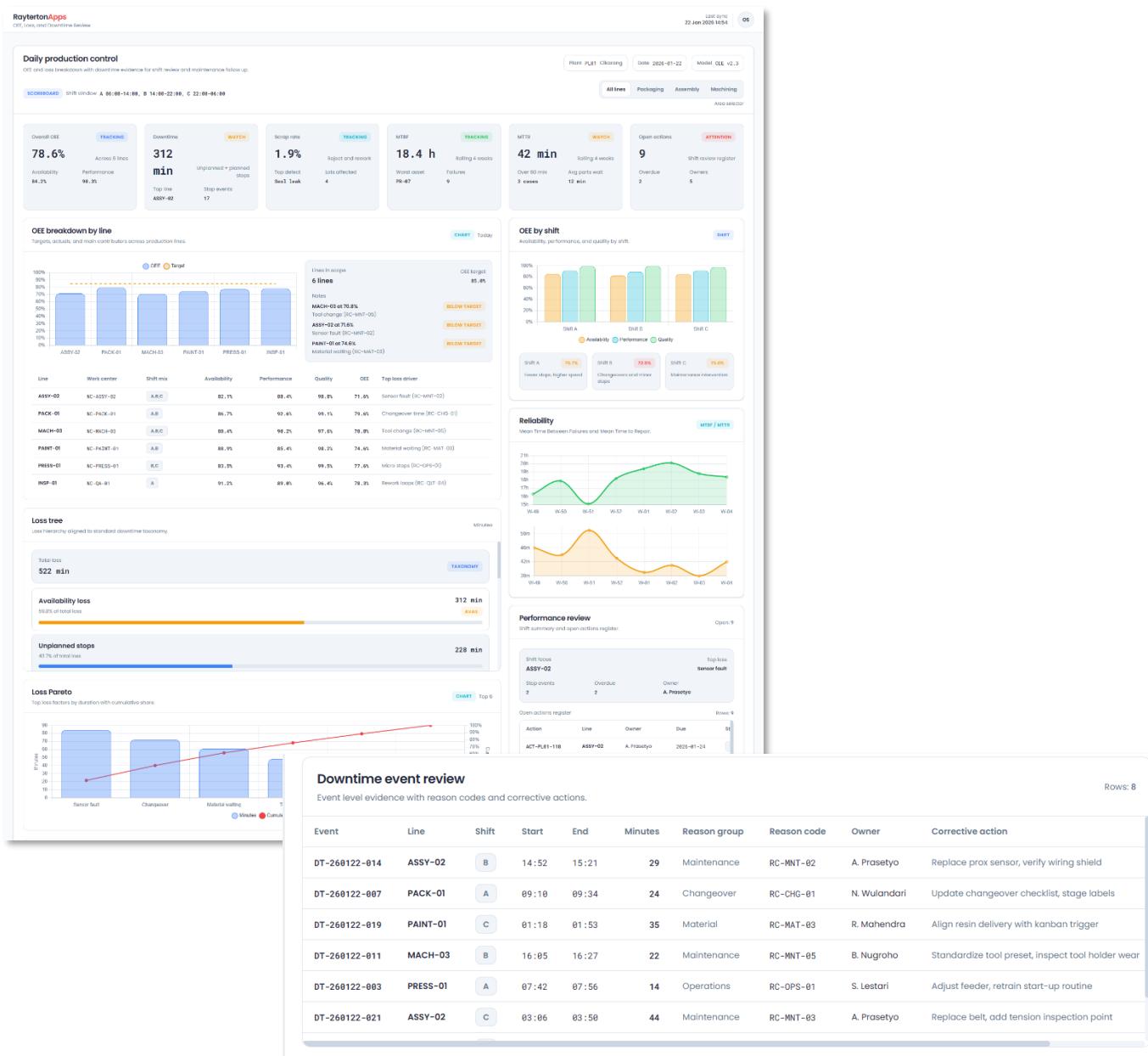


The output is a live status snapshot, an active exception list, and a digital action list that can be reviewed and closed during the shift routine.



## OEE, Loss, and Downtime Analysis

OEE, Loss, and Downtime Management plus the reliability metrics layer keeps the loss model consistent across sites. OEE dashboards by line and shift, loss tree and pareto, downtime event review, reason code assignment, changeover tracking, and MTBF and MTTR views let teams prioritize the biggest losses without arguing definitions. Shift review and daily performance routines add shift summary, exception review packs, daily KPI scorecards, and an open actions register, so improvement work is tied back to measured impact.



## Alerts and Escalation Workflows

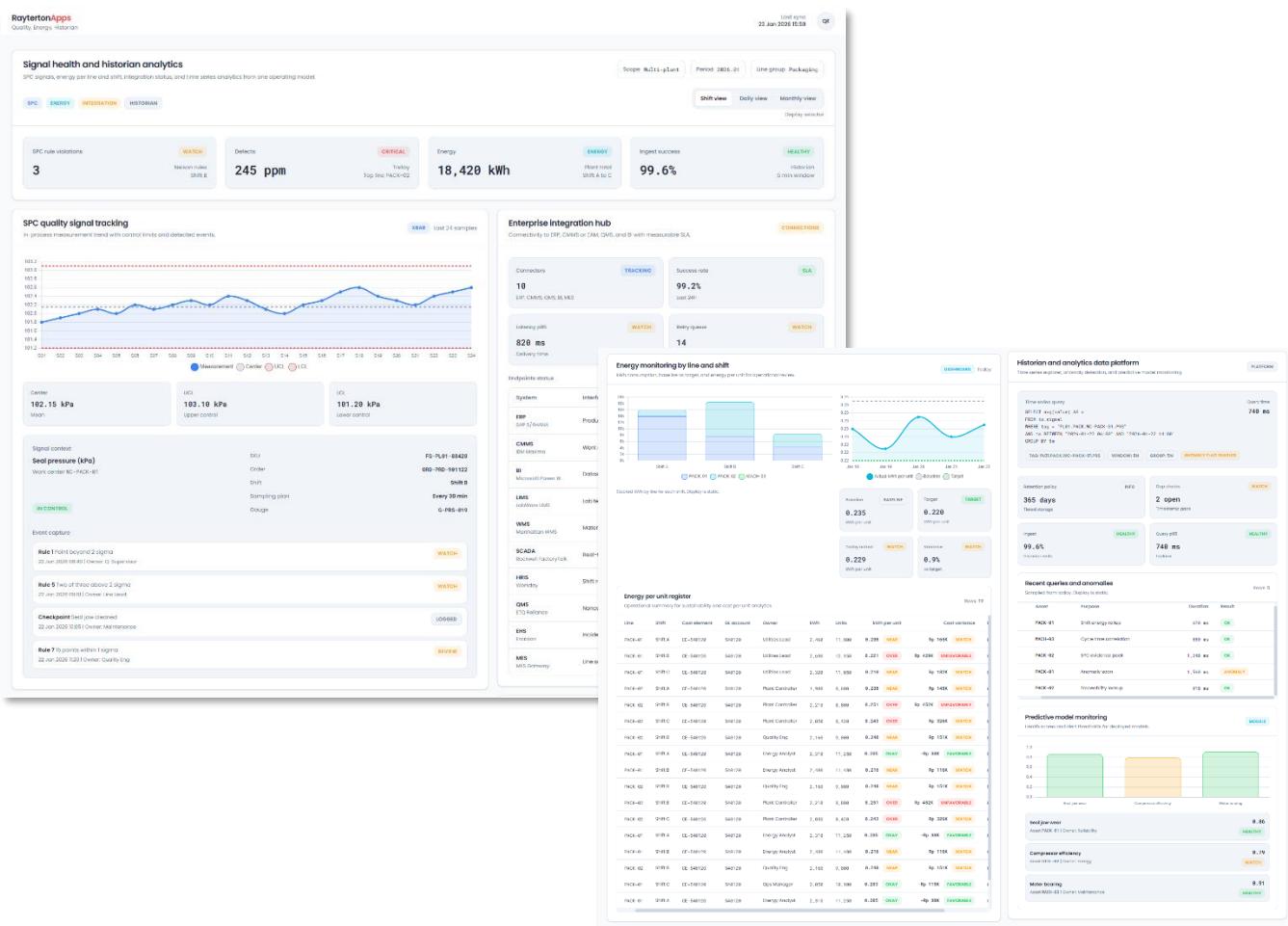
Andon, Alerts, and Escalation Workflows with Response Traceability and Action Governance turn abnormality into accountable response. Alert rule builder, notification and escalation paths, an alert inbox with acknowledgement, a response traceability log, and connected actions make it clear who owns a problem and when escalation must trigger. For maintenance-driven cases, the workflow can hand off into CMMS or EAM work orders, while still keeping the evidence trail tied to the original event.

The screenshot displays the Rayterton Apps Industrial IoT Monitoring Suite interface, which includes several key components:

- Alert operations control:** A dashboard showing live alert counts (6 open, 4 pending, 5 escalations), work order creation (3 created), and system status (SAP PM, 1 overdue).
- Open alerts trend:** A line chart showing the number of open alerts over time, with a peak around 10:00 and a dip around 11:00.
- Acknowledge SLA coverage:** A donut chart showing the distribution of SLA status for current shifts.
- Alert rule builder:** A configuration interface for creating alert rules, including policy templates and rule definitions.
- Notification and escalation path:** A table showing the steps and escalation levels for an Andon escalation template.
- Alert inbox:** A list of alerts with details like plant, line, work center, type, and status.
- Response traceability log:** A log of events showing the history of actions taken for each alert.
- Workflow integration:** A section for handing off alerts to CMMS or EAM work orders.
- Work order queue:** A table showing the status of work orders.
- Delivery board:** A chart showing the status of work order handoffs (Created, Queued, Dispatched, Failed).

# Quality, Energy, and Enterprise Integrations

Quality Signals, SPC, and Traceability Readiness adds SPC charts and rules, quality event capture, in process checkpoints, and evidence packs so drift is detected early and audit proof is assembled as part of the workflow. Energy, Sustainability, and Cost per Unit Analytics tracks energy monitoring by line and shift, energy per unit KPIs, baselines and targets, and correlation views such as energy versus downtime, so energy becomes an operational lever instead of a monthly bill review.



Historian and Analytics Data Platform provides retention and storage policy, time series query and explorer, pattern discovery, anomaly detection, and predictive model monitoring so recurring issues become searchable patterns, not tribal knowledge. Integration Hub for MES, CMMS or EAM, QMS, ERP, and BI closes the loop with an API catalog and endpoints, webhook subscriptions and events, integration monitoring for success rate, latency, and error rate, plus logs, audit, and retry queue with reprocess so data delivery has measurable SLA.

### Ready to Standardize IoT Monitoring at the Enterprise Level

Share your KPIs and integrations. Rayterton will standardize governance, connect your data, and deliver real-time, audit-ready operational visibility across the enterprise.

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## About Rayterton

Established in 2003, Rayterton delivers comprehensive Best Fit Software Solutions, server and hardware products, and technology services to a wide range of industries and organizations. Our core expertise lies in Business Process Improvement (BPI), IT Infrastructure, and IT Management.

At Rayterton, we are committed to empowering our clients by enhancing their business operations through tailored IT and management solutions. We combine innovation, experience, and client collaboration to ensure long-term success and digital transformation.

## Our Competitive Strengths

**100% Risk Free**

**Best fit to  
client  
requirements**

**Easy to  
customize**

**Software  
ownership**

**No Change  
Request (CR)  
fees during  
maintenance**

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