

ENTERPRISE INDUSTRIAL SAAS • ISO 55000 & TPM COMPLIANT

FixPulse Industrial

Standard Operating Procedures (SOP) & Industrial Maintenance Architecture

Complete standard operating procedure and system manual covering 4-level enterprise organization hierarchy, machinery asset tagging, 5-stage work order lifecycle, preventive maintenance scheduling, FIFO spare parts engine, and executive KPI intelligence.

DOCUMENT VERSION

Version 3.4.0 (Enterprise Edition) • May 2026

SYSTEM ARCHITECTURE

Enterprise Cloud Core • Zero-Trust Role Security

LINE OFFICIAL ACCOUNT

NovaPulse AI (LINE ID: @963thhms)

ONLINE PRODUCTION ACCESS

<https://fix-pulse.nova-pulse-ai.com>

ENTERPRISE SUPPORT & HOTLINE

Tel: 080-846-4657 • support@nova-pulse-ai.com

PLATFORM PROVIDER

Powered by Nova Pulse AI Platform

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FixPulse Industrial SaaS — Enterprise Maintenance SOP & System Manual

Enterprise Standard Operating Procedures (SOP) & Industrial Maintenance Architecture

Version 3.4.0 (Enterprise Edition) • May 2026

Corporate Platform: <https://nova-pulse-ai.com>

Live Cloud Portal: <https://fix-pulse.nova-pulse-ai.com>

Platform Provider: Powered by Nova Pulse AI Platform



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1. Introduction, Vision & Core Engineering Principles

1.1 Platform Objectives

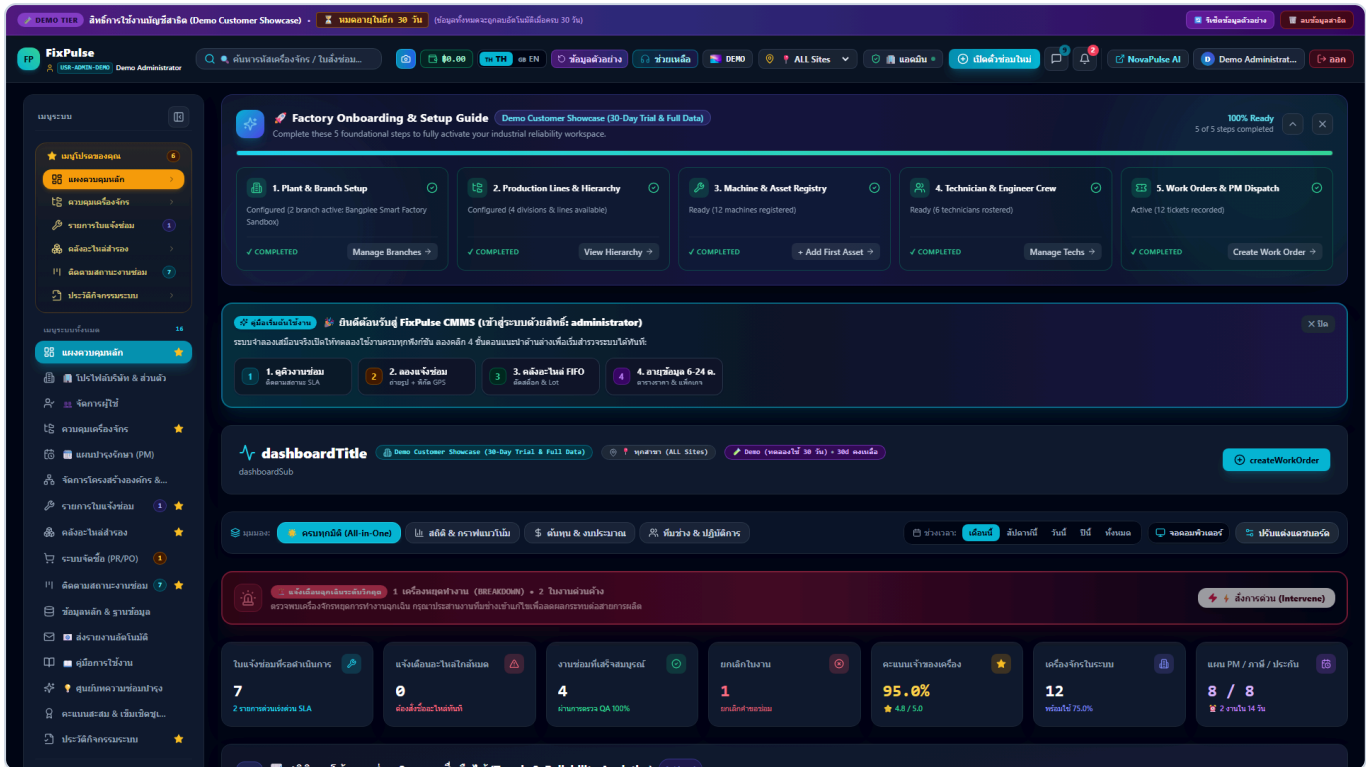
FixPulse Industrial SaaS is engineered to global industrial standards as a unified Proactive Maintenance Management System. Tailored for manufacturing plants, distribution hubs, and processing facilities, it pairs enterprise-grade cloud reliability with Reliability-Centered Maintenance (RCM) methodologies.

1.2 Engineering Principles & Rationale

Every workflow in FixPulse is rooted in recognized international manufacturing frameworks:

1. **Total Productive Maintenance (TPM):** Engages cross-functional teams—from operators to chief engineers—to eliminate breakdowns, defects, and safety incidents (Zero Breakdown, Zero Accident culture).
 2. **ISO 55000 / 55001 Asset Management Framework:** Governs full asset lifecycles: onboarding, criticality grading, budget allocation, preventive maintenance, and strategic retirement.
 3. **Lean Manufacturing (Waste / Muda Reduction):**
 - Eliminates waiting time with instant digital dispatches.
 - Prevents excess inventory holding costs via automated Min-Max reorder logic.
 - Eliminates manual transcription errors via unified relational data structures.
 4. **Financial Prudence & True Maintenance Costing:**
 - Aggregates direct labor and FIFO parts cost per machine to empower data-driven **"Repair vs. Replace"** capital expenditure decisions.
-

2. Onboarding, Sign In, Registration & Navigation Matrix



2.1 System Entry & Sign-In SOP

- Browser Access:** Navigate to <https://fix-pulse.nova-pulse-ai.com> on Google Chrome, Microsoft Edge, Safari, or Firefox.
- Existing User Sign In:**
 - Enter your corporate work email or authorized User ID.
 - Enter your password (use the eye icon to toggle password visibility).
 - Check **"Remember Me"** for quick session resumption across work sessions.
 - Select your preferred language (**English EN** or **Thai TH**) using the language toggle.
 - Click **"Sign In"** to access your organization's operations dashboard.
- Anti-Brute Force Account Protection:**
 - The platform enforces an automatic **15-minute account lockout** after **5 consecutive failed password attempts** to safeguard against unauthorized intrusion.
 - Users can click **"Forgot Password?"** anytime to initiate an automated self-service password reset link dispatched to their registered corporate email.

2.2 First-Step Company Registration SOP (Step 1 & Step 2)

New manufacturing organizations, plant facilities, or operational teams onboarding FixPulse Industrial can provision a brand-new workspace via the following structured two-stage procedure:

30-Day Free Demo Trial • All Features Unlocked

Register for FixPulse Industrial Demo

Provide basic company details. An activation link will be sent to your email to set your password.

1. Company & Plant Profile

Company / Plant Name *
e.g. Siam Precision Manufacturing Co., Ltd.

Company Code / Abbr *
e.g., SPM, THPD, AAA

Industry Sector
Automotive & Auto Parts (ยานยนต์และชิ้นส่วน)

2. Contact & Email

Full Name *
e.g. สมชาย ใจดี

Email Address *
e.g. somchai@company.com

Phone Number
e.g. 081-234-5678

3. Select Subscription Plan

30-Day Trial
FREE
ทดลองใช้ฟรี 30 วัน พร้อม
ฟีเจอร์ทั้งหมด

Standard
\$3,500 /mo
สำหรับโรงงานขนาดเล็ก 200 Assets

Enterprise
\$8,500 /mo
สำหรับโรงงานใหญ่ 500+ Assets

Cancel
Send Verification Link to Email

Step 1: Initial Registration Form Submission

- On the landing page, click "🔥 **Start Free Trial / Demo**" or "**Register Organization**" to launch the registration modal.
- Section 1: Company & Plant Profile**
 - Company / Plant Name ***: Enter the legal business name or plant identifier (e.g., **Siam Precision Manufacturing**). The system automatically suggests an initial code acronym.
 - Company Code / Abbreviation ***: Enter a 2–6 character alphanumeric code (e.g., **SPM**, **THPD**, **AAA**). This code serves as the universal prefix for equipment asset tags, work order IDs, and spare parts SKUs.
 - Live Uniqueness Checker**: If the requested code is already claimed by an existing entity, a red warning indicator is displayed accompanied by clickable alternative code suggestions.
 - Industry Sector**: Select your manufacturing sector to configure relevant operational defaults:
 - Automotive & Auto Parts
 - Electronics & Semiconductor
 - Food & Beverage / Cold Storage
 - Packaging & Printing
 - Metal, CNC & Plastic Injection
 - Warehouse, Logistics & Facilities
 - General Industrial Manufacturing
- Section 2: Contact & Verification Email**
 - Full Name ***: Legal name of the Organization Administrator.
 - Email Address ***: Active corporate email address designated to receive the high-security activation link.
 - Phone Number**: Direct contact phone number for maintenance coordination and notifications.

4. Section 3: Select Subscription Plan

- 🧪 **30-Day Free Demo Trial (FREE):** Full enterprise features unlocked, 30 days trial period, zero commitment.
- 🏭 **Standard Factory Essential (฿3,500/mo):** Mid-tier facility support, up to 200 registered machinery assets.
- 🏢 **Professional Enterprise Multi-Plant (฿8,500/mo):** Multi-plant deployment, unlimited assets and advanced analytics.

5. Click "📧 **Send Verification Link to Email**" to submit the onboarding request.

Step 2: Strict Email Verification & Secure Activation

1. Check Your Inbox:

- The automated notification service dispatches an activation message titled *"Activate Your FixPulse Industrial Administrator Account"* within 10–30 seconds.
- If not visible in your primary inbox, inspect your Spam or Junk mail folders.

2. Click Verification Link:

- Click the single-use cryptographic activation link contained within the email (valid for 24 hours).

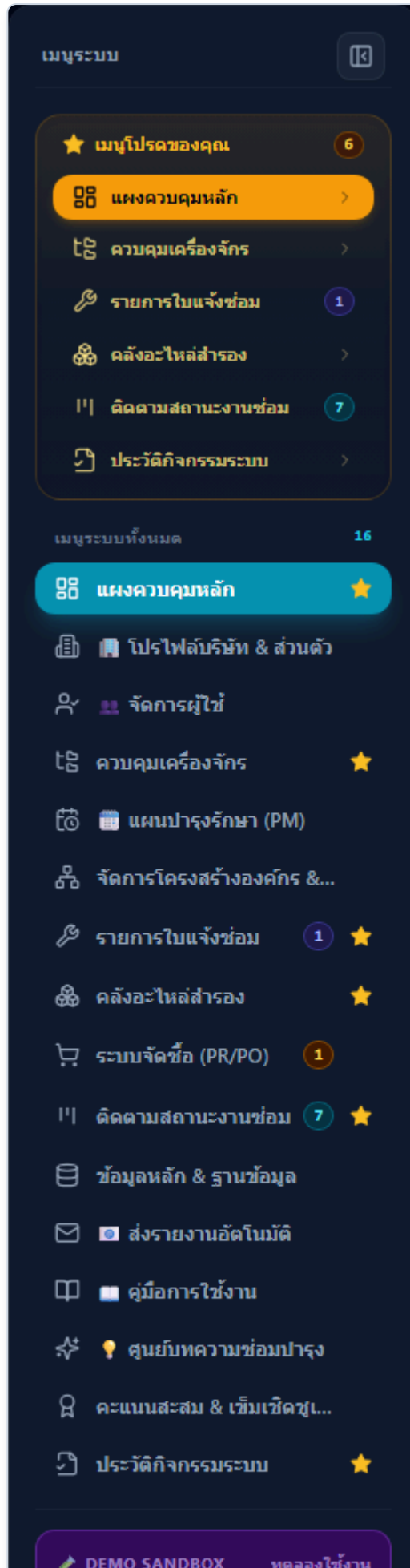
3. Set Master Password:

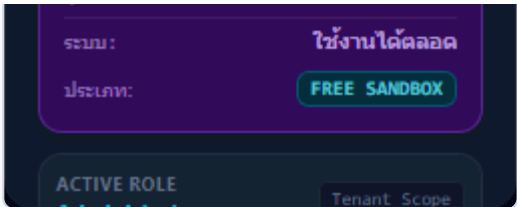
- Establish an enterprise-grade password (≥ 8\$ characters, combining uppercase, lowercase, numbers, and symbols).
- Confirm password and submit.

4. Automated Multi-Tenant Workspace Provisioning:

- Upon password confirmation, the system creates your isolated Multi-Tenant Secure Partition.
 - Self-healing baseline schema and operational presets are initialized automatically.
 - The administrator is logged in and redirected directly to the Executive Dashboard to begin factory configuration.
-

2.3 Sidebar Navigation Matrix





The primary left sidebar organizes system functions into cohesive operational modules:

No.	Menu Label	Icon	Core Functionality & Operational Scope	Accessible Roles
1	Dashboard		Real-time executive KPIs: MTTR, MTBF, OEE, asset availability, cost burn	All roles (scoped)
2	Org Control		4-Level Organization hierarchy (Branch, Division, Dept, Section)	Organization Admin
3	User Mgmt		User account provisioning, RBAC roles, department affiliations	Organization Admin
4	Assets		Master machine registry, technical specifications, QR code tagging	Admin, Controller, Tech
5	PM Schedule		Preventive maintenance calendar, cyclic checklists, auto-dispatch	Admin, Controller, Tech
6	Kanban		5-Stage visual card board with drag-and-drop workflow progression	All roles
7	Work Orders		Tabular work order management with multi-criteria search and export	All roles
8	Stock (FIFO)		Spare parts inventory, FIFO batch costing, min-stock triggers	Admin, Warehouse, Tech
9	Reports		Comprehensive cost analytics, failure trend analysis, technician KPIs	Admin, Plant GM
10	Settings		Enterprise platform policies, notifications, company profile	Organization Admin

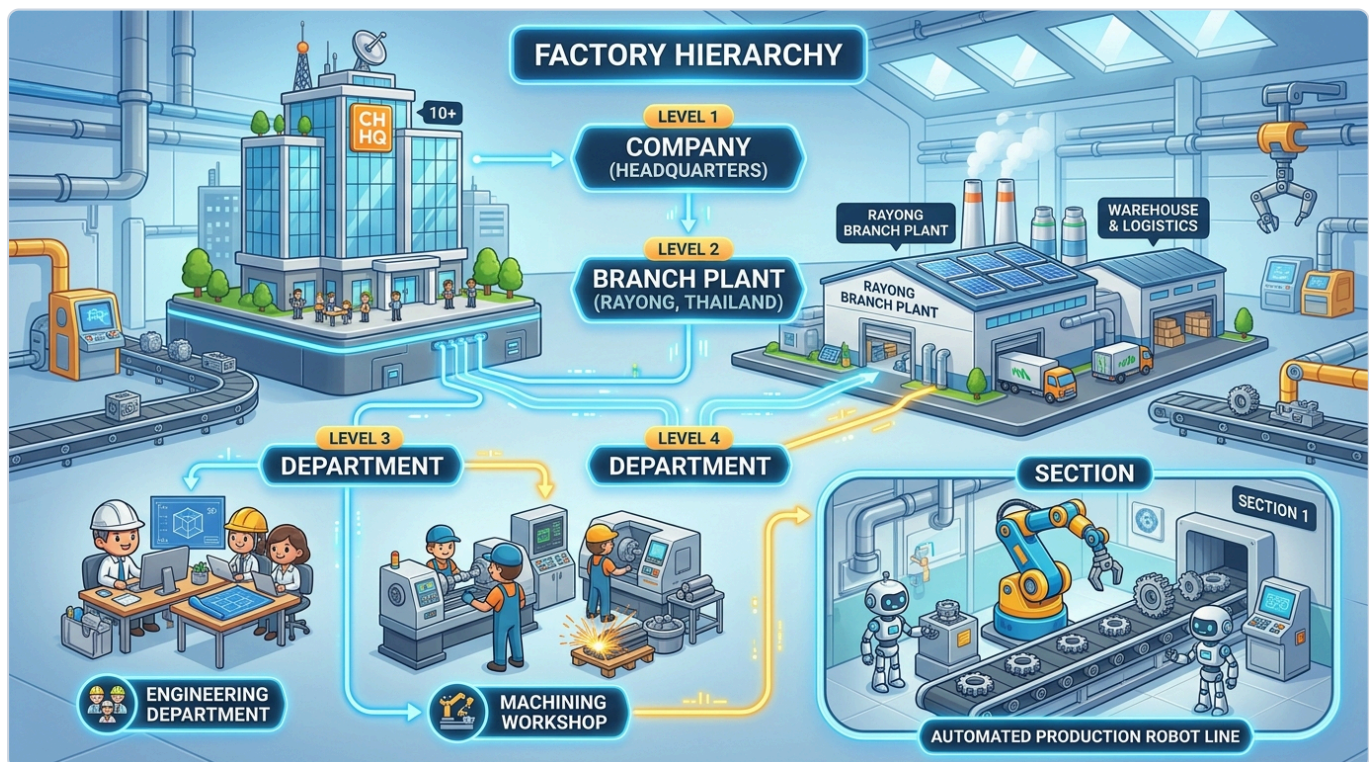
3. Role-Based Access Control (RBAC) Matrix

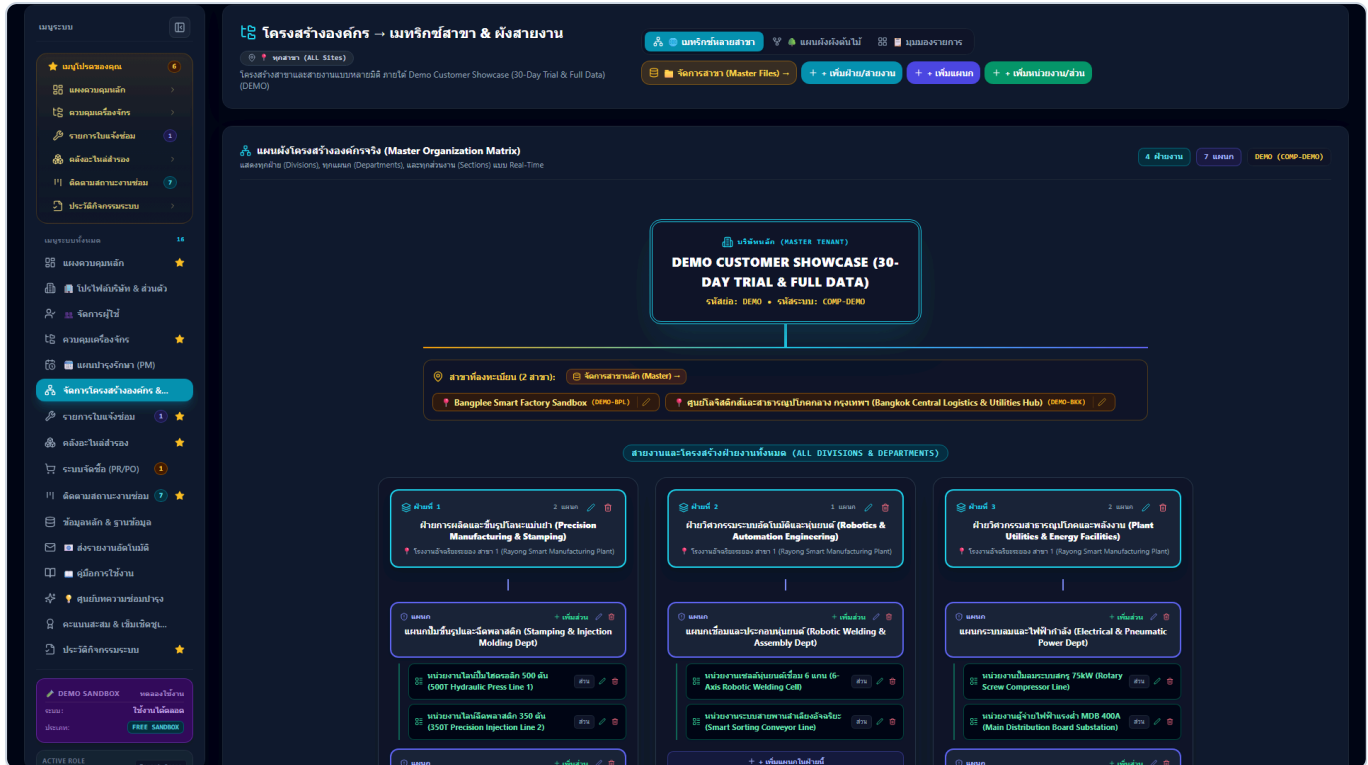
FixPulse enforces a 4-tier Zero-Trust security hierarchy:

[Organization Administrator] → [Maintenance Controller] → [Senior Technician] → [Machine Operator]

Module / System Function	Organization Admin	Maintenance Controller	Field Technician	Machine Operator
System Settings & Policies	✓ Full Access	✗ Read Only	✗ Forbidden	✗ Forbidden
User Provisioning & Roles	✓ Full Access	✗ Read Only	✗ Forbidden	✗ Forbidden
Create / Modify Machinery Master	✓ Full Access	✓ Full Access	👁 Read & History	👁 QR Scan Only
Create / Approve PM Calendars	✓ Full Access	✓ Full Access	👁 Execute Plan	✗ Forbidden
Open Breakdown Tickets	✓ All Branches	✓ Division Scope	✓ Dept Scope	✓ Instant QR Open
Assign & Dispatch Work Orders	✓ Authorized	✓ Authorized	✗ Forbidden	✗ Forbidden
Record Repair Notes & FIFO Parts	✓ Authorized	✓ Authorized	✓ Record Progress	✗ Forbidden
Inspect & QA Close Work Orders	✓ Authorized	✓ Authorized	✗ Forbidden	👁 Verify Run
Inventory Inbound & Lot Adjustments	✓ Full Access	✓ Approval Req	👁 View On-Hand	✗ Forbidden
Executive OEE & Cost Dashboards	✓ Global View	✓ Division Scope	👁 Personal Work	👁 Machine Health

4. 4-Level Enterprise Organization Hierarchy





4.1 Hierarchical Architecture

To structure multi-facility industrial operations without data overlap, FixPulse arranges organizational units across 4 structured tiers:

```
[Tier 1: Branch / Plant Site]
├── [Tier 2: Division]
│   ├── [Tier 3: Operational Department]
│   │   ├── [Tier 4: Section / Production Line]
```

4.2 Definitions & Enterprise Significance

1. Tier 1: Branch / Plant Site

- *Definition:* Physical operating site or logistics distribution center (e.g., "Amata Industrial City Plant", "Rayong Operations Hub").
- *Rationale:* Isolates maintenance operating budgets, warehouses, and regional shift policies.

2. Tier 2: Division

- *Definition:* Major operational division within the facility (e.g., "Manufacturing Division", "Logistics & Fleet Division").
- *Rationale:* Facilitates consolidated executive reporting and VP/GM expenditure sign-off thresholds.

3. Tier 3: Operational Department

- *Definition:* Specialized technical unit (e.g., "Mechanical Maintenance", "Electrical & Automation", "Injection Molding").
- *Rationale:* Acts as primary Cost Center for labor rates and spare parts absorption.

4. Tier 4: Section / Production Line

- **Definition:** Concrete physical workstation or assembly line (e.g., "Auto Assembly Line 1", "Packaging Station B").
- **Rationale:** Maps exact machinery coordinates so field teams arrive at incident locations with zero search delay.

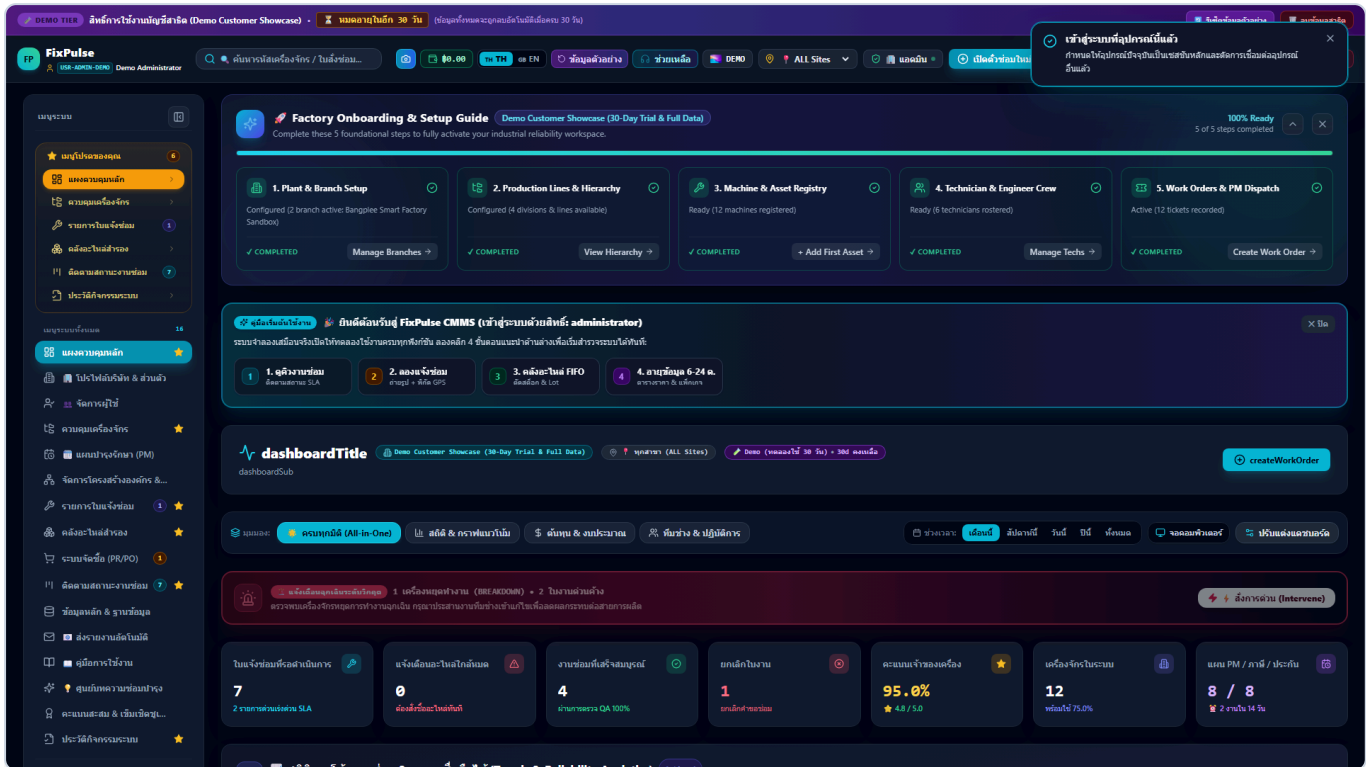
5. User Control & Security Governance

NO.	รหัสประจำตัว	ชื่อผู้ใช้ & อีเมล	ตำแหน่ง/หน้าที่งาน	ประเภทของสาขาวิชาชีพ	ประเภทของบทบาท	สถานะ/สถานะ	คะแนน & ระดับ	สถานะ	การจัดการ
1	USR-ADMIN-DEMO	Demo Administrator admin@demo-showcase.com	Company Admin	ทั้งหมด (ALL)	ทุกแผนก (ALL)	—	1000 pts Platinum Tier	เปิดใช้งาน	🔍 ⚙️ 🔄
2	USR-CTRL-DEMO	Demo Financial Controller controller@demo-showcase.com	Sub-Admin / Controller	ทั้งหมด (ALL)	ทุกแผนก (ALL)	—	750 pts Gold Tier	เปิดใช้งาน	🔍 ⚙️ 🔄
3	USR-OWNER-DEMO	Demo Equipment Owner owner@demo-showcase.com	Asset Owner	Asset-Driven	Asset-Driven	—	400 pts Silver Tier	เปิดใช้งาน	🔍 ⚙️ 🔄
4	USR-TECH-DEMO	Demo Senior Technician technician@demo-showcase.com	Technical Staff	ทั้งหมด (ALL)	ทุกแผนก (ALL)	฿50/ชม.	1500 pts Diamond Tier	เปิดใช้งาน	🔍 ⚙️ 🔄

5.1 User Provisioning SOP

1. Navigate to **"User Mgmt"** in the primary navigation sidebar.
2. Click **"+ Add User"** in the top action toolbar.
3. Complete mandatory attributes:
 - **Full Name**
 - **Corporate Email:** Acts as primary login identity
 - **Employee ID:** Maps to enterprise HRIS/payroll systems
 - **Assigned Role:** Select from the 4 standard RBAC tiers
 - **Org Affiliation:** Assign Branch, Division, Department, and Section
4. Set status to **"Active"** and click **"Save"**.
5. The cloud identity vault provisions credentials immediately with full audit logging.

6. Executive Dashboard & KPI Center



HIGH-IMPACT ENTERPRISE ROI INFOGRAPHIC

INDUSTRIAL MAINTENANCE MANAGEMENT SAAS PLATFORM

BIG BOLD METRIC

3.8X ROI
IN YEAR 1

3.5 MONTHS
PAYBACK PERIOD

45% MACHINE DOWNTIME
REDUCTION



30% SPARE PARTS COST
SAVINGS VIA FIFO
STOCK ENGINE



60% FASTER TICKET
RESOLUTION



THE VISUALIZATION EXPLORES TO THE GROWTH'S STRAIGHT MEASURES GROWTH AT INDUSTRIAL MAINTENANCE MANAGEMENT SAAS AND FASTER DOWNTIME TARGETS.

DATA VISUALIZATION FOR
BESURELY SUSTAINING
GROWTH SAVINGS &
MAINTENANCE TIMES TO
PREPARE GROWTH

100%
AUDIT COMPLIANCE
& ANTI-FRAUD
GPS WATERMARKING

DATA VISUALIZATION CALLOUTS THE IMPACT
GROWTH SAVINGS IN INDUSTRIAL MAINTENANCE
MANAGEMENT SAAS WOULD DEFINES MASSIVE GROWTH
AND PROFITABLY.

6.1 Core Operational KPI Metrics

FixPulse synthesizes real-time machine telemetries and maintenance logs into actionable executive metrics:

- MTTR (Mean Time To Repair):**
$$\text{MTTR} = \frac{\text{Total Breakdown Downtime (Hours)}}{\text{Total Incident Count}}$$
 - Target:* Lower MTTR confirms technician diagnostics efficacy and parts availability.
- MTBF (Mean Time Between Failures):**
$$\text{MTBF} = \frac{\text{Total Machine Operating Time (Hours)}}{\text{Total Incident Count}}$$
 - Target:* Higher MTBF demonstrates equipment reliability and proactive PM effectiveness.
- OEE (Overall Equipment Effectiveness):**
$$\text{OEE} = \text{Availability} \times \text{Performance} \times \text{Quality}$$
 - World Class Benchmark:* $\geq 85\%$
- PM Compliance Rate:** Percentage of scheduled maintenance tasks closed within the designated tolerance window.

6.2 Widget Customization Engine

Leadership and supervisors can click "Customize Widgets" to:

- Drag-and-drop KPI modules to prioritize urgent floor indicators.
- Hide or reveal sensitive cards (e.g., cost metrics reserved for management).
- Persist personalized layout configurations across all browser sessions.

7. Asset Registry & Machinery Control

The screenshot displays the FixPulse Asset Registry & Machinery Control interface. The top bar shows the user's name (นายสุวิทย์ ใจดี) and a search bar. The sidebar on the left contains navigation options for various system components. The main content area features a filter section with dropdowns for Division (1. ฝ่าย / ส่วนงาน), Department (2. แผนก (Department)), and Section (3. หน่วยงาน / ส่วน (Section)). Below the filters, there are three asset cards, each with a QR code, a status indicator (OPERATIONAL), and a breakdown of its components. The first card is for the 6-Axis Robotic Welding Automation Cell (AST-AUT-0002), the second is for the 5-Ton Industrial Steam Boiler (AST-BTR-0008), and the third is for the 75kW Rotary Screw Air Compressor (AST-CMP-0005). Each card also displays a table of components with their respective Serial Numbers, Purchase Dates, and Account Numbers. The interface is in Thai and includes a sidebar with navigation options and a top bar with user information and a search bar.

7.1 Engineering & Operational Principles

The FixPulse Asset Control Console is engineered in strict compliance with 5 international industrial pillars:

- 1. **ISO 55000 / 55001 Asset Lifecycle Management:** Governs machinery through 4 structured lifecycle stages:
Commissioning / Acquisition → Daily Operation → PM & Overhaul → Decommissioning
 - Centralizes maintenance logs, FIFO spare parts consumption history, and technician performance across the equipment lifespan.
- 2. **Reliability-Centered Maintenance (RCM) & Criticality Rating Matrix:** Categorizes equipment into 3 operational risk tiers to prioritize capital allocation and dispatch urgency:
 - Class A (Critical - Plant Stops):** Highest operational impact; unexpected failure halts primary production lines (Line Down). Enforces tightest PM cycles and mandatory safety stock for replacement parts.
 - Class B (Medium - Buffer Available):** Moderate impact; buffer stock permits temporary maintenance windows without disrupting shipment delivery.
 - Class C (Low - Redundant/Standby):** General utility machinery with redundant units available for instantaneous changeover.
- 3. **Total Productive Maintenance (TPM) Pillars 2 & 3:**
 - Enables machine operators (Autonomous Maintenance) and maintenance engineers (Planned Maintenance) to scan unique **Asset QR Tags** to view telemetry logs, upcoming PM schedules, and dispatch emergency breakdown tickets within 3 seconds.
- 4. **Intelligent Auto-Code Nomenclature:** Enforces international standard indexing nomenclature:
$$\text{AST-}[CAT]\text{-}[YYYY]\text{-}[XXXX]$$
 Example: **AST-CNC-2026-0012** (CNC machining unit, registered in 2026, item #12). Reinforced with a **Live Uniqueness Guard** that prevents duplicate tagging across facilities.
- 5. **Financial Tracking & Repair vs. Replace Analysis:**
 - Monitors initial acquisition cost against cumulative lifetime maintenance expenditure (labor hours + FIFO material cost) to power data-driven Capex vs. Opex replacement decisions.

7.2 System Architecture & Feature Modules

The Asset Control Console provides an integrated suite of plant-floor controls:

- **Asset Registry:** Unified data grid with Dual Pagination and interactive column header sorting.
- **Physical Asset Audit Engine:** Barcode-driven annual asset verification console with printable audit count sheets categorized by facility and department.
- **Integrated Hardware & Camera Barcode Scanner:** Compatible with smartphone cameras and commercial 1D/2D Bluetooth/USB hardware readers with auditory feedback (synthesized scan beep).
- **Thermal Label Print Engine:** Instant high-resolution QR label printing for individual machines or full production lines.
- **5 Operational Lifecycle States:** **OPERATIONAL** (Active), **STANDBY** (Idle), **UNDER_MAINTENANCE** (In Repair), **BREAKDOWN** (Emergency Down), **DECOMMISSIONED** (Retired).

7.3 3-Dimensional Asset Allocation Architecture

To accommodate both single-facility factories and multi-plant enterprise operations, FixPulse provides 3 allocation modes:

1.  **Full 4-Level Org Hierarchy (Recommended):** Assigned specifically under Branch → Division → Department → Section/Line for granular Cost Center tracking.
2.  **Branch Site Level:** Assigned facility-wide, accessible across all operational divisions within that site.
3.  **Central Reserve Stock Pool:** Unallocated equipment held in central storage, ready for dynamic allocation upon production demand.

7.4 Step-by-Step Direct Asset Registration SOP

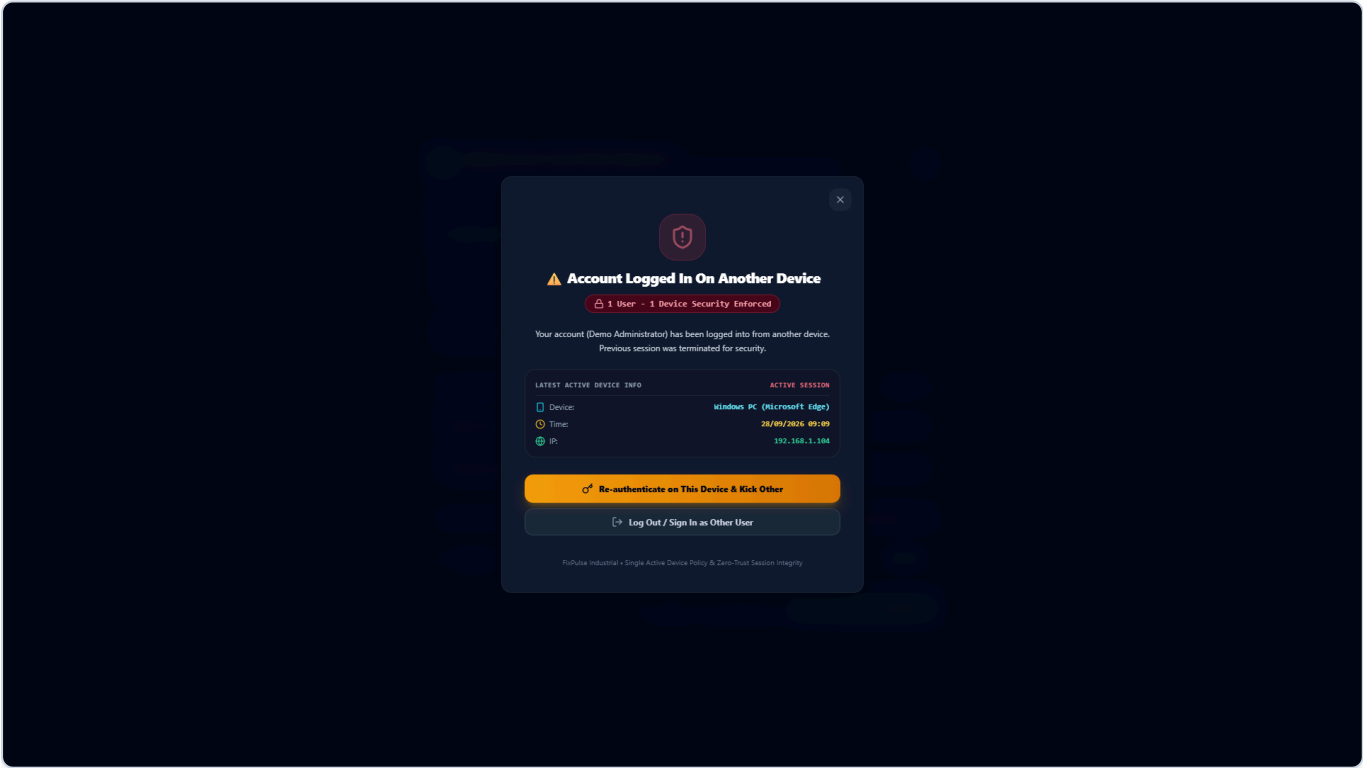
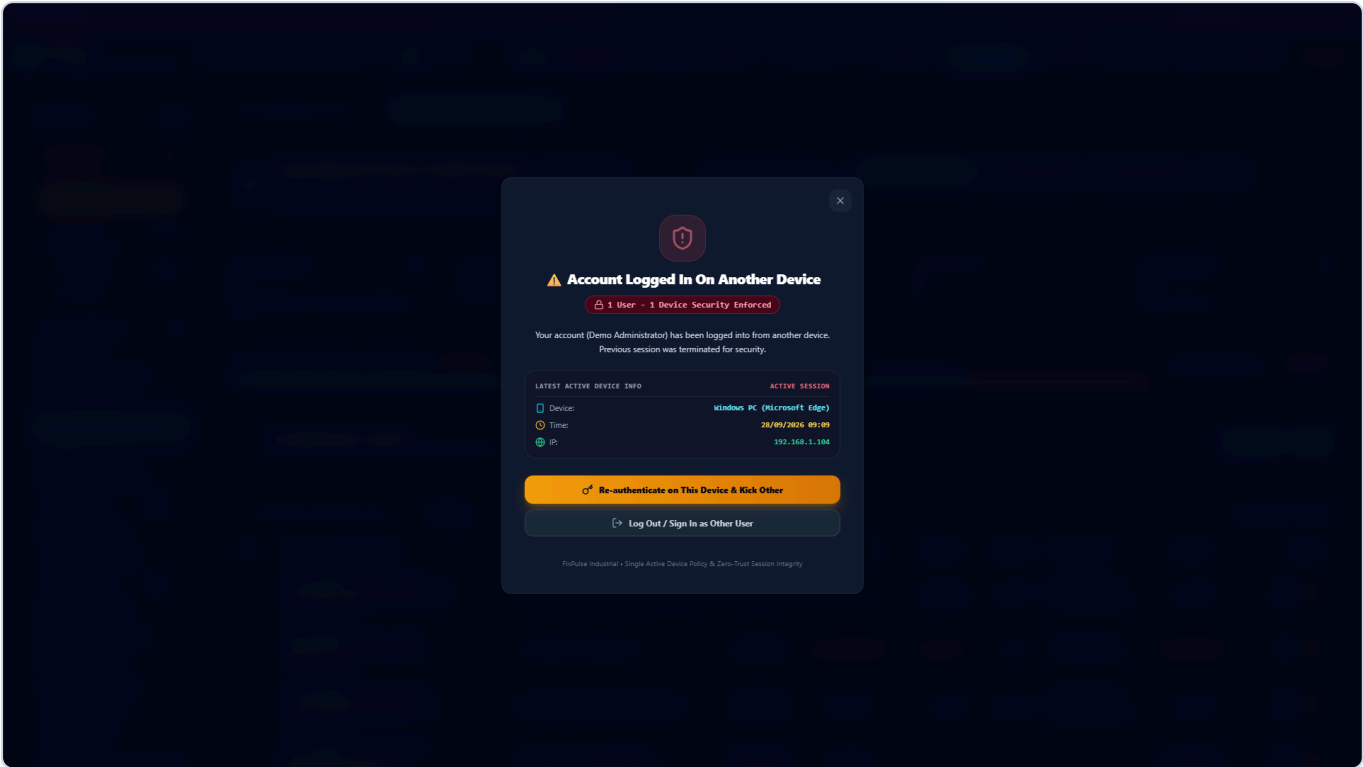
1. Navigate to "**Assets**" on the left navigation bar and click "**+ Add Asset (Direct Asset Registration)**".
2. **Category & Asset Code Configuration:**
 - Select the machinery category master.
 - Choose code generation mode:  **Auto** (System sequential code) or  **Manual** (Custom plant tag).
 - *Duplicate Guard:* Real-time validation flashes an instant warning banner if the code is already claimed.
3. **Machine Identity Attributes:**
 - Enter **Asset Name** * (e.g., `6-Axis Industrial Robot Arm Cell #2`).
 - Specify Manufacturer **Serial Number** and Financial **Account Running No.**
 - Select **Purchase Date**.
4. **Organizational Allocation Scope:**
 - Choose allocation scope (4-Level Org Hierarchy, Branch Level, or Central Reserve Pool).
 - Select target Branch, Division, Department, and Production Line.
5. **Custodian & Financial Parameters:**
 - **Asset Custodian:** Link directly to a system User ID or enter a custom free-text team name.
 - **Acquisition Value:** Enter initial purchase cost for straight-line depreciation and cost burn tracking.
6. **3-Angle Photo Capture & Verification:**
 - Attach up to 3 high-resolution photos: (1) Machine Overview, (2) Nameplate/Serial plate, (3) Control Panel/Drive mechanism.
 - Supports camera capture with automatic timestamp and GPS watermarking.
7. **Save & Print Asset Tag:**
 - Add operational remarks or warranty contracts.
 - Click "**Save Asset**" to commit data to the secure cloud relational engine.
 - Click " **Print QR Code**" to generate the thermal barcode label for floor deployment.

7.5 Bulk Master Data Import via Excel/CSV

For industrial facilities onboarding hundreds of legacy machines, click " **Import Excel**" to download the standard multi-column template, populate equipment attributes, and bulk-upload with automated pre-import validation

checks.

7.6 Asset Physical Count & Field Audit SOP



7.6.1 Fixed Asset Governance Principles

Physical counting and condition auditing of industrial plant machinery adheres to ISO 55001 asset management and IATF 16949 automotive quality standards, guaranteeing that registered equipment data mirrors the plant floor with

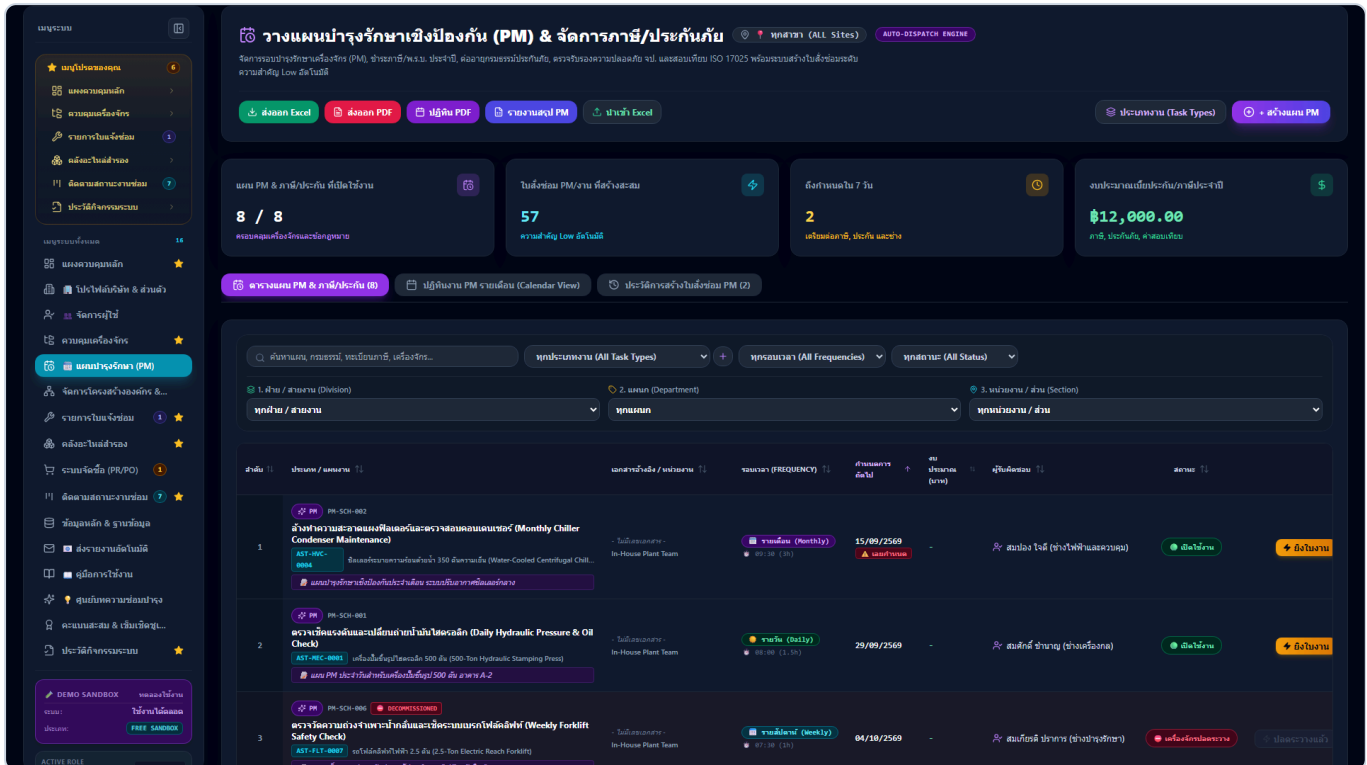
100% accuracy:

1. **Ghost Assets Elimination:** Eliminates phantom records caused by decommissioned, relocated, or scrapped machinery that was never formally updated in the central registry.
2. **5-Level Physical Machinery Condition Scale:**
 - **Grade 5 (100% - Excellent / Like New):** Newly commissioned or recently overhauled machine operating at full nominal capacity.
 - **Grade 4 (80% - Good / Nominal):** Standard operational baseline with no acoustic anomalies or abnormal thermal signatures.
 - **Grade 3 (60% - Fair / Minor Wear):** Operational with noticeable wear or minor acoustic alerts; requires prioritized PM scheduling.
 - **Grade 2 (40% - Poor / Needs Urgent Repair):** Deteriorated output or scrap generation; immediate emergency work order required.
 - **Grade 1 (20% - Scrap / Critical Failure):** Irreparable or uneconomical to refurbish; slated for formal decommissioning.
3. **Audit Reconciliation Statuses:** Distinctly categorized tracking: **VERIFIED** (found in place), **DISCREPANCY** (wrong location / degraded condition), **MISSING** (unlocated during audit), and **PENDING** (awaiting physical visit).

7.6.2 5-Stage Physical Asset Audit SOP

1. **Stage 1: Campaign Planning & Audit Session Scoping:**
 - Navigate to "Asset Control" → "Asset Count & Audit" subtab.
 - Click "+ New Audit Campaign".
 - Select target plant branch (Branch Site), machinery category filter, appoint the Lead Auditor, and establish the committed Target Finish Date.
2. **Stage 2: Blank Field Count Sheet Generation (A4 Landscape PDF):**
 - Click " Count Sheet" to generate the official printable audit roster.
 - The landscape grid includes: Sequence No., Asset ID, Barcode, Machine Name, Registered Org Location, Checkboxes [ Found] / [ Missing], Condition Rating [1 - 5], Actual Floor Location, and Committee Signatures.
3. **Stage 3: Field Walking Audit & Mobile Barcode Fast Scanning:**
 - Audit personnel inspect equipment on the shop floor equipped with a smartphone camera or handheld barcode scanner.
 - Scanning the machine's QR code instantly identifies the asset and tags it as physically audited.
4. **Stage 4: Condition Rating & Discrepancy Logging:**
 - If equipment is located in an unauthorized building or line, the system flags it as **DISCREPANCY**.
 - Record the 1–5 condition rating and capture timestamped photo evidence.
5. **Stage 5: Audit Reconciliation & Executive Sign-off:**
 - Review the final Reconciliation Rate (%) and audit summaries.
 - Click "Finalize Audit Session" to reconcile physical assets and synchronize updated location and condition ratings to the primary cloud registry.

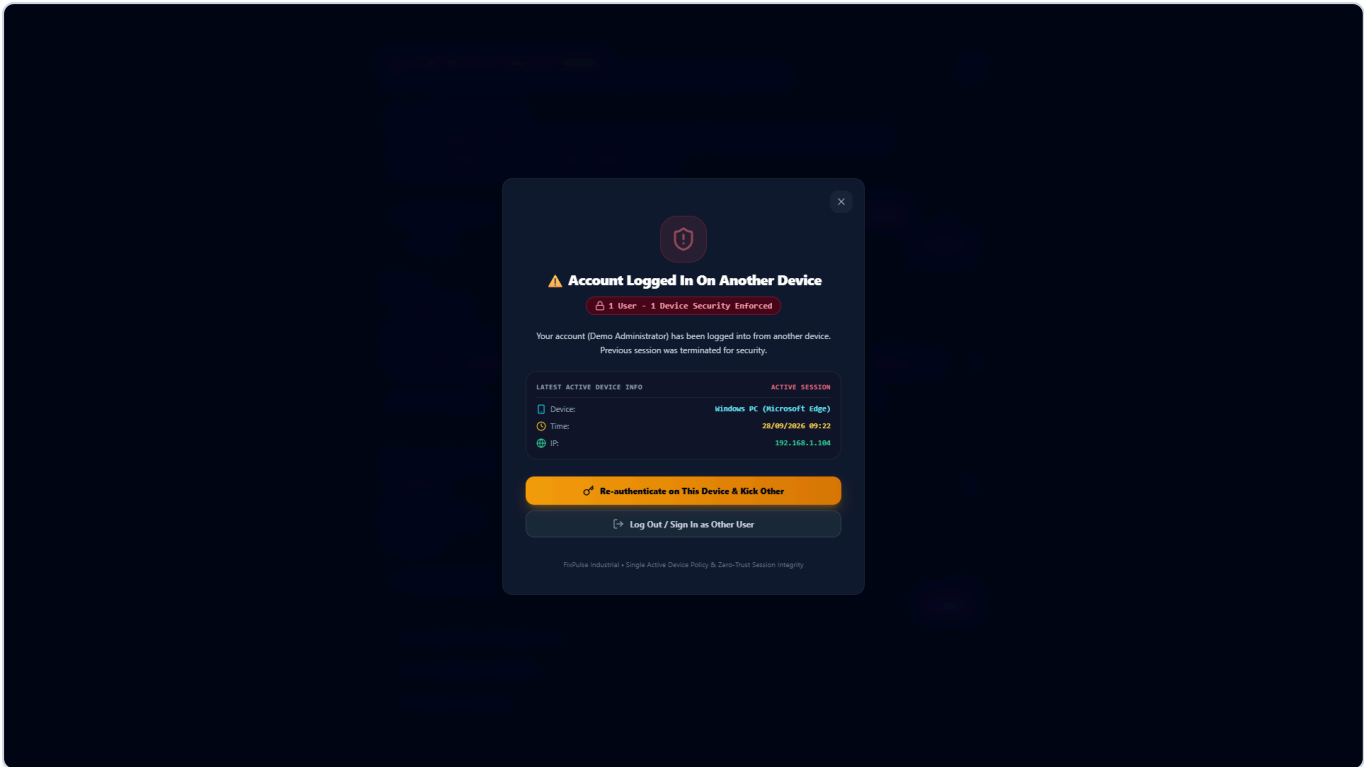
8. Preventive Maintenance (PM) Engine



8.1 Preventive Maintenance Rationale

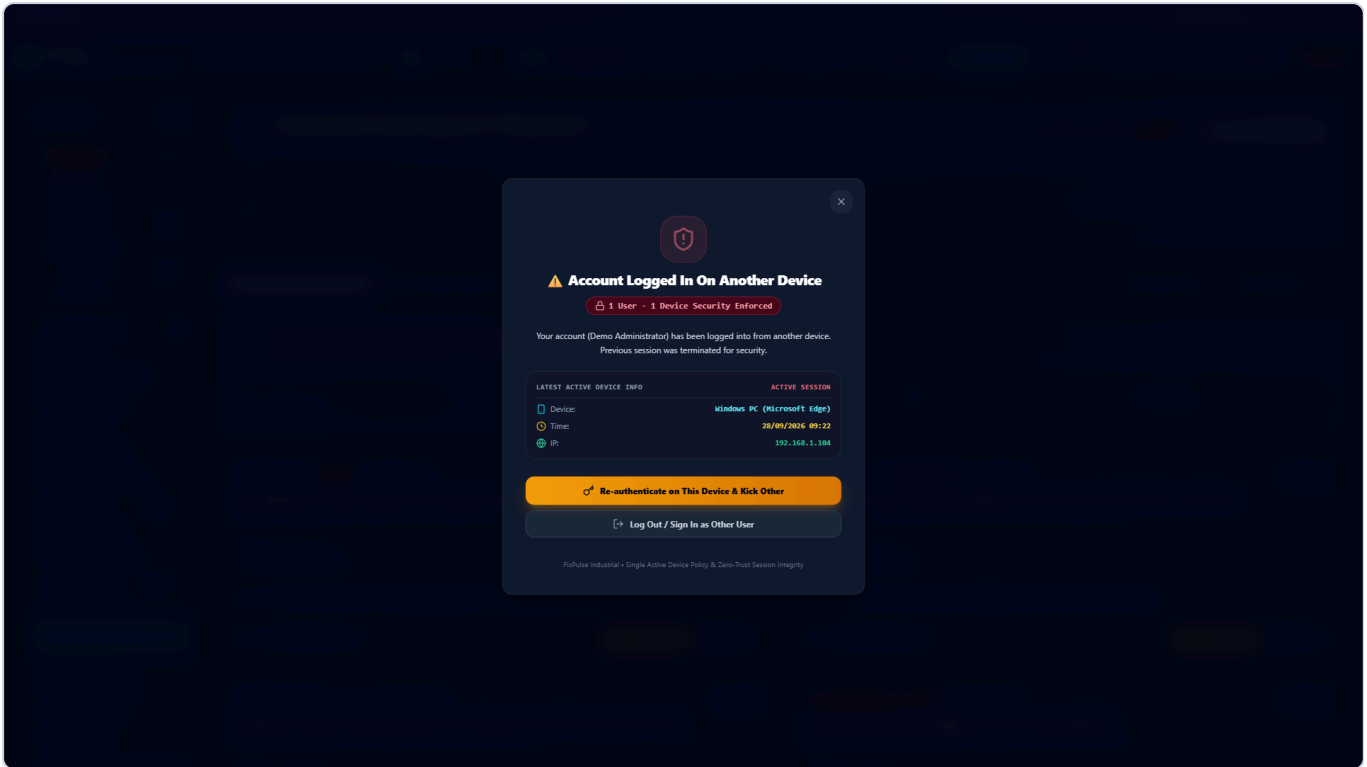
Corrective breakdown repairs cost **3 to 5 times more** than scheduled preventive maintenance due to secondary component damage, rushed overtime labor, and unplanned production standstills.

8.2 PM Schedule Configuration SOP



1. Navigate to **"PM Schedule"** and select **"+ Create PM Plan"**.
2. Select target equipment and specify execution trigger:
 - **Calendar-Based:** Weekly, Monthly, Quarterly, Semi-Annually, or Annually.
 - **Runtime-Based:** Counter-driven triggers (e.g., every 500 operating hours).
3. Attach standard inspection checklists with pass/fail tolerance limits (e.g., pressure 4.5–5.5 bar, thermal gradient $< 65^{\circ}\text{C}$).
4. Assign lead technician and pre-allocate expected replacement spare parts.
5. The automated cloud schedule engine triggers work orders in advance and notifies assigned leads.

8.3 PM Compliance & Audit Roster SOP



1. **PM Compliance Rate Tracking (\$\ge 95\%\$):** Click the **"Report"** button on the main toolbar to open the annual PM execution compliance audit dashboard.
2. **Real-Time On-Time vs. Overdue Breakdown:** The system automatically categorizes PM tasks:
 - Green **Completed On-Time** : Scheduled inspections executed and certified within window.
 - Yellow **Pending / In-Window** : Tasks currently within operational time tolerance.
 - Red **Overdue** : Overdue PM work orders flagged with automatic supervisor escalation.
3. **ISO 9001 / IATF 16949 Audit Export:** Instantly export compliance reports to printable PDF and Excel formats as verified audit evidence for factory quality audits.

9. 5-Stage Work Order Lifecycle & Kanban

SMART MAINTENANCE WORK PROCESS PIPELINE

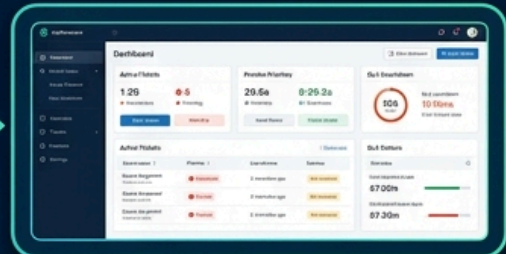


Emergency Breakdown Ticket & SLA

- Report Equipment Failures instantly
- Real-time SLA tracking

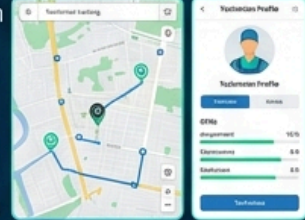


STEP 1



Smart Tech Dispatch & Vendor Assignment

- Optimize technician control scheduling
- Technician tracking
- Assign tasks to pre-vetted vendors



STEP 2



Mechanical Repair & FIFO Stock Allocation

- On-site maintenance procedures
- Ensure availability of critical spare parts

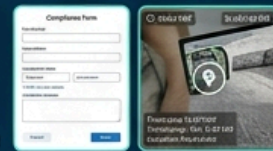


STEP 3



QA Inspection & GPS Photo Watermarking

- Digital quality assurance forms
- Verify work completion with geospatial evidence

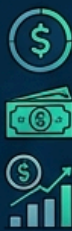


STEP 4

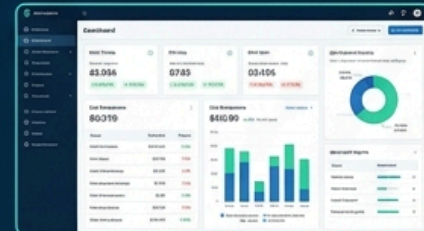


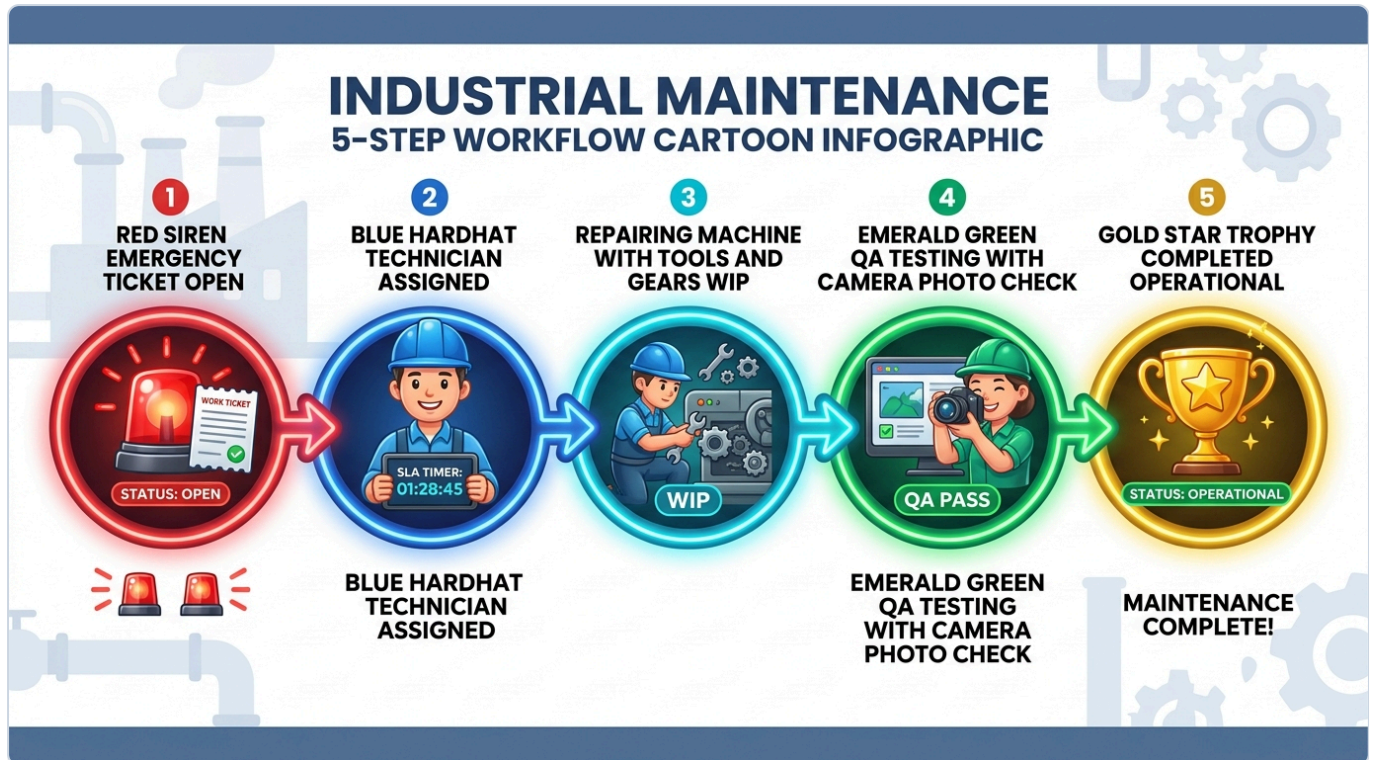
Ticket Closure & Automated Cost Analytics

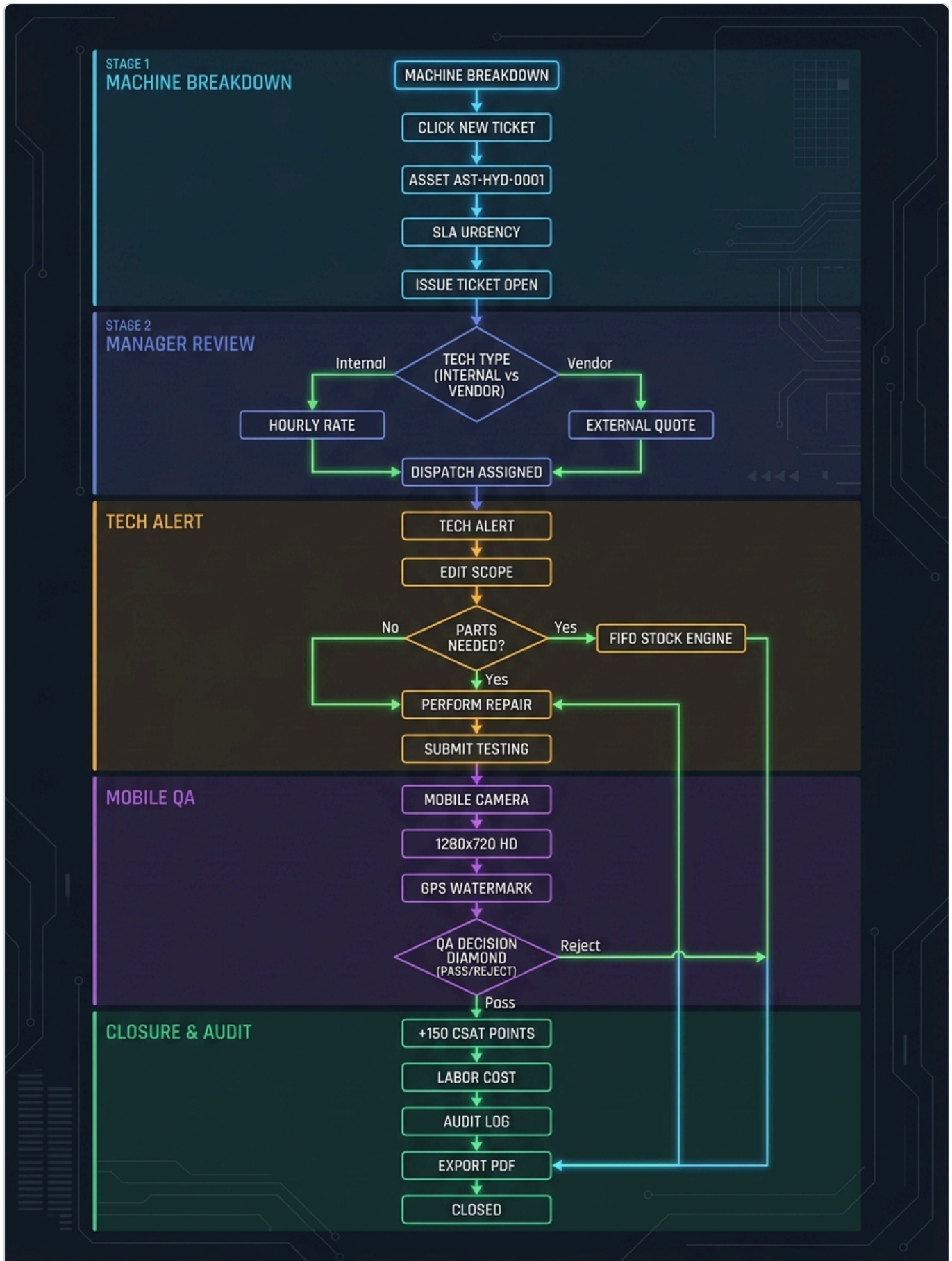
- Generate invoices and performance analysis
- Gain insights into maintenance spending and efficiency



STEP 5







ศูนย์ติดตามความคืบหน้างานซ่อม (Work Progress & Operations)

ติดตามงานซ่อม, ตรวจสอบสภาพ QA, ส่งมอบงาน FFO, สืบสวนและรายงานผล และรายงานความคืบหน้า

สถานะ: 7 งานเข้าใหม่, 1 งานดำเนินการ, 2 งานมอบหมาย, 3 งานส่งมอบ, 4 ตรวจงาน QA, 5 รายงานเสร็จสิ้น, 6 ยกเลิกงาน

ค้นหา: ค้นหาชื่องาน TKT, รหัสเครื่องจักร AST, รายการสินค้า, ผู้แจ้ง, ช่างซ่อม...

กรองสถานะ: เปิดใหม่/กำลังซ่อม • เสร็จสิ้น (7) • DEFAULT • ส่วนฉุกเฉิน (2) • งานล่าช้า (0) • รอตรวจงาน QA (1) • เกินกำหนด SLA • ประวัติทั้งหมด (12)

ช่วงเวลา: 7 วันล่าสุด, เดือน, 30 วันล่าสุด

ฝ่าย / สาขางาน: เลือก, หน่วยงาน / ผู้บริหาร: ช่างซ่อม / ผู้ประเมินงาน, ขึ้นเสนอรายงาน: ทุกวันตอนเช้า

การแสดงผลการ์ดในแบบรวม (Cards per column): 5 แถว, 10 แถว, ทั้งหมด

1. งานเข้าใหม่ / ส่วนฉุกเฉิน

TKT-2026-000... URGENT

"แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง..."

Asset: AST-CHP-0005 28/09/2569

Parts: \$0.00 + Add Part

Assign Tech: Assign Tech

2. มอบหมายช่างซ่อมแล้ว

TKT-2026-00003 MEDIUM

"แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง..."

Asset: AST-CHP-0003 27/09/2569

Code: TECH-TKT-DEMO Internal Tech: Demo Lead Technician Edit Desc Est: Not Set Est. Date

Parts: \$950.00 + Add Part

Assign Tech: Assign Tech Start Repair Progress

3. งานดำเนินการซ่อม

TKT-2026-000... URGENT

"ตรวจพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง..."

Asset: AST-CHP-0001 28/09/2569

Code: TECH-TKT-DEMO Internal Tech: Demo Lead Technician Edit Desc Est: Not Set Est. Date

Parts: \$4,800.00 + Add Part

Submit for Quality Review

4. ตรวจงาน QA / พิจารณา

TKT-2026-00... MEDIUM

"แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง..."

Asset: AST-TKT-0018 27/09/2569

Code: TECH-TKT-DEMO Internal Tech: Demo Lead Technician Edit Desc Est: Not Set Est. Date

Parts: \$2,400.00 + Add Part

Pass & Complete Job (Stage 5) Photo Audit Know

5. รายงานเสร็จสิ้น / ยกเลิก

รายการใบแจ้งซ่อมตามสิทธิ์ใช้งาน

ส่งมอบข้อมูล: ส่งมอบไฟล์ Excel (.csv) และไฟล์ PDF (.pdf)

สถานะ: 5 งานเข้าใหม่, 1 งานดำเนินการ, 1 งานมอบหมาย, 1 งานส่งมอบ, 1 งานยกเลิก

ค้นหา: ค้นหาชื่องาน TKT, รหัสเครื่องจักร, Serial No, รายการสินค้า...

ฝ่าย / สาขางาน: เลือก, หน่วยงาน: เลือก, หน่วยงาน / ส่วน: เลือก, หน่วยงานซ่อม: เลือก, ช่างซ่อม: เลือก, สถานะ: เลือก

จำนวนรายการแสดง: 10 รายการ

TKT-2026-00018 HIGH SLA

ปั๊มความดันน้ำแรงดันสูงแบบหลายใบพัด (High-Pressure Multistage Water Pump)

รหัสเครื่องจักร: AST-PPH-0012

ศูนย์ซ่อมบำรุงและระบบพลังงาน (Bangkok Central Logistics & Utilities Hub)

แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง...

สถานะ: IN_PROGRESS

ราคา: \$4,700.00

TKT-2026-00004 URGENT SLA

ปั๊มลมอุตสาหกรรมโรตารี 75kW (75kW Rotary Screw Air Compressor)

รหัสเครื่องจักร: AST-CHP-0005

โรงงานอัจฉริยะ โรงงาน 1 (Rayong Smart Manufacturing Plant)

แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง...

สถานะ: OPEN

ราคา: \$0.00

TKT-2026-00001 URGENT SLA

เครื่องปั๊มรูปโลหะ 500 ตัน (500-Ton Hydraulic Stamping Press)

รหัสเครื่องจักร: AST-MEC-0001

โรงงานอัจฉริยะ โรงงาน 1 (Rayong Smart Manufacturing Plant)

แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง...

สถานะ: IN_PROGRESS

ราคา: \$6,550.00

TKT-2026-00003 MEDIUM SLA

หุ่นยนต์เชื่อมแบบเชื่อมประกบอัตโนมัติ 6 แกน (6-Axis Robotic Welding Automation Cell)

รหัสเครื่องจักร: AST-AUT-0003

โรงงานอัจฉริยะ โรงงาน 1 (Rayong Smart Manufacturing Plant)

แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง...

สถานะ: IN_PROGRESS

ราคา: \$0.00

TKT-2026-00009 HIGH SLA

หม้อไอน้ำอุตสาหกรรมแบบท่อ 5 ตัน (5-Ton Industrial Steam Boiler)

รหัสเครื่องจักร: AST-BTR-0008

โรงงานอัจฉริยะ โรงงาน 1 (Rayong Smart Manufacturing Plant)

แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง...

สถานะ: IN_PROGRESS

ราคา: \$0.00

TKT-2026-00006 MEDIUM SLA

เครื่องฉีดพ่นสารเคมีแบบแม่นยำ 350 ตัน (350-Ton Precision Injection Machine)

รหัสเครื่องจักร: AST-INO-0010

โรงงานอัจฉริยะ โรงงาน 1 (Rayong Smart Manufacturing Plant)

แจ้งพบปัญหาเครื่องจักรความร้อนสูงผิดปกติ Thermal Overload มีกลิ่นไหม้และเสียงดัง...

สถานะ: IN_PROGRESS

ราคา: \$0.00

9.1 5-Stage Maintenance Lifecycle & Stage Significance

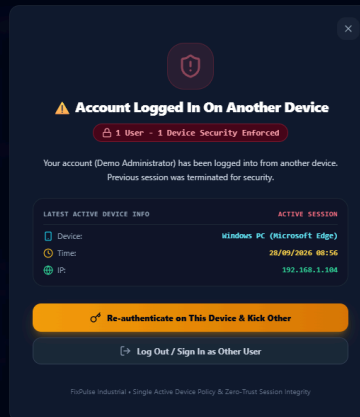
FixPulse governs all corrective and scheduled jobs across 5 transparent, auditable milestones aligned with international industrial standards:

- [1. Open / Reported]
- [2. Assigned / Scheduled]
- [3. In Progress / WIP]

→ [4. Testing & QA Pass]
→ [5. Completed & Closed]

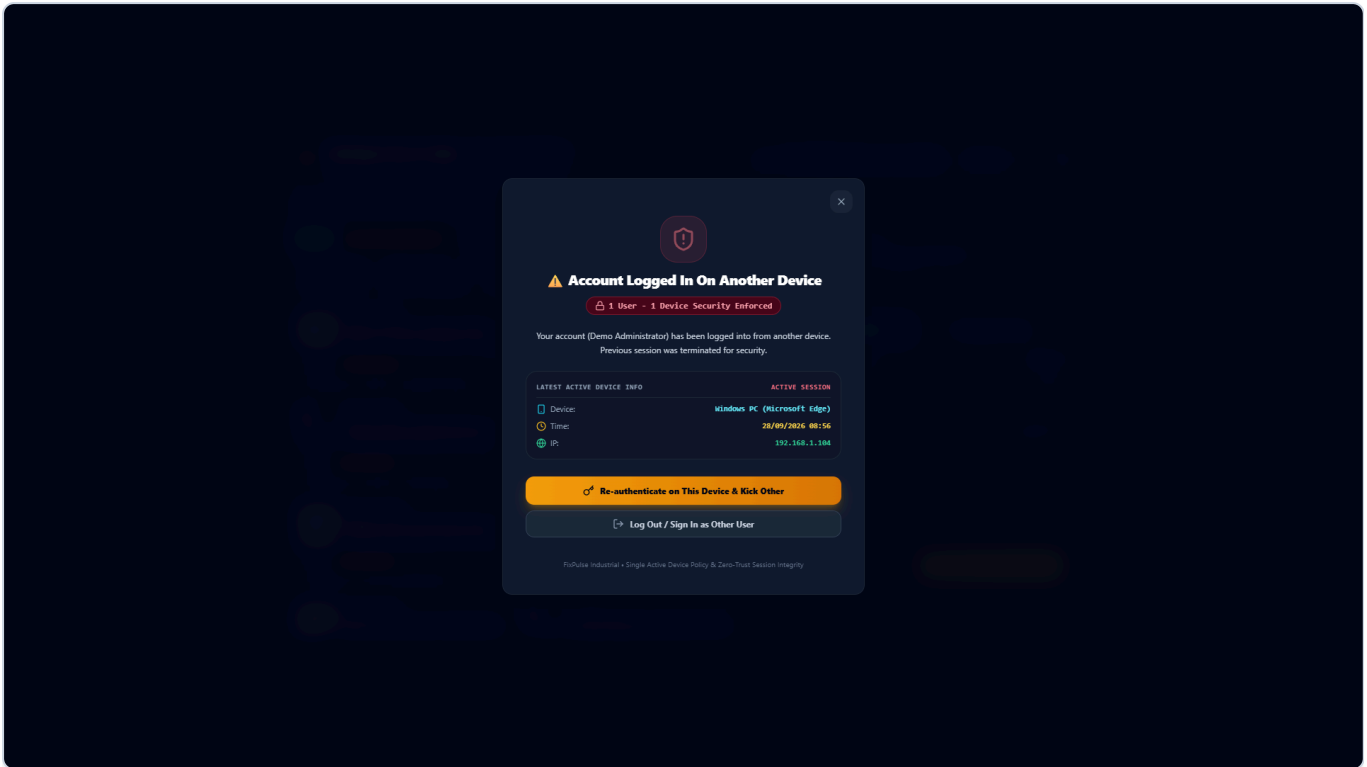
Work Stage	Core Objective	Industrial Significance & Compliance Value	Primary Role
1. Open / Reported	Immediate incident registration and equipment halt	- Immutable Incident Timestamp locks incident start. - Collects 3 verified photographic evidence files from the shop floor. - Initiates downtime tracking for accurate MTTR & MTBF calculations.	Machine Operator / Floor Lead
2. Assigned / Scheduled	Precision technician matching and SLA scheduling	- Skill matrix matching (Electrical / Mechanical / Pneumatic & Hydraulic). - Enforces SLA target deadlines to prevent orphaned tickets. - Supports both in-house personnel and third-party outsource contractors.	Maintenance Supervisor / Planner
3. In Progress (WIP)	Hands-on diagnostic repair and real-time parts consumption	- Active labor hour clocking for accurate maintenance cost accounting. - Real-time AUTO_FIFO inventory deduction prevents stock shrinkage. - Root cause documentation powers the AI knowledge engine.	Assigned Lead Technician
4. Testing & QA Pass	Joint operational verification and quality sign-off	- Dry-run and live production trial under nominal QA specifications. 1–5 star CSAT rating and operator feedback collection. - Rework guard prevents premature sign-off and repeated breakdowns.	Asset Owner / Quality Assurance (QA)
5. Completed & Closed	Total cost consolidation and permanent asset ledger entry	- Consolidates labor billing + FIFO material cost into total repair cost. - Creates permanent machine history for ISO 9001 / IATF 16949 audit compliance. - Closes accounting period and generates executive cost analytics.	Maintenance Engineer / Plant Manager

9.2 Assign Technician Standard Operating Procedure (SOP)



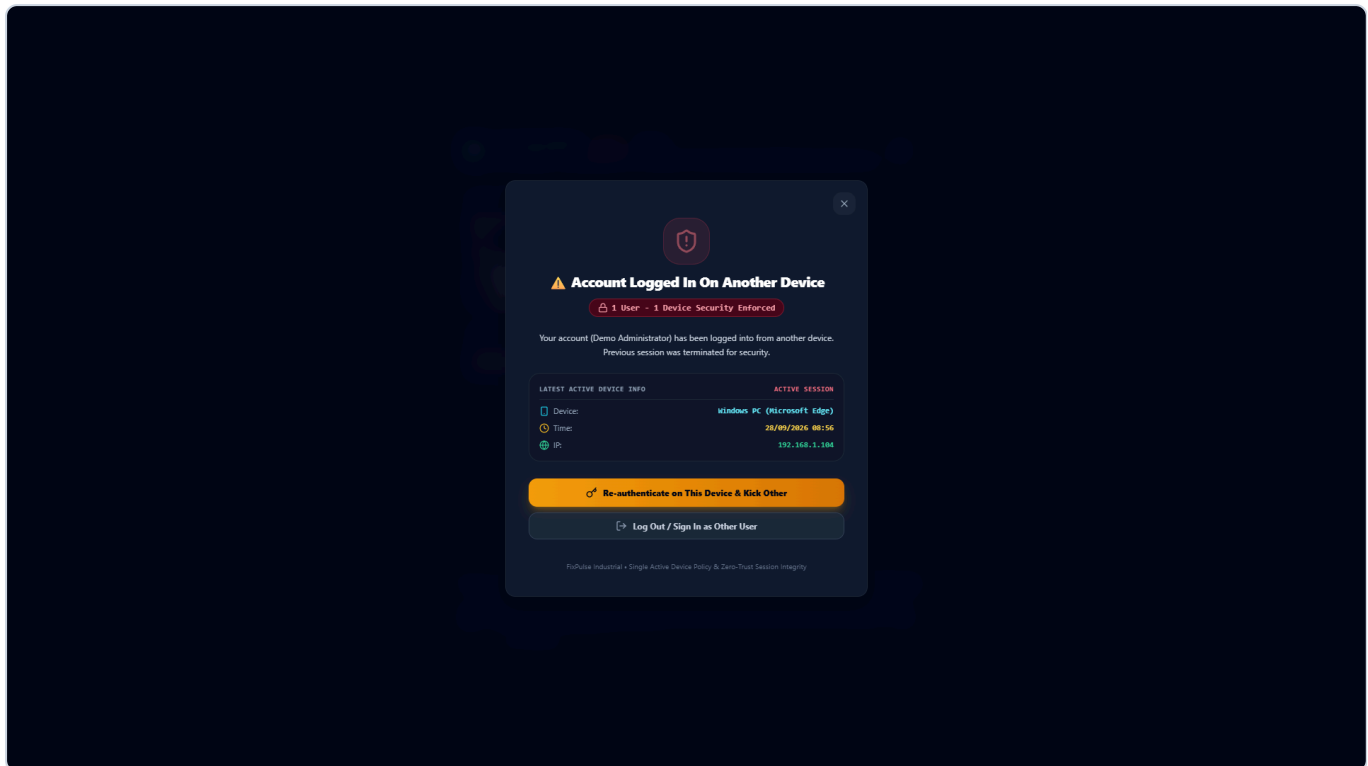
1. **Open Assignment Dialog:** On any work order card within the Kanban board, click the **"Assign"** button, or drag the card into the *"Assigned"* column.
2. **Select Lead Technician:**
 - The dialog lists all active technicians with their current availability, shift schedule, and cumulative CSAT rating.
 - Fully supports both **Internal Plant Technicians** and **Outsource Contractor Partners**.
3. **Verify Skill Matrix & Domain Specialty:** Select appropriate domain focus, such as Electrical Systems, Mechanical Machinery, or Pneumatic & Hydraulic circuits.
4. **Configure Hourly Labor Rate:** The system automatically populates the technician's pre-configured hourly billing rate (€/hr or \$/hr) to compute exact labor costs based on active repair time.
5. **Set SLA Target Deadline:** Specify the committed completion target date and time according to customer SLA guidelines.
6. **Log Scope & Safety Directives:** Enter repair instructions, special tool requirements, and mandatory safety protocols (e.g., Lockout/Tagout - LOTO, PPE).
7. **Confirm Assignment:** Click **"Confirm & Dispatch"** to trigger instantaneous notifications to the technician and update the Kanban board status.

9.3 FIFO Spare Parts Picking & Consumption SOP



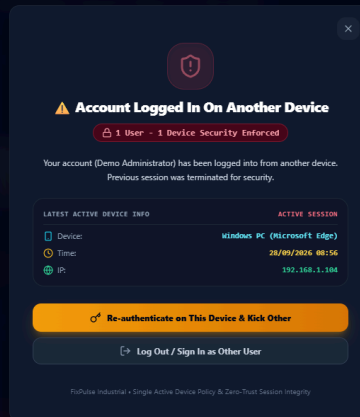
1. **Open Spare Parts Tool:** Click the **"Parts"** button on the work order card to launch the floor picking console.
2. **Search or Scan Spare Part:**
 - Search by SKU code, part description, or category filter (Mechanical, Electrical, Consumable).
 - Or click the **"Barcode Scanner"** icon to scan physical barcode tags on warehouse bins.
3. **Input Pick Quantity:** Specify required units for the active job. The dialog dynamically checks live warehouse inventory levels.
4. **Automated AUTO_FIFO Lot Deduction:**
 - The system's FIFO engine automatically allocates the oldest active warehouse receipt lot.
 - Computes unit cost and total material cost in real time, preventing inventory distortion.
5. **Confirm Issue:** Click **"Confirm Issue"** to commit immediate warehouse stock deduction and attach the material cost directly to the work order ledger.

9.4 Work Order Ticket Live Chat Hub SOP



- 1. Launch Chat Discussion:** Click the "  Chat" button on any work order card to open the ticket-specific communication drawer.
- 2. Transparent Role Badges:** Each chat bubble highlights sender identity and role clearly (e.g., Asset Owner, Technical Lead, or Operations Controller).
- 3. High-Definition Floor Photo Attachments (1280x720 HD):**
 - Technicians can capture diagnostic findings or dismantled component damage and post them immediately.
 - The platform auto-compresses uploads to optimized HD resolution with instant thumbnail preview.
- 4. Quick Reply Action Chips:** Includes pre-built industrial factory response chips such as *"En route to machine"*, *"Awaiting spare part from warehouse"*, or *"Repair complete, ready for trial"*.
- 5. Permanent Audit Trail:** All text exchanges, timestamps, and image attachments are permanently archived as part of the asset maintenance ledger.

9.5 Quality Review & QA Inspection SOP



1. **Initiate Quality Review:** Once physical repair is completed, drag the card to *"Testing & QA"* and click the **"Inspect / QA"** action.
2. **CSAT Star Rating & Feedback:** The asset owner or line supervisor provides a 1-to-5 star Customer Satisfaction score with qualitative comments.
3. **Attach After-Repair Photo:** Upload verified post-repair photography showing nominal machine condition and clean work area.
4. **Inspection Verdict:**
 - **PASS & Complete:** Click the green **"PASS & Complete Work Order"** button to advance the ticket to Completed and finalize the total maintenance cost ledger.
 - **FAIL / Dispatch Rework:** If defects remain, click the red **"FAIL / Return for Rework"** button to trigger high-priority alerts back to the technician for corrective adjustment.

9.6 Automated Notification Engine

FixPulse ensures seamless team alignment across two enterprise alert channels:

1. In-App Toast & Notification Drawer:

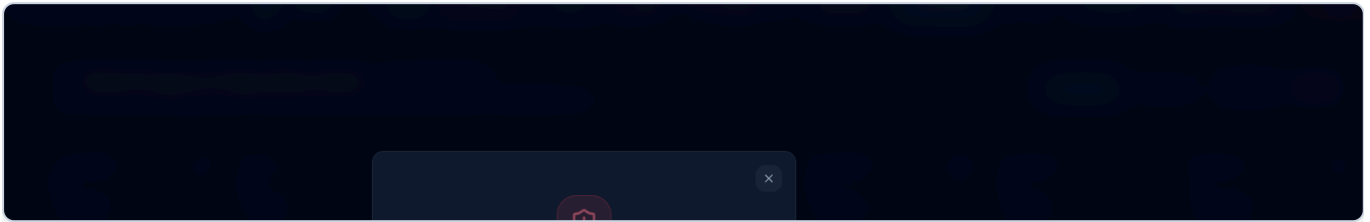
- Instant visual toast alerts with audible chimes trigger on new ticket creation, assignment dispatch, and live chat updates.
- The top header navigation bell 🔔 displays an active unread badge counter.

2. FixPulse Cloud Mail Gateway:

- Automatically dispatches email notifications for Critical Priority emergencies within the 15–30 minute SLA target window.

- Transmits work order completion and QA sign-off summaries directly to department heads and plant controllers.

9.7 Work Process Toolbar & Multi-Filter SOP



The header toolbar empowers supervisors and plant engineers to filter high-volume maintenance records rapidly:

1. View Switcher:

- **"Kanban Board"**: Visual drag-and-drop workflow across the 5 maintenance stages.
- **"Table View"**: High-density grid view featuring Rule 6 continuous row indexing and interactive column sorting.

2. Quick Metric Status Pills:

- Click one-touch status filters such as `ALL`, `Open`, `Assigned`, `In Progress`, or `Critical`.
- The Kanban board or table instantly filters visible records in a single click.

3. Cascading 4-Level Org Hierarchy Filters:

- Drill down precisely by **Site** → **Building** → **Department** → **Production Line**.
- Enables department supervisors to isolate floor jobs belonging exclusively to their operational zone.

4. Live Text Search: Instant real-time query by Work Order ID (e.g., `WO-2026-001`), machine name, asset tag, or technician name.

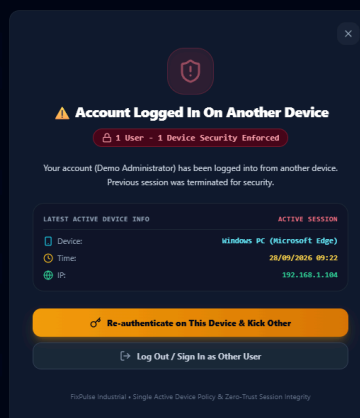
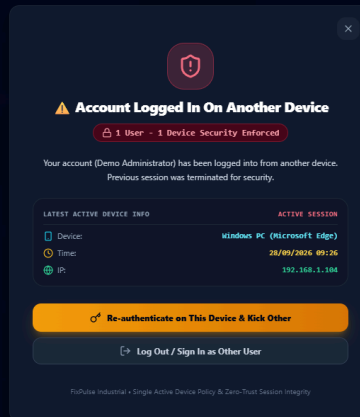
5. Date Range Presets: Quick temporal presets including *Today*, *This Week*, *This Month*, or custom date boundaries.

9.8 Enterprise Table UX Standard (Rule 6 Compliance)

When switched to Table View, FixPulse strictly delivers the 3 mandatory UX table pillars:

- **First Column ("No.")**: Continuous global sequence indexing across pagination pages $((\text{CurrentPage} - 1) * \text{PageSize}) + \text{Index} + 1$.
 - **Dual Pagination Toolbar**: Synchronized page navigation at both the top toolbar and bottom card footer, supporting 10, 20, 50, or 100 records per view.
 - **Interactive Sorting**: Clickable column headers (WO Number, Date, Priority, Status, Total Cost) with active ascending/descending visual indicators.
-

9.9 Tickets Desk & Activity Audit Logs SOP



1. Instant Ticket Creation (Open Emergency Ticket):

- Operators click **" + Create Ticket "** or scan the asset QR tag directly with their camera.
- Specify failure symptom, select SLA urgency level (Critical, High, Medium, Low).
- Attach up to 3 timestamped shop floor photos with automatic EXIF metadata capture.

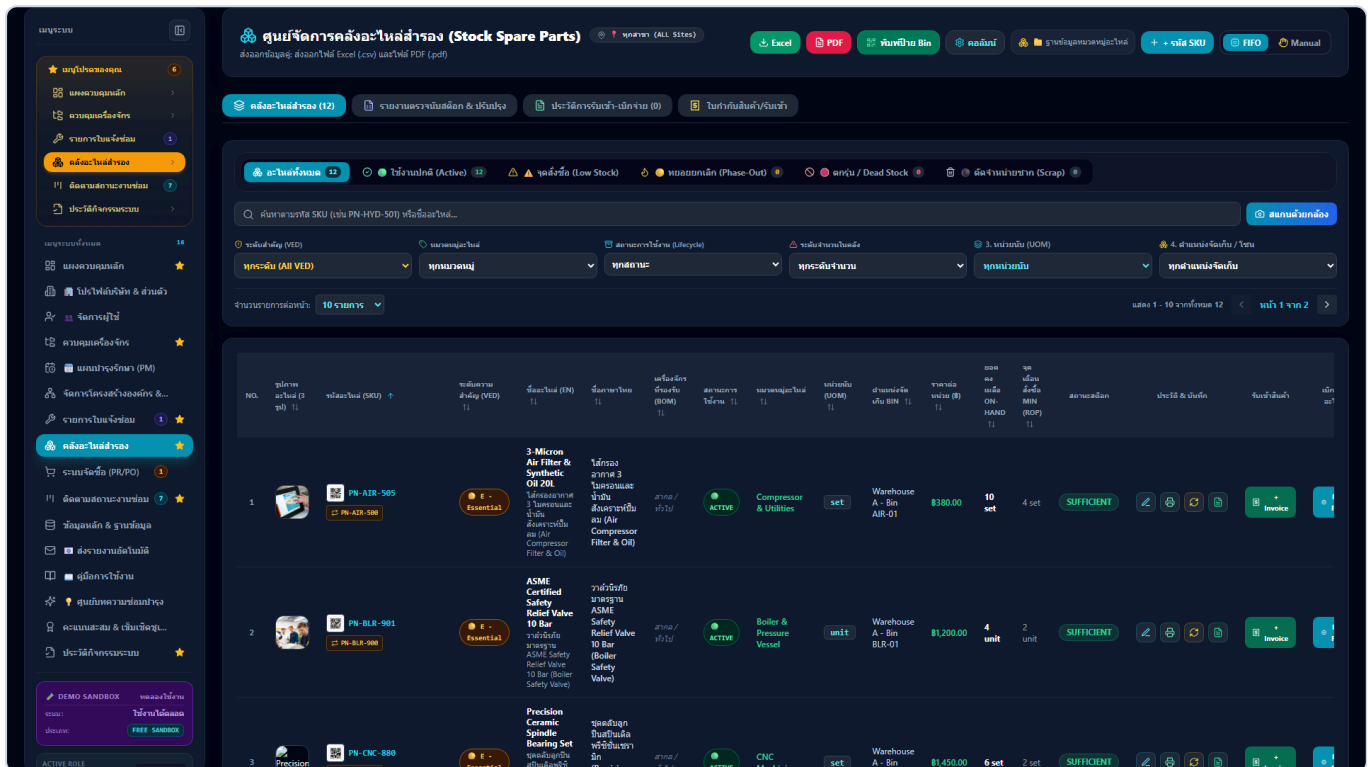
2. Active vs. Closed Ticket Archives:

- Switch to the **"Active"** tab to manage real-time daily work order progression.
- Switch to the **"Closed"** tab to query historical maintenance records for ISO 9001 quality audits.

3. Chronological Activity Audit Logs:

- Click the audit history icon  on any ticket record to view the complete event timeline.
- Tracks every milestone: incident creation timestamp, technician dispatch, physical repair start, status changes, and final QA sign-off in an immutable audit ledger.

10. Spare Parts Inventory & FIFO Costing Engine



10.1 First-In, First-Out (FIFO) Cost Accounting

Because parts purchased across different months carry fluctuating supply market prices, FixPulse runs an automatic FIFO cost engine:

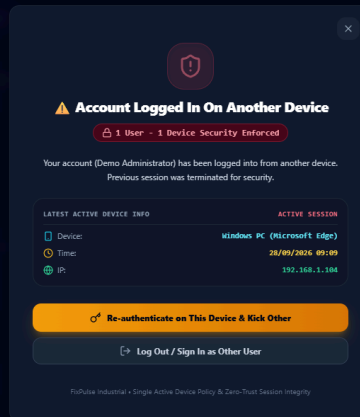
- Oldest inventory batches are consumed first when closed against work orders.
- Prevents balance sheet distortion by capturing true historical acquisition costs.
- Prevents physical shelf obsolescence of perishable items (gaskets, lubricants, seals).

10.2 Automated Reorder Triggers

When stock balances decrease past defined Minimum Stock Safety thresholds:

- Glowing **Low Stock Warning** indicators trigger across central dashboards.
- Procurement requisition summaries dispatch automatically to plant buyers.

10.3 Spare Parts Physical Stock Count & Variance Analysis SOP



10.3.1 Inventory Governance Principles

- 1. Inventory Accuracy Target (Target 98%):** Eliminates unexpected production line halts resulting from missing spare parts (Stockout Downtime) while curtailing unnecessary working capital tied up in excess warehouse stock.
- 2. Cycle Counting vs. Wall-to-Wall Physical Count:** Enables continuous, non-disruptive cycle counting scoped by material category or specific warehouse bin locations without halting factory floor production.

3. **Blind Counting Technique:** Suppresses system on-hand balances from field counting sheets to eliminate confirmation bias and prevent guesswork, ensuring 100% genuine physical verification.

4. **Variance Valuation & FIFO Financial Impact:**

- Computes quantitative variance: $\text{Variance} = \text{Counted Qty} - \text{System On-Hand}$
- Computes financial exposure: $\text{Variance Value} = \text{Variance} \times \text{FIFO Unit Cost}$
- Automatically classifies discrepancies: Balanced (**MATCHED**), Surplus (**OVERAGE**), or Deficit (**SHORTAGE**).

10.3.2 5-Stage Spare Parts Stock Count SOP

1. **Stage 1: Session Scoping & Location Selection:**

- Navigate to "Inventory" → "Stock Count & Variance Report" tab.
- Set scope filters: select by spare part category (Mechanical, Electrical, Consumables) or isolate specific bin racks (**BIN-A1** , **RACK-03**).

2. **Stage 2: Stock Count Sheet PDF Generation:**

- Click "  **Export Count Sheet PDF**" to produce the printable physical counting roster.
- Fully supports **Blind Count Mode** (omits system quantities to enforce rigorous manual verification).

3. **Stage 3: Physical Counting & Live Barcode Scanning:**

- Warehouse clerks tally shelf balances physically.
- Enter verified figures into the **Counted Qty** field or tap "  **Barcode Scanner**" to register parts rapidly via smartphone camera.

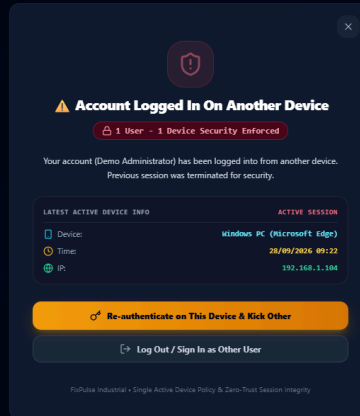
4. **Stage 4: Variance Analysis & Valuation Report:**

- Switch to the "**2. Valuation & Audit Report**" subtab for real-time variance calculations:
 - Green indicator: Exact match with system ledger (Matched).
 - Cyan indicator: Stock surplus (Overage).
 - Red indicator: Stock deficit (Shortage).
- Instant computation of cumulative Net Financial Variance Impact (\$ / ₺).

5. **Stage 5: Stock Adjustment Commitment & Audit Trail:**

- Enter variance justification notes (e.g., floor drops, emergency undocumented pulls, shelf degradation).
- Click "**Commit Stock Adjustment**" to update live inventory balances to physical reality while permanently logging the transaction in the immutable Audit Movement Log.

11. Procurements PR, PO & Goods Receipt (FIFO Integration)



11.1 Procurement Lifecycle & Safety Stock Control

Unplanned equipment breakdowns without immediate access to replacement parts lead to catastrophic downtime costs. FixPulse unites inventory control with an integrated procurement engine:

- **Automated Reorder Triggers:** Whenever inventory drops below safety thresholds (Min-Max levels), the system generates low-stock alerts and enables 1-click Purchase Requisition (PR) generation.
- **4-Stage Document Lifecycle:**

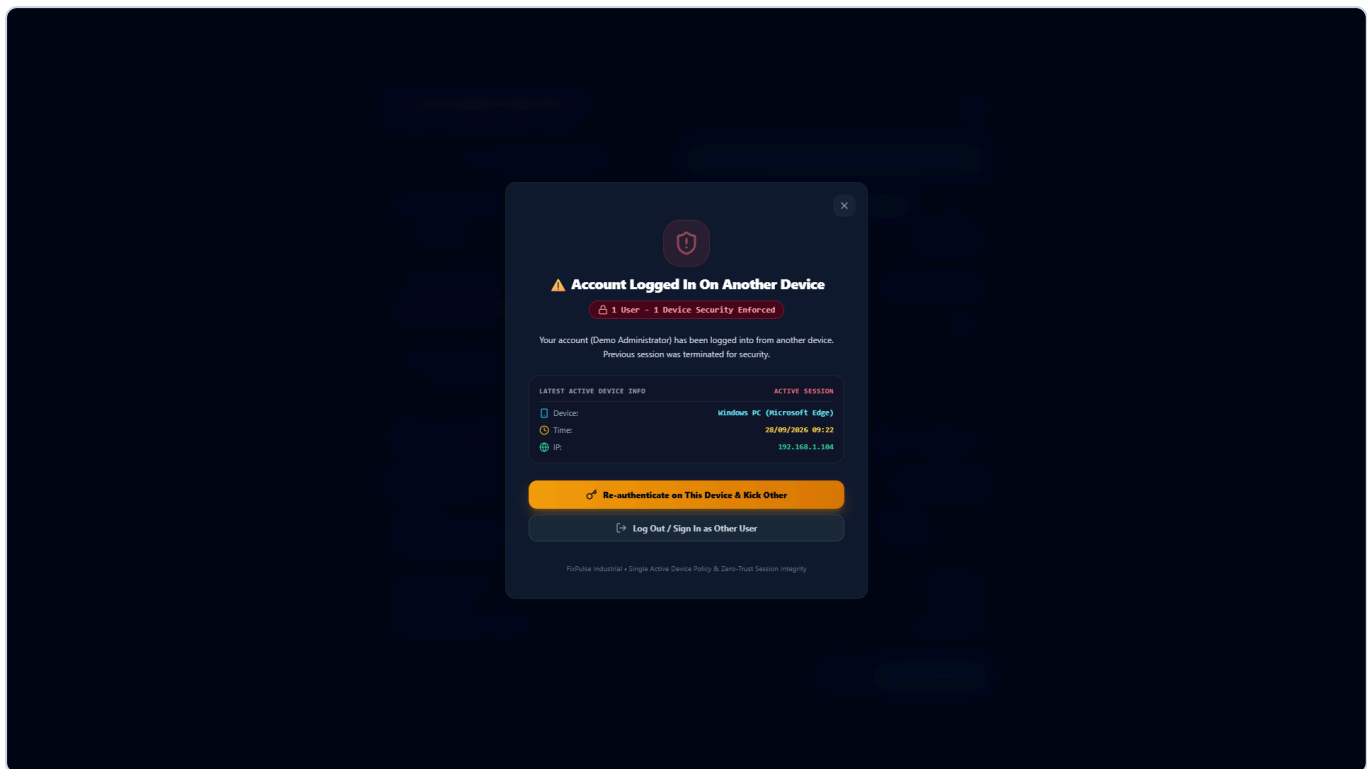
[1. Purchase Requisition (PR)] → [2. Management Approval] → [3. Purchase Order (PO)] → [4. Goods Receipt]

- **Approval Governance:** Transparent tiered approval matrix prevents unauthorized purchasing and ensures budgetary compliance.

11.2 Purchase Requisition (PR) Management SOP

1. **Access Procurement:** Navigate to "Procurement" → "1. Requisitions (PR)" tab.
2. **Create New PR:** Click "+ New PR".
3. **Item Selection & Supplier Mapping:**
 - Select spare parts from the central warehouse catalog or input special custom-ordered components.
 - The platform auto-populates historical procurement costs and preferred supplier details.
 - Enter requested quantity, delivery urgency, and maintenance reason (e.g., PM overhaul or emergency breakdown).
4. **Submit for Approval:** Dispatch the requisition to the maintenance supervisor or plant manager for digital sign-off.

11.3 Purchase Order (PO) Issuance & 3-Mode Dynamic VAT Engine SOP



1. Convert PR to PO or Direct PO Creation:

- On an approved PR, click **"Generate PO"**.
- Or open the **"2. Purchase Orders (PO)"** tab and click **"+ Create PO"**.

2. 3-Mode Dynamic VAT Engine:

- **Exclusive (7%)**: Adds standard VAT on top of the taxable subtotal.
- **Inclusive (7%)**: Extracts VAT component directly from gross invoice total.
- **Exempt (0%)**: Zero-rated tax for exempt industrial supplies or duty-free machinery parts.

3. Commercial Terms & Document Customization: Specify payment terms (e.g., Net 30, Net 60), discount percentages, shipping addresses, and lead times.

4. Enterprise PDF Export: Click **"Export PO PDF"** to generate official corporate purchase orders complete with company branding, supplier codes, delivery terms, and dual signature blocks.

11.4 Goods Receipt & Auto FIFO Lot Integration SOP

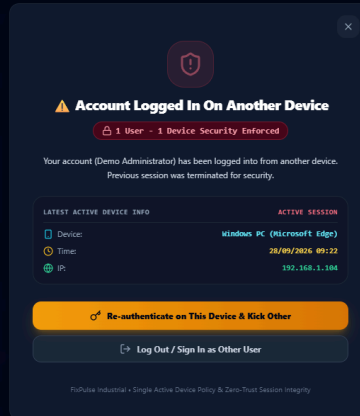
1. Inbound Delivery Verification: Upon physical delivery at the warehouse dock, open the PO record and select **"Goods Receipt"**.

2. Flexible Receipt Matching: Supports full receipt or incremental partial receipts for staggered supplier shipments.

3. Automated FIFO Batch Creation:

- Confirming receipt instantly increases warehouse on-hand balances.
- Automatically establishes a new FIFO valuation lot tied to the exact PO unit acquisition cost, ensuring seamless accounting precision during future repair consumption.

12. Master Files & Database Architecture (9 Entities)



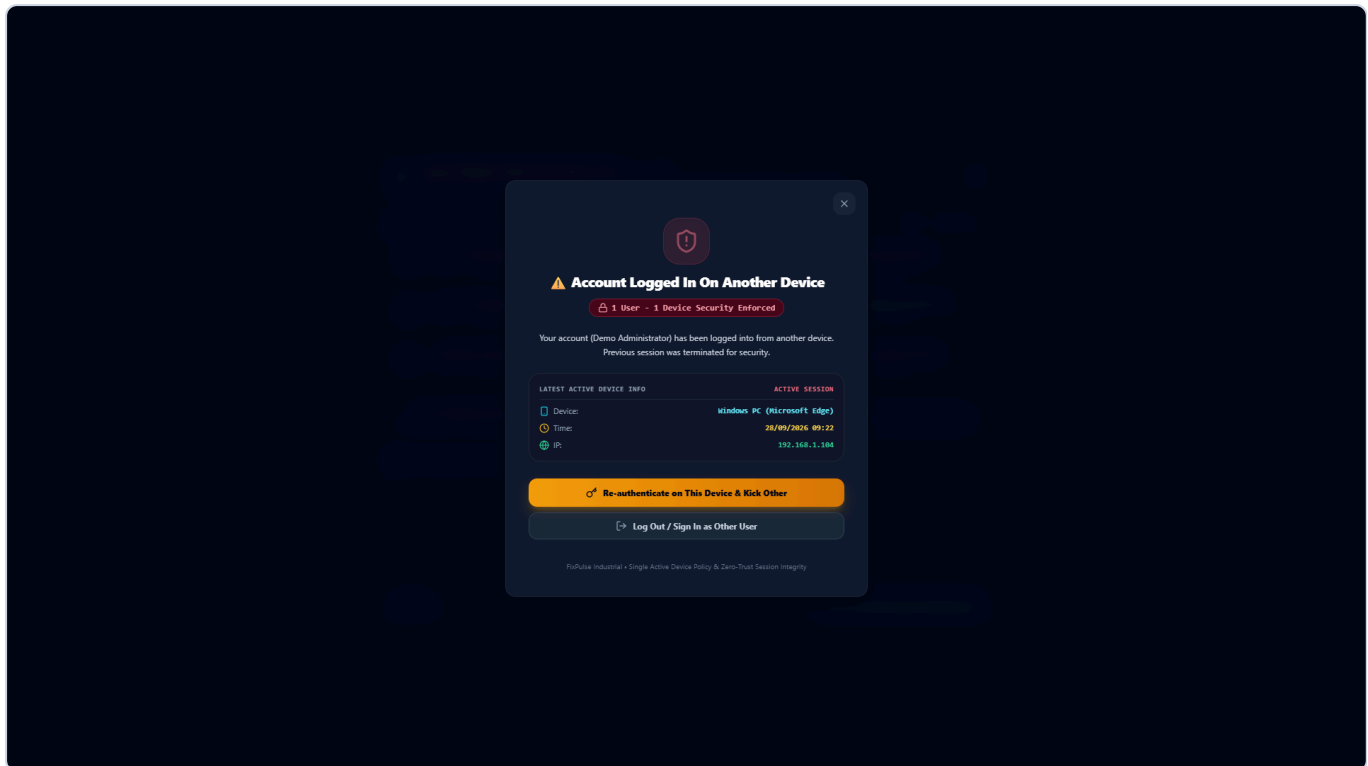
12.1 Master Data Governance Principles

High-accuracy OEE analytics and predictive maintenance models demand clean, structured master data. FixPulse provides a centralized master data console acting as the enterprise Single Source of Truth to eliminate duplication and data decay.

The 9 Standardized Master Catalogs:

1. **Suppliers & Vendors:** Vendor profiles, contact information, payment terms, and historical procurement ledgers.
2. **Asset Categories:** Machine classifications grouped by plant area, manufacturing function, and criticality.
3. **Spare Part Categories:** Component classification based on engineering disciplines.
4. **Failure Codes & Root Causes:** Standardized symptom and fault taxonomy for root cause analysis (RCA) and MTBF calculations.
5. **Technician Skills & Matrix:** Specialization domains, hourly billing rates, and certification records.
6. **Departments & Cost Centers:** Accounting departments and cost centers for maintenance expense allocation.
7. **Locations & Warehouse Bins:** Multi-tier storage hierarchies (Site, Building, Shelf, Bin).
8. **Units of Measure (UOM):** Standardized measurement units (Pcs, Set, Liter, Box, Meter).
9. **Manufacturers & Brands:** Original equipment manufacturer (OEM) directory.

12.2 Bulk Master Data Import from Excel/CSV SOP



During plant onboarding or system commissioning, facilities can migrate extensive legacy records within minutes:

1. Download Pre-Formatted Excel Template:

- Select the target catalog (e.g., Machinery or Spare Parts).
- Click "  Import from Excel" and select "Download Template (.xlsx)".

2. Populate Standard Columns: Enter item codes, descriptions, categories, specifications, and storage locations according to standard headers.

3. Drag & Drop Validation:

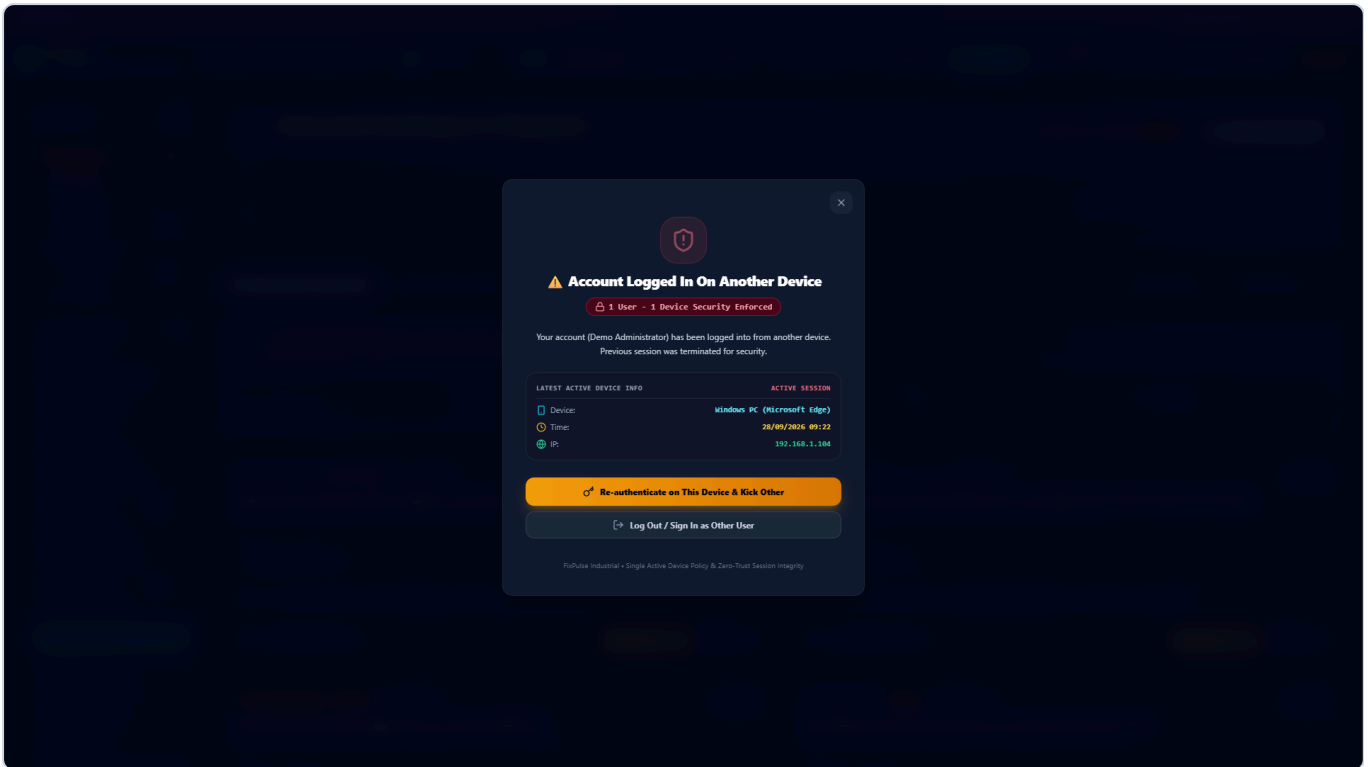
- Drop the populated spreadsheet into the import modal.
- The validation engine performs instant pre-checks, flagging syntax issues and duplicate codes.

4. Commit Batch Import: Review the validation summary and click confirm to batch-insert hundreds of records into the central cloud database in seconds.

12.3 Cloud Relational Database Architecture & Continuity

- **Enterprise Secure Data Vault:** High-availability cloud database engine supporting relational integrity and B-tree indexes for lightning-fast querying across millions of historical records.
- **Self-Healing Schema Migrations:** Automatically provisions missing tables, indexes, and constraints upon upgrade without service disruption.
- **Real-Time Cloud Continuity:** Seamless bidirectional data synchronization across workstations, floor tablets, and mobile smartphones.

13. Automated Email Reports & Dispatcher

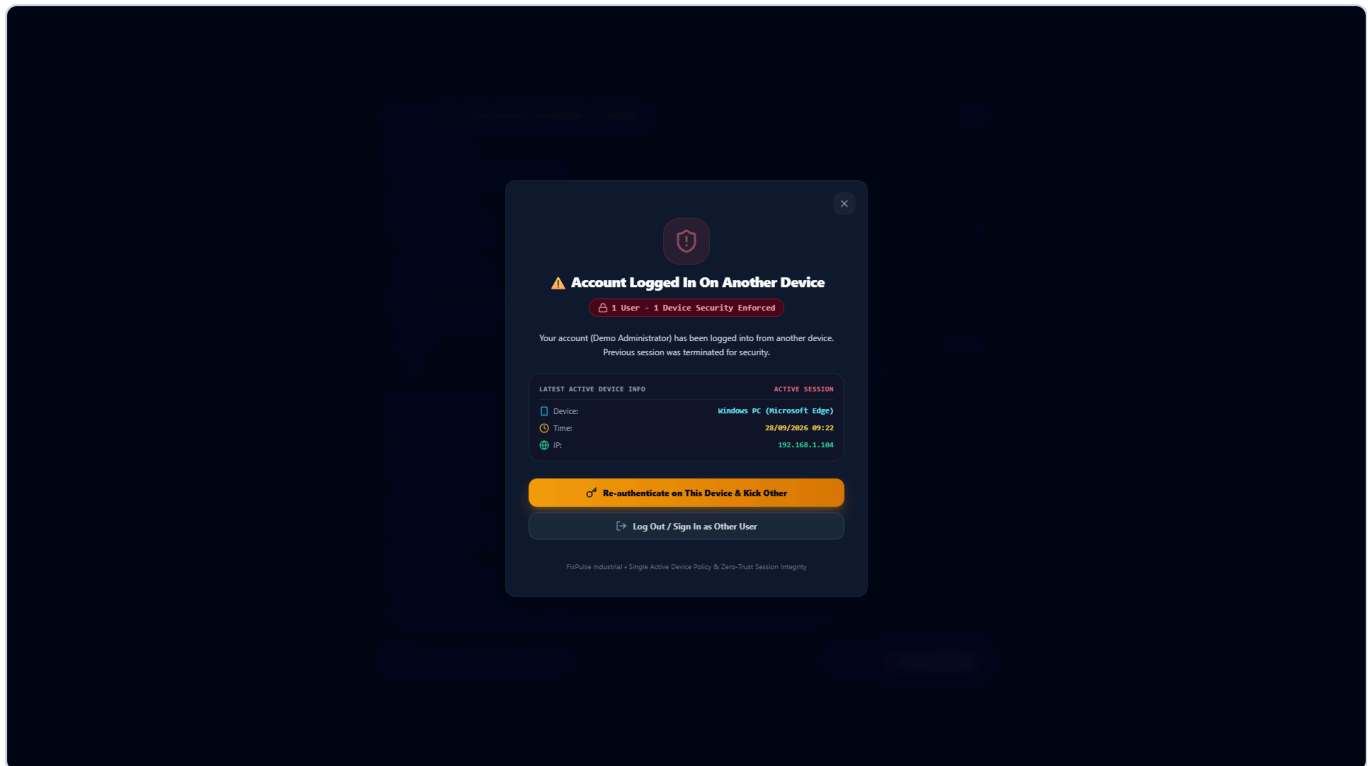


13.1 Automated Reporting Principles

Factory leadership and department managers need actionable operational insights delivered directly to their inbox without requiring active software login:

- **Executive Visibility:** Automated digests summarize line downtime, work order velocity, OEE metrics, and overdue SLA tickets.
- **FixPulse Cloud Mail Gateway:** High-reliability corporate email delivery infrastructure with enterprise-grade encryption.

13.2 Email Schedule Configuration SOP

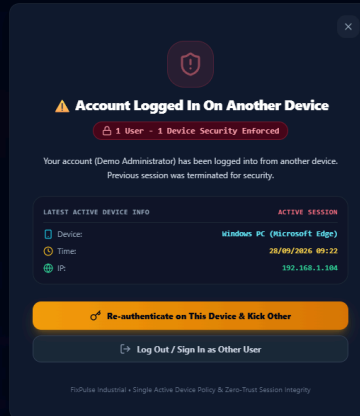


1. **Access Email Dispatcher:** Navigate to **"Auto Email Reports"** menu.
2. **Create New Schedule:** Click **" + Add Scheduled Report "**.
3. **Select Report Digest Type:**
 - **Daily Maintenance Summary:** Daily snapshot of newly opened tickets, resolved work orders, and active downtime.
 - **Weekly Executive Brief:** Aggregated MTBF, MTTR, PM plan compliance rates, and technician CSAT scores.
 - **Monthly Cost Ledger:** Comprehensive financial recap combining active labor hours and FIFO spare parts consumption.
4. **Configure Dispatch Frequency & Timing:**
 - Select frequency: Daily, Weekly (every Monday), or Monthly.
 - Set targeted dispatch time (e.g., **08:00 AM** prior to daily production shift meetings).
5. **Define Recipient Distribution List:** Enter email addresses of plant managers, department heads, and maintenance supervisors (comma-separated).
6. **Execute Test Dispatch:** Click **"Test Dispatch"** to verify email delivery formatting and recipient access prior to activating the schedule.

13.3 Dispatch Logs & Audit Trail

- The central console maintains an immutable chronological log of every scheduled report generation.
- Records dispatch timestamps, delivery status (Success / Failed), recipient counts, and attachment sizes for 100% operational transparency.

14. Technician Leaderboard, Points & Badges



14.1 Gamification & Performance Motivation Principles

Industrial maintenance involves high pressure and demanding floor conditions. FixPulse incorporates **Gamification** to transform routine tasks into engaging, rewarding achievements:

- **Positive Culture:** Recognizes and rewards rapid response, craftsmanship, first-time fix rates, and safety vigilance.
- **Transparent & Objective Appraisal:** Gamification metrics and point balances derive strictly from verifiable system events, eliminating managerial bias.

14.2 Points Accrual Criteria

Technicians accumulate points automatically through routine operational milestones:

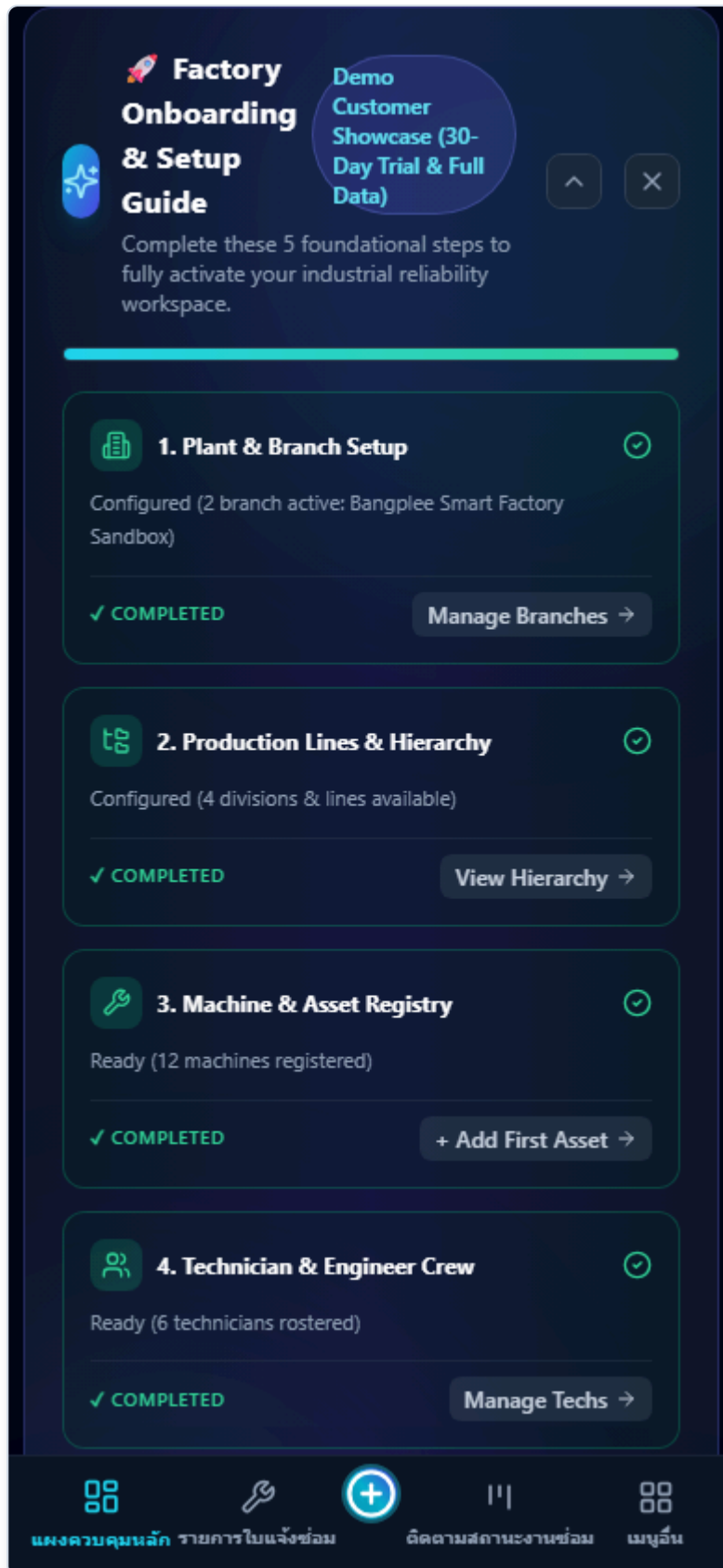
- ⚡ **On-Time SLA Resolution:** Earn **+50 Points** for closing tickets within committed windows.
- 🌟 **5-Star CSAT Rating:** Earn **+100 Points** for exemplary operator satisfaction ratings.
- 🛠️ **Preventive Maintenance Plan Fulfillment:** Earn **+30 Points** for zero-defect PM task execution.
- 🛡️ **Zero-Incident Safety & LOTO Compliance:** Earn **+20 Points** for adhering to safety protocols.
- ⚠️ **Rework / Defect Penalty:** Deduct **-20 Points** when completed jobs are rejected by QA.

14.3 Badges & Leaderboard Roster

- **Top Technicians Leaderboard:** Highlights monthly and annual top performers ranked by total points, resolved jobs, and mean CSAT scores.
- **Honorary Skill Badges:**
 - 🏆 **Speed Master:** Consistently fast emergency response and triage.

-  **Quality Champion:** Achieved over 10 consecutive 5-star customer ratings.
 -  **Safety Guardian:** Zero safety infractions and full LOTO compliance.
 -  **PM Specialist:** Achieved 100% on-time execution of scheduled preventive maintenance.
 - **Corporate Recognition:** Accumulated points easily integrate with corporate annual incentive programs and employee recognition awards.
-

15. Mobile Floor Task Architecture (< 768px)



15.1 Practical Floor Task Architecture

On smartphone devices (< 768px wide), complex enterprise tables are automatically replaced by 5 tactile field workflows:

- 1. **Instant QR Camera Scan:** Point camera at asset plate to pull schematics and history in under 2 seconds.
- 2. **3-Tap Emergency Breakdown Ticket:** Capture photo → Pick failure symptom → Tap Submit.
- 3. **Tactile "My Jobs" Execution:** Single-tap stage progressions (Accept → Start → QA Request).
- 4. **Quick Bin Location & FIFO Pick:** Immediate display of warehouse shelf/bin location for fast part retrieval.
- 5. **Digital Sign-Off:** Line operators provide digital touchscreen sign-off upon machine handover.

16. Enterprise Contact Directory, Support & Compliance Standards

16.1 Enterprise Support Directory & Contact Hub

Plant executives, maintenance leads, and system administrators can reach the FixPulse Industrial engineering and support teams through the following official channels:

Contact Channel	Address / Destination	Operational Scope
 Corporate Platform Showcase	https://nova-pulse-ai.com	Technology architecture, enterprise security policies, and product demo scheduling
 Live Production Cloud Portal	https://fix-pulse.nova-pulse-ai.com	Browser-based access across desktop workstations, tablets, and smartphones
 Technical Support Helpdesk	support@nova-pulse-ai.com	Software usage, account access, cloud sync inquiries, bug reporting
 Enterprise Solutions & Onboarding	contact@nova-pulse-ai.com	New plant deployments, custom API connectors, corporate licensing
 In-App 24/7 Support Desk	"Customer Support & 24/7 Helpdesk" Menu	Direct in-app ticket opening with error logs and image attachment capability
 LINE Official Account (Instant Chat)	NovaPulse AI (LINE ID: @963thhms)	Direct chat with NovaPulse engineering team, release notifications
 Engineering & Sales Hotline	080-846-4657 (+66 80-846-4657)	Expert consultations: Mon - Sat (08:30 - 18:00 ICT)

16.2 Service Level Agreement (SLA) Response Matrix

To guarantee business continuity across demanding 24/7 industrial manufacturing schedules, central platform operations adheres to strict SLA commitment targets:

Severity Level	Operational Impact	First Response SLA	Resolution Target
● Tier 1: Critical (Plant Halt)	Complete outage or primary assembly line stoppage (Zero Workaround)	15 - 30 Minutes	24/7 Non-stop emergency response
● Tier 2: High Priority	Critical workflow affected (e.g. barcode scanner) with functional workaround	1 - 2 Hours	Within 4 - 8 hours
● Tier 3: Standard Operational	Standard inquiries, onboarding assistance, hierarchy setup advice	2 - 4 Hours	Within 1 business day
● Tier 4: Enhancement Request	Feature enhancements and UI recommendations for upcoming releases	1 Business Day	Evaluated for roadmap inclusion

16.3 Enterprise Data Protection & Continuity

- **Enterprise Secure Data Vault:** Multi-tenant architecture with end-to-end encryption in transit (TLS 1.3) and at rest (AES-256).
- **Automated Cloud Snapshots:** Automated daily cloud database snapshots with point-in-time restoration capabilities.
- **Auditable History:** Comprehensive audit trail tracking all user logins, role modifications, and inventory transactions.

16.4 Industry Compliance & Standards

- Architected in strict compliance with **ISO 55001** Asset Management Standards.
- Maintenance records and audit trails satisfy compliance requirements for **ISO 9001:2015** and **IATF 16949**.
- Enforces enterprise **Zero-Trust Information Security** perimeter isolation.

Proprietary documentation of Nova Pulse AI Platform Engineering Team. Authored for FixPulse Industrial SaaS enterprise implementations.