



Microsoft Dynamics 365

START YOUR JOURNEY

Field Service Training

Comprehensive 3-day workshop designed for functional and technical professionals to master service operations.

 Consultants, BAs, PMs, Service Managers

 Hands-on Labs & Real-world Scenarios

 Preparation for MB-240 Certification

Training Roadmap

3 DAYS

DAY 01

Foundation & Core Operations

Architecture, Lifecycle, Work Orders, Agreements

DAY 02

Scheduling & Mobile Workforce

Resource Management, Schedule Board, RSO, Mobile App

DAY 03

Advanced Scenarios & Analytics

IoT, Power Platform Integration, Customization, KPIs

 Includes live environment access and detailed lab guides.

Objectives, Audience & Agenda



Objectives

- ✓ Master Field Service core operations, configuration, and work order lifecycle.
- ✓ Gain proficiency in resource scheduling, optimization, and mobile workforce enablement.
- ✓ Explore advanced integrations with IoT, Power Platform, and analytics.



Target Audience

Training Agenda Overview

1

Foundation & Core Operations

Modules 1-5

- Intro & Architecture
- Core Configuration Setup
- Agreements & PM

Day 1

2

Scheduling & Mobile Workforce

Modules 6-10

- Resource Management
- Resource Scheduling Optimization
- Inventory & Assets

Day 2

3

Advanced Scenarios & Analytics

Modules 11-16

- Business Process Lifecycle
- Work Order Management

- Schedule Board Deep Dive
- Field Service Mobile App

Day 3

Foundation & Core Operations

Establishing the digital backbone for field service excellence. We will cover the end-to-end lifecycle from configuration to work order execution.

09:00 AM - 05:00 PM



Today's Key Focus Areas



Architecture & Concepts

D365 Ecosystem, Licensing, Integration Patterns



Configuration Setup

Org Units, Incident Types, Service Tasks, Products



Work Order Management

Lifecycle, Statuses, Manual & Auto Creation



Agreements & PM

preventive Maintenance, Recurrence, Booking Setup

HANDS-ON LABS

- 💻 Navigation & Entity Tour
- 💻 Building Incident Types
- 💻 Work Order Generation

ARTIFACTS & DATA

- [Demo Data Pack](#)
- [User Roles Matrix](#)
- [Lab Guide PDF](#)



Module 1: Introduction to Dynamics 365 Field Service

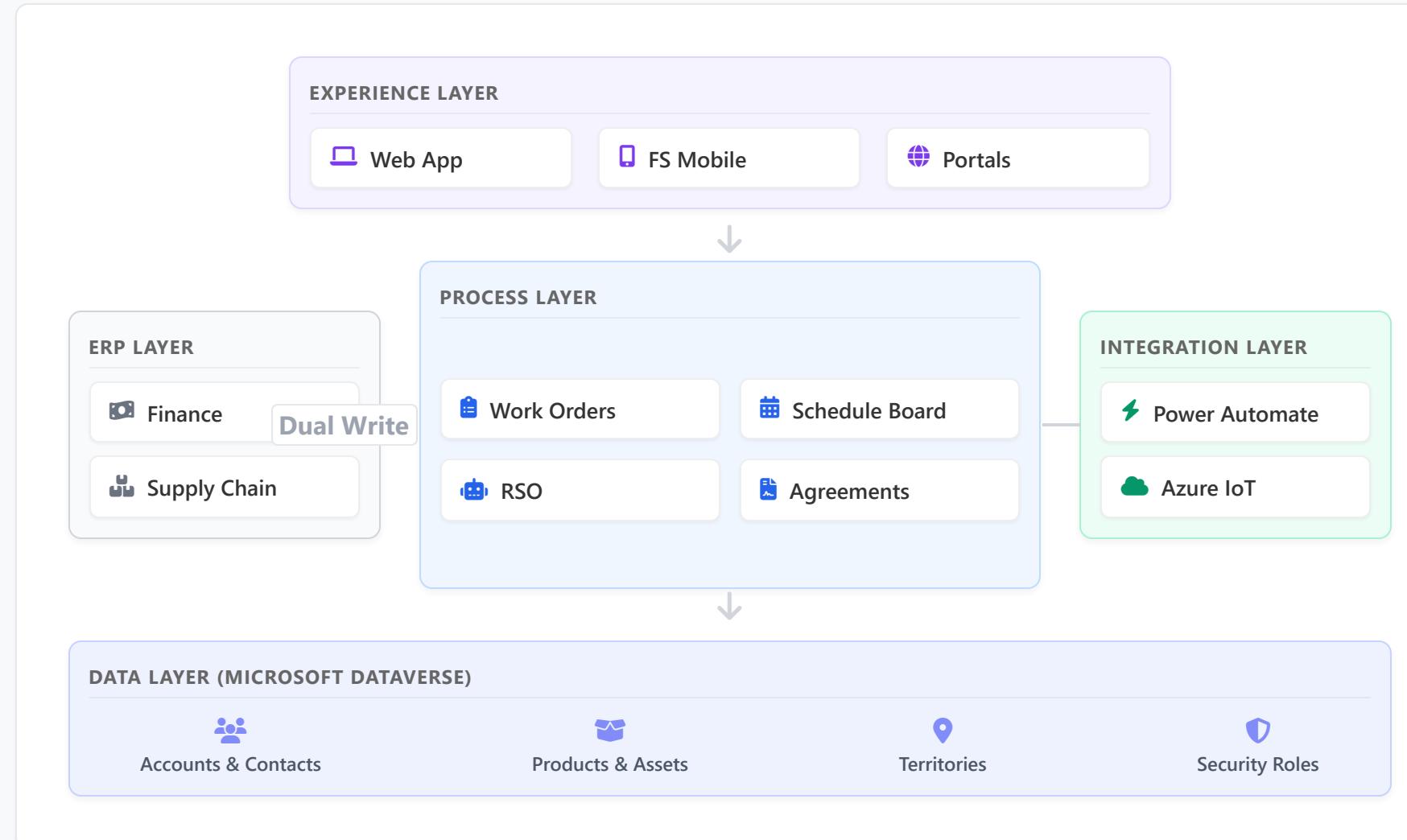
Architecture Highlights

A unified ecosystem built on the Power Platform, enabling seamless data flow across operations.

- ✓ Cloud-native SaaS
- ✓ Common Data Model
- ✓ Extensible via Power Platform

KEY DATA FLOWS

- 1 **Experience Layer:** Where users interact (Web, Mobile, Portals).
- 2 **Process Layer:** Core logic for WO, Scheduling & Agreements.
- 3 **Data Layer (Microsoft Dataverse):** Secure storage for Accounts & Contacts, Products & Assets, Territories, and Security Roles.
- 4 **Integrations:** Real-time sync with ERP & Azure.





Demo: Navigating the Field Service App

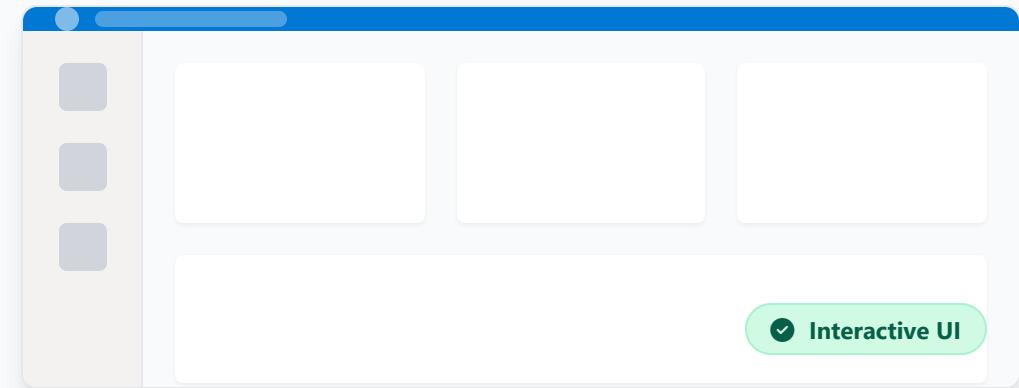
Follow These Steps

1

Access the App

Open the App Launcher (waffle icon) and select **Field Service**.

↗ Action: Click 'Field Service' tile



✓ Interactive UI

2

Explore Dashboards

Review the default landing page. Identify charts for active work orders and incidents.

⌚ Observe: Visual breakdown of current status

Pro Tips

- Use the "**Recent**" tab (clock icon) to quickly jump back to records you just viewed.
- **Pin** your most frequent views to the "Pinned" section for one-click access.

3

Navigate Key Entities

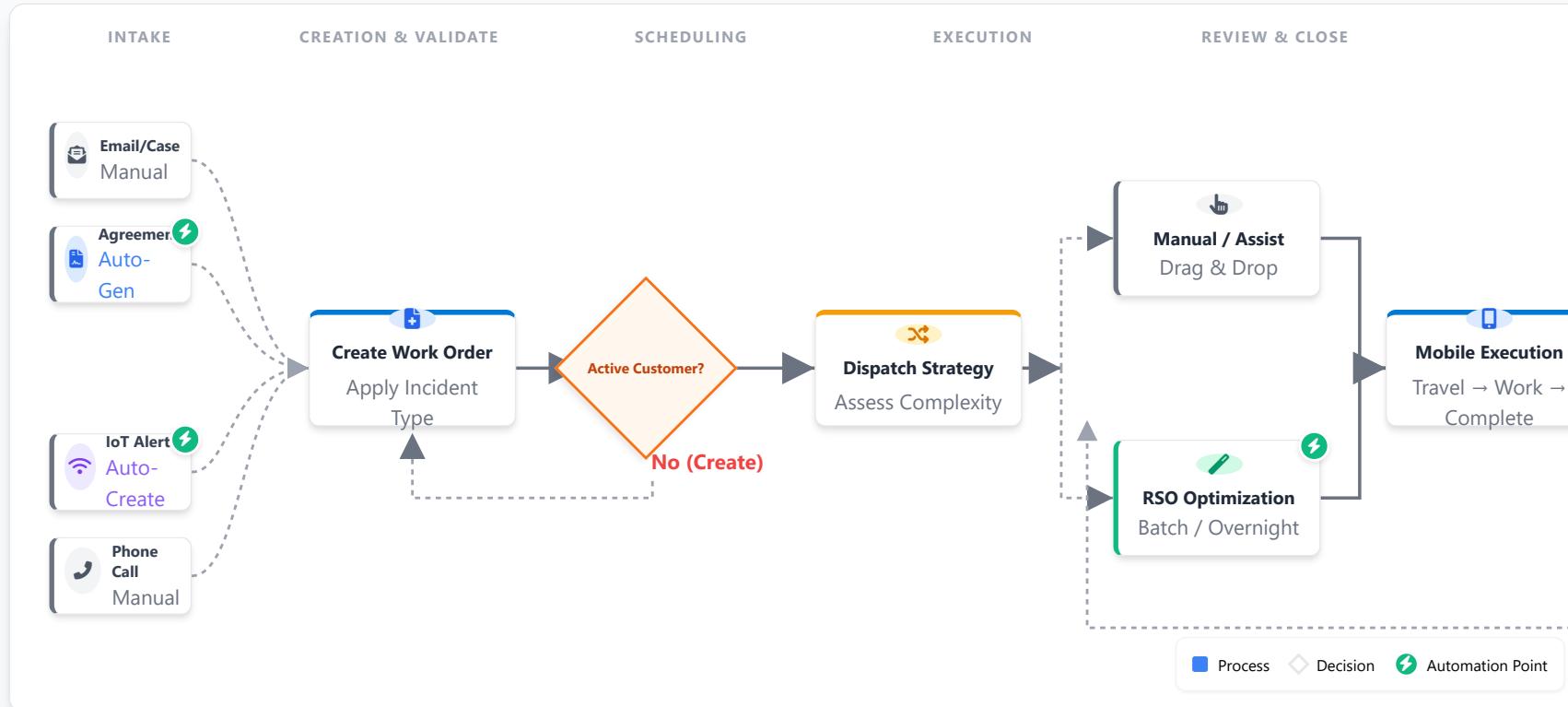
Use the left sitemap to locate **Work Orders**, **Schedule Board**, and **Assets**.

🔍 Verify: Locate the Schedule Board

Learning Outcome

By the end of this exercise, you will be able to confidently navigate the Unified Interface and understand the relationship between core Field Service entities.

Field Service Business Process Lifecycle



Case Scenario: Emergency Utility Outage

Emergency Response Workflow



Customer Call / IoT Alert

Incoming report of power outage in North District.



CSR Triage

CSR validates location and customer details.



Decision: Emergency?

YES: System sets Priority to "Critical". Auto-creates Work Order.



Dispatcher / RSO Assignment

- Check **Skill** (High Voltage Repair)
- Check **Proximity** (GPS Location)
- Check **Availability** (Current status)



Tech Dispatched

Mobile notification sent. Route optimized for traffic.



Real-time Updates

Status changes (Traveling -> In Progress) trigger SMS to customer.

Performance Metrics

TARGET RESPONSE



< 2 Hrs

Critical SLA

CUSTOMER SAT



4.8/5

Post-incident survey

IMPACT ANALYSIS: AVERAGE RESPONSE TIME



40% Faster Response

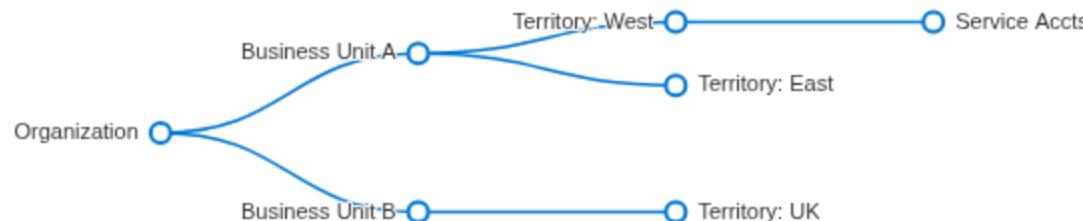
Reduced from 120m to 72m avg.

Module 3: Core Configuration Setup

03 



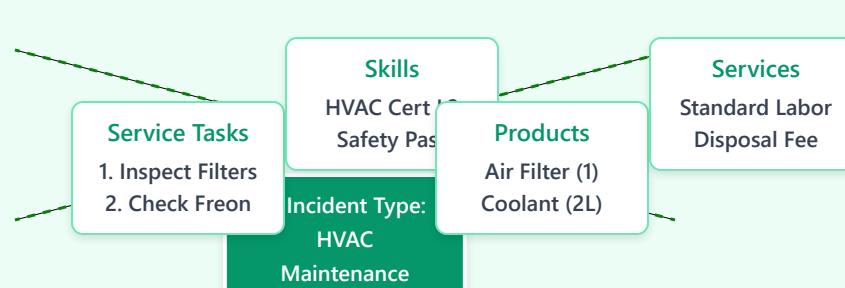
Organizational Hierarchy



Service Configuration Model



Example: HVAC Incident Template



Demo: Configuration

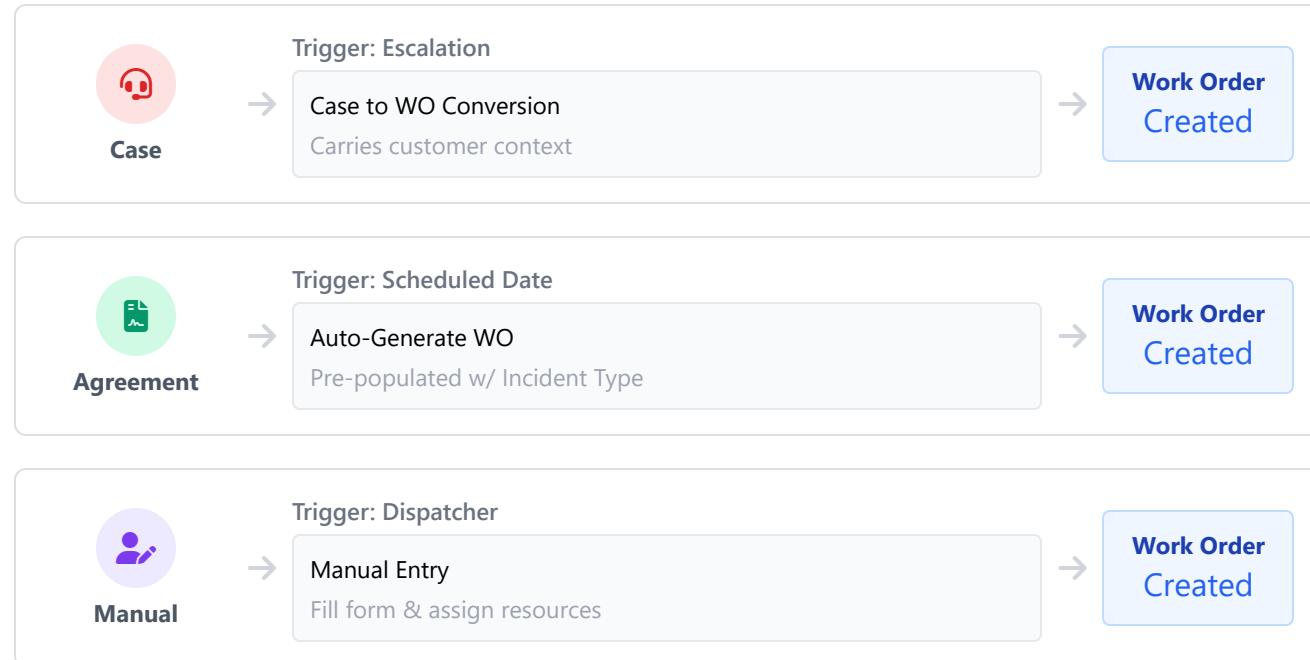
- 1 Create Incident Type**
Define "HVAC Maintenance" with 2 hr duration.
- 2 Add Dependencies**
Link Service Tasks & Required Products.
- 3 Test Automation**
Create WO, select Type, verify population.



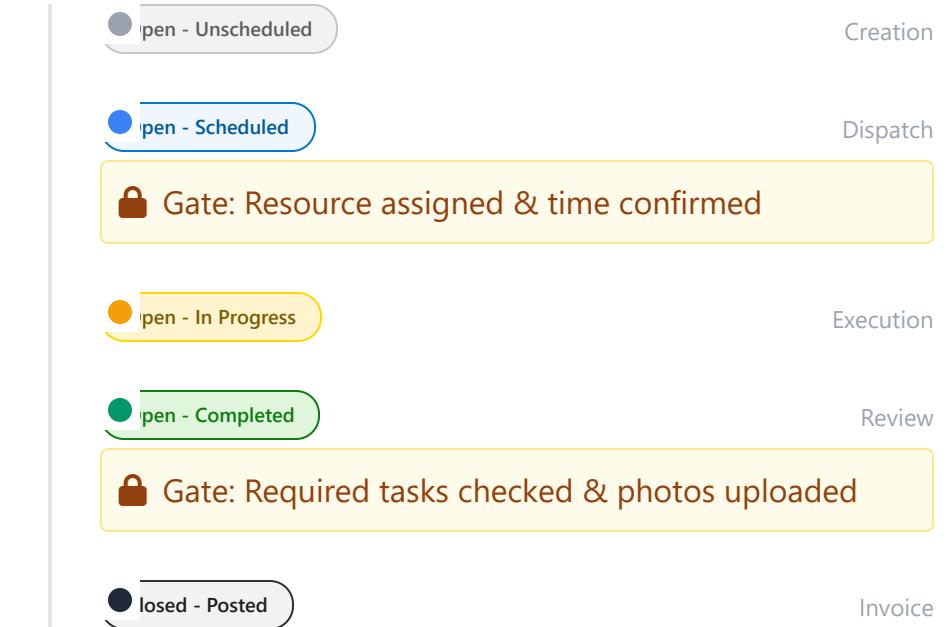
Demo: Creating & Managing Work Orders

 Live Exercise

Work Order Creation Paths



Lifecycle Status Flow



Hands-on Exercise

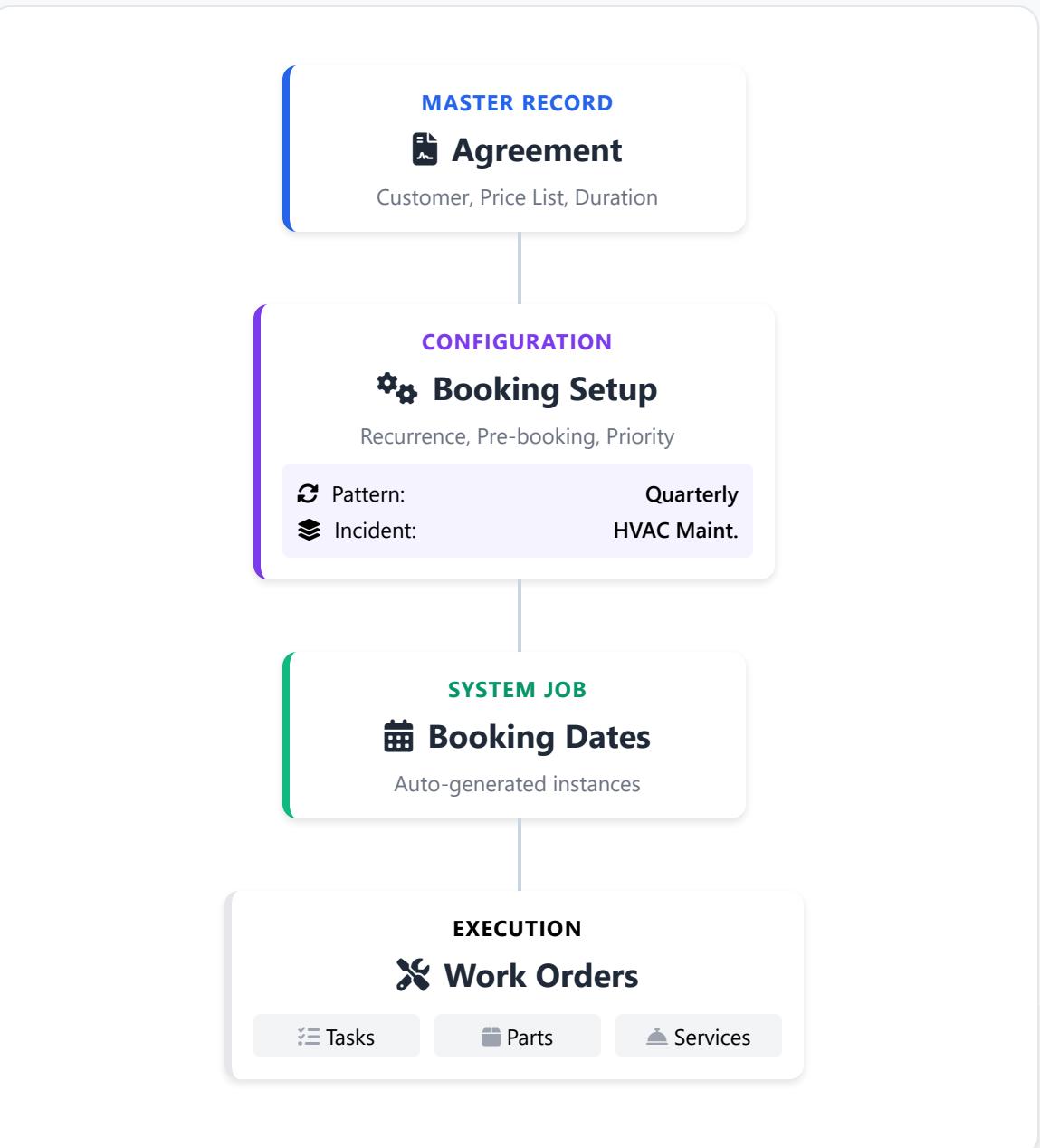
- 1 Convert active Case to Work Order
- 2 Create manual WO with "Install" type
- 3 Progress status to "Scheduled"

Module 5: Agreement Architecture & Scheduling

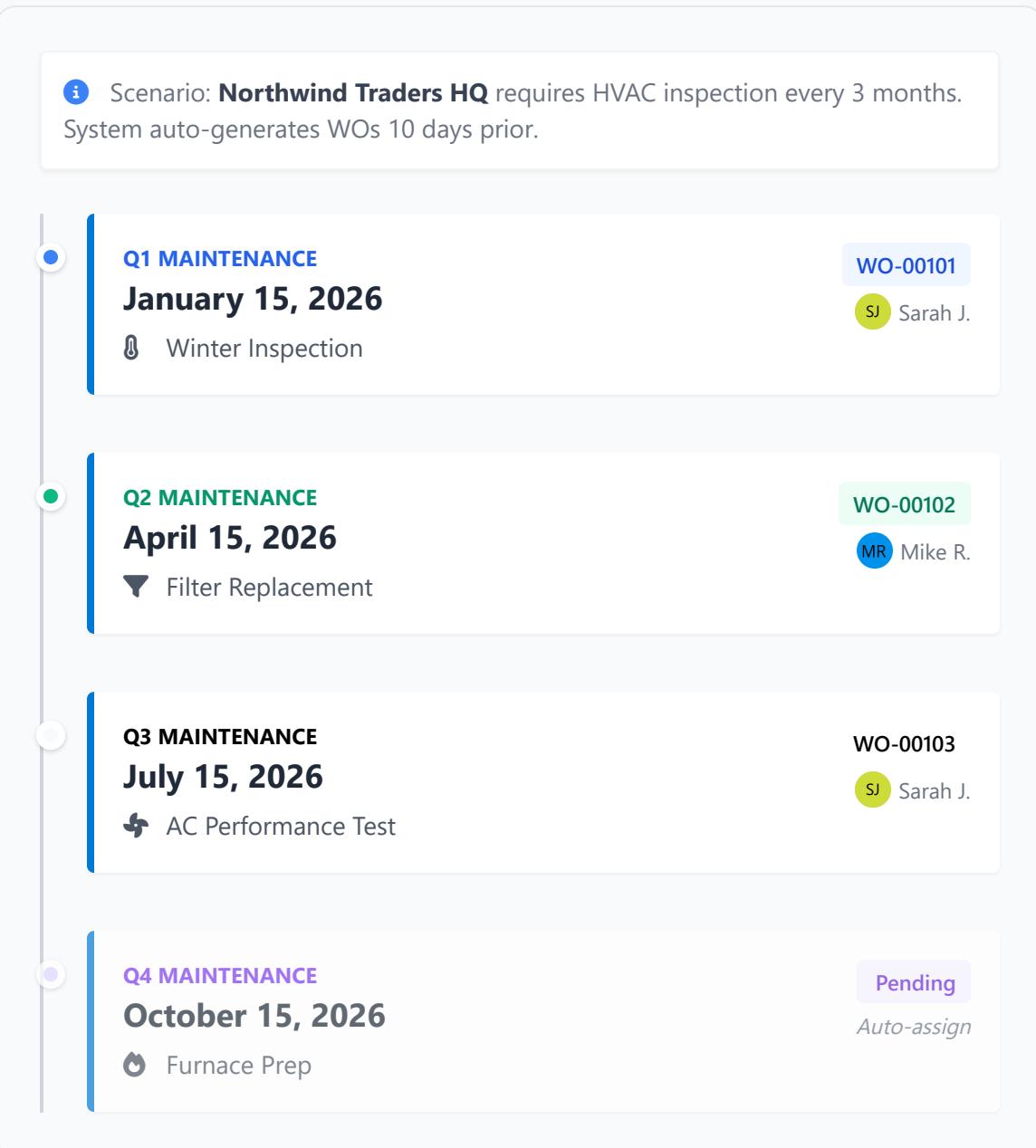
05



Agreement Architecture



Example: Quarterly HVAC Schedule





Key Takeaways

→ Core Architecture

Understanding the Dynamics 365 ecosystem, licensing, and integration points with Finance & SCM and Power Platform.

→ Work Order Lifecycle

Mastered the flow from creation → scheduling → execution → billing, including status transitions.

→ Configuration Strategy

Importance of Incident Types and Service Tasks for standardizing service delivery and reducing manual entry.



What We Built Today

- ✓ Incident Types

- ✓ Service Tasks

- ✓ Auto-Populated WO

- ✓ Quarterly Agreement



Q & A

Open discussion on Day 1 topics.

COMING UP: DAY 2



Resources

Skills, Crews, Territories



Schedule Board

Dispatch & Optimization (RSO)



Mobile App

Technician Experience

Scheduling, Resources & Mobile Workforce

Optimizing service delivery through intelligent resource management, advanced scheduling, and empowering the mobile workforce.

09:00 AM - 05:00 PM



Today's Key Focus Areas



Resource Management

Users, Facilities, Crews, Skills & Territories



Schedule Board

Architecture, Filters, Views & Drag-and-Drop



Resource Scheduling Optimization (RSO)

Goals, Constraints & Automated Optimization



Field Service Mobile

Technician Journey, Offline Mode & Execution

HANDS-ON LABS

- Creating Techs & Skills
- Running RSO Simulation
- Mobile Job Completion

ARTIFACTS & DATA

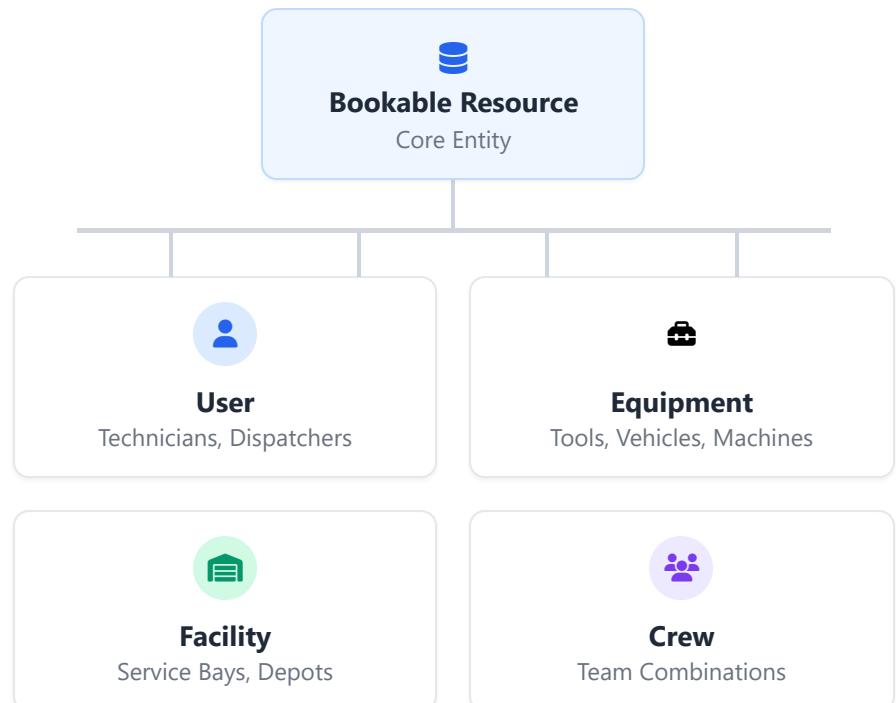
- Tech Profile
- RSO Scope
- Mobile Config



Module 6: Resource Management Architecture

Resource Types Structure

Classification of bookable entities in Field Service



i Resources can be linked to Accounts, Contacts, or System Users.

Resource Assignment Logic

Step-by-step validation flow for scheduling a Work Order

- 1 **Work Order Requirement**
Incident Type defines skills & duration
- 2 **Check Characteristics**
Does resource have required Certifications/Skills?
- 3 **Match Proficiency**
Is skill level \geq required level? (e.g. Expert vs Novice)
- 4 **Verify Territory**
Is resource assigned to the WO territory?
- 5 **Check Availability**
Work hours, Time off, Existing Bookings
- Assign Booking**
Resource booked & notified via Mobile



Module 7: Schedule Board Deep Dive

Functional Block Diagram



- Filters: Skills, Territory, Roles, Time
- Workflow: Drag & Drop assignment

- Map: Route planning & proximity
- Grid: Real-time availability

Scheduling Strategy

Manual vs. RSO Decision Logic

Start: Work Order Created

High Volume?

YES
Use RSO
Automated Optimization

NO

Complex?

Yes
RSO
No
Manual

Guideline: Use RSO for high volume (50+ jobs/day) or complex routing. Use Manual/Assistant for emergency dispatch or low volume.

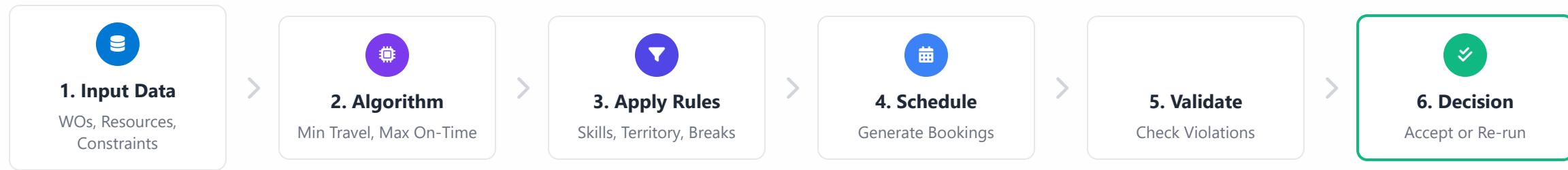
Resource Scheduling Optimization (RSO)

Deep Dive Strategy

Flowchart & Comparison



⚙️ Optimization Engine Workflow



🔍 Manual vs. Automated (RSO)

Decision Matrix

Manual / Assisted

Dispatch Board & Schedule Assistant

**PROS**

- ✓ **Flexible:** Handle complex exceptions
- ✓ **Simple:** No complex config needed
- ✓ **Low Cost:** No add-on license

CONS

- ✗ **Time-Consuming:** Labor intensive
- ✗ **Suboptimal:** More travel time
- ✗ **Not Scalable:** Hard to scale up

Automated (RSO)

Resource Scheduling Optimization

**PROS**

- ✓ **Optimized:** Max efficiency & SLAs
- ✓ **Scalable:** Thousands of jobs/day
- ✓ **Data-Driven:** Objective decisions

CONS

- ⚠ **Setup:** Requires modeling
- ⚠ **Cost:** Add-on licensing fee
- ⚠ **Data Quality:** Sensitive to bad data

Case Scenario: Telecom Same-Day Installs (RSO)

Scenario Context

THE SITUATION

TelcoFast promises "Same-Day Fiber Installation" but faces routing inefficiencies with manual scheduling.

Load: 50 Daily Install Orders

SLA: 2-Hour Arrival Window

PAIN POINTS

High Travel Time
Avg 120 mins/tech (inefficient routing)

Low Utilization
Only 65% billable time

SLA Breaches
On-time delivery at only 82%

Optimization Workflow



Intake

50 Daily Install Orders
Ingested from CRM



RSO Engine

Objectives:
• 95% On-Time
• Min Drive Time
• Balance Load



Constraints

Apply Rules:
• Skills (Fiber/Copper)
• Territory Boundaries
• 2hr Windows



Output

Optimized Routes
Auto-assigned to
Technicians

Before vs. After Performance Results

Efficiency Metrics (%)



Travel Time (Minutes)

-35% Reduction

78 min

Before

After

Customer Satisfaction

+23 Points

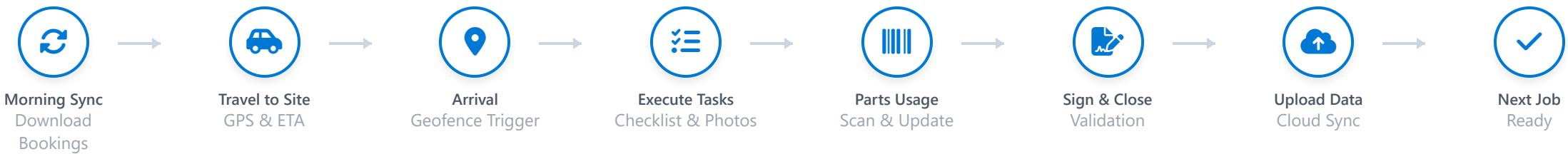
+23 pts



Technician Journey: Field Service Mobile

[Hands-on Lab](#)

End-to-End Mobile Workflow



Key Actions Breakdown

1 Status Management

Update status from **Traveling** to **In Progress**. This drives accurate utilization reporting.

2 Service Task Checklist

Complete mandatory tasks. Attach photo evidence directly to specific task steps for audit trail.

3 Product Consumption

Scan part barcodes to decrement inventory from your van warehouse instantly.

Offline Sync Architecture

Reliable

```
graph LR; subgraph Device ["Mobile Device (Offline DB)"] direction TB; LocalData["Local Data Store"]; end; Queue["Sync Queue"]; subgraph Cloud ["D365 Cloud (Dataverse)"]; ServerData["Server Database"]; Conflict["Conflict Handler"]; end; LocalData -->|Write| Queue; Queue <-->|Bidirectional Sync| ServerData; ServerData -->|Validation| Conflict; Conflict -->|Resolution| Queue; style Device fill:#eff6ff,stroke:#3b82f6,stroke-width:1px; style Cloud fill:#f0fdf4,stroke:#22c55e,stroke-width:1px; style LocalData fill:#fff,stroke:#94a3b8; style Queue fill:#fff,stroke:#94a3b8; style ServerData fill:#fff,stroke:#94a3b8; style Conflict fill:#fef3c7,stroke:#f59e0b;
```

Conflict Resolution Strategy:

When connectivity is restored, the sync engine processes the queue. "Server wins" is default, but custom business rules can be applied for specific entities.



Module 10: Inventory & Asset Management



Customer Assets & Attributes

Metadata tracking per asset level



Maintenance History
Full WO log & failure analysis



Warranty & Terms
Auto-entitlement check



IoT Meters
Run hours & thresholds



Inventory Deployment

From central stock to consumption



Central Warehouse

Main Stock Holding

(Transfer)



Van Inventory

Mobile Warehouse

(Consumption)



Work Order Used

Billed to Customer



Asset Hierarchy Model

Functional location to serialized component



Customer Site (Top Level)



Building / Facility



Floor / Zone



Equipment (Asset)

History



Replenishment Loop

Returns & Purchasing cycle



1 Return / Adjustment

Unused parts returned to stock



2 Reorder Trigger

Min quantity threshold reached



3 Purchase Order

Case Scenario: Manufacturing Asset Tracking

Scenario Context

THE SITUATION

Apex Manufacturing needs granular visibility into their Bottling Line equipment. A critical component, the Pressure Regulator, requires serialized tracking to monitor failure rates and warranty status.

⚠ Issue: High failure rate on Valve Banks

⌚ Goal: Predictive Replacement Model

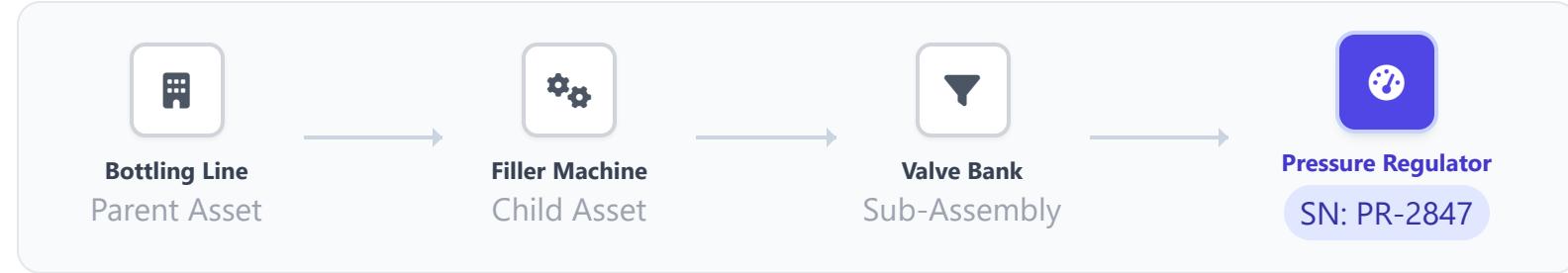
IMPLEMENTATION STRATEGY

1 **Asset Hierarchy:** Map parent-child relationships from Site down to Serialized Component.

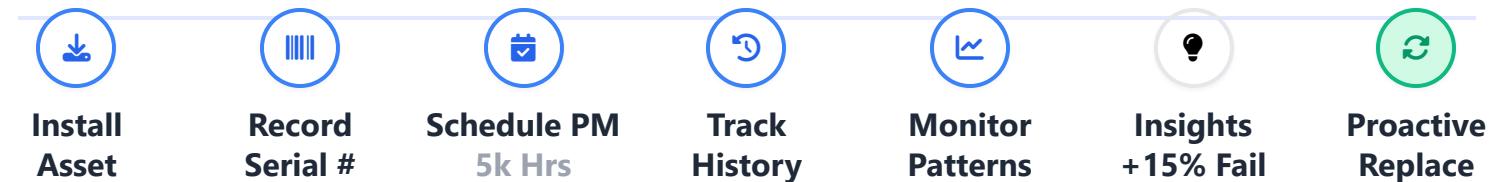
2 **Functional Location:** Track where the asset is installed vs. where it is stored.

3 **Data-Driven Decisions:** Use history to identify components with >15% failure rates.

Asset Hierarchy Model



Maintenance Intelligence Workflow



Performance Metrics

ASSET UPTIME

99.2%

Up from 94.1%



EMERGENCY REPAIRS

28%

Reduction

WARRANTY SAVINGS

\$180K

Annually



PM COMPLIANCE

97%

On-time execution





Key Takeaways

→ Skills-Based Scheduling

Configuring resource characteristics, roles, and territories to ensure the right technician is dispatched every time.

→ Optimization with RSO

Leveraging Resource Scheduling Optimization to balance travel time reduction with SLA adherence and high utilization.

→ Mobile Execution

Empowering technicians with offline capabilities, digital checklists, and seamless status updates from the field.

→ Inventory Control

Managing customer assets, warehouse stock, and truck inventory for accurate parts consumption tracking.



What We Practiced Today



Technician Setup



Manual or Auto Scheduling



Q & A

Discussion on scheduling & mobile.

COMING UP: DAY 3



Connected FS

IoT & Predictive Maint.



Integrations

Power Platform & Flows



Analytics

Dashboards & KPIs



DAY THREE

Advanced Scenarios, Integrations & Analytics

Moving beyond core operations to intelligent service delivery. We will focus on IoT, Power Platform extensibility, data-driven insights, and end-to-end solution rollout.

09:00 AM - 04:30 PM



Today's Key Focus Areas



Connected Field Service (IoT)

IoT Integration, Predictive Maintenance, Automated Triage



Power Platform Integration

Power Automate Flows, Power Apps, Custom Connectors



Reporting & Analytics

Power BI Dashboards, KPIs, Resource Utilization



Capstone & Rollout

End-to-End Scenario, Implementation Best Practices

HANDS-ON LABS

- IoT Alert to Work Order
- Building Service Dashboards
- Full Cycle Capstone Run

ARTIFACTS & DATA

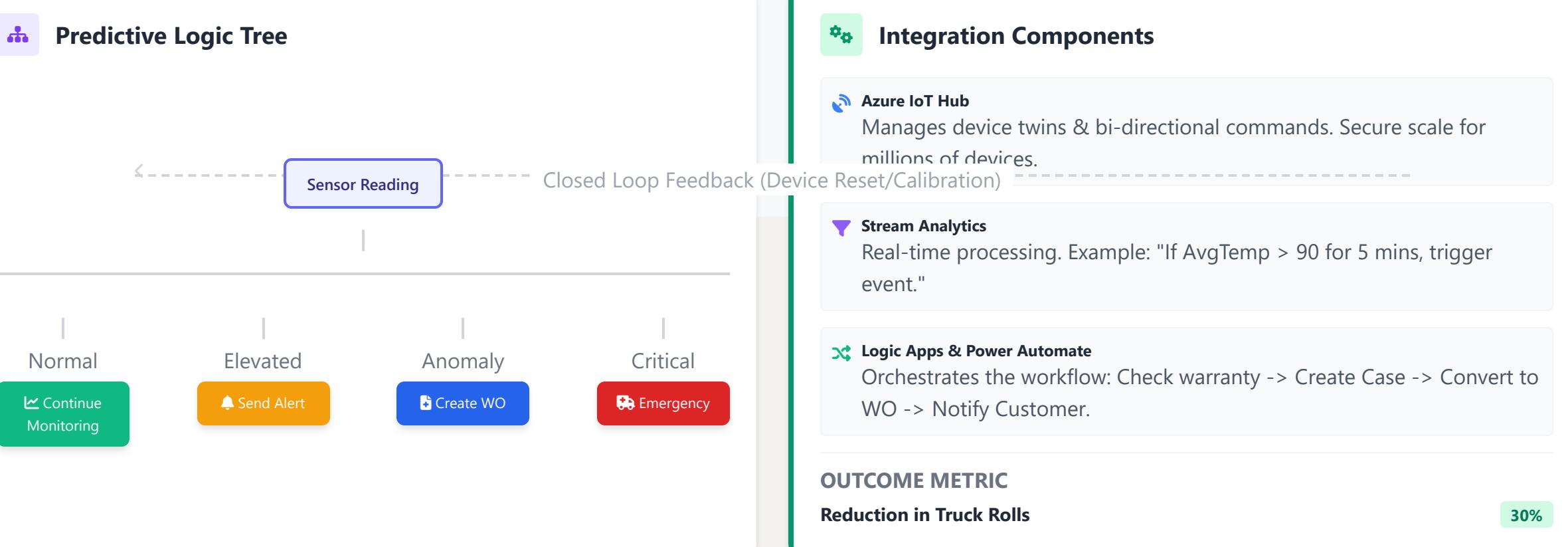
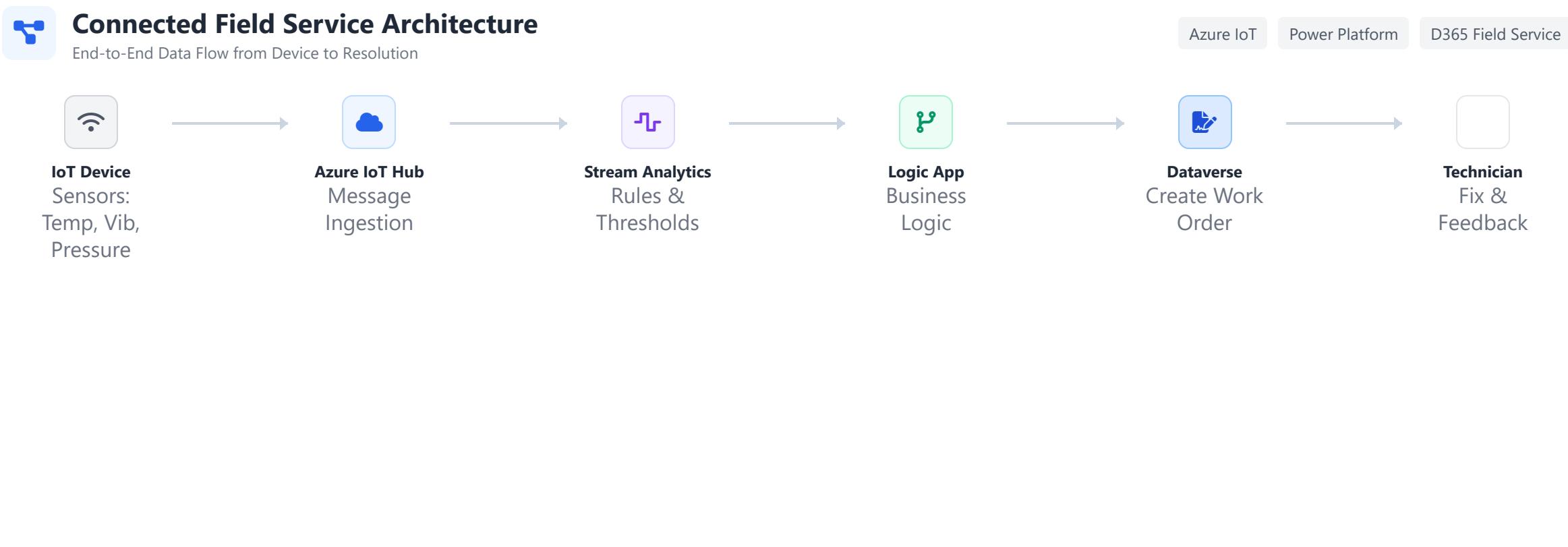
[IoT Simulator](#)

[Flow Templates](#)

[Dashboard .pbix](#)



Module 11: Connected Field Service & IoT





Module 12: Power Platform Integration



Microsoft Dataverse

Common Data Model: Work Orders, Bookings, Assets

BI-DIRECTIONAL SYNC

Security Roles

Real-time API



Power Automate

Workflow Automation

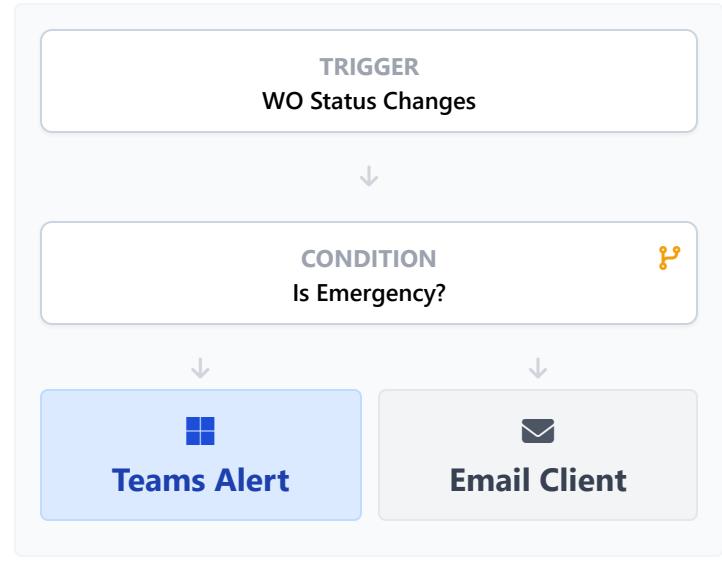
SCENARIO: EMERGENCY DISPATCH NOTIFICATION

TRIGGER
WO Status Changes

CONDITION
Is Emergency?

Teams Alert

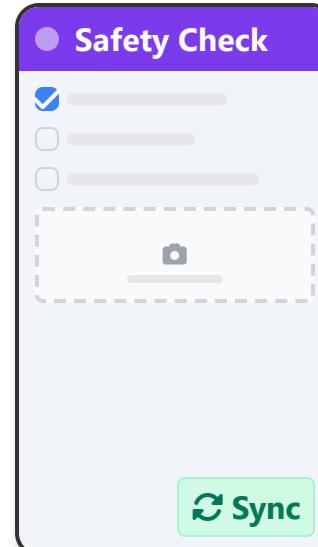
Email Client



Power Apps

Custom Canvas App

SCENARIO: EMBEDDED CHECKLIST



Power BI

Operational Dashboard

SCENARIO: SERVICE MANAGER KPI

First-Time Fix Rate

85%

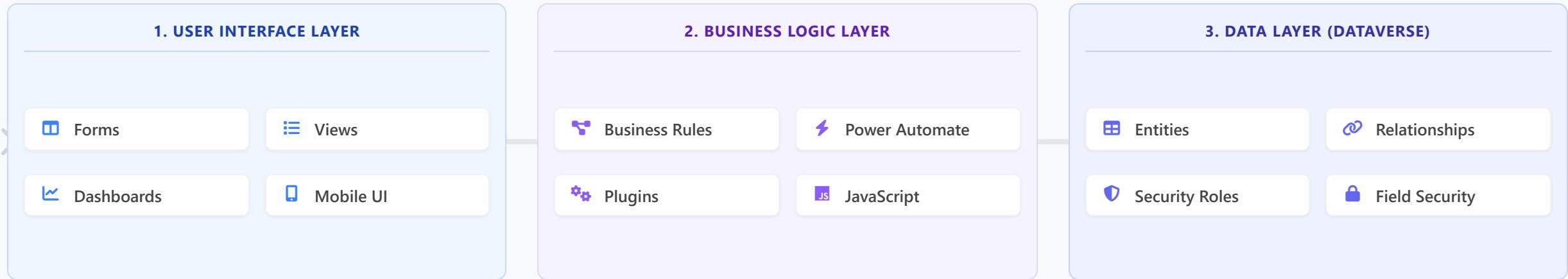


Utilization vs Travel

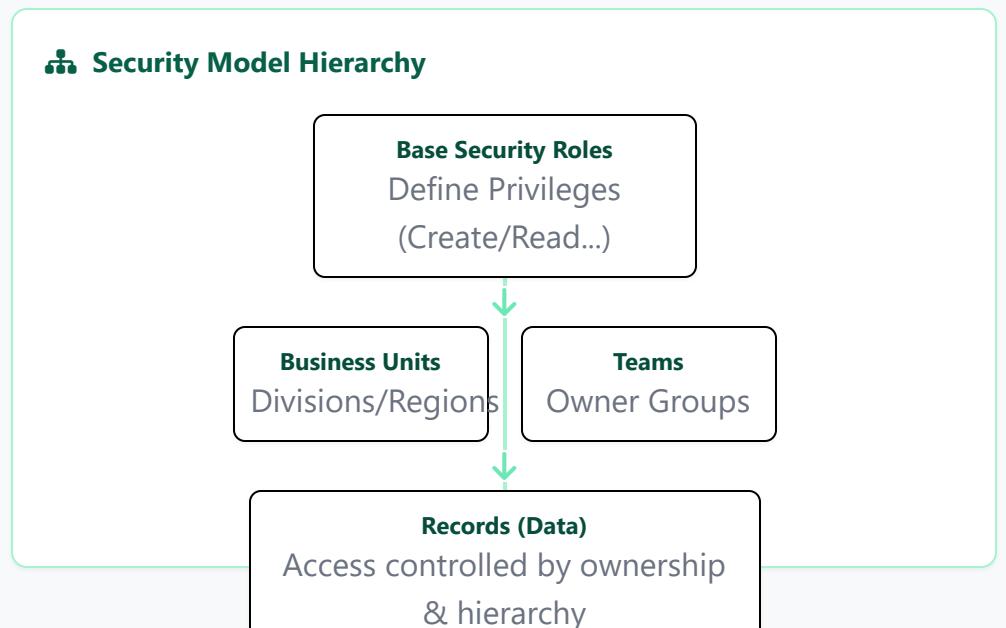


Module 13: Customization & Extensibility

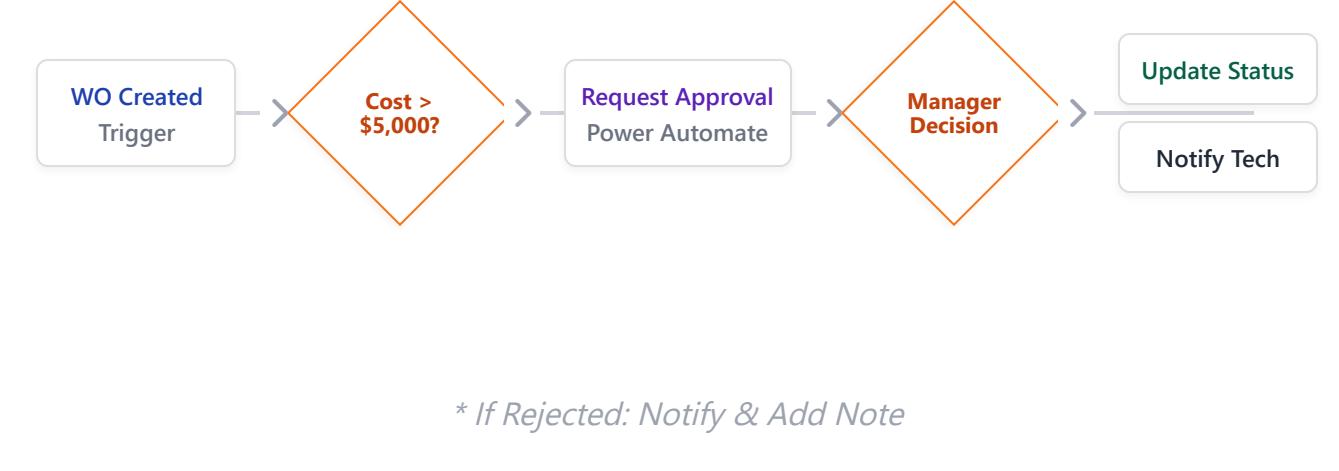
Customization Architecture Layers



Security Model Hierarchy



Scenario: High-Cost Repair Approval



Module 14: Reporting & Analytics

KPIs & Insights



Power BI Integration

Embed rich, interactive dashboards directly into Field Service forms. Use natural language queries to explore data.

- ✓ Real-time data refresh
- ✓ Drill-down capabilities
- ✓ Custom visualization controls



Out-of-the-Box Reports

Standard SSRS reports ready to use:

- Work Order Summary
- Resource Utilization
- Territory Analysis

Live Demo

15 min

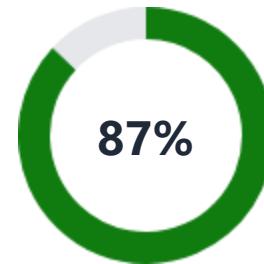
Building a "Service Manager Performance Dashboard" from scratch using Power BI Desktop.

Service Performance Dashboard

Last 30 Days

WA Territory

First-Time Fix Rate



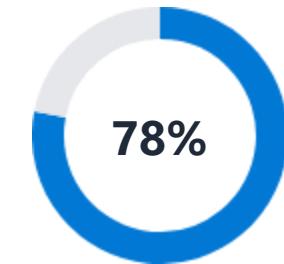
↑ 2.4% vs last month

Mean Time To Repair

3.2 Hrs

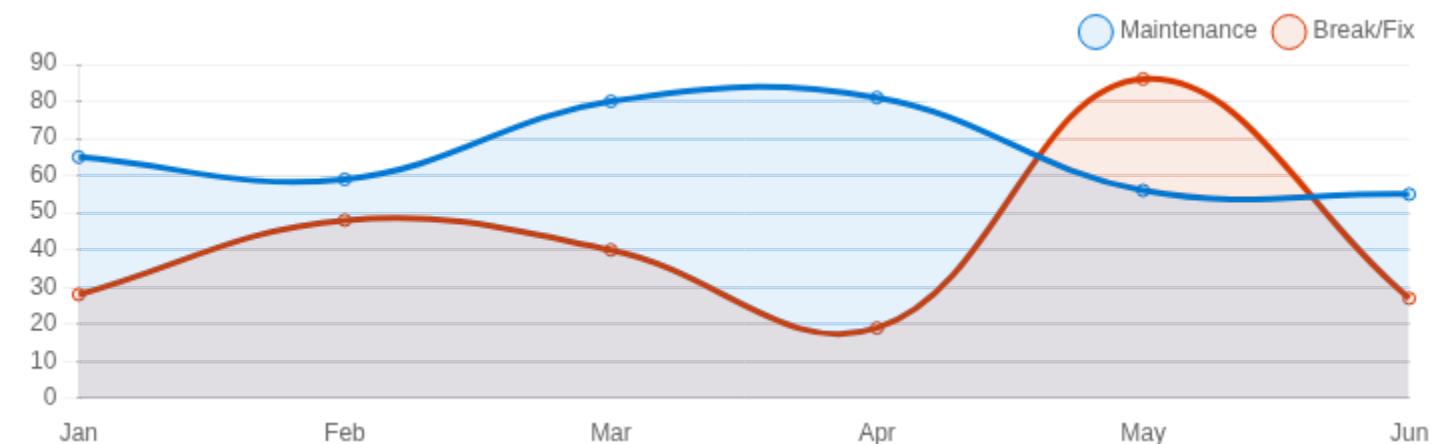
↓ 15m faster

Technician Utilization



Target: 80%

Work Order Volume by Incident Type





Module 15: Implementation Best Practices



Solution Design Approach

Foundation for a successful rollout

Process-First Methodology

Define and map "To-Be" business processes before configuring technology. Don't automate bad processes.

Fit-to-Standard Strategy

Prioritize out-of-the-box features over custom code to reduce technical debt and maintenance.

Key Rule:

Extend only when business value > maintenance cost



Data Migration Strategy

Ensuring data integrity and quality



Cleanse & Enrich

Deduplicate Accounts, standardize Addresses, validate Asset serial numbers.



Migration Sequence

1. Configuration Data → 2. Master Data → 3. Open Transactions



Validation Plan

Automated row counts + Spot checks by business users.



Environment Strategy (ALM)

Governance and deployment lifecycle

DEV



Unmanaged Solutions

TEST / UAT



Managed Solutions

PROD



Managed Solutions

CI/CD Pipelines

Automate deployments using Azure DevOps or GitHub Actions to ensure consistency.



Change Management

Driving user adoption



Role-Based Training

Specific tracks for Dispatchers, Techs, and Managers.



Champions Network

Identify power users to support peers during go-live.



Mobile Adoption

Focus on UX and "day-in-the-life" scenarios.



Scenario: Multi-Location Service Loop

 Group Exercise

Execution Steps

1

Agreement Setup & WO Generation

Create a "Gold Level" maintenance agreement for 5 regional sites. Set recurrence to "Monthly" and allow system to auto-generate Work Orders.

 Action: Configure Agreement + Booking Setup

2

Optimize & Execute (RSO + Mobile)

Run RSO to assign the nearest "HVAC L2" tech. On Mobile: switch status to "Traveling", complete service tasks, and capture customer signature.

 Action: Complete Work Order on Device

3

Inventory & Reporting

Verify parts were deducted from the "Truck 1" warehouse. Check the "Service Performance" dashboard to see the updated First-Time Fix Rate.

 Verify: Inventory Adjustment + KPI Update

DATA FLOW VISUALIZATION



Success Criteria

- ✓ Ensure the **Incident Type** has default products to trigger inventory logic.
- ✓ Verify the technician has the correct **Security Roles** to sync offline data.

Capstone Objective

Demonstrate full competency by seamlessly connecting sales (Agreements), operations (Dispatch/Inventory), and field execution (Mobile) into a single unified workflow.



3-Day Journey Recap

✓ Core Configuration & Operations

Mastered the end-to-end lifecycle: Work Order creation, Incident Types, and Service Agreements.

✓ Scheduling & Mobility

Optimized dispatching via Schedule Board & RSO; empowered technicians with Field Service Mobile.

✓ Advanced Integrations

Extended capabilities with Connected Field Service (IoT), Power Automate flows, and Power BI analytics.



Success Factors vs. Common Pitfalls

SUCCESS FACTORS

👍 Clean Master Data

👍 User Adoption Plan

COMMON PITFALLS

⚠️ Over-Customization

⚠️ Ignoring Mobile UX



Final Q & A

Open floor for any remaining questions.

CERTIFICATION PATH



MB-240

Microsoft Dynamics 365 Field Service Functional Consultant



PL-200

Microsoft Power Platform Functional Consultant



PL-400

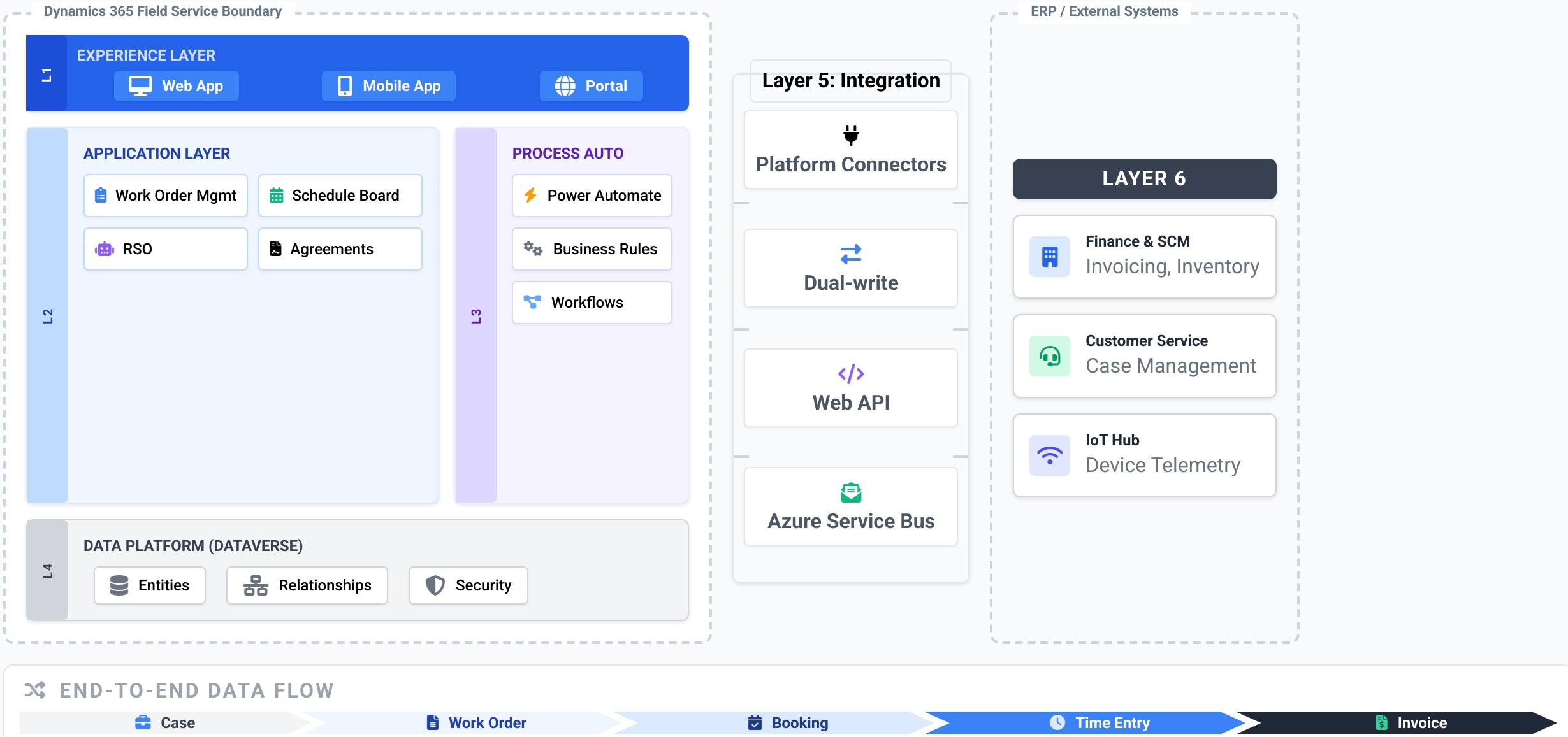
Microsoft Power Platform Developer (Optional)



M1 Deep Dive: Dynamics 365 Ecosystem Architecture

MODULE 1 • FOUNDATION

LAYERED VIEW



Integration Patterns & Licensing

Decision Framework

Connectors, Sync & Entitlements



Integration Patterns



Power Automate

Event-driven workflows, notifications, and lightweight approvals.

Low Code

Connectors



Dataverse Web API

Pro-code CRUD operations, batch processing, and custom portals.

OData v4

High Volume



Dual-Write

Near-real-time, bi-directional sync with Dynamics 365 FinOps.

Tight Coupling

ERP Sync



Azure Service Bus

Decoupled messaging for high-throughput, async enterprise integration.

Resilience

Decoupled

Licensing Comparison

Field Service (Base)

The core application license.

- ✓ Work Orders & Schedule Board
- ✓ Mobile App Access
- ✓ Inspection Forms

RSO Add-on

Resource Scheduling Optimization.

- ✓ Automated Scheduling
- ✓ Simulation & What-if
- ℹ Per resource pricing

Cust. Service Ent.

For full case management.

- ✓ Advanced Case SLAs
- ✓ Omnichannel Support
- ✓ Knowledge Base

IoT Intelligence

Device connectivity.

- ✓ Device Registration
- ✓ Anomaly Detection
- ℹ Azure usage separate

Selection Logic

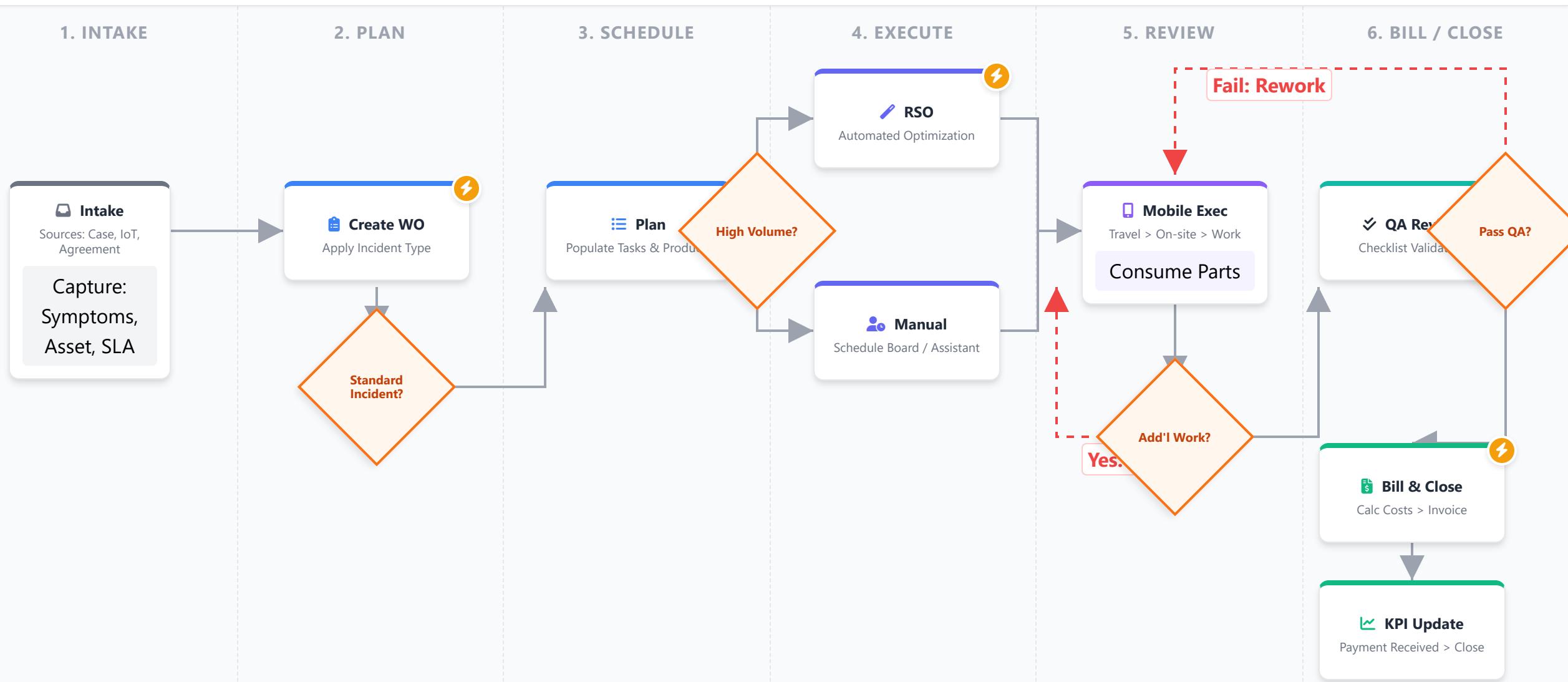
High Volume + Strict SLA → RSO Add-onComplex ERP Sync → Dual-WriteLight Notifications → Power Automate

Field Service Lifecycle – Stage-by-Stage



DETAILED FLOW

Handoffs & Automation



Stage Step

Decision Point

Automation Trigger

Feedback Loop



Configuration Examples: Incident Types

VISUAL HIERARCHY

INCIDENT TYPE HVAC Prev. Maintenance

Service Tasks

- Inspect filter (10m)
- Clean coils (20m)
- Test temp delta (10m)

Characteristics

REQUIRED
EPA Cert

Products

SKU: FLT-2000

Qty: 1

Services

Labor: HVAC-L2 \$85/hr

PRICE LOGIC FLOW

Base Service

+

Parts Cost

+

Labor

(Duration × Rate)

TOTAL ESTIMATE

\$185.00

Work Order #WO-00582

UNSCHEDULED

PRIMARY INCIDENT TYPE

AUTO-FILLED

HVAC Prev. Maintenance

EST. COST
\$185.00

EST. DURATION
1h 30m

90% Reduction in manual data entry time

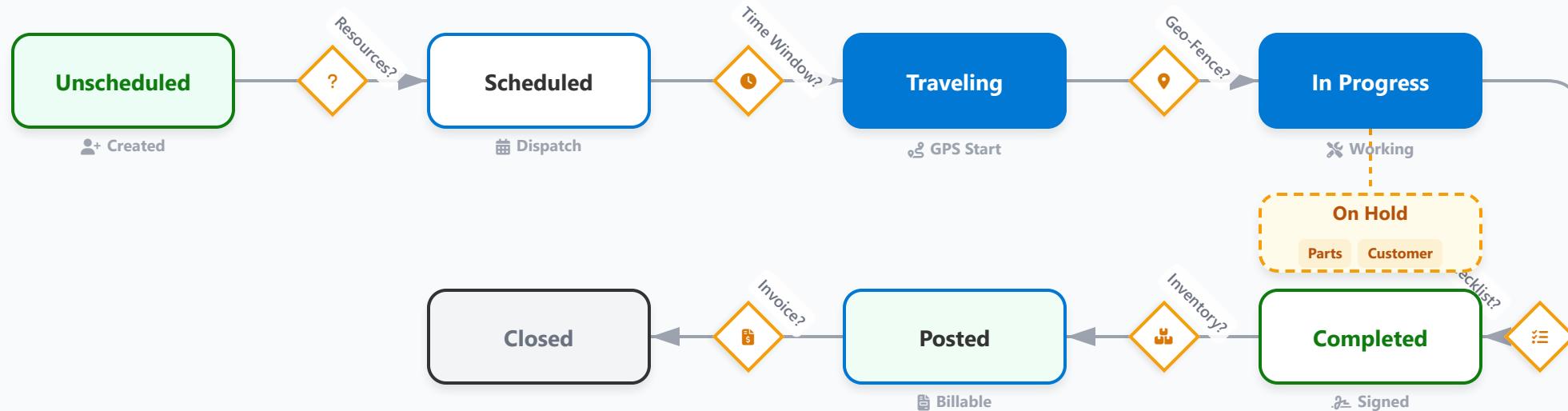
15m → 2m

BEST PRACTICES

- Keep incident types **granular** for reporting accuracy.
- Use **Service Task Groups** to standardize repeated steps.
- Pre-define products to minimize tech errors in field.
- Set **realistic durations** to improve RSO quality.

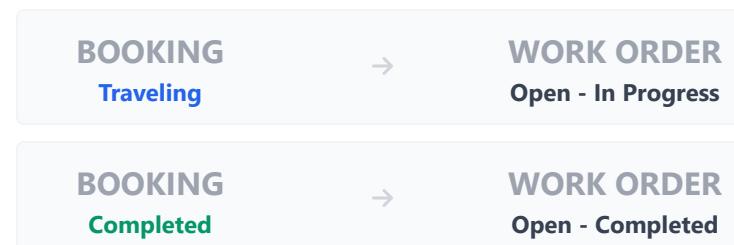


Work Order Status Flow & Governance



Parallel Status Synchronization

Booking Status updates automatically drive Work Order System Status.



Audit Trail & Governance

Timestamp Capture
Automatic logging of status change time for SLA KPI calculation.

Security Gate
Technicians cannot manually set status to "Closed". Requires back-office validation.

Business Rule Gates

- ✓ **Geo-Fence:** Cannot start work unless within 500m of service location.
- ✓ **Completion:** All mandatory service tasks marked complete & signature captured.
- ✓ **Posting:** Inventory journals must be validated before invoice generation.

HVAC Case Study: Process Transformation

⚠ BEFORE: Manual Chaos

Manual WO Creation

📅 2-3 Day Backlog

Inconsistent Tasks

📝 Techs forget steps

No Skill Matching

👤 25% Wrong tech sent

Price List Confusion

💵 18% Billing errors

✓ AFTER: Automated Flow

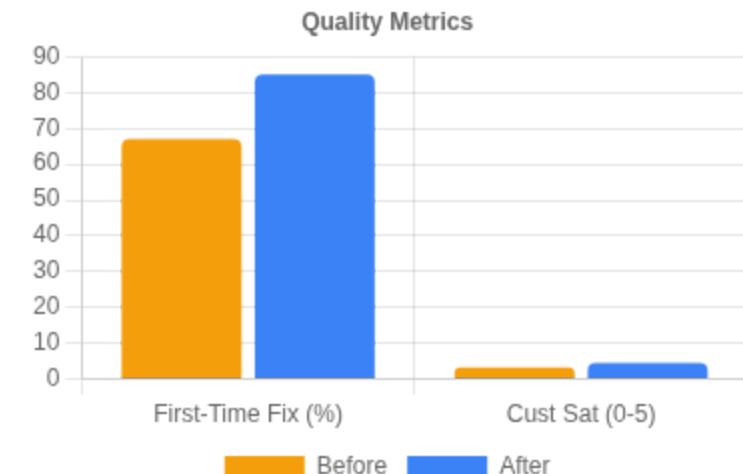
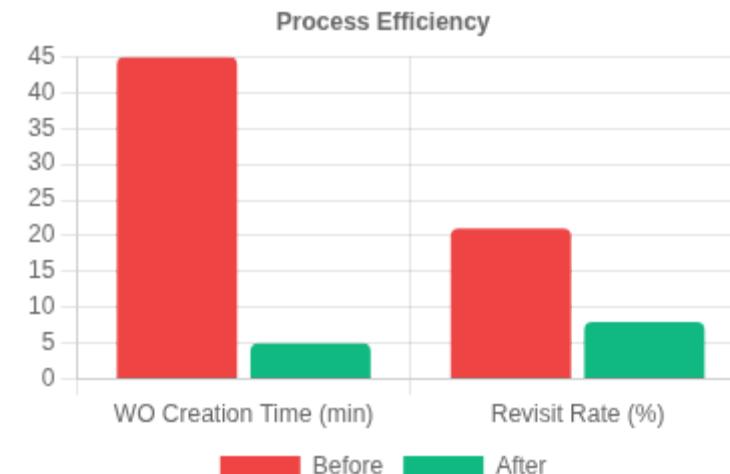
Incident Templates

⚡ Auto-populate <5 min

New Automated Workflow



Performance Impact Analysis

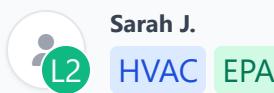




Resource Types & Capacity Models

Q1: Users

Techs & Dispatchers



Dispatcher Mike
West Territory

Q3: Facilities

Repair Bays & Shops



Q2: Equipment

Tools & Vehicles



Crane 01



Splicer



● Avail ● In Use ● Maint

Q4: Crews

Composite Teams

Crew 1 (Electrical)



Crew 2 (Install)



Capacity Planning Timeline

08:00

12:00

13:00

15:00

17:00

Work

Lunch

Training

● Available ● Break ● Off/Training

Assignment Logic



WO Req

Need EPA



Filter



Assign

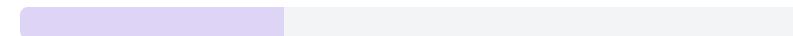
Tech w/ Badge

Logic: If no EPA tech available → Escalate to Manager.

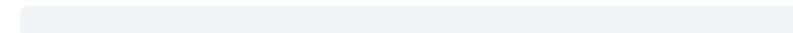
Multi-Resource Scenario

Requirement: Commercial HVAC Install

Crew 1



Crane



Key Takeaway: Use Requirement Groups to bundle Crews, Equipment, and Facilities into a single booking.

Entity: msdyn_requirementgroup

Skill Matrix & Proficiency Mapping

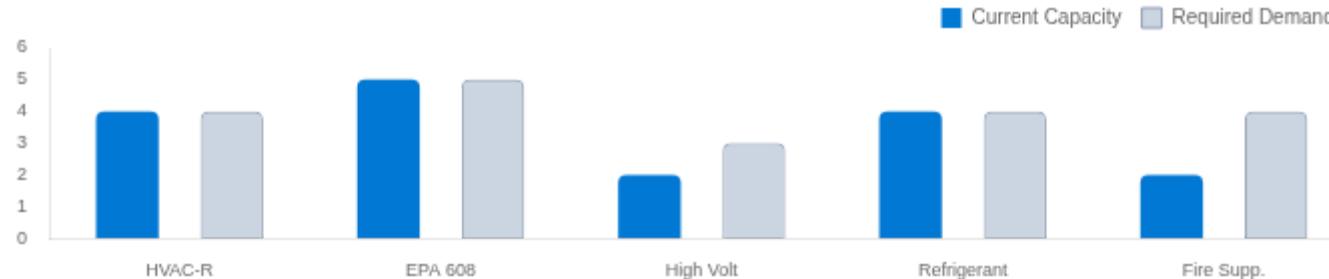
Technician Competency Matrix

● 0 None ● 1-2 Beg. ● 3-4 Prof. ● 5 Exp.

Skills / Certs	Sarah J Tech I	Mike R Tech II	Tom K Lead	Lisa M Spec.	David P Contr.
HVAC-R Core	L2	L3	L5	L4	L1
EPA 608 Univ.	✓	✓	✓	✗	✓
High Voltage	🚫	⚠	L4	L3	🚫
Refrigerant	L3	L3	L5	L0	L2
Fire Suppress.	L0	L1	L3	L5	L0

Skill Gap Analysis: Capacity vs Demand

↑ Hiring Need: Fire System



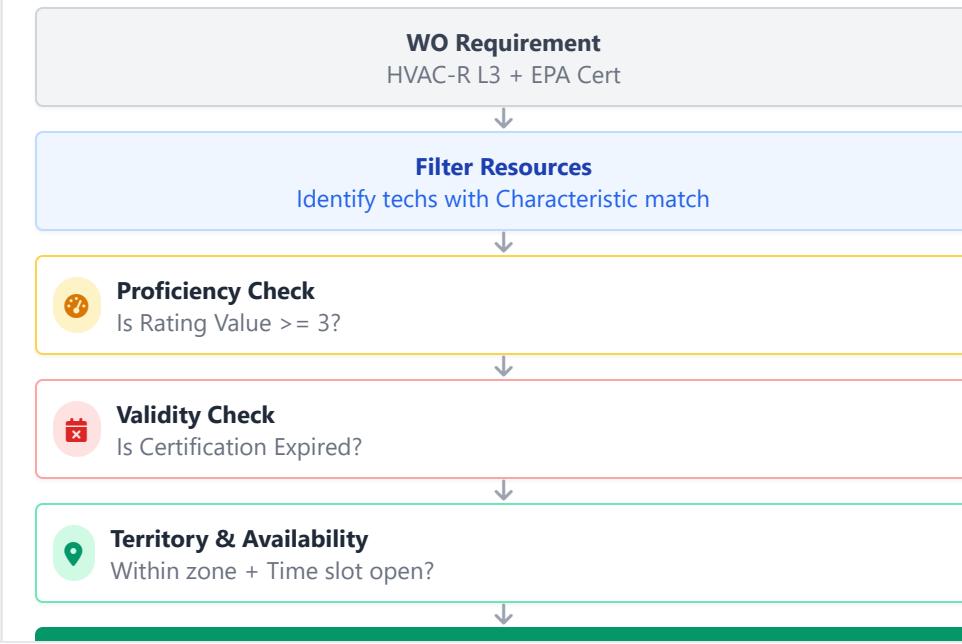
TECHNICIAN TRAINING & CERTIFICATION PIPELINE



 Expiry Tracking

- | | | |
|---------------------------------------|--|---|
| ! | Mike R: High Voltage | 38 Days |
| | Expires 2026-02-28 - Schedule training | |
| ! | Sarah J: EPA Cert | 90 Days |
| | Expires 2026-06-15 - Renewal required | |

Dispatch Logic Flow



M7 Deep Dive: Schedule Board Features

POWER USER CAPABILITIES & CONFIGURATION

FUNCTIONAL DEEP DIVE



Tabs & Territories

Organize by territory/customer/priority with saved custom views.

Ex: "West Region" tab for CA/OR/WA



Smart Filters

Combine skill + territory + time filters for precise resource matching.

Ex: EPA-certified in North Region



Requirement Panel

Unscheduled WOs sorted by priority/SLA with drag-to-assign.

Ex: Emergency WOs highlighted red



Visual Color Rules

Visual indicators for SLA risk, priority, and booking status.

Red=SLA Risk, Gold=VIP, Green=On Track



Booking Alerts

Notifications for conflicts, travel violations, or skill mismatches.

Alert: "Tech double-booked at 2pm"



Quick Actions

Right-click menu: Rebook, Substitute tech, Cancel, Copy details.

One-click rebook to next slot



Multi-Select

Select multiple bookings to move together or update in bulk.

Ex: Move Friday jobs to Monday



Keyboard Shortcuts

Power user shortcuts: **S** Schedule, **M** Map, **Alt** + **D** Today.

50% faster scheduling speed



Resource Calendars

View tech personal calendars, time-off, training, and meetings.

Ex: Sarah has PTO Wed-Fri

PRODUCTIVITY BOOSTERS



Pin Filters

Save 30s/search



Shortcuts

2x Navigation



Calendars

Avoid Conflicts



Set Alerts

Proactive Detect

Board Governance

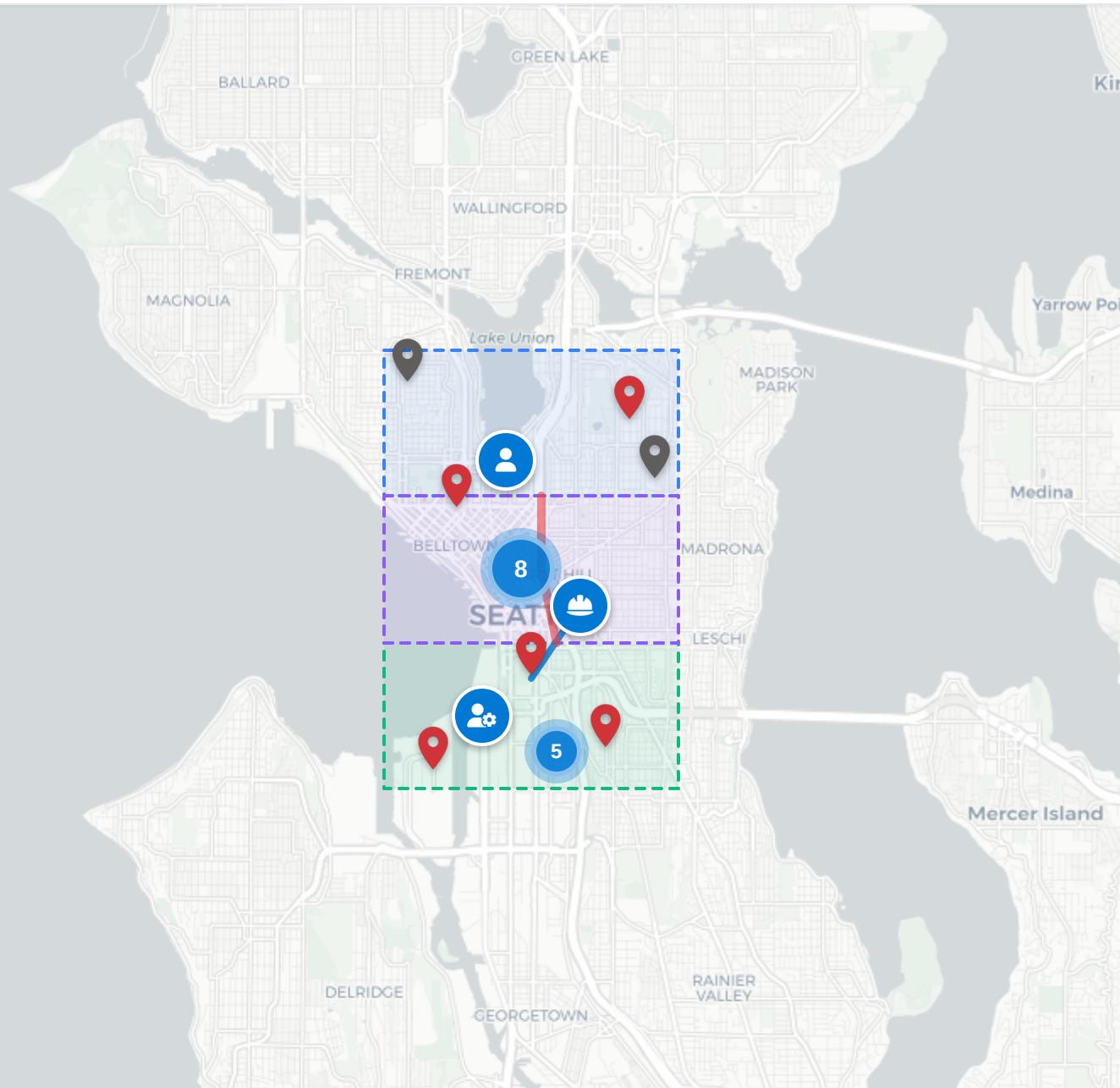
System Admin

Access All Boards

Service Manager

Access Region Boards

Map View, Proximity & Route Planning



Spatial Use Cases

PROXIMITY SEARCH

Query: 5mi Radius. Result: Found 3 techs. Closest: Mike (2.1mi, 8m ETA).

ROUTE OPTIMIZATION

Optimized sequence. 80m → 45m drive time (37% reduction).

DENSITY CLUSTERING

Consolidate high-density areas. Assign dedicated tech to downtown cluster.

LIVE TRAFFIC & ETA

ETA adjusted: 2:15pm → 2:35pm. Customer auto-notified.

DISPATCH DECISION FLOW



BEST PRACTICES

RSO Configuration: Objectives, Constraints & Impact

OPTIMIZATION ENGINE



OBJECTIVES PYRAMID

1. PRIMARY Weight: 40% Maximize On-Time (95%)

2. SECONDARY Weight: 30% Min. Travel (<20%)

3. TERTIARY Weight: 20% Balance Workload

4. ADDITIONAL Weight: 10% Respect Windows

CONSTRAINTS FRAMEWORK

HARD CONSTRAINTS (MUST SATISFY)



Skills Match

Territory

Work Hours

Parts Stock

SOFT CONSTRAINTS (PREFERRED)



Preferred Tech

Lunch Break

<30mi Dist

Min. Drive

POLICY SETTINGS

Overbooking Tolerance **10%**

Time Window Flex **15 min**

Skill Match Strictness **Close**

DATA QUALITY IMPACT

Accurate Duration



Better Schedule Density



85% Utilization

Accurate Travel



Realistic Commitments



95% SLA Met

CASE SCENARIO

Scenario: 8 Work Orders, 4 Technicians, Single Territory.

BEFORE (MANUAL)

2
SLA BREACHES

120min
TOTAL TRAVEL

Uneven
WORKLOAD

AFTER (RSO)

0
SLA BREACHES

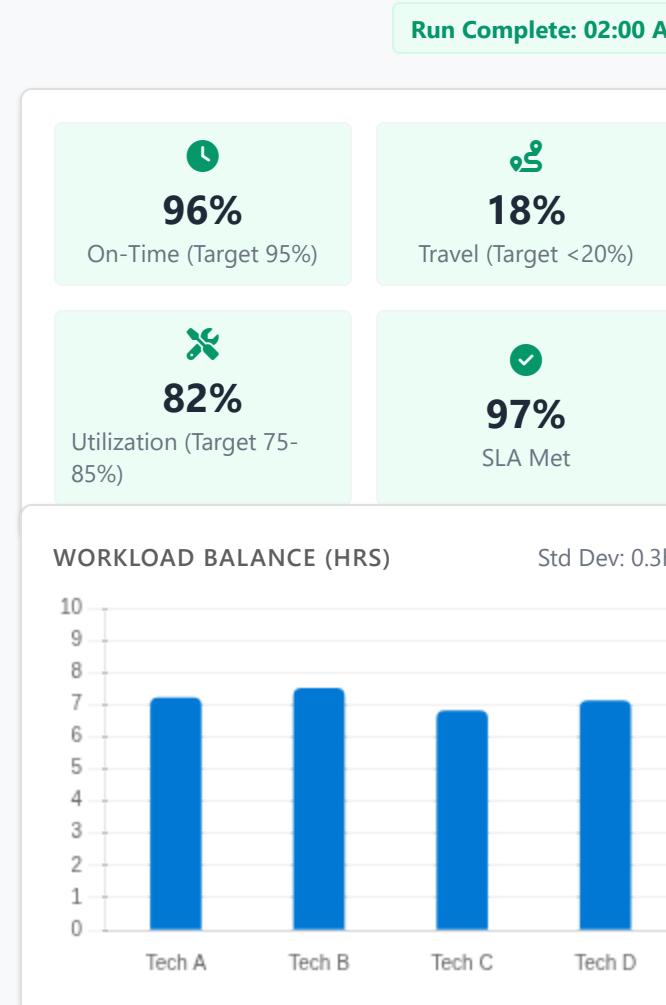
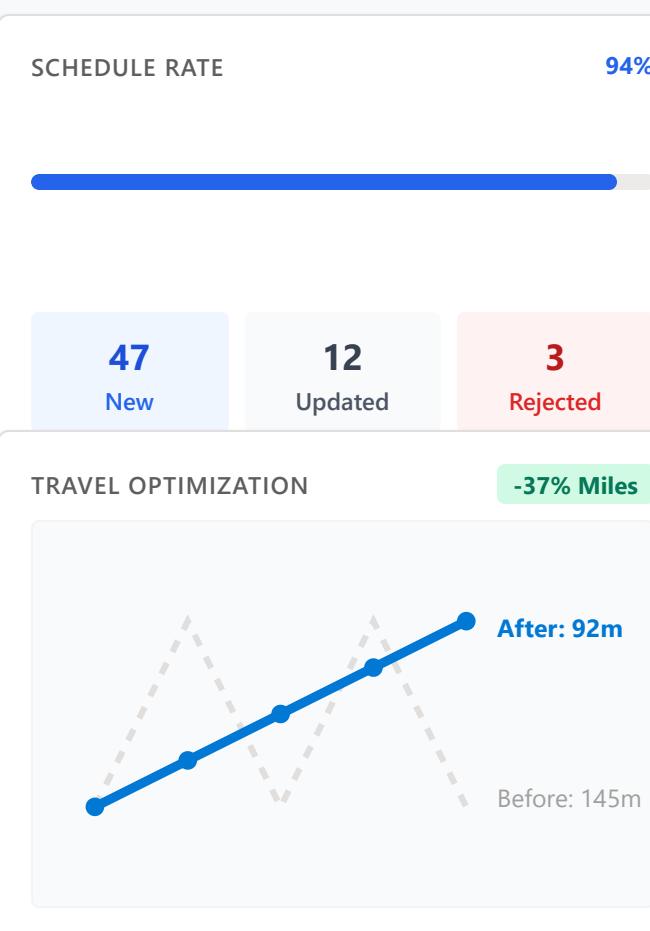
65min
TOTAL TRAVEL

46% Less
Balanced
WORKLOAD



Reading Optimization Results & Tuning

Optimization Outputs Dashboard



WO #	Reason	Action
#1847	No EPA-certified tech	Assign temp / Reschedule
#2103	Parts out of stock	Expedite / Substitute
#2891	Window capacity	Extend window / Overtime

What-If Tuning Scenarios

- A. Adjust Weights (SLA 50%)** Critical SLA
Result: **On-time 98%, Travel 22%**
- B. 2-Day Window** Efficiency
Result: **15% better route**, high util
- C. Proximity Cluster** Density
Result: **25% travel reduction**

WORKFLOW

- 11PM Batch

WEEKLY CHECKS

- ✓ Monitor rejections
- ✓ Review utilization
- ✓ Validate GPS data



Mobile Offline Profiles & Field UX

Offline Profile Design

ENTITIES TO INCLUDE

- WOs (150)
- Bookings (150)
- Tasks (500)
- Products (1k)
- Contacts (200)
- Assets (300)

FILTERS & SCOPE

- Time: "Next 7 days" (Freshness vs Storage)
- Geo: "My territories only" (Reduce volume)
- Status: "Open/In Progress" (Exclude closed)

Profile Size 125 MB / 200 MB

SYNC STRATEGY

- Initial** WiFi Full Download 5-10 mins
- Delta** Changes Only Every 15 mins

Conflict Logic Server wins (Data) | Client wins (Time)

Offline Mode 3 Pending
Changes sync when connected

- 1. SCAN PARTS**
FLT-2000 Qty: 1 added
- 2. GUIDED CHECKLIST** 4/7 Done
 - Safety Check
 - Inspect Valve**
If fail: Replace Seal
- 5. VOICE NOTE**
0:42
Auto-transcribing...
- 3. ANNOTATION**

Device Strategy

Battery Optimization Disable background apps, 8-10hr target

Rugged Cases MIL-STD-810G rated protection

Storage Mgmt Clear cache monthly, keep 30% free

Data Lifecycle

- Morning Prep** Depot WiFi Download
- Field Execution** Local Capture (Tasks, Photos)
- Delta Sync** Cellular (Upload Priority)
- End of Day** Full Sync & Conflict Res.

Security Matrix & Device Management



Technician Minimum Role Permissions

Principle of Least Privilege

ENTITY	READ	CREATE	WRITE	DELETE	SCOPE / NOTE
Work Orders	✓	✗	✓	✗	Update status/tasks only
Bookings	✓	✗	✓	✗	Own bookings only
Accounts/Assets	✓	✗	✗	✗	View info only
Products	✓	✗	✓	✗	Append as consumption
Time Entries	✓	✓	✓	✗	Own entries only
Notes/Photos	✓	✓	✓	✗	Create & Append

Field Security Profiles

Pricing Data

Unit Cost, Margin

\$ XX . XX

Hidden

Internal Notes

Sensitive History

Dispatcher Only

Discount Auth

Read Only

Territory Access Model



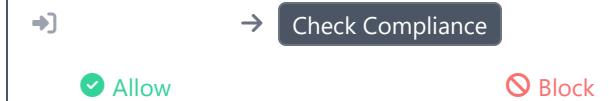
Intune MDM Integration

Endpoint Manager

APP DEPLOYMENT FLOW



CONDITIONAL ACCESS LOGIC



Audit & Security Logs

SUCCESSFUL LOGINS

847

FAILED ATTEMPTS

3

Event

⚠ Offline Err

User

Mike R

Time

10:42

⟳ Full Sync

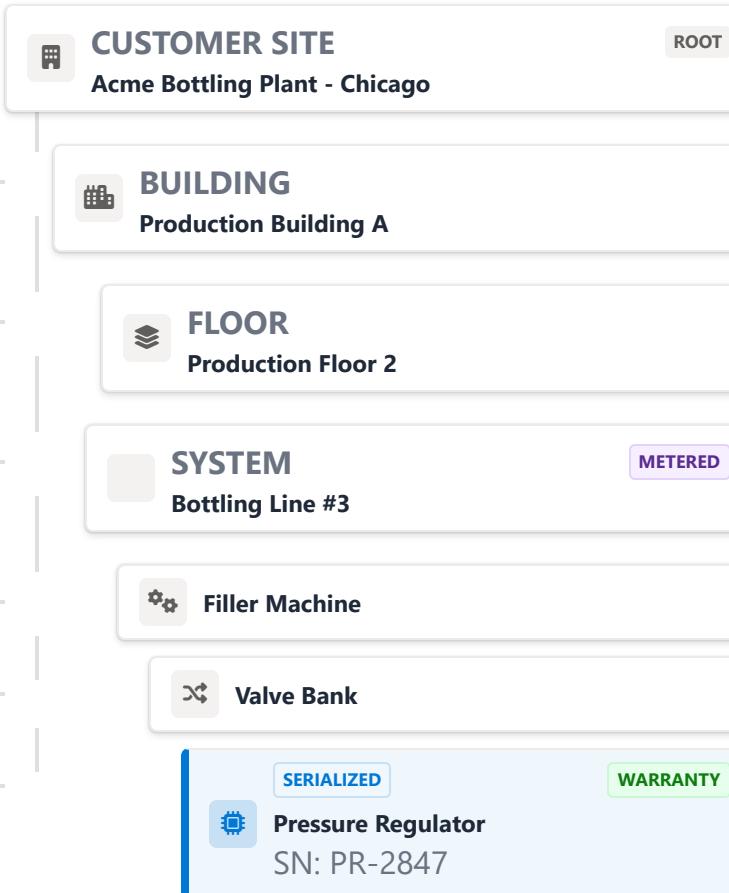
Sarah J

08:15

Modeling Customer Asset Hierarchies



LIVE EXAMPLE: BOTTLING PLANT



ASSET METADATA FRAMEWORK

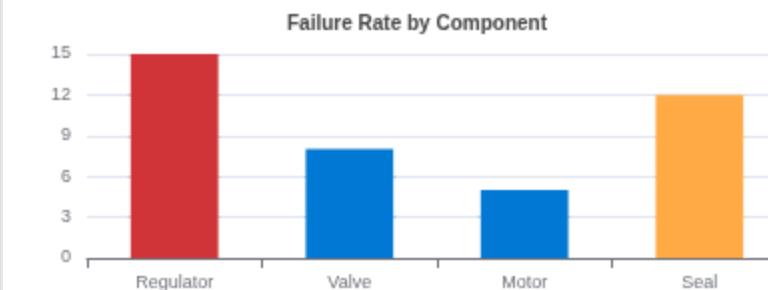
- 💡 Warranty
- 🔧 Last PM
- 📂 Model

Active (Exp 2028)

2025-12-10

Acme AV-250

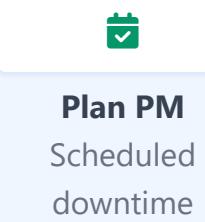
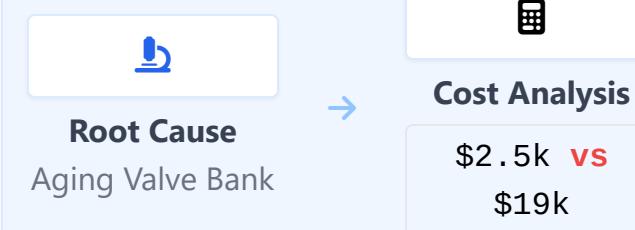
FAILURE ANALYSIS DASHBOARD



⚠️ HIGH FAILURE RATE DETECTED



PROACTIVE REPLACEMENT WORKFLOW



\$\$\$ SAVED ANNUALLY
\$180K

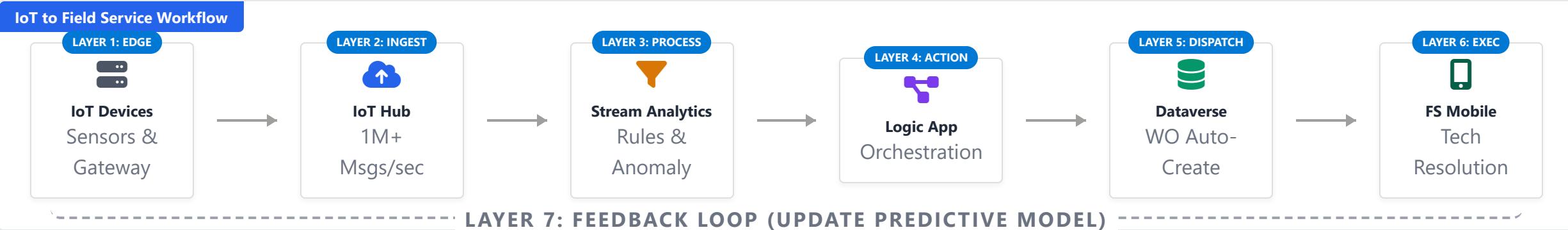
📄 WARRANTY REC.
\$45K

⌚️ DIAG TIME
-30%

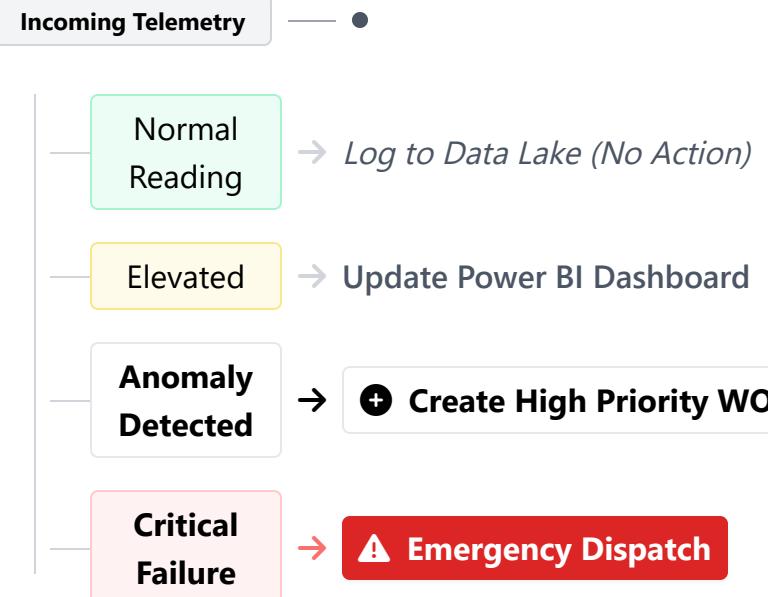
M11 Deep Dive: Connected Field Service & IoT Architecture

MODULE 11 • ADVANCED SCENARIOS

END-TO-END FLOW



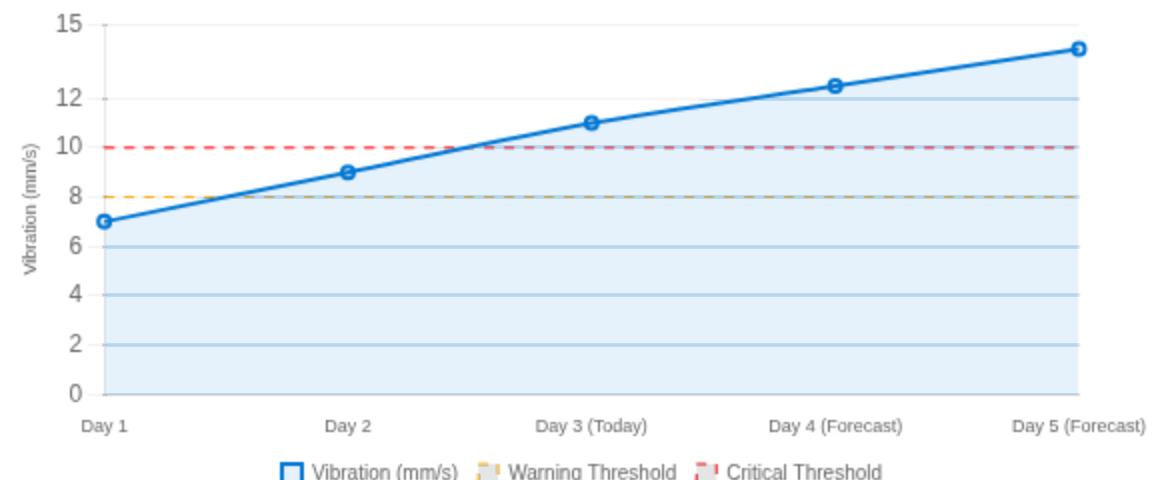
Stream Analytics Logic: Real-Time Decision Tree



Example: Compressor Vibration Trend

Predictive Model Output

Reading increased 7mm/s → 9mm/s → 11mm/s over 3 days, triggering proactive maintenance.

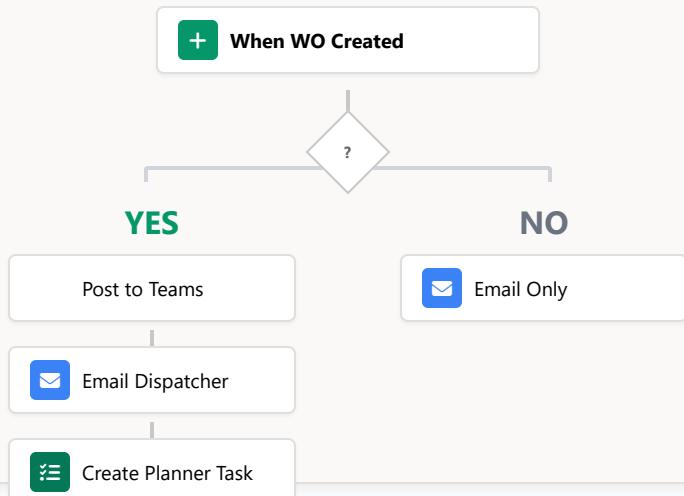




Power Automate: Advanced Field Service Patterns

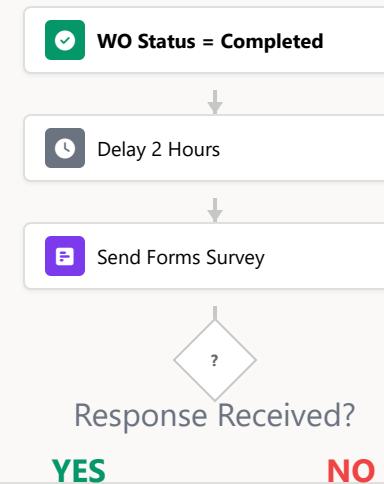
Flow 1: Smart WO Notification

EVENT-BASED



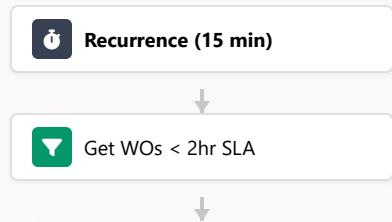
Flow 2: Post-Service Survey

DELAY LOGIC



Flow 3: SLA Breach Escalation

SCHEDULED

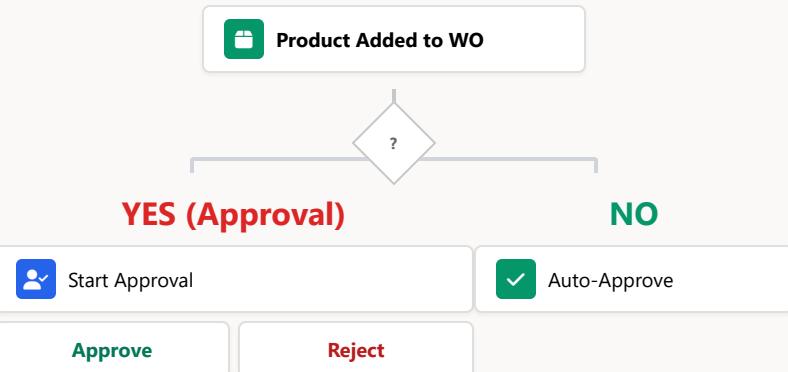


Apply to Each

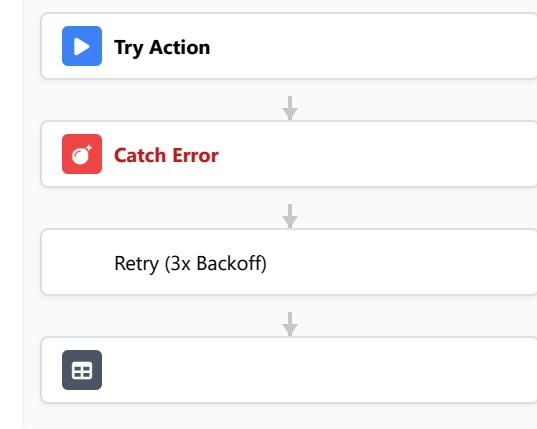
- Email Service Manager
- Set Priority = High
- Log Audit Record

Flow 4: High-Cost Part Approval

APPROVAL



Error Handling



Resilience Patterns

- Concurrency Control**
Prevent race conditions (Singleton)
 - Terminate Early**
Cancel flow if prereqs unmet
 - Checkpoints**
Resume from last success
- Timeout: P1D (1 Day)



M12 Deep Dive: Power Apps Customization

ARCHITECTURE, UI PATTERNS & GOVERNANCE

CANVAS APP ARCHITECTURE

UI SCREENS & USER FLOW

1. PM Checklist

WO-2024-001 Active

Inspect Compressor

⚠ Condition: Leak Detected

Photo

2. Parts Usage

Search SKU...

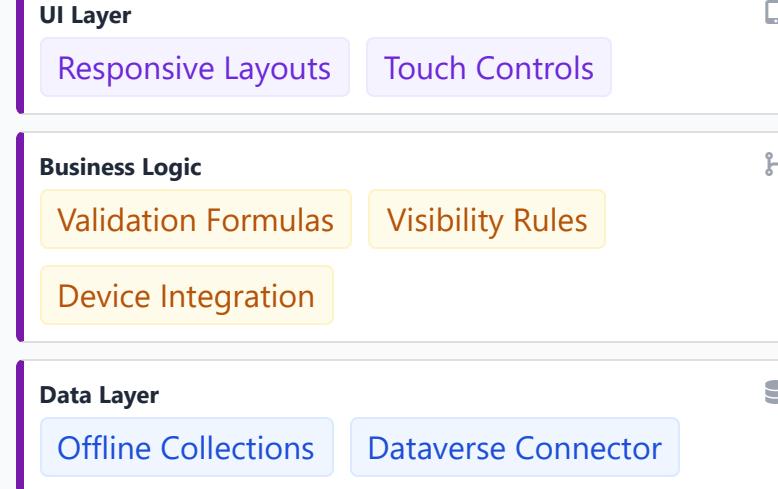
Filter Kit A200 - 2 +

\$45.00 ea

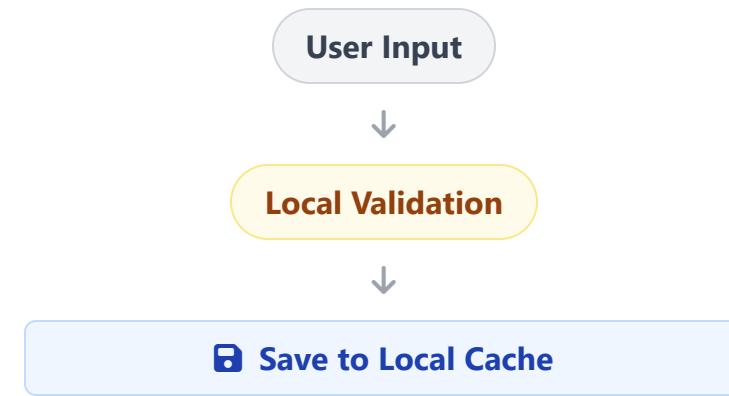
Total: \$90.00

3. Complete & Sign

APP ARCHITECTURE



OFFLINE DATA SYNCHRONIZATION FLOW



GOVERNANCE FRAMEWORK

Solution Hierarchy

Publisher: Contoso

- Solution: Field Service Core**
 - Canvas App
 - Cloud Flows
 - Tables (WO, Task)

Environment & ALM



Security

- App User Roles
- Data Policies (DLP)

Monitoring

- App Insights
- Usage Analytics

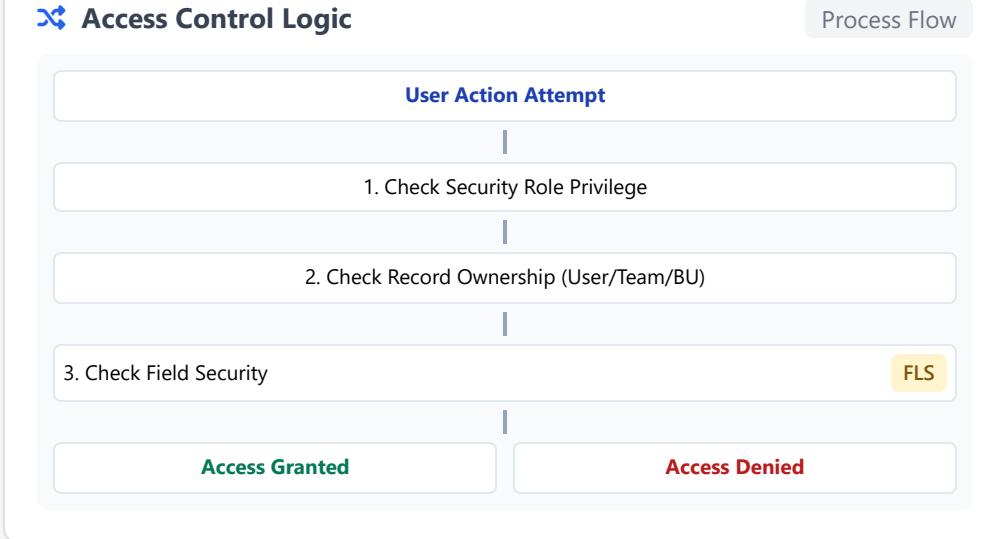
Security Roles & Access Matrix



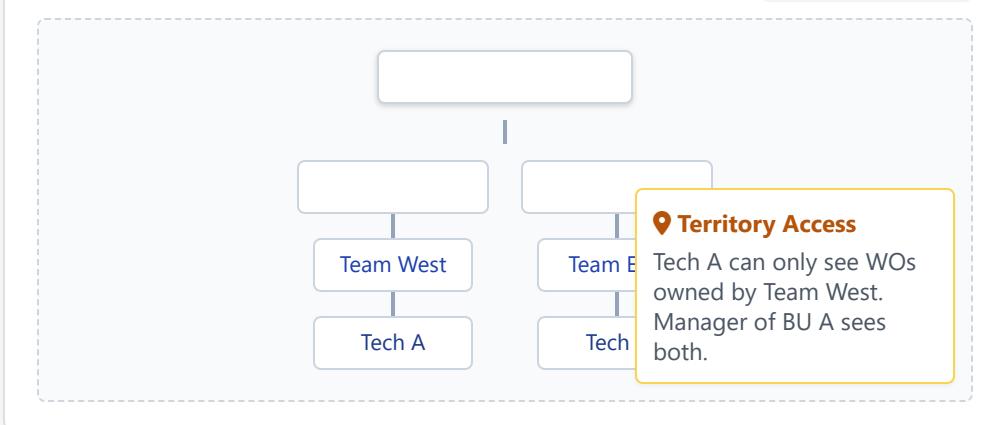
Field Service Permission Matrix

		Entity Access Levels				
Entity	Permission	Sys Admin	Manager	Dispatcher	Technician	Inv. Clerk
Work Order	Create	FULL	BU	BU	NONE	NONE
	Read	FULL	BU	BU	USER	NONE
	Update	FULL	BU	BU	OWN	NONE
	Delete	FULL	BU	NONE	NONE	NONE
Account	Read	FULL	FULL	FULL	FULL	BU
	Write	FULL	BU	NONE	NONE	NONE
Product	Read	FULL	FULL	FULL	FULL	FULL
	Append To	FULL	FULL	FULL	FULL	FULL
Inventory	Adjust	FULL	BU	NONE	OWN	BU

Access Control Logic



Security Hierarchy



Field-Level Security (FLS)



Deep Dive: KPI Calculations & Dashboard Design

KPI DEFINITIONS

1. First-Time Fix Rate (FTFR)

Jobs Resolved 1st Visit / Total Jobs × 100%

TARGET
≥ 90%

IMPACT (1%)
\$15K Save

Ex: $850/1000 = 85\%$

2. Mean Time To Repair (MTTR)

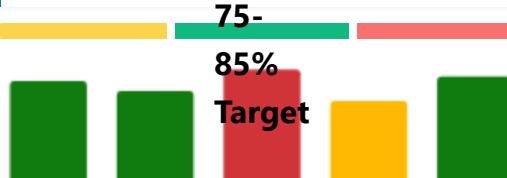
$\Sigma(\text{Resolved} - \text{Start}) / \text{Job Count}$



Target <2.5h. Trend: -23% (Q1 to Q4)

3. Technician Utilization

(Booked Hrs / Avail Hrs) × 100%



SERVICE PERFORMANCE DASHBOARD

Executive Overview

Last 30 Days

Global

ON-TIME

96%

↑ 3%

FTFR

85%

↑ 2%

MTTR

2.4h

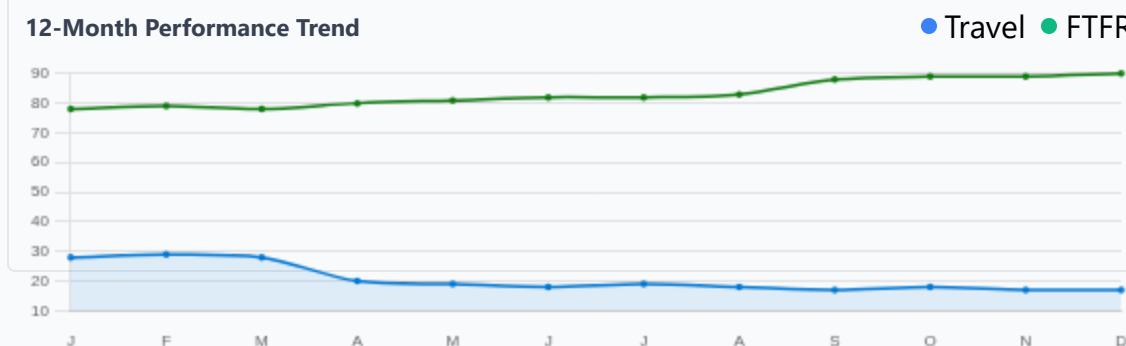
↓ 0.3

UTIL %

82%

Stable

12-Month Performance Trend



Regional Analysis

North
92%

East
94%

West
85%

South
88%

Tech Performance



DATA PIPELINE

Bookings → Sum Booked Hrs

Work Orders → Calc Resolution Time

Inventory → Parts Cost Trend

DRILL-THROUGH PATH

Dashboard Summary

Tech Detail

History, Certs,
Schedule

Asset History

Failures, PMs, Parts

BEST PRACTICES

✓ **Refresh:** Real-time (Ops) vs Daily (Mgmt)

✓ **Quality:** Handle nulls & outliers

✓ **Action:** Highlight anomalies (Red)

✓ **Design:** 3-click rule for details



M15 Deep Dive: Implementation Roadmap & Risks

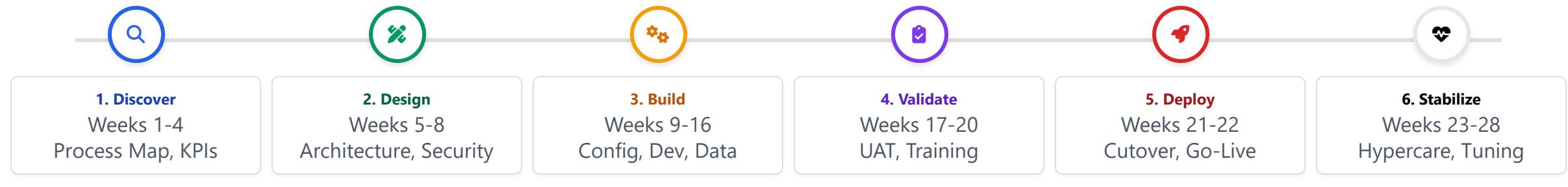
MODULE 15 • IMPLEMENTATION BEST PRACTICES

STRATEGY

Project Governance

Project Phases & Timeline

TOTAL DURATION: 28 WEEKS



RACI Responsibility Matrix

R:Responsible

A:Accountable

C:Consulted

I:Informed

Activity / Phase	Exec Sponsor	Prod Owner	FS Mgr	IT Lead	Field Champ	Integrator
Requirements Gathering	A	R	C	I	C	C
Solution Design	I	C	C	A	I	R
Configuration	I	C	I	A	I	R
Data Migration	I	A	I	R	I	C
Integration Build	I	I	I	A	I	R
UAT Execution	I	A	C	I	R	I
Training Delivery	I	I	C	I	R	C
Cutover Execution	A	C	I	R	I	C
Support (Hypercare)	A	I	I	R	C	R

Key Risks & Mitigations

Dirty Master Data

Mitigation: Data cleansing sprint (W5-8), strict validation rules.

Over-Customization

Mitigation: Fit-to-standard workshops, governance board approval.

Offline Gaps

Mitigation: Limit sync payload <7 days, WiFi sync windows.

Change Fatigue

Mitigation: Champion program, gamification, phased rollout.

Success Metrics Targets

ADOPTION 95%

Daily Logins

FIX RATE +18%

Target 85%

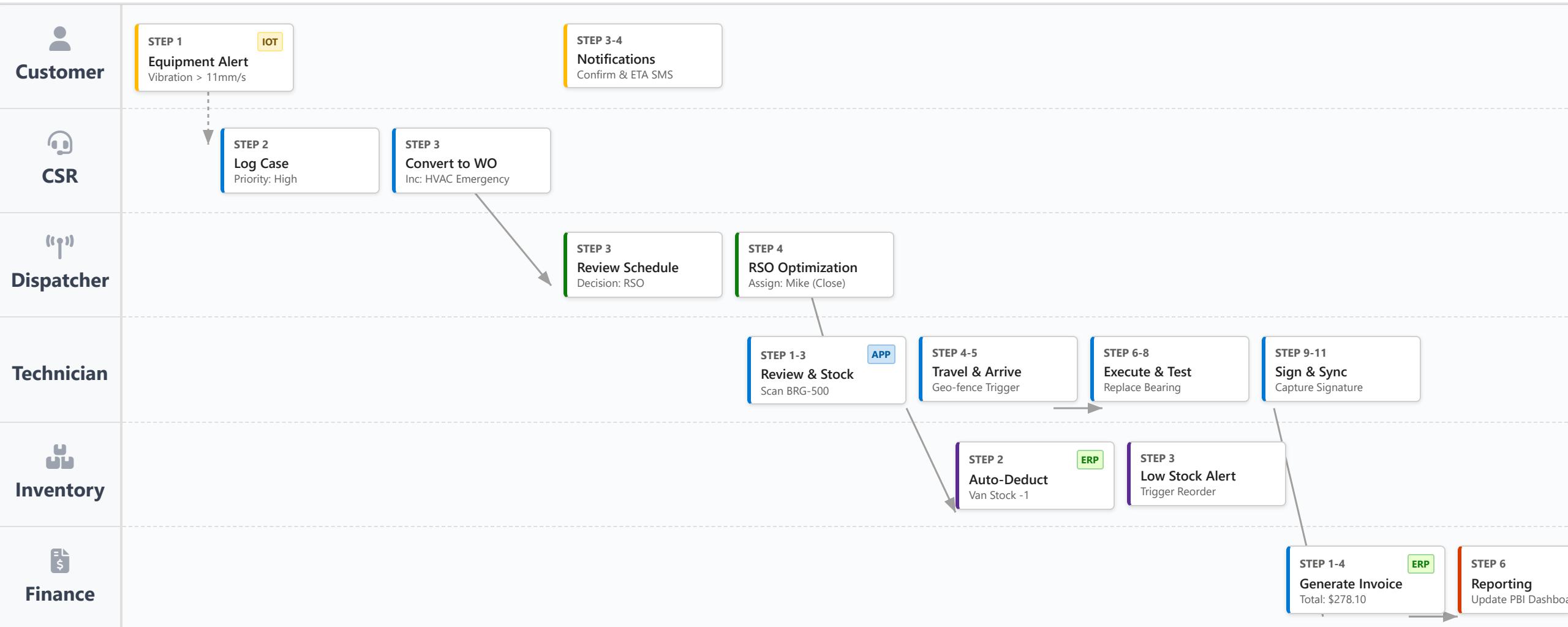
TRAVEL -28%

Via RSO

CSAT 4.5/5

Up from 3.2

Scenario Blueprint: Multi-Stakeholder Workflow



SUCCESS SCORECARD

Fix Rate	Travel	SLA Met	Utilization	CSAT	Rev/Tech
88%	17%	97%	82%	4.6	+22%
Target ≥85%	Target ≤20%	Target ≥95%	Target 80%	Target 4.0	vs Baseline

KEY LESSONS LEARNED

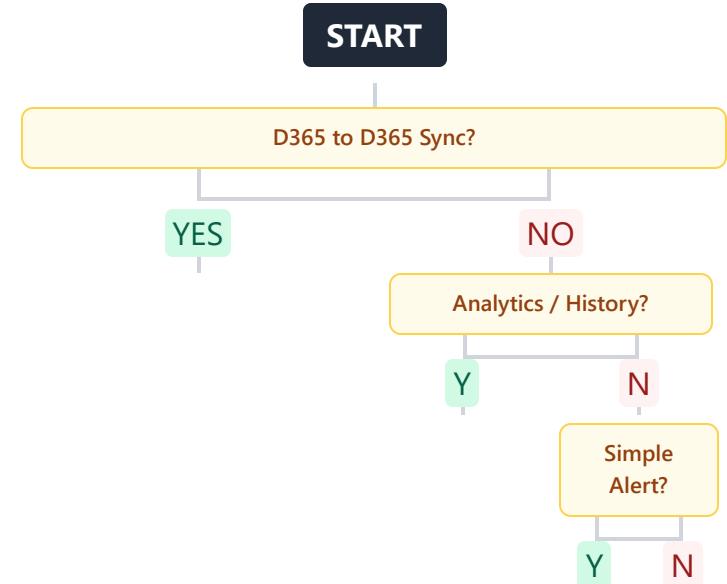
- ✓ IoT reduced emergency calls by 40% (Predictive)
- ✓ RSO saved 2.5 hrs/day/tech in travel
- ✓ Mobile signatures eliminated billing disputes



Integration Decision Matrix

Pattern Selection Matrix		Latency			Volume		Code	
SCENARIO & REQUIREMENTS	RECOMMENDED PATTERN	EVALUATION (NFRS)			RATIONALE & EXAMPLE			
High-Volume ERP Sync Sync 10K+ products, Customers, WOs to Finance & SCM.	● Dual-write MICROSOFT-SUPPORTED	● Real-time ⚙️ High Complexity	📦 High Vol \$ High Cost	Rationale: Purpose-built for D365-to-D365. Handles complex relationships. <i>Ex: Product master in FinOps syncs to Field Service price list.</i>				
BI-DIRECTIONAL								
TRANSACTIONAL								
Lightweight Alerts Notify dispatcher via Teams, Send customer email, simple logic.	● Power Automate 400+ CONNECTORS	● Immediate ⚙️ Low Complexity	📦 Low Vol \$ Low Cost	Rationale: Rapid development, citizen developer friendly. <i>Ex: If WO Priority = High, post to Teams channel.</i>				
EVENT-DRIVEN								
LOW CODE								
Custom Logic at Scale Complex pricing, Advanced scheduling, Multi-step orchestration.	● Azure Func + SB SERVERLESS	● <100ms ⚙️ Very High	📦 High Vol \$ Medium Cost	Rationale: Decoupled, scalable, retry policies, custom C#/Python code. <i>Ex: WO create triggers Service Bus msg to allocate parts via Function.</i>				
PRO CODE								
HIGH PERF								
Analytics & History 5 years WO history, Predictive maintenance, Executive BI.	● Synapse Link DATA LAKE	● Batch ⚙️ High	📦 Very High \$ Medium Cost	Rationale: No operational impact. Optimized for aggregations. <i>Ex: Power BI connects to Data Lake for 5-</i>				

Selection Logic



Simplicity Principle

Pick the **simplest pattern** that meets NFRs. Over-engineering adds cost. Start with **Power Automate**.

Status, Booking & SLA Alignment



Bidirectional Sync Diagram

BOOKING STATUS SYNC LOGIC WO SYSTEM STATUS



Initial assignment; tech sees on calendar.



Geo-fence entry or manual start triggers sync.



⚠ CRITICAL: Booking completion does NOT close WO automatically to allow multi-booking jobs.



FINAL LIFECYCLE FLOW

• Completed

All tasks + Signature

• Posted

Inventory + Time Logged

SLA Timer Configuration

Option 1: Case SLA

Response Time



Option 2: WO SLA

Resolution Time



Option 3: Booking SLA

Arrival Window

Window: 14:00 - 16:00

Arrival: 14:15 (OK) vs 16:30 (Late)

Automation Triggers

1. Auto-Set Traveling

IF Geo-fence entry OR Nav start → Update Status
→ Notify Customer ("ETA 15 min").

2. Auto-Complete WO

IF Booking=Completed AND Tasks=100% AND
Signature_Yes → Close WO

Edge Case Handling

Partial Complete

Tech completes 80%.
WO status: **On Hold (Awaiting Parts)**.
Create child booking.

Multi-Day

Single WO, 3 Bookings. WO remains "In Progress" until final booking done.

ALLOCATION CHECKLIST

✓ **Validation Rules:** Enforce signature capture before "Completed".

✓ **Status Discipline:** Train techs to update status *as it happens*.

✓ **Audit History:** Track status reversals to identify training gaps.

Returns/Rework

Reopen WO → New Booking (no charge).
Log as "Revisit" for FTFR penalty.

Concurrent

Crew (2 techs) = 2 Bookings. WO completes when BOTH marked done.