



# TRANSFORMING FIELD SERVICE WITH IOT

## THE ANSWER IS IN THIS PLAYBOOK

### Is Your Service Organization Struggling to:

- Improve Service Efficiency and Reduce Costs
- Boost Customer Satisfaction / Improve Service Delivery
- Mitigate Risk to Product Revenue and Commoditization with New Service Revenue Streams

# How To Successfully Transform Field Service Today

**Play  
#1**

Get Everything Connected for Increased Profitability.

**Play  
#2**

Use Remote Monitoring & Diagnosis for Improved Customer Satisfaction.

**Play  
#3**

Implement Condition Monitoring for Preventive Maintenance.

**Play  
#4**

Deliver Proactive Service. Get Started with Predictive Maintenance.

**Play  
#5**

Launch New Services and Business Models to Grow Revenues.

# Get Everything **Connected** For Increased Profitability



## TIP

Don't Underestimate the Task of Building Predictive Analytics-Ready Data

## 5 Actions to Take.

- 1 Get digital machines connected first. Centralize data collection and storage.**  
Integrate with existing data sources or use software adapters to capture real-time raw sensor and telemetry data from a wide variety of equipment and device components.
- 2 Capture raw data with speed and ease using remote device connectivity.**  
Use software to automate and centralize connectivity, provisioning, configuration, and management of assets for simple global deployment.
- 3 Build a relevant, reliable, and predictive analytics-ready data foundation with automated data transformation.**
  - **Relevant:** Capture the 'volume' and variety of historical data needed to analyze, diagnose, and make projections.
  - **Reliable:** Ensure lossless data collection from device to cloud. Cleanse data, filtering out noise and corrupt data.
  - **Predictive analytics-ready data:** Leverage and interoperate between Industry Standards (MTConnect, OPC-UA, MQTT) to normalize data across data sources consistently. Enrich the data using ML and AI capabilities to build predictive analytics-ready data.
- 4 Expand your connected install base to legacy assets.**  
Legacy assets represent a large install base with great potential for service improvement and revenue growth. Implement I/O hardware kits for connectivity, sensors, and software adapters to translate hardware signals to relevant data.
- 5 Connect multi-vendor's equipment.**  
Get competitive insight into replacement opportunities. Using software adapters to collect data from multiple sources, vendors, and models.

# Use Remote Monitoring & Diagnosis for Improved Customer Satisfaction



## TIP

Remote monitoring provides a quick and easy solution to rapid problem resolution and reduction in on-site visits (cost reduction).

## 5 Actions to Take.

- 1 Get visibility into in-field equipment operations and maintenance 24 X 7.**

Use centralized real-time monitoring to manage equipment, components, and tooling across customer base globally.
- 2 Monitor real-time equipment KPIs without going on-site.**

Monitor asset performance, status, health, and maintenance conditions with out-of-the-box, intuitive real-time maintenance dashboards to identify machines that require maintenance and replacement.
- 3 Use data-driven knowledge to improve processes.**
  - Customize dashboards and reports with no code, drag and drop capabilities to enable better planning and scheduling of resources.
  - Leverage intelligence for best practices in equipment usage, maintenance, and part replacement.
- 4 Identify problems, reduce time to diagnosis and troubleshoot issues remotely.**
  - Leverage large volumes of historical data and ready-to-use drill-down insights and root cause analysis to fix problems faster.
  - Use analytics to identify health and performance baselines and compare actuals to target to triage action and help technicians diagnose the issue, identify parts needed, and improve MTTR.
- 5 Define and automate alerts and notifications for real-time action and rapid resolution.**
  - Automatically alert the right person (remote service desk or on-site technicians) when action needs to be taken.
  - Integrate alerts into existing systems and processes (maintenance ticketing systems, or FSM systems).



# Implement **Condition Monitoring** for Preventive Maintenance



## TIP

Advanced analytics and condition monitoring provides the insight for scheduling preventive maintenance, increasing customer uptime, and bringing value to annual service contracts.

## 3 Actions to Take.

- 1 Monitor real-time condition data. Minimize production disruption and reduce onsite inspections and visits.**

Identify relevant parameters by device type and define thresholds for acceptable performance. (vibration, temperature, fan/motor RPM, current, voltage, pressure, fluid flow, path reed rates, spindle loads, hydraulic pressure, etc.)
- 2 Analyze real-time condition parameters and use intelligence to plan preventive scheduling, improve uptime, and lower costs.**
  - Analyze trends, detect anomalies and irregular patterns. Understand when parameters do not fall within the prescribed range to predict failure and calculate the remaining life of an asset, component, or tooling.
  - Select types of analysis: Axis Load Analysis - to reveal worn components; Vibration Analysis - detect component imbalance or failure; Temperature and Humidity Analysis - to ensure part quality and scrap reduction; Tooling Analysis - to determine replacement timing; and Spindle Usage and Load for Spindle Refurb or Replacement.
- 3 Get early warnings and trigger maintenance tasks only when needed but before failure, quality degradation, or performance decline.**
  - Automatically and proactively notify maintenance teams and customer support when real-time conditions reach thresholds.
  - Triage work orders based on pre-set conditions and integrate with FSM, APM systems for centralized process orchestration.

# Deliver Proactive Service. Get Started with Predictive Maintenance



## TIP

Start with Simple Predictive Algorithms that Enable Rapid Payback & ROI

## 4 Actions to Take.

- 1 Get more value out of your existing data investment. Integrate with what you have.**
  - Leverage your full set (i.e., 40 machine years) of historical centralized, normalized, lossless, and trusted maintenance and operational data. Integrate with the existing Data Lake and power new predictive maintenance analytics apps. If you don't have data, go to Play #1.
- 2 Leverage critical alarms data to predict failure, implement a proactive service solution.**
  - Identify critical alarms - vibration alarms, temperature/coolant alarms, tool life alarms. Standardize alarm types across different machines. Use alarm data and algorithms of the condition leading to alarm for prediction.
- 3 Use standard algorithms (anomaly detection) to predict issues.**
  - Identify characteristic behavior - use historical data to baseline how different parameters are expected to behave over long usage windows. Detect anomalous behavior - that could lead to degradation/downtime.
  - Use predictive algorithms to automate threshold anomaly detection (Spindle loads, X, Y loads, power). Identify each parameter threshold. Calculate cumulative anomaly score. Flag anomaly if over the time duration threshold.
- 4 Automate proactive communications and integrate with existing systems.**
  - Predict when service is needed, then trigger alerts to customer/service team based on rules.
  - Proactively create maintenance activities and triage action when parameters like fault count and outage duration of critical alarms reach unacceptable levels. Integrate with Work Orders (FSM, CMMS, ERP, or CRM Software) to enable closed-loop maintenance activity.

# Launch New Services and Business Models to **Grow Revenues**



## TIP

Provide Data Driven Reports to Sales and Service Teams to Upsell and Cross-Sell Equipment, Parts, and Service Contracts.

## 4 Actions to Take.

- 1 Integrate data and analytics into your digital customer apps.**
  - Empower your customers with the intelligence to enable self-service.
  - Help your customers optimize their asset and production performance and on-site maintenance teams and processes and achieve better results.
- 2 Expand after market service offerings and grow service revenues under contract.**
  - Use real-time data for 24x7 remote service.
  - Provide new services with data-driven preventive and predictive maintenance.
  - Monitor and analyze equipment performance and maintenance to generate reports for pre-sales feasibility services: (equipment performance, capacity, asset or part replacement).
  - Analyze data to provide Consulting Services and Equipment Audits with insights to optimize machine use and maintenance processes.
- 3 New outcome-based services and pricing models for revenue growth.**
  - Shift from a “break-fix model” to work proactively to help customers achieve better outcomes, optimize efficiency, and realize a return on investment.
  - Enable new pricing models to align to the customer requirements (Pay by use, Pay by outcome).
- 4 Increase OEM’s sales revenue with intelligence for upselling contracts, products or component refurb and upgrades.**
  - Proactively identify customers needing incremental capacity, component replacement, and new tooling.

# VIMANA Removes the Implementation Barriers of Most Predictive Maintenance Solutions

VIMANA Ensures Your Success with:



Low Start-Up Costs/ Effortless Investment Justification



Rapid Time to Implement and Adopt



Simple Software Solutions



Builds Relevant, Accurate Data for Predictive Analytics



No Specialized Skills Required



## Start Transforming Your Field Operations Today

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