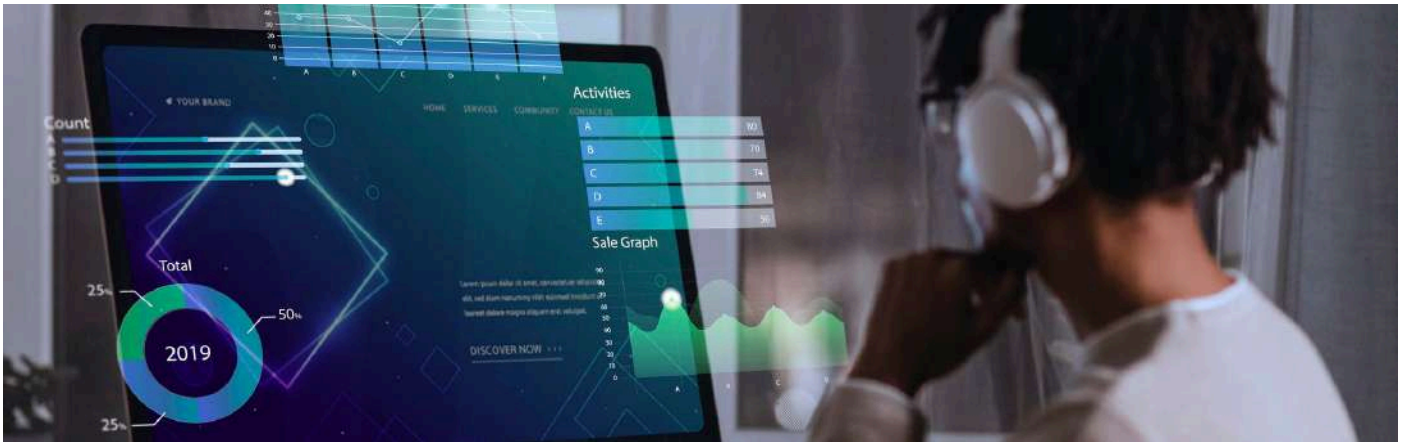
INTECH Cuts Downtime by 34% for Manufacturer with Real-Time Dashboards



Summary

A leading manufacturing company struggled with significant operational inefficiencies caused by outdated data systems. These limitations made it difficult for plant managers to access timely and actionable insights, resulting in frequent unplanned downtimes and suboptimal equipment performance.

INTECH implemented a real-time data dashboard solution that centralized critical operational metrics, enabling faster decision-making and proactive maintenance. This reduced unplanned downtime by 34% and increased overall equipment effectiveness (OEE) by 58%.

About the Client

The client is a leading manufacturing company with multiple production facilities across their network. They specialize in complex manufacturing processes that demand precise monitoring and optimization.

With a focus on high-performing machinery and optimized production lines, the company aims to meet increasing demand while maintaining strict quality standards.

However, outdated operational inefficiencies limited their ability to fully optimize production. They needed real-time data insights and a streamlined solution to enhance production processes and overall equipment effectiveness.

Client Challenges: No Visibility into KPIs

The client struggled with the lack of real-time visibility into production KPIs. This gap caused frequent bottlenecks, unplanned downtime, and inefficient resource allocation, directly affecting productivity and operational costs.

Their existing systems couldn't process the vast data generated by IoT devices embedded across production lines. This inability to process and analyze vast amounts of information left critical insights untapped.

As the company continued to expand and the number of connected devices grew, the need for a more advanced solution became critical. The overwhelming amount of data from these devices created a new layer of complexity that the existing infrastructure couldn't support.

This resulted in missed opportunities for operational improvements, affecting the company's ability to scale effectively.

To overcome these obstacles, they required a comprehensive, scalable solution that could address the following:

Provide real-time visibility
The client required immediate access to production data to identify issues as they occurred, reducing inefficiencies and delays.

Process IoT data efficiently
With thousands of IoT devices generating large volumes of data, the client struggled to process and extract actionable insights.

Supports strategic decision-making
The team couldn't make timely decisions due to a lack of data visibility, which hindered their ability to optimize operations. Without access to key metrics like production output and machine usage, the team missed critical issues, causing delays.

To address these challenges, INTECH developed a custom solution to provide actionable insights and boost operational efficiency.

INTECH's Solution: A Custom Dashboard for Operational Efficiency

To address the client's growing need for real-time visibility and smarter decision-making, INTECH partnered closely with operations, IT, and leadership teams to build a tailored dashboard solution.

Instead of relying on static reports and siloed spreadsheets, the client now had a centralized command center that turned live production data into real-time operational intelligence.

Here are the key features:

Real-Time Data Visualization

- INTECH's solution connected live IoT sensor data from the shop floor directly into the dashboard. It captured live data and displayed key metrics like machine health, production status, and energy usage. This gave operations teams instant awareness and the ability to respond in the moment, which reduced delays and manual work.

Predictive Analytics

- INTECH embedded machine learning to identify early warning signs of slowdowns or failures. Subtle shifts in process data triggered alerts before issues escalated. This helped the client move from reactive maintenance to proactive control, reducing disruptions and improving planning.

Role-Based Data Access

- Understanding the importance of both data privacy and usability, INTECH designed a role-based access system. Plant operators, maintenance leads, and executives saw data relevant to them. This improved security and reduced information overload, and enabled clearer, faster collaboration between teams.

User-Friendly Interface

- INTECH focused on the solution's usability, regardless of technical expertise. The dashboard featured a clean, user-friendly interface that made complex data simple to interpret. This made adoption smooth and usage consistent across teams.

This seamless integration of simplicity and functionality laid the foundation for successful implementation.

Implementation Process

To ensure a smooth rollout, INTECH followed a collaborative approach focused on minimizing disruption and maximizing adoption. The implementation was tailored to integrate with the client's existing infrastructure, reduce friction for frontline users, and ensure long-term scalability.

Here's how we achieved that:

1. **Seamless Integration**
   INTECH began by mapping the client's current IoT landscape to ensure compatibility with the new solution. The custom dashboard was built to integrate directly with existing hardware and software, allowing operations to continue uninterrupted. This avoided costly downtime and ensured teams could continue working while the new system came online.
2. **Data Collection and ETL Workflows**
   Using Pentaho's ETL tools, INTECH set up a robust pipeline to extract real-time data from IoT devices across the plant floor. The data was cleaned, transformed, and processed for high-speed analysis, then stored in a centralized database. This ensured that all insights presented in the dashboard were timely, accurate, and easy to trace.
3. **Dashboard Development**
   Next, we developed a dynamic dashboard that displayed real-time KPIs using Kibana. The dashboard surfaced the most relevant KPIs in real time, allowing users to monitor operational performance at a glance. Interactive filters and visualizations made it simple to explore data trends and respond to issues quickly.
4. **Security and Access Control**
   INTECH designed a permission framework that ensured sensitive data stayed protected. Role-based access meant that operators, engineers, and executives only saw the data relevant to them. This helped maintain data integrity, improved user focus, and supported compliance requirements across departments.
5. **Ongoing Monitoring and Support**
   To ensure successful adoption, INTECH provided hands-on training sessions for users across departments. Once live, the system was closely monitored to ensure performance remained stable. INTECH's support team remained engaged post-deployment to assist with refinements, scale-up requests, and any future needs as the client's operations evolved.

This approach allowed the client to move from insight gaps to full operational visibility. As a result, the client experienced significant improvements in their operations and overall productivity.

Key Outcomes

This seamless integration of the new dashboard with existing systems delivered a real, measurable impact on the overall operations.

Here are the key outcomes:

34% Reduction in Unplanned Downtime: Real-time monitoring of machine performance enables faster responses to potential issues.

61% Improvement in Production Process Efficiency: The interactive dashboard identifies bottlenecks and process inefficiencies, helping teams streamline operations and accelerate throughput.

Y58% Increase in Overall Equipment Effectiveness (OEE): The teams optimize machine usage and maintenance planning, leading to higher productivity and asset utilization.

Tools and Technologies Used

To power the solution and deliver seamless results, we utilized the following tools and technologies:

- **Pentaho:** Used to integrate IoT data from multiple sources. It handles ETL processes efficiently, preparing raw sensor and machine data for real-time analysis and reporting.
- **Kibana:** A visualization tool that transforms complex operational data into intuitive dashboards. It enables stakeholders to monitor key metrics like throughput and equipment usage, helping them make faster, data-driven decisions.