Enhancing Operational Efficiency with Power BI Solution for a Leading Ink Manufacturer

Location
Global

Client
Anonymized global ink manufacturer

Solution
Xylity Technologies developed a custom Power BI solution to facilitate efficient real-time monitoring of machine performance.

Result
The solution enabled immediate response to machine failures and potential issues, reducing downtime, and resulting in substantial time and cost savings.

About the Client

The client is a leading global manufacturer of printing inks, pigments, and other solutions for the publishing and packaging industries. Founded in the 1950s, the company has grown to operate dozens of production facilities worldwide. Precise machine performance is critical to maintaining the client's high product quality standards. Any downtime impacts their ability to fulfill large orders from major customers. The client had been manually collecting and analyzing machine data, which was inefficient and did not allow operators to quickly identify and resolve issues on the factory floor. They sought to modernize their monitoring process with a real-time digital solution for increased visibility and responsiveness.

Client's Goal

The client aimed to gain real-time visibility of their machine performance on the factory floor to facilitate immediate action in the event of machine failures or potential issues.

The Challenge

The main challenge for the client was to gain real-time insight into the operational status of various machines across their global production facilities. They needed a solution that could:

- Aggregate streaming data from different machines and sensors into a centralized dashboard
- Present customized visualizations of each machine's layout and performance metrics
- Be accessed from any connected device to give supervisors mobility on the factory floor
- Quickly identify downtime events or outliers that required maintenance attention
- Support data ingestion from a variety of machines without additional engineering work

Xylity Technologies would need to leverage the Power BI platform to develop a customized monitoring tool that met all of these requirements in an intuitive and user-friendly manner.

Our Solution

Xylity Technologies developed a fully customized solution for the client leveraging the Power BI platform. At the core was a real-time dashboard accessible via the web and mobile apps. This provided a single pane of glass for operators and managers to monitor production metrics.

The dashboard featured an interactive factory floor map as its main visualization. This custom visual allowed users to see a digital overhead view of all machines. Individual machines were represented by icons that changed color based on performance status - green for active, yellow for minor issues, and red for stoppages. Hovering over a machine showed key metrics for that asset.

Beyond the visual map, the solution also included performance cards and charts. Lists showed machine name, type, location and current state. Graphs depicted metrics like uptime percentage over time, throughput trends, and more. Alerts and notifications were configured to notify managers of downtime events via email and SMS.

Advanced functionality included drill-down capabilities. Users could select a machine to view its historical data trends, compare performance across shifts or locations, and diagnose specific issues. Configuration settings allowed customizing data refreshes and role-based access to ensure appropriate usage.

Implementation Process

1. **Data Integration:** The team connected Power BI to the client's various data sources across its global network, streaming real-time data from machines, sensors, and other IIoT devices.

2. **Custom Visual Design:** Xylity developed a interactive factory floor map visual from scratch in Power BI. This allowed supervisors to see an overhead view of each machine's status at a glance.

3. **Performance Metrics:** Key performance indicators like uptime, throughput, error rates, and more were identified. The visual and underlying data models were structured to support easy tracking of these metrics.

4. **Role-Based Access:** Different dashboards were created tailored to the needs of operators, supervisors, and executives. Access controls ensured the right users saw relevant data for their roles.

5. **Security Best Practices:** As the solution involved accessing sensitive production data, it was implemented following industry best practices for data security, authentication, and authorization.

6. **Testing and Validation:** An iterative process of development, testing, and refinement took place. Feedback from client users helped enhance and optimize the dashboard experience.

7. **Training and Documentation:** Thorough admin and end-user training and documentation ensured easy ongoing management and insights extraction from the Power BI solution.

8. **Maintenance and Support:** An upkeep process was established for ongoing solution maintenance, enhancements, and support for the lifetime of the client engagement.

9. **Change Management:** The rollout followed change management practices to ensure smooth adoption across the client's global operations.

Overall, the Power BI solution provided a single source of truth for real-time and historical operational intelligence. It enabled proactive maintenance through easy identification of anomalies from the monitoring dashboard.

Results

The Power BI solution transformed the client's ability to monitor production assets. Supervisors could now instantly see if a machine required attention rather than waiting for periodic manual updates. This allowed problems to be addressed in real-time, such as scheduling maintenance during brief downtimes to minimize disruption. The proactive approach reduced lengthy corrective outages. Customer orders were fulfilled faster since machines experienced far less unplanned downtime. Overall equipment effectiveness increased by 15%, directly improving profit margins. Valuable engineering and managerial hours were reallocated as Power BI automated routine data collation and reporting.

Conclusion

Xylity Technologies successfully delivered a customized Power BI solution for a global ink manufacturer, enabling real-time monitoring of machine performance. The solution resulted in substantial time and cost savings by reducing downtime and facilitating immediate response to machine issues. If you're looking to leverage similar solutions for improved performance, contact Xylity Technologies today.

Tech Stack Used

The implemented solution leveraged Microsoft's Power BI for data visualization and analytics.