**Manufacturing Intelligence: A Data Analytics Project**

I am thrilled to share my latest **Data Analytics Portfolio Project**, where I explored machine performance data to uncover actionable insights for operational efficiency and predictive maintenance.

**Project Highlights**

This dashboard, titled **"Manufacturing Intelligence"**, visualizes key metrics to monitor and optimize manufacturing processes.

**Key Metrics Analyzed**:

* **Efficiency Status**: Identified machines operating at low, medium, or high efficiency.
* **Power Consumption (kW)**: Monitored average power usage across machines.
* **Production Speed (units/hr)**: Tracked production trends over time and by machine.
* **Defect Rate (%)**: Highlighted quality control issues for proactive intervention.
* **Temperature (°C) & Vibration (Hz)**: Analyzed environmental factors impacting machine performance.

**Key Insights from the Dashboard**

1. **Efficiency Distribution**: A donut chart shows that 77.83% of machines operate at high efficiency, while 19.19% are in the medium range, highlighting areas for improvement.
2. **Machine Comparisons**: Bar charts reveal variations in power consumption and production speed across machines, enabling targeted optimizations.
3. **Time Series Analysis**: Line charts track monthly trends in temperature, vibration, power consumption, and production speed, helping detect anomalies early.
4. **Quality Control Monitoring**: Defect rates are visualized to ensure consistent product quality.

**Tools & Techniques Used**

* **Power BI**: For interactive dashboards and data visualizations.
* **DAX**: To calculate averages and create dynamic measures for deeper insights.
* **Excel &** **Power Query**: For data cleaning and transformation.

**💬 Let’s Collaborate!**

This project demonstrates how data analytics can drive smarter manufacturing decisions, reduce downtime, and improve operational efficiency.

📌 What do you think about using dashboards like this for real-time monitoring? I would love to hear your feedback or discuss potential collaborations!

#DataAnalytics #PowerBI #ManufacturingIntelligence #PredictiveMaintenance #DataVisualization #PortfolioProject