

# Modernizing Data Management for the Wind Energy Enterprise

## ABOUT CLIENT

- A European wind turbine manufacturer with a 40-year legacy in Givø, Denmark, is a global leader in renewable energy.
- By the year 2023, the company had installed turbines with a combined capacity of 50 GW across 40+ countries. With over 10k employees, their growing operations across the globe highlight their commitment to sustainability and innovation.

## PROBLEM STATEMENT

After a few rounds of discussion with our team, the company highlighted multiple challenges in their operational workflow and lack of proper data management pipeline. Here are the key issues we identified:

### Manual Processes and Data Errors:

- The client relied heavily on Excel for managing critical data and operations. This manual approach lacked a validation system, leading to frequent errors and inefficiencies.

### Limited Stakeholder Insights and Scalable Storage:

- With increasing data volumes, their existing systems couldn't handle historical data effectively. This created challenges in providing stakeholders with real-time visibility for data-driven decisions.

## SOLUTION

A team of data engineers was allocated to the project and we aimed to replace manual data management with an automated system featuring built-in validation. We started with:

### Automated Data Management System:

- The client transitioned from manual Excel processes to a centralized automated platform, ensuring consistent data capture with built-in validation to reduce errors and save time.

### Real-Time Insights with Power BI Dashboards:

- Custom Power BI dashboards provided stakeholders with real-time, visual insights into key metrics, enhancing transparency and enabling faster, more informed decision-making.

### Validation Framework for Data Accuracy:

- Automated validation rules ensured that only clean, verified data entered the system, eliminating manual checks and ensuring reliable reporting.

### Empowering Stakeholders with Training:

- Training sessions helped employees understand and use the new system, enabling them to independently create reports and gain actionable insights without IT support.

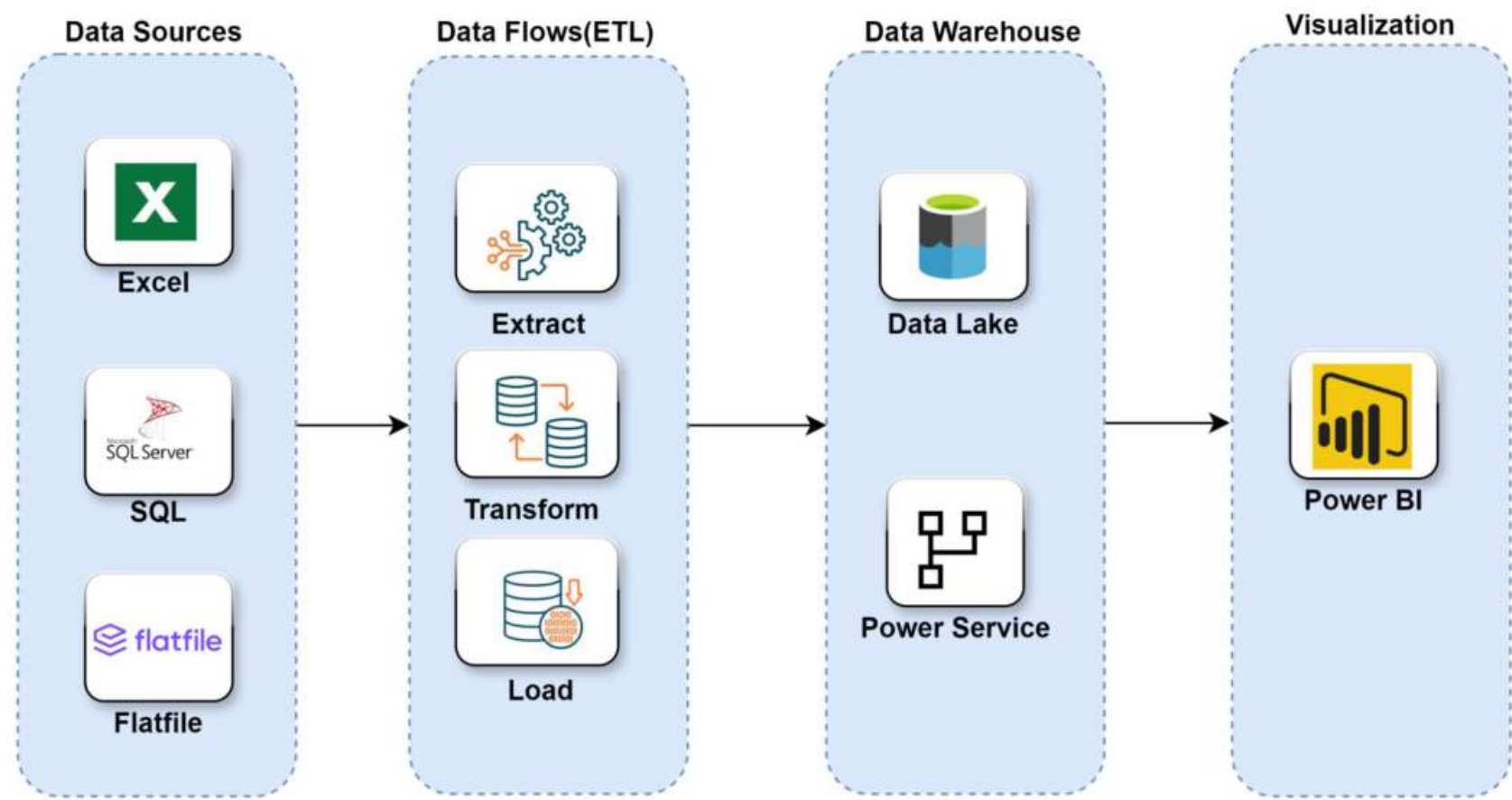
### Cost and Performance Monitoring:

- Power BI dashboards were set up to track storage costs and operational performance, identifying inefficiencies and providing insights for optimization.

## TECHNICAL IMPLEMENTATION

- Connected diverse data sources like Excel, SQL, and flat files.
- Automated data extraction, transformation, and loading (ETL) using dataflows.
- Leveraged Power Query for data modeling and refinement.
- Built interactive dashboards with KPIs, graphs, and drill-down features for comprehensive insights.

## TECHNICAL ARCHITECTURE



## BUSINESS IMPACT

### Improved Data Accuracy:

Automated validation reduced data entry errors by 85%, ensuring that only high-quality, accurate data flowed into reports and dashboards.

### Enhanced Stakeholder Visibility:

Power BI dashboards provided 100% real-time operational visibility, enabling stakeholders to make decisions 30% faster than before.

### Increased Operational Efficiency:

By automating manual processes, the client achieved a 40% reduction in operational workload. This saved significant time and allowed teams to focus on higher-value tasks.

### Scalable and Cost-Effective Storage:

The data lake provided 50% more storage capacity while reducing storage costs by 20%. The solution was future-ready, with room for seamless data growth.

### Faster Reporting and Insights:

Report generation time decreased by 60%, allowing teams to access insights in minutes rather than hours. This agility significantly boosted decision-making processes.

### Reduced IT Dependency:

With Power BI's self-service capabilities, 70% of reports were created by business users themselves. This freed IT teams to focus on strategic initiatives rather than routine reporting tasks.

### Cost Savings and Resource Optimization:

By optimizing storage and automating processes, the client achieved a 15% reduction in overall operational costs. The financial and resource efficiencies provided a strong foundation for sustainable growth.

Overall, the implemented data management solutions reduced IT dependency and operational costs, delivering immediate benefits while also establishing a sustainable framework for ongoing success.

### Industry

Manufacturing & Industrial Engineering

### Services Used

- Business Intelligence (BI)
- Data Analytics
- Data Warehousing
- Digital Transformation
- ETL
- Power BI

### Region

Europe

### Function/Department

Operations Management

### Engagement Model

End to End Project Lifecycle Management

