Predictive Maintenance and Operations

Running Equipment + Infrastructure ➡ Data Collection ➡ Cloud-based Solutions

Cloud-based Predictive Maintenance and Operations

Boost operational efficiency, cut costs, and streamline productivity across all enterprise assets

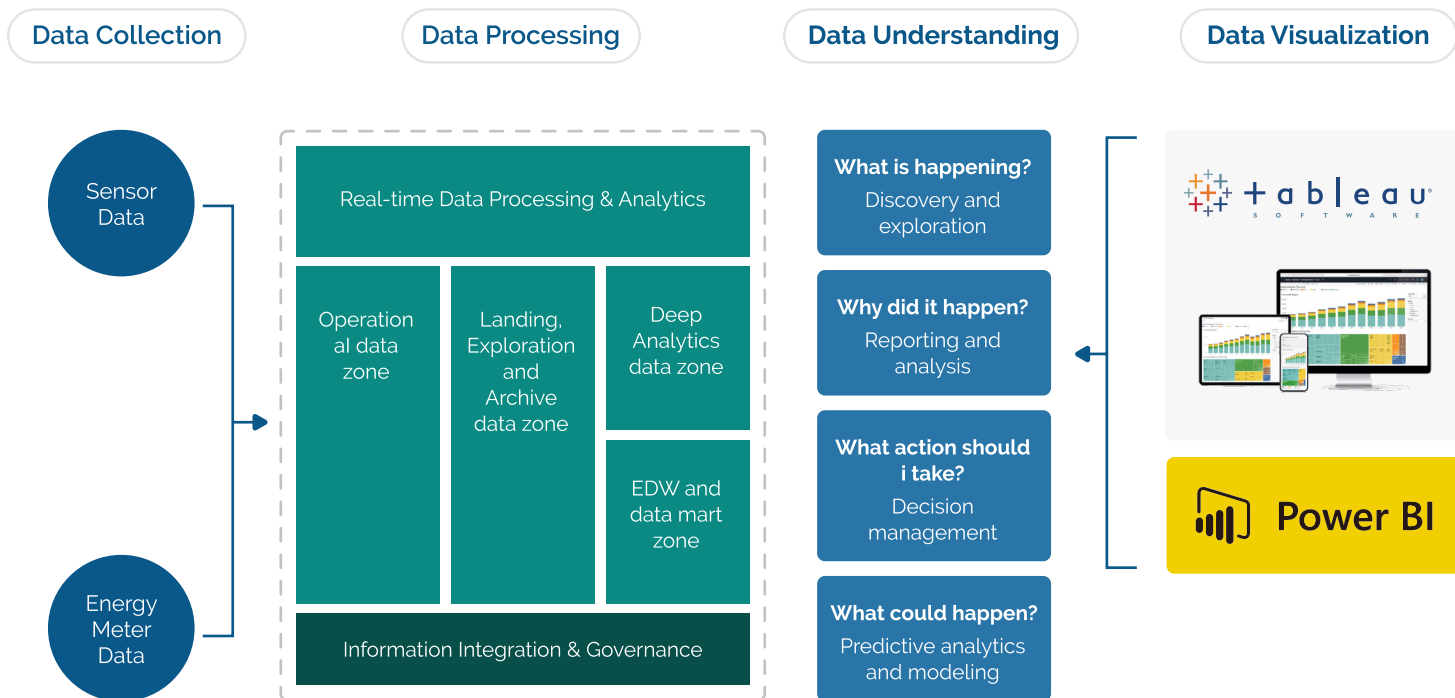|		
Connecting Data from Different Sources Into a Single, Consistent System	Patterns Identification	Monitoring Connected Equipment (Asset)
Optimizing Asset Operations	Remote Management	Predictive Maintenance

Our Highlights

- ✓ Performance measurements & quality checks at regular intervals
- ✓ Optimization of the plant energy cost
- ✓ Improved machine or asset performance through optimization of asset reusability
- ✓ Real-time health monitoring and tracking of assets through advanced & actionable dashboards (Web & mobile)
- ✓ Reduction in capital expenditure + lower maintenance costs
- ✓ Security & surveillance

Smart IMS's Predictive Maintenance and Operations suite starts with top-tier data preparation and collection, from cleaning data and fixing inconsistencies, as well as pre-processing data from different sources to form a coherent dataset in a standard format.From there, we develop a solution that logs incomplete, incoherent, and implausible data issues and tracks them in Sing Cloud.

Our Advanced Analytical Platform then generates deep insights from these data, while our advanced Machine Learning and Artificial Intelligence algorithms will inform decision-making to make full use of your data and strategize for the best solutions.

Data collected from different smart meters/devices will be useful in understanding the energy consumption for a certain duration. Machine learning algorithms will be applied to identify energy consumed by devices, and provide a basis for drafting measures to reduce losses. Concurrently, Analytical algorithms such as Recommendation, Classification and Deep Learning algorithms help in processing the images from drones. Finally, all relevant insights and reports are presented on a dashboard.

Our Data Analytics Suite

Data Collection

Data Processing

Data Understanding

Data Visualization

Sensor Data

Energy Meter Data

Real-time Data Processing & Analytics

Operational data zone

Landing, Exploration and Archive data zone

Deep Analytics data zone

EDW and data mart zone

Information Integration & Governance

What is happening?
Discovery and exploration

Why did it happen?
Reporting and analysis

What action should i take?
Decision management

What could happen?
Predictive analytics and modeling

+ t a b l e a u
SOFTWARE

Power BI

Data Analytics	IoT Application	Implementation
Descriptive	Monitor the status of machines, devices, products, and assets.	Dashboards that display current and historical sensor data, statistics, KPIs, and alerts.
	Assess if things are going according to plan, or alert people if anomalies arise.	
Diagnostic	Examine data from multiple angles to understand why something is happening.	Diagnostic capabilities are often extensions to dashboards that allow users to drill into the data, pivot it in multiple ways, compare it, and visualize trends and correlations in an ad-hoc way.
	The goal is to find the root cause of a problem, in order to fix, or improve something (a process, a service, or a product).	Users performing diagnostics from data are normally domain experts (i.e., experts on the specific machine, process, device, product) as opposed to pure data scientists. Data scientists have a supporting role enabling domain experts to extract insights.
Predictive	Calculate the probability that something will happen within a specific timeframe, based on historical data.	Usually implemented through Machine Learning models that are trained with historical data and deployed to the cloud so that they can be used by end-user applications.
	The goal is to proactively take some sort of corrective action before something (usually bad) happens, mitigate risk, or to identify opportunities to gain a competitive advantage.	
Prescriptive	Recommend actions as a result of a diagnosis or a prediction, or at least provide some visibility to the reasoning behind a diagnostic or prediction.	Often an extension of predictive analytics, where the user is presented with the steps a Machine Learning model took to reach a conclusion or prediction. While this is not quite a recommendation, it may provide some insight into the reasoning of the ML algorithm to hint at a recommendation.

■ Why Smart IMS Predictive Maintenance

Smart IMS offers Predictive Maintenance solutions that are geared toward:

✓ Asset Maintenance

✓ Failure Reduction & Loss Elimination

✓ Automation of Machine-Scheduled Maintenance

✓ Automatic Alert/Notification System

✓ Remote Monitoring and Decision Making

Goal	Supporting Objectives	Dynamic Impact
Common Platform		Platform is scalable to support future growth (user + business use cases) System allows for modifications in the future, since the business processes are expected to change over time
Reduce Manual Processes	Automate current manual processes	
Best Practice-Driven Implementation	Implement IoT while adopting an accelerated "best practices" approach for business processes, where possible	Minimize customizations Discovery engagement has confirmed good alignment with CLIENT business needs, as well as identifying areas for improvement by changing business process
Minimal Disruption to Business	Replace existing applications in a phased manner to ensure minimal disruption and risk to existing business, as well as balance the internal resources required from CLIENT	Single platform but enables deployment driven by business workloads
Procurement and Inventory Control	Dedicated Procurement team will be responsible for Procurement and deploying the IoT devices at Site	