PREDICTIVE MAINTENANCE IN AEROSPACE
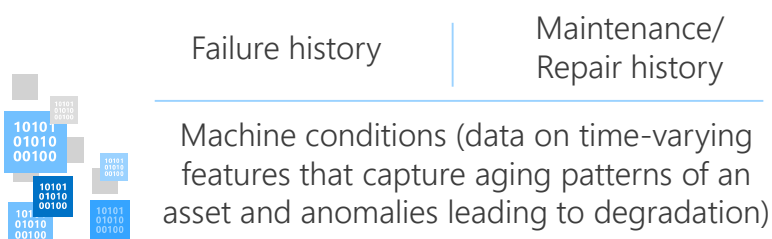
Cortana Intelligence Suite

Does a Business Need Predictive Maintenance ?

Predictive maintenance suits businesses with limited insight into the root cause of equipment failure. It helps them to:

- Determine the probability of equipment failure
- Predict remaining useful life (RUL) of equipment
- Determine the causes of failures & maintenance actions required

Building Successful Solutions

Data sources required to qualify a business problem

Failure history	Maintenance/ Repair history

Machine conditions (data on time-varying features that capture aging patterns of an asset and anomalies leading to degradation)

Benefits of Predictive Maintenance

Maximum Utilization

Maximizes utilization and performance by minimizing unscheduled downtime and ensuring uninterrupted operations of high-risk assets

Competitive

Ensures competitiveness by maximizing asset performance through analysis of data collected from various channels

Future Outcomes

Generates future outcomes by applying predictive analytics techniques to assess historical failure patterns

Use Cases | Aerospace Industry

Aircraft Component Failure

Maintenance solutions for airlines require careful management of component stock availability, delivery and planning.

To address these challenges, we have worked with customers to build a classification model that predicts the probability of a failure due to a certain component within the next month.

By employing these solutions, airlines can reduce component repair costs, improve component stock availability, reduce inventory levels of related assets and improve maintenance planning.
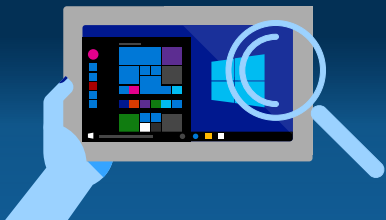
Flight Delays and Cancellations

The airlines industry faces significant costs associated with flights delayed due to mechanical problems

We have helped customers to predict the type of mechanical issue which will result in a delay or cancellation of a flight within the next 24 hours.

By making this prediction, necessary maintenance actions can be taken to mitigate the risk while the aircrafts are being serviced and thus prevent possible delays or cancellations.
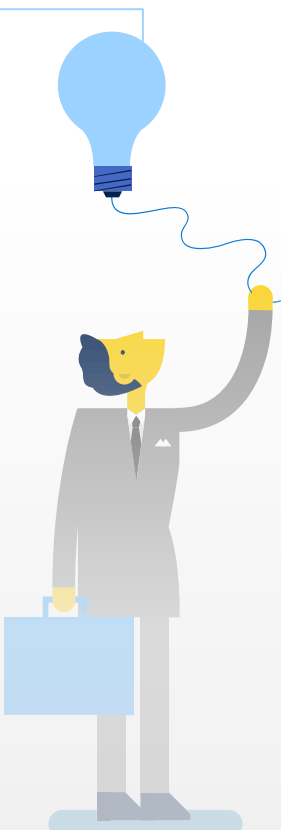
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Solution Overview

Predictive maintenance encompasses a variety of topics, including but not limited to: failure prediction, failure diagnosis (root cause analysis), failure detection, failure type classification, and recommendation of mitigation or maintenance actions after failure.

Cortana Intelligence Suite offers advanced capabilities in the predictive maintenance space for data ingestion, storage, and processing, and advanced analytics allowing our customers to build robust real-time predictive maintenance solutions.

Historical Data

Real-Time Data from Sensors and devices

Cortana Intelligence

Dashboard and visualizations

Automated maintenance scheduling

Data ▶ Intelligence ▶ Action

Maintenance Teams
- Improved visibility into upcoming maintenance needs and parts orders
- Real-time visualizations of asset health across fleet of aircraft

Business Owners
- Reduced costs due to unexpected maintenance
- Better utilization of assets and resources

Stakeholder Outcomes

Travelers/Customers
- Improved travel experience due to fewer delays