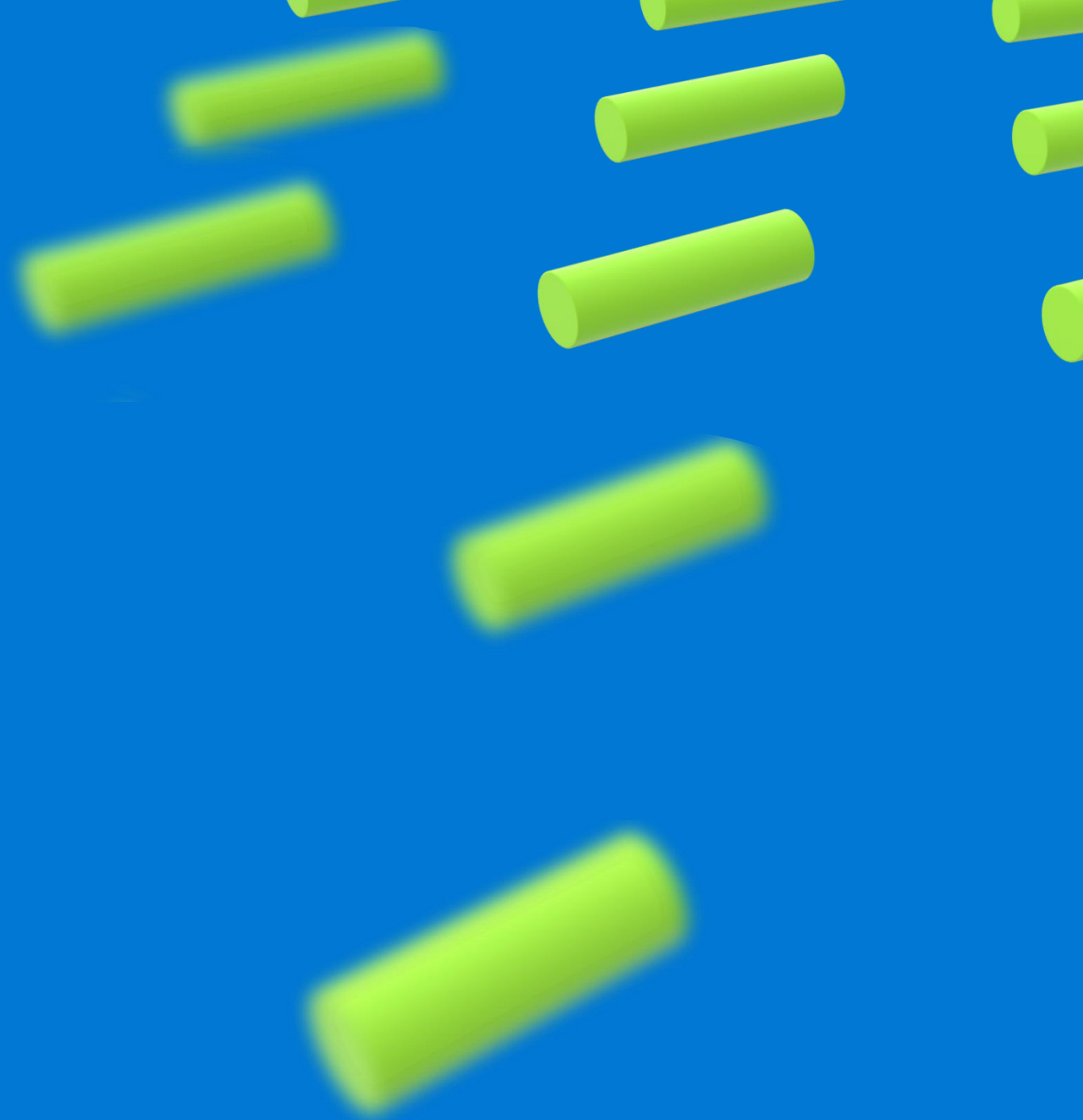


KPIT Technologies

Predictive Maintenance Solution

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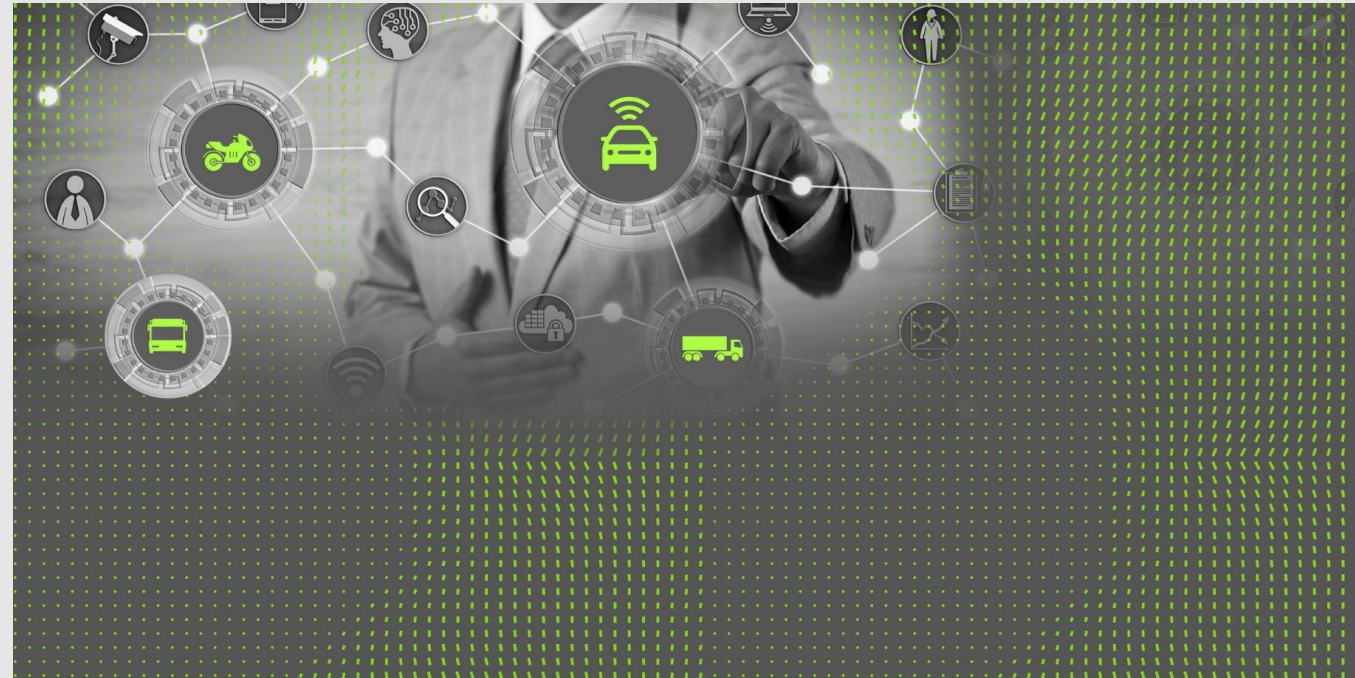


OEMs and Fleet Owners lack trusted and actionable insights about their fleet despite collecting large amounts of data.

Today's Connected Vehicle platforms have limited ability to accurately translate data into timely actionable intelligence.

The solution lies in leveraging an AI/ML based approach to predict the maintenance needs of the vehicle or asset for maximum yield.

Such a solution helps improve asset uptime, reduces warranty cost and improves customer service.



CHALLENGES

OEMs and Fleet Owners collect large amounts of data, however, struggle to get meaningful insights that can drive business decisions to improve customer service and profitability. The challenge lies in usage of manual approaches to analyze data and reliance on historical knowledge and methods to extract insights.

IDEAL SOLUTION

An AI/ML based Remaining Useful Life methodology and solution which offers predictive model readiness across vehicle components can alleviate this situation. Fusion of predictive analytics and decision-making algorithms can help OEMs improve efficiency of their fleets and optimize the cost of operation.

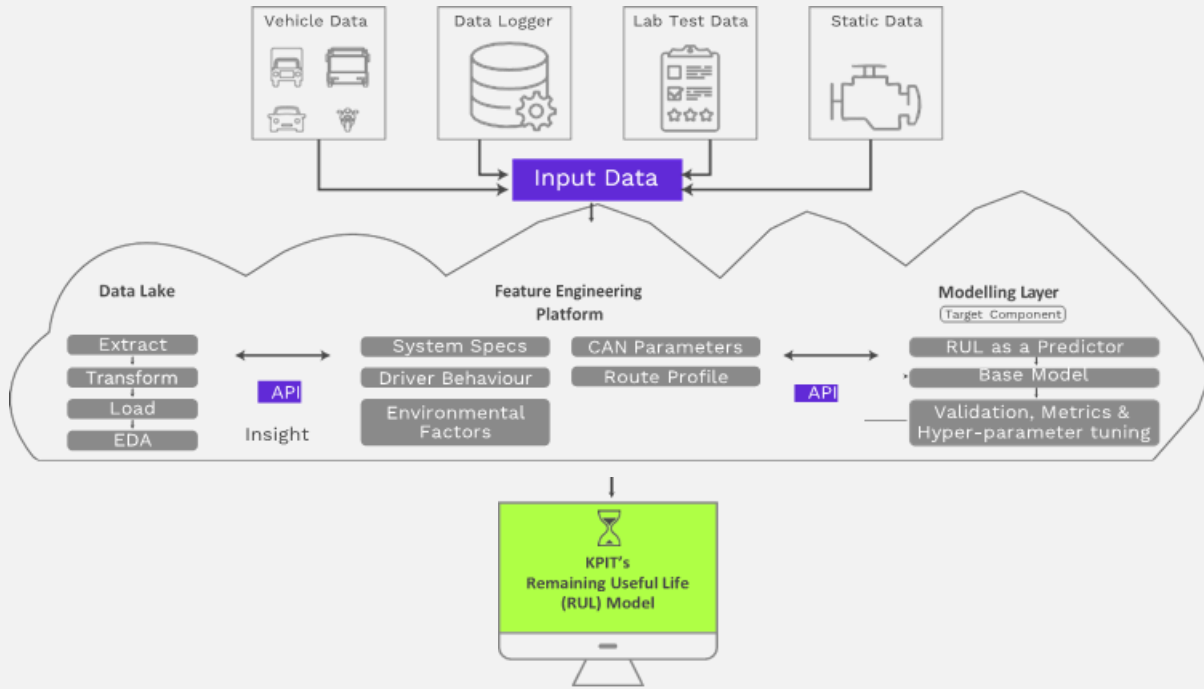
DESIRED OUTCOMES

Such a solution can improve vehicle uptime, reduce warranty and recall cost, improve quality, improve customer service and bring dynamic control on supply chain variables.

KPIT Technologies

Predictive Maintenance Solution

An AI/ML based Remaining Useful (RUL) Prediction for Automotive Components



Platform Solution

Automated Data Discovery, Curation and Ingress into rich Data Lake.

Feature Engineering Platform that packages curated Data in pre-configured primitives exposed through simple APIs for model development.

Modeling Layer that uses APIs to retrain Base Models and predicts intended parameters.

Measurable Impact on Business Parameters

Improve asset reliability.

Maximize parts usage across vehicles, drivers, weathers conditions.

Improve supply chain readiness.

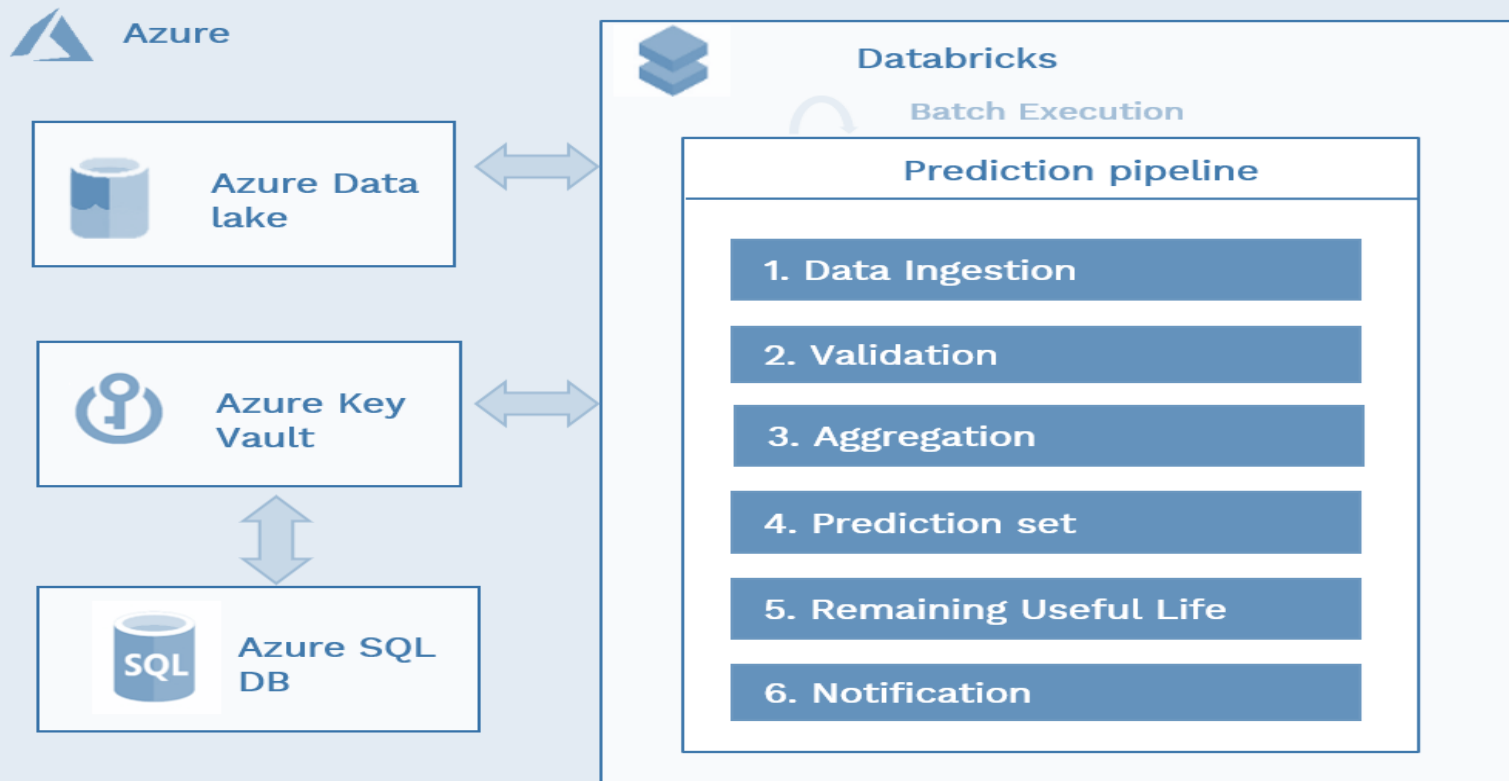
Minimize unscheduled downtime costs.

Cycle-time Reduction

Delivers customer outcome with 30-50% reduction in cycle-time, powered by ready solution blocks and ML models for most of the common vehicle and infrastructure subsystems.

KPIT Predictive Maintenance + Azure

The Remaining Useful Life predictive maintenance solution leverages the power of Azure Analytics and Machine Learning to deliver a solution that helps to rapidly deploy a new component Machine Learning Model direct from a Data Scientists notebook to a cloud notebook enabling new Models to go to production faster and execute at scale and with high performance



Large Scale Data Ingestion & Storage

Azure Data Lake enables ingestion, processing & storage of a large volume of data cost effectively as well as directly integrates with Databricks for prediction & retraining pipeline execution

Notebooks in the Cloud

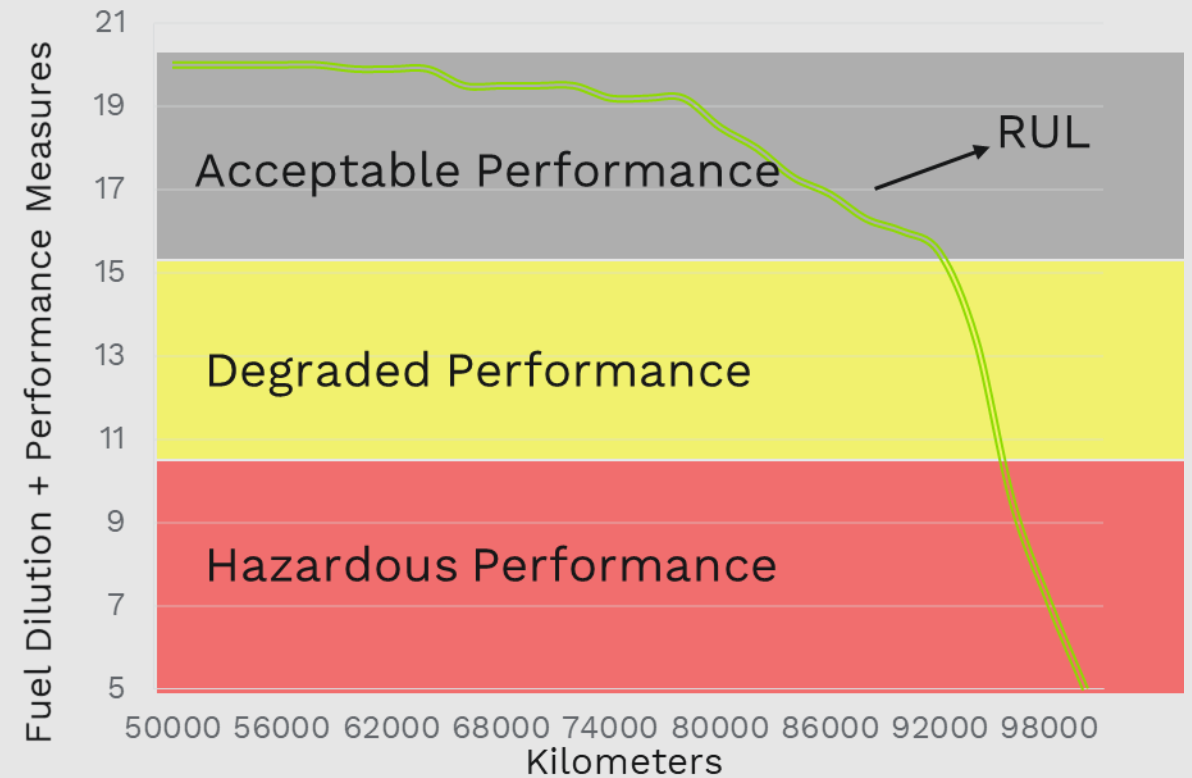
Azure's support for Cloud Machine Learning Notebooks helps bring Remaining Useful Life models for new vehicle components & consumables faster to market by reducing cycle time to productionize the models

Integration with Downstream Services

Azure enables Remaining Useful Life to provide the intelligence to provide notifications to customers and integrate into Fleet & Asset Management solutions and BI Dashboards leveraging API Gateways

Customer success: Predicting RUL for Engine Oil

- Combined fuel dilution measured in lab with derived performance measures through real time data.
- Extract patterns by meshing Time Series Diagnostics data with derived profiling attributes (Driver, Route, Vehicle)



At-scale deployment

- 25 GB Data Volume
- 10 Hz frequency
- Trained with 20 vehicles
- 3 models used

Support for Multiple Methodologies

- Data exploration
- Analysis
- Aggregation
- Neural Network based regression and classification model testing and evaluation

Measurable business benefits

- Improved vehicle utilization by 10%

Get in touch for a demo

Contact us: <https://www.kpit.com/contact/>

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