UPTAKE

Integrating Machine Learning Insights Into Work Processes

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We deploy unique artificial intelligence and data science strategies that power predictive maintenance analytics. Our work makes your information more accessible and actionable in order to improve your operations, decision making and mission success.

FACTS AND FIGURES

- Based in Chicago with presence in Australia, Europe & South America
- Founded in 2014
- 300+

A legacy of innovation & thought leadership for government and industry customers

1.3 million industrial machines

4 million predictions / hour

33 DS and platform patents

KEY SECTORS WE SERVE	CUSTOMER SAMPLE
Government	MARINES, U.S.ARMY, DEFENSE INNOVATION UNIT
Energy	BHE RENEWABLES
Fleet	PEPSICO, UnitedRoad

Cross-Industry

Uptake Fusion powered by ShookIOT
Unify data across mixed fleets and liberate it in the cloud

Uptake PM Strategy Explorer
Expert curated, industry-proven, best-practice strategies. Instantly.

Uptake Compass
Guide Maintenance to Cost Savings and Greater Reliability.

Uptake Scout
Digitize your operator and maintenance personnel knowledge and deploy custom rules-based alerts.

Uptake Radar
Analyze all your data in one place to prevent issues and solve problems quickly.

Industry-Specific

Uptake Fleet
Prevent roadside failures, reduce unplanned downtime, and optimize operating & maintenance cost.

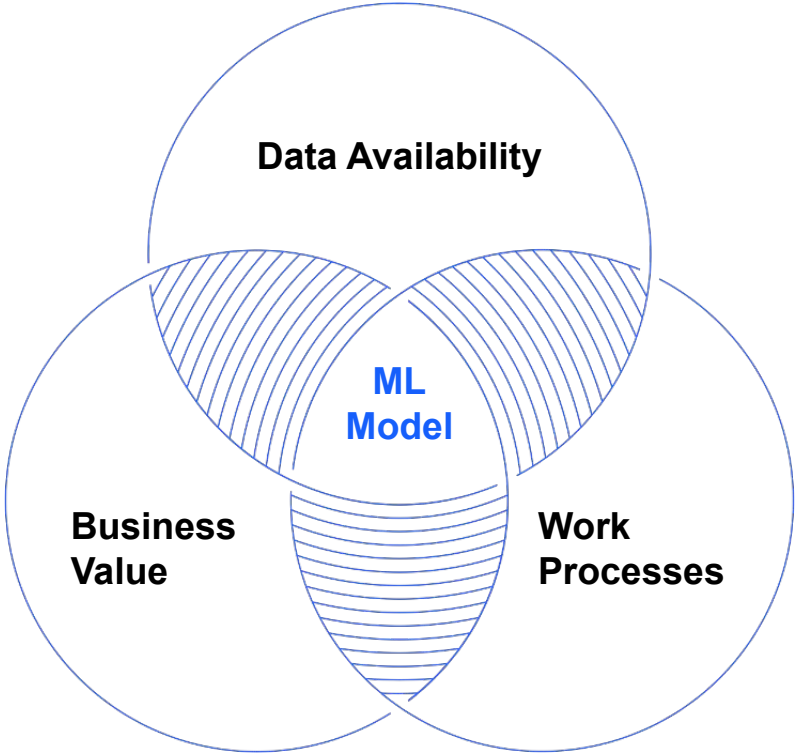
Uptake Federal
Improve tactical decision making across maintenance, supply, and the operational forces

Uptake Grid
Attain superior situational awareness for their operations and equipment health.

Uptake Wind
Unlock detailed performance insights across any site and any amount of turbines.

Uptake Equipment Dealers
Simplify workflows, remove redundant tasks, and spend time curating customer relationships

Machine Learning Model Evaluation



Data Availability

- Are relevant sensor readings being captured?
- Is the data sampled at a high enough rate?
- Is there enough historical data to learn from?

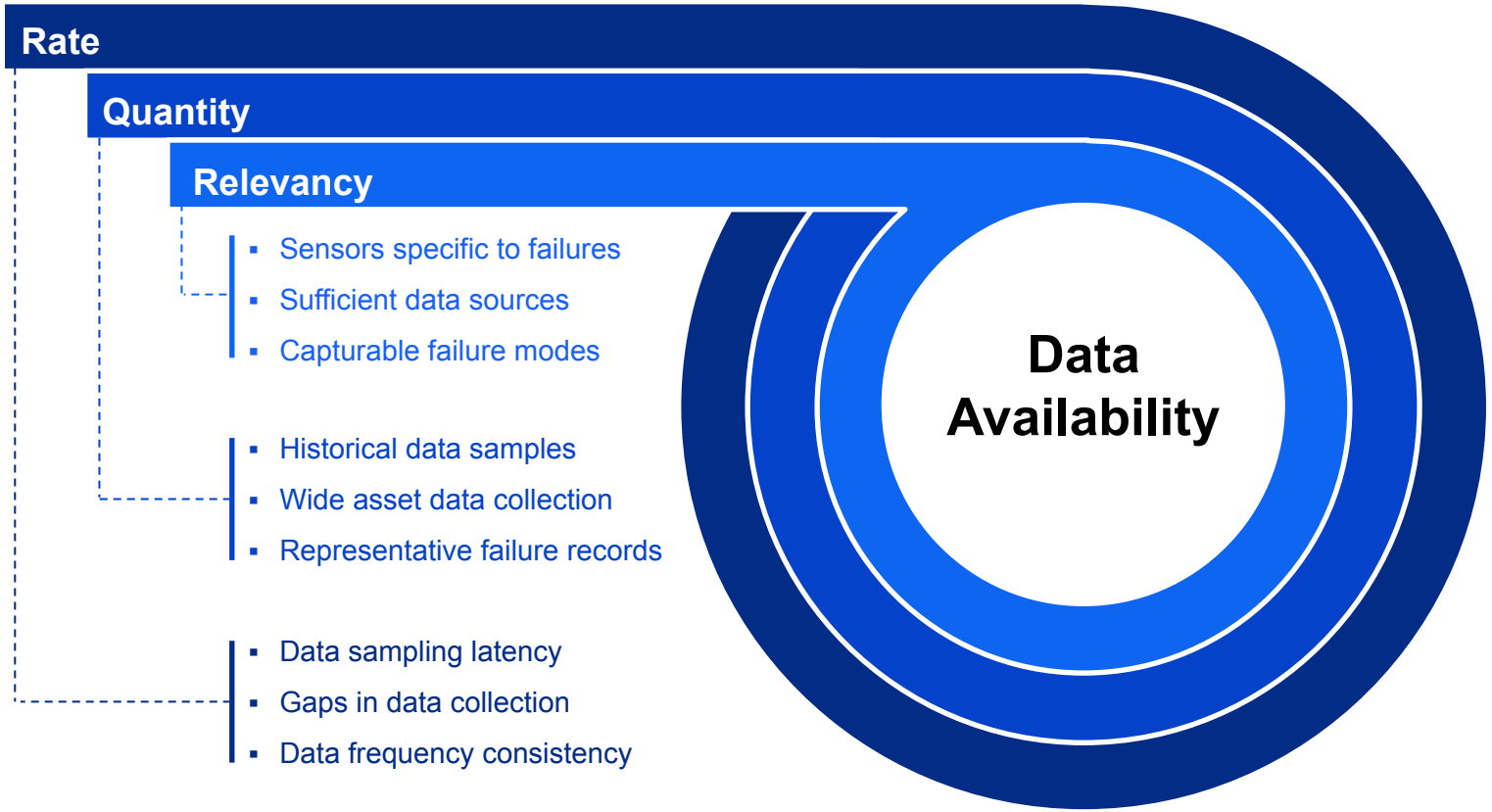
Business Value

- Would a good model create significant value?
- What constraints need to be met for the model to be useful?
- What KPIs are we looking to move?

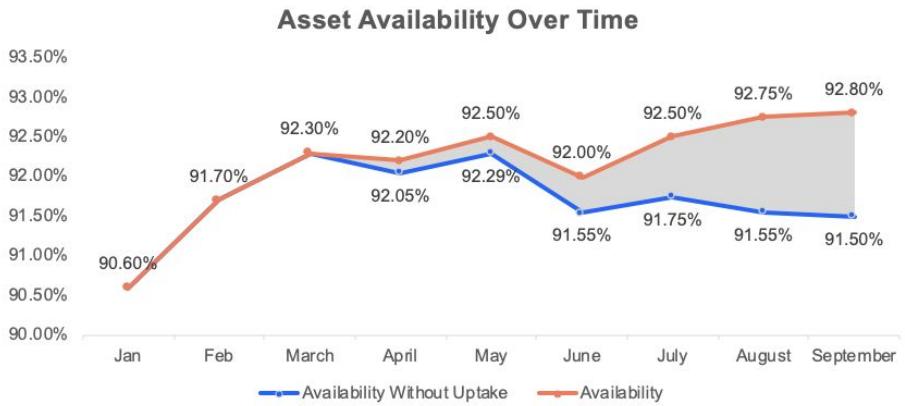
Work Processes

- Who will act on the predictions from our model?
- Are we changing or adding a work stream?
- What is needed by our users to drive action?

Data Availability



Business Value



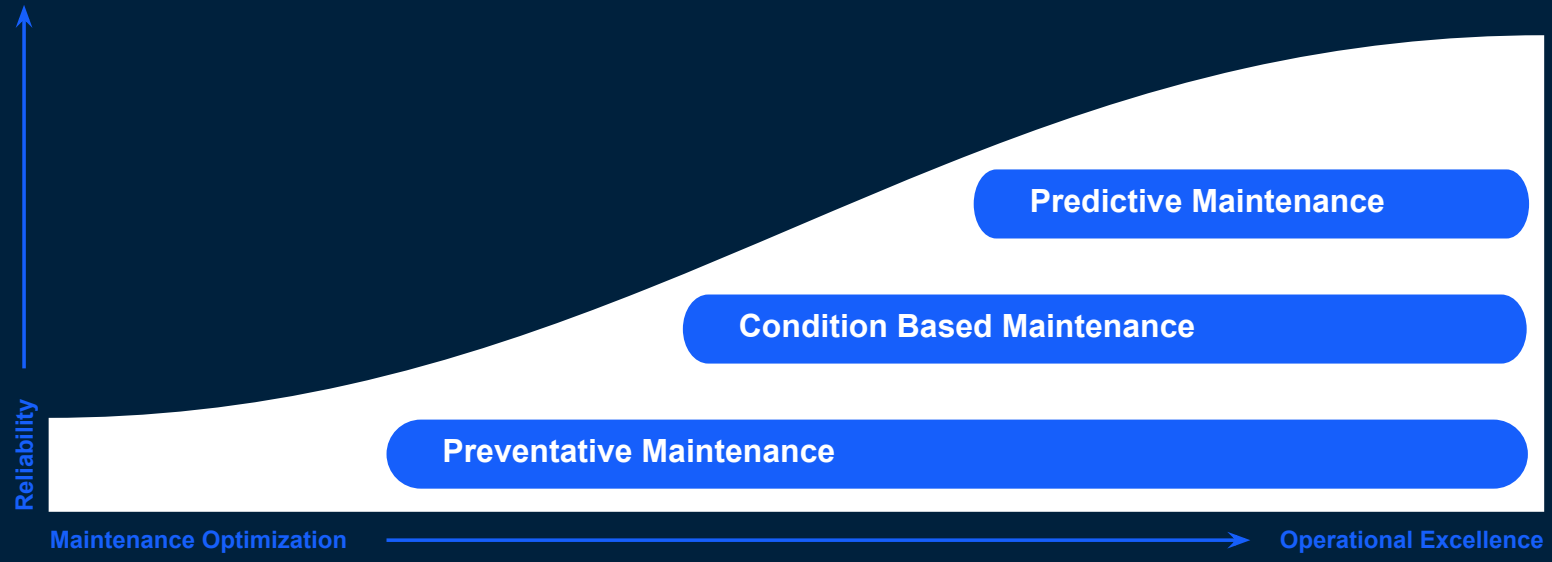
Common KPIs

- Asset Availability — Percentage of time an asset can be used
- Asset Reliability — Assets functioning as expected (MTBF)
- O&M Spend — Cost of operating and maintaining equipment
- Fuel Spend — Cost of fuel to operate an asset

Common Constraints

- Lead Time — Insights need to be timely
- SME Coverage — Ability for someone to review and act on insights
- Shop Capacity — Ability for preventative work to be done
- Type I/II Error Costs — Business impact if you are wrong

Work Processes



Workflow Change Management

Model Explainability and Supporting Evidence

Industrial AI Engines

AI / ML model building tools purpose-built for industrial use cases

Anomaly Detection

Analyzes current conditions to identify deviations from normal operating behavior

Failure Prediction

Predicts probability of future failures via historical data and current conditions

Label Correction

Cleans, normalizes, labels, and fixes inconsistent work order data

Survival Analysis

Identifies probability of failure for active parts on your assets

Risk Scenario

Identifies probability of failure by simulating future asset maintenance and stresses

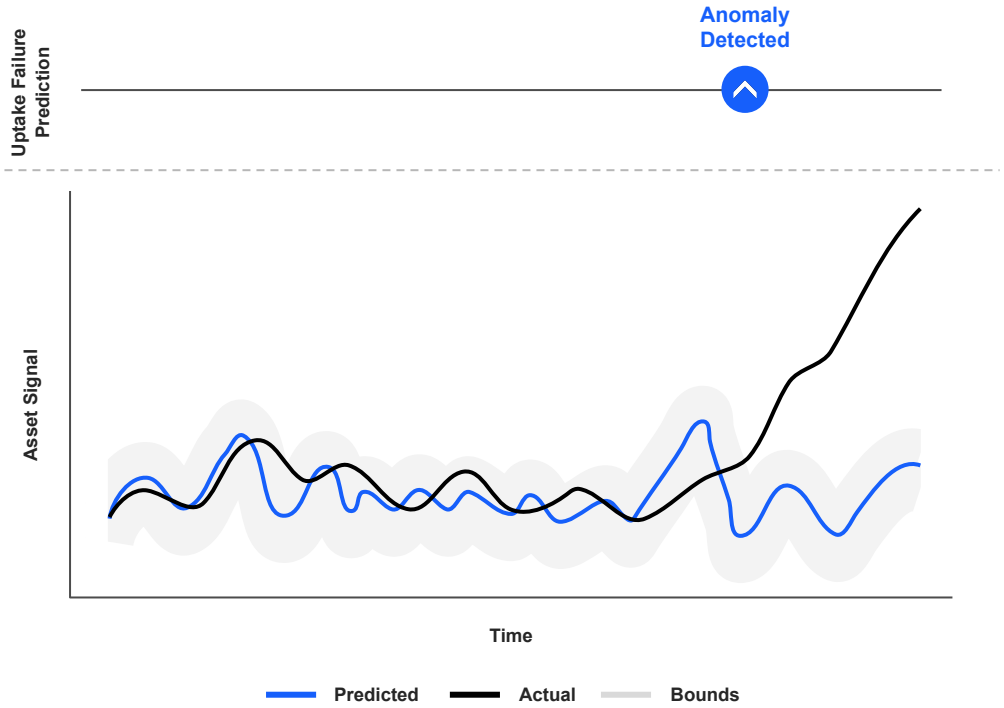
Anomaly Detection Engine

The **Anomaly Detection Engine** is an unsupervised learning engine for detecting abnormal behavior in asset data

With our added domain knowledge, its insights provide targeted recommendations to bring asset behavior back to normal

Features and Abilities

- Leverages techniques ranging from standard multivariate statistical analysis to advanced neural network-based algorithms
- Adjusts normal range expectations as operating circumstances and environments change
- Configurable on new assets without requiring data template configuration
- Accounts for time series nature of data in predictions
- Customizable to work with any time series data sources



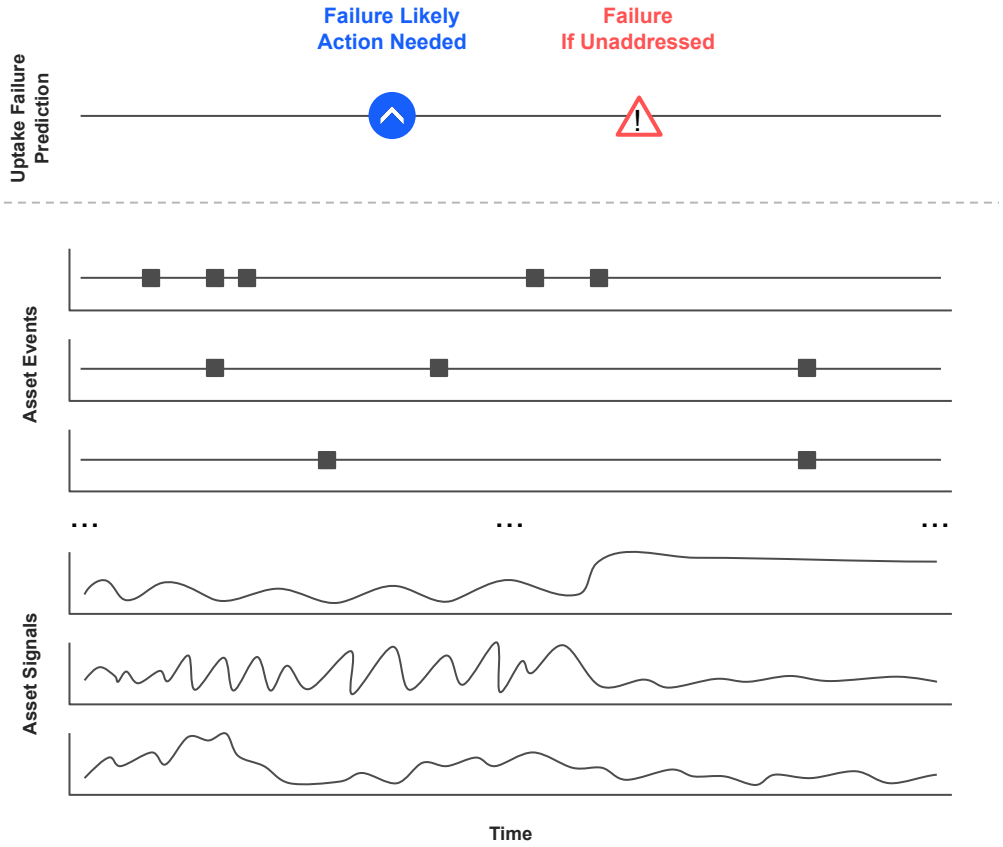
Failure Prediction Engine

The **Failure Prediction Engine** is a supervised learning engine that learns from historical failure patterns to identify likely failures within current conditions

Its insights provide advanced notice of impending failures so that action can be taken preemptively

Features and Abilities

- Leverages machine learning techniques for handling data missingness, capturing nonlinear relationships, and avoiding overfitting—all common challenges of industrial data
- Accounts for operating context, providing predictions that are tailored to each asset
- Learns from patterns leading to specific failure modes from historical data
- Accounts for time series nature of data in predictions
- Customizable to work with any data sources



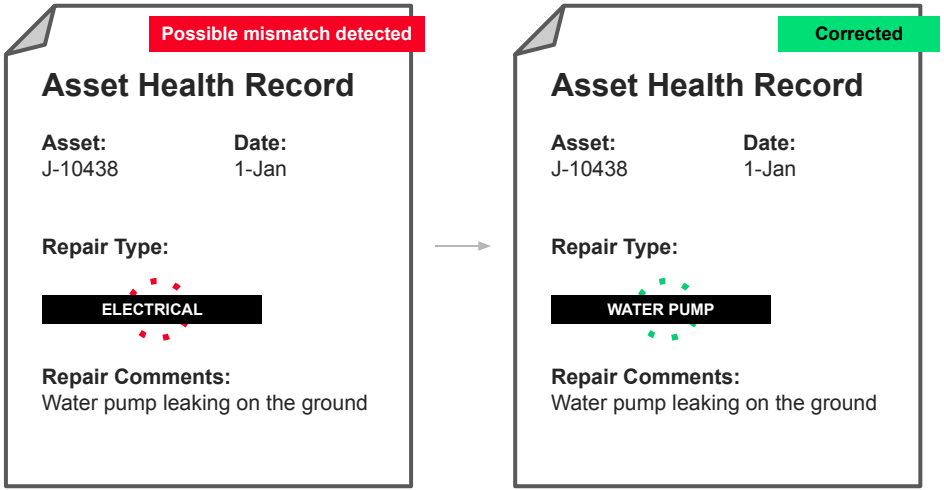
Label Correction Engine

The **Label Correction Engine** is a natural language processing engine that identifies and corrects errors or missing details in work order data records

Its insights ensure you have the highest quality maintenance records for building data science models or making business decisions

Features and Abilities

- Leverages text classification techniques to learn relationships between free text maintenance descriptions and standard categories, such as failure/repair codes, part numbers, or work types
- Suggests labels for fields in work order data that are left empty, vague, or incorrect
- Supports new label creation through clustering and topic modeling capabilities
- Learns from your data to incorporate jargon and company-specific terms
- Customizable to work with any free text data sources



SUCCESS STORY

US Army
Bradley Fighting Vehicle

$250,000
economic value per vehicle per year

9%
maintenance cost reduction

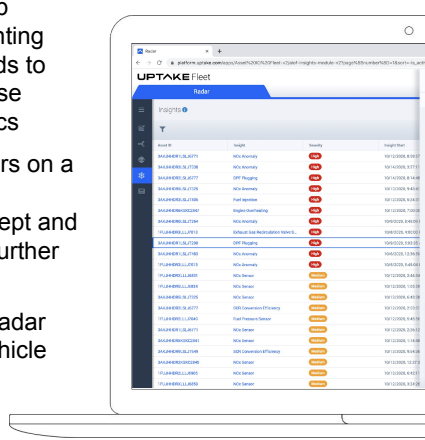
2.5%
operational availability improvement

Uptake Compass, Radar:
Establishing an advanced maintenance program for legacy systems

Situation
- Growing maintenance challenges ensuring operational readiness of a legacy platform
- Increasing unplanned downtime events without clear identification of root cause

Challenge
- Platforms without data connectivity to enable advanced analytics of key vehicle systems
- No established baseline for vehicle performance metrics

Solution
1. Uptake leveraged Uptake Compass to perform a deep analysis of the Bradley Fighting Vehicle maintenance records to identify the highest-value use cases for advanced analytics
2. Uptake installed data loggers on a subset of Bradley Fighting Vehicles as a proof of concept and to establish a baseline for further analytics
3. Uptake deployed Uptake Radar for real-time analytics of vehicle data



SUCCESS STORY

US Marine Corps
M88 Recovery Vehicle

$230,000
economic value per vehicle per year

35%
maintenance cost reduction

4%
operational availability improvement

Uptake Compass, Radar & Fluids:
Enhancing existing analytics capabilities to improve operational readiness

Situation
- Exponentially growing maintenance cost of the M88 Recovery Vehicle legacy platform that is a critical part of keeping the overall fleet operational

Challenge
- Adoptions of advanced analytics did not deliver the expected and required value

Solution
1. Uptake leveraged Uptake Compass to perform a deep analysis of the M88 maintenance records to identify the highest-value use cases for advanced analytics
2. Uptake leveraged fluid lab analysis data from previous analytics efforts and configured analytics models to generate insights based on that data
3. Uptake deployed Uptake Radar to create a single source of truth for all fluid labs data and generate high-precision predictions