

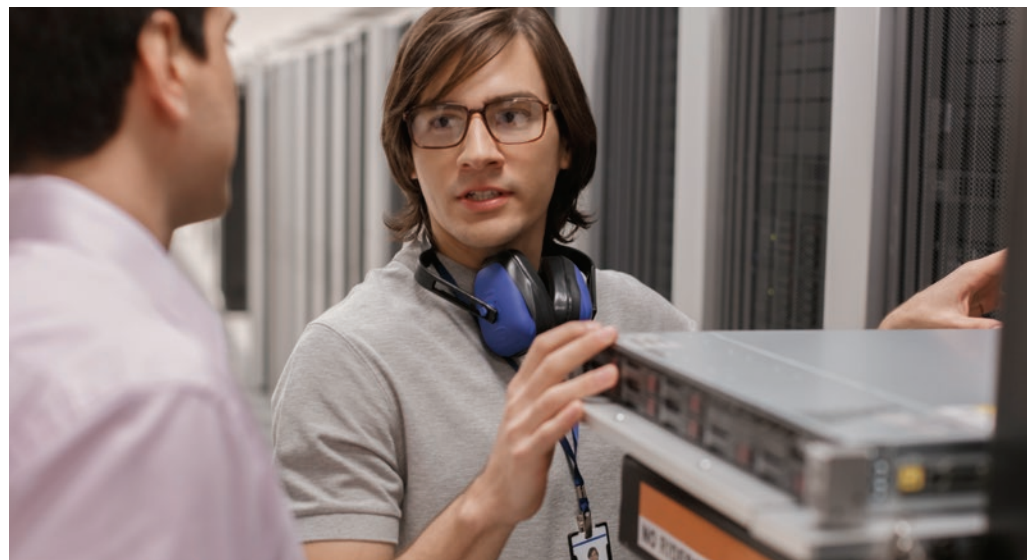
# Avoid unexpected downtime by predicting failures

## HPE Predictive Maintenance Analytics

Keep operations running with proactive maintenance to improve asset efficiency, safety, and return on investment.

### Insights

- Unexpected product failures result in significant operational financial costs and downtimes.
- Analytics-driven insight can prevent or minimise the impact of equipment failures.
- With HPE analytics, you can minimise operational downtime, reduce total cost of ownership, and improve ROI, efficiency, and safety.



### Minimise equipment failure impact

Today, companies are exploring new technologies and ideas that can help them make sense of the data that exists in many different data sources. The goal is to be more proactive in equipment maintenance to reduce operating costs, maximise return-on-asset investments, and maintain compliance with safety and regulatory requirements.

Real-time monitoring of sensor data and combining it with all other external data sources—structured, unstructured, and semi-structured—enables you to predict possible equipment failures and proactively make decisions to minimise failures and downtime.

Understanding equipment failures enables operators to develop proactive maintenance strategies, moving from run-to-fail or

preventive, to new models of predictive and proactive maintenance that better optimise cost and downtime.

### Benefit from predictive maintenance

Turn to Hewlett Packard Enterprise (HPE) Predictive Maintenance Analytics to transform your data into insights to:

- **Reduce operational downtime**—Through early prediction, equipment or component replacement, and maintenance scheduled in advance.
- **Reduce total cost of ownership**—Early prediction to replace equipment or components prevents critical failures from happening.
- **Improve efficiency**—This is gained using predictive failure and mitigation of failures in advance.

## Offering overview

- **Improve return on investment (ROI)**—The operation can take proactive actions on maintenance of components or equipment itself and perform faster repair of faulty components.

## Monitor, maintain, optimise assets with analytics

HPE Predictive Maintenance Analytics uses statistical analysis to predict equipment failures in advance, so maintenance work can be better planned. This transforms unplanned downtimes into shorter and fewer planned shutdowns.

Predictive maintenance analysis incorporates monitoring of equipment at continuous or set intervals to determine system condition using sensor and other data types related to the equipment. The sensor data could be about the machine, its components, vibrations, temperature, pressure, maintenance records, and more. Based on results of sensor and complementary data, a maintenance event—within a timeframe—can be predicted.

A study by Aberdeen Group<sup>1</sup> showed that best-in-class companies, with comprehensive predictive maintenance plans, significantly outperformed those that did not. These analytically driven companies excelled in long-term capital planning, outsourcing of noncritical maintenance, overall equipment effectiveness (OEE), reduced unscheduled

asset downtime, reduced maintenance costs, and ultimately, reduced operating costs. Specific examples include:

- Best in class—top 20 percent
  - 1.7 percent unscheduled asset downtime
  - 91 percent OEE
  - 20+ percent return on assets (ROA) vs. corporate plan
  - 31 percent reduction in maintenance costs
- Laggard—bottom 30 percent
  - 14.8 percent unscheduled asset downtime
  - 73 percent OEE
  - 11 percent ROA vs. corporate plan
  - 0 percent reduction in maintenance costs

## Read about fast-tracked success

A mining equipment management systems provider needed insights into its sensor data to help improve equipment maintenance, reduce operational losses, and enhance safety practices.

Turning to Hewlett Packard Enterprise, proof-of-value predictive analytics and multivariate analysis trials for equipment maintenance were implemented, operational losses decreased, and safety practices use cases using engine, tire, and payload sensor data developed. The resulting benefits included:

- Predicted engine failures went from a few hours to a few days in advance—with less than 5 percent false positive rate for actual down events and less than 60 percent false negative rate for “not-down” events
- Identified driving behaviour that could cause higher failure rate, such as hot cornering and swerve
- Identified operational losses around shift changes

## Work with a proven leader

- **Global experts**—Our highly skilled and experienced data scientists can extract maximum value from your Big Data. The HPE Analytics Data Laboratory is a dedicated, offshore team—with 565 combined years of data science experience.
- **Flexible engagement, delivery, and deployment models**—Our discovery workshops provide low-risk exploration and analytics solutions—with minimal upfront investments. You can choose to implement your solutions on-premises, as a Service, or in a hybrid model.
- **Big Data platform**—The HPE Haven Big Data platform harnesses 100 percent of your data—structured and unstructured—for data-informed decision-making and solving product defect problems at unmatched speed and scale.

## Gain from our experience

- More than 18 years of analytics experience with more than 900 clients worldwide
- 4500-plus information management and business intelligence professionals around the world
- More than 1200 Hewlett Packard Enterprise global business analysts with advanced statistical and mathematical skills
- Numerous U.S. patents and disclosures in the fields of forecasting, segmentation, optimisation, social networks, and text mining

Transform your data into insights with HPE Predictive Maintenance Analytics, so you can minimise operational downtime, reduce total cost of ownership, and improve ROI, efficiency, and safety.

Learn more at  
[hpe.com/services/analytics](https://hpe.com/services/analytics)

<sup>1</sup> “Asset Management: Using Analytics to Drive Predictive Maintenance.” Aberdeen Group, March 19, 2013



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