



Fixed Before It's Broken

The Art & Science of Predictive Maintenance

A shift is underway in how chief operating officers, chief information officers, and their teams view maintenance across industries, for transportation to manufacturing to energy supply. Innovative organizations are now using analytics to predict not only where and when a problem will occur, before it occurs. They can also predict how it will occur - and how to resolve it.

- Multiple data sources - instrumented
- Use structured & unstructured data - interconnected
- Analytics sophistication - intelligent

\$2.2 trillion

How much the U.S. will need to spend in the next five years to upgrade its infrastructure.¹

\$1.7 trillion

Estimated spending needed for infrastructure in India over the next decade.²

\$71 million (Canadian)

The reduction in the pothole repair backlog, once the Transportation and Public Works Department of Cambridge, Ontario, understood how regularly - and where - roads needed to be inspected.

\$1 million

What a large equipment manufacturer working with IBM saved in just two weeks by using preventative maintenance to spot problems and take action before failure occurred. By minimizing downtime and repair costs across all its manufacturing operations, the manufacturer achieved a 1,400% ROI in 4 months.

36%

A water utility company achieved 36% reduction in customer calls through increased preventive maintenance and implementation of automated meter readings.

3x

Organizations that lead in analytics outperform those that are just beginning to adopt analytics by 3 times.³

5.4x

Top performers are 5.4 times more likely to use an analytic approach over intuition within business processes.⁴

Predictive maintenance leverages rich but unstructured data already available in maintenance logs:

- Equipment type



- Number of days in operation
- Operating voltage
- Days from last service
- Days until next service
- Failure history
- Planned and unplanned maintenance costs
- Parts analysis

Predictive maintenance capabilities can:

- Reduce TCO
- Provide forward visibility into equipment, process, and quality performance
- Help understand, monitor, predict, and control process variability
- Enable in-depth, root-cause failure analysis
- Optimize maintenance intervals
- Enhance equipment and process diagnostics and capabilities
- Identify inappropriate operating and maintenance practices
- Determine optimum corrective action procedures
- Minimize unscheduled maintenance
- Improve field-level service
- Enhance production operations
- Reduce warranty claims costs

<http://www.ibm.com/analytics/us/en/predictive-analytics>

#IBMSmarterMktg

#IBMANalytics



¹ According to engineering estimates

² According to Goldman Sachs

^{3, 4} IBM Institute for Business Value and MIT Sloan Management Review, Analytics. The New Path to Value, 2010, <http://www.ibm.com/de/solutions/asc/pdfs/analytics-path-to-value.pdf>

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