

# Panoramic Power

Structuring and deploying  
an APM strategy: A primer

Whitepaper  
February 2018





## Foundations: Why Establish APM?

Asset performance management (APM) is the process of collecting and analysing equipment data to improve the reliability and availability of physical capital.

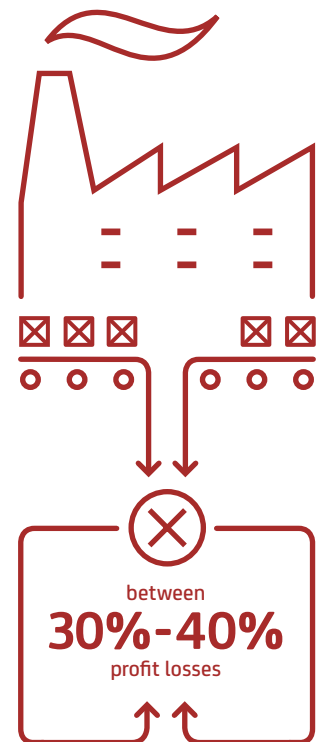
Average peak system availability across industrial facilities is usually between 85% and 95%. While this performance standard may seem adequate, unplanned downtime usually leads to profit losses of between 30% and 40% annually.<sup>1</sup>

These losses are a result of:

- Capital depreciation resulting from post-downtime asset
- overuse (trying to make up for lost production).
- Paying workers overtime to apply repairs.
- Flying in materials or spare parts.
- Substandard/lost product resulting from asset malfunction.
- Failing to meet unit demand.
- Redeveloping an existing site
- Supporting your company's green image
- Managing existing power demands
- Improving Corporate Social Responsibility (CSR)
- Improving a facility's electrical resilience against utility failures

This whitepaper will describe how you can plan and implement APM strategies across industrial facilities.

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1. Bell, David. "The Hidden Cost of Downtime: A Strategy for Improving Return on Assets." Maintenance Technology. Maintenance Technology, 1 July 2001. Web. 10 Apr. 2017. <<http://www.maintenancetechnology.com/2001/07/the-hidden-cost-of-downtime-a-strategy-for-improving-return-on-assets/>>.



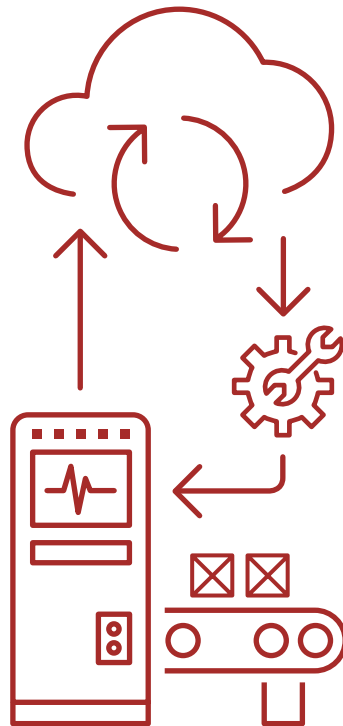
## Organising and Preparing Human Capitals

The success of your APM strategy depends on the commitment and capabilities of your current workforce.

**First, you must compose a detailed downtime cost analysis for the executive team to demonstrate APM's projected value. This report highlights how disruptions affect your facility's asset values, return on productive assets and return on sales.**

After conducting a cost analysis, your team should assess technologies which allow staff to track asset performance. Look for solutions that are capable of alerting administrators to equipment anomalies. These features help staff anticipate failures before they occur, which is the basis of a predictive maintenance strategy.





Once the executive team is on board, decision-makers should provide machinists and facility managers with basic training in problem analysis and predictive maintenance.

This enables your staff to:

- Standardise equipment risk procedures
- Prioritise risks
- Quantify risks based on failure probabilities
- Escalate issues to the proper decision makers

These steps let your staff calculate the lost revenue associated with asset downtime and establish a proactive mentality.



# Structuring and Employing Data Analysis

According to the Massachusetts Institute of Technology, Machine Learning (ML) has:

Enabled  
**45%**  
of organisations to analyse data faster.

Helped  
**44%**  
of companies enhance their research and development efforts.

Improved operational efficiencies across  
**39%**  
of businesses.<sup>2</sup>

The data collection system you procure must also contain an intuitive data analysis dashboard that:

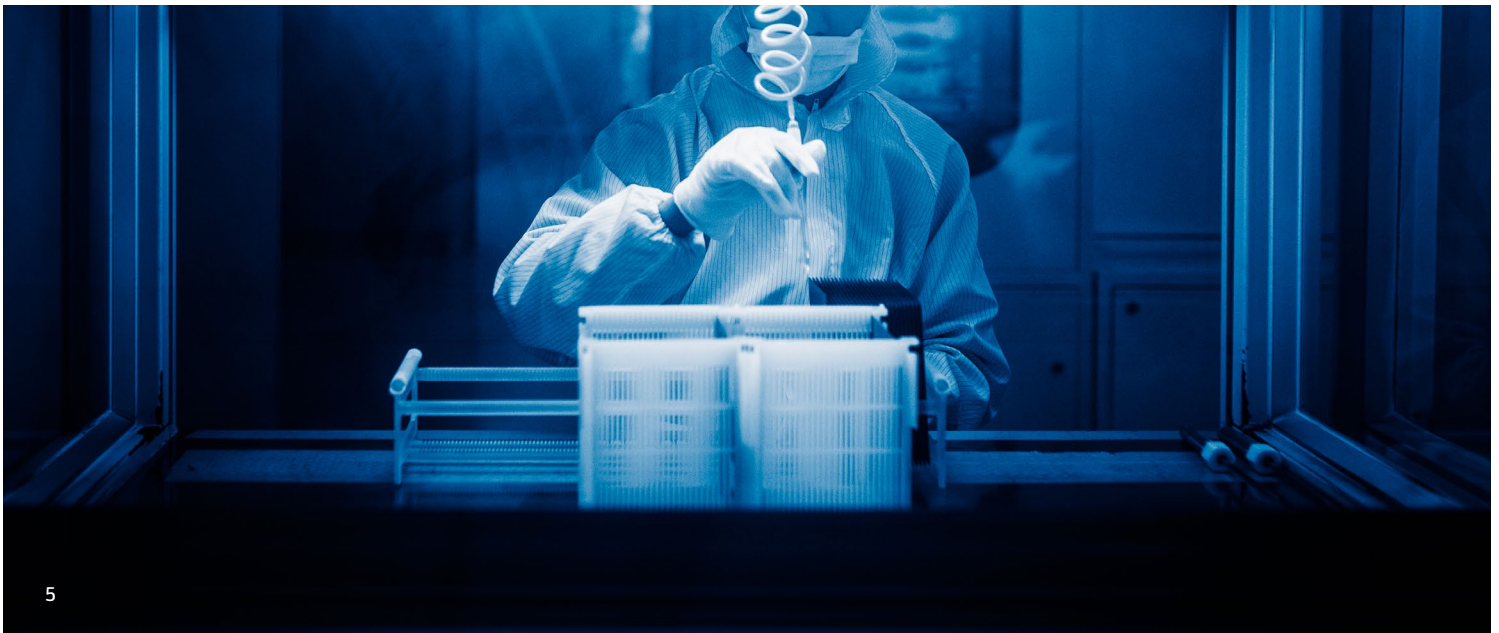
- Clarifies the operational state of each device
- Delivers KPIs relevant to your operations (rate of energy consumption, time of idleness, etc.)
- Identifies asset dependencies
- Enables staff to generate and assemble reports.

In the best examples, the dashboard will also feature a machine learning (ML) system that creates a unique algorithm for every asset across the facility.

Ensure APM team members can easily access the data analysis tool. Capgemini found only 27% of executives believe their big data initiatives are successful, largely because of departmental obstacles.<sup>3</sup> By employing easy-to-navigate dashboards, you can ensure your team derives optimal value from your data.

2. Machine Learning: The New Proving Ground for Competitive Advantage. Cambridge, Massachusetts: MIT Technology Review, 2017. PDF. <[http://s3.amazonaws.com/files.technologyreview.com/whitepapers/MITTR\\_GoogleforWork\\_Survey.pdf](http://s3.amazonaws.com/files.technologyreview.com/whitepapers/MITTR_GoogleforWork_Survey.pdf)>.

3. Brahim, John, and Paul Maritz. Big & Fast Data: The Rise of Insight-Driven Business. N.p.: Capgemini, 2017. PDF. <[https://www.capgemini.com/resource-file-access/resource/pdf/big\\_fast\\_data\\_the\\_rise\\_of\\_insight-driven\\_business-report.pdf](https://www.capgemini.com/resource-file-access/resource/pdf/big_fast_data_the_rise_of_insight-driven_business-report.pdf)>.





## Informing Continuous Maintenance

After acquiring the necessary technology, establish a process through which staff continuously identify and address problems.

**Applying insights typically occurs at a granular (asset-specific) level**  
**Examples of asset-specific tasks include:**

- Noting when an asset is running, but not contributing to production.
- Identifying the exact times when a machinist activates and shuts down machinery.
- Setting thresholds to alert when a machine's power consumption rate increases or decreases past a certain threshold.

For example, an asset monitoring system could automatically register phase imbalances across equipment running on multi-phase electric engines. If the solution identifies such an anomaly, it can send an alert to a machinist, who can address the problem before the engine becomes overheated. This proactive maintenance helps extend the life of the motor in question.



# Tracking the Success of Your APM Strategy

Upon deploying your asset monitoring system, management must review the facility's current operational state.

**What is the kilowatt hour per square foot per day? How many failures occur in a year? With what machines?**

Understanding current conditions provides facility managers with a baseline for improvement. The operation won't experience results until sometime after the APM strategy's deployment.

After a two- or three-month period, management can conduct a second

comprehensive operational analysis. Has the kWh per square foot rate decreased? Have fewer failures occurred? Has manufacturing increased?

Such questions enable APM members to assess the return on investment and identify opportunities for further improvement.

If you want to learn more about APM strategic development, check out: [www.centricbusinesssolutions.com/energy-insight](http://www.centricbusinesssolutions.com/energy-insight)







To learn more about energy management solutions and corporate sustainability, visit [centricabusinesssolutions.com](https://centricabusinesssolutions.com)

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