Utilities Case Study

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Business issue
Predictive maintenance

A major Australian utility company wanted to develop a comprehensive understanding of how best to optimise its asset maintenance timing and future cost — and then put that understanding into action. It required a transparent, defensible and repeatable methodology that would not only inform business decisions but also stand up to regulatory scrutiny.

Specifically, the business required accurate and statistically valid forecasts of future cost, availability and reliability of individual network assets for the next nine years.

Solution

We developed a modelling solution that identified the assets and operational processes that were at the greatest risk of experiencing problems or failure.

The solution was based on industry-leading methodologies that maximised the predictive value of the company's historical data. These have been proven to be effective in cases of real-world, noisy and otherwise suboptimal data and have been used across various industries with great success.

Benefits

- The resulting models allowed users to easily identify the specific assets that carried the greatest risk of outages and cost incurrence.
- The results enabled the business to focus maintenance planning for those assets and either develop preventative measures to reduce risk, or plan for the assets to be replaced.
- Early identification of potential concerns allowed the business to deploy limited resources more cost effectively and to maximize equipment uptime.
- The approach was transparent, rigorous and repeatable. This allowed the business to substantiate the future cost of maintaining and replacing assets to a range of stakeholders including the regulator.

Approach

The approach used the power of contemporary Data Science methods and was transparent, repeatable, scientifically valid and accurate.

Data Science, also referred to as Advanced Analytics or Predictive Analytics, is an analysis approach that provides businesses with accurate What-If scenarios and evidence-based proactive decision-making tools.

- It is based on predictive analysis of domain-specific organisational data. If an outcome of interest to the business can be measured, then Data Science methods can determine which factors influence it and to what extent - and based on the delivered insights, suggest the call to action.
- It has been proven and pressure-tested globally across many industries. It has been a key to the success of Google and Amazon. It is used by leading banks, insurers, telcos, retailers, manufacturers, utilities and governments to gain insight into how to efficiently improve business outcomes including:
    - cost optimisation
    - asset downtime reduction.