

Safety Risk Predictive Analytics to improve safety performance

*How we can help
you with your
safety challenges*



Safety: At the heart of it

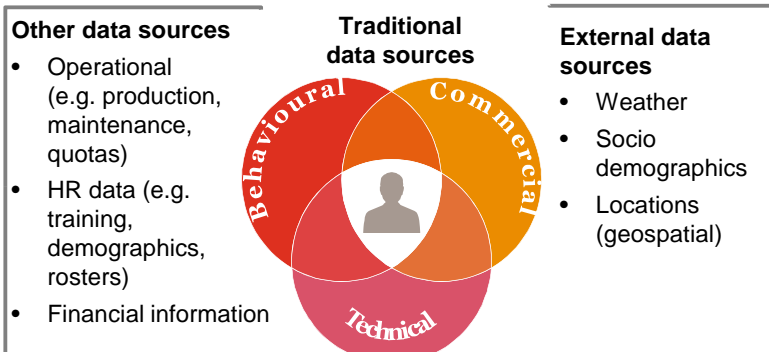
Improving health and safety

Operational safety risk management is a challenge that has the potential to impact a company's regulatory compliance, internal policy management, brand, reputation and finances.

By combining powerful statistical methods across multiple disparate data sources, organisations are able to understand the drivers of workplace accidents that were previously unseen. Companies can then use these insights to more effectively address workplace safety in terms of both injury prevention and injury management.

PwC has developed *Safety Risk Predictive Analytics*, a set of sophisticated techniques, to provide greater insight and clarity into health and safety systems, and to help its clients develop processes to minimise such risk. For example, our approach can help you answer:

- What metrics can provide the ability to take a proactive evidence-based safety focus on “leading indicators” to create more actionable insights than simple reactive reporting of claims and incidents?
- Which work processes or areas have the highest risk factors for incidents?
- What would be the impact of proposed changes to training, teaming and rostering?
- Given the highly variable nature of accidents, what preventative measures offer the best value across a range of future outcomes, when a safety programme has budgetary constraints?



Benefits for our clients include

Our proven approach utilises your data and advanced analytical techniques to improve safety outcomes and potentially saving costs through improved productivity or optimisation of insurance procurement / loss control.

Our Safety Analytics team is complemented by a wider Health and Safety practice which advises clients on setting strategy; advising on policy; risk management; operational change; and monitoring, reporting and assuring their progress – all through a safety lens.

This allows us to help our clients in:

- Protecting their license to operate
- Reducing costs and improving design
- Leveraging existing data to improve understanding and resolution of key safety issues.

How we can help

Using Safety Risk Predictive Analytics to improve safety performance

There is a wealth of information that is captured in historical worksite, project, human resource, inspection reports and environmental data.

Traditional analysis focuses on what has *already occurred* - predictive modelling techniques used in Safety Risk Predictive Analytics can help identify high risk predictors of incidents *before incidents occur*, allowing companies to put strategies in place that focus on prevention.

We can help you to:

- Identify risk predictors and lead indicators of safety issues. Our assessment of risk begins by identifying the *independent, quantitative risk predictors*. Examples of predictors are project site, project size, team size, weather condition and project phase.
- Use the insights from the risk predictors and lead indicators to identify targeted areas or employee populations for wellness programs and dedicate appropriate safety resources to high-risk areas.
- Implement the strategies to improve safety practices based on insights gained from the analysis, such as increasing safety training and measures for high risk areas or targeting areas for wellness or safety awareness programs.
- Consider what suite of safety measures and training programmes give management the facility to successfully deliver, and indeed exceed, their safety-related objectives within spending constraints.

Implementation of Safety Risk Predictive Analytics can help improve safety and loss prevention programs, which in turn, can reduce costs and improve the sustainability of the organisation through enhanced employee satisfaction and employer corporate responsibility.

Safety Risk Predictive Analytics is part of PwC's broader Governance, Risk and Compliance (GRC) framework, which starts with the risk strategy and covers governance, organisation and policies and change management.

Large Australian energy company



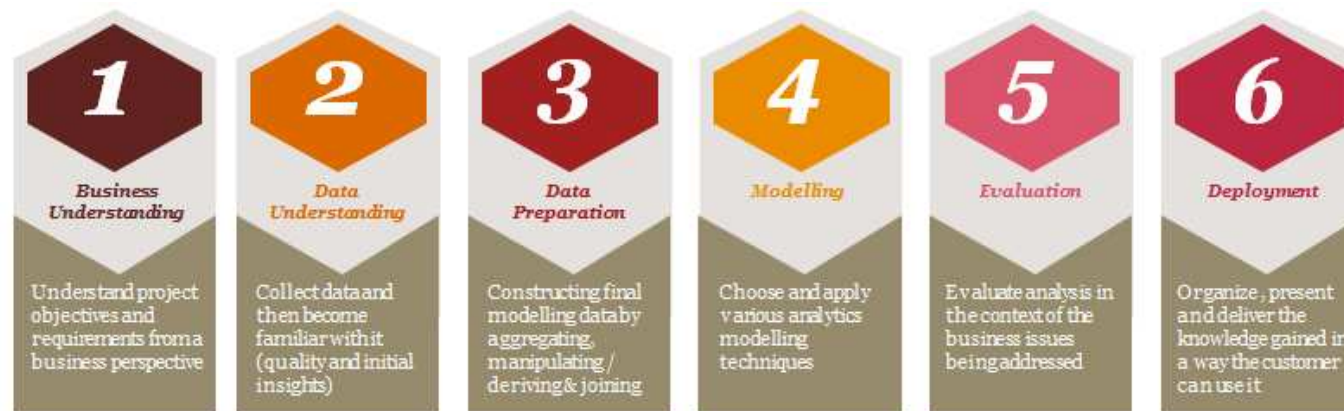
A large Australian energy company's management needed assistance in understanding the implications of implementing a new fatigue management policy. This was driven by recent fatigue related incidents in the workplace.

PwC was able to show that longer periods of work and work performed during the night time are linked with increased levels of fatigue and incidents and that the organisation was operating with significant, sustained levels of OT.

We presented three options for reducing OT hours, and provided our client with an implementation roadmap that could provide its employees with a safer workplace in regard to fatigue management while being cost neutral.

Safety Risk Predictive Analytics

Our six phase approach logically guides the gathering and creation of data-driven evidence



1. Business Understanding

This phase begins with agreeing the health and safety challenge(s), the approach for integrating the insights from the project into the business, defining the operating environment and determining the available assets and finally setting an “analytics plan” to achieve these outcomes.

2. Data Understanding

The data extracts from the data assets are gathered. This typically includes: safety claims, incidents and observations, operational data, HR information, work site data, production data and other external data sources (e.g. geospatial socio demographics).

3. Data Preparation

We integrate and manipulate your business data with our own external data sources to create an integrated data set that is ready for analysis.

4. Modelling

During this phase we apply powerful statistical techniques in order to discover and explain relevant relationships between safety outcomes and operational metrics. Combining traditional safety data with

non traditional sources (e.g. Census data) can lead to predictions about where accidents are most likely to happen, under what circumstances, and to which segments of the workforce—all before they actually happen.

5. Evaluation

The model results are validated using statistical validation techniques. This phase typically involves a series of interactive workshops with the business to explore and contextualise the analytical findings. Furthermore, the application of advanced cost optimisation modelling can help facilitate an objective assessment of the relative benefits of different safety spending options.

6. Deployment

The output from all previous phases is of little value if nothing is done with it. This phase covers the change management and best practices to build buy-in for predictive analytics to help bridge the gap between building analytical models and real world outcomes, including the monitoring requirements to drive proactive engagement across the organisation.

Talk to us

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