



Effective Utility Risk Management

Using the Power of Business Analytics from Planning to Operations

WHITE PAPER

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Introduction

All businesses have to deal with risks, but utility companies face a greater range of risks than most. And many of these risks have serious health, safety and environmental implications.

At utility companies, risks are high for several reasons. Both the services and the infrastructure that large public or private-sector utility companies provide are subject to high levels of government control and regulation. Utility companies that supply electricity, water, gas and other services directly to homes and offices not only have to manage the usual risks of being in business – such as decreased customer demand, badly executed strategies, defaulting creditors or cash flow shortages – they also have to cope with significant operational risks.

If a natural gas pipeline explodes, drinking water is contaminated. If a power line falls down, not only is there a loss of service, but people can be injured or killed.

Legal and regulatory risks are major considerations, too. Most private utility companies perform functions that, until recently, were carried out by publicly owned bodies. Consequently, governments and regulatory authorities keep close control over their activities, determining what they can charge customers, how much they should invest in infrastructure, what profits they can make and what service standards they should maintain.

If a utility company suffers the wrath of a regulator and is censured and fined – whether for an operational failure, breaking the law or noncompliance with the rules – its public image will be dented. These situations create another risk that needs to be managed – reputational risk.

How should utility companies handle all of this risk? One way is by having a solid strategy for managing their data. Data collection has become the hallmark of modern business. But information is no good unless it is relevant, accurate and timely. Even then, it has limited value unless it is properly managed and analyzed.

That is what business analytics is all about – collecting, cleansing, organizing and analyzing business data so that managers can use it to make fact-based decisions. Doing so is especially important for risk managers, because both internal and external stakeholders expect managers to make more solid decisions that can be backed by analysis and clear justification.

This white paper outlines the major risks that utility companies face today, using real-life examples as illustrations. The paper also reveals how those risks can be managed using the power of business intelligence and analytics.

In addition to providing stronger risk management, an approach based on comprehensive business analytics also improves the chances of commercial and financial success. Although this paper deals only with private-sector utility companies that provide electricity, gas, heating, water and sewer, it can be stretched to apply to transportation, postal and telecommunications services.

“As we position our business to meet the emerging requirements of a new low-carbon world, we face a wide range of risks representing both opportunities and challenges... Understanding risk is vital if we are to deliver superior returns.”

Nick Luff

Group Finance Director, Centrica, in the company's 2010 Annual Report

“Our business is heavily regulated and, as a result, decisions by regulatory agencies and changes in laws and regulations can significantly affect our business.”

Item 1A: Risk Factors, Form 10-K, 2010 Annual Report, American States Water Company

Understanding the Risks Utility Companies Face

Visitors to New York City often wonder why steam rises from the streets. The answer is that it comes from the city's district heating system, which takes steam from generating stations and pumps it through pipes to supply heating, hot water and air conditioning to many of Manhattan's largest buildings. The vapor escaping from manholes is usually caused by underground water dripping onto hot pipes and vaporizing. But sometimes it is from leaks, which can scald. And occasionally pipes explode.

Leaks and explosions are serious operational risks that steam suppliers have to manage. Con Edison Steam, which supplies Manhattan's district heating, posts a safety message on its website warning people not to walk through steam and asking them to report leaks. There have been more than a dozen steam pipe explosions in the city in the past 25 years, according to the *New York Times*. In 2007, a pipe exploded beneath a street near Grand Central Station, killing one and injuring more than 30 people.

Operational risk losses can be spectacular events, but utility companies have to manage many other types of risk, too. For example, financial risks such as commodity price fluctuations may not make headlines – but they can be as costly or even more costly than an operational loss. Exelon Corporation, a Chicago-based electricity generating and utility company, suffered a financial risk loss of approximately \$113 million in its hedging program, which was designed to manage the risk of fuel price increases.

Meeting regulatory risk requirements also consumes corporate resources. For example, Britain's water and sewerage companies have been told by Ofwat (the Water Services Regulation Authority) how much they can charge customers between 2010 and 2015. The ruling means they will have to keep household bills broadly flat during the period, yet at the same time invest more than £22 billion (US\$34.3 billion) to maintain and improve services. South West Water's Chief Executive Chris Loughlin said that the ruling means his company cannot raise prices to the level it wanted and "leaves around a £50 million funding gap in our investment plans."

Although utility companies categorize risks differently, they generally fall into the following groups:

- **Business risk.** This category can be subdivided into external risks (such as economic downturns, rising commodity prices and structural changes in utilities markets) and internal risks (such as ill-conceived strategies, badly planned acquisitions and poor financial reporting).
- **Financial risk.** Examples of financial risks include credit, investment and interest rate risks.
- **Operational risk.** These risks include explosions, floods, equipment breakdowns, workplace fatalities and IT failures.
- **Legal and regulatory risk.** This includes complying with new and existing laws and regulations, and suffering fines and sanctions for failing to do so.
- **Reputational risk.** This risk comes into play when a company's public standing is damaged if it makes mistakes or engages in unpopular activities.

All of these risks need to be managed carefully – not in separate silos, but in an integrated way that spans the entire enterprise. Let's consider each category of risk that utilities face.

Business Risk

The biggest risk utilities face is business risk. Simply being in business poses untold dangers. For the purposes of this paper, business risks are those that do not fall into the specific categories defined earlier: financial, operational, reputational, legal or regulatory.

Business risks can be grouped into two types. External risks are those over which a company has little control, such as economic downturns, structural changes in the market and increased competition. Internal risks are those over which a company has some control or even a great deal of control, such as changes in strategy, acquisitions, internal controls and outsourcing.

Nick Luff, Group Finance Director of Centrica, the British gas and electricity supplier, in the company's 2010 Annual Report puts it like this: "As we position our business to meet the emerging requirements of a new low-carbon world, we face a wide range of risks representing both opportunities and challenges. We have to consider the state of the global economy, the impact of climate change, energy security, the regulatory environment, new technologies, increasing competitive markets, movements in commodity prices and the need for enormous infrastructure investment... Understanding risk is vital if we are to deliver superior returns."

Financial Risk

Financial risks come in many forms. Clients may not pay on time, or at all. The market value of company investments and physical assets may fall. Cash flows may become unbalanced, creating liquidity problems. Interest rates may move in an unfavorable direction. Foreign currency rates and commodity prices may change to push up purchase costs or to pull down sales revenues.

EDF, the French energy generating and supply company that has major businesses in other European countries, describes how it manages financial risks in its annual report. "In view of the Group's international development, a dedicated body was set up in 2002 – the Financial Risks Control Division (*Département Contrôle des Risques Financiers* - DCRF) – to control financial risks at the Group level by ensuring correct application of the principles of the Financial Management Framework.

"This body also has the task of carrying out a second-level check (methodology and organization) of EDF and operationally controlled group subsidiaries, and an operational verification of financing activities at the parent-company level."

"One in five credit risk organizations within the utilities industry spend more than half of their time on manual tasks, such as collecting or cleansing data, instead of higher value-added activities such as credit risk analysis or managing credit risk."

Accenture 2011 Global Risk Management Study: Utilities Industry Report¹

¹ accenture.com/us-en/Pages/insight-risk-management-study-utilities-report.aspx

EDF has strategies for managing several types of financial risk. For example, to limit its exposure to foreign exchange risk, EDF has adopted three key measures:

- **Local currency financing.** Where possible, EDF's foreign subsidiaries finance their activities in their own accounting currency. When financing has to be in other currencies, derivatives may be used to hedge foreign exchange risks.
- **Association of assets and liabilities.** The net assets of EDF's subsidiaries outside the Eurozone are exposed to foreign exchange risk. This risk in the consolidated balance sheet is managed either by matching with liabilities for acquisitions in the same currency, or by market hedging using financial derivatives. If hedging instruments are not available, or are too expensive, the risk on open foreign exchange positions is monitored by sensitivity calculations.
- **Hedging of operating cash flows in foreign currencies.** In general, the operating cash flows of EDF and its subsidiaries are in the relevant local currencies, except flows for fuel purchases (which are primarily in US dollars), and flows for purchases of certain equipment. Where operating cash flows are in foreign currencies, EDF and its subsidiaries will hedge them.

Operational Risk

Operational failures are usually sudden and dramatic. If they are also large and costly, they create a great deal of media and customer attention, most likely inviting scrutiny from investment analysts, regulators, lawyers and legislators. Whether they're caused by external factors (such as extreme weather, customer fraud or terrorist attack) or by internal factors (such as an IT systems failure or a poor health and safety regime) all operational risks have to be identified, assessed, categorized and managed.

American Water identifies a number of operational risks in its annual report, including the possibility that one of its approximately 100 dams could burst. "A failure of any of those dams could result in injuries and downstream property damage for which we may be liable," it says. "The failure of a dam would also adversely affect our ability to supply water in sufficient quantities to our customers and could adversely affect our financial condition and results of operations."

Water contamination is another ever-present danger. "Our water supplies are subject to contamination, including contamination from naturally-occurring compounds, chemicals in groundwater systems, pollution resulting from manmade sources, such as perchlorate and methyl tertiary butyl ether (MTBE), and possible terrorist attacks," says American Water.

Utility companies buy insurance to cover their operational risks, though there are limits on the coverage. EDF has an extensive insurance program, including property insurance to cover damage to plants, power lines and other equipment; general civil liability insurance to cover damage or injury to third parties; and nuclear civil liability insurance. Its total insurance premiums for the above amounted to €91.2 million (US\$113 million) in 2010.

Legal and Regulatory Risk

Complying with new and existing laws and regulations, such as the Dodd-Frank Act (US) and MiFID (EU) and being penalized for breaking them – presents a formidable risk management challenge. China Light and Power (CLP), which operates in Hong Kong, the Chinese mainland, Australia and many other countries, announced in November 2011 that its financial results would be “adversely affected” by additional costs incurred by its Australian subsidiary, TRUenergy. This announcement followed passage of the Australian government’s clean energy legislative package by the Senate. TRUenergy’s brown coal-fired generating business will be affected by the climate change law which, among other things, sets targets for reducing carbon dioxide emissions and increasing carbon prices.

Another legal and regulatory risk for utility companies involves being taken into public ownership. In September 2008, under threat of condemnation, California American Water – a wholly owned subsidiary of American Water – sold its Felton, California, water system (which served about 1,330 customers) for \$13.4 million to the San Lorenzo Valley Water District.

Pension rules can cause problems as well. Action by pension regulators or the trustees – or changes to pension legislation – can require a company to increase its contributions to the employee pension fund.

Lawsuits brought by customers, trade unions or others are another threat. For example, in 2010, EDF was a party to a number of lawsuits from workers. EDF anticipated that none of the lawsuits, individually, would be likely to have a significant impact on its profits and financial position. “However, as these litigations related to situations likely to involve a large number of EDF’s employees in France, they could represent a systemic risk which could have a significant negative impact on the Group’s financial results,” the company concluded.

Reputational Risk

Corporate reputations are built up over long periods of time. But they can be badly damaged, or even destroyed, in just weeks, days or an instant. “A company’s reputation is an embodiment of all its values and corresponding actions [so it has to be] a reliable provider of a safe and quality product, a good employer, a leader in the community, and open and honest participant in society,” according to China Light and Power in its annual report.

“We are long-term investors in many locations throughout the Asia-Pacific region, often in remote and underdeveloped areas,” it continues. “If we do not respect the cultures and values of local communities where we have a presence, we may lose their trust and, with it, our ability to operate effectively within that community.”

Instances of utility companies losing public confidence include:

- Tokyo Electric Power Company (TEPCO), when its Fukushima Daiichi nuclear power plant was badly damaged, causing it to leak radioactive materials after the March 2011 earthquake and tsunami.
- Kenya Pipeline Company, when one of its gasoline pipelines exploded in Nairobi and killed scores of people in September 2011.
- Exelon Corporation, when its Oyster Creek, New Jersey, nuclear power plant leaked water contaminated with radioactive tritium into a drinking water aquifer in 2009. Although the Chicago-based company's nuclear power generating arm was responsible, the event also affected the reputation of Exelon's utility divisions that supply electricity to customers in Illinois and Pennsylvania and natural gas to customers in Philadelphia.
- Fortum Värme, when it was investigated by the Swedish Competition Authority (SCA) between 2007 and 2010 for possibly abusing its market position and price setting its supplies of district heating in Stockholm. The investigation into the Swedish arm of the Finnish energy generating and distribution company was dropped in late 2010, when the SCA concluded that the real price of district heating had actually decreased in Stockholm by 1.5 percent from 2005 to 2010. Still, the company received negative publicity because of the inquiry. The company was particularly aggrieved because customer prices reflected the impact of environmental reforms and taxes the government had imposed on the industry. "During the investigation, it has become even clearer how important customer confidence is for district heat providers," the company said.

An Exemplary Risk Management System

The German company E.ON is one of the world's largest publicly listed energy service providers, serving more than 26 million customers in more than 30 countries. E.ON sets a high standard to follow. Its risk management system consists of a number of components that are embedded into its entire organizational structure and processes. As a result, E.ON's risk management system is an integral part of business and decision-making processes. See Figure 1 to learn more about E.ON's risk management system.

If It Can Go Wrong, It Probably Will, Unless...

We have described the nature and scale of the broad range of risks utility companies face. And we have illustrated how businesses are affected when risks are inadequately managed, as well as when risk management is perceived to have been of a high standard.

In the next section, we will explain how to develop a more effective approach for dealing with these risks. We will also show the central role business analytics plays in reducing these risks.

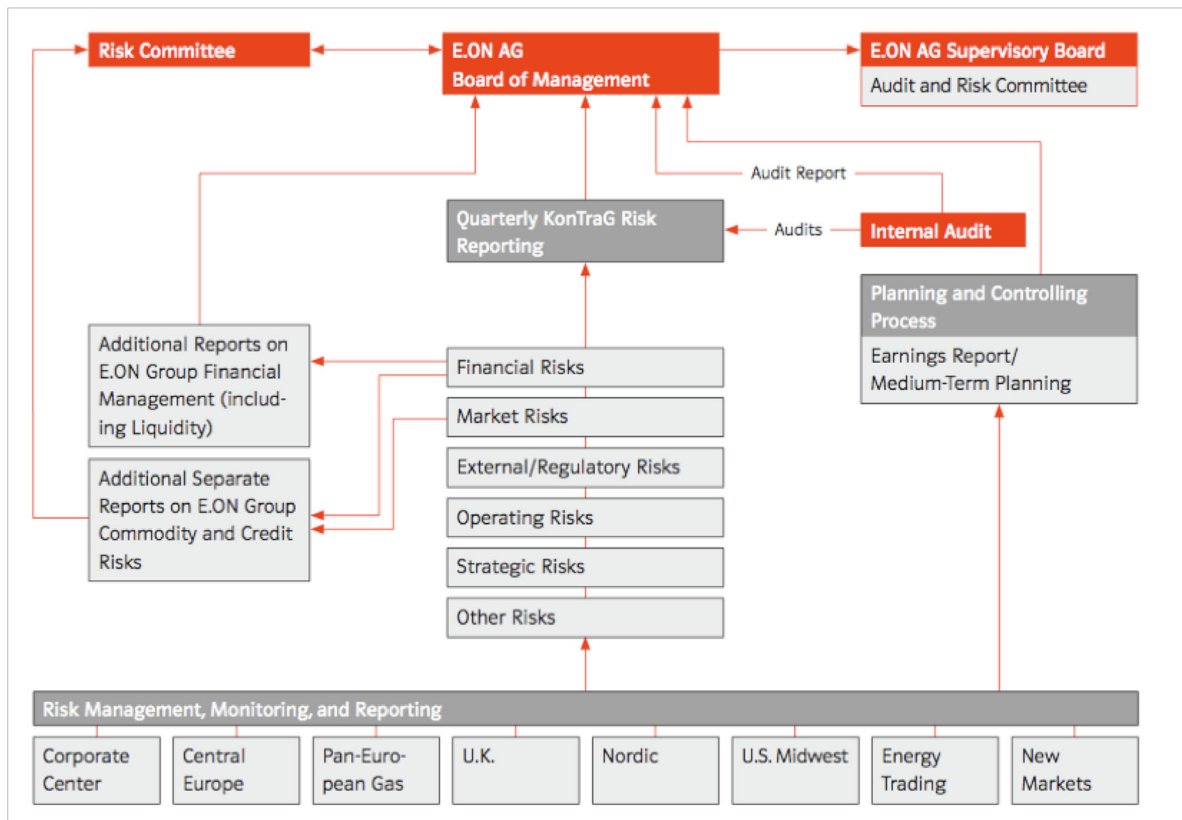


Figure 1: E.ON's risk management system. (Source: E.ON Financial Report 2009.)

How Business Analytics Can Help Utility Companies Manage Risk

Recognizing the various risks that utility providers face, the question now is how, in practice, should those risks be measured and managed? Any answer to that question should include using the full power of business analytics.

What Is Business Analytics?

Business analytics involves collecting and analyzing business data as a way to help the business make better-informed decisions. The approach uses a range of data management, analytics and business intelligence software and technology, but it also embraces processes and people to make it an integrated part of the corporate culture. A business analytics framework contains solutions, software and services that help companies navigate challenges and capitalize on opportunities.

Business analytics starts with the automated collection of reliable, relevant and timely data on all aspects of the organization. The data is then cleansed and analyzed. This step is the most significant one in creating a business analytics framework – an asset that significantly strengthens the business. When the results are combined with reporting capabilities and business solutions, management can begin using the resulting business analytics framework to make informed decisions.

Business analytics helps utility companies achieve five main goals:

- **Goal 1:** Provide standard and ad hoc management reports and dashboards based on automatic feedback from multiple sources. Insight into key performance indicators helps you make faster, better decisions that comply with laws and regulations. Dashboards report against thresholds on different risk types, strategic and operational risks, and service standards.
- **Goal 2:** Create profiles to measure behavior or performance of a group of people or organizations, risks or transaction types. Examples include measuring customers by risk profile; measuring claims by size or frequency; and categorizing customers by product preference.
- **Goal 3:** Forecast future events based on statistical evaluation of current and historical aggregate data. Using historical trends in this way reveals potential future risk outcomes based on certain conditions.
- **Goal 4:** Use predictive models to anticipate future behavior or performance by analyzing transactional data, third-party data or derived data (often calculated from one or more data elements). The result is usually a score or a recommended action that's offered during a transaction.
- **Goal 5:** Optimize business decisions by using multiple scenarios or predictive analytical models. Outcomes can include optimized risk strategies based on your organization's risk appetite as defined by the regulatory and business environment.

With insight from business analytics, you can see much more than simply what happened in the past. You can also see why it happened, what may happen in the future and how to take into account unknown events to achieve the best possible outcome. Business leaders can combine this insight with their personal knowledge and experiences to make fact-based decisions that will optimize and transform the business. Ultimately, business analytics can help utility companies improve their risk culture, profitability and overall business performance.

Managing Business Risk

As we saw earlier, business risk takes many forms. There are external risks, such as cyclical peaks and troughs in demand, structural changes in the market, and rising commodity prices. And there are internal risks, such as managing physical assets, managing suppliers and having inadequate financial controls. Business analytics can help in all cases.

Business analytics helps organizations accomplish five major goals:

- Provide standard and ad hoc management reports and dashboards.
- Profile and segment groups of people, risks or transactions.
- Forecast what will happen in the future.
- Engage in predictive modeling.
- Optimize business decisions.

Demand and supply

Consider demand and supply. Utility companies need to forecast customer demand and then plan how to provide the right supply. Demand is affected by the economic cycle, weather, population changes, holidays and much more. The ability to supply that demand is also governed by a multitude of factors. Business analytics forecasting software can accurately predict demand and supply. It can look at seasonality, demographic shifts and other details to predict future demand, supply and revenues.

Business analytics software can also look at past procurement trends to predict how easily the company will be able to source supplies in the future – and at what cost. It can determine the accuracy of past predictions and use the results to improve future forecasts. Accurate forecasts help deliver significant bottom-line results.

Fluctuations in market prices

Because energy utility companies have to buy oil, gas, coal, nuclear fuel and electricity, they are at the mercy of fluctuating market prices. They have to be able to identify a variety of data from disparate IT systems, market feeds, exchanges, accounting and scheduling systems. They must then attempt to manage this data with a variety of systems assembled from separate vendors over many years. Not only does this approach limit their ability to successfully and accurately integrate data, it makes it harder to perform advanced analytics and turn this valuable data asset into usable information.

Business analytics software is the solution. It can be used to manage energy trading risk in the front, middle and back offices. It accurately measures and monitors all market risk factors through a full range of advanced modeling techniques. And it can be used in an open framework that makes the most of proprietary risk methodologies.

Forward-thinking companies have embraced a risk aggregation approach to this issue. Consolidating all data streams into a centralized data store, regardless of the data source, enables seamless interaction with any input. It also allows a range of predictive models, reports and dashboards to be generated instantly. The result is an increased level of analytics and insight that helps companies react appropriately to major market shifts.

By using business analytics to manage trading risk, utility companies can:

- Determine enterprisewide net exposure across multiple units, books and markets.
- Implement successful data integration strategies.
- Create methodologies for market and credit risk aggregation.
- Construct a unified system for credit issues and for understanding net credit exposure.
- Improve hedging and asset optimization – by aggregating net exposure of physical and financial assets, including offsetting positions.
- Prevent inappropriate aggregation and oversimplified netting.
- Correct methodologies and standards for aggregating risk.
- Provide value-at-risk (VaR) metrics.

Electric Co-op Forecasts Demand and Transmission Needs with SAS®

• Challenge:

NOVEC has to be able to forecast demand for power and determine the need to build or upgrade electric infrastructure.

• Solution:

SAS® Analytics Pro, SAS/ETS® and SAS® Enterprise Guide®

• Benefits:

The model built in SAS provided a 21.7 percent improvement versus the competing model.

* See Appendix for full case study.

Physical assets

Utility companies have large, expensive physical assets that must be managed to ensure they are being used effectively. Business analytics software can help companies understand and manage these assets for the best results. For example, it can help utilities assess expected return on investment on proposed infrastructure projects and compare projects under consideration.

Suppliers

Like most businesses, utility companies are heavily reliant on suppliers and outsourced service providers. If these third parties fail to supply what they are contractually obliged to supply, the company's performance will suffer. In addition, customers are likely to become disgruntled, threatening profitability and shareholder value.

A supplier relationship management tool based on business analytics will mitigate the risk of underperforming suppliers. It will provide a better understanding of purchases, suppliers and performance, and it will help companies make better strategic sourcing decisions. It will reduce enterprise spending, consolidate and prioritize suppliers, reduce supplier risk, and align procurement strategies with corporate goals.

Managing Financial and Credit Risk

Utility companies face credit risk on two main fronts: customers not paying their utility bills on time, or at all; and counterparties defaulting on contractual obligations. Consequently, tight credit policies and controls are essential. Business analytics software can enhance such efforts.

The global recession of 2009, the slow upturn in 2010 and continuing economic challenges in 2012 starkly illustrate the need to take a holistic view of credit risk management. Too many companies rely on poor-quality and badly organized credit data from diverse sources and IT systems. These constraints limit their ability to interpret data accurately and turn it into usable information.

By using business analytics, companies can gather all data streams into one data store, regardless of source. The data can then be used to generate models, reports and dashboards. The outcome will be a powerful framework for managing credit exposures and mitigating the effects of any counterparty default.

How to Improve Utilities Collections Through Predictive Analytics

Every year, utility companies write off millions in bad debt because customers do not pay their gas, electricity, water or other utilities bills. Companies face increasing pressure from shareholders to minimize those losses. Yet at the same time, regulators want utility companies to provide basic necessities to poorer consumers who are a high credit risk. Regulators are also making it harder for utility companies to take deposits from consumers and to disconnect them from supplies in the event of nonpayment.

In such an environment, utility companies are placing more emphasis on predicting at an early stage when customers are likely to have trouble paying so they can develop plans to help them pay. The way to do this is with predictive analytics, which can help identify problems early and improve bill collections.

Predictive analytics can help utility companies optimize their consumer collections by:

- Identifying which customers are less likely to pay on time.
- Developing plans to reduce the likelihood of nonpayment.
- Focusing on residential customers, but applying the same logic and business rules to commercial customers.
- Developing systems to identify theft of service (i.e., fraud), which can then be investigated.

Managing Operational Risk

If a company's physical and human assets are not managed properly, they can fail or severely underperform. The result is likely to be financial loss with a negative effect on the bottom line. Using business analytics software, companies can manage assets effectively across all areas, using preventive maintenance to ensure continuous operations.

Vast amounts of unstructured data from across the enterprise can be collected (mined) and then analyzed to create highly accurate predictive and descriptive models. The software should have an easy-to-use set of integrated capabilities – centered on a graphical user interface (GUI) – for sharing insights that can be used to make better decisions.

Data collection is especially useful for making health, safety and environmental (HS&E) improvements. An important part of any HS&E policy and procedures framework is incident reporting and analysis, because the results are used to reduce future events. But many companies' incident management and hazard observation systems (IM/HO) are cumbersome and not available on-site, so some incidents are not properly reported or are undocumented. In these cases, companies should use a data collection and analytics solution to gather and interpret information about incidents and hazards.

The solution should strike a fine balance between effective collection and ease of use. Users should be required to fill in a minimum number of mandatory data fields to provide the structured information that HS&E personnel need, but not so many fields that it would make the process unnecessarily complex and time-consuming. Once logged, the incidents and hazards should be categorized and analyzed to produce recommendations and reports.

Logged entries that do not meet minimum criteria would have to be revisited and improved. For example, if the incident record merely stated, “Harry tripped and fell,” it would be unacceptable. The person providing the incident data would be asked to give more details: What did Harry trip over? Why did he trip over it? How much did the incident cost? What level of insurance do we need to cover such incidents? And, ideally, what could be done to prevent a recurrence?

Managing Legal and Regulatory Risk

Utility companies are regulated businesses in terms of what prices they can charge customers, the amount they should invest in their infrastructure, the profits they can make, and the service standards they should maintain. As a result, they have to comply with a wide range of laws and rules, cope with new ones as they emerge, and be prepared to suffer the consequences when they fail – intentionally or unintentionally – to comply.

A robust governance, risk and compliance (GRC) framework is essential – and it will be even more effective if it is supported by business analytics. An analytics-enabled GRC framework will help detect and prevent noncompliant activity, reduce the number of legal and regulatory actions and penalties, enhance the quality of decision making across the company, and provide assurance to stakeholders.

Managing Reputational Risk

Reputations built up over years can be destroyed in a day. If a utility company's risk management fails, resulting in a loss event that is exposed to the public, its reputation will be damaged. The damage might be slight and easily remedied. But if it were severe, or possibly irreparable, it could force the company to go out of business. There are plenty of examples of companies' reputations being harmed merely by negative statements or bad behavior of their chief executives.

A well-run business that manages its risks in an integrated way using the power of business analytics is well-positioned to enhance its reputation. An analytics approach, using the best software and processes, will transform masses of data about assets, operations, customers, suppliers, finances and risks into strategic business intelligence. And that intelligence will give the company a clear competitive advantage and protect its reputation. Specific solutions exist to address specific requirements, such as forecasting customer demand, predicting supply requirements, managing energy trading risk, data mining, managing supplier relationships, and understanding the true cost of processes and projects.

Vattenfall Powers Risk Management with SAS® Enterprise GRC

- **Challenge:**

Vattenfall needed to standardize risk-management processes and systems for a holistic understanding of enterprise risks and opportunities

- **Solution:**

SAS Enterprise GRC

- **Benefits:**

Regular standardized workflow and reporting, centralized view of entire risk database, large data-volume processing, event identification and quantitative assessment, incident reporting, scalability.

* See Appendix for full case study.

How Utility Companies Can Strengthen Risk Management

We have summarized the main risks facing utility companies today and how they need to be managed in an integrated way, across the enterprise, rather than in separate, poorly connected silos. We have also shown how companies can incorporate business analytics into their risk management infrastructures. It can help managers capture relevant, accurate and timely data on all the risks they face which will, ultimately, improve business performance.

When data integration and analytics are combined with reporting capabilities and business solutions, a business analytics framework is created. Such a framework will collect, cleanse, integrate and analyze data to create management information, and then distribute the results into relevant business solutions. Management can then use those solutions to make informed decisions about the best ways of dealing with the multiplicity of risks they face. The advantages of using such a framework are many, but the key benefit is that it will enable companies to strengthen their approach to risk management by feeding the business with invaluable analysis of opportunities and threats to profitability – or even survival.

Conclusion: A Framework for Managing Risk

To be successful, utility companies should make business analytics-enabled risk management a fundamental component of their governance, risk and compliance policies. It should be a part of corporate culture in the same way that operational excellence, customer centricity and shareholder value are embedded in all successful organizations.

Risk management approaches should incorporate the latest high-performance analytics applications and platforms. They should also be integrated across the enterprise, operated by qualified staff and governed by robust business processes. Only then can you effectively use your risk management approach to gather relevant data and create analyses that your business, financial, operations, legal and compliance managers need to make fact-based decisions.

At a recent conference, the Director of Planning, Performance and Analysis from Northeast Utilities (US) shared these steps for strengthening business analytics within traditional business processes and methods:

- Perform an honest assessment of the current state of analytics in your organization.
- Document the gaps (based on the assessment), and show senior leaders why now is the time to focus on this initiative.
- Recognize your strategic partners and engage with them.
- Demonstrate quick wins where you can maximize business potential.
- Seize the opportunity when it arises – momentum becomes a force multiplier.
- Continue to educate.
- Create an environment of sustainability.
- Make a road map for the future.

An organization that has effective risk measurement and management aligned with all aspects of its business will be better able to reduce the likelihood of things going wrong. These companies will also be in a better position to manage situations as incidents occur – therefore protecting and enhancing shareholder value.

Achieving success in a risk-laden world is never easy. Risks need to be understood, managed and mitigated – because they cannot be eradicated. Even the best risk management policies and frameworks cannot protect against all eventualities. But risk management approaches that are based on business analytics will definitely be stronger than the rest.

Learn more

To learn more about this topic, visit:
sas.com/utilities

Appendix

Electric Co-op Forecasts Demand and Transmission Needs with SAS®

The Northern Virginia Electric Cooperative (NOVEC)² provides power to 144,000 customers. To keep electric costs down and to reliably serve customers, NOVEC needs to know how much power to buy, transmit and deliver for its consumers. SAS Analytics³ provides NOVEC with a broad array of econometric and time series forecasting techniques, along with point-and-click interfaces that can grow with the utility.

Challenges for NOVEC

- Doesn't produce its own power. The co-op needs to forecast power consumption accurately to make power purchasing decisions that will result in stable, competitively priced power for its consumers.
- Must prudently provision for new or upgraded facilities such as substations and lines as its consumer base and consumer loads grow.
- Must optimally operate and maintain its electric infrastructure in order to provide superior service reliability at a competitive cost to its consumers.

Why SAS®?

- **Stability:** "SAS has the functionality to do what we need now and what we anticipate needing in the future. It's the safe choice," says Jamie Hall, Senior Operations Research Analyst.
- **Ease of use:** NOVEC analysts can point and click to build a model, making the product accessible to anyone, explains Ananya Kassahun, NOVEC Business Analyst. She had not used SAS before joining NOVEC.

² sas.com/success/novec.html

³ sas.com/technologies/analytics

SAS® benefits

- SAS automatically keeps track of the flow of the forecasting process and upwards of 50 time series used to build models.
- Pulling in third-party and historical data from multiple sources is simple. The models use daily third-party weather forecasts and monthly economic information.
- The model built in SAS provided a 21.7 percent improvement versus the competing model.

Future SAS® use

- Determining the impact of load management programs.

Vattenfall Powers Risk Management with SAS® Enterprise GRC⁴

Energy and utility companies around the world are increasingly realizing the strategic edge that can be gained from exploiting risk as an opportunity. By implementing sound enterprisewide risk management processes, developing a risk-aware culture and adopting state-of-the-art risk management technology⁵ that entails advanced analytics, predictive modeling and what-if scenarios, today's energy companies gain a global perspective while improving overall performance.

Vattenfall is Europe's fifth largest generator of electricity, and the largest generator of heat, with operations in Denmark, Finland, Germany, United Kingdom, Poland, Netherlands and Sweden. Active at all stages of the electricity value chain – generation, transmission, distribution and sales – the Swedish company also conducts energy trading and lignite mining.

As a complex corporation, facing myriad risk exposures across its multifaceted business, Vattenfall has integrated and standardized its risk management processes and systems to holistically understand enterprise risks and opportunities. To do this, it has implemented SAS® Enterprise GRC⁶.

Complex business, scalable solution

"It's not only about operational risks," says Dan Mansfeld, Risk Manager. "When I say 'enterprise risk management,' I mean the entire perspective. Besides operational risks, we include political risks, legal risks and market risks – we want to gather them all under one roof. We had several functions and areas within the corporation that would benefit from the solution, and we needed a platform that could scale to other areas of the company as well – for example, incident crisis management and environmental risks."

Mansfeld says the company began its SAS implementation by focusing on financial risk aspects and is slowly expanding to other areas of the company. Vattenfall manages about 1,000 risk measures in the system and has around 200 users.

⁴ sas.com/success/vattenfall.html

⁵ sas.com/solutions/riskmgmt

⁶ sas.com/software/governance-risk-compliance/enterprise-grc

“We wanted to establish a risk-aware culture,” explains Mansfeld. “I believe we are on the right path; and what we have in place now gives us continuous reporting each quarter, because the workflow process is part of the solution. We didn’t have anything like that previously. We didn’t have a system for passing on the tasks or assignments to the different roles or users in the system. That is definitely a strength of the SAS solution. We have a better picture of the entire risk database all in one place.”

Decision support for managers

“What’s important about reporting is that you should be able to present it in different ways, for different recipients and it has to be comprehensive,” he continues. “SAS is very strong in reporting, and we saw a huge potential for providing management with reports that they can drill into to get more detailed information, at various levels, to understand how the company or their unit is doing.”

According to Mansfeld, the new system allows users to update risks measures continually and reports are delivered to executives each quarter. He says the risk-aware culture that is developing includes experts who assess the extent of risks and risk coordinators who collate and disseminate information. The risk management group also facilitates regular workshops in which people from each area of the company discuss possible risk threats to the business.

A long-term relationship

Vattenfall sees many benefits with SAS. Key capabilities Vattenfall gains with SAS include: large data-volume processing, risk-event identification, quantitative assessment and incident reporting. In the future, Mansfeld sees the energy company taking advantage of SAS’ predictive capabilities, for example, to assess production scenarios and hedge energy portfolios.

“We have an excellent relationship with SAS,” says Mansfeld. “They’re very professional in their approach and take customers seriously. We have every condition in place to grow with this tool into the future. This is not something that will taper off, but will develop significantly. They’re really listening, and they take care to give the customer the solution that they want.”

About SAS

SAS is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. Through innovative solutions, SAS helps customers at more than 60,000 sites improve performance and deliver value by making better decisions faster. Since 1976 SAS has been giving customers around the world THE POWER TO KNOW®. For more information on SAS® Business Analytics software and services, visit sas.com.



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