EXECUTIVE BRIEF

Achieving Better Business Outcomes: the Convergence of Domain Knowledge with Analytics

Sponsored by: MooD International

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IDC OPINION

Deciding on and taking the right courses of action to achieve the best business outcomes is a critical capability in today's world. This is particularly the case for large, complex organizations, in which operations are under increasing pressure to drive out cost, deliver efficiencies, and improve effectiveness, against a backdrop of complex and fragmented IT landscapes, shared services and multiple suppliers, siloed information sources, and a lack of insight into how the different components of the business affect each other, directly or indirectly, and how these all add up to deliver the outcomes needed.

Achieving insight into those factors that drive outcomes — the cause and effect relationships between business events, both internal and external to the organization — is key to effective decision management. Organizations need to correctly identify and connect cause and effect, without confusing causality (what causes something) with correlation (factors that occur together, but which do not have a causal relationship with each other).

However, with data analytics such insight is elusive. Even organizations with good business analytics systems, including business intelligence (BI), predictive analytics systems, data warehouses, and the consultants and service providers to go with them, have challenges in identifying causality. Firstly, this is because data can only be used to evaluate the likelihood of events that follow an established pattern — it has no way to predict "black swan" events that have never occurred before; and secondly, data has to be relatively rich to indicate causality.

Domain knowledge is characterized as valid knowledge of what factors affect operations within a specific domain or area, which could be an industry, a function, or any other sphere of operations. Domain knowledge, usually held in employees' minds and gained through years of experience, represents a relatively quick, easy, and rich source of information about the causal relationships between business components. MooD International's software platform allows organizations to capture domain knowledge and connect business components into a model of their business, with information systems integrated into this model, delivering insight quickly and using data analytics as a secondary tool to help validate and improve this insight through time.

The rise of Big Data makes the current time a good one for MooD International, because Big Data stimulates the need for convergence between concepts from different information-related technologies and practices. MooD is a technology that has grasped this convergence and has proved its worth across a number of industry sectors.

SITUATION OVERVIEW

Decision Management

There is growing evidence that better decision making can improve organizational performance and competitiveness. (Evidence includes "*Improving Organizational Decision-Making Through Pervasive Business Intelligence: The Five Key Factors That Lead to Business Intelligence Diffusion"*, IDC multiclient study, November 2008, and *"Competing on Analytics"*, Thomas H. Davenport and Jeanne G. Harris, Harvard Business Review Press, 2006.)

The current economic volatility, along with pressures on business control, avoidance of major business risk through unexpected behaviors and market dynamics, and the impact of fragmented and complex business operations, has provoked a significant increase in interest around questions of how to ensure in advance that a decision is the right one, how to capture the often ad hoc decision-making processes, and how to objectify decisions with factual information from both inside and outside the organization.

However, fact-based decision making is not the whole story; judgment is also called for. (Evidence includes "*Judgment Calls*", Thomas H. Davenport and Brook Manville, Harvard Business Review Press, 2012.) Different types of decisions have different characteristics, and thus different levels of dependence on facts and judgment.

Figure 1 shows IDC's Decision Management Model.

FIGURE 1
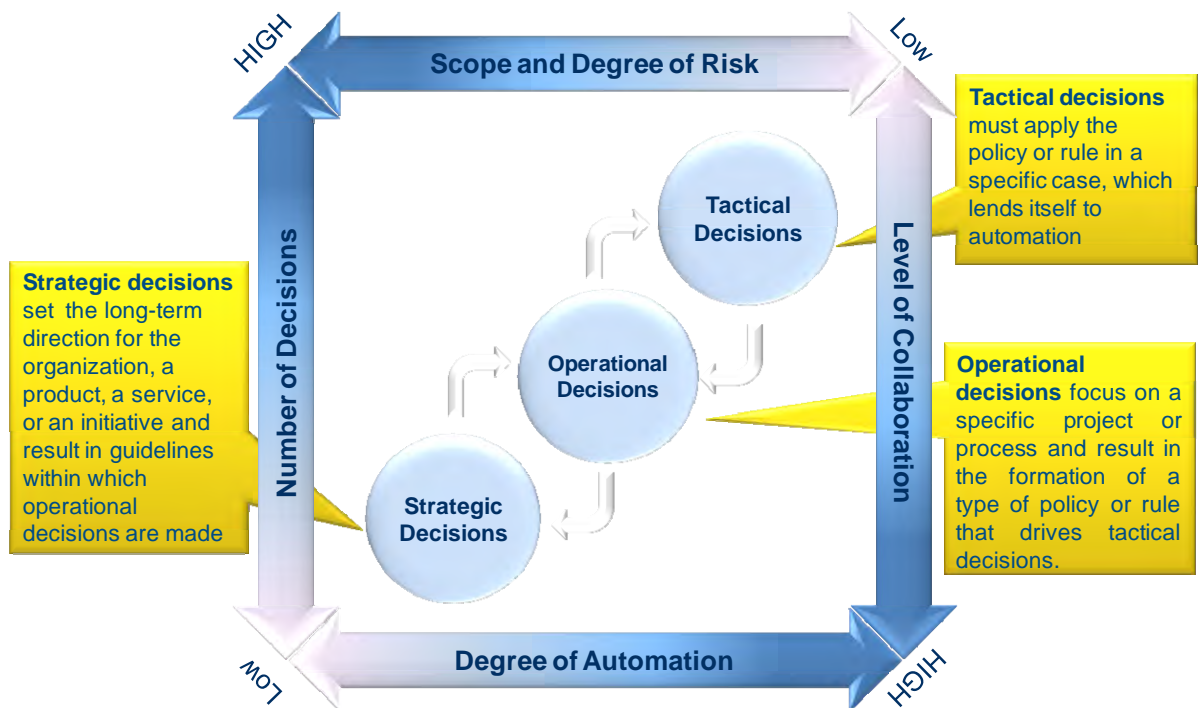
Source: IDC, #226244, December 2010

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The model segments the decision-making requirements of business according to three types:

☑ **Strategic decisions** set the long-term direction for the organization, its capabilities, products and services, resulting in a framework for addressing operational decisions.

☑ **Operational decisions** focus on the business situation in respect of program or process performance, resulting in defined change activity, rebalancing of priorities, or policy revision.

☑ **Tactical decisions** apply policy and rules to a specific case, resulting in specific action.

In addition to the necessary cascade from strategic to operational to tactical, it is just as important to evaluate how the learning from the outcome of tactical decisions can be used to influence, review and tune operational and strategic decisions.

Tactical decisions often involve complicated technical detail. However, if such decisions are policy-driven then they are automatable, for example as in mortgage application or stock trading decisions.

Operational and strategic decisions, on the other hand, are far harder to automate. Information has to be integrated and aggregated to match the range of business perspectives needed. Thus, what organizations — particularly complex organizations — need to support decisions of these types is technology that can connect the relevant factors across and through the stack, and with the power to generate the insights needed to give confidence around the current situation, the available options, and their likely implications.

One such a solution is **MooD Smarter Decisions (MooD)**, from MooD® International.

MooD International Company Profile

MooD International was formed in the early 1990s to create a technology to support future planning and business change through visual representation of the organization, its activities, and their connections. Its initial focus was on the financial services and military sectors. With the advent of the Web, MooD's approach evolved from project-based consultancy and products to delivery and deployment of interactive business decision solutions, combining the technology platform with domain modeling, configuration and delivery services.

MooD is now at release 15, and the customer base extends across the U.K., EMEA and the U.S., providing solutions — directly and through partners — to defense, central government, commercial sectors, and national security communities.

The MooD Technology Platform ("MooD")

MooD is the company's flagship offering. It incorporates an environment for graphical configuration of an enterprise business model (EBM) of causal relationships, with a wide range of visualization options, and for population of this model from organizational data sources through a federated (real-time) query tool. The EBM sits on a base layer or "landscape" of concepts and relationships — the major moving parts of the business, as MooD International describes it — that are critical to effective operations and decision making. When populated with data, the EBM drives

a highly-visual decision support user interface that is configurable and able to support and connect the strategic and operational demands of C-level executives, deployed as an integrated, interactive, Web-based business system.

MooD can generate further information to add power to the EBM, including through aggregation of different elements into powerful performance metrics (both lagging and leading indicators) and also through the application of business rules. The EBM can also represent causal and Bayesian relationships, and can be used to project outcomes forward for impact assessment and trade-off analysis of options. MooD is a platform that partners use as the basis for their own solutions in order to wrap and exploit their own domain knowledge and intellectual property within offerings to their customers.

Figure 2 shows a schematic architecture of the principal components of the MooD platform.

FIGURE 2

The MooD Platform
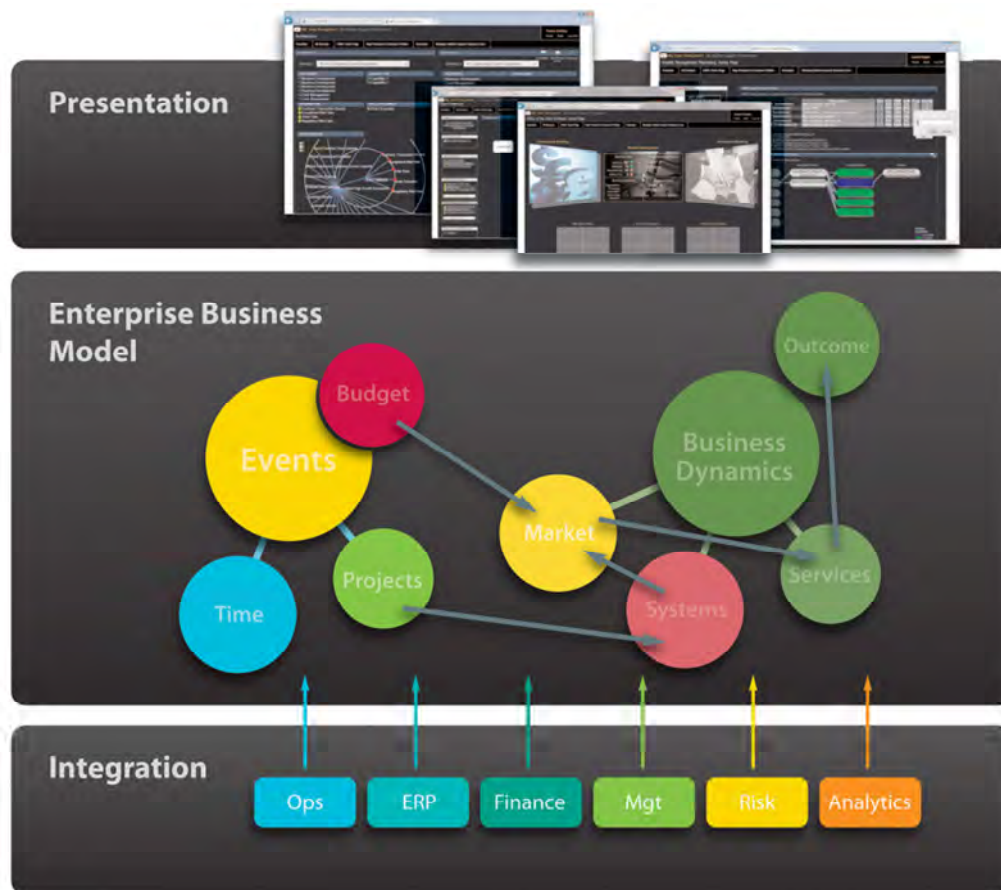
Source: MooD International, 2012

The MooD Development Process

Domain experts within organizations start working jointly with MooD to use the platform to define their EBM. This model describes the relevant elements of the business; examples of such elements are people, processes, capabilities, products, systems, suppliers, and services. The model enables the definition of causal

relationships between elements; for example, what people are required to support a system, or what systems and people are required to deliver a service level.

The initial EBM typically has some elements synchronized with data drawn from available data sources, while other elements will relate to concepts that, although critical to business operations, are not well represented within existing systems, such as "Business Service Portfolio", "Defence Capability" and "Contract". A model will typically start with only a small number of elements and associated data sources, with others being "plugged in" later, allowing a "start small, think big" approach to getting value out of the EBM quickly, with the ability to enhance it and allow it to evolve over time.

Figure 3 shows the levels typically constructed within a MooD EBM.

FIGURE 3

The MooD Enterprise Business Model (EBM)
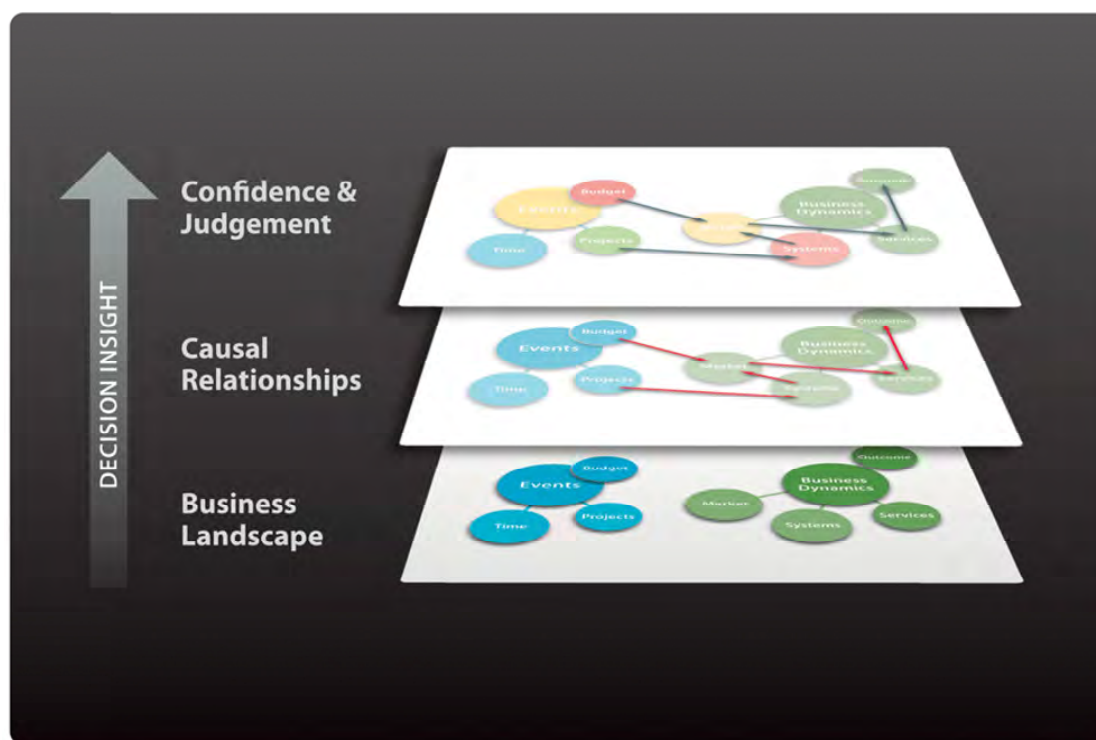
Source: MooD International, 2012

The Benefits of MooD's Approach to Supporting Decisions

MooD can help organizations derive insights from organizational data, and can broaden in scope as required to handle further areas of the business.

Often a considerable amount of the information required to inform critical decisions is already available, in a data warehouse or a BI system for example, but has not been connected with other elements of the business in any automated way – in effect, decision makers are expected to make these connections in their thought processes. The MooD platform allows such connections to be established within the EBM so

enabling automated support for delivery of the insights needed, giving greater confidence and resilience.

In designing the decision environment, MooD allows executives to use a top-down approach and start with the question: "What decisions are needed for the business to deliver its outcomes?" They can then ask "What are the key factors that have a bearing on those decisions?", and hence "What information do we need to get to grips with those factors?" thus driving the configuration of a solution to address the decision needs. This means gaps in information and knowledge can be identified and remedied rapidly and in a targeted way.

Causal relationships between business elements can be complex. Data sets can be used to identify and demonstrate such correlations; however, identifying causality from data can be difficult, and can involve statistical analysis over many attributes. And in many cases such data is either unavailable or untrusted. On the other hand, by leveraging domain knowledge to create a causal model that aligns with available data, significant insights can be achieved with less analytic complexity and greater business transparency.

MooD Customer Stories

Winning and Delivering on Complex Projects at Serco

In March 2012, U.K. government services company Serco Group plc (Serco) was contracted by the U.K. Ministry of Defence (MoD) to manage the leadership of Defence Business Services (DBS), which provides corporate services for the MoD including civilian human resources, finance, information reporting, and security vetting. Under the contract, Serco provides an executive leadership team that is working with MoD staff to transform the organization into a lean and effective shared services center, building on private sector best practice.

MooD was a key part of the winning bid for Serco, and has also been highly instrumental in achieving success at DBS on an ongoing basis. What MooD allows DBS to do, according to Mike Stone, CEO, DBS, is to distill services into their constituent parts, and then investigate the causal relationships between these parts. Stone said: "We see corporate services as consisting of four elements: people, processes, systems, and services. The whole organization can be distilled into these four elements, and the causal relationships between them. The MooD platform allows us to monitor each element, and also to test the effects of changes before we make them — for example, what will the effect be on our objectives and KPIs if we redeploy this team, improve training, or cut down staffing levels?"

An initial hurdle for the Serco team was to get buy-in from executives who didn't really believe that MooD could do what it said. Once the platform had been proven, executives became accustomed to modeling the business in MooD, and began to find new ways to use the platform to predict outcomes and evaluate causality.

Domain Expertise is Key to Success

The industry knowledge of the team is key to the success of the project. "The team understands that this is a business program, not a technology program," said Mike Stone, "and the team's domain understanding means that we have been able to progress rapidly, and to come up with solid suggestions about how to make improvements.

Ownership Lies With the CEO

Serco initially positioned the MooD decision environment under the COO's ownership, but subsequently the CEO took it under his own ownership, as the system is so fundamental in importance. Each DBS executive now has an objective around increasing the effective realization of the MooD decision environment.

Enabling Timely Decision-Making Based on Both Experience and Data

In Mike Stone's view: "Data, by definition, is about the past: information is the currency of the present, knowledge includes experience which is captured as data, and finally, there is insight. You reach insight by combining, or "clashing together," data, information and knowledge. This is what MooD has allowed us to do."

Enabling HP Enterprise Customers to Mitigate Enterprise Security Risks

Andrzej Kawalec, CTO of HP Enterprise Security Solutions, summarizes the situation currently faced by many organizations: "Social media, mobile technology, and the impact of cloud delivery models is changing how businesses operate and the ways we live as individuals. At the same time, these trends are being abused by organizations with intent to exploit this explosion of access and content."

HP, the technology and outsourcing giant, is a major player in the security world, with offerings including HP Fortify Software Security Center for fixing and preventing security vulnerabilities across desktop, mobile, and cloud applications, and HP ArcSight Security Intelligence, which allows visibility into activity that may relate to threats or risks.

Complementing and integrating these offerings with others is a decision environment that conveys the overall security position in business terms to the board, enabling the CEO, CIO, and chief risk officer (CRO) to position the security management landscape in terms of business impact. HP and MooD are collaborating to provide such a capability, branded as "HP Secure Boardroom," launched in September 2011, and now in use in more than a dozen major organizations, public and private. The solution can be implemented out of the box, and also extended to fit the exact needs of the organization.

Secure Boardroom — constructed as a decision management solution over a MooD EBM — offers several perspectives through which executives address the challenges posed:

☑ **Finance** — Tracking the security budget through an aggregated view, giving management oversight of organizational pipeline of spend (projects waiting for authorization) and associated 'in flight' projects.

☑ **Plan** — Detailing the portfolio of active projects and initiatives, including those at the authorization stage, ensuring these are subject to formal governance; tracked through stage gates, and with an adequate budget and detail of spend to date, to facilitate successful delivery.

☑ **Transform** — Providing visibility of those projects currently in progress, allowing the user to track the progress of multiple security projects against delivery milestones throughout the project life cycle.

☑ **Risk** — Profiling and documenting individual risks aggregated into a corporate view, assessed against impact and likelihood. Using RAG measures, risks are displayed via heat maps to focus management attention on business priorities.

☑ **Manage** — Tracking organizational compliance against standards such as ISO27001, with a red, amber, or green status demonstrating progress against each control.

☑ **Assure** — Centering upon operational aspects of information security governance, including information about third-party supplier performance in addition to detailing security incidents and services.

Secure Boardroom also has an interface with McAfee's ePolicy Orchestrator software, which manages security across endpoints, networks, and data, and integrates third-party solutions. This helps provide a complete view within Secure Boardroom.

Kawalec continued: "Right from the consumer interaction via phone or tablet to Cyber Situational Awareness through our leadership cloud and datacenters, HP can offer real insight into how to protect information assets and enable business growth. We can start to build what we call Enterprise Security intelligence. We are working towards a vision which allows our clients to take a snap-shot view of their security threats and performance, while being able to measure security risk against their business objectives."

Controlling, Optimizing, and Transforming the Contact Center with Datapoint Katalyst

When contact center optimization company Datapoint realized its customers had a need to understand how to manage their call center environment, it thought of MooD. In particular, Datapoint's customers wanted to understand the impact of making changes on their environments in terms of impact on KPIs and also on ROI. "If you do something with the left hand, what is the effect on the right hand?" explained Gordon Young, General Manager, Datapoint Katalyst.

Datapoint's contact center optimization and transformation platform, Katalyst, uses MooD functionality combined with the Katalyst application, which embeds Datapoint's domain understanding of the needs of organizations with strategic contact center operations.

Allowing Management From Timely Data in Underlying Systems

Many organizations have KPIs for their contact centers, but these are often run on spreadsheets, which use varying data definitions and are often built on data snapshots that go out of date. Thus, the contact center cannot be managed from these spreadsheets.

Katalyst allows contact center managers to manage their contact center performance against objectives according to a unified dataset, which references data from multiple underlying systems.

Predicting and Managing Interconnected Projects

In addition, MooD's visual presentation of the causal model allows a simulation of contact center operations through which managers are able to see the effects of potential changes, and can measure their impact, before implementing these changes. "Our customers embark on transformation projects, but have a huge

challenge to see how these transformation projects interact with other ongoing projects, and whether they delivered what they intended," said Gordon Young. "By allowing them to see this, Katalyst puts our customers in a very nice position."

Customers Can Start Small, While Thinking Big

Not all Datapoint's customers initially expect the degree of insight into their contact center operations that Katalyst offers. Organizations often approach Datapoint knowing that they have a problem with their contact center operation, but without a deep understanding of the issue(s) or how best to respond. "Some companies expect us to offer them a product or a solution, but how we can really help them is by providing them with insight and using Katalyst to define an operational model, and hence establishing how efficient they are currently, highlighting where to apply the key focus for change," explained Gordon Young. "Once they understand and use that capability, they can make an informed decision on how to move forward, and identify the real problem areas to address."

The good news is that organizations can start in a small way, gaining insight into the top one or two most pressing areas of concern, before exposing more projects and operational functions to Katalyst.

FUTURE OUTLOOK

The need for organizations to gain insight into what drives their outcomes is already becoming established, as these case studies demonstrate. It is likely that large, complex organizations across many industries will similarly need to seek approaches beyond the current focus on BI and predictive analytics to achieve that insight. MooD has significant potential to address this need.

In the near term, it is clear how each of the areas described above in which MooD is already being applied can be extended:

☒ Service providers, employing large global distributions of people, each with different cost and legal implications, different customer expectations and other challenges, are constantly growing in complexity and under increasing pressure to control costs and to package intellectual property into customer offerings that better align activity with target outcome.

☒ When deploying systems from a wide range of vendors, contact centers can become expensive while remaining relatively ineffective. A decision management solution can show the interdependencies between systems and help executives verify whether investments are justifying their return. Optimization will always be important, because the call center is usually the most expensive aspect of customer communication. Using MooD, this can be achieved in parallel to integration of data and processes for alternative methods of customer engagement, including social networking sites, online chat functions, and email.

☒ According to the leaders of a major security organization, a professional rule of thumb is that good information assurance practice can solve 80% of a government's cyber security vulnerabilities. (See *The UK Cyber Security Strategy: Protecting and Promoting the UK in a Digital World*, November 2011, available from the U.K. Cabinet Office Web site.) This refers to observing basic network security disciplines, like keeping patches up to date. In parallel to these activities, a key requirement is alignment of security threat with business

outcome — the cause-effect relationships. This is an area where MooD has been active with a number of major organizations, addressing C-level decision management processes around investment in security, in order to balance investment against projected risk and achieve the targeted level of business continuity.

MooD also has a significantly broader addressable market than those addressed above, with a number of key opportunities, for example:

☑ Getting a handle on rare and unexpected events such as a "black swan" (Nicholas Nassim Taleb in his 2007 book described a black swan as an unexpected event and said "Globalization creates interlocking fragility, while reducing volatility and giving the appearance of stability"). Part of what inhibits organizations from forecasting such events is that data-driven forecasting does not include data on black swans, so overly data-driven organizations exclude these from their predictions. MooD allows for black swan events to form part of the enterprise business model, and thus their possible or likely effects can be incorporated in forecasts.

☑ Enterprise risk management. Although many organizations, particularly those that are legislated to do so, such as financial services, spend a lot of time and technology forecasting enterprise risk, events such as the financial crisis of 2008, the planes grounded by the eruption of Icelandic volcano Eyjafjallajökull and ensuing travel chaos in 2010, and the Japanese tsunami of 2011 followed by the Fukushima nuclear disaster, we are increasingly impacted by dramatic events that require planning and impact assessment. Security GRC, which MooD's customers already do, is only one aspect of enterprise risk that also includes financial risk, operational risk, strategic risk, and hazard risk.

In general, industries and functions with the following characteristics will benefit from the use of a decision-management platform such as MooD:

☑ Complex IT landscapes from which extracting a single version of the truth is a continuing challenge.

☑ Rapidly changing environments where reflecting change in near-real-time is essential.

☑ Organizations and programmes where deep knowledge of complex relationships is held in people's heads, and the ability to capture, articulate and explain this knowledge will benefit wider teams.

CONCLUSION

Increasingly fragmented system landscapes and organizational complexity have led to fragmented, ad hoc decision management processes. (This is despite the fact that the principal purpose of BI and business analytics is to support decisions.) These contrast with operational processes which are sometimes too rigorously managed and inflexible. In a rapidly changing environment, organizations need to be able to articulate the causal relationships between the elements of their business in order to take informed decisions. The accelerating pace of technology change will increase the importance of this ability.

The causal relationships that make sense of data analytics can be complex, particularly when evaluating the relationships between multiple factors. Organizations need to understand these relationships, to challenge prevailing assumptions, and to use data as a source of evidence to validate richer viewpoints, rather than relying solely on patterns in the available data.

The rise of Big Data makes the current time a good one for MooD. The rise in awareness of and activities around Big Data will lead to convergence of concepts from different information-related technologies and practices. The world of data warehousing, which speaks disparagingly about "gut feel", and the world of statistics, which works in probabilities and causality, will be blended and complemented with methods and technologies that exploit the potential of modeling and inference over domain knowledge. As a consequence, organizations will come to better understand the need to adopt a balanced approach to achieve successful and synchronised decisions across the strategic, operational and tactical levels. MooD is a technology that has grasped this convergence and has proved its worth across a number of industry sectors.