



cutting through complexity

Driving performance while managing risk

Embedding data and analytics
in the business model

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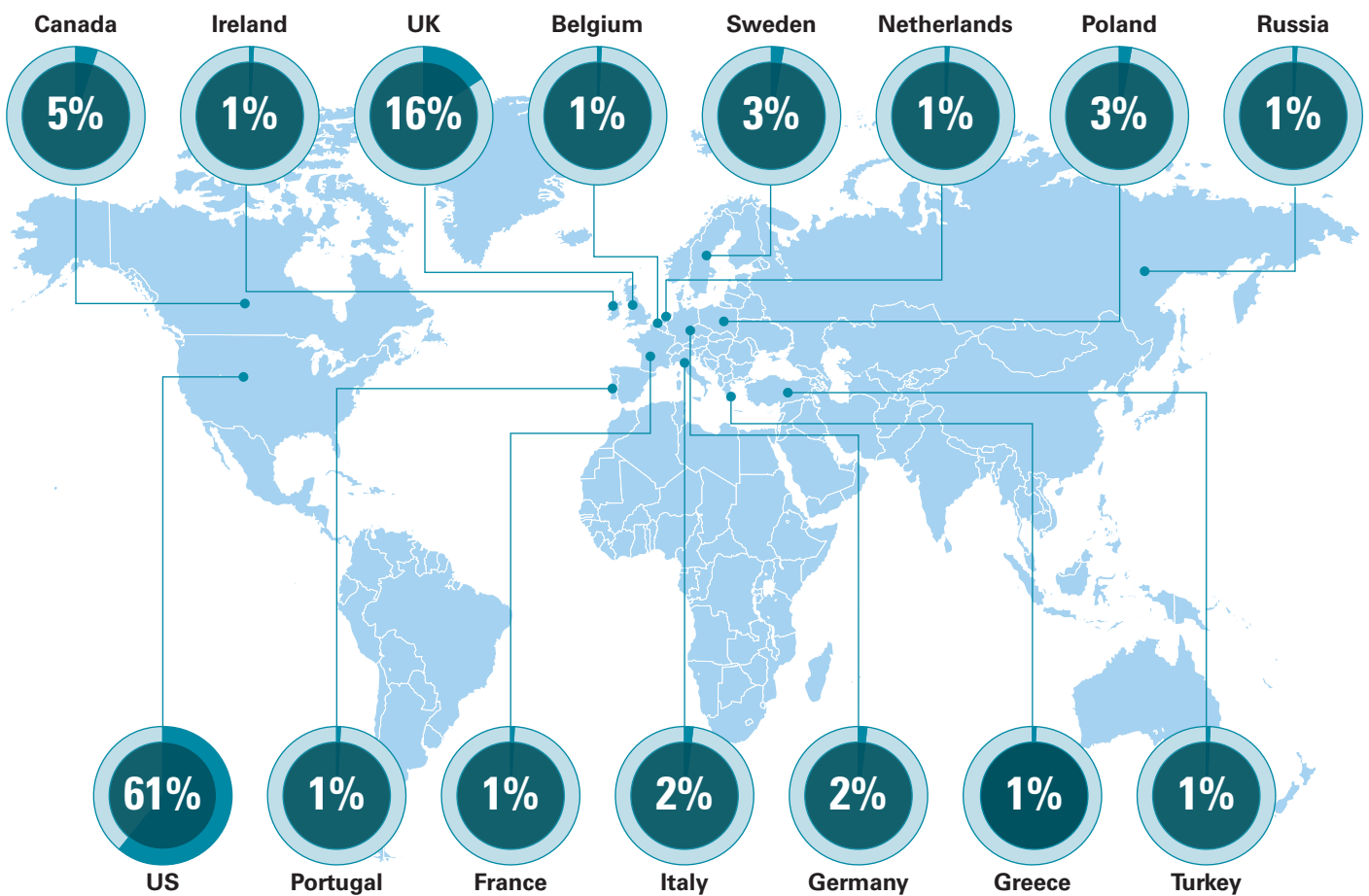
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Respondents' profile

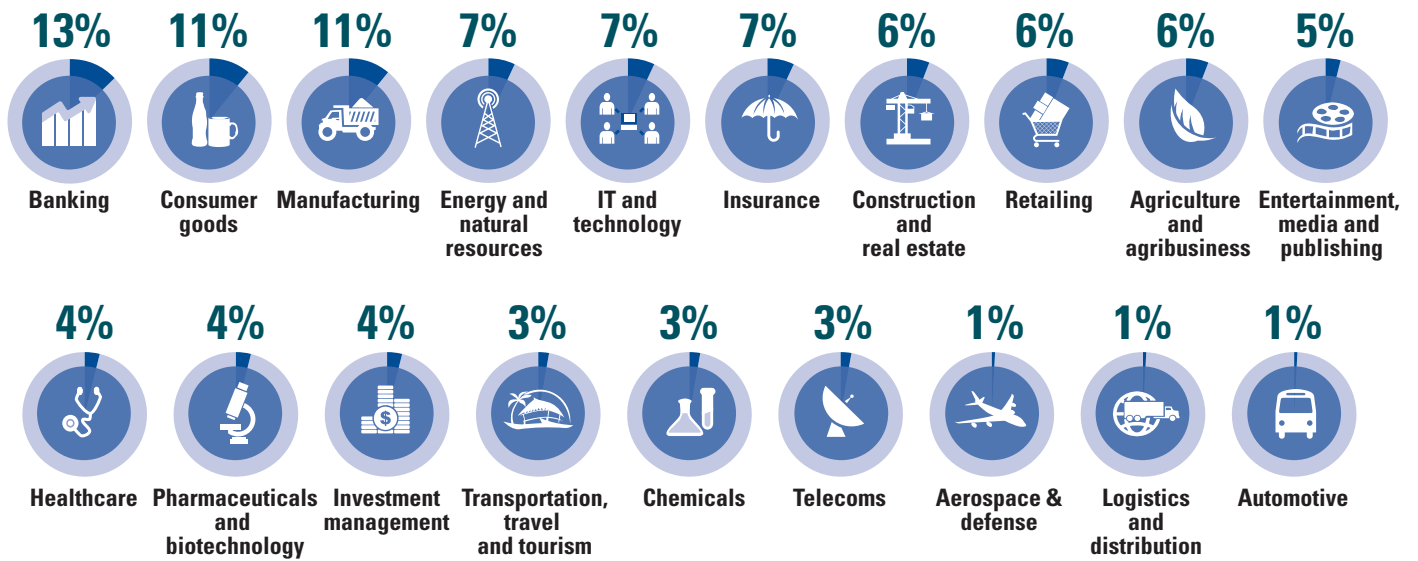
About the survey

KPMG International designed and analyzed the online survey which was conducted by the Economist Intelligence Unit. A total of 304 executives in February 2014 were asked closed-ended questions about the uses and benefits of data and analytics (D&A). Sixty-one percent were based in the US and 5 percent in Canada. The remaining 34 percent were in Europe. The respondents worked in a wide range of industries, including banking (13 percent), and consumer goods and manufacturing (11 percent each). Seven percent of the respondents were in each of IT, energy & natural resources, and insurance. Fourteen percent worked in companies with annual revenue greater than US\$10 billion and 40 percent in companies with revenue of between US\$1 billion to US\$9.99 billion. All the respondents were C-level executives; 17 percent were Chief Executive Officers; 19 percent were Chief Operating Officers; 25 percent were Chief Financial Officers; 20 percent were Chief Information Officers and the same proportion Chief Compliance Officers.

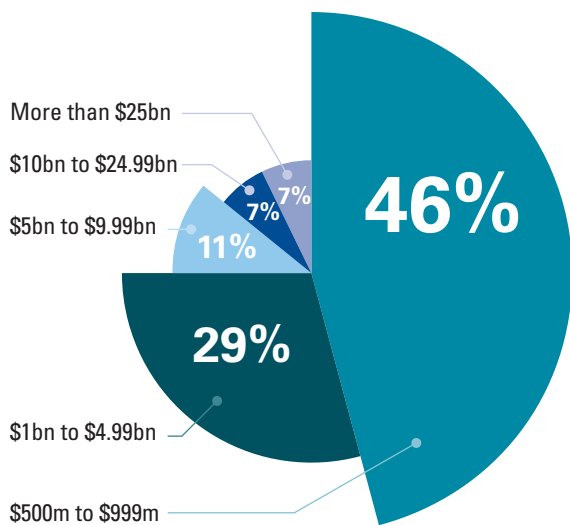


Source: Driving performance while managing risk, KPMG International, 2014

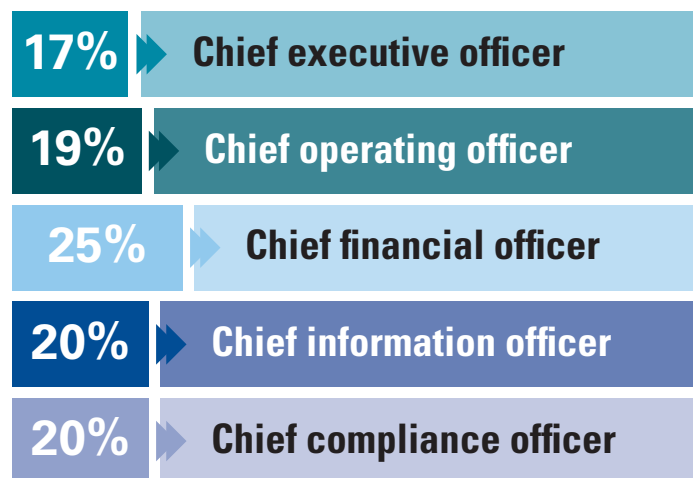
Industries



Global revenue



Respondent's title



Source: Driving performance while managing risk, KPMG International, 2014

Driving performance while managing risk: Embedding data and analytics in the business model

Data and analytics (D&A) is becoming a powerful tool in companies' quest to reach higher performance goals while calibrating the risks that could hamper them. To see how D&A can work in the service of risk and performance management, KPMG International conducted a survey of C-level managers and interviewed senior executives at four large companies. The executives have provided a number of insights. One executive interviewed tells us how his company is bringing D&A capabilities to the service of its customers, improving its own performance and that of its clients. Another described how it compiles sales data to help distributors sell to four million shops in India, tailoring product offerings and boosting revenue.

One of the executives, Aldo Nosedà, Vice President of IT, International, at Monsanto, emphasizes that the benefits of one initiative can have a positive impact not only on the purpose it was designed for, but on other needs that may follow from it. Data analytics provides insights that enable executives to see the inter-relationships between disparate parts of the business. "The outcome of a decision becomes the source of information for another decision, bringing intelligence to the company," he says.

These and other examples show how D&A can embolden companies to take greater risks if they are more confident of the expected benefits. Willem Eelman, the Chief Information Officer of Unilever, advises against timidity

Companies profiled in this report:

Unilever is a global consumer products company, with headquarters in London and Rotterdam. Revenue totaled EUR49.8 billion in 2013.

Monsanto, headquartered in the US, is an agricultural company that supplies products to farmers around the world, with sales of US\$14.9 billion in 2013.

Zurich Insurance Group of Switzerland provides a range of general insurance and life insurance products and services to individuals and companies around the world. Business operating profit totaled US\$4.7 billion in 2013.

Philips of the Netherlands is a technology company focusing on healthcare, consumer products and lighting. It posted sales of EUR23.3 billion in 2013.

when choosing where D&A initiatives* are likely to have the biggest effect. He says that business leaders should ask “where the availability of insights from big data could revolutionize how your business operates.”

What are the business opportunities companies are focusing on and how are they leveraging D&A for competitive advantage? In the survey, KPMG International analyzed responses from 304 senior business executives in North America and Europe to find out how they are planning to use D&A initiatives to help them improve performance. To find out how higher-performing companies use D&A, the report compares the 120 respondents who say their companies are market leaders with the 184 who are not. KPMG International also interviewed senior executives at Philips, Zurich Insurance Group, Monsanto and Unilever. The aim was to portray the practical problems they encountered in leveraging massive amounts of data and to explain the most useful lessons they had learned.

All four companies had benefited significantly from their D&A initiatives and were excited about the potential for gaining further improvements in performance. “D&A is playing an increasingly important role in society and business. Companies that have the best understanding of their customers and products through D&A will win, and so they need to organize around data analysis rather than assume the benefits will flow automatically,” says Bart Luijten, Senior Vice-President of Enterprise Information Management at Philips.

Based on the survey results and interviews, some of the most important findings are as follows:

Business insights

The survey shows that the main uses of D&A in the next three years will be to enhance corporate performance, link it to the management of risk, and to improve the customer experience. When companies implement major, strategic changes in the next three years, D&A initiatives will be used to help speed up the changes. Nearly half of respondents say such initiatives will enable the company to take on additional risk in order to plan and implement strategic changes. They can do this by quantifying, through new statistical methods and measurements, the risks that affect business performance.

Performance benefits

Nearly a quarter of respondents say their business has achieved sizeable benefits from aligning risk and performance management and a further 49 percent say there have been some benefits. In the next three years, the survey results show that companies expect the main benefits of these efforts will be to develop new revenue streams, expand existing revenue sources, improve operational efficiency, and gain greater customer insights. Almost a third say it will lead to faster and better decision making and an improvement in the management of risk.

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*“D&A initiative” is defined to mean the creation of a team of people, led by an executive, to analyze large amounts of data for the purpose of helping to make a strategic decision.



Hurdles to overcome

There are significant challenges in using D&A initiatives to support decision-making, notably an excessive number of such initiatives and a lack of support from executive management. Top executives often do not understand how to make the most of D&A.

Successful collaboration

Corporate strategy should not only drive an effective use of D&A initiatives, but the latter can also help to calibrate strategy by continually providing deeper business insights and, often, enhancing the ability to anticipate changes in

the market. An effective feedback mechanism between the business units and the data analysts is likely to lead to competitive advantage.

The remainder of this report will explore these points in greater detail and end with some important lessons from the findings. First, we look at the way that D&A initiatives are used to gain **business insights**, followed by the **performance benefits**, the **hurdles** and then some of the ways to overcome them through **collaboration**. The report describes some of the opportunities opened up by D&A, both to improve corporate performance and manage risk.

KPMG POV

According to Deon Minnaar, KPMG's Leader for Enterprise Risk Management for the US: "Companies tend to view risks in siloes, but D&A connects the dots. D&A can help calibrate strategy by reducing, through measurement, the uncertainty in decision making. When developing the strategy, performance expectations are often defined without measuring the risk. The measurement of risk in terms of performance requires robust data and more precise analytics. Measurement techniques widely employed in financial services, such as stress testing and simulated risk scenarios, can be used in other industries. The result is better, faster decision making and potentially a greater competitive advantage."

Leaders and laggards

The survey results show significant differences between the 120 respondents who describe their companies as market leaders and the other 184 respondents who do not. The key contrasts are:

Uses of D&A

Market leaders tended to use D&A initiatives to be more customer-focused, to generate higher revenues and to be more forward-looking.

Risk and performance

Market leaders are managing risk as they enhance performance. Fifty-nine percent of market leaders use D&A to connect the management of enterprise risk and performance, compared with only 47 percent of the others.

Strategic alignment

Market leaders were more than twice as likely to align their D&A initiatives with their strategic objectives and placed twice as much emphasis on using these initiatives in implementing strategic changes.

Business insights

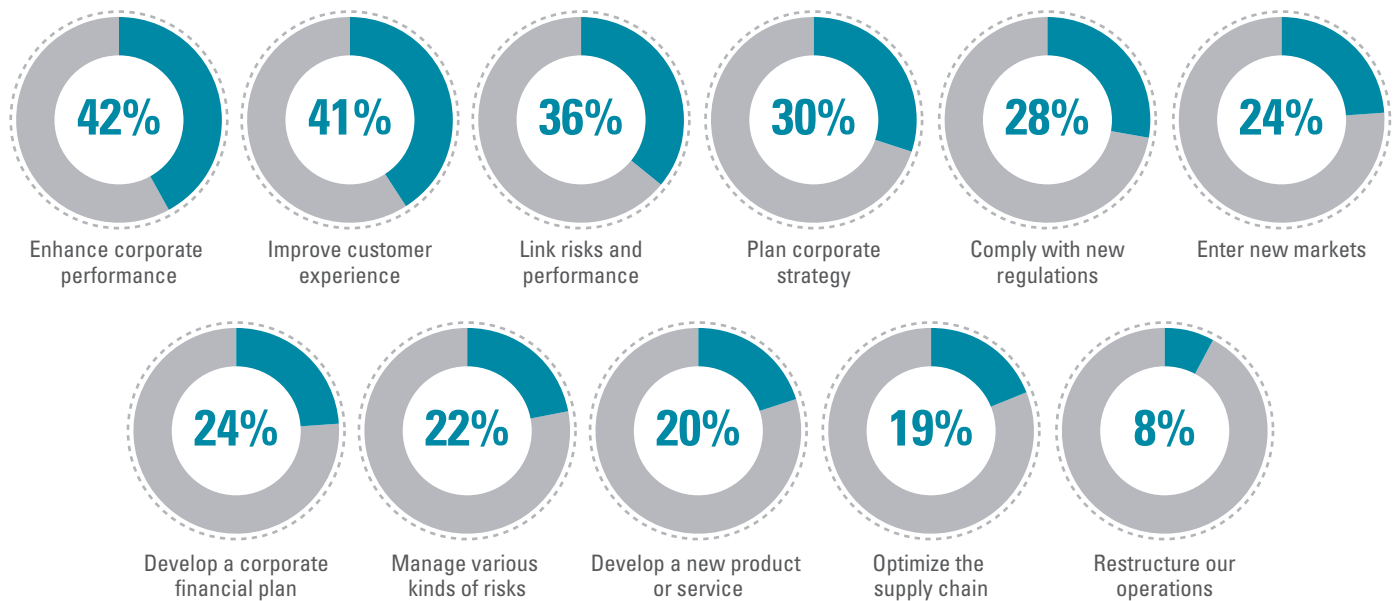
This survey aims to show how companies are using D&A in general and in particular for implementing strategic changes. When respondents were asked how their companies plan to use D&A in the next three years, the four most common responses were:

- enhancing corporate performance;
- improving the customer experience;
- linking the management of risks and performance; and
- planning corporate strategy.

When designing and implementing major, strategic changes in the next three years, D&A initiatives will be used to help speed up the changes, to enable the enterprise to take greater risks (by being able to quantify them) and to monitor the impact on the customer. To understand what these findings mean in practice, executives at the four companies were asked to provide examples of how they are using D&A to manage risk and improve performance.

Top uses of data and analytics

What are the three most important ways your company plans to use data analytics, if at all, in the next three years?



Source: Driving performance while managing risk, KPMG International, 2014

How leaders use D&A

In the survey, market leaders placed even more importance on using D&A to enhance performance, improve the customer experience and manage risk and performance. The gap was especially wide when it comes to linking risk and performance management. Forty-seven percent of market leaders chose this option, compared with 29 percent of the other respondents. Also, market leaders are more likely to use D&A to calculate their exposure to future threats and opportunities (a gap of 8 to 15 percentage points). And more than half (52 percent) of market leaders aim to enhance the customer experience in the next three years, a much higher proportion than among the others (36 percent.)

Eelman says that Unilever has combined internal and external data to gain deeper insights into customers' preferences. D&A, for example, has helped its 2,500 distributors in India offer a carefully selected portfolio of products to the 4 million shops they sell to. The company collects sales data from the shops in a particular district; it then combines the data with official census data and insights supplied by Nielsen, a large provider of consumer information, to recommend to the distributor a product portfolio that is likely to sell well in that locale. This D&A initiative has helped Unilever's sales representatives by automating decisions about product selection; in the past, the representatives had to make the decisions by themselves based on limited amounts of information, says Eelman.

Philips has been employing D&A to calibrate and optimize its customer service for some of the largest retailers in Germany. In the past, Philips took a one-size-fits-all approach to them but it realized that it would perform better if it catered to the different needs of retailers. One retailer wanted accurate delivery times from its suppliers, neither too late nor too early. Another retailer cared primarily about speed of delivery. Based on an analysis of large amounts of sales and delivery data, Philips built what Luitjen calls "an early warning system", based on the particular retailer's delivery requirements and forecasts of demand

requirements. The system helps planners to prioritize one retailer over another at particular times, based on the retailer's needs, thereby optimizing customer service levels for each retailer and enhancing the resiliency of the supply chain. Philips is so pleased with the results that it is now expanding the system across its consumer product lines and also geographically. "This is having a measurable business impact when you can manage on-shelf availability. That's the most crucial performance indicator for a retailer and means that we are selling more to a happier retailer. It drives shelf space to Philips products rather than to one of our competitors," says Luitjen.

Mary Merkel, Chief Underwriting Officer of Zurich North America, the regional business of Zurich Insurance Group, uses D&A — and predictive modeling, in particular — to aid decision making in both underwriting and claims. On the claims side, the company uses D&A to make sure it has recognized the potential severity of a claim to ensure that a claim handler with the right skills is involved from the start. Claims also use analytics to gain insights on whether certain events are likely to occur and to identify as early as possible any indicators of fraud or opportunities for recovery. In the case of underwriting, Zurich is analyzing large volumes of data to help it accurately price particular lines of business and help its customers gain deeper insights on the risks they

Many sources of data

Some of the most important innovations have been won by combining internal and external data, as well as structured and unstructured data. Monsanto, Zurich Insurance, Philips and Unilever enhance their own data with third-party proprietary data in their D&A initiatives. The survey shows that this is much more common among respondents identifying themselves as market leaders than other respondents. Market leaders are more than twice as likely to use third-party proprietary data (55 percent compared with 23 percent). Market leaders are also much more likely to use their company's unstructured data (61 percent to 46 percent). Unstructured data may be harder to analyze, but it is clearly worth the effort. Aldo Noseda, Vice President of IT, International, at Monsanto says that in the past, "information was mostly collected internally; now the information is coming from many different sources."

currently face. It is also using D&A to confirm whether underwriting hypotheses (such as the potential risk of a natural catastrophe in a particular area) that have built up over time actually are well founded in fact.

Monsanto, by contrast, demonstrates the way that companies can use data analytics to transform their business across a range of activities. In the last few years it made a significant strategic decision to help farmers make better decisions as highlighted with the purchasing of Climate Corporation in October 2013. Climate Corporation was established in 2006 with a primary focus on weather and insurance products using analytical models to support its services. As another example, in India, with the rapid penetration of mobile technology farmers receive targeted agronomic

recommendations based on their territory and seed. By doing all this, "we are starting to bring analytical capabilities to the service of the customer," says Noseda of Monsanto.

"These are examples to help farmers make better decisions", says Noseda. Additionally, the company uses analytics to create better products, run its business better, mitigate risk and improve performance. For Noseda, the rapid accumulation of data from more and more sources makes it important to move swiftly to capitalize on data opportunities. "If you spend too much time thinking about everything, you may lose the opportunity because of the speed at which things are evolving," he says. These lead to a number of improvements, as we shall see in the next section.

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Performance **benefits**

“We need to drive this business at the right price at the right time. If you get it wrong, your competitors will eat you for lunch and you’ll be left with unwanted stock,” says Bart Luijten, Senior Vice-President of Enterprise Information Management at Philips.

The survey of executives not only looked at how D&A initiatives are used but the benefits they expect from them. Over the next three years, companies expect the main benefits of D&A efforts will be to develop new revenue streams, improve operational efficiency, and gain greater customer insights. Respondents were asked about the benefits they have found from these efforts over the *previous* three years and the same ones were mentioned. Other benefits include faster decision-making (50 percent overall say so) and the ability to take on additional risk (46 percent). In the latter case, companies may over-estimate the risk if they rely on guesswork; by quantifying the risk through simulation or scenario-based analysis, companies may find the risk is actually lower, thus increasing their confidence in taking a course of action.

The executives interviewed for this report mentioned a similar range of benefits. Luijten of Philips describes an initiative that is paying off well: a

price-elasticity model for its lighting business in North America. “We need to drive this business at the right price at the right time. If you get it wrong, your competitors will eat you for lunch and you’ll be left with unwanted stock,” he says. By combining its own sales data with data from retailers and third-party rating reviews, data analysts have produced a predictive tool that Philips can use to determine optimal price points for its lighting products. The model is continually refreshed and strengthened with new data. “It has been a success; we are now expanding from one or two categories in North America to a lot of categories and we are planning to launch it in the European market,” he says.

One advantage of the pricing initiative is that the benefits became visible in only two to three months. The bigger and quicker the beneficial impact of D&A on the business, the easier it is to win over business executives who are essential to the success of the initiatives.

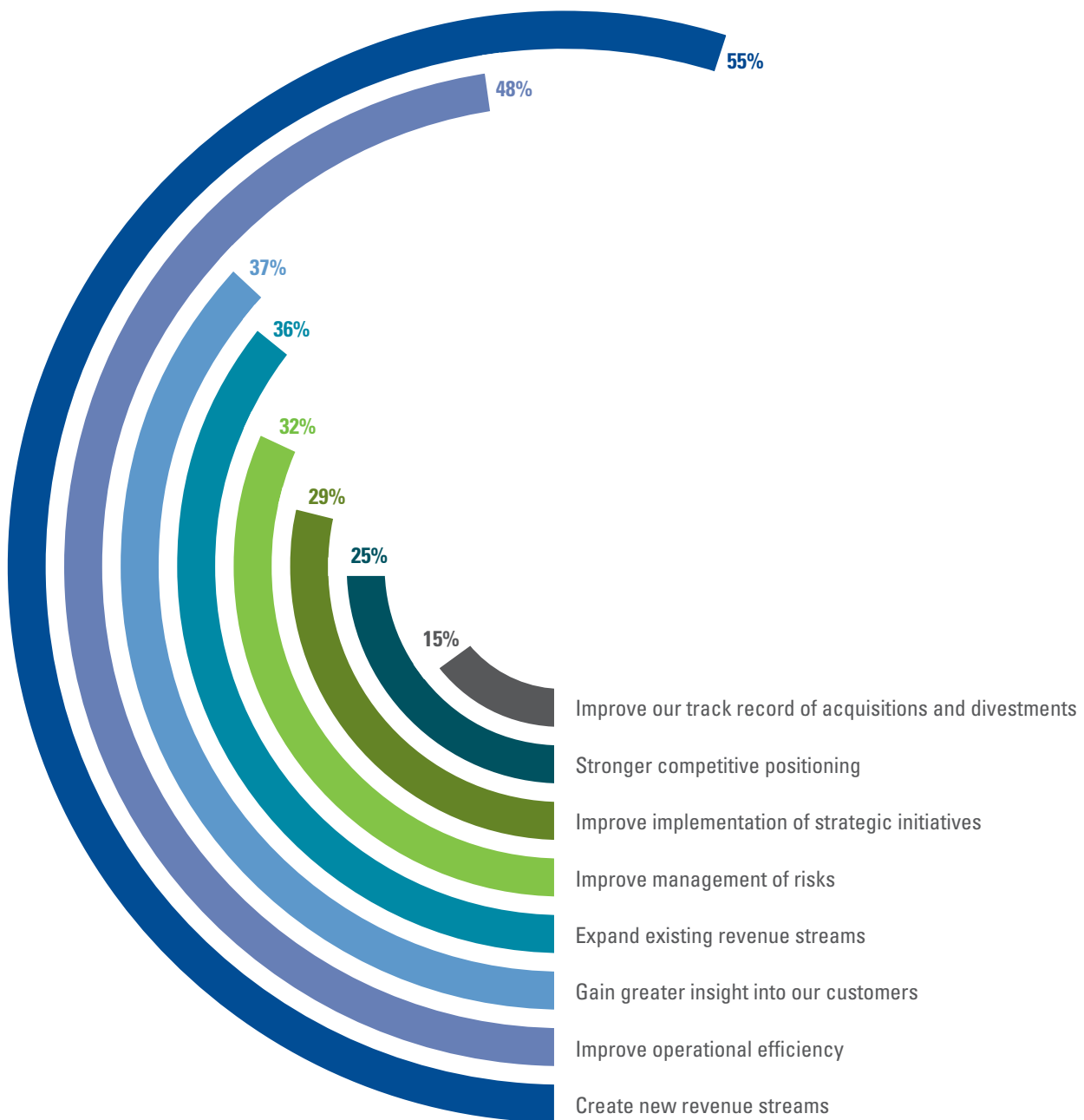
Benefit gaps

There are big gaps between market leaders and the others with regard to the benefits of D&A initiatives. Fifty-seven percent of market leaders say that they were able to create new revenue streams in the past three years, compared with 43 percent of others. And 40 percent of market leaders improved implementation of their strategic initiatives, compared with only 23 percent of others.

The benefits of D&A are clear to survey respondents: 95 percent of them say they are important. But market leaders are even more enthusiastic: 65 percent of them say they are extremely important compared with only 26 percent of the other respondents. Companies that are market leaders regard D&A as an essential tool for the implementation of strategic changes.

Main benefits of data and analytics initiatives

In the next three years, where do you expect to see the greatest benefits from using data analytics initiatives?



Source: Driving performance while managing risk, KPMG International, 2014

Hurdles to overcome

“What is missing is that big data is becoming a fundamental part of business models, and most C-suite folks don’t get this point,” says Willem Eelman, Chief Information Officer of Unilever.

If companies organize themselves to maximize the benefits, improvements in the management of risk and performance can be achieved multiple times. But before companies can use D&A to inform decision making more deeply, a number of hurdles must be overcome. Survey respondents say they face two main challenges in using D&A initiatives to support decision-making. One is that there are too many D&A initiatives, suggesting that companies may be overwhelmed with D&A reports and are having a hard time focusing on the initiatives that really matter. This problem is even more common among market leaders than the rest of the respondents.

The second most important challenge is a lack of support from executive management for the company’s data-analytics efforts. Senior executives may not understand the best way of using D&A. Eelman of Unilever says that a lot of senior executives at many companies have not yet grasped the importance of D&A or the way to use it. “What is missing is that big data is becoming a fundamental part of business models, and most C-suite folks don’t get this point,” he says. Eelman observes that across industries there is a “real struggle to get it embedded into businesses.”

At many companies, the lack of senior-level support and an excessive number of D&A initiatives may be linked, leading to poor coordination of them (the third-most frequently cited challenge in the survey, equal to inaccessible data) and a faulty alignment with strategic goals. A lack of support may also lead to too few initiatives. As Merkel of Zurich North America says, “We want to focus on the data analytics initiatives that fit with our strategy.” For her company, this means “thinking of the customer first and working backwards.” Zurich

North America is the largest insurer of franchised automobile dealers, for whom a major pre-occupation is the risk of car damage by hail or floods. Zurich North America has combined its own data with that of the National Oceanic and Atmospheric Administration to offer help to car dealerships in the geographical selection of dealership locations. The data not only provides insights into the geographical frequency of hail storms but also the average size of hail in a given locale. Merkel says, “We have to focus on more than just modeling; we need to get the right data architecture and the right data scientists who would know how to use the data and supplement it. We are hiring people who can help to enhance our risk insights and work with our businesses to support customers’ use of data for real-life issues.”

To overcome the challenges, survey respondents say they plan to improve the governance structure (by doing such things as creating an effective process for decision making, by defining success, prioritizing initiatives and overseeing the results). The second- and third-most popular responses were: to create a strategy that identifies how to achieve the highest return on investment from the initiatives, and to identify/address the top challenges to building a more successful program. All of these measures can help executives to integrate data analysis into providing more informative insights that can help with strategic decision making.

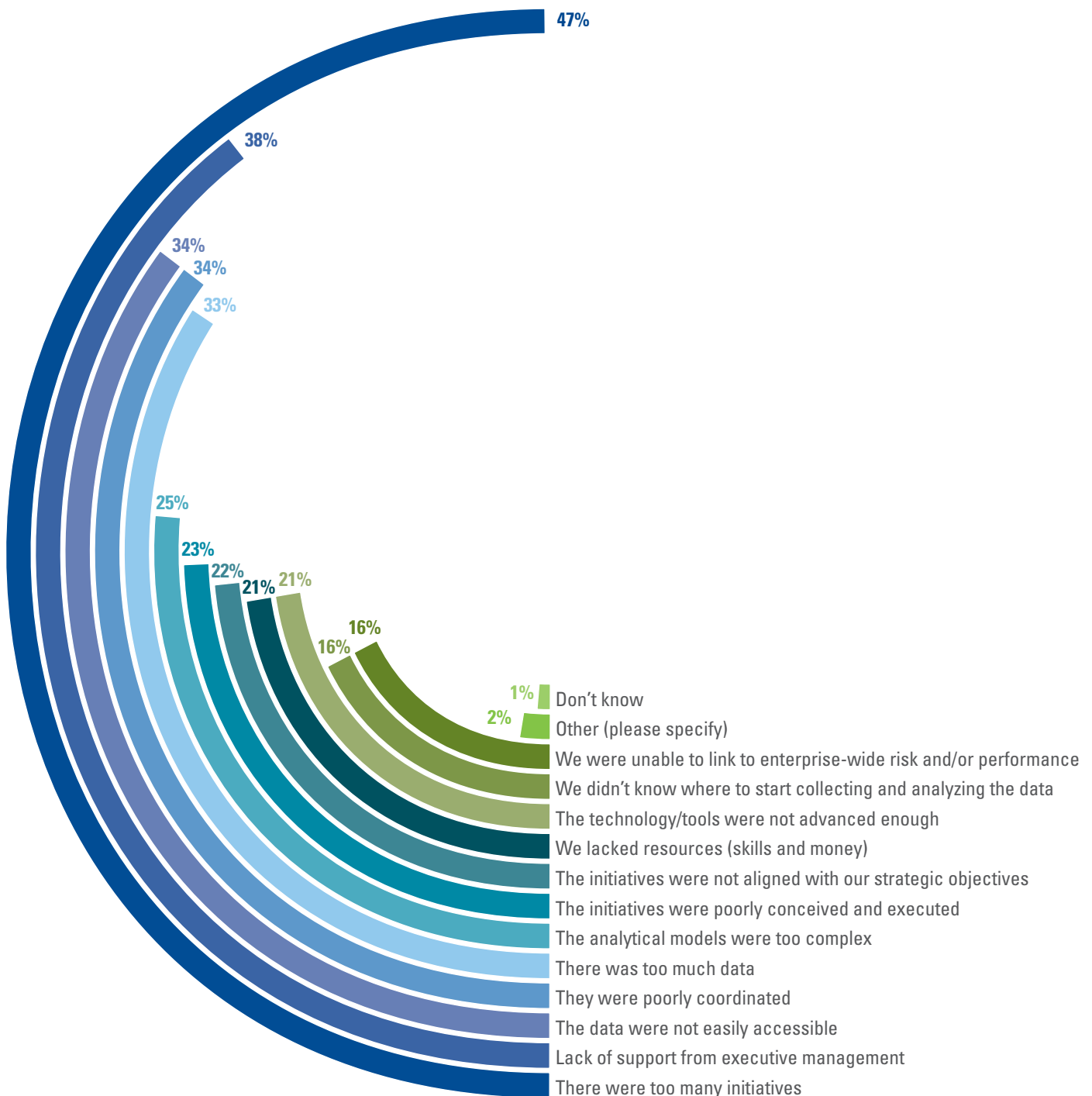
At Monsanto, “we went through a prioritization process to tackle the highest level of opportunities first,” Nosedá says. The selection of initiatives is done by a multidisciplinary team that looks for the ones with the highest estimated return. “The risk is low, because by introducing analytics, you don’t put operational capabilities at risk, but have the potential to add significant value.”

KPMG POV

According to Brad Fisher, KPMG’s D&A Leader in the US: “To help top executives understand the power of D&A, companies should start with the business problem that needs to be solved, then find the D&A to address the problem. For example, a company may need to improve its customer service. D&A can comb through vast troves of data to find patterns in customer complaints and then help find ways to improve customer satisfaction, based on the analysis.”

Main challenges of data and analytics initiatives

What were the major challenges your company faced in using data analytics initiatives to support decision-making in the last three years?



Source: Driving performance while managing risk, KPMG International, 2014

Successful collaboration

Governance difference

There is a stark difference in governance between market leaders and others: 43 percent of market leaders say that the initiatives are always aligned with their strategic objectives compared with only 18 percent of others.

KPMG POV

According to Karen Avery, Principal at KPMG in the US: "Fruitful collaboration between data analysts and business managers requires building it into the company's business model. It is not just a matter of putting the two sides in a room in hopes of igniting a spark. Business managers need to know what questions to ask and how to ask them in such a way as to yield business benefits. Data analysts have to be able to think creatively about what data to collect and how.

Even if they collaborate well, there needs to be a structure and a process for using the resulting insights to help inform decisions. That's where strategy comes in. First choose bold, profitable business objectives aligned with strategic goals and then collaborate to design DAI that will enable the company to meet those objectives."

If the risk is low and the potential return is high, it is not surprising that companies are launching lots of D&A initiatives. But there may be too many, in some cases; 55 percent of respondents say that all the D&A initiatives are evaluated by a single senior officer or department, which might create bottlenecks. Also, 72 percent said that D&A initiatives were not always aligned with the company's strategy. "It is very critical that the initiatives and strategic decisions are coupled," says Nosedá, "because you start by identifying what are your most important decisions and then select where we need to bring D&A to support that particular area."

The alignment of D&A initiatives with the company's strategic objectives requires some form of central control. At Philips, Bart Luijten is a strong believer in creating a central organization where the analytical expertise resides. "To be successful, we need to organize for scale, because it's a mistake if the analytical capability is too fragmented," he says. So Philips built at the group level a single advanced analytics competence center in which the data analysts can tackle a wide range of initiatives, from predictive modeling to operational optimization, while engaging with different centers of expertise, including marketing, sales, supply chain, healthcare and finance.

It is essential, though, that a central D&A department does not become an ivory tower. Eelman of Unilever says that "the moment you treat it as a separate resource you have lost the battle, because it will be sidelined from the business." But if the company doesn't create a resource specializing in D&A, it would take too long to train

business practitioners to analyze data. "It's a real conundrum," he says. Philips is seeking D&A projects where there are what Luijten calls, "three magic elements": sufficient good data to be analyzed; the skills to analyze it; "and the executive who knows that analytics can provide the answers to his business needs." D&A should always have a business focus to be an effective tool for companies.

One answer to the conundrum is to ensure the data analysts collaborate closely with the business units where managers are working with customers, suppliers and production managers, and are seeking insights to improve corporate performance. All four of the interviewees said this interaction between analysts and the business is crucial to the success of D&A initiatives.

Zurich North America is not intent on providing D&A training for staff working at the front end; it would take them away from their real jobs. But "we help them understand how the data will influence their decisions," says Merkel. "We talk to them about how to generate hypotheses and data requests to help solve their business problems. At the start, we scope out the business issue that needs to be dealt with and then we keep them informed throughout the process". This means that when it comes time to implement a change, the business people have been engaged from the start of the initiative to the finish and can understand what the impact of the D&A initiative is likely to be. By this method, she says, they have a "feedback loop" between data analysts and business practitioners.

It may be less difficult to achieve this in insurance than elsewhere, because the industry is built on data in the form of a series of calculations of underwriting risk. But ultimately, companies in every industry will have to embed the process of D&A into the business. At Unilever,

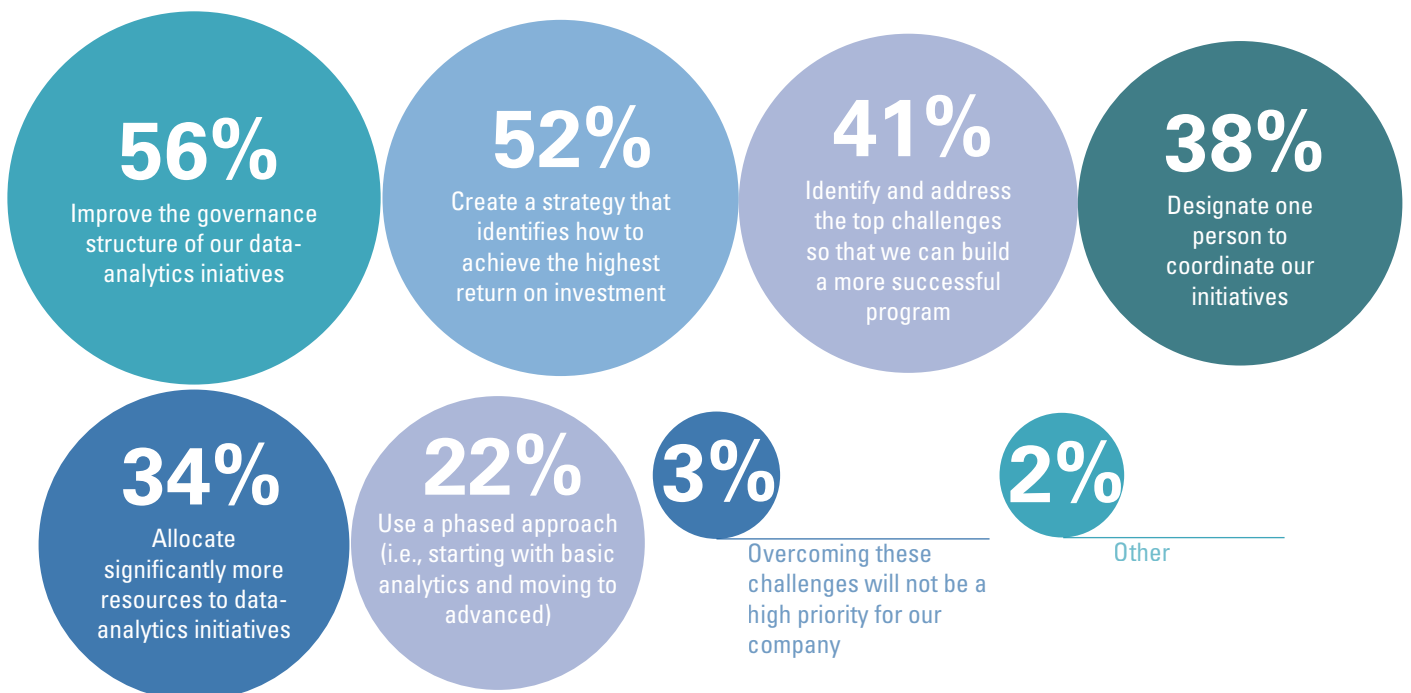
says Eelman, "It's a struggle, because the average employee can't handle data well. They don't know the right questions to ask. They don't know what they don't know." He adds: "We need a meeting of minds of, on the one hand, data experts who can come up with

innovative ways of using big data and who understand the art of the possible and, on the other hand, business people who understand how big data could help inform their way of working, resulting in better performance."

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Most frequently cited ways of dealing with problems in using data and analytics

How do you plan to overcome these challenges in the next three years?



Source: Driving performance while managing risk, KPMG International, 2014



KPMG perspective on maximizing opportunities

The lesson of the survey results and the interviews is that companies need to align their D&A efforts with their corporate strategy; understand how D&A will support the strategy; focus on the business value to be derived from these efforts; and implement the analytical findings in a timely manner.

Based on the evidence from the survey and the interviews, companies are not only waking up to the business possibilities offered by D&A but also making strong efforts to reap the benefits. But often these initiatives lack the support of senior executives and are poorly prioritized. If business analytics is to realize its true potential as a tool for strategic decision making, three main lessons emerge from this study.



Align with strategy

There are endless possible uses for D&A initiatives, but to help maximize the benefits for the company, each initiative needs to be selected for its transformative potential and to

be aligned with overall corporate objectives. If a top objective is to create new revenue streams or expand existing ones by enhancing the customer experience, then companies should start by thinking of the customer's requirements and then figuring out how to meet them. Each of the companies interviewed for this report cited examples of D&A initiatives intended to improve the relationship with customers in one way or another. But a focus on the customer is only one of many possibilities; D&A can also be used, for example, to help make the supply chain more resilient and to help quantify many kinds of business risk, from financial to operational.





Collaborate to solve real-world problems

A better alignment of data-analytics goals with the overall corporate objectives is likely to make it easier to implement D&A initiatives and help ensure the company gets the most benefit from them. This entails demonstrating to the business what the benefits are, so that the more reluctant business leaders are willing to embrace the results and make them work well for the company. Perhaps the most important point is to ensure there is close collaboration between the business and the analysts. Left to their own devices, the theorists can build perfect models of no practical value. Similarly, without any interaction with the analysts, the practitioners won't be able to take advantage of the initiatives.



Change the culture

If the ultimate objective is to enhance corporate performance and make better business decisions, some of the changes recommended by D&A initiatives are likely to be painful. The goal is to create an organization where D&A is not grafted onto existing processes but is embedded in them. This is likely to require a cultural change in many companies, but this can only be done with strong leadership. The trouble is that the company's leaders may not fully comprehend the business possibilities opened up by D&A or how to achieve them. Some big successes derived from using D&A will teach executives about the possibilities, but clearly companies need to move rapidly to keep up.

To summarize our findings, we would argue that the search for insights from D&A should not be a blind gold rush. The lesson of the survey results and the interviews is that companies need to align their D&A efforts with their corporate strategy; understand how D&A will support the strategy; focus on the business value to be derived from these efforts; and implement the analytical findings in a timely manner. Using D&A, risks that were hard to measure can now be quantified. Understanding the inter-relationships between disparate businesses and linking the risks to performance goals can enable companies to maximize their opportunities. The winners will likely be the most highly skilled, the best organized — and the boldest.



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