

The Broad Spectrum of Business Analysis

**New Approaches to Information Analysis
Enable Outperforming the Competition**

White Paper

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V E N T A N A
R E S E A R C H

Aligning Business and IT To Improve Performance

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Understanding the Options

These days organizations have more information available for analysis and need to understand its meaning to adjust their strategies, streamline operations and compete effectively. A variety of analytical techniques are available now to process ever-increasing amounts of information. But few business executives and managers understand all the types of analyses available and their uses. Ventana Research has conducted extensive benchmark research in business analytics, both as a general topic and as applied in a range of vertical industries and lines of business. It reveals that analytics are not always at hand when people need them. For only one-third of senior executives (34%) and just one-fourth of vice presidents, directors and managers (27%) are analytics always available. For employees below these levels, the numbers drop even further, and for 41 percent of them availability is generally or completely lacking. An overwhelming majority (87%) of research participants said that they can improve the use of analytics and performance indicators significantly or somewhat.

Thus many organizations and individuals need to know what their options are. Some disciplines have used analytics for many years, and certain fundamental tenets of analytics have remained the same. But other aspects have changed dramatically, among them the volumes of data analyzed, the names applied to techniques, the technology capabilities now available and the areas to which organizations apply analytics. An overview of the state of business analytics may help clarify the situation and allow organizations to determine which types may suit their needs.

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Well-Established Analysis Needs

The many types of analysis include analytical reporting, trending, what-if analysis and planning, and more advanced forms. Perhaps the most familiar is **query and reporting**, one of the original forms of business intelligence (BI). As the name suggests, it asks questions, retrieves data and reports on the results, usually with the goals of understanding what has happened in a time period and anticipating what may happen if a trend continues. Common use cases for query and reporting include periodic sales reports, staff utilization rates, and accounts receivable and payable aging reports. Half of participants in our analytics research use BI tools for query and reporting.

In addition, 78 percent of organizations said that exploring the data underneath reports is important or very important, and some query and reporting tools permit this. As users demand more functionality from their software, the lines between query and reporting and other forms of analysis have blurred as vendors respond to these requests. Users clearly seek the ability to drill down into reports and navigate across metrics. Known as

analytical reporting, this set of capabilities should be readily available to all in the enterprise who need it.

Dashboards are online displays of analyzed data such as key performance indicators and other metrics. In our business analytics research, 72 percent of organizations said it is important or very important to publish analytics and metrics, and in many cases dashboards have replaced paper-based or static reporting options; adding to the value of the analytics, they facilitate navigation to related information and analyses. Dashboards are popular with managers, executives and other decision-makers. In a contact center, for example, a dashboard can deliver key metrics to assess current performance, such as hold times, cases resolved or case trends by product or service and by customer. In a manufacturing facility users can track real-time production line metrics and comparisons with targeted output. Or a sales dashboard can provide metrics on revenue by region, product, sales representative, sales targets or pipeline.

Query and reporting tools may stagger under the mass of today's huge volumes of data, so users may consider supplementing them with **data visualization**. This interactive technology, also called data discovery, features items such as scatter plots and heat maps and enables users to quickly spot, understand and act on trends, anomalies and meaning in large amounts of data. According to our research, several additional types of

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visualization are now important in organizations, particularly text (for 34%), Web pages (33%) and maps (29%). It is popular in pharmaceutical companies, where it can visualize thousands to millions of data points to assist in drug discovery and R&D or analyze clinical data from thousands of patients. Similarly, financial services analysts use visualization to plot the performance and trends of various investments and portfolios comprised of many securities. Exploring the data underlying analytics through interactive visualization is important or very important to 71

percent of organizations in our analytics research.

Analytics also can be used for **performance management**, focusing on organizational strategy and objectives. A combination of several types of analyses enables organizations to monitor actual performance, identify where it varies from targets and take corrective action. Two-thirds of research participants said it is important or very important to be able to set alerts and thresholds to make users aware of the need for action in specified situations. Performance management analytics can be applied enterprise-wide, within functional areas or to individual employees and teams. For example, financial performance management concentrates on budgeting and financial forecasts to help organizations reallocate resources when conditions change. Workforce performance management can illuminate hiring and retaining employees by monitoring performance and devising strategies for improvement.

Performance management often includes scorecards, which display the results of analysis in visual or numerical form; the most famous model is the Balanced Scorecard methodology. The use of key performance indicators is a critical element of performance management that also has spawned the use of analogous indicators in other areas including people, process and risk.

Advanced Capabilities

The types of analysis discussed above focus on historical data, on what happened in the past, even if recently. Newer, more complex forms look into what may happen in the future, enabling organizations to evaluate different alternatives and prepare for them. One of these is **planning and what-if analysis**, which studies the effects on systems or processes of selected variables deviating from expectations. It enables users to project the consequences of actions and devise scenarios for how to respond to changes, whether positive or negative. In our research 79 percent of organizations called what-if and planning-based analytics important or very important. Technology companies, telecommunications and financial services are more likely than most to use this sort of planning and forecasting, according to our research. Others also could benefit, such as marketing departments that project sales lift from marketing spend or manufacturers that project demand, production and resources required.

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Among more advanced analytics, statistics play an increasingly important role. Formal **statistical analysis** can help organizations identify correlations in data and in some cases can show causation. Such analysis can enable organizations to make decisions based on a rigorous factual basis rather than relying on intuition. Healthcare researchers often rely on statistical analytics; our research on predictive analytics shows that currently 17 percent of scientific or clinical research organizations use statistics, and 27 percent more plan to use them in the future. Statistical analytics can help them identify cohorts (correlations among peoples' age and medical condition, for example) and determine the significance of clinical test results.

On another track, our research found that 70 percent of sales and marketing organizations are using statistics, for instance to test the effectiveness of promotional offers or marketing campaigns; 22 percent more intend to use them, which will make statistical analytics widespread in this area.

Businesses increasingly are turning to **data mining** techniques to gain a competitive edge and maximize the value of the data they collect. This type includes both descriptive and **predictive analytics**, which begins with developing models and later applying those models to ongoing business processes to derive business value. Applying predictive analytics to project future outcomes is important or very important to 80 percent of organizations in our business analytics research. More than four-fifths (86%)

of organizations said that in general predictive analytics is important, and 58 percent of participants said they want built-in predictive analytic capabilities in BI tools.

In this case, as with statistics and some advanced styles of analytics, technical expertise is necessary, but it is lacking in many organizations. In half of organizations participating in our research on predictive analytics, the people who use predictive analytics are not the ones who design and deploy the models, typically because they lack the necessary skills. For example, 58 percent don't understand the mathematics required, and 40 percent can't access the necessary data. These technical requirements are holding back more widespread deployment, the research reveals.

However, use is growing in several industries for which it is essential to predict and plan for outcomes. Already 18 percent of organizations use predictive analytics in predicting product development, and 34 percent more

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plan to use it. In pharmaceutical drug discovery, for example, scientists analyze hundreds of thousands of microarray test results to identify potentially viable drugs or treatments, then predict at each point in the drug development process which are the most likely to be approved and profitable.

Financial services companies now can analyze individual transactions using their credit cards in real time as they occur to predict fraud. Fraud detection

is a growing priority as 34 percent of organization use predictive analytics for this purpose today and another 31 percent plan to use it.

The Future of Analysis

Expansion and changes in the varieties of data that people consume are creating challenges for organizations that need understand how all of it impacts them. It is estimated that as much as 80 percent of the world's total data exists in the form of documents, text, audio, images or video. There can be significant amounts of value in these data sources, but analyzing them requires different techniques and architectures than structured data. They also must be integrated with more conventional forms to provide a complete picture of conditions. In fact, integrating data from these unstructured sources for use in analytics is a growing priority for organizations in our business analytics benchmark research, the most in demand being text from documents and reports (important for 32%), unstructured data from documents (22%) and Web-based data that resides outside the enterprise (19%).

Our benchmark research on large-scale data processing and analysis ("big data") shows that the fastest growing category of unstructured data is social media text from sources such as Facebook and Twitter. Companies are

increasingly anxious to tap these sources which can reveal customer sentiment about them and their competitors; monitoring changes in sentiment over time can help shape sales and marketing programs. Likewise, identifying product defects or support issues from public chat streams and bulletin boards can help them improve customer service and satisfaction.

The need for analysis of the huge volumes and varieties of information that are accumulating at unprecedented rates is undeniable. But challenges exist for most organizations in using analytics effectively. Of participants in our research only 23 percent are satisfied with their current analytic processes, and improving business processes is the number-one factor motivating 70 percent to invest in analytics. At the same time, only 32 percent of organizations are satisfied with their existing analytic technologies.

The speed of business today requires organizations to be able to analyze information fast and communicate findings to decision-makers. Currently, however, only 18 percent of organizations get analytics within one day after they are generated and 41 percent take more than one week; competitiveness demands that this processing time be improved. A related issue is the ability to make data ready for analysis. Here the research shows that people spend more time preparing data than analyzing it. In 69 percent of organizations they spend the most time waiting for data, preparing it and reviewing it for quality and consistency. Conversely only about one-fourth (28%) spend most of their time on analysis such as assembling scenarios, trying to determine root causes and determining how changes will impact current business.

These and other issues will impact organizations for some time to come, but our research consistently shows that most intend to deal with them because they understand the importance of the data they collect in improving their business decision-making and processes. We recommend to others that have not yet assessed what analytics can contribute to their success that they familiarize themselves with the various options and consider investing in those that have the greatest potential to benefit them.

About Ventana Research

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