

WHITE PAPER

Business Analytics and the Path to Better Decisions

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IDC OPINION

Analytics has moved from the specialty of a dedicated few to a necessity for broad groups of business professionals to do their job. The following factors have accelerated this change:

- ☒ The flattening of hierarchies moves decision-making responsibility to many more individuals in an organization.
- ☒ A new generation of knowledge workers, more comfortable with technology, is incorporating the analysis of information into everyday work tasks.
- ☒ The availability of analytic applications, prebuilt for industry-specific as well as horizontal decision processes, makes the use of analytics accessible to a broader cross-section of organizations.

The net effect is that the application of analytics for improving decision making is an objective that can be achieved by organizations in every industry.

IN THIS WHITE PAPER

This white paper considers the use of analytics and business intelligence for improving decision making and the benefits of prebuilt analytic applications for achieving this objective across many functions in an organization.

SITUATION OVERVIEW

We live in an era of the *intelligent economy*. Organizations across industries are recognizing the need for better intelligence about their business: making the right decision with the right information at the right time. But how far have we come? And what are the best practices that distinguish companies where employees bring intelligence to decision making?

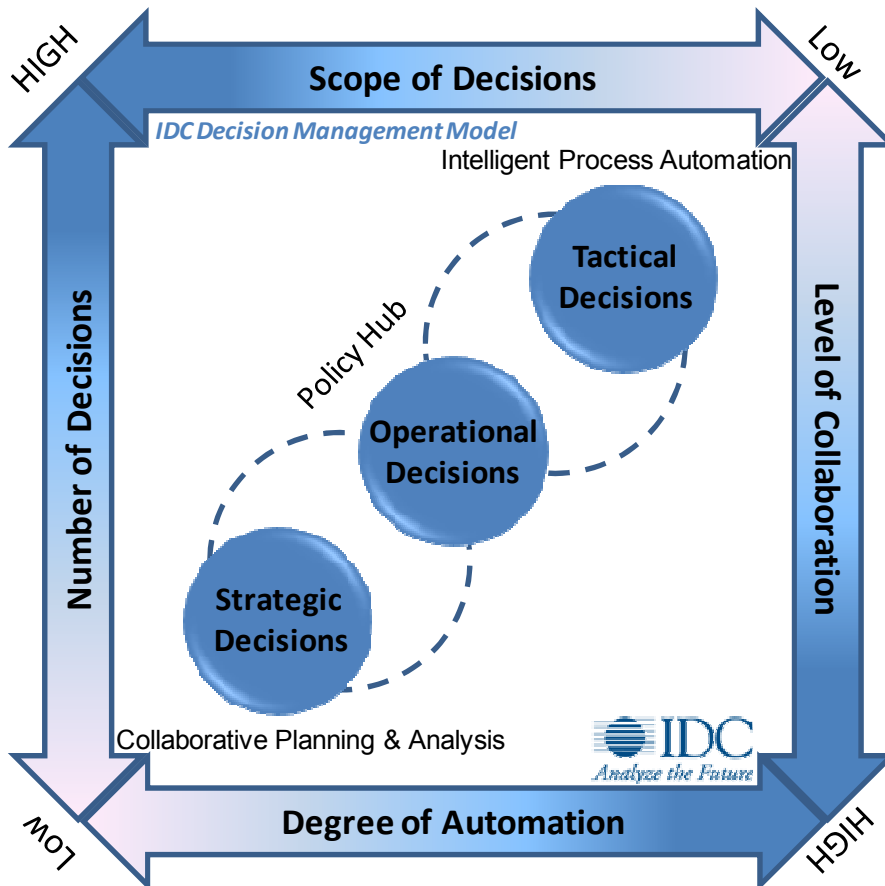
The Turn to Decision Management

With the decline of command and control styles of management, the responsibility for decision making is distributed to knowledge workers across the many functions of an organization. In some cases, the decision process is fully automated: like the next best offer to a retailer's customer who is shopping online or the price to charge for an

automobile insurance policy for a new driver. In other cases, the decision process is more ad hoc, involving collaboration of a team of knowledge workers focused on solving a business problem, such as developing a sales and production plan for a manufacturer's product line. Figure 1 shows IDC's Decision Management Model.

FIGURE 1

IDC's Decision Management Model



Source: IDC, 2010

The types of decisions range from ad hoc (strategic) to automated (tactical):

- ☒ **Strategic decisions** set the long-term direction for an organization, a product, a service, or an initiative and result in guidelines within which operational decisions are made. Such decisions are made or revised infrequently, but they are of broad scope in their impact on other decisions. Collaborative planning is often a feature of strategic decision making as agreement is sought across members of a team.

☒ **Operational decisions** focus on a specific project or process and translate the strategy into guidelines for action, such as rules for determining an optimal price. Operational decisions represent a policy hub, as the policies are applied to a variety of decision points where actions are taken.

☒ **Tactical decisions** repeat frequently and can occur in high volume. Examples are what price to charge a specific customer for a seat on a particular flight or a room in a specific hotel for a specific night. Such decisions lend themselves to automation.

The outcomes of tactical decisions are monitored, leading to ongoing review and adjustments to the guidelines. The record of these changes, in turn, becomes an input into future strategy reviews. This forms a virtuous circle or feedback loop that drives continuous improvement.

With the ability of firms to do business on the Web, decision cycles are now far shorter, approaching real time in many cases, especially at the tactical level. Decisions that could have taken days (e.g., what to include in a product or offer to a telecommunications customer who is a churn risk) now must be made instantly. This puts a premium on speed and the need to process all relevant information in near real time to select the optimal path among the available decision alternatives. The public attention to the failure of decision making in financial markets has occasioned a realization *across industries* of the pressing need to apply intelligence in a more consistent and predictable way to decisions throughout the enterprise.

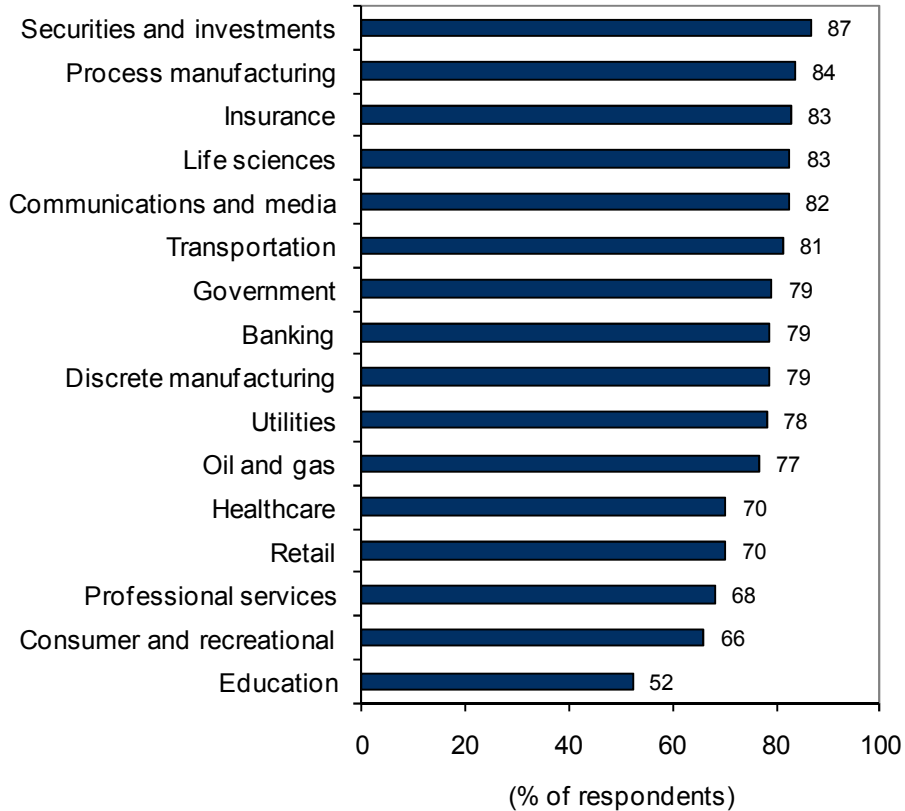
Analytics Adoption Across Major Industries

The importance of intelligent decision making is well recognized. But how widely is analytics being adopted? Recent IDC research shows that over half of organizations have at least started down the path of analytics and business intelligence. See Figure 2, which is based on a 2010 IDC survey of over 2,700 IT managers.

FIGURE 2

Business Analytics Adoption Levels by Industry

Q. *Has your organization implemented a business intelligence/analytics solution?*



n = 2,771

Source: IDC's Vertical Research Survey, 2010

Note that the penetration rate differs from industry to industry for adopting at least one business intelligence/analytics solution in the organization. For example, there is an 87% adoption rate in the securities and investments industry compared with a 52% adoption rate in education. And keep in mind that the results show only that analytics is present somewhere in the organization, with further opportunities to grow its use.

But how is analytics being implemented? There are two approaches: *build* or *buy*. You can *build* a custom analytics solution out of business intelligence tools and components. Or you can *buy* an application that is customized to a specific data and business environment. IDC's most recent study across industries shows a preference for buy over build for analytics, which follows the trend for all types of applications. This accounts for the strong growth in analytic applications over the past decade.

CONSIDERING PREBUILT SOLUTIONS

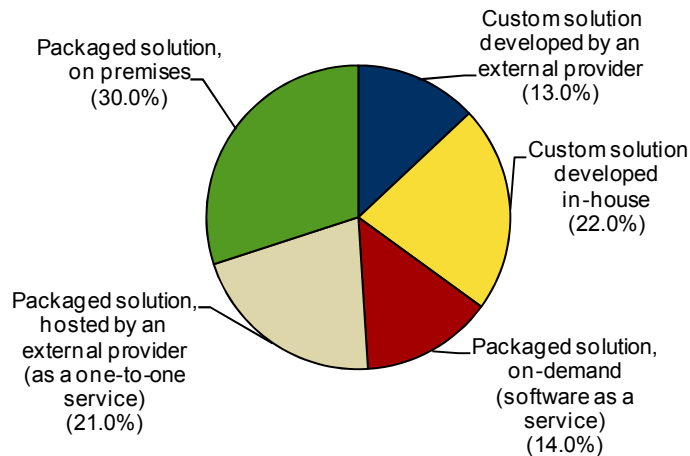
Analytics was viewed as the province of large organizations with the means to hire skilled consultants or to maintain large internal software development staffs. But this is no longer true. An IDC survey of over 2,700 IT managers shows that 91% of large enterprises (over 5,000 employees) have implemented an analytics solution, while 83% of medium-sized enterprises (between 500 and 5,000 employees) have done so. This reflects a lessening of the skills gap in organizations on the implementation and application of analytics to business decisions.

One of the reasons is the greater availability of prebuilt or packaged solutions. The same IDC survey of IT managers shows that over half of the respondents have packaged rather than custom analytics solutions (see Figure 3).

FIGURE 3

Custom Versus Packaged Analytics Solutions

Q. *What type of business analytics solution do you have?*



n = 2,774

Source: IDC's Vertical Research Survey, 2010

Let's explore these packaged solutions in more detail. Prebuilt analytic applications are increasingly becoming available not just for horizontal functions like finance but also for vertical-specific processes across all major industries and categories of decisions.

Analytic Applications

IDC was the first to define this category of software (*Analytic Applications and Market Forecast: Changing Structure of Information Access Markets* by Henry Morris, August 1997). At that time, we noted that the convergence of several factors was enabling the packaging of expertise in a prebuilt application aimed at improving decision making:

- ☒ For one thing, the growth of prebuilt transactional applications and suites (like financials, procurement, and the like) made it possible to define common procedures for preparing the data captured by these widely deployed systems.
- ☒ In addition, the growth of data warehousing and analytics since the 1980s had provided a wealth of experience and knowledge that could be captured in these applications.
- ☒ Finally, a set of business metrics, such as the balanced scorecard of Kaplan and Norton, defined popular metrics that were broadly adopted and could form the basis for analysis across organizations in diverse industries.

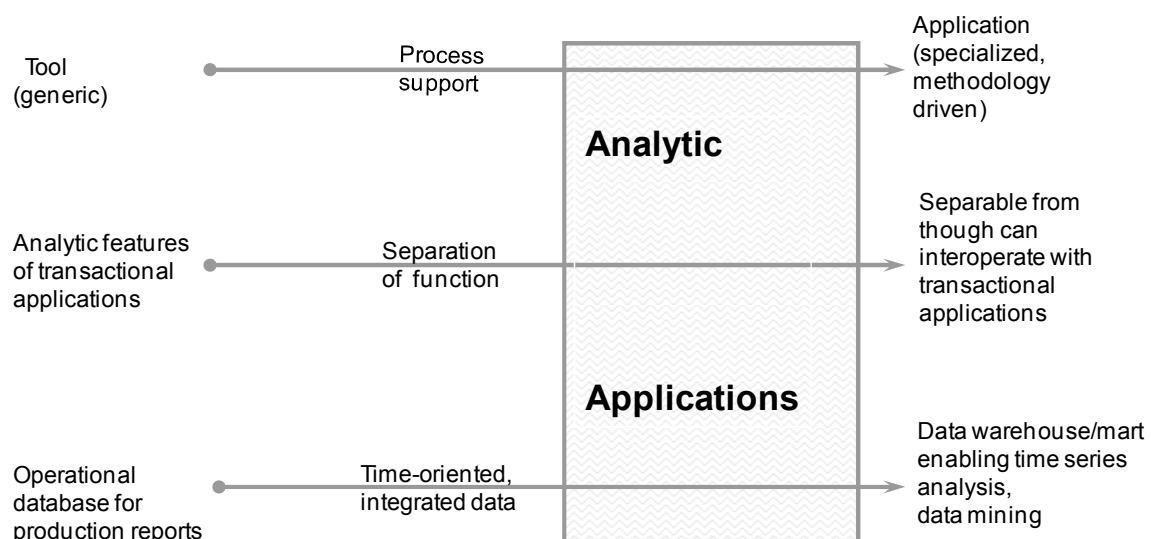
These factors made it possible to package analytic applications, designed to spread the benefits of business intelligence more widely in the marketplace.

Definition

The definition of "analytic application," first set out in 1997, still applies today. Figure 4 shows the three dimensions of an analytic application.

FIGURE 4

The Three Dimensions of Analytic Applications



Source: IDC, 1997

As shown in Figure 4, an *analytic application* must meet each of the following three conditions:

- ☒ **Process support.** Packaged software that structures and automates a group of tasks pertaining to the review and optimization of business operations (i.e., control) or the discovery and development of new business (i.e., opportunity)
- ☒ **Separation of function.** Can function independently of an organization's core transactional applications, yet is dependent on such applications for data and may send results back to these applications
- ☒ **Time-oriented, integrated data.** Extracts, transforms, and integrates data from multiple sources (internal or external to the business), supporting a time-based dimension for analysis of past and future trends, or accesses such a database

To be classified as an analytic application, a software package must have each of these attributes. According to IDC, all types of analytic applications combined account for \$8.3 billion in total software revenue, with a 7% compound annual growth rate forecast for the next five years.

Benefits and Trends

Initially, analytic applications were created for horizontal processes that applied equally across industries. The most common target was the financial function, and analytic applications addressed needs such as business planning, consolidation, and cost or profitability analysis. Though these applications start out as department specific, they soon involve users across functions. A good example is financial planning, which originates in finance but has users across the organization.

The most popular alternative to a planning or budgeting analytic application is the use of spreadsheets. But a spreadsheet is a productivity tool aimed at individuals, while the production and review of a budget requires the coordination of multiple individuals in a highly collaborative process. Prebuilt analytic applications for planning provide the needed process support and should be flexible enough to enable alteration of the workflow as needed. The same could be said for financial consolidation, which requires a collaborative process and the integration of multiple data sources, in this case general ledgers from heterogeneous financial systems. An analytic application can provide consistency in process execution and transparency on how information is gathered and consolidated.

Starting with financial analytics, over time the inventory of prebuilt analytic applications that were sold in the software marketplace expanded to include all major horizontal processes and the decisions required to run and manage them. But in recent years, there has been real progress in the availability of analytic applications for a broad set of industry-specific processes. This area remains the most fertile one for innovation and is still the most underserved sector of the analytics marketplace.

In the area of planning alone, there are many industry-specific examples. Sales and operations planning is a requirement for manufacturers seeking to balance three constantly changing variables: inventory, capacity, and demand. Workforce planning can be tailored to meet the needs of industries, such as scheduling skilled personnel

in a hospital setting. Some planning applications are tactical and must be able to accommodate near-real-time changes to key variables, such as sudden spikes in demand for communications services. Other analytic applications take a longer-term view and are used to evaluate trade-offs for building new capacity, such as new manufacturing plants or healthcare facilities.

Another trend worth noting is the appearance of analytic application suites. This follows the pattern of transactional applications, which moved from standalone applications for specific functions (finance, human resources) to application suites. In like manner, suites of analytic applications are emerging that focus on a group of related decisions in a specific area: fraud, risk, operational planning, customer segmentation, and many other cases. The application suites leverage a common data set, such as all data pertaining to a customer or data on trades of individual investments and the performance of an investment portfolio.

CHALLENGES AND HOW ORGANIZATIONS ARE OVERCOMING THEM

The following challenges impact the deployment of analytics:

- ☒ **Data issues.** Organizations may be stymied by their inability to support the sharing of information both within and across groups. This limits the ability to support line-of-business analytics projects or enterprise initiatives that cover a range of related decisions, such as a single view of the customer (or supplier or partner).
- ☒ **Expertise issues.** The skills in shortest supply tend to be finding individuals who understand the analytical techniques and know enough about business issues to be able to marry one to the other. Packaging expertise in prebuilt analytic applications can help bring the benefits of analytics for industry-specific decisions to organizations of all sizes.
- ☒ **Cultural issues.** Companies differ in the extent of their analytical orientation. This refers to whether or not there is a culture that encourages fact-based rather than gut-based decisions. Without an analytical orientation, employees lack the necessary support for seeking to make the right decision with the right information at the right time.

Let's examine how to deal with each of these challenges.

Focusing on Data Issues

It's not a question of getting more information, but bringing together and analyzing *relevant* information. And what defines relevance? The key to relevance is context: identifying the information that is needed for a specific *decision*, enabling the discrimination between optimal and suboptimal alternatives.

This is not a small matter. IDC research has consistently shown that 70–80% of the effort of an analytics project depends on resolving data issues. It's reasonable to assume, therefore, that data issues are the biggest reason for the failure of analytics projects.

Support is needed from an organizational perspective. The breakthrough is when business stakeholders take responsibility to own the data, with IT providing the technical data architecture in support of this mandate. This commitment can come only when a business unit recognizes the financial impact of suboptimal decisions caused by not having the right data at the right time. This realization was evident in a United Kingdom–based global auto dealership that has about 630 end users ranging from the CEO to regional and local retail office managers accessing the BI solution. The company has been able to create a "common global language" for analyzing performance-related topics. The CEO can walk into any dealership or into any regional executive's or general manager's office and be assured that there will not be any miscommunication about the performance metrics being discussed.

Analytic applications begin to address the data issues in two important ways. First, an analytic application packages a data model that is optimized for analysis. Second, an analytic application includes software routines that transform data from popular prebuilt transactional applications into the form specified by the data model. These features can help accelerate the implementation process.

Addressing Expertise Issues

Analytics requires many types of skills: data integration as a foundation and then forecasting, modeling, and simulation that explore patterns that can guide future action. These skills often exist in pockets in an organization, but not necessarily within each business unit. Hence, the ability to transfer learning across an organization is key to success in applying analytics to additional areas of decision making.

Addressing the issue of the uneven distribution of skills, many organizations have established a shared services model. This model is realized via a BI Competency Center, a central resource staffed by business and IT professionals with a potent mix of skills. The mission of such a group is to transfer knowledge gained in prior analytics projects to new business groups getting started with analytics. Training in analytical techniques and data governance processes is part of the ongoing menu of services provided.

Complementary to this shared services model is the use of prebuilt analytic applications. These applications package expertise on how to apply analytics to common types of decisions encountered across industries or in specific industries. This preserved knowledge can provide a jump start to beginning with analytics or extending it to new areas.

Combining a BI Competency Center with standard metrics that can be reinforced with standard methodologies pays dividends. A United States–based restaurant chain, faced with the inability to make operational decisions based on a consistent set of corporatewide metrics, adopted a formal performance management methodology. Additionally, the company established a BI Competency Center. Within 18 months, 3,000 business end users, including restaurant operators, managers, general managers, and executives — representing the vast majority of potential users — were actively using the newly deployed BI and analytics software.

Recognizing Cultural Issues

Success in analytics relies on organizational dynamics as much as or more than it relies on technology. To this end, IDC research has shown that organizations differ in their cultures in terms of their support for fact-based decision making. We call this *analytical orientation*.

Organizations that seek fact-based evidence to support their decisions are more likely to assess themselves as competitive in their markets. A recent IDC study shows that 80% of those companies that see themselves as highly competitive versus their peers have a high analytical orientation. On the other hand, only 58% of those that see themselves as lagging behind from a competitive perspective have an analytical orientation to fact-based decision making.

Let's consider the example of a government agency that is realizing the benefits of an analytical orientation, as employees continually find new ways to leverage information for better decisions. The director of the fraud and recovery section of a U.S. state agency said: "Initially we built a new BI system based on a particular need to get better access to information by moving from paper reports to an interactive BI tool based on a data warehouse. As a result of on-demand access to the most relevant data, we were able to increase the efficiency of fraud detection within the state food stamp program. However, now employees [have] discovered that the data they had access to could be used to support several decisions that the system wasn't necessarily designed to support. For example, they could monitor the performance of benefits administration with data designed to detect fraud. The organization has started to ask new questions and arrive at new decisions to improve other processes."

The encouragement of fact-based decision making using analytics became contagious, spreading from one group to another and from one type of decision to related decisions. In such an environment, the analytical orientation of the organization steadily grows.

WHERE AND HOW TO BEGIN

The leader of a decision management group at a major U.S. airline made the following observation: It wasn't enough for a senior executive to ask him to dedicate his experienced team to a project. He would take on a project only if it focused a decision with a significant and measurable financial impact on the organization. Experience had taught him that demonstrating value was a key not only for the success of the current project but also for paving the way for follow-on projects that explored related decisions.

Consider the following when getting started with analytics:

- Identify the business objectives.
- Identify key performance indicators (KPIs) to measure progress toward the objectives.
- Focus on a decision that has a high impact on these KPIs.

- ☒ Gain the support and participation of the relevant business and technology stakeholders.
- ☒ Investigate the availability of a prebuilt analytic application for the selected business process and decision.
- ☒ Evaluate, select, and then implement an analytic application to drive improvements in decision making for the chosen business process.
- ☒ Train users on fact-based decision processes based on the application.
- ☒ Measure and evaluate improvement against the objectives, then refine.

Encouraging fact-based decisions can stimulate process improvement across an organization. Managers should lead by example and incentives should reflect this priority. With the proper encouragement and training, fact-based decision making can become a habit. Industry-specific analytic applications address expertise issues to bring the advantages of business intelligence and analytics to more organizations and to a broader class of decisions — a necessary factor for staying competitive in today's intelligent economy.

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