

Smarter Analytics for Better Business Outcomes

Big data. Real solutions. Big results.



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The advantage of being an analytics-driven organization

The escalating volume, variety and velocity of information generated in today's hyper-connected world presents businesses with a major challenge. For those organizations wise enough to capitalize on it, this abundance of information offers a major opportunity to gain competitive advantage. Big data and the powerful analytics solutions now being used to analyze it are fundamentally changing the way organizations manage their daily operations, where they direct new investments and even how they are structured.

The competitive advantage to be gained from analytics is substantial. Organizations that are aggressively pursuing an analytics and information strategy are breaking away from the competition, while laggards in analytics are finding themselves struggling to maintain market share.



A study conducted by the Saïd Business School at the University of Oxford and the IBM® Institute of Business Value described the growing momentum of analytics, especially with regard to big data:

- “63 percent—nearly two-thirds—of respondents reported that the use of information (including big data) and analytics is creating a competitive advantage for their organizations.”
- “Respondents whose organizations had implemented big data pilot projects or deployments were 15 percent more likely to report a significant advantage from information (including big data) and analytics compared to those relying on traditional analytics alone.”¹

These findings are reinforced by a separate MIT Study which found that analytics led to increases in productivity of 5-6 percent, which, in today's hypercompetitive business environment, is a large enough margin to separate the winners from the also-rans in most industries.²

Four key business imperatives

Leading organizations embed analytics into their core business processes, from scenario modeling that aids risk management to the creation of algorithms that help an organization determine the next best action for a customer. Organizations in a broad range of industries have learned to weave the use of analytics and information into the fabric of their business and culture. Using Smarter Analytics capabilities and strategies, they often start by focusing on one or more of these four key business imperatives.

Grow, retain and satisfy customers

Today's empowered customers can often dictate terms in the dynamic between buyers and sellers. Customer analytics can help improve loyalty and drive higher revenues by helping businesses gain insight into customer needs, desires and behaviors.

XO Communications, one of the largest communications service providers in the U.S., needed better ways to identify customers at the highest risk of "churn" before these customers switched to another carrier. After adopting IBM analytics and data warehouse solutions to predict customer behavior, XO Communications was able to proactively reach out to customers with a high risk of churn with dramatic results:

- Reduced customer churn by 35 percent within the first year.
- Increased customer retention rates by 60 percent.
- Decreased the number of client service agents needed to provide the same level of customer service.
- Achieved 376 percent ROI within five months.

Premier, a collaborative healthcare alliance serving more than 2,600 hospitals, 86,000 healthcare sites and 400,000 physicians, worked with IBM on an ambitious "re-platforming" effort to build an entirely new data architecture and infrastructure with IBM hardware and software.

Using the new platform, Premier members can now access an integrated system for various clinical, business and compliance-related applications. The Premier initiative helps healthcare providers identify those treatments that benefit patients the most, so that no matter where they live or where they are treated, patients can be assured the best possible care. In one Premier project, 157 participating hospitals:

- Helped save approximately 25,000 lives.
- Reduced healthcare spending by US\$ 2.85 billion.

Increase operational efficiency

Analytics helps companies optimize existing processes, including streamlining supply chains, using predictive analytics to anticipate maintenance needs for equipment, and speeding the claims process for insurance companies while reducing fraud.

Auto insurer *Infinity Property and Casualty* sought a way to analyze and score insurance claims faster in order to zero in quickly on suspected fraud and speed up the settlement of valid claims. Infinity implemented a suite of IBM predictive analytics software, which captured thousands of data points from claims and policy systems on a daily basis, evaluated the data for fraud risk and flagged questionable claims for investigation. The results were dramatic. The immediate scoring of claims helped the company spot potential fraud cases much faster, reducing the investigation referral window from 45–60 days to approximately 1–3 days. With IBM predictive analytics, Infinity was able to:

- Double the accuracy of fraudulent claim identification and accelerate the referral of suspicious claims to company investigators.
- Improve customer satisfaction and retention by paying legitimate claims faster, contributing to above-average company growth.
- Generate a 403 percent ROI from reduction in claims payments and enhanced subrogation results.

Vestas, the world's largest maker of wind turbines, depends greatly on the geographical placement of its turbines, with precise placement affecting both performance and useful service life. Working with IBM experts in data mining and big data, *Vestas* used one of the largest supercomputers in the world, along with the IBM big data platform, to slice weeks from its data processing times. As a result, the company was able to make more accurate turbine placement decisions, leading to radically faster development of new wind farms. With the help of IBM, *Vestas* was able to:

- Process 10 times the amount of data as was previously possible, incorporating data from 35,000 meteorological stations around the world with data collected from its own turbines.
- Reduce the time required for wind forecasting from weeks to hours.
- Provide customers with better financial predictions to make a solid business case for investments in wind farms.

Transform financial operations and processes

CFOs and finance teams can apply analytics to increase speed and accuracy in the closing process, improve planning, budgeting and forecasting, allocate enterprise resources to maximize profitability; and report with confidence to internal and external stakeholders.

The *Chickasaw Nation Division of Commerce (CNDC)* operates a diverse range of enterprises including hotels, casinos, banks, retail stores and radio stations, and employs more than 6,000 people. As the organization grew larger and more complex, it needed greater insight into finances and operations. *CNDC* deployed a range of IBM analytics solutions for financial analysis, planning and forecasting.

The IBM analytics and information management solutions:

- Provided new insight into the profitability of promotions, helping marketers identify the most successful offers and create better campaigns.
- Reduced preparatory work for budgeting by 50 percent, extended the planning horizon to 24 months, and incorporated a rolling forecasting process.
- Accelerated monthly financial reporting cycles by up to 50 percent.
- Enabled more accurate cash-flow forecasting, reducing the cash reserves needed to offset risk.

Omnicom Group, a leading global marketing and corporate communications company, wanted to better manage its working capital to drive growth. It turned to IBM for business intelligence software and a custom data mart into which each *Omnicom* treasury center feeds its account balances. This enabled *Omnicom's* treasury department to balance the company's internal accounts daily and to:

- Save more than \$1 million per year in banking fees.
- Reduce annual debt requirements by approximately \$200 million.
- Reduce leasing costs as a share of revenue from 2.14 percent to 0.57 percent.
- Increase cash flow by \$200 million by reducing receivables aged more than 60 days.

Manage risk and capital, and ensure regulatory compliance

Too often, risk is regarded as the exclusive purview of the CFO, despite the fact that a high percentage of risks are not financial, legal or compliance-related. Analytics offers insight into both traditional and emerging categories of risk, as well as the tools to detect and combat fraud.

MoneyGram International, Inc., is a payment services company that provides global money transfers, money orders and payment processing solutions for individuals and financial institutions. To meet fraud and compliance regulations pertaining to international business, MoneyGram implemented a centralized IBM solution to identify suspicious or high-risk transactions. The company developed global compliance rules to help mitigate the risk of fraud, maintain regulatory compliance and adapt quickly to new types of fraud. With the help of the IBM information management solutions, MoneyGram was able to:

- Stop more than \$37.7 million in fraudulent transactions.
- Improve its ability to identify and interrupt potentially fraudulent transactions by 40 percent.
- Reduce consumer fraud complaints by 72 percent in one year.

Mizrabi Tefabot Bank, one of the largest banking groups in Israel, needed to comply with Basel II market risk requirements, and engaged IBM to implement an integrated risk management system that could provide a fuller understanding of risk across all products and counterparties. With the help of a dedicated team of IBM consultants, the bank deployed a suite of IBM solutions that helped it control and manage risk across multiple asset classes and risk factors. IBM analytics enabled the bank to:

- Calculate capital in accordance with Basel II requirements and calculate risk automatically, on a daily and intra-day basis.
- Prepare 70 different market risk reports daily, including limits and stress tests for 60,000 transactions valued at over US \$1.2 billion—all in just two hours.
- Produce daily benchmarks for liquidity and ALM (Asset Liability Management), and run two intra-day calculations in only minutes.
- Compute VaR values and stress test values on a monthly basis to satisfy local regulatory requirements.

IBM Smarter Analytics for better business outcomes

“Smarter Analytics” is the name IBM gives to our holistic approach to helping organizations turn information into insight, and insight into better business outcomes. Analyzing information from new sources such as machine-operated sensors, video, email and social media, in conjunction with traditional sources such as transaction records and buying history, enables organizations to gain entirely new insights that were not possible even a few short years ago. Smarter Analytics reveals patterns within data that enable individuals and organizations to make the right decisions at the right time.

Through the Smarter Analytics portfolio, IBM helps organizations apply analytic capabilities that are appropriately tuned to the task at hand—whether optimizing a marketing campaign, improving operational efficiency, closing the financial books faster, or evaluating the likelihood of customer churn.

The IBM approach involves interconnected competencies that help organizations capitalize on the immense potential and value of analytics. IBM helps you:

- *Align* your organization’s information strategy with its business strategy.
- *Anticipate*, predict and shape business outcomes.
- *Act* with confidence at the point of business impact.
- *Learn* with the help of systems that can reason and make successively better decisions with each iteration of a specific business problem.
- *Transform* the organization to deliver results that elevate the business above its competitors.

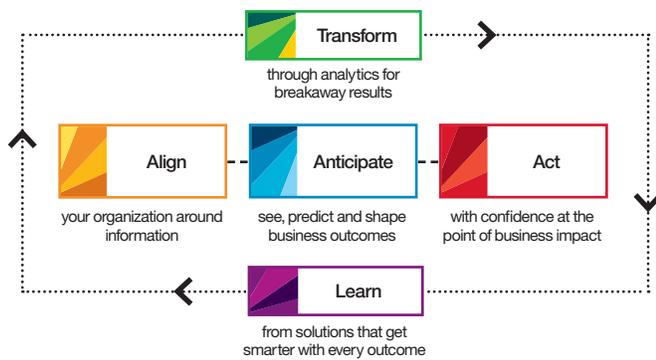


Figure 1: IBM Smarter Analytics is a holistic approach for turning information into insight and insight into outcomes.

Align

An information infrastructure aligned with your business requirements lies at the heart of a successful analytics strategy. The organization must be able to capture, manage and share enterprise content throughout its lifecycle. This includes the integration and governance of information to provide business confidence and assure the veracity of the underlying data. It also includes making sure that the right information is accessible when needed, while data that is no longer needed is disposed of promptly.

- *Big data platform*—Cost-effectively address the variety, velocity and volume of big data—even on the petabyte scale.
- *Data warehousing*—Provide access to structured and unstructured information and operational and transactional data in real time. Support complex analysis of huge amounts of information very quickly, and access up-to-the-second information for operational purposes. Use in-database analytics on transactional data to find affinity between groups for purposes such as market basket analysis for inventory planning.

- *Information integration and governance*—Integrate information from diverse data sources while maintaining data quality and governing the information lifecycle.
- *Data management*—Effectively control the collection, organization and distribution of data.
- *Enterprise content management*—Capture, activate, analyze, share and govern content found in documents, images and other content sources to deliver optimum business value.
- *Defensible disposal*—Archive, store and tie retention schedules and precise legal holds to information based on its value and defensibly dispose of unnecessary information to significantly reduce cost and lower risk.
- *Scalable IT infrastructure*—Employ integrated platforms that are specific to the transaction processing tasks, the analytics workloads or the types of application.

Anticipate

Analytics tools and capabilities enable the organization to spot trends and anomalies; predict potential threats and opportunities, measure and monitor business performance; facilitate the sharing of insights and automate decision making.

- *Business intelligence*—Search enterprise information, perform analysis and create reports, dashboards and scorecards to communicate current status and progress toward goals and targets.
- *Performance management*—Create timely, reliable plans, budgets and forecasts to drive profitable growth and alignment between finance and operations.
- *Predictive analytics*—Use statistical analysis, data mining and predictive modeling to extract information from data and use it to predict future trends and behavior patterns.
- *Risk analytics*—Gain an accurate and consistent view of risk exposure across the organization and across multiple risk and compliance domains.

- *Sentiment analytics*—Discover the sentiments of customers, employees and the public at large as expressed in positive, negative or neutral comments about your organization and its products and services.
- *Big data analytics*— Discover meaningful trends and patterns in big data and do so quickly enough to take action on the insight.
- *Content analytics*—Gain faster understanding of the context and meaning of unstructured content such as documents, emails, surveys, and more.
- *Web and digital analytics*—Provide marketers with insight into how individuals are interacting with a brand's digital presence.
- *Online benchmark*—Measure real-time sales data and online marketing results to discover trends across a variety of channels including social media, mobile applications and other online venues where consumers interact with brands.
- *Spend analytics*—Analyze your organization's spending patterns to identify anomalies and spot opportunities for saving.
- *Decision management*—Enable frontline workers to quickly and consistently make decisions that are aligned with organizational goals. Combine predictive analytics with business rules, scoring and optimization techniques to automate decision making and provide real-time answers to operational questions.
- *Advanced case management*—Unite information, processes and people to provide a 360-degree view of case information and achieve optimal outcomes in dispute and incident management, insurance claims management, contract execution and more.
- *Digital marketing optimization*—Execute and automate marketing actions in real time, both at scale and on a one-to-one level to provide relevant content and offerings as well as personalized recommendations through online, social and mobile channels.
- *Cross-channel selling and marketing*—Identify cross-sell and up-sell opportunities and focus marketing efforts on the most promising prospects.
- *Pricing, promotion, and assortment optimization*—Execute strategies to attract the most profitable customers and manage product assortments to satisfy diverse needs without carrying excess inventory.
- *Marketing performance optimization*—Increase return on marketing expenditures by identifying those marketing channels that correlate most directly with higher sales.
- *Supply chain optimization*—Maximize purchasing power by analyzing buying patterns by item and vendor, and evaluating vendor reliability and performance.
- *Organization and workforce transformation*—Optimize workforce availability and capability to ensure that your organization has the right people with the right skills in the right place at the right time—and with the right incentives.

Act

Achieving better business outcomes requires a culture that encourages analytics-based decision making. It also requires a resilient IT infrastructure, available 24/7, that can meet the demands of real-time analytics embedded into day-to-day business processes. Whether it is a call center representative who is empowered to select the right offer for a customer on the phone, a system that manages automated claims processing, or a supply chain manager using predictive models to secure the best price for raw materials, analytics have the greatest value when you use them to take action.

Learn

Ideally, an organization's processes and people should learn from the outcomes of their decisions and apply the lessons of the past to new situations. Cognitive systems represent a new class of industry-specific analytic solutions that use deep content analysis and evidence-based reasoning to accelerate and improve decision-making. A system like IBM Watson can fundamentally change the way businesses solve problems.

- *Watson*—IBM Watson technology has gained fame for its ability to navigate human language, dynamically generate evidence-based hypotheses for complex questions and apply analytics to weigh and optimize responses. Watson's technology allows it to learn from experience, and get smarter with every interaction. This is accomplished using natural language and evidence-based learning combined with massive parallel probabilistic processing, ingesting and analyzing Big Data.
- *Watson for Healthcare*—Memorial Sloan Kettering, the world's largest private cancer treatment center, is training IBM Watson to provide personalized diagnoses and treatment suggestions for cancer patients. Watson draws upon "anonymized" records of thousands of past cancer cases, plus massive volumes of medical literature to generate evidence-based, confidence-scored recommendations that can help oncologists make more informed decisions to improve patient care and outcomes.
- *Watson for Financial Services*—IBM is working with Citigroup to identify new opportunities for deep content analysis and evidence-based learning to improve customer interactions and simplify the consumer banking experience.
- *Watson for Contact Centers*—Watson can help contact center agents find better answers to customer questions in a fraction of the time, providing better customer service at lower cost.

Transform

Transforming an organization through analytics requires a culture in which employees are empowered to act decisively, confident in the information on which they base their decisions. But you don't have to build that culture on your own.

- *BAO strategy*—Realize business optimization objectives faster, with less risk and at lower cost by developing an effective information strategy and creating unique predictive capabilities to drive more intelligent decisions.
- *Big Data*—Achieve business value through exploratory analysis of massive quantities of big data by identifying a set of prioritized use cases and preparing an implementation roadmap.
- *Front office analytics*—Develop customer analytics strategies to address the needs of sales, marketing and customer service functions. Drive top-line growth, avoid unnecessary costs and increase customer satisfaction.
- *Regulatory compliance and risk management*—Gain an accurate and consistent view of risk exposure across the organization and across risk and compliance domains.
- *Fraud analytics*—Monitor transactions in real time across multiple channels to detect suspicious transactions prior to payment, minimize loss from overpayments, and recommend methods of intervention.
- *Financial performance management*—Increase visibility, insight and control over financial performance to quickly and precisely adjust plans, targets and resources across the organization.
- *Information management foundation*—Build an enterprise-class big data platform and adopt new techniques for integrating information and functionality.
- *IBM Research First-of-a-Kind (FOAK) projects*—Leverage the collective expertise of BAO consultants and IBM researchers to solve your most difficult problems and explore new and innovative technologies for emerging opportunities.
- *Application Management Services*—Cost-effectively integrate new applications into your existing infrastructure to improve quality and deliver value with a simplified analytics environment.

- *Globally Integrated Enterprise analytics*—Leverage analytics to standardize, consolidate, and organize back-office operations optimally across geographic and business units to undertake large-scale transformation and free up capital for growth.
- *BAO Jumpstart services*—Accelerate your analytics journey by engaging in a rapid, high-impact business value assessment in your functional area or industry to develop an analytics roadmap for achieving competitive advantage.



IBM Research helps Dublin's buses run on time

Ireland's Dublin City Council worked with IBM Research to implement an intelligent transportation system built on the IBM big data platform and IBM InfoSphere Streams software. The system enables the council to optimize its bus routes and stop locations, saving energy and improving rider service. The IBM system provides:

- Real-time visibility into the arrival times of 1,000 buses running on 150 routes and making 5,000 stops daily.
- Updated speed and traffic flow measurements, travel time estimates and statistical aggregations of traffic volume and traffic conditions.
- Estimated arrival times of buses, factoring in the probability of delays at different times of the day or the week.

IBM Smarter Computing: An IT Infrastructure for Big Data and Analytics

The growing volume, variety, and velocity of data are driving the demand for more resilient and scalable integration platforms—and impacting infrastructure requirements. In addition, as analytics are embedded into real-time business processes, it becomes vital to have an infrastructure that is available 24/7. For these reasons, visionary leaders are rethinking their IT infrastructures and looking for better ways to align infrastructure around the changing dynamics of information. Scalability can be handled in different ways, depending on the specifics of the analytics workloads and the number and type of applications to be supported. Critical to analytics performance are the choices that are made with regard to optimizing the relationship between software and the hardware that the software runs on. In developing its Smarter Computing approach to IT innovation, IBM has made significant investments in optimizing its analytics stacks to deliver essential capabilities that help organizations enable data-ready IT infrastructure that provides:

- Shared access to trustworthy information, for both structured and unstructured data.
- Actionable insights on operational data with predictive, advanced and operational analytics.
- Maximum availability of business insight, optimized for any scale.

To meet the data challenges of today and tomorrow, IBM has introduced the IBM PureData™ System. In the past, IT organizations often purchased general purpose systems that were not optimized for their workloads. IT personnel then spent valuable time and resources tuning—and eventually maintaining—them for the workloads’ different requirements. That’s why IBM designed and built the PureData Systems specifically optimized for analytics workloads:

- *PureData Systems for Operational Analytics*—supports analysis of large sets of both historic and real-time operational data.
- *PureData Systems for Analytics*—powered by IBM Netezza® technology—offers serious analytics in a simple data appliance.

In addition, IBM offers the PureApplication System to deploy applications faster, using the unique IBM Patterns of Expertise capabilities that automatically balance, manage and optimize the necessary elements, from the underlying hardware resources up through the middleware and software.

With Smarter Computing, organizations can be “tomorrow ready” today, with an infrastructure that allows them to leverage big data and analytics technologies, and master the flow of critical information.

How does your organization’s use of analytics compare to industry benchmarks?

Take the IBM Smarter Analytics self-assessment today to find out at ibm.com/analytics/?survey=4.

How to get started

When organizations are looking for ways to get started with analytics or to advance their analytics initiatives, IBM suggests a methodical, business-focused approach.

- *Focus on the highest value opportunities.* Identify the areas that are most important to the business, where analytics can deliver immediate benefits. Trying to tackle everything at once can be overwhelming, so focusing on the biggest opportunities helps to narrow the scope of the initiative.
- *Start with the business questions, not with the data.* Organizations can easily get caught up in looking at the multitude of things that might be learned from the available information. Start by asking the key business questions, then seek answers in the appropriate data sources.
- *Embed insights to drive actions and deliver value.* Analytics initiatives are more successful when the insights gained can be incorporated into information structures and processes across the organization.
- *Build on existing capabilities while adding new ones.* Rather than replacing old, but still functional capabilities, integrate new and expanded capabilities into existing analytical processes.
- *Develop a strategy to align your information (including big data) with your business objectives.* Refine the scope of your analytics initiative, evaluate your core capabilities and competencies and proceed with an eye towards extending the proposed initiatives across the business.
- *Determine hardware infrastructure and software requirements in parallel.* Although business users are likely to provide most of their input to the software requirements, the decision-making committee should engage the IT groups to ensure that the IT infrastructure requirements do not become an afterthought. The most flexible, scalable, and resilient analytics systems incorporate end-to-end planning in advance.

However you choose to get started, the important thing is that you do. The gap in performance and profitability is widening between those who use analytics and those who do not. Make sure your organization does not get left behind.

Why organizations choose IBM Smarter Analytics

The performance results of organizations that are leaders in their fields show that analytics is no longer regarded as just another business initiative, competing for resources with other priorities. Analytics is now viewed as a critical business imperative for companies of all sizes who wish to maintain a competitive position in their industry.

Once limited to data generated within the four walls of the enterprise, today's analytics apply to information of almost unlimited volume, velocity and variety. The information comes from sources both internal and external, structured and unstructured—in constantly increasing quantities generated through the instrumentation of nearly every natural and man-made system on the planet. Analytics help us make sense of it all. And, from once improving the performance of individual organizations on an ad hoc basis, analytics is now beginning to transform entire industries.

IBM is uniquely positioned to deliver analytic capabilities that provide a complete view of the organization—to identify trends and patterns, gain insight into causes and take action at the point of maximum business impact.

IBM has a broad portfolio of integrated information and analytics capabilities, and has made a substantial investment in analytic software and solutions, with over \$16 billion in acquisitions since 2005. IBM offers an enterprise-class big data platform as part of a comprehensive information management foundation, plus analytic capabilities that scale from the personal to the enterprise level, next generation systems that can reason and learn, and decision management solutions that embed predictive analytics into business processes.

IBM Global Business Services (GBS) has more than 9,000 experienced strategy, analytics and technology experts and consultants around the globe. With deep domain expertise and the collective experience gained from more than 20,000 analytics engagements, they have helped organizations in every industry weave analytics into the fabric of their business. Jumpstart services and IBM Analytics Solution Centers are available to help organizations get started quickly. In addition, IBM offers implementation models to complement its software and hardware capabilities and help lower the total cost of ownership, as well as system integration, consultancy, transformation, application management services, appliances, cloud and mobile solutions.

And IBM has advanced technology and the expertise in applying innovation to real world problems, including the “first-of-its-kind” breakthrough innovation with IBM Watson. IBM also has the world's largest math department in private industry since 1960, and has ranked #1 in patents for 19 years, including more than 500 analytics-related patents per year for the last two years. No wonder that top analyst firms have positioned IBM as a leader in their respective reports on analytics software providers.

With help from IBM, big data and analytics can enable an organization to re-invent its products, deliver new service capabilities, optimize its workforce and processes and, most important, compete successfully in today's global marketplace.

For more information

To learn more about IBM Smarter Analytics solutions, contact your IBM sales representative or visit: ibm.com/SmarterAnalytics.



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