IBM Business Analytics and Optimization software

Gain insights and optimize results

Introduction

In our increasingly instrumented, interconnected and intelligent world, organizations have the opportunity to replace decisions made on uninformed instinct and intuition with ones that are fact-based and can be driven by real-time information. A new category of software called business analytics and optimization (BAO) is making this shift possible, and the IBM portfolio of BAO solutions is a unique approach designed to help analytics-driven organizations consistently outperform their peers.

The IBM BAO portfolio is a set of information management, enterprise content management (ECM) and business analytics solutions that help you move beyond a "sense and respond" approach, enabling you to predict and act with certainty. By expanding access to analytics beyond the handful of experts in the back office, these solutions can provide insight to all levels of the organization, at the point of greatest impact. The result will be rapid, informed and confident decisions and actions across the enterprise, based on consistent, trusted and relevant information.

Through this integrated, high-performance portfolio of software, services and solutions, IBM enables your organization to build flexible, powerful information solutions and to apply business analytics to optimize business outcomes. The integrated IBM BAO portfolio has the breadth and depth to turn data into insight, driving better decisions for better business outcomes.

Master your information

Transforming your business with BAO requires more than just managing information—you must master your information to ensure it is accurate, relevant and well-governed. IBM offers a rich portfolio of information management and ECM software, services and solutions that enable organizations to transform silos of information into a trusted, strategic asset that is shared across the organization (see Figure 1).
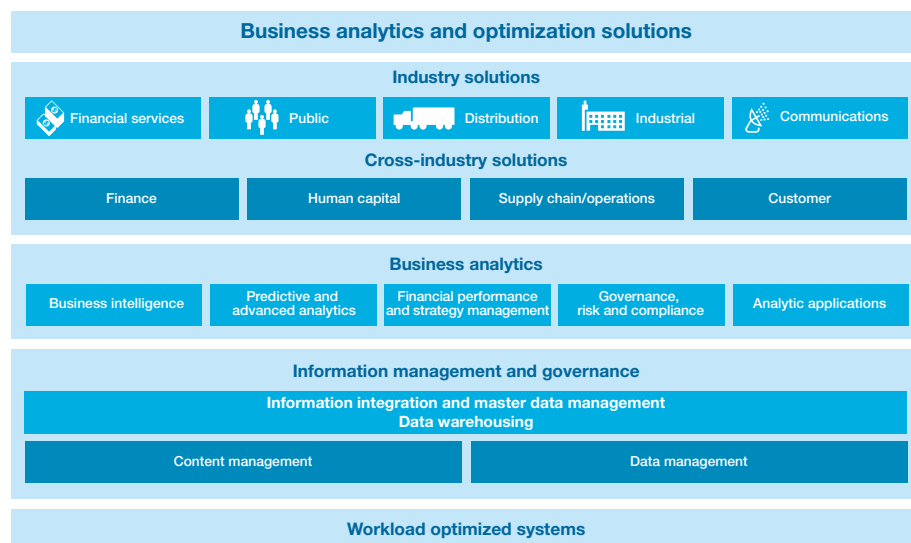

Figure 1: The IBM Business Analytics and Optimization portfolio.

Data management

IBM data management offerings—including database solutions—help turn information into insight. With IBM solutions, you can manage data with high performance and reliability while helping to lower overall operating cost. Integrated and module IBM data management software manages the complete data life cycle (from creation to retirement), enabling optimized business usage and supporting effective governance across the enterprise. Your organization will be able to derive business value from increased volumes of complex data, control data management costs and manage the risk associated with data distributed across diverse platforms.

IBM database software and data management tools give you the ability to apply your existing IT investments to a broad, heterogeneous landscape. They also provide the flexibility to adapt to evolving IT and business requirements capabilities. You can use these tools to help grow your business by accelerating solution delivery and maximizing data availability, while still managing costs, optimizing performance, streamlining upgrades and retirement, and facilitating cross-role collaboration. The end result is immediate business value in the form of lower costs and higher ROI.

Database software and systems and technologies

When it comes to data-sharing systems, IBM provides world-class options. Whether you're looking for continuous, global availability; ease of management; unlimited scalability; or application transparency, the IBM data management portfolio delivers. With proven capabilities for reducing cost and complexity in your IT infrastructure, improving business effectiveness by simplifying complex infrastructures, IBM data management software, systems and technologies help ensure that you are making the most of your core asset—your data.

- **IBM® DB2®**—Industry-leading scalability, reliability, availability and performance across multiple workloads, offering unparalleled efficiencies for staffing and storage: DB2 is available for Linux®, UNIX® and Windows® (DB2 for LUW) and for IBM z/OS® (DB2 for z/OS).
  - **IBM DB2 pureScale™** is an optional DB2 feature that helps reduce the risk and cost of business growth by providing near-limitless capacity, continuous availability and application transparency. Developed in partnership with IBM Power Systems™, DB2 pureScale technology enables multiple database servers to share a common set of disks, thereby improving scalability and reliability. DB2 pureScale is built on Power Systems and is optimized for IBM AIX® at all levels, including memory, networking or storage.
  - **DB2 pureXML®** is an optional feature that eliminates much of the work typically involved in the management of XML data and serves data at extremely high speeds. It also supports analyzing information in XML format in ways that have previously not been possible by providing near-limitless capacity, continuous availability and application transparency.

- **IBM Informix®**—Reliable, low-cost, affordable, hassle-free database software; the small footprint and self-managing capabilities make it an ideal choice for embedded data management solutions where you want the power of database software without customers knowing it's there; plus, Informix can be up and running in minutes, not days, and requires virtually zero administration—allowing you to "set it and forget it."
- **IBM Information Management System (IMS™)**—A premier transaction and hierarchical database management system, IMS enables Service Oriented Architecture (SOA) exploitation and new application development.
- **IBM solidDB®**—Relational, in-memory database software that delivers extreme speed, performing up to 10 times faster than conventional, disk-based databases;[1] it can act as a stand-alone in-memory database or as an add-on to help improve the performance of existing databases.
- **IBM Database Management Tools**—IBM provides a full array of solutions for end-to-end management of database environments. These solutions cover the entire data life cycle, from designing logical and physical schemas, building and deploying database environments, developing and testing database applications managing database performance, archiving, and security to retirement.

Data warehousing, information integration and master data management

Siloed information prevents a unified view and comprehensive understanding of critical information. In the face of massive data growth, this method escalates the cost of managing and integrating information and increases risks associated with compliance. Information integration, data warehousing and master data management (MDM) solutions enable organizations to integrate information, create a single view of the business and deliver accurate, trusted information to people and systems for transaction processing, business operations and decision making.

Software solutions for data quality, data integration, MDM and data warehousing, along with related tools, help you manage growing information from a broad set of sources and maximize your existing IT assets and skills. This gives you the flexibility to achieve your information integration goals now and in the future. Ultimately, it delivers deeper understanding and insight, leading to better decisions and better business outcomes.

IBM InfoSphere Warehouse

IBM InfoSphere® Warehouse provides everything you need to cost-effectively implement a flexible, scalable data warehouse for dynamic warehousing. It is designed for companies that need to consolidate datamarts, information silos and business analytics to deliver a single source of business insight to all users—within context and in real time.

Built on DB2, InfoSphere Warehouse offers enhanced online analytic processing (OLAP) design and optimization, modeling and design tools and industry solution packs and models. It provides advanced capabilities for running scalable analytics directly in the database, along with the ability to create cubes in-memory that can eliminate the need to create, maintain and synchronize copies for OLAP activities.

To accelerate warehouse deployments, IBM Industry Models combine deep expertise and industry best practices in a "blueprint" that both business and IT communities can use. Part of the InfoSphere portfolio, the industry models are based on experience with more than 500 IBM clients, and represent more than 10 years of development effort. They comprise models for multiple industries, including banking, financial markets, insurance, retail, telecommunications and health plans, along with domain-specific warehouse accelerators that provide key metrics for customer, market and campaign insight, as well as other subject areas.

IBM InfoSphere Information Server

IBM InfoSphere Information Server enables you to integrate and transform data and content to deliver authoritative, consistent, timely and complete information, and to govern data quality. InfoSphere Information Server empowers you to extract the full value of your information by using it in new ways to support new decisions and processes. You can use InfoSphere Information Server to:

- **Understand information**—*IBM InfoSphere Foundation Tools* enable you to unlock the mystery of your existing data sources, easily develop data models in a heterogeneous data environment, jump-start integration design projects, establish and measure data quality metrics, implement corporate standards and much more.
- **Cleanse/transform information**—*IBM InfoSphere QualityStage*™ helps ensure that systems deliver accurate, complete information to business users across the enterprise. *IBM InfoSphere DataStage*® integrates data across multiple and high volumes of data sources and target applications.
- **Deliver information**—Using InfoSphere Information Server, information can be delivered in many ways, including through high-volume bulk movement, through event-driven replication and synchronization, through federated queries or even as a service within your SOA.

IBM InfoSphere Master Data Management

IBM InfoSphere Master Data Management (MDM) facilitates a complete, consistent and standardized view of your data to drive critical business decisions. It enables you to collect critical data from across your systems and manage it centrally within a shared hub, helping to reduce information errors and eliminate duplicate data—all of which support growth, revenue-generation and cost-reduction goals. InfoSphere MDM enables you to apply an adaptive approach to MDM, including a range of implementation styles (from a simple registry to a full golden copy) and a

range of data domains (from customer to product, to patient, to supplier and even to custom domains unique to your requirements), all with time-to-market accelerators that help deliver results faster. InfoSphere MDM also provides unique capabilities tailored to specific industry requirements in healthcare, government and banking.

- *IBM InfoSphere Identity Insight* is an agile, scalable entity resolution and analysis platform for fighting threats and fraud that can be used alone or in conjunction with MDM solutions. Its distinguished identity and relationship disambiguation technology and innovative, complex event processing help public-sector organizations and commercial enterprises recognize and mitigate the incidence of fraud and threats.

Information governance

Every information-centric project requires elements of information governance to maximize the value you get from your investment. Information governance accelerates these projects; helps reduce risk; and affords sustainability, repeatability and business alignment (see Figure 2).
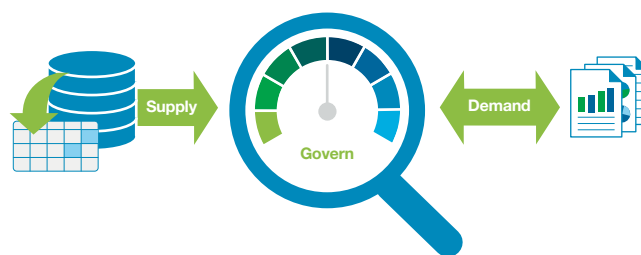

Figure 2: Information governance can help you proactively manage information across heterogeneous information supply chains.

IBM provides information governance solutions that master the complete life cycle of information, establishing sustainable management of information quality and security while enabling IT to make information more accessible and meaningful to the business. IBM offerings enable IT and business to collaborate to help ensure information is aligned to business goals, while improving operational efficiency by reducing risk and cutting the wasted time and cost associated with finding, understanding and managing information.

- *InfoSphere Foundation Tools* give organizations the power they need to get their arms around their data. Every project, whether MDM, data warehousing, consolidation, archiving or security, starts with understanding your existing environment. InfoSphere Foundation Tools let you jump-start a project by providing insight into the data to better understand relationships within and across heterogeneous data sources, to model data and share metadata across projects, and to profile and analyze data to gather the metrics to continuously monitor data quality—all while driving a common vocabulary and capturing data lineage.
- *IBM InfoSphere Guardium* software provides a complete set of capabilities for data security and privacy to help protect enterprise information. Essential safeguards for trusted information architectures help ensure consistent use and governance of that information. Capabilities include database activity monitoring, database vulnerability assessments, data redaction and more.

- *IBM InfoSphere Optim*™ software provides a complete set of capabilities for heterogeneous data life cycle management to deliver trusted information from requirements to retirement. The InfoSphere Optim portfolio includes capabilities for test data management, data growth management and performance management.

IBM InfoSphere Mashup Hub

For Web 2.0 applications and mashups, IBM InfoSphere Mashup Hub lets you unlock and share web and enterprise information. Using visual tools, you can easily create and remix feeds and manage them in a central catalog for users to tag, rate and share.

Big data

Today's unprecedented information flows present new challenges for businesses. It's not just the volume of information that is increasing—the velocity, variety and vitality of information must also be considered. This class of information is so large and complex that it defines a new category called big data. Companies need to be able to manage and analyze this Internet-scale information.

Organizations that successfully address big data will be able to combine their existing information with big data information flows, and analyze and act on data in ways that were previously ruled out as infeasible due to cost or scale. This capability will help them run more efficiently, help reduce a variety of costs and help them explore new sources of revenues and customers. IBM delivers a comprehensive approach to big data, offering organizations tools that enable the effective capture and analysis

of Internet-scale data, from ultra-low latency information that is still in motion to enormous, complex volumes of structured and unstructured data.

- *IBM InfoSphere Streams* enables rapid, continuous analysis of massive volumes of in-motion information from thousands of real-time sources to help improve business insights and decision-making—all at very low latency.
- *IBM InfoSphere BigInsights* is an analytics platform built on top of the Apache Hadoop open framework for storing, managing and gaining insights from Internet-scale data. It deploys quickly, enabling you to run analytics against massive volumes of distributed data and content and glean valuable insights sooner.

IBM Enterprise Content Management

Unstructured content—email, documents, images and more—is growing exponentially. IBM ECM solutions help organizations turn content into business insight through industry-specific solutions that capture, manage, analyze and share content throughout its life cycle. The IBM ECM portfolio includes advanced case management, content analytics, information life cycle governance, document capture and imaging, and social content management capabilities.

Advanced case management
To meet the challenges of today's case management organizations, IBM offers an approach that adds capabilities designed to help you close cases faster, with better results. Advanced case management capabilities from IBM unify information, processes and people to provide a 360-degree view of the case. It relies on

information, processes, advanced analytics, business rules, collaboration and social computing to help drive more successful, optimized case outcomes. Moreover, advanced case management solutions help capture industry best practices in frameworks and templates to empower business users and accelerate ROI. IBM advanced case management strategy and solutions help deliver key case management improvements: insight, responsiveness, flexibility, better customer service and regulatory compliance.

Content analytics
Enterprises need to find content when it matters most and turn passive content repositories into active sources of unexpected business insight. Content analytics provide critical tools for these endeavors, such as:

- Federated enterprise search to provide easy and familiar access to secured business content stored across many different repositories
- Content analytics to help organizations increase return on their enterprise content investment by analyzing unstructured content together with structured data to gain valuable, business-changing insight from all available information
- Content classification to rapidly organize disparate content for the high-value applications that drive ROI with ECM. This shifts the classification burden away from users to help cut costs, while simultaneously accelerating the rate at which new content-enabled applications gain adoption and provide returns to the organization

Information life cycle governance

A key goal of the integrated enterprise is to support compliance and risk management policies and regulations, improving visibility and control of content while keeping unnecessary costs down. This can be accomplished with information life cycle governance (ILG) capabilities such as:

- IBM ZeroClick policy enforcement, which automates complex repetitive decisions and helps reduce end-user workload and mistakes by using processes, events, rules, metadata and advanced classification to enforce policies throughout the information compliance life cycle
- Content collection and archiving based on a modular, extensible architecture that enables organizations to take back control and unlock the business value of content, while still enforcing compliance and operational policies
- Records management that can be extended with new federation and advanced classification capabilities, which increase the agility of the records and retention management life cycle process
- Electronic discovery (eDiscovery) capabilities that can take the high cost out of eDiscovery and increase agility in responding to litigation and investigative matters

Document imaging and capture

Given the increasing amount of unstructured content in every organization, most companies adhere to strict content management requirements to help control content and automate

processes. With the ability to capture, manage and share content anywhere it exists, companies have the information needed to make the right decision at the right time.

IBM document imaging and capture solutions include:

- Enterprise report management
- Document capture automation
- Production imaging

Social content management

Connecting people with social content and office documents in your organization—such as scanned images, electronic documents, web pages, video, email and paper files—is a core ECM capability. Businesses need to use content of any type in a consistent, reusable manner to respond rapidly and accurately to demands for information. Social content management must make it easier for end users to create, revise, store, collaborate and manage content from their applications of choice; however, they must also maintain corporate policies for enforcing compliance and legal discovery. Social content management capabilities should include:

- Office-document management
- Social content and collaboration
- Platform standardization and consolidation

IBM ECM products

The IBM ECM portfolio extends from core content management platforms to solutions optimized for small-scale deployments.

- *IBM FileNet® Content Manager* is the core content management solution for the FileNet platform. It fuses powerful document management with ready-to-use workflow and process capabilities to help automate and drive your content-related tasks and activities.
- *IBM Content Manager* is a content management solution for multiple platforms, including IBM zSeries®, that offers content integration, collaboration and content management services.
- *IBM Content Manager OnDemand* adds enterprise report management to your content management system. It captures and archives computer output and archives scanned documents. It integrates with the FileNet P8 platform.
- *IBM Case Manager* integrates content, process and collaborative capabilities to deliver the next generation of case management applications. It is based on IBM FileNet Business Process Manager for case management as well as content integration and federation to other Content Manager Enterprise Edition, Content Manager OnDemand and non-IBM repositories.

- *Compliance management offerings* help organizations reduce risk, enable quicker response to legal inquiries, establish trust and leverage information. Compliance management from IBM provides integrated compliance, records, analytics and eDiscovery capabilities, delivered via flexible, modular "on-ramps" that can be deployed in any order or in any combination. Key IBM compliance management products include IBM Enterprise Records, IBM eDiscovery Manager, IBM Content Collector, IBM Classification Module and IBM Content Assessment.
- *Search and discovery solutions* focus on trusted content analytics to help you understand, trust, leverage and exploit all of your enterprise content—not just what is in your ECM repositories. Enterprise search serves as an on-ramp to trusted content analytics, helping clients better know their information. Key products include IBM Content Analytics, IBM Content Assessment, IBM OmniFind® Enterprise Edition, IBM InfoSphere Master Content for InfoSphere MDM Server and IBM Classification Module.
- *IBM ECM Starter Packs* are full-featured ECM packages targeted for small or departmental deployments. The four packages enable you to purchase just the right number of licenses to meet your current needs, which can help you realize a more significant ROI. Plus, you can scale the solution up to a full enterprise deployment at any time. With ECM Starter Packs, you get out-of-the-box enterprise capabilities in tiered user license configurations.

Apply business analytics to optimize business outcomes

The comprehensive IBM Business Analytics portfolio is made up of leading IBM Cognos® and IBM SPSS solutions, plus other IBM solutions. Applying analytics to your data helps your organization anticipate and shape business outcomes, optimizing decisions and actions. Doing so enables you to:

Inform, engage and align decision makers: IBM Business Intelligence software includes query, reporting, analysis, dashboards and scorecarding features. It informs decision makers with complete, consistent, timely and relevant information in a format they trust; it engages them to assemble, explore and analyze any and all information; and it aligns their decisions and tactics with broader strategic goals. Easy-to-use self-service capabilities let users explore all types of information (historical, real-time, predictive, unstructured and so on) in context by providing a consistent view of the data, while an SOA platform provides a breadth of deployment options and cost-effective scalability.

Uncover unique insights you can use to identify the ideal course of action: IBM Advanced Analytics solutions deliver a comprehensive portfolio of capabilities, including data collection, statistical analysis, text analytics, "what-if" scenario analysis, data mining and predictive modeling. It enables you to generate real-time, pattern-based strategies within a situational context, enabling you to assign probabilities to future events and proactively act upon that insight. Unique deployment technologies allow these capabilities to be easily inserted into existing business processes for fast decision making—or to automate the ideal course of action for high-volume operational decisions.

Improve visibility, insight and control: IBM Financial Performance and Strategy Management software includes capabilities for budgeting and planning, scorecarding and strategy management, financial analytics and financial consolidation. These solutions enable finance department professionals to build dynamic and flexible driver-based plans, conduct "what-if" scenario modeling and automate the close, consolidation and reporting process.

Enable an agile and aligned organization: The IBM Analytic Applications portfolio is built on a common platform to provide a unified, cross-organization view of performance and includes solutions for workforce, customer, finance and supply chain. Following easy-to-use, self-serve prompts, users can generate reports quickly, driving smarter decisions and outcomes that are better aligned with business strategy. New reporting content can be added and configured easily, minimizing the demand on IT resources.

The foundation of a strong information infrastructure

IBM provides additional strategies and solutions for organizations working to build a strong business analytics and optimization infrastructure, including systems optimized for specific workloads (such as business analytics and transaction processing) that deliver optimal performance and rapid deployment of solutions—thereby lowering cost and risk.

With IBM solutions, you can also optimize your infrastructure and systems to handle the various workload demands of your applications, employees and customers.

Workload optimized systems

- *IBM Smart Analytics System* is an integrated platform that provides broad analytics capabilities on a powerful warehouse foundation with IBM servers and storage. Optimized for analytical workloads, IBM Smart Analytics System serves as a single point of support for end-to-end analytics solutions.
- *IBM pureScale Application System* is an integrated platform designed for businesses that run online transaction processing (OLTP) database and web applications. IBM pureScale Application System integrates powerful IBM servers with IBM WebSphere® Application Server and IBM DB2 pureScale software to achieve near-limitless database scalability.
- *IBM storage solutions* offer a range of cost-effective storage solutions that help reduce the complexity of data protection and retention.
- *IBM Netezza*®, a global leader in data warehouse, analytic and monitoring appliances, can dramatically simplify and accelerate high-performance analytics across the enterprise, helping clients uncover insights into their business. Netezza is a focused appliance ideal for departmental data warehouse solutions and for satellite data marts that extend an enterprise data warehouse to edge applications. Netezza technology enables organizations to process enormous amounts of captured data at exceptional speed: in days versus weeks or months. This provides a significant competitive and operational advantage in today's data-intensive industries.

Make better decisions for better business outcomes

The comprehensive portfolio of IBM information management, ECM and business analytics solutions can help you build a flexible information platform that aligns your information with your business strategy; helps you manage information as a trusted, strategic asset; and delivers the insight you need to make informed decisions and actions. IBM solutions incorporate roadmaps, tools and best-practice methodologies based upon expert industry knowledge, domain expertise and successful client implementations. With business analytics and optimization software solutions from IBM, you can derive the maximum benefit from your information resources, optimize your information-based processes and anticipate and shape business outcomes.

For more information

To learn more about IBM information management, ECM and business analytics solutions, please contact your IBM marketing representative or IBM Business Partner, or visit: **ibm.com**/bao

Additionally, financing solutions from IBM Global Financing can enable effective cash management, protection from technology obsolescence, improved total cost of ownership and return on investment. Also, our Global Asset Recovery Services help address environmental concerns with new, more energy-efficient solutions. For more information on IBM Global Financing, visit: **ibm.com**/financing

[1] "What's New in IBM solidDB Product Family v6.5," October 2009. ftp://public.dhe.ibm.com/software/data/sw-library/soliddb/datasheets/whatsnew65.pdf

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