SAP® BusinessObjects™ Business Intelligence 4.0 Solutions

Empowering the Real-Time, Mobile, Social, and Global Enterprise





Table of Contents

- 4 Introduction
- 5 **Big Data in Real Time**High-Performance Analytic Databases
 Real-Time Event Notification
- 6 Insight with Trust Across Business and Social Data
 Unified View of Business and Social Data
 Data Trust and Confidence
- Instant, Powerful BI in Your Hands
 Instant Mobile BI
 Easy Experience for Everyone
 Full Spectrum of BI Functionality
- 9 Best Fit, Right Size, Right Now Globally Ready and Adaptive Choice of Delivery Model
- 11 Conclusion

Introduction

With the rapid changes in today's market, business, and technology landscape, organizations need today's business intelligence (BI) platforms to provide real-time performance on big data, insight with trust across business and social data, and instantly available mobile BI. And they need BI solutions that are globally ready, easily scalable, and flexibly deployable.

Imagine if every person in your business could make better choices and decisions every time because of having the necessary information and context. A 2011 MIT Sloan School of Management research study has found that firms that adopt data-driven decision making have output and productivity that is 5% to 6% higher than what would be expected given their other investments and information technology usage. It's no surprise that BI technology that enables data-driven decision making has been a top spending priority for CIOs, and that leading organizations see BI as a mission-critical information infrastructure that is simply a requirement of doing business.

In today's fast-moving organizations, BI is essential for consistent execution of strategy by top management, improving customer loyalty, increasing forecast accuracy, and measuring profitability. Thus a BI platform must provide an enterprise-wide information infrastructure that allows your organization to make every person, process, and decision more intelligent – and closes the loop between information and action.

Rapid changes in markets, business, and technology are pushing the evolution of BI platforms to include:

 Real-time performance on big data – Data volumes within organizations are exploding. Organizations need to be able to access massive amounts of data. And for many parts of the business, real-time access and alerting is the difference between success and failure.

BUSINESS ANALYTICS SOLUTIONS FROM SAP

SAP® BusinessObjects™ business intelligence (BI) solutions help organizations better understand their business and make more confident decisions. Complementing these with other business analytics solutions from SAP – for data warehousing; enterprise information management; enterprise performance management; and governance, risk, and compliance – organizations can monitor, explore, and analyze data, and then use it to plan, mitigate risk, and take action. They can decide better, perform better, and achieve better results throughout all areas of their business.

- Insight with trust across business and social data Data is
 no longer just internal operational information. It now
 includes the sentiment, feelings, and opinions of customers
 and other people from the Internet and other social media
 sources such as Facebook, Twitter, and blogs. Both types of
 data must be captured accurately so that people can trust
 and use it with confidence in their decisions and actions.
- Instant, powerful BI in your hands Data consumption is no longer restricted to computers on a fixed network, tying workers to their office. It can now take place on smartphones and tablets, allowing an increasingly mobile workforce to instantly access information, make decisions, and act whenever and wherever necessary.
- The best fit and right size, right now Solutions that can
 deal with expanding data, BI requirements, and new delivery
 methods are only economically viable if they can be deployed
 and managed while reducing total cost of ownership (TCO)
 and the demand on IT. This means today's BI platform must
 be globally ready, scalable, and agile.

This paper examines the evolving needs that organizations expect a BI platform to fulfill, and how the SAP® BusinessObjects™ business intelligence 4.0 solutions meet those critical requirements.

Big Data in Real Time

Your BI platform must enable users to access, analyze, and be alerted about the right information from the vast amounts of existing and new data that is generated every minute – and do it quickly, often in real time.

HIGH-PERFORMANCE ANALYTIC DATABASES

A key challenge facing organizations of any size in any industry is managing and analyzing the soaring quantity of data and harnessing that information to improve the business. IT is challenged by the high costs associated with the purchase and maintenance of hardware needed to accommodate large data volumes, while business users need quick, often real-time access to analyze this information in order to respond to everchanging market conditions.

New data warehousing solutions from SAP address this issue by providing real-time access to big data in a uniquely efficient and affordable manner.

SAP HANA™ Appliance Software

High-performance SAP HANA™ appliance software allows organizations to analyze large volumes of operations data and get immediate answers to business questions. Business users can instantly explore and analyze all of their transactional and analytical data from virtually any data source in real time. And when managing large data volumes, SAP HANA is also simpler and more cost-effective to operate and manage compared to traditional disk-based data warehousing systems.

Sybase® IQ

Sybase® IQ software is a highly optimized analytics server designed specifically to deliver superior performance for mission-critical business intelligence, analytics, and data warehousing solutions on any standard hardware and operating system. The pioneering column-based architecture in Sybase IQ has been proven in the most challenging real-world reporting and analytic workloads. It effectively handles large volumes of ad hoc queries and hundreds of concurrent users, often increasing conventional query performance by 5, 10, and even 100 times. Its data compression algorithms reduce data storage volumes by more than 70%, while superior manageability routinely reduces administrative costs by 75%.

REAL-TIME EVENT NOTIFICATION

On any given day, thousands of business activities and transactions take place within an organization's operations, producing an ever-expanding amount of data. Customers buy and return products. Warehouses and stores receive goods. Many organizations struggle with knowing when something isn't happening as planned because they do not have good visibility or adequate response time to events happening across their business landscape. They're unable to adjust business processes quickly to reflect current and changing conditions. People in these organizations need to understand what is happening in real time so that they can respond to arising risks and opportunities.

SAP BusinessObjects Event Insight software helps organizations monitor streaming data from a variety of data sources using a complex event-processing engine, searching for unexpected events that may impact daily operations. It continuously delivers event insight to frontline workers via real-time dashboards or alert notifications, so that business users can quickly respond to changing conditions.

SAP BusinessObjects Event Insight can be used to monitor events that could negatively impact the ability to meet operational key performance indicators (KPIs) or service-level agreements (SLAs). For example, a produce company may have an operational KPI that product deliveries must fall within 30 minutes of planned time. Using the software, the company tracks the location of trucks by continuously monitoring streaming GPS data. At the same time, the software monitors traffic information from streaming Internet feeds. It correlates the event data, comparing actual versus projected delivery times, and continuously recalculates the rate of delivery for each route. This information is continuously pushed to a real-time dashboard, enabling the operations center to monitor delivery progress. If the rate of delivery is slower than needed to meet the SLA, the route is displayed as an exception on the dashboard. This enables an agent to act immediately by confirming the delay with the route driver and dispatching an auxiliary truck to assist in order to meet the SLA.

Insight with Trust Across Business and Social Data

Your BI platform must be able to bring together all the information, both structured and unstructured, required for confident decision making.

UNIFIED VIEW OF BUSINESS AND SOCIAL DATA

Traditionally, business insight is derived from transactions, processes, and events from information stored in structured sources, such as operational systems and data warehouses. Organizations are now learning that a more complete view of their business – including people's opinions, thoughts, and ideas – lays untapped on the Web and in e-mail and documents. Examples of these unstructured sources include Facebook, Twitter, blogs, news sites, analyst and financial reports, customer call records, and comments residing in customer relationship management (CRM) systems.

SAP BusinessObjects BI solutions provide integrated text analysis and search functionality for all types of data, enabling your organization to combine and complement quantitative information from structured sources with qualitative insight from unstructured and social sources. Whether you're looking at customer sentiment or product feedback across large data sets, powerful extraction, categorization, and summarization functions allow decision makers to better understand customer likes, dislikes, and motivations. This process can also be incredibly effective at identifying risks related to compliance and fraud. Acquiring, accessing, and analyzing unstructured data via the same reporting, analysis, and dashboard solutions with which your users are already familiar eliminates the need for more training.

DATA TRUST AND CONFIDENCE

Regardless of the **type** of data they are based on, business decisions are only as good as the **quality** of that information. The most impressive dashboard is worthless if people don't have confidence in the underlying information.

Your BI platform must include the ability to detect, monitor, and improve data quality across all the information sources of your organization. And providing quality data is not enough. Both users and administrators need to know where the data came from and what degree of quality it possesses – so that they know how much confidence and trust they can put in it.

And while data security is important, so is balancing what information is available to employees. In a study by the Economist Intelligence Unit, 38% of surveyed companies find data policies "too restrictive" – top-down filtering of accessible information is stifling competitiveness.² Instead, IT has the opportunity to democratize data, making more data available to users and providing them with data quality visibility so that the user community can confidently use a broader set of information in making decisions.

With the industry's only common platform for enterprise information management (EIM) and BI, SAP delivers complete, integrated data and BI services, including data profiling; quality; extract, transform, and load (ETL); impact analysis; governance; metadata management; common auditing; security; and more.

Directly within the BI interface that SAP provides, users can view a data quality score so that they can decide how much confidence they should have in the information. In many cases, the quality will need to be impeccable - for example, for regulatory and compliance reporting. Other times, the quality need not be quite as high – for example, when someone wants to get a better idea of general market sentiment of a new product offering. With this in mind, IT can make more data available to business users, allowing them to decide how to use it via the data quality score. Users can also trace the data's lineage back to its original transaction sources to see where it comes from, when it was updated, and how calculations on it have been computed. Both data quality and lineage visibility are built-in functionality requiring no programming and are critical to helping your users gain better trust and confidence in their information. Data-savvy users can access more detailed quality information such as data integrity, uniqueness, conformity, completeness, and accuracy. This, for example, helps analysts get a more complete view of how their information measures up against information governance rules and standards.

Instant, Powerful BI in Your Hands

Your BI platform must provide user capabilities that are intuitive, available on mobile devices, and able to meet the needs of every role and every person in the organization.

INSTANT MOBILE BI

In today's highly mobilized workforce, the need for timely business intelligence does not end when your people leave the office. Your managers must often make time-critical decisions on the road and require real-time visibility into project schedules, available resources, reports, and KPIs. Your sales reps need to answer customers' critical questions quickly to close a deal or stay competitive – answers should not have to wait until the reps return to the office. Your service personnel need up-to-date maintenance information to resolve problems without having to make additional on-site visits or contact staffing resources.

SAP BusinessObjects BI solutions mobilize your enterprise by delivering instant, powerful mobile BI that doesn't simply replicate what the desktop PC offers, but rather leverages the power of today's cutting-edge smartphones and tablets to deliver a fundamentally better experience. The mobility features in the latest SAP BusinessObjects BI solutions allow analytics to be delivered with visual interactivity and better ease of use. The mobile functionality uses features inherent in mobile devices to create the best, yet simplest experience possible. You can remotely access your favorite BI content and search and explore across all your real-time data using the intuitive gestures and touch interfaces of your favorite smartphone, tablet, or other mobile device. You can leverage the same BI content you work with everyday on your desktop - optimized for an engaging, interactive mobile experience. Users can intuitively access, navigate, and analyze familiar reports without the need for additional training. Reports can be pushed onto the device or pulled by the user, and they are stored on the device for ready access. So even if you are on a flight and not connected to a network, you can still review and analyze your company's critical BI data and stay productive. You can also instantly search for and intuitively explore large volumes of real-time data stored in the SAP HANA database or other data found in more traditional data warehouses.

EASY EXPERIENCE FOR EVERYONE

A key goal for BI platforms remains helping you extend the reach of fact-based decisions to all users, not just the estimated 15% that have traditionally used BI tools. To do so, BI platforms must include interfaces that everyone finds easy to use. This requires interfaces that are much closer to the intuitive usability that people are already accustomed to on the Web. And like the common experience found among Microsoft Office applications (such as menu options, copy and paste, and so forth), there should be consistent interoperability across the range of BI functions. Finally, your business users need to be able to access information through the familiar interfaces that they already use in their daily work.

SAP BusinessObjects BI solutions have been designed for unparalleled usability for everyone across the organization, whether they're using a mobile device, laptop, or desktop computer. Smartphone and tablet interfaces are designed with familiar layout and swipe-of-the-finger smart gestures in mind. All interfaces combine speed and simplicity of search and exploration. Users can immediately find the right information as easily as they use Internet search engines so that users can find the right existing BI content and directly explore and answer questions on real-time data. The latest SAP BusinessObjects BI solutions also expand on cross-suite interoperability, with new interactive visualizations and menus used consistently across the SAP BusinessObjects BI suite. For example, a common ad hoc query and report design experience is maintained across the suite. Regardless of which BI tool they are using, users can go into the same query panel to access one or more data sources – even thousands – from a single universe (semantic layer).

SAP BusinessObjects BI solutions provide personalized relevant information in the environments your business staff members use every day. From their desktops, decision makers can use BI "widgets" to monitor key metrics and other information that matters to them. We've also integrated BI functionality with the Microsoft Office software environment, embedding up-to-the-minute corporate data in secure, sharable Microsoft PowerPoint, Excel, and Word documents.



SAP BusinessObjects BI solutions provide integrated text analysis and search functionality for all types of data, so you can combine quantitative information from structured sources with qualitative insight from unstructured and social sources.

FULL SPECTRUM OF BI FUNCTIONALITY

A successful BI platform must support all the information access, interaction, and analysis needs of the different profiles of users across your organization, all based on a common framework.

Reporting

An operational or enterprise reporting solution is ideal in situations where questions are predefined and the structure of each answer is fairly well known in advance. The majority of users are information consumers who want snapshots of business activity.

SAP Crystal Reports® software is the clear industry standard for reporting and helps you design, explore, visualize, and deliver reports via the Web or embedded in enterprise applications. Developers and designers create reports that answer the most regularly asked questions (such as account statements, invoices, and regulatory reports) and distribute them to hundreds or thousands of users.

Query and Analysis

Query and analysis functions empower your users to autonomously answer questions as they arise. They are ideal for data analysts and other business users who need self-service information access with moderate-to-high amounts of interactivity. This means being able to use intuitive drag-and-drop interfaces to access data from multiple sources, and then drill, slice, and create calculations. These activities can potentially include terabytes of data stored in a centralized data warehouse, data marts, multidimensional online analytical processing (OLAP) cubes, on an inmemory appliance, or across multiple disparate sources.

SAP BusinessObjects Web Intelligence® and SAP BusinessObjects Analysis software enables your users to identify trends and find root causes from just about any data source including an SAP HANA database, relational databases, and OLAP cubes. A range of users – from experienced analysts to mainstream business users – can quickly create queries and perform calculations without understanding complex database schemas or structured query language (SQL). Cutting-edge visualization functionality allows users to view two- and three-dimensional charts and hone in on specific areas of focus for more powerful, revealing analysis.

Data Exploration

Reporting, query, and analysis are excellent for business people who have some idea of what they're looking for. Data exploration capabilities are ideal for users who either have a specific question or only a loose idea of what they're looking for.

With SAP BusinessObjects Explorer™ software, business users can explore mountains of heterogeneous information at the speed of thought. SAP BusinessObjects Explorer brings together the simplicity and speed of search with the trust and analytical power of BI to give your users immediate answers to their business questions. They can employ familiar keyword searches to find information hidden in data sources, and then navigate and explore the data directly – no existing reports or data structure knowledge are required.

Dashboards

Dashboard and visualization tools are essential for providing a common view of what's important to your organization or team, in an intuitive way that encourages a culture of information appreciation and use. These tools enhance visibility into organizational strategy, align actions with strategy, and allow your users to track KPIs, assign goals, and collaborate and share knowledge.

SAP BusinessObjects Dashboards software is a drag-and-drop visualization tool designed to create interactive analytics for powerful, personalized dashboards with live connections to any data source. You can share these interactive dashboards with all of your business users so they can measure their results and progress to take the right actions.

Predictive Analysis

Human intuition can be augmented with powerful predictive and data-mining capabilities that help to automatically forecast and uncover trends, identify outlying data values, and determine the most important factors influencing your business.

SAP BusinessObjects BI solutions include market-leading functionality for data mining and predictive analysis, so that data analysts and business users can explore past and present business scenarios, as well as uncover trends and identify outliers to project future outcomes.

Best Fit, Right Size, Right Now

Your BI platform must be globally ready, scalable, and flexibly deployable to suit the particular needs of your organization.

GLOBALLY READY AND ADAPTIVE

The SAP BusinessObjects BI platform can accommodate everything from small, nimble departmental deployments to global deployments required by FORTUNE 500 companies. It lays the foundation for fast, modular use, reducing deployment and maintenance costs. Built on a scalable service-oriented architecture (SOA), the BI platform helps your IT department to quickly add BI services and tools to existing deployments while minimizing operation disruptions. Multiserver support, fault tolerance, and intelligent load balancing help ensure you can extend information to all users when and how they need it. And by supporting modern 64-bit architectures and virtualization environments, the platform reduces the total cost of ownership. Its near-linear scalability is demonstrated by published benchmarks and numerous deployments with user bases greater than 20,000 and even up to 1 million.

Automated management tools streamline your BI deployment so IT departments can focus on other tasks. Comprehensive system administration includes lifecycle management, security, monitoring, diagnostics, and alerting. The platform supports more than 20 languages with multilingual BI delivery across geographic locations. And it includes .NET, Java, COM, and Web services software development kits so that the platform can be embedded and integrated within portals and other applications. This ease of management and extensibility means you can start with a single BI project on one platform and grow to support an enterprise-wide standardization initiative – without jeopardizing system availability.

TIGHT SAP® SOFTWARE INTEGRATION

SAP® BusinessObjects™ business intelligence (BI) 4.0 solutions are designed to integrate deeply with the SAP NetWeaver® technology platform and SAP Business Suite software. Thanks to this, SAP customers will find their SAP software environment easier to deploy and maintain, with higher BI performance and a simpler, more intuitive experience for both business users and IT staff.

Fast, Native, Cross-BI Client Access to SAP NetWeaver BW

SAP Crystal Reports*, SAP BusinessObjects Web Intelligence*, SAP BusinessObjects Dashboards, and SAP BusinessObjects Analysis software all use the same high-performance BI consumer service connectivity that SAP Business Explorer (SAP BEx) tools have used. This speeds up BI client query response times significantly – for example, tests have shown SAP BusinessObjects Web Intelligence 4.0 runs up to three times faster on the SAP NetWeaver Business Warehouse (SAP NetWeaver BW) component than the previous version. And all SAP NetWeaver BW metadata such as hierarchies, variables, and structures are exposed to the clients as well.

New Analysis Functionality

The new SAP BusinessObjects Analysis software empowers your business analysts to perform advanced analysis of data residing in SAP NetWeaver BW and other sources from within their familiar Microsoft Office tool or Web browser. This provides a simpler, more intuitive user experience than was possible with SAP BEx clients.

Easier Transition to SAP BusinessObjects BI 4.0 Solutions

The latest versions of SAP BusinessObjects BI solutions have been designed to help SAP customers adopt a BI platform at their own pace. Customers can leverage their existing SAP NetWeaver investments including SAP NetWeaver BW data cubes, SAP BEx query designs, and SAP BEx Web app designer applications.

End-to-End Integration

SAP BusinessObjects BI solutions are integrated with the SAP Solution Manager application management solution and the change and transport system tool, providing unified system monitoring and lifecycle management end to end across the software environment. This results in easier administration and lower systemwide total cost of ownership.

BI Functionality Embedded in SAP Business Suite

SAP BusinessObjects BI functionality has been embedded in the SAP ERP Financials and SAP ERP Human Capital Management solutions, the SAP Customer Relationship Management application, and other SAP Business Suite software. This enables business users to derive insight from preconfigured, best practice—based reports and dashboards at the point of decision while they execute business transactions. Your staff members are then immediately able to take wise action, thereby closing the gap between strategy and execution.



CHOICE OF DELIVERY MODEL

Today's BI platforms must be available in different deployment models to best fit the unique needs of each organization. SAP BusinessObjects BI solutions are deployable in numerous ways.

On Premise

Traditional on-site deployment benefits from having all the BI and data services integrated on a single, common platform.

Virtual

Fully supported production and nonproduction environments can be deployed in a virtual manner that reduces TCO, improves server utilization, greatly enhances flexibility, and can scale as required. Supported virtualization environments include VMware, Citrix XenServer, and Microsoft Hyper-V.

Cloud

Fully supported production and nonproduction environments can be deployed in public or private clouds. For example, new and existing SAP customers can now take advantage of the Amazon Web Service on-demand infrastructure to quickly and reliably test their system, go to production, and scale capacity both up and down as computing requirements change, paying only for the resources used.

Software as a Service

The de facto leader and most complete software-as-a-service BI offering, the SAP BusinessObjects BI OnDemand solution provides affordable ways to explore, report, and share information with employees, clients, and partners in a secure manner. SAP BusinessObjects BI OnDemand doesn't require a long technology project, is easy to learn and use, and works with existing on-demand and on-premise investments.

Regardless of the type of data they are based on, business decisions are only as good as the quality of that information. The most impressive dashboard is worthless if people don't have confidence in the underlying information.



Conclusion

SAP BusinessObjects BI solutions help everyone in your organization know the business, decide with confidence, and act boldly. Every person, process, and decision becomes more intelligent.

Consider these scenarios that a BI platform built on SAP BusinessObjects BI solutions make possible:

- Using an intuitive dashboard, a supply chain manager has real-time, detailed visibility into planned and actual demand across products, channels, and geographies. On the back end, the two-terabyte in-memory database provides the realtime data as it happens, enabling the proactive improvement of supply-chain effectiveness and efficiency.
- A marketing manager refines regional marketing programs as she learns what people are saying about her company's brand, products, and services, and finds out what customers want that's not available today. On the back end, text analysis is used to process and derive meaning from Facebook, Twitter, and other Web sites and blogs, along with thousands of internal CRM note entries.
- Thousands of mobile information workers use the keyword search from their smartphones and tablets to immediately answer their business questions. The data comes alive as users swipe and pinch their fingers, interacting and exploring intuitive charts. With no intimate data knowledge or product training, they gain insight about what's happening in their business as easily as they browse the Internet.
- A marketing manager performs cross-geography discount analysis via Web-based query and analysis functionality.
 She's able to segment customers and prospects based on real-time data from 12 different quantitative and qualitative sources, enabling her team to provide targeted and personalized offerings. Further analysis and investigation is available offline as relevant data has been synchronized and stored securely locally.

LEARN MORE

For more information about SAP BusinessObjects BI solutions, please visit www.sap.com/solutions/sapbusinessobjects/large/business-intelligence /index.epx.

- A business manager uses predictive analysis to identify customers most likely to churn. He is then able to target them via a targeted customer-appreciation retention program. The chief marketing officer receives a weekly PowerPoint slide via e-mail showing program data that she securely accesses and refreshes in real time.
- From within SAP ERP Financials, a credit manager uses an embedded BI dashboard to identify customer credit exposure by various risk classes. The manager takes immediate action from directly within the application, optimizing customer credit exposures based on customer risk profiles.
- The IT department productively delivers secure, trustworthy, integrated, and accurate data inside and outside the organization. Information access and analysis is provided inside the business virtually and outside to customers and partners via an off-site software-as-a-service deployment.

SAP BusinessObjects BI solutions redefine the way information empowers users and delivers insight through a single, trusted business intelligence platform. With these solutions, yours can become a high-performance organization.

FOOTNOTES

- 1. Erik Brynjolfsson, Lorin Hitt, and Heekyung Kim, *Strength in Numbers: How Does Data-Driven Decision Making Affect Firm Performance?* MIT Sloan School of Management, April 2011.
- 2. Leveling the Playing Field: How Companies Use Data for Competitive Advantage, Economist Intelligence Unit, April 2011, http://digitalresearch.eiu.com/levellingtheplayingfield/content/files/download/report/eiu_levelling_the_playing_field_1.pdf.

