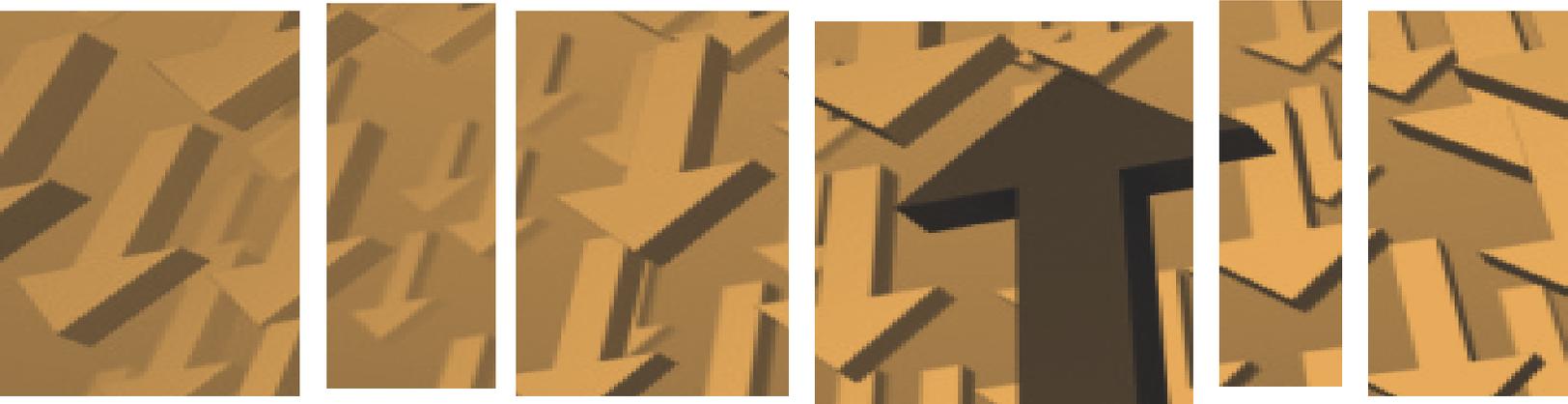




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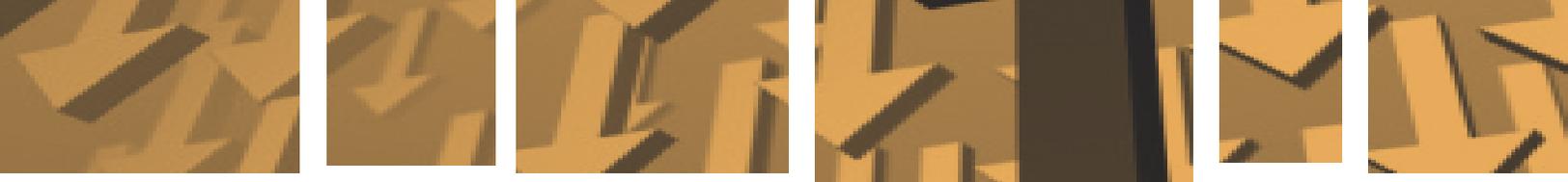


Data Mart Consolidation and Business Intelligence Standardization:

Getting the Most Value Out of Information

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Executive Summary

Making information more broadly and easily available to more users throughout an organization—and beyond the organization to customers, business partners and other stakeholders—has never been a more strategic corporate imperative. In growing numbers, enterprises are coming to understand the value of placing consistent, integrated data into the hands of everyone who needs it.

Having cross-functional data makes information more easily and broadly accessible and creates a 360-degree view of customers, products and services. As a result, businesses can gain a competitive advantage by improving the productivity of employees and making more informed decisions. Ultimately, they can better serve their customers and enhance working relationships with business partners.

Organizations can gain this cross-functional view of data and realize greater business value through the consolidation of data marts, operational data stores and other information sources, combined with the standardization of business intelligence (BI) tools that access this information.

Among the key benefits of launching a data mart consolidation and BI standardization strategy are cost savings, cost avoidance and better return on IT investments. But, by far, the greatest value is the improved decision making that drives competitive differentiation. This white paper from SAP®BusinessObjects™, Teradata Corporation® and UBM® Technology describes data mart consolidation and BI standardization, and the benefits that

hundreds of organizations are already realizing from these efforts.

DATA MART CONSOLIDATION

The consolidation of data marts, operational data stores (ODS) and other data sources produces a single, consistent, integrated and accurate view of the data within an organization. Among the multiple data strategies an organization can deploy to manage its data, creating an enterprise data warehouse (EDW) that consolidates and integrates data is optimal because it provides a single view of the business.

Many organizations have built multiple data marts to serve different areas of the business. Often, these marts have been created with a narrow departmental scope, typically focusing on a single application or subject area, such as sales, marketing or finance. Data marts are easier to build because there's less corporate process. Therefore, data marts tend to multiply quickly and become more costly, especially in larger organizations.

Organizations have also created multiple operational data stores, which are similar to data marts in that they combine subject-specific data from many sources, but differ in that they always have the most up-to-date version of the data.

While data marts and ODSs provide value for specific user groups and areas of the business, they cannot be leveraged across the organization. As a result, they introduce the potential for inconsistent and even conflicting information across the organization, because they are not connected and are gathering and interpreting data from multiple sources, which may define data differently and

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receive updates on different time intervals. Additionally, these various data marts rely on multiple hardware systems and software, increasing IT maintenance and support costs.

Teradata research indicates that 59 percent of companies maintain up to 30 data marts—and some companies have as many as 100 or more. Industry studies show that it can cost in the range of \$1.5 million to \$2 million annually to maintain a single data mart. Anywhere from 35 percent to 70 percent of those costs are redundant.

Data mart consolidation is the process of centralizing data from multiple, disparate sources into a single, centralized enterprise data warehouse (EDW) that can be accessed by anyone in the organization who needs the information. Unlike a departmental data mart, an EDW is created with an enterprise scope, supports multiple subject areas and applications across an organization and leverages consistent definitions of the data. By merging data from multiple sources onto one platform, organizations can retain the functional capabilities of the original sources while broadening the business value of the data to other parts of the organization.

Consolidating data marts and ODSs into a single EDW significantly reduces the hundreds of thousands of dollars in cost per data mart for associated hardware, software, tools, processes and personnel. As demand rises for more information and applications, a centralized EDW can provide solutions faster and more cost effectively

than building an additional data mart because these new applications can leverage the data already in the EDW.

Another benefit of data mart consolidation is that organizations can better address information security and regulatory compliance. By having critical data stored in a centrally managed warehouse, rather than distributed across different platforms in multiple locations, central IT organizations can more easily secure the information and keep track of access controls.

The most significant benefit of data mart consolidation is a single view of data, which results in more accurate information and enables smarter decision making. “This is one of the key business drivers of consolidation for our customers,” says Randy Lea, vice president of product and service marketing at Teradata. “They want a 360-degree view of their business—at the customer level, at the product level and at the service level—for everyone in the enterprise. And they haven’t been able to achieve that with a data mart approach or other data warehouse solutions.”

“When you look at a customer, you have to look not only at the purchases the customer has made but also at their experience, profitability and your strategy for dealing with that customer,” Lea says. For example, if an airline company knows how much a customer flies with the airline, how much the customer pays for tickets and how profitable the customer is, it can give differentiated treatment to that customer.

BUSINESS IMPACT MODELS MEASURE BUSINESS VALUE

Teradata Corporation® offers patent-pending Business Impact Models (BIMs), which are sophisticated predictive financial models to help organizations define and measure the quantifiable business value of Teradata solutions. These models enable companies to examine specific scenarios or business problems and see how an integrated data solution can pay off for the organization with smarter decision making.

Teradata has developed a specific BIM for data mart consolidation. It accurately measures the cost savings as well as the revenue lift that can be anticipated from consolidating data marts into a centralized enterprise data warehouse. This model uses industry-specific averages as well as data provided by the customer (such as the number of data marts, costs, personnel, etc.) to determine the potential cost savings for a specific environment, inclusive of all the costs to migrate. Use of the model is flexible and can be based on the depth of the analysis required to meet each customer’s needs.

The outcome of an assessment using the BIM is an impartial, rigorous, detailed report outlining the tangible ROI to be realized from consolidating candidate data marts. The report includes the customer’s existing cost infrastructure for multiple data marts, an estimate of the cost to migrate those marts onto a centralized architecture (including ongoing maintenance), and projections for cash flow, Net Present Value (NPV), ROI.

Teradata® Data Mart Consolidation BIM can be used in conjunction with other Teradata industry-specific BIMs to predict revenues after consolidation is complete.

"If these different pieces of information reside in different data marts, the decision-maker is impaired and may make bad decisions that do not help, or worse yet, hurt the business," Lea says.

There are two basic ways to consolidate data marts. The first is to simply re-host existing data models onto a centralized platform to eliminate redundant hardware and software and the associated support and maintenance costs. "Consolidating platforms can bring tremendous cost savings to the organization," Lea says. "However, the data itself is not necessarily

Models Measure Business Value," for additional information.) To date, Teradata has helped some 120 customers consolidate a total of more than 600 data marts.

Teradata's data mart consolidation program is a two-tiered assessment. It starts with a Web-based Quick Assessment tool to make some basic assumptions about the consolidation and is followed by a more detailed assessment. During this assessment, a project plan is developed, providing the customer with a roadmap for the migration of data, processes and applications to a centralized EDW.

Companies that have all their data in one analytical repository driving all business decisions, both strategic and operational, from a common source, have an advantage over their competition. "This is what we refer to as 'Active Enterprise Intelligence' or AEI," says Stephen Brobst, chief technology officer for Teradata. "AEI is the extension of the warehouse from traditional strategic queries to front-line workers who can benefit from tactical, operational queries."

Teradata delivers AEI through its deployment of Active Data Warehousing (ADW) technology. AEI is a business strategy to integrate intelligence throughout the enterprise, aligning strategic decision making and operational execution. AEI distinguishes between two kinds of intelligence: strategic intelligence that's generated and used by traditional data warehouse users such as executives, marketing managers, product analysts and financial managers, and operational intelligence that's leveraged by front-line workers, such as customer service representatives, retail cashiers, bank tellers, loading dock workers and call center agents (see more on Operational BI in the section below). The goal of the AEI strategy is to increase alignment through better integration of decision making.

BI STANDARDIZATION

Not only can organizations benefit from centralizing their data in enterprise data warehouses and, thereby, gain confidence in the accuracy of the information, but they can also maximize the use of that information with a comprehensive, standardized business intelligence (BI) platform. The standardization of BI tools provides greater control over information and better alignment of IT with business users.

As with data marts, many organizations have accumulated multiple BI tools over time, whether they are for reporting, analysis, dashboarding or other functions. These tools have provided a level of value in meeting specific requirements. However, as with multiple data



"The greatest value of consolidation is the business insight and competitive advantage that a 360-degree view delivers."

— Randy Lea, Teradata

integrated. Rather the data models coexist on a centralized system."

The second and more effective approach to consolidation includes data integration and the creation of a single physical and logical data model to support the enterprise. "This method drives not only cost savings, but also delivers the business value that comes from an integrated, cross-functional view of your business," Lea says. When data integration is added to the mix, organizations can eliminate data redundancy and reduce operational complexity. Many organizations handle consolidation in a two-step process, first bringing data marts (e.g., structure) together on a centralized system, which is then followed by the data model integration.

With nearly 30 years of experience in building EDWs, Teradata has an immense amount of knowledge about the underlying models and has captured that knowledge in enterprise, industry-specific logical data models (LDMs) that model the enterprise data, data relationships, topic areas and business rules relating to enterprise IT. These models are pictures of all the pieces of information necessary to run the business.

"Our LDMs are tremendously valuable to our customers," Lea says. "If they have to create a data model from scratch, it will cost them hundreds of thousands of dollars and require six months to 18 months of work."

In addition to providing industry-leading enterprise data warehouse technology, such as LDMs, Teradata provides a suite of assessment services, migration tools, customer education and business impact models (BIMs) to help organizations calculate the ROI of combining disparate data marts into a central, integrated data warehouse. (See the sidebar, "Business Impact

marts, multiple BI tools from different vendors can increase a company's overall costs, introduce inconsistencies in reporting and add complexity. From a business perspective, a single BI platform can help organizations further reduce costs, control information and effectively align information resources with their business needs. From a functional standpoint, standardization provides greater control over information throughout an enterprise, maximizes the value of IT resources and provides BI capabilities to a larger number of users. The result of these combined benefits is competitive advantage.

SAP BusinessObjects offers an array of products that enable organizations to achieve this goal. These products include various information discovery and delivery components such as enterprise reporting, analysis, dashboarding and performance management all utilizing the same infrastructure.

Having all these components from one vendor is an effective strategy for maximizing the value of information.

"Our mission is to transform the way the world works through intelligent information," says Donald MacCormick, chief transformation officer at SAP BusinessObjects. "The potential of information in today's organization is remarkable. There is no individual inside an organization who could not benefit from better access to information."

BI is sometimes mistakenly viewed as being only for "power users," or those people who do

which complicates the sharing of BI capabilities and information throughout the organization, MacCormick says.

Furthermore, implementing BI without standardizing can be costly. "It is not uncommon for large organizations to have anything between five and 15 BI tools, and we've seen some organizations with more than 30 BI tools," MacCormick says. "Combine that with the costs of the multiple data marts they're maintaining, and the numbers are staggering. As soon as you standardize, you save huge amounts of money in reduced hardware, support, training and administration costs."

As appealing as cost savings are for companies, the real strategic value of standardization is the coherent use of information across the organization. "The most productive thing an organization can do is build value from doing more with its information," MacCormick says. "Enterprises have to start thinking about BI as a platform that allows them to take information and give it to each person in a form they can use in their everyday jobs."

Moving to Operational Business Intelligence

Different people in an organization use BI tools in different ways based on their job functions. Some need detailed reports and analysis on a day-to-day basis, while others need "big picture" views of market or product development trends. The key is to identify which tools and data each user needs access to so they can do their jobs more effectively, MacCormick says.

There is a steady trend toward what is referred to as "operational BI," which SAP BusinessObjects defines as the practice of delivering relevant, real-time information to employees on the front lines of the business (e.g., sales and marketing representatives and customer service personnel.) The idea of operational BI is to give such workers the tools they need to make faster, more informed decisions.

"We're hearing more and more customers talking about operational BI," MacCormick says. "Some of the data that's gathered can be used in ways not originally intended." For example, a call center agent can view the purchasing history of a customer who's calling in and, based on the products the customer has bought previously, determine what they might buy presently.

Teradata's Brobst confirms this trend. "This is why we're focused on driving Active Enterprise Intelligence for our customers," he says. "They can draw operational intelligence from the same information from which they draw strategic intelligence. One set of data informs the



"The most productive thing an organization could do is get value from doing more with its information."

— Donald MacCormick, SAP BusinessObjects

a lot of deep analysis work, MacCormick says. "In fact I have even heard it said that the only people who want to see BI on every desktop are BI vendors," he says. But that perspective is changing as business leaders come to better understand the true value of information. "CIOs and increasingly CEOs want to see appropriate information get to everyone in the organization as well as to their suppliers, customers and partners," MacCormick says, "so that all activities, strategic and operational, are based on reliable information rather than gut-feel."

Standardizing on a single BI platform makes this vision of pervasive information delivery possible. Without it, organizations are apt to purchase and deploy BI on a departmental basis,

entire enterprise.”

Indeed, a significant enabler to delivering operational BI is the availability of integrated, granular, real-time information that can be accessed and used by a broad number of users. And, for this, integration is vitally important.

Data integration is a critical success factor that customers must address, says Philip On, Product Marketing Director of Information Management (IM) at SAP BusinessObjects. “Where is the data coming from? How is it being integrated? Is it being integrated in a timely fashion? Is it accurate and has it been cleansed?” On says. These are all concerns organizations must consider as part of their data management strategies.

Over a period of time after an EDW has been created, organizations must ensure high data quality: the information must remain accurate and timely, On says. If the data is inconsistent or contains errors, its value to the organization is significantly diminished—no matter how effective the BI tools. Organizations can accomplish substantial improvements in data quality using solutions such as data cleansing software and integration tools.

SAP BusinessObjects offers information management (IM) technology that includes data integration, data quality and metadata management, and master data management products, which are all components of an overarching enterprise information management (EIM) strategy.

OVERSTOCK.COM SEES BENEFITS FROM DATA MART CONSOLIDATION AND BI STANDARDIZATION

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Overstock.com®, an online outlet retailer based in Salt Lake City, Utah, employs a data consolidation and business intelligence (BI) standardization strategy—and is seeing major benefits. The company offers discount, brand-name products for consumers across the United States. In 2005, Overstock.com began consolidating data from sources including its Web sites, databases and an ERP system into a centralized enterprise data warehouse (EDW) provided by Teradata, says Randy Hurst, director of reporting systems at Overstock.com. The information these systems housed included all sales transactions, customer data, Web click-stream data and financial records.

Among the key benefits Overstock.com has realized from its data mart consolidation efforts are the abilities to better define customers and transactions, review business results and get better response times for queries or reports, Hurst says.

Anyone at Overstock.com with the proper credentials can access information in the data warehouse. Many use BI software from SAP®BusinessObjects™, such as a Web-based reporting tool, to help make business decisions and track trends based on real-time information from the data warehouse. One of the primary reasons Overstock.com decided to standardize on BI tools from SAP BusinessObjects was that they easily integrated with its Teradata EDW.

About 200 people at Overstock.com actively use the BI tools. This includes people in the merchandising, marketing, finance and buying departments. About 100 others, mostly executives and managers, regularly receive reports generated by the SAP BusinessObjects software via e-mail.

In addition, the company provides reports to some 500 business partners weekly or monthly. Partners receive reports such as financial summaries on how much money they’re owed by Overstock.com and how they are performing based on factors such as on-time order shipments and product returns.

The benefits of a standardized BI platform include the ability to provide significantly more information to more people so they can make more informed business decisions. “We’ve given people at all levels of the company access to more relevant data on a timelier basis,” Hurst says.

People are using BI to make decisions on marketing campaigns, product purchases, product deletions and to analyze customer buying patterns. The company also has better oversight of its inventory, which enables it to make better decisions on product purchases.

The benefits achieved from an EIM strategy include the integration of information from various sources; consistent business definitions, so everyone understands and agrees on the meaning of the terms used; access to information in a timely manner, so users can be alerted to problems in time to be able to do something about them; and accurate, quality information. EIM makes it easy to broaden the BI footprint by being able to easily integrate and cleanse data. In this way, EIM can be used to increase BI user adoption. Having all the IM components from a single vendor is critical if organizations are to have a cohesive EIM strategy. By using the SAP BusinessObjects IM suite, organizations can view the data lineage when deploying BI applications.

SAP BusinessObjects offers technology to unify BI, ETL (extract, transform and load) and ELT (extract, load and transform) relational databases, master data management and third-party metadata. This gives organizations complete visibility into all metadata so they can view, analyze and explore metadata relationships and business rules. It allows them to better understand the impact of source data changes across the BI environment, and provides enhanced data lineage capabilities that can help organizations deliver trusted information.

“When you combine Teradata’s Active Data Warehouse strengths with those of SAP BusinessObjects, both in terms of making information available to different users in the ways that are most useful to them, and bringing data together and ensuring it’s clean and accurate, customers have a proven, complementary set of solutions to meet their enterprise intelligence needs,” says On.

Data lineage is one of the biggest benefits of using the SAP BusinessObjects BI platform with an integrated SAP BusinessObjects IM platform, which is well suited for the large, complex data models in the Teradata system. By using both the BI and IM platforms, organizations can dramatically lower the total cost of ownership of an EDW. The integrated solution can help manage changes to the EDW data model, which can happen frequently. For example, if a company makes changes to its customer data model in the EDW, the changes will likely have an impact on many existing data reports and key performance metrics in dashboards. The integrated environment can help organizations manage the data model changes all the way up to fields in reports,

so managers can understand the impact those changes will have to any of thousands of reports in an EDW.

Using one reporting tool and a different IM tool could make this an extremely costly and time-consuming process, because the organization would have to manually figure out the impact and modify all the reports or key performance metrics that were affected by the data model change.

Extending BI to Suppliers and Customers

Enterprises can extend their information resources and business intelligence capabilities even further to customers, suppliers and other external business partners through “extranet BI.” The trend toward this sort of strategic information sharing has been growing for a number of years. To support this extension of BI, organizations should aim to build a data warehouse that accommodates a much larger audience than its internal employee base.

“We’ve seen extranet BI grow. Today, about 30 percent to 40 percent of our customers use information to deliver value to customers and partners,” MacCormick says. A good example of this information sharing is allowing customers to have access to data they have entered via Web applications to help them with future purchasing decisions.

Extranet BI usually begins with reporting, MacCormick says. The reporting can be as simple as allowing customers to view a history of invoices, but there’s huge potential for business-to-business data sharing. For example, many of the major telecommunications carriers allow their largest clients to access their information to analyze the costs of different service offerings, such as mobile communications and calling cards, so they can make more informed buying decisions.

“They are giving their customers tools to minimize what they spend today, in the knowledge that delivering information will help enhance the relationship in the long term,” MacCormick says. One of the first examples of extranet BI was in the parcel delivery business, which gave their customers the ability to track the location of packages online.

“We’re seeing data sharing extended to all sorts of corporate information,” MacCormick says. “One of the most effective things a company can do is offer information back to the customer. It’s purely a matter of time before it becomes a widespread business practice to share any identifiable data with the customer who owns it.”

A POWERFUL PARTNERSHIP

Teradata Corporation and SAP BusinessObjects



“CEOs don’t want to see the organization do more BI, for the sake of doing BI. CEOs want to see the appropriate information get to everyone in the organization as well as to their suppliers and customers.”

— Donald MacCormick, SAP BusinessObjects

are uniquely positioned to work together to help organizations realize the benefits of data mart consolidation and BI standardization, as well as Active Enterprise Intelligence. The companies have a long history of successful partnering and have taken steps to ensure that their technologies scale and perform together to provide the performance and reliability demanded by many thousands of users who need information on a day-to-day basis.

For example, SAP BusinessObjects and Teradata's chief technology officers and product management teams meet on a regular basis to discuss their respective technologies and evaluate how they can best be engineered to complement one another.

SAP BusinessObjects also manages and meets regularly with the Teradata Advisory Group, a group of joint Teradata and SAP BusinessObjects' customers chartered to provide SAP BusinessObjects' recommendations for leveraging its products on Teradata. These customers have a significant influence on SAP

BusinessObjects' roadmap to include product features appropriate for their Teradata deployments.

Furthermore, specific technical enhancements include SAP BusinessObjects' SQL generation, which takes into account Teradata-specific syntax, guaranteeing that the SQL is optimized on the Teradata platform. Additionally, SAP BusinessObjects uses Teradata-specific functions and takes into account internal Teradata optimization techniques. The scalability and performance from Teradata enables customers to include sub-atomic levels of data not thought possible in an EDW to provide the granularity in the data for operational reporting.

SAP BusinessObjects also participates in Teradata beta programs and technology previews to ensure its products are up to date with Teradata's most recent releases.

The combination of SAP BusinessObjects and Teradata is a proven choice for organizations looking for enterprise deployments. The two companies have had a corporate alliance for more than 13 years and, to date, have partnered to deliver scalability, performance and reliability to more than 320 customers, globally, across various industries, including retail, financial services, communications, manufacturing and government. ■



"At Overstock, we use BI to make decisions on marketing campaigns, product purchases, product deletions, and to analyze customer buying patterns."

— Randy Hurst, Overstock.com

ABOUT TERADATA AND SAP BUSINESSOBJECTS

Teradata is the acknowledged global leader in data warehouse innovation and analytical solution development. Every day we raise our customers' intelligence to higher levels, making them more focused and competitive by gathering enterprise information and extracting actionable insight.

Teradata elevates enterprise intelligence by giving every decision maker the insight required for smarter, faster decisions. We add value and reveal opportunity across more dimensions than any competing solution.

In every industry and geography, our technologies and expertise make the difference. Simply put, Teradata solutions make companies smarter and give them the competitive advantage to win. To learn more, go to teradata.com

About SAP

SAP is the world's leading provider of business software, offering applications and services that enable companies of all sizes and in more than 25 industries to become best-run businesses. With more than 82,000 customers in over 120 countries, the company is listed on several exchanges, including the Frankfurt stock exchange and NYSE, under the symbol "SAP."

The SAP® BusinessObjects™ portfolio transforms the way the world works by connecting people, information and businesses. With open, heterogeneous solutions in the areas of business intelligence; information management; governance, risk and compliance; and enterprise performance management, the SAP BusinessObjects portfolio enables organizations to close the gap between business strategy and execution.

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