

SAP Overview Brochure
SAP Technology

Enabling Business Transformation with a Modern Approach to Data Management



© 2013 SAP AG or an SAP affiliate company. All rights reserved.



The Best-Run Businesses Run SAP™

Table of Contents

- 4 **Reenvisioning the Data Management Landscape**
 - Deliver Real-Time Insight – Anytime, Anywhere
 - Improve the Quality and Speed of Decision Making
 - Tap into All Relevant Information – Seamlessly
 - Drive New Levels of Operational Efficiency

- 6 **A Unified Data Management Framework**
 - Innovation Without Disruption
 - A Flexible Data Management Framework
 - Common Design and Modeling Environment
 - Information Management and Data Movement
 - Common Landscape Management

- 10 **Comprehensive Technology Portfolio for Modern Data Management**

- 12 **Balancing the Needs of Today and Tomorrow**
 - Guiding Philosophies Driving the SAP Real-Time Data Platform

Forward-thinking companies place tremendous value on the data that drives their business. The pressure is on IT organizations to put in place the right technologies that can turn vast amounts of data into the insight that drives new business value, competitive advantage, and innovation. To address these rising expectations, IT organizations must find ways to continually create, adapt, and evolve their IT landscapes with transformative new technologies – at the lowest possible cost.

The SAP® Real-Time Data Platform is a unified framework capable of managing all forms of data used for both transactional and analytical purposes with unprecedented speed and efficiency. It offers a fundamentally new approach to data management that will help you transform the way you run your business.

Reenvisioning the Data Management Landscape

Across almost every industry, the companies that lead are data driven and technology enabled. These are the innovators that are able to leverage all relevant data when and wherever needed for up-to-the-moment decision making and more-efficient business operations. Many forward-thinking companies recognize that their ability to innovate and differentiate is now critically dependent on real-time information and insight.

This demand for “information now” places significant pressures on IT teams, who need to ensure that their IT landscapes can support both established and evolving business models – and at the lowest possible cost. Exponential growth in data volumes, skyrocketing user expectations around speed and convenience, and the widespread dependence on mobile devices have created unprecedented new challenges.

To successfully enable data-driven business value, IT organizations must now create and adapt IT landscapes to meet the following evolving demands.

DELIVER REAL-TIME INSIGHT – ANYTIME, ANYWHERE

The success of companies like Apple and Google has created a whole new generation of technology consumers. The growing popularity of social networks, “gamification,” smartphones, and tablet devices not only influences what users expect from technology in the workplace but also generates vast new forms of data that companies now want to tap into.

After experiencing sophisticated new technologies in their personal lives, users now have skyrocketing expectations for technology in the workplace. Today’s business users want dynamic, immediate access to relevant information. They expect real-time results to be available anywhere, anytime, on any device. This insatiable appetite for speed and convenience is occurring even as IT organizations grapple with increasing complexity in managing and delivering the information users demand.

These trends are highly disruptive for IT organizations. Enterprises must find new ways to speed transaction processing, analysis, and information delivery in order to extend the value of data for more intelligent tactical and strategic business decisions at all levels of the organization.

IMPROVE THE QUALITY AND SPEED OF DECISION MAKING

Decision makers rely increasingly on new types and sources of data for the insights that can make a real difference in business outcomes. For example, by analyzing unstructured social media data for customer sentiment analysis, and combining it with structured buying behavior data from point-of-sale systems in real time, businesses can deliver an up-sell or cross-sell offer at precisely the right moment to increase sales or improve customer loyalty.

Vast amounts of potentially valuable data are generated every second – from business applications, Web sites, mobile devices, embedded sensors, tracking satellites, or financial markets. Today, it is not uncommon for large organizations to deal with

“SAP’s vision is focused on enabling a paradigm shift in data management: transforming enterprise IT departments from complex and slow landscapes to a simplified architecture that enables new classes of Big Data, cloud, and mobile applications.”

Dr. Vishal Sikka, Member of the Executive Board of SAP AG,
Technology & Innovation

volumes of data in the order of terabytes, exabytes, and zettabytes. And a significant portion of this data is unstructured, such as e-mails, documents, texts, tweets, and other media.

The challenge for IT organizations is to distill this rising tide of data into valuable information and insights – and deliver it quickly and efficiently.

TAP INTO ALL RELEVANT INFORMATION – SEAMLESSLY

Business users want to have confidence in the information that is driving their business. Deep insight into data enables companies to improve planning, solve problems quickly, and make more confident decisions. When data is dispersed across multiple sources, it is difficult for business users to gain a true and accurate picture of the business.

Enterprise applications such as enterprise resource planning (ERP), customer relationship management, or sales force automation track business activity on a day-to-day basis. Data warehousing and analytical systems can help your business evaluate and plan. Newer specialized systems are being deployed to mine “Big Data” for valuable nuggets that can refine strategies and identify new opportunities. Each of these systems solves a valuable purpose yet over time has created significant complexity in today’s IT landscape.

The challenge faced by IT is to provide your business users with a complete view of information across the enterprise, regardless of where it resides – for example, in a transactional database, an analytical data warehouse, or a Web log file in Hadoop. In addition, IT must ensure that the data is clean and accurate to support smooth business operations and facilitate more intelligent tactical and strategic business decisions.

DRIVE NEW LEVELS OF OPERATIONAL EFFICIENCY

Efficient, effective business processes depend on IT systems that can deliver current and complete information at any time for any device in any location – and with low total cost of ownership (TCO).

Among IT executives surveyed, the top data management objectives include the ability to manage costs across a complex infrastructure while enabling better access to real-time operational and analytical data.¹

In delivering these real-time systems more efficiently, IT faces significant new data management challenges. Fortunately, rapid innovations in hardware and software technologies are making it possible to address them.

The balancing act, however, is to leverage key innovations in technology that can boost business performance without disrupting the systems that support the business day to day. And this IT modernization needs to take place at the right pace. Every IT landscape is different – and every company is at a different stage of evolution with a different entry point to technology innovation. As a result, IT organizations look to flexible environments that enable them to innovate without disruption, ensuring continuous business operations at the same time.

FOOTNOTE

1. *Data Management Wish List: IT is Open to Big Changes*, Computerworld White Paper, 2012.

A Unified Data Management Framework

INNOVATION WITHOUT DISRUPTION

Based on our experience with delivering the applications that enable highly successful companies to run their businesses better, SAP has recognized the need for a radically new approach to managing data. Clearly, in today's fast-paced business climate, the most successful companies have mastered the ability to leverage information in real time for competitive advantage and innovation – while keeping costs as low as possible. Our vision is to provide a single, logical, real-time data platform that can provide the framework for business transformation at the right pace for your business – what we call “innovation without disruption.”

The SAP Real-Time Data Platform is a unified data management processing framework that lets you process, analyze, and deliver complete and accurate information at any speed to any application or user located anywhere – with low TCO. It enables you to tailor SAP solutions to meet your unique business needs, yet it provides one logical platform to reduce administrative complexity.

With unprecedented speed to business content, the software helps you to quickly understand your business and markets. Also, by enabling nondisruptive migrations, it helps to reduce fragmentation, decrease development times, and lower TCO. The SAP Real-Time Data Platform enables you to:

- Manage information used across a wide spectrum of applications, business intelligence (BI), and mobile applications
- Smoothly leverage all relevant information, both within your organization and from external sources
- Support the vast variety of data types in your organization, including structured data, semistructured data, and unstructured content – turning information into a strategic asset
- Ensure complete, accurate, and consistent information for efficient business processes and effective decision making
- Rapidly process and analyze data at any speed to deliver actionable information

The SAP Real-Time Data Platform offers innovations in a number of key areas: data management, design and modeling, information management, and landscape management.

A FLEXIBLE DATA MANAGEMENT FRAMEWORK

The SAP Real-Time Data Platform includes in-memory, transactional, analytical, and mobile data management solutions that can be deployed independently or together to solve a broad range of business and technical requirements.

By using breakthrough query federation technology, the SAP Real-Time Data Platform provides access to data that is effectively seamless – that is, any authorized user can access any data, regardless of its physical location, simply and easily, as if it were a single database on a single server. Your developers can write Structured Query Language (SQL) statements as if all data involved were local – the coordinating database simply creates queries for each database as needed, gets the data back, aggregates the data, and then returns the answer to the user. The query federation technology used within the SAP Real-Time Data Platform helps ensure that the communication among different databases is highly efficient, so that response times remain fast.

Real-Time Operational Insight

The SAP Real-Time Data Platform gives you the ability to process and deliver information from the data center to the point of action in real time, no matter the volume of information or the velocity at which that data is created or consumed.

The SAP HANA® database is an in-memory database at the core of the SAP Real-Time Data Platform that enables you to analyze operational, analytical, and text data in real time. This is a fundamentally new approach to data processing that enables you to supercharge core business processes or custom applications with deep business insight delivered with near-zero latency.

Transactional Data Processing Across an Extended Landscape

Online transactional processing (OLTP) systems play a vital role in managing the data that supports day-to-day business operations. With the SAP Real-Time Data Platform, all your applications – and all the associated data that drives them – are unified within a common framework. This means that you can now manage and move data throughout the enterprise, including remote offices and mobile users, regardless of source or processing technology.

Transactional data management solutions from SAP give you more options for meeting varying price and performance requirements:

- SAP Sybase® Adaptive Server® Enterprise (SAP Sybase ASE) enables you to process millions of transactions per minute with terabyte-size databases, while supporting rapid growth rates in data and transaction volume. Data replication functionality helps ensure secure, highly available access to critical business data at any time. We recommend using SAP Sybase ASE as the transactional database for your SAP Business Suite applications.
- SAP Sybase SQL Anywhere® solutions enable you to design and deploy custom database-powered applications that automatically synchronize business data to remote offices and mobile devices.

Powerful Analytical Data Processing

The SAP Real-Time Data Platform helps you unlock the power of data, whether structured or unstructured, SAP or non-SAP, and in massive or minute volumes. Enhanced and optimized data storage and processing options provide you with the flexibility to tailor solutions for the right performance at the right cost.

The following solutions from SAP provide a range of entry points for high-performance analytics:

- SAP Sybase IQ software enables you to analyze vast quantities of data faster than a traditional relational database. Its open column-based architecture helps improve decision making with accelerated reporting and advanced analytics.
- SAP HANA and SAP Sybase IQ enable you to accelerate reporting and analytics for business insight. Both solutions also help you to quickly identify risks or opportunities with built-in predictive analytics, and to gain new insights from unstructured data with text analytics. Finally, both solutions support the processing of Big Data. SAP Sybase IQ has native integration with MapReduce and Hadoop environments, while SAP HANA leverages the SAP Data Services software Hadoop connector so you can discover nuggets of relevant information in large volumes of unstructured data stored on lower-cost commodity storage.
- While SAP HANA enables you to analyze data in memory, SAP Sybase IQ enables you to run ad hoc queries rapidly on large data sets using columnar database technology in a highly optimized, relational database management system. As such, many organizations use SAP Sybase IQ in conjunction with SAP HANA for near-line storage.
- SAP Sybase Event Stream Processor (SAP Sybase ESP) enables you to process and analyze high volumes of streaming events in real time using a high-performance, complex event processing engine – to alert business users so they can respond quickly to critical business events. Relevant events can be made available in SAP HANA for future analysis.

SAP envisions a unified platform for managing data that provides the framework for business transformation at a pace that suits your organization – and delivers innovation without disruption.

COMMON DESIGN AND MODELING ENVIRONMENT

The SAP Real-Time Data Platform can help you eliminate information silos with a powerful modeling tool for data, information, and enterprise architectures.

SAP Sybase PowerDesigner® software enables you to design a pictorial representation of complex environments, helping to simplify communication between business users and IT as they manage the relationships between business processes, data, metadata, and data stores.

INFORMATION MANAGEMENT AND DATA MOVEMENT

Businesses today require seamless, secure delivery of information across the organization, often across globally distributed data centers. The SAP Real-Time Data Platform provides a rich offering of information management solutions that can help you understand, monitor, and improve the quality of data used across the enterprise.

The following technologies support real-time data movement to help your organization maintain a complete and accurate view of information across the enterprise at all times:

The SAP Real-Time Data Platform offers a fundamentally new approach to data processing that enables you to supercharge core business processes or custom applications with deep business insight delivered with near-zero latency.

- SAP Sybase Replication Server® offers real-time database replication to support high availability and disaster recovery, data sharing across globally distributed systems, and real-time loading of operational and transactional data into analytic databases, data marts, and data warehouses.
- SAP Landscape Transformation software supports trigger-based replication into SAP HANA from both SAP and non-SAP sources, including event analysis using optimized interfaces from SAP applications.
- SAP Data Services software helps organizations consolidate, cleanse, and deduplicate data from a variety of data sources, performed either before or after extraction, transformation, and loading into a database, data warehouse, or data mart. SAP Data Services helps improve data quality by parsing, standardizing, cleansing, matching, and deduplicating data anywhere in the enterprise. You can also use it to enrich data with geospatial and reference information.
- SAP Information Steward software empowers your business users to use dashboards to measure and monitor data quality, and they can drill down to understand the lineage and impact of data across systems.

COMMON LANDSCAPE MANAGEMENT

Built with open application programming interfaces (APIs) and protocols, data from the SAP Real-Time Data Platform can be delivered to any application or user at any time through any device. The software helps to deliver complete, accurate information to business applications to support end-to-end business processes, BI tools for decision making, and mobile applications for greater flexibility.

Uniform Experience for Data Architects

The SAP Real-Time Data Platform supports a single view of enterprise data assets. Consistent interfaces can help data architects dramatically simplify your data management landscape and reduce the time, effort, and cost associated with integrating and sharing data securely and reliably.

The SAP HANA studio includes an information modeling tool that enables you to design different types of models, including attribute views, analytic views, and calculation views for SAP HANA. You can also use the studio to administer the SAP HANA platform.

The workbench for SAP Data Services enables you to model the movement of data and metadata in bulk loads from any data source into SAP HANA or SAP Sybase IQ. The designer tool in SAP Data Services software enables you to model data workflows, including the connections between data sources, data quality transformations (such as validate, merge, and deduplicate). It also allows you to model text-data processing transformations (such as entity extraction from text data).

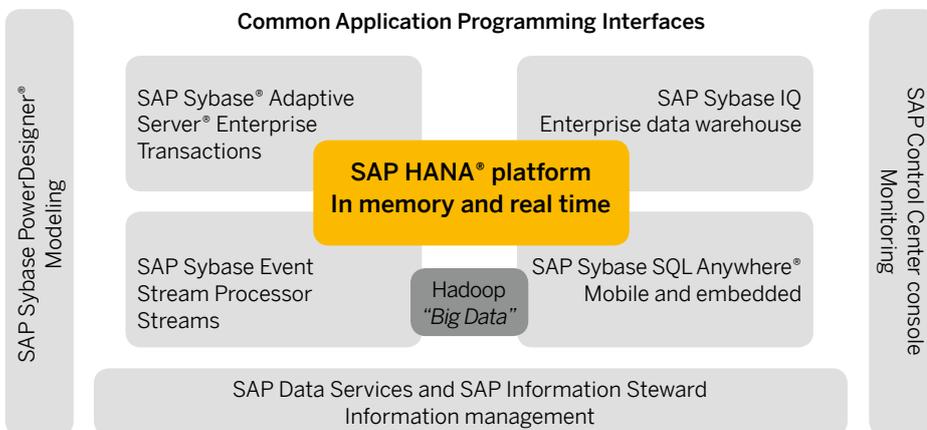
The SAP BusinessObjects™ BI solutions information designer tool enables you to extract, define, and manipulate metadata from relational and online analytical processing (OLAP) sources

to create and deploy SAP BusinessObjects BI universes. In this way, you can provide a business representation of your transactional database or data warehouse, making it easier for business users to interact with data without having to know where it is stored.

Simplified Administrative Experience

Standardized and shared administrative tools across the SAP Real-Time Data Platform (see figure) minimize the learning curve for IT staff in managing new components, resulting in higher efficiency. Flexible deployment options make it easier for IT staff to meet service-level goals for availability, scalability, and data delivery that may vary by business department or group.

Figure: The SAP® Real-Time Data Platform



Comprehensive Technology Portfolio for Modern Data Management

Components of the SAP Real-Time Data Platform are designed to be deployed independently or collectively to solve a broad range of business and technical requirements. SAP provides a wide range of solutions that can be tailored to meet unique business needs yet orchestrated to work together to minimize unnecessary data fragmentation and reduce administrative complexity.

THE SAP® REAL-TIME DATA PLATFORM AT A GLANCE

SAP Solutions	Core Capabilities	Key Benefits
SAP HANA® platform	In-memory data processing platform	In-memory database that can store and analyze relational data (OLTP), multidimensional data (OLAP), graph data, and unstructured data – with one representation of data in a columnar store kept in memory for real-time performance
<ul style="list-style-type: none"> • SAP HANA • SAP Sybase® Adaptive Server® Enterprise (SAP Sybase ASE) • SAP Sybase SQL Anywhere® solutions 	Transactional data management across extended landscapes, including mobile	<ul style="list-style-type: none"> • High-performance operational and analytical data processing in a single in-memory database • Extreme transaction processing and data management to improve the availability of applications • Unified query execution to cover both OLAP and OLTP workloads with outstanding performance • Secure management and delivery of information to and from remote devices, powered by bidirectional and occasionally connected synchronization • Multitenancy and multidatabase support with SAP Sybase ASE and SAP Sybase SQL Anywhere
<ul style="list-style-type: none"> • SAP HANA • SAP Sybase IQ software • SAP Sybase Event Stream Processor (SAP Sybase ESP) 	Analytical data management	<ul style="list-style-type: none"> • High-performance operational and analytical data processing in a single in-memory database • Highly optimized, column-based relational database management system for accelerated analytics, providing flexibility for the system architect to trade off performance and cost • Extended support for structured, unstructured, and semistructured data offering graph processing capabilities • Hyperperformance event processing of streaming data for real-time business decision-making or automated systems

<ul style="list-style-type: none"> • SAP Data Services software • SAP Information Steward software • SAP Sybase Replication Server® • SAP Landscape Transformation software • SAP Sybase ESP 	<p>Information management and real-time data movement</p>	<ul style="list-style-type: none"> • High-performance extraction, transformation, and loading from any data source – enabling data quality management and text data processing during transformation before data is loaded • Improved information trustworthiness with continuous insight into the quality of data • Real-time replication for high availability, distributed systems, and real-time loading of data between data stores using log-based replication • High-performance, trigger-based replication to ensure full data consistency and integration within data migration projects • High-velocity event analysis using optimized interfaces between SAP Sybase ESP and SAP HANA
<p>SAP Sybase PowerDesigner® software</p>	<p>Common modeling and design environment</p>	<p>Enterprise information architecture for a single view of all of an enterprise's data assets</p>
<ul style="list-style-type: none"> • SAP HANA studio • SAP Data Services software workbench and designer • SAP BusinessObjects™ business intelligence (BI) solutions information design tool 	<p>Uniform data architect experience</p>	<p>Modeling tools for rapid design and query analysis, designed for ease of use</p>
<ul style="list-style-type: none"> • SAP Control Center console • SAP Solution Manager application management solution • SAP software database administration cockpit 	<p>Simplified administrative experience</p>	<p>Progressively integrated system administration infrastructure for all components in the platform</p>

Balancing the Needs of Today and Tomorrow

The SAP Real-Time Data Platform is based on a few simple but powerful philosophies. We recognize that few organizations can afford to address modern data management challenges with a clean slate. That is why we've designed each component of the SAP Real-Time Data Platform to work independently or collectively to solve a broad range of business and technical requirements.

GUIDING PHILOSOPHIES DRIVING THE SAP REAL-TIME DATA PLATFORM

Our guiding philosophies behind the SAP Real-Time Data Platform center on the need to give our customers a way to embrace new innovations while maintaining existing systems – in a way that makes the most sense for your unique business requirements.

Groundbreaking Innovation

SAP in-memory computing is an innovation that is central to the SAP Real-Time Data Platform. In-memory technology provides a degree and scale of real-time integration of business processes and analytics not possible before. You can unify best-of-breed technology innovations within the SAP Real-Time Data Platform framework, including leading solutions for OLTP, Big Data analytics, mobile data management, streaming data, data movement, data quality, and data orchestration.

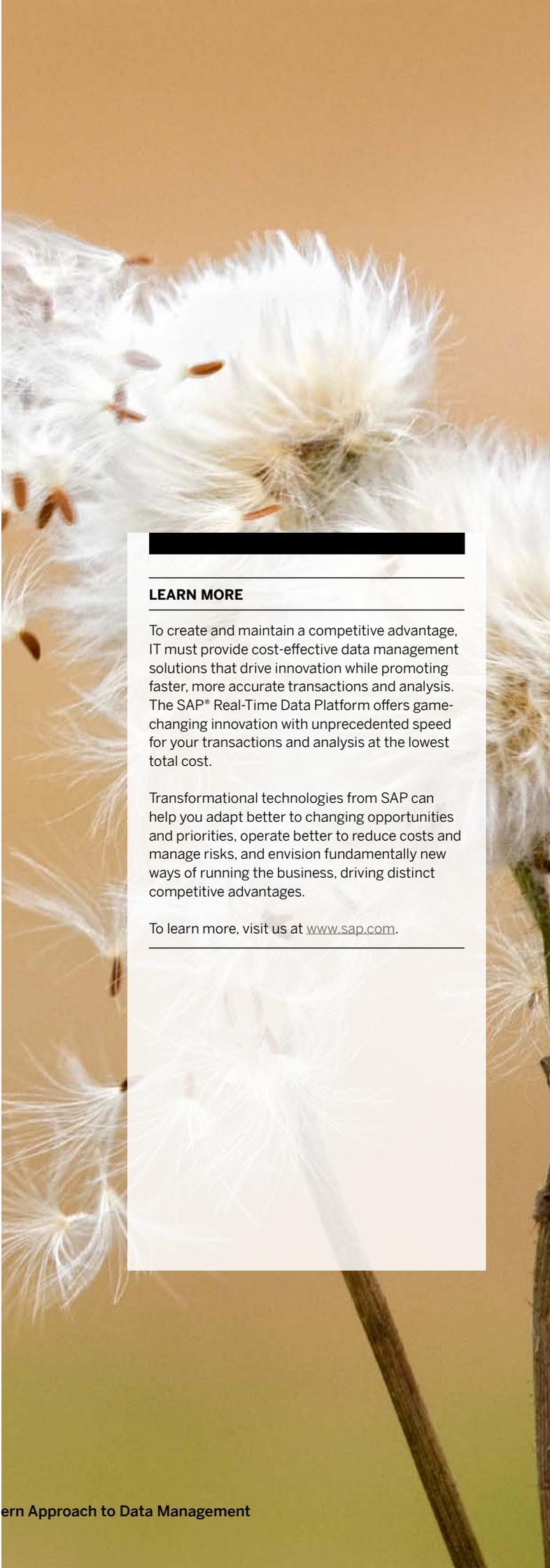
Nondisruptive, Incremental Renewal of Existing Systems

You should be able to adopt and deploy new technologies in an incremental way that allows you to see results in the near term while also ensuring that your existing product investments and applications are protected.

Tight Application Integration

While some platform offerings are purely focused on infrastructure, the SAP Real-Time Data Platform enables greater business value by enabling core application functionality to be moved closer to the data on which it depends. The result is faster business insight for the best possible decisions. A good example is SAP CO-PA Accelerator software, used for profitability analysis. Powered by SAP HANA, the accelerator provides instant, on-the-fly analysis of profitability data at any level of granularity, aggregation, and dimension.

The SAP Real-Time Data Platform helps to unify all your data assets into a single environment, greatly simplifying your IT landscape for both current and future business applications.



Seamless Access and Delivery of Information

Businesses today depend on seamless and secure delivery of any information to the point of action. The SAP Real-Time Data Platform helps you accomplish this through tight integration with our enterprise-class SAP Sybase Replication Server and SAP Data Services. Mobile tools, including SAP Sybase SQL Anywhere and SAP Mobile Platform, help ensure that enterprise data is securely synchronized with mobile applications and devices.

Accurate Information

Quality information fuels better decisions and improves business processes. The SAP Real-Time Data Platform helps organizations ensure the integrity of information across the enterprise – regardless of its origin – with the quality management functionality of SAP Data Services and the data monitoring features of SAP Information Steward.

Open Choice

We believe that our customers should be free to choose components of our platform or other best-of-breed components from our partners, including both hardware and software partners. To enable this interoperability, the real-time data platform conforms to industry standards and protocols that make it easy to plug in other components.

SAP envisions a real-time data platform that provides the framework for business transformation tailored to your unique requirements – at a pace that suits your organization.

LEARN MORE

To create and maintain a competitive advantage, IT must provide cost-effective data management solutions that drive innovation while promoting faster, more accurate transactions and analysis. The SAP® Real-Time Data Platform offers game-changing innovation with unprecedented speed for your transactions and analysis at the lowest total cost.

Transformational technologies from SAP can help you adapt better to changing opportunities and priorities, operate better to reduce costs and manage risks, and envision fundamentally new ways of running the business, driving distinct competitive advantages.

To learn more, visit us at www.sap.com.



CMP24234 (13/02)

© 2013 SAP AG or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and other countries.

Please see <http://www.sap.com/corporate-en/legal/copyright/index.epx#trademark> for additional trademark information and notices.



The Best-Run Businesses Run SAP™