American Healthways and Informatica
Bear Creek Corporation and Firstlogic
CompUSA and ProClarity Analytics
DATAllegro, Inc.
Dell and Oracle Corporation
Eastern Mountain Sports and Information Builders
GALOSI and Syncsort
Grange Insurance and MicroStrategy
Grupo Cortefiel and Sunopsis
Henry Jackson Foundation and Actuate
iDashboards
Mold-Masters and Cognos
Rust-Oleum and Hyperion Solutions
Securities and Exchange Commission and Sybase
Southwest Airlines and PolyVista
Talk America Holdings, Inc. and Oracle Corporation
Unilever and Business Objects
Wachovia Corporation and IBM

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Volume 20
Welcome to volume 20 of TDWI’s What Works: Best Practices in Business Intelligence and Data Warehousing. TDWI is pleased to bring you this compendium of case studies, lessons from the experts, Q&A, and best practices, all collected into one volume that gives you powerful insight into the industry.

The Data Warehousing Institute (TDWI) was formed more than a decade ago to provide data warehousing professionals a single source for education, information, and community. Over the years, our audience has expanded to include BI and business professionals, changing the focus and content of the articles you will now find in What Works. Celebrating a decade of excellence as the premier provider of in-depth, high-quality education and research in the BI and DW industry (online, onsite, and through more than 20 events worldwide), TDWI produces resourceful publications that strive to provide our readership with practical education and current industry trends.

As always, What Works covers the spectrum of BI and DW solutions, from BI initiatives that increase retailers’ sales power to analytics that continually improve airlines’ safety. In addition to these case studies, What Works includes technology perspectives and lessons learned from leading experts in the services, software, and hardware vendor community. Our enlightening Q&A section provides these experts’ answers to the questions they hear most often, complemented by insight from an independent consultant. You will also find an excerpt from TDWI’s most recent research report, Enterprise Business Intelligence: Strategies and Technologies for Deploying BI on an Enterprise Scale, by Wayne Eckerson, TDWI’s director of research and services, and Cindi Howson, president of ASK, a BI consultancy. This report examines current usage of BI tools and technologies, and describes strategies for bringing BI to the enterprise.

Our feature article is written by TDWI’s director of education, Dave Wells, together with Dan Merriman, president of Chapin Consulting, and addresses TDWI’s current focus: bringing business and IT together. Incorporating commentary from thought leaders in the field, this article reviews the need for business and IT to work closely together and sketches a five-part action plan for BI professionals, who are uniquely equipped to lead the business/IT charge.

Finally, this issue also includes the winners from our annual Best Practices Awards, coveted recognition for organizations that have demonstrated industry leadership in developing and implementing world-class BI and DW solutions.

We hope you enjoy this collection of case studies, best practices, and insight from the experts, and we look forward to your comments. If there is anything we can do to make this publication more valuable to you, please let me know. I would personally like to thank the companies who shared their stories and successes, their technology insights, and the lessons they have learned.

Please enjoy What Works, volume 20.

Denelle Hanlon
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The Data Warehousing Institute
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Bringing Business and IT Together: Key Elements of an Action Plan

By Dave Wells, Director of Education, TDWI, and Dan Merriman, President, Chapin Consulting Group, Inc.

Business intelligence professionals have a great opportunity to be leaders within their organizations in bringing IT and the business together, driving more business value from IT investments and gaining the personal benefits that result. This opportunity was a major theme of the August 2005 TDWI World Conference in San Diego; a track of 18 sessions as well as two keynote presentations were dedicated to the topic. See the sidebar on this page for a list of the leaders of these sessions.

What follows is a brief summary of some key elements of a potential action plan that BI professionals can use to bring IT and the business together, including comments from the session leaders at the conference. This action plan can be organized around the following five key components of establishing effective partnerships:

- **Enable the business**—Understanding the priority business goals of the organization and working closely together to address them
- **Empathize**—Taking business knowledge and understanding to a personal level
- **Internalize**—Making a personal commitment to the success of the partnership
- **Contribute**—Having all team members add value in some form to the partnership
- **Make it tangible**—Measuring and continuously improving the bottom-line impact of “enabling the business”

Session leader John Doran provided some important guidance when he pointed out that the difficulty of bringing IT and the business together can be exacerbated by talking about IT and the business as separate entities. Therefore, this article will refer to the “BI team,” which comprises the IT and business representatives jointly responsible for the data warehouse and BI capabilities within the company.

**IT and Business Value Chains**

The business/IT challenge begins with two different perspectives of value, as shown in Figure 1. The IT members of the BI team generally take a data-to-value approach. Data produces information; information enhances knowledge; knowledge drives action; action produces outcomes; and favorable outcomes deliver value. The business management members of the team typically use a goals-to-value system. Business drivers and goals determine strategies; strategies drive tactics, which in turn produce results; and positive results produce value.

Neither of these perspectives on value is wrong, yet both are incomplete. Recognition of business goals and strategies is clearly missing from the data-to-value approach. Similarly, the goals-to-value system fails to acknowledge information and data as elements of value creation.

On closer examination, we see that these perspectives have common elements as well as differences. Action from the data-to-value chain is synonymous with business tactics in the goals-to-value chain. Similarly, outcomes and business results are different expressions of the same concept. By merging the common elements and retaining the unique components of both value chains, we arrive at a single, shared perspective of value creation: the BI perspective. This shared view of value creation is complete and balanced. It recognizes all of the elements—business goals, business strategies, information, and data—as equally significant when creating business value. See Figure 2, which illustrates the BI perspective.

BI professionals are in a unique position to adopt and popularize a new and common value system. Successful BI programs bring together business knowledge and data knowledge. These programs depend on the alignment of information services with the goals and strategies of the business. Equally significant, they recognize the important role that information fulfills in meeting business goals. The teams that create and sustain effective BI programs must have the combination...
of knowledge and skills—both business and technical—needed to establish this new value system. BI professionals are uniquely positioned to lead the charge.

Creating a new value system and realizing business benefits from that system demands an action plan. Begin by engaging the new value model—all parts, both business and technical. Then define and implement a plan that encompasses the five elements introduced earlier: enable the business, empathize, internalize, contribute, and make it tangible.

**Enable the Business**

The fundamental objective of the BI team is to enable the organization to generate significant, incremental business value. To achieve this objective, team members must gather and absorb information regarding the latest priority business objectives of the company, and then act upon that information.

Session leader Jonathan Geiger described “the range of information regarding business goals and strategies that exists within each company.” This information, he explained, can be gleaned from standard public sources (e.g., annual reports, corporate Web sites, earnings calls), general internal business dialogs (business meetings, discussions, planning documents), and sensitive strategic work when available (strategic planning sessions, senior executive meetings). Team members need to be aware of this range of information and determine their near-term focus for increasing their business knowledge. At a minimum, each team member should have a firm grasp of the information that is publicly available—there is no excuse for not being as informed as a major stockholder.

Once this business information is known, it then needs to be tightly linked to the company’s evolving BI/DW capabilities. In her session, Jill Dyché used a bridge analogy to portray a best practice for accomplishing this: “The strategy and implementation sides of the team can be thought of as two groups working simultaneously to build both ends of a bridge, needing to connect in the middle as the initiative moves to deployment.” She explained that the business/strategy members of the team, who are experts in the business goals and objectives, should have a deliberate process for leveraging BI capabilities into all new initiatives. The practitioners should focus on the BI implementation issues while also working with the business side to determine how to prioritize discrete business requirements. The key to this, as Glenn Gutwillig emphasized in his session, is continuous collaboration: “The members of the team must continually make adjustments as the unavoidable changes occur. This cannot be a one-shot planning exercise at the beginning of a project.”

Session leader Cindi Howson helps BI teams develop marketing plans for BI applications. This additional key component of the ongoing dialog enables the teams to develop solutions that are more aligned with business goals and user needs. She recommends that these teams “engage sponsors and key users to promote their BI business successes in a variety of communication media—for example, internal newsletters, staff meetings, company intranet.” Awareness of current uses of the capability can assist others in the organization in determining how they might also benefit.

**Empathize**

The most effective partnerships are those that take knowledge and understanding to the personal level, helping individuals battle through the inevitable challenges that arise. Session leader Mark Peco recalled an old adage: “Walk a mile in the other person’s shoes.” He added, “A deep emotional understanding and connection between the members of the team is essential for an effective partnership. If each of the key team members understands and empathizes with the goals, needs, and challenges of the others he or she is working with, the team will accomplish much more.”

Fundamental to empathy is the need for IT members of the team to consider implications for those with business roles, and for business members to consider impacts on those who have technology responsibilities. How can IT empathize...
Internalize

Internalization is the counterpart of empathy. Where empathy considers personal impact on others, internalization focuses on personal implications for you. Mark Peco’s earlier statement about “deep emotional understanding and connection” emphasizes the importance of internalization. This level of understanding is achieved when its basis is an equally deep, personal commitment to strong and successful business/IT relationships.

Maureen Clarry and Lorna Rickard build on this concept in their work addressing the organizational pitfalls of IT and business partnerships. In her session, Maureen explained that “people involved in BI initiatives often fall into common roles of senior executives, middle-level managers, individual contributors, and customers.” She went on to explain that through predictable conditions experienced by each of these roles (e.g., overload, pressure from all sides, disregard, neglect) and the predictable responses (sucking it up, sliding into the middle, holding others responsible), each can fall out of the “partnership” and into familiar disempowering scenarios. To be effective, the team members must recognize when the predictable responses are occurring and take stands to correct them by:

1. Creating joint responsibility throughout the organization,
2. Taking an active part in the problem resolution, and
3. Involving the team members and customers of the BI initiative early and often in the process in a meaningful way.

It is important to note that a key part of empathizing is knowing the practical limits for the team. John Doran cautioned that “you can’t push too far, too fast. It is important for the team to be successful early and then build from there. While a given part of the team may be able to make far more progress in its particular silo, the team needs to move forward at an aggressive but manageable pace from its collective perspective.”

Internalizing is an exercise of introspection— a very personal process of asking yourself hard questions. Begin with a clear sense of your own goals, both personal and professional. Then ask yourself the following questions: What do you need to do to empathize, and how does this connect with your personal and career goals? What can you do individually to enable the business, and how does this support your personal and career goals? How can you contribute to a team effort to enable...
the business, and how does this relate to your personal and career goals?

Finally, make the commitment concrete by answering the following questions: How will you measure the success of your business/IT relationships? How will you measure the value of your contributions to a BI team? How frequently will you review your goals and reaffirm your commitment?

**Contribute**

For a partnership to work, it has to be a two-way street. Therefore, all of the IT and business members of the BI team need to contribute. This is essential in creating a true, team-oriented environment that is effective at innovating.

One way BI team members can contribute is by continually raising the bar of the expected business value to be enabled by BI initiatives. Jonathan Geiger likes to say: “In a data warehouse, if you are only doing what you are being asked to do, you will fail.” In other words, the BI team needs to actively promote innovative ways of using BI to support the priority business goals of their companies—their competitors are certainly doing so.

Philip Russom, senior manager of research and services at TDWI, regularly sees opportunities for BI professionals to be of great value to their organizations by bringing important discipline and structure to the business environment. “BI creates valuable information by helping the business describe issues and goals in structured, quantitative terms. BI professionals also understand that metrics exist in a hierarchy, and that relationships between them are critical. Business people operating in silos often do not realize this.”

**Make it Tangible**

As most of us have experienced over the last few years, doing good work is no longer adequate in and of itself—success is determined by the actual impact on the bottom line. While developing business justifications as part of IT projects is increasingly common, three elements typically need to be added to deliver true, tangible results: metrics, accountability, and continuous improvement.

Metrics are the foundation of tangibility, enabling actual results to be measured and compared against a plan. Instead of acting on intuition, the business members of the team can greatly benefit from insight into what is happening using a common, agreed-upon, quantitative picture of results. The good news is that the team’s BI leads are often the most comfortable with defining and using metrics.

This foundation is useless, however, unless each key business metric and related target has a senior manager who is accountable. This is the single greatest shortcoming with most business justifications today. If the metric is associated with increasing revenue or reducing business cost, then a senior business executive should be accountable. If the metric has to do with improving the cost-effectiveness of an IT capability, then a senior IT executive can take accountability. Bottom line: without accountability, you have a wish, not a plan!

Once metrics and accountability have been established, it is critical to make sure that the mechanisms and processes are in place for ongoing measurement and continuous improvement. Upfront estimates will be much more accurate if the team knows that results will be measured after the fact. Continuous improvement is then required to determine the underlying causes of issues that arise, and even better, identify and proactively address emerging problems before they significantly impact results.

**Take Action!**

The BI community certainly didn’t cause the challenges that prevent business and IT from working together effectively, but it is in a great position to help overcome them. The key at this stage is taking action. Set aside some time to identify the near-term actions that will help your organization generate more business value from its investments, in BI specifically and IT in general. Make the personal commitment to implement these actions. This will surely add more to a very busy plate, but it will be well worth it!

Dave Wells, TDWI’s director of education, is a Certified Business Intelligence Professional (CBIP), a frequent speaker at industry conferences, an independent data warehousing consultant, and a contributing author to industry publications. Through a career of more than 30 years, he has worked in management, analysis and design, quality assurance, data administration, programming, consulting, and education roles. He can be reached at dwells@tdwi.org.

Dan Merriman, president of Chapin Consulting Group, helps IT and business members of BI teams maximize the business results of technology initiatives. For more than 20 years, he has helped clients in North America, Europe, Asia, and the Middle East realize significant business gains using technologies such as business intelligence, data warehousing, CRM, ERP, and e-commerce. Dan can be reached at dmerriman@chapinconsulting.com, or via www.chapinconsulting.com.
CASE STUDY

The Henry Jackson Foundation Leverages Actuate and PeopleSoft to Drive Performance

Commentary by P.J. Clark, Director of IT Operations, Henry Jackson Foundation

About The Henry Jackson Foundation
The Henry M. Jackson Foundation for the Advancement of Military Medicine is a private, not-for-profit organization dedicated to improving military medicine and public health. It accomplishes this by helping military personnel conduct quality medical research and education programs.

The Foundation functions as a financial operation, managing grant money for awards. Facilitating these financial grants encompasses the entire payroll, purchasing, and billing operations that are associated with the projects. It currently manages more than $130 million for over 300 projects.

The Henry Jackson Challenge
Stale and Shallow Information Hurting Project Management
Managing 300 projects and $130 million isn’t easy. Each project manager requires financial reports with budget information at both the summary and detail level to manage the projects effectively and comply with nonprofit and government regulations. In the previous system, the information was old and relatively useless by the time it got to the project managers.

“We mailed the reports two weeks after the month closed. There was no way to do search and find, drill down, or tie the reports through to anything. The information the project managers needed wasn’t available, especially the transaction details,” said P.J. Clark, director of IT operations for the Henry Jackson Foundation.

Integrate Reporting Solution with PeopleSoft
The Foundation’s goal was to upgrade its human resources application, and then upgrade its financials application, put financial reports online through the PeopleSoft portal, and finally integrate all these environments together.

While the Foundation could generate reports with PeopleSoft, these reports took a while to generate and deliver, and they required users to be proficient with PeopleSoft. The Foundation needed a solution that would easily integrate with PeopleSoft applications.

The Actuate Solution
Four primary requirements were identified:
1. PeopleSoft integration
2. Single sign-on integration
3. Report production efficiency
4. Easy user access

“Our VP of operations, Steven Goodwin, had already done the research on Actuate and the other reporting vendors. The reason he selected Actuate was for its elegance and the fact that it’s a 4GL package that does more than the other vendors could. It allowed us to build reports modeled after an online banking report, like a polished 401(K) statement, so users can easily go in and get needed information,” said Clark.

The Benefits of Actuate Corporation
A more granular, detailed view of the finances associated with the projects has given the Foundation customers better, more accurate control over their projects.

Clark elaborated, “We allocate our time more accurately. We don’t have to go back and do journal vouchers to correct this information three months later. We can correct it right there when it’s happening.”

“The major business impact for us is really customer service-oriented. It’s not easy to quantify it in a dollar amount. You can quantify things like the amount of trees saved, but I think the customer service improvement the Actuate reports provide is invaluable,” said Clark.

The Future
The Foundation built a data warehouse, which gives users basic, controlled access to the data in the financial system. But even with PeopleSoft query, it is hard for users to make sense of the data. A front-end via Actuate, that provides a “normalized” view for the users interests the Foundation. The Foundation plans to develop management reports to use information for flash reporting and ROI by project to let management see quickly where projects are.

“We allocate our time more accurately. We don’t have to go back and do journal vouchers to correct this information three months later. We can correct it right there when it’s happening.”

—P.J. Clark, Director of IT Operations, Henry Jackson Foundation
Unilever Jumpstarts Growth Strategy, Increases Revenues

Commentary by Chris Broe, Information Program Director, and Steve Applegate, Program Manager, Information Systems Integration, Unilever

Challenge

Unilever is one of the world’s leading suppliers of consumer goods, including household favorites such as Persil, Knorr, Hellmann’s, Lipton, and Dove. To keep up with consumer needs and increase operating margins, Unilever wanted to consolidate its 1,600 brands to 400. By consolidating its brands, Unilever plans to focus on stronger product innovations, strengthening marketing efforts, building a world-class supply chain, and simplifying business processes. Dubbed Unilever’s Path to Growth strategy, the company has already saved €1.6 billion from global procurement efficiencies, and management expects to save billions more by restructuring and simplifying processes.

Maintaining 1,600 brands among seven regional business groups and over 300 operating units created a heavy burden on Unilever’s IT environment. Unilever had a decentralized IT infrastructure with multiple environments, including enterprise resource planning (ERP) applications from companies such as SAP, MFG/PRO, BPCS, and Fourth Shift, as well as legacy systems. To reach its Path to Growth goals, employees at Unilever needed fast, easy access to actionable information on both a regional and a global basis. To that end, the IT department launched the Unilever Information Program (UIP) to develop an infrastructure to support the Path to Growth strategy, with the key priority of finding a quick data integration solution to allow user access to any number of data sources for in-depth analysis.

Approach

To support the new Path to Growth information needs, Unilever set out to build an integrated information source to serve thousands of users around the world.

Unilever needed to extract data from a multitude of disparate systems from around the world, consolidate it into a single data warehouse, feed it into specific data marts, and then make meaningful data available to relevant end users.

To do this, Unilever evaluated several extraction, transformation, and loading (ETL) tools through a rigorous proof of concept, and selected BusinessObjects™ Data Integrator. “We evaluated the ETL marketplace and chose Data Integrator for its ability to extract data, transform it into usable business information, and load it into the data warehouse,” said Chris Broe, director of UIP.

Business Objects data integration products are designed for quick installations to give organizations a jump-start on all of their data integration projects. Data Integrator has a data server that can access multiple sources and will intelligently manage and optimize the performance of Unilever’s data infrastructure. Unilever is also using BusinessObjects Rapid Marts™, which provides prepackaged data integration solutions that source data from customer relationship management (CRM) and supply chain management (SCM) applications.

Results

“We’ve been able to do so much more with Data Integrator than we first anticipated,” said Steve Applegate, integration manager at Unilever. “It has enabled us to realize our objectives for the UIP and more, since we are now looking at replicating what we have done to help the other regions make information more accessible for end users via the deployment of a similar architecture.”

Currently, five other regions are working on data integration projects that Applegate expects will consolidate their data, using Data Integrator as the integration platform. Brazil has successfully linked some 130 operational companies to benefit from a single source of information. “Again, Data Integrator has been the glue that has enabled this geography to populate a single data warehouse,” said Applegate.

With Data Integrator, IT continues to play a significant role as Unilever moves down its Path to Growth. “So far, Data Integrator has proved to be indestructible. Data Integrator has transformed what we were doing and how we were doing it,” concluded Applegate.
Mold-Masters® is the global leader in hot runner technology. The company invests heavily in research and development and has more than 1,600 granted and pending international patents. They design and manufacture the industry’s most advanced hot runner systems, temperature controllers, and complete hot half solutions. They offer unparalleled products and service in over 40 countries, with facilities in North America, South America, Europe, and the Pacific Rim.

When it came time for the company to turn the rich data in their SAP R/3 system into rich reports, the company selected SAP BW and Cognos ReportNet.

**Challenges Faced**

Since 1999, Mold-Masters has been committed to using SAP R/3 for its ERP. They have implemented the solution in the U.S., the UK, and Germany, and are currently implementing it in China. They have also invested in SAP BW as their data warehouse. With the host of data generated by this system, the company wanted to turn this wealth of information into actionable reports.

While IT professionals at Mold-Masters felt SAP BW was the best data warehousing solution, they found they needed an enhanced solution for formatted reporting and ad hoc queries. They also required a better toolset for non-IT users and a solution that integrated non-SAP data sources such as MS SQL Server, MS Access, and other proprietary and transactional systems.

Prior to implementing ReportNet, sales reports were provided to users in the form of giant spreadsheets. Sales teams could then format these spreadsheets to view the information pertinent to their needs. These spreadsheets, in trying to be all things to all people, were cumbersome, confusing, and not very timely, and required additional data manipulation by users to become meaningful information.

The result was a lack of focus in the reports, a low user adoption rate, and the opportunity for differing interpretations of the numbers they were generating.

ReportNet was able to integrate all their diverse data sources into a single report, and had the tools needed to empower all users, regardless of technical expertise. They were also impressed with the security and the multi-language capabilities inherent in the solution—features that would meet their global information-sharing requirements without having to build redundant systems or duplicate efforts.

“We were incredibly impressed with the performance of ReportNet,” says Val Swift, IT Manager at Mold-Masters. “We tested the solution rigorously and with users who were not experts in SAP. In our experience, no other add-on to SAP has been as painless.”

Once the decision was made to purchase ReportNet, the company decided on a two-phased approach to implementation. They began by implementing Cognos ReportNet with their Executive Information System. The goal of this project was to provide senior management in the areas of sales, manufacturing, HR, and finance with a dashboard with drill-throughs to detailed reports. This project entailed replacing the MS Access front-end with ReportNet and combining data from SAP BW and MS Access.

The second phase was the enhancement of the sales reporting infrastructure. The goal of this project was to reduce report production time, streamline distribution to the mobile sales force, and provide more flexible analysis without further burdening the IT group.

**Benefits Realized**

The company went live with the new system in March 2004, and the results have been dramatic. For the first time ever, the company has been able to combine MS Access, MS SQL Server, and SAP BW data on the same report. As it pertains to
CASE STUDY

Overview

Industry: Manufacturing

Information Needs

- More focused information for multiple user groups
- User self-service for management, sales, manufacturing, HR, and finance
- Data from multiple sources in a single report
- Simple yet powerful query and analysis capabilities for non-IT users

Challenges

- Giant raw data spreadsheets for reporting caused:
  - A lack of user adoption
  - Inconsistent usage across sales
  - A lack of confidence in numbers
  - More workload for IT to generate, maintain, format, and distribute reports
- Few IT resources to support increasing information needs

Solution: Cognos ReportNet

Benefits

- 100 percent report usage across sales
- More focused, comprehensive reports
- Painless integration with SAP BW
- Reduced report production time
- Streamlined distribution
- Reduced ad hoc information

With the new platform, the data in the system is updated nightly so the company can be confident they are acting on the most up-to-date information. The result of more targeted, timely information is that Mold-Masters has now achieved 100 percent report usage across sales.

One of the largest impacts for Mold-Masters is the effect Cognos ReportNet has had on their overworked IT department. With information now available to the sales force—how they want it, whenever they want it—they have reduced the number of ad hoc requests to IT for more information. By simplifying the data packages, and providing powerful yet simple ad hoc query functionality to business analysts, ad hoc requests can now be addressed within the sales department itself—not through IT.

Currently, the company is in the midst of extending the implementation of the solution to include the finance department, and is working toward having Cognos ReportNet available to the HR, quality management, manufacturing, and purchasing departments.

“ReportNet is the solution for SAP BW,” says Swift. “It allows the value of the data to shine, while shielding users from the complexities of it. We have gotten more out of our investment in SAP by getting information directly into the hands of business users. We are now able to provide our executives and sales staff with all the information they need, when they need it. They can better understand the market and seize opportunities. Without ReportNet, this would not have been possible, particularly with the time and resources available.”

About Cognos

Cognos, the world leader in business intelligence and corporate performance management, delivers software and services that help companies drive, monitor, and understand corporate performance.

Cognos delivers the next level of competitive advantage—corporate performance management (CPM)—achieved through the strategic application of BI on an enterprise scale. Its integrated CPM solution helps customers drive performance through planning; monitor performance through scorecarding; and understand performance through business intelligence.

Cognos serves more than 23,000 customers in over 135 countries. Cognos enterprise business intelligence and performance management solutions and services are also available from more than 3,000 worldwide partners and resellers.

For more information, visit the Cognos Web site at www.cognos.com.

“With Cognos ReportNet, we can access the critical information from the rich data housed in SAP BW as well as our non-SAP systems, providing us with a single view of our business performance. We looked at a number of competitive solutions, and discovered through a proof of concept that Cognos ReportNet demonstrated superior integration and time to deployment with SAP BW.”

—Val Swift, IT Manager, Mold-Masters

The Executive Information System and other reporting needs, the company now has reports that are easy to create, access, and analyze. They can now get immediate information comparing year-to-date versus previous year-to-date, and more.

The remote sales team sales department went from raw data spreadsheets, with inconsistent usage and adoption throughout the sales team, to nine different reports they can access. These reports provide information at the touch of a button that the sales teams could never access before.

Each sales rep now has a personalized point of entry to see reports targeted specifically to their needs. These reports can now answer the top 10–15 questions the sales reps have, including the provision of mission-critical information on customers, orders received, territory information, invoice status, and more.
**CASE STUDY**

**Wachovia Improves Business Effectiveness with Enterprise Content Integration Solution**

Commentary by Kay Harris, Senior Vice President, Information Technology, Manager of Workflow and Imaging Technologies; Randy Wilcox, Enterprise Content Management Architect; and Julia Condrey, Imaging Project Manager, Wachovia Corporation

Mergers and acquisitions have remained a key strategy for growth among banks in the United States, and certainly for Wachovia Corporation, the strategy has worked. The Charlotte, North Carolina–based diversified financial services company (www.wachovia.com) merged with First Union in 2001, and in the following year it acquired Prudential’s retail brokerage business. Today, following another merger with South Trust Corporation, Wachovia is the fourth largest financial services company in the United States.

“...the business units needed easy-to-use, Web-based, self-service desktop applications that would enable employees to flexibly view and work with different content formats throughout the organization. The easier it was to access and leverage this content enterprise-wide, the better Wachovia would be able to live up to its commitment as a customer-focused organization.

Beyond unifying their content sources, the business units needed easy-to-use, Web-based, self-service desktop applications that would enable employees to flexibly view and work with different content formats throughout the organization. The easier it was to access and leverage this content enterprise-wide, the better Wachovia would be able to live up to its commitment as a customer-focused organization.

**Pioneers in Information Integration**
The challenge varied by division. In Retail Loans, staff from the pre-merged Wachovia and First Union entities needed to access documents housed in disparate content repositories in order to issue new loans to customers. In Commercial Loans, the merged company had four different and geographically disconnected filing centers, each of which housed 50,000 to 60,000 documents. That meant there was no way for staff members to access the documents in order to service loans originating outside each individual filing center. Retail Brokerage employees needed to connect brokerage desktops to disconnected repositories to enable brokers and front-office personnel to access financial markets, client documentation, and monthly account customer statements.

Wachovia has grown from 21,000 employees in the year 2000 to more than 95,000 today. The bank offers a comprehensive menu of services, including wealth and capital management, corporate investment banking, retail and commercial loans, and retail brokerage operations.

For some of Wachovia’s business units, however, the mergers posed challenges to the bank’s ability to provide excellent customer service. Operations were siloed, and merged business units had their own CIOs, IT staff, and content repositories. Millions of scanned documents, checks, brokerage statements, signature cards, and legal documents were sequestered in isolated repositories. Large numbers of documents existed only as paper documents in rooms filled with filing cabinets. Employees could not access and view the content in real time, incorporate it into applications, and present it to customers on demand. Wachovia’s business units needed to quickly find a way to draw upon each other’s content stores.

**Choosing Market-Leading Content Integration Software**
Recognizing the difficulties, the Work-flow and Imaging Technologies (WIT) group decided to explore an enterprise approach to content integration that could be implemented incrementally. After researching the market for software that would integrate the widest range of content formats, from transactional data to unstructured content, WIT chose IBM WebSphere Information Integrator Content Edition (then known as Venetica’s VeniceBridge before it was acquired by IBM in October 2004). Using the enterprise content integration software, Wachovia created Content Access Services...
(CAS), a content integration platform that provides customer service, brokerage, and workflow applications with a single point of access.

For Retail Loans, this means having a single desktop application for the loan-serving workforce, so staff from Wachovia and First Union can access each other’s legal documents.

“Our Content Access Services layer opens up a whole new world for developers of our business-critical information integration solutions.”

—Randy Wilcox, Enterprise Content Management Architect, Wachovia Corporation

Commercial Loans uses CAS to obtain access to self-service desktop applications that enable staff to access legal documents from a unified image repository. And Retail Brokerage connects its brokerage desktops to two other repositories so retail brokers and front-office personnel have access to financial market, client documentation, and monthly account customer statements. With these solutions, all three business units are more responsive to their employees and customers, building customer loyalty and enabling employees to focus on maximizing the value of each customer contact. Unrestrictly by technology, the solution based on WebSphere Information Integrator Content Edition gives Wachovia business executives the ability to seamlessly integrate the content they need to enable powerful business applications and processes.

“With CAS, business executives are making their decisions based on what they need to do, not on whether or not we can hook up a new system,” comments Kay Harris, senior vice president, information technology, manager of workflow and imaging technologies, Wachovia Corporation.

On-Demand Content Integration Enables Successful Merger

In the end, WIT demonstrated to Wachovia’s many business units that content integration can be accomplished cost effectively with an acceptable level of efficiency and performance for each implementation. Users do not need to know the origin of the information they request, and the loosely coupled, flexible architecture does not commit the company to any vendor’s software products. Says Randy Wilcox, enterprise content management architect, Wachovia, “Our Content Access Services layer opens up a whole new world for developers of our business-critical information integration solutions.”

CAS Delivers Productivity Gains, ROI, Improved Customer Service

Within a two-year period, CAS has saved Wachovia $2.3 million, for an impressive 64 percent return on its $1.4 million investment. Now that WIT has proved the worth of its CAS solution using IBM WebSphere Information Integrator Content Edition, other divisions within the bank have lined up to adopt the same solution. For each new implementation, Wachovia will save approximately $1 million. In the Commercial Loan department, moreover, requests for electronic documents have averaged more than 140,000 per month, 50 times more than the number of requests for physical documents prior to the new solution.

This increased usage of the bank’s legacy documents is translating into improved customer service. “Our number-one measurement is based on customer satisfaction,” says Julia Condrey, imaging project manager, Wachovia Corporation. “Wachovia loan servicing staff are using CAS and we are not getting any complaints. Our group has been extremely satisfied. The project went 100 percent better than we expected. Looking ahead, we hope to move imaging up earlier in our business process, and IBM WebSphere Information Integrator Content Edition will play a key role in enabling that.”

For More Information

Please contact your IBM sales representative or IBM Business Partner.

Information in this case study is derived from “Wachovia’s CAS: Harnessing the Value of Multiple Content Repositories Across a Large Enterprise,” by The Gilbane Report and Content Technology Works. To view the full case study, please visit: www.gilbane.com/case_studies/wachovia_case_study.html

Visit IBM at: ibm.com/software/data/integration

For more information on Wachovia, visit: www.wachovia.com

Overview

Challenge

Access and work with content stored in a disparate mix of content repositories following mergers

Why IBM?

IBM offered a comprehensive, open solution that enabled the customer to leverage the widest variety of business information, from transactional data to unstructured content, as part of a common data model

Solution

Enterprise Content Integration solution, a single, bidirectional interface to all disparate content repositories within various departments across the merged organization

Key Benefits

$2.3 million savings within two years for a 64 percent ROI; fiftyfold increase in numbers of requests for content, indicating that customers are being served better; $1 million savings for each additional business unit implementing WebSphere Information Integrator Content Edition solution; time to market for new information integration solution decreased with successive implementations
Bear Creek Corporation, a leading direct marketing and e-commerce company and umbrella organization to world-renowned brands Jackson & Perkins and Harry and David, used to build homegrown computer applications much like the company grows its own pears, makes its own cheesecakes, and nurtures its own roses.

The result was a wide variety of homegrown legacy systems used for order entry, finance, distribution, and marketing, which made enterprise data integration for the development of data warehouses for financial reporting, customer relationship management (CRM), and business intelligence (BI) applications a very difficult task.

Approximately seven years ago, Bear Creek began the transition toward buying packaged systems where possible. Part of that information technology (IT) initiative included purchasing data quality software from Firstlogic to aid in the standardizing, cleansing, matching, and consolidation of Bear Creek’s millions of customer records. Measuring the quality of the data—incorrect data, incomplete data, inconsistent data—in all cases, Firstlogic’s data quality software is used by Bear Creek to deal with the problem.

“We clearly recognize the benefits of having a clear, single view of our customer base that Firstlogic helps us achieve,” said Ellen Smith, Bear Creek senior manager, data warehouse systems.

**Terabyte Data Warehouses**

Bear Creek’s nearly one-terabyte corporate data warehouse is an IBM RS6000 Unix system running UDB. MicroStrategy is used for reporting, and Business Objects Data Integrator is used for moving data from the source system to the data warehouse. Bear Creek’s marketing data warehouse, also almost a terabyte in size, uses both MicroStrategy and SAS as reporting tools. SAS is also utilized for the extraction, transformation, and loading (ETL) of data.

Millions of customer records are contained in the marketing data warehouse: customers that have come to Bear Creek through a diverse set of sales channels, including catalog sales, a 120-store retail division, and the Web.

“Everybody wants information—not data—now, and that speed-up provides the opportunity for bad data to spread much faster,” said Mark Madsen, Bear Creek manager, decision support. “We are not only providing data quickly, but good, clean, actionable information that helps the company with its marketing and customer service initiatives.”

Both data warehouses are refreshed nightly. Data cleansing using Firstlogic’s Information Quality Suite is done as part of the ETL process for both data warehouses. “Incorporating data quality as part of the ETL process is a big step in cleansing the data as far upstream as possible,” Smith said.

According to Smith, the marketing data warehouse is designed to be much more at the customer level. “That is where we really exercise the capabilities of the Firstlogic data quality software. We can truly slice and dice our customer data made to order,” Smith said, adding that Bear Creek’s senior executives request reports “prepared every way imaginable.”

**Householding**

Bear Creek is also using Firstlogic’s software to perform householding on the millions of customer records in the marketing data warehouse. “We have a 23 percent collapse of individuals into households when we perform householding on our entire marketing database,” Smith said. “It provides our marketing team some unique insights into our customer buying patterns.

“We are absolutely sold on the benefits that our data quality initiative has brought to Bear Creek,” Smith continued. “The capabilities are powerful and the results very compelling. We have eliminated sending duplicate catalogs, saved mailing costs and marketing resources, conducted more targeted and successful marketing campaigns, and most important, we reduce customer bother and improve customer service.

“We’re not just about our famous pears and plants,” added Madsen. “It is good data that is helping drive the success of the company as well.”

“We clearly recognize the benefits of having a clear, single view of our customer base that Firstlogic helps us achieve.”

—Ellen Smith, Senior Manager, Data Warehouse Systems, Bear Creek Corporation
BPM Solution Gives Rust-Oleum Canada Maximum Visibility into Product Performance

Commentary by Matt Roher, Category Manager, Rust-Oleum Consumer Brands Canada

Known for its protective aerosol paints, Rust-Oleum Consumer Brands Canada, a Canadian subsidiary of RPM International, also distributes a wide range of finishes, brush-grade paints, and floor coatings. Used by both professionals and “do-it-yourselfers,” Rust-Oleum’s brands—including Rust-Oleum®, Mono®, Tremclad®, and Varathane®—are widely distributed across Canada through independent hardware stores and large “big-box” retailers such as Wal-Mart, Canadian Tire, Rona, and Home Depot. Rust-Oleum is constantly challenged to optimize its product lines and develop new product categories to maintain its market leadership.

Eliminating the Manual Grind

Prior to implementing Hyperion Performance Suite™, the process of evaluating product performance was extremely time-consuming, requiring the category management team to analyze huge volumes of point-of-sale (POS) information contained in binders shipped from retail partners monthly. “I was entering information instead of analyzing it, and as a result was in no position to act on this information,” says Matt Roher, category manager, Rust-Oleum Consumer Brands Canada.

Improving Productivity with Actionable Information

The task of creating a report, which once took two weeks to complete, is now accomplished in less than one hour. Retail partners now transmit POS data to a server housed in Rust-Oleum’s Illinois headquarters. From there, the data is posted to a Microsoft SQL Server database. The Canadian category management team then uses Hyperion Performance Suite to access, view, and manipulate reports, with the ability to track SKUs down to the individual store level. SAP R/3 data, which includes Rust-Oleum’s outbound sales and shipment data, is also accessed via Performance Suite for comparison purposes and trend spotting.

Using Historical Sales Trends to Drive Future Performance

Summary reports that highlight total and specific product sales information are e-mailed to brand managers, forecasting managers, and sales and marketing executives. Brand and category managers review consumer purchases and calculate “what-if” scenarios on how different shelf positioning of products might affect sales, and they make these findings available to retail partners. “Thanks to Hyperion, our general manager can be confident that the sales force has the information they need to build stronger and more credible relationships. Our retail partners love the fact that we can provide them with extremely useful, timely information which can have a tremendous impact on product sales,” declares Roher.

Increasing Promotion Effectiveness

Using Hyperion Performance Suite, Rust-Oleum developed templates that brand managers use to receive reports identifying sales of new products and the status of related promotions for new product SKUs. With these reports, the category management team identifies factors affecting product sales. Given the resources Rust-Oleum commits to bringing products to market, the ability to quickly measure launch and promotion progress and fulfill demand has been vital to continued launch success.

Within just a week after Epoxy Shield first shipped from the warehouse, Rust-Oleum presented retail partners with actual sales figures that attested to the popularity of this product, thus encouraging retailers to increase their orders. Thanks to Rust-Oleum’s immediate visibility into sales data combined with rededicated marketing resources, Rust-Oleum quickly boosted Epoxy Shield’s sales. “Thanks to Hyperion, we were able to prove that the Epoxy Shield marketing efforts were already working, even without additional marketing support and advertising,” says Roher.

“Thanks to Hyperion, we were able to prove that the Epoxy Shield marketing efforts were already working, even without additional marketing support and advertising.”

—Matt Roher, Category Manager, Rust-Oleum Consumer Brands Canada

Conclusion

“We can’t just say that ‘our brands are good’ to our retail partners, we must prove it,” continues Roher. “With Hyperion Performance Suite, we provide them with quantitative analyses and a solid business review based on their own sell-through data, which makes a phenomenal difference to our credibility. We’re using Hyperion reporting as a competitive advantage, which has had a huge impact on our ability to serve our retail partners and their ability to serve consumers.”

—Matt Roher, Category Manager, Rust-Oleum Consumer Brands Canada
A business intelligence or data warehouse implementation can be a formidable undertaking. In these pages, leading business intelligence and data warehousing solution providers share their answers to the questions they hear often from industry professionals. Tim Feetham, an independent consultant, provides his analyst viewpoint to each Q&A.

**Actuate Corporation**

Introducing performance management reporting to a diversely skilled workforce is incredibly expensive and time-consuming. What is the best strategy for driving adoption of new reporting applications across the enterprise?

Large user communities, as a whole, do not want to learn new technologies. They prefer to use the productivity applications to which they are accustomed. Therefore, in order to ensure that operation performance management solutions are widely used, we recommend deploying them in familiar means such as personalized, interactive Web applications and fully functional spreadsheets. This way, we immediately overcome the first objection to new technology. Instead, users say: “I knew how to use it when I opened it.”

**Analyst Viewpoint**

In performance management, getting relevant feedback to the folks who can make a difference is essential. Organizations that undertake this task must also understand that what is relevant today will change tomorrow. These organizations face two issues: how to generate broad adoption and how to stay flexible. These needs point to Web-based reporting technologies that deliver reporting, visualization, and analysis tools, plus seamless spreadsheet integration under a unified but customizable interface. Users will be quick to adopt this technology, and support organizations will be able to focus more on tailoring the product to the pressing business issues at hand.

Request more information about Actuate Corporation
Business Objects

What is the secret to implementing a high-quality ETL solution?

One major reason data warehouse implementations fail to meet deadlines and expectations is because of inadequate design of the ETL processes. Today, the design process is a low-tech, high-cost exercise. To deliver a high-quality ETL process, organizations must obtain a thorough understanding of their sources, improve collaboration among team members to develop accurate source-to-target mapping documents, and gain a good understanding of their design before moving on to implementation. By addressing these areas, organizations can design an ETL process that will meet the needs of the business and deliver a trusted data foundation for business intelligence.

Analyst Viewpoint

Ward Stroud sings a blues song called “Good Enough for Now.” That phrase sums up too many ETL efforts. Teams cut corners with hand coding and/or inexpensive tools along with lax upfront analysis and minimal structure. These organizations find themselves with unmanageable ETL processes after the first couple of iterations. Just when development cycles should be getting shorter, they get longer because developers are busy trying to maintain what they have already built. What was “good enough for now” now threatens the continued success of the data warehouse. The answer? Comprehensive upfront analysis, quality ETL technology, and sound production support procedures.

Cognos

When is it best to use a dashboard versus a scorecard?

Scorecard applications are ideal for measuring and managing performance. Business users can easily manage performance through scorecards that have metrics with targets. These scorecards also ensure accountability by defining ownership of key performance indicators. The end result is that scorecards provide alignment throughout the organization around corporate objectives. Dashboards provide their own unique value proposition. Dashboards are a collection of large volumes of data from various sources, presented in a single graphical view. Business users typically monitor a series of charts and graphs that deliver interactive exploration of the data. Scorecards and dashboards are often leveraged together to deliver a full spectrum of performance information.

Analyst Viewpoint

Scorecarding is a management system of key metrics delivered to those persons whose actions affect them. These folks might work at any level, and these metrics might change over time. Therefore, the supporting applications need to be easily understood and easily modified. Some organizations rely on basic reporting tools. This may work for line workers, but managers need more. Effective scorecarding usually involves a summary set of metrics at each level, but when a metric indicates a problem, the scorecarding application should give the user the ability to drill down to supporting metrics. An interactive dashboard serves this purpose well.
DATAllegro, Inc.

What is the difference between Ingres and Postgres?

Ingres emerged circa 1974 under Michael Stonebraker and Eugene Wong at UC Berkeley. In 1980, Ingres and Oracle entered the commercial world as the two leading relational database management system (RDBMS) products. Ingres is the progenitor of other RDBMS products such as Informix, SQL Server, and Tandem’s NonStop, among others. Stonebraker later developed Postgres, a derivative of Ingres, as an object-relational DBMS (for unstructured data types). Postgres remained open source, but Ingres had engineering oversight since its commercial availability. Computer Associates bought Ingres in 1990, and it is the database within CA products. Ingres is ISO 9001 certified.

Analyst Viewpoint

Michael Stonebraker released Postgres, an object-relational DBMS, to the open source community in 1986. It has since gained wide acceptance in that group. Ingres, which he helped create in 1974, made its reputation as a leading commercial RDBMS. Computer Associates purchased Ingres in 1990. CA made it its key database product and encouraged its customers to move to Ingres for Y2K. Last year, CA released Ingres into the open source community. Although both products are now in the open source community, Ingres has benefited from years of market discipline, making it an ideal engine for low-cost database appliance technology.

Firstlogic

How do you sell an executive on a data quality initiative?

You might be surprised at how easily you can capture information to approach your executive about a data quality initiative. There are three pillars of justification:

1. Identify how big the problem is (values out of range, incomplete records, bad formatting, incorrect product codes, etc.). A profiling tool can assist with gathering this data.

2. The second pillar is represented by example records. People love to see their own data and are amazed at how corrupt it actually is.

3. The third pillar encompasses anecdotes—stories from your customers or data consumers about negative impact on your operations. Testimonials are powerful.

Once you have statistics, example records, and anecdotes, you can then plan to approach your executive.

Analyst Viewpoint

The team leaders responsible for data warehousing development and/or enterprise reporting are the natural champions of a data quality initiative. Their work will be judged on the reliability of the information they produce. These team leaders can usually find support throughout the organization. Rare is the experienced line manager who doesn’t have a tale or two related to poor data quality. However, most write it off as something they can’t do anything about. The team needs to document these stories, analyze their financial impacts, assure these managers that the situation can be changed, and develop scenarios for improving data quality.
Hyperion Solutions Corporation

What is business performance management?

Business performance management (BPM) is the mapping of the business agenda with sophisticated BI technologies to provide business users across the enterprise with the appropriate insight to make faster, more accurate decisions.

BPM is about understanding and aligning the goals that the enterprise (entire company) is trying to achieve, modeling different alternatives on how to go about achieving those goals, putting plans in place to go about executing the goals, monitoring the execution of those plans, analyzing the progress on those goals, reporting on that progress, and then starting all over again. This management cycle can only be supported with a BPM system that provides transparency and visibility (requirements and methods) securely across financial and operational data, regardless of source systems.

Analyst Viewpoint

Business performance management is a practice that identifies, propagates, and reports on measurable goals that, when achieved, will have a positive outcome on the organization. The effective organization will identify goals at all levels. Measures should be identified based on leading indicators of business performance, again at all levels. Once identified, they need to be tracked and made readily available to the people who can affect them. Those people need to be accountable for their goals. Finally, these goals need to be analyzed over time to see if they really are effective, and if they are not, new goals should be selected.

IBM Information Integration Solutions

How do IBM® WebSphere® Information Integrator and the IBM® WebSphere® Data Integration Suite complement each other?

These products deliver complementary capabilities for the information integration market. WebSphere Information Integrator provides real-time, access-in-place technology, event-driven data movement for any data, and unstructured content, while WebSphere Data Integration Suite delivers high-speed, high-volume, parallel data movement, transformation, and data quality.

The two product sets already integrate today using service-oriented interfaces, providing complex data movement and transformation. Now, IBM is better able to leverage the strengths of the WebSphere Data Integration Suite and WebSphere Information Integrator to help customers achieve greater value, particularly in the areas of real-time integration requirements for master data management and business performance management.

Analyst Viewpoint

When IBM brought bought Ascential, a market-leading ETL company, it faced several challenges. The first was to preserve Ascential’s customer base. The second was to integrate it into IBM’s other suite of products. IBM wisely decided to brand it as the IBM WebSphere Data Integration Suite, making it database-neutral. IBM also has a history stretching back into the 1980s of technology centered on dynamic access to heterogeneous data sources. This technology is now marketed under the WebSphere Information Integrator name, and fits well with the Data Integration Suite, especially for customers looking to implement enterprise information integration strategies.
iDashboards

How important is the data visualization component in the success of a BI dashboard initiative?

There are two key elements to a BI dashboard initiative:

1. Consolidation of information from disparate data sources
2. Providing insight (and business intelligence) to users presented with a large amount of data

Therefore, cutting-edge data visualization capabilities are at the heart of user adoption and the overall success of a dashboard initiative. The data visualization component must make the information intuitive, providing user interaction and making it easy to spot trends, exceptions, and interconnections between a multitude of variables. Visualization components must provide interactive visual intelligence within the dashboard.

Analyst Viewpoint
Data visualization can serve two functions for BI dashboards. The first centers on presenting key metrics in a way that stands out in the sea of information clutter that we all deal with in our daily lives. A good user interface that presents these metrics needs to resonate with the user and quickly tip him or her off to any variances. The second function is a bit more of a challenge, but has a relatively high payoff. A dashboard that supports visualization for analyzing the underlying data will help produce a quicker understanding of the issues for more users than numbers alone would accomplish.

Informatica Corporation

What are the differences between 32-bit and 64-bit PowerCenter for a given platform? What should I consider when choosing a performance-enhancing solution?

The primary advantage of 64-bit processing is the application’s ability to use more memory—virtually unlimited—as compared with the 32-bit environment. The basic principles encompassed within the general term “performance” include throughput, scalability, availability, and manageability. All four of these principles must be considered to ensure that you are selecting a platform that will grow with your business. The benefits of 64-bit processing include improved throughput and scalability, as well as a reduction in I/O bottleneck due to large memory-addressing capability. Several platforms support 64-bit PowerCenter, including IBM AIX v5.3, HP-UX 11i on Itanium, and Solaris 10, with additional 64-bit platform support coming in the next major release of PowerCenter.

Analyst Viewpoint
When 32-bit ETL developers started tapping its potential, they found they could improve data transformation performance dramatically by moving reference data into memory. These applications could address up to four gigabytes of memory, which meant that they could accommodate fairly large reference data sources. However, this has only whetted these developers’ appetites for accommodating more types of data in memory. The 64-bit architectures now give these developers 16 million times the addressable memory that 32-bit architectures do. This means that products such as Informatica’s 64-bit PowerCenter now hold promise for eliminating many ETL performance problems that are associated with big data.
Talk America Builds a Highly Available, Scalable Infrastructure

Commentary by Laurence Grant, IT Director of Enterprise Computing Systems, Talk America Holdings, Inc.

Challenges

Founded in 1989, Talk America Holdings, Inc. is a leading communications provider that offers phone services and high-speed Internet access to nearly one million residential and small business customers across the U.S. Based in Reston, Virginia, they operate in 25 U.S. markets, focusing on Georgia, Louisiana, Michigan, Pennsylvania, Ohio, and Texas. In 2004, Talk America's revenue grew 23 percent to $471 million. The company has received the J.D. Power and Associates Award for the highest residential telephone customer satisfaction in the North Central region two years in a row.

In the highly competitive telecom industry, the 1,300 employees of Talk America face many challenges as they strive to differentiate themselves with high-value, low-cost products and excellent customer service. In order to help meet its high growth targets, Talk America needed a system that could grow with it.

“We were experiencing tremendous growth after changing our focus from long distance to the local marketplace, and our existing legacy system struggled to meet the high availability and scalability requirements of various mission-critical applications,” says Laurence Grant, Talk America’s IT director. “We already managed 60 terabytes of data in multiple Informix databases, and we knew the system wouldn’t scale to accommodate the 100 terabytes of data we were expecting to store within the next five years.”

Solution

To support the computing requirements of its growing business, Talk America consolidated their separate OLTP and data warehouses into a single Oracle 10g Grid Computing database on HP. It was possible to build both OLTP and DSS applications on the same database because Oracle Grid Computing technology enables the database to support multiple types of workloads in a highly flexible manner. For example, if Talk America needs more resources for their CRM application to handle increased numbers of callers due to, say, bad weather, they can take some resources away from their reporting system. These can be allocated, on demand, to the CRM system, and it will be transparent to the users.

Consolidating the OLTP and DSS systems into a near-real-time system helps Talk America eliminate duplication of data, reduce maintenance costs, and minimize integration. It also gives management accurate measurements of the effectiveness of customer acquisition efforts while achieving greater mileage from marketing dollars.

“The new system provides an accurate 360-degree view of customer information to all our employees at all times,” says Grant. “We achieved this by building both OLTP and DSS applications in the same database, and the new system has an enterprisewide common data model that enables sharing of data across multiple applications, serving as the single source of truth.”

Results

With the Oracle system, Talk America’s sales and service employees are now able to handle twice the number of customers they were handling in the earlier system. Not only are they handling a greater quantity of customers, they’re doing so with a higher degree of quality.

“When a customer calls our service center, the agent has the latest and most accurate information such as call data records, billing details, and contact info, as well as analysis information such as lifetime customer value and cross-selling/up-selling opportunities for the customer,” explains Grant. “All these features enable us to provide superior customer service and maintain a high growth rate.”

The new Oracle system has easily accommodated Talk America’s substantial growth—23 percent in 2004—while decreasing overall IT costs and improving value. Data storage capacity has swelled to 100 terabytes, processes have become more efficient, and the system has not experienced any unplanned downtime.

“An integrated database helped us to eliminate the many silos and complex integrations in our earlier system, while reducing data inconsistencies and inaccuracies,” says Grant. “It allows us to provide timely, accurate, and consistently relevant data and analysis to all our employees at all levels, and we’re now able to measure the effectiveness of our marketing campaigns faster, take immediate actions to fine-tune [them], and achieve higher return on our marketing dollars.”

For Further Information

Learn more about Oracle business intelligence and data warehousing at: www.oracle.com/solutions/business_intelligence

“Talk America has leveraged grid computing technology to consolidate our OLTP and DSS systems into a single database to provide a highly available, scalable, and secure IT infrastructure.”

— Laurence Grant, IT Director of Enterprise Computing Systems, Talk America

Request more information
CASE STUDY

Eastern Mountain Sports Forges a Trail to Merchandising Visibility

Commentary by Richard Pedott, Vice President of Planning and Allocation, Eastern Mountain Sports

Specialty Retailer Uses BI Technology to Climb to New Heights

When customers of Eastern Mountain Sports plunge their sea kayaks into the open surf or stake down their tents in a freezing thunderstorm, they’re probably not thinking about merchandising and supply chain technologies. But the outdoor gear they depend on in those extreme situations is available when they need it, thanks to a business intelligence (BI) dashboard that helps managers keep the shelves stocked with the products they need most. BI software helps Eastern Mountain Sports analyze sales trends and control the supply chain, so customers always have the clothing and gear they need for their recreational adventures.

Managers use the dashboard to assess sales, inventory, and margin levels, drilling down as necessary to detect opportunities and analyze potential problems.

“We needed better visibility throughout the business,” says Richard Pedott, vice president of planning and allocation at Eastern Mountain Sports (EMS), an outdoor specialty retailer based in Peterborough, New Hampshire. “We depend on business intelligence and integration technology from Information Builders to give us a complete view of our entire merchandising operation from one central dashboard.”

As vice president of planning and allocation, Pedott leads a vital expedition—not into the backcountry, per se, but into the back-office of the business. His terrain is financial projections, inventory plans, and profit parameters, and he keeps the company on track by keeping a close eye on sales trends and market conditions.

“You need more than just good reporting tools to monitor today’s retail operations,” says Pedott. “You also need hooks into the production information systems to monitor events, gather current data, and combine it all in a cohesive way. That’s what we get from this dashboard.”

“We depend on business intelligence and integration technology from Information Builders to give us a complete view of our entire merchandising operation from one central dashboard.”

—Richard Pedott, Vice President of Planning and Allocation, Eastern Mountain Sports

Mapping a New Path

Founded in 1967 by two rock climbers, EMS has grown into one of the nation’s leading outdoor specialty retailers, with more than 80 retail stores in 16 states, a seasonal magazine/catalog, and a formidable online presence.

For Richard Pedott, the journey to BI began with a management-led buyout that triggered changes to all aspects of the business, including large-scale improvements to the company’s information systems.

“We wanted to have transparency across the entire organization, with a reporting system that was easy to implement and deploy at remote locations,” Pedott recalls. “We also wanted it to be user friendly so that anybody with basic Internet skills could learn the system very quickly.”

With help from Information Builders Consulting, EMS developed an executive dashboard for monitoring the merchandising operation. The project took 90 days from concept to completion. Developers used integration technology from iWay Software, Information Builders’ sister company, to access point-of-sale information on an IBM AS/400 computer and load it into a Microsoft SQL Server database. Then they used WebFOCUS to present the data through an executive dashboard that managers can access via simple Web browsers.

An Elevated View of the Landscape

Today, EMS uses the BI dashboard to monitor the merchandising operation at a high level. Just as a climber must constantly assess his equipment, environment, and weather conditions to ensure a successful ascent, managers throughout the organization can study sales results and make inventory adjustments based on a near-real-time view of the retail operation. Already, more than 200 people at EMS use the BI dashboard to obtain a high-level view of merchandising processes.

Soon, external users will benefit from the technology as well, as EMS streamlines horizontal collaboration among suppliers, retailers, and customers.

“We all see the same information every day,” Pedott says. “This allows us to quickly determine the top-selling items in any space, or identify which stores are performing best. Because my sales managers can call up the same data that I see on the dashboard, we can easily share tips and initiate dialogues. We can even find out why some items perform better than others by analyzing the transaction characteristics and selling behaviors that produce the results.”
**Fast on Their Feet**

For example, when EMS wanted to determine why footwear accessories were moving so briskly in its specialty stores, Pedott was able to instantly generate the necessary reports and share them with his managers online. “Once we noticed that accessories sales were up dramatically, we drilled down into the data to zero in on a specific product. Turns out that there was a large increase in the sales of inner soles.”

Pedott suspected the specialty stores were selling these high-margin items because of a unique shoe-fitting approach. Could their tactics be shared with the rest of the retail network?

“These stores had perfected a multi-step sales technique that included the recommendation of socks designed for specific uses, such as hiking or running, along with an inner sole that could be custom-fit to each customer,” Pedott explains. “The dashboard made it easy to analyze the data to see what was selling, then drill down to see why. After that, it was a simple matter to cascade that information throughout the organization to boost sales across the enterprise. We gained insight that we were then able to share with other stores throughout the company.”

**The Next Leg of the Voyage**

Surveying the trail ahead, Pedott believes BI technology can lead the company to a number of new management vistas. “We intend to use the system for micro-sorting, dialing into the most granular level of product detail, such as colors and sizes,” he says.

EMS is also mapping out plans for more detailed online interaction with its suppliers, possibly through collaborative planning, forecasting, and replenishment (CPFR) techniques. BI technology helps EMS know exactly what customers are buying. By tracking data at the point of sale, the company can quickly re-stock inventory to meet customer demand, reducing carrying costs. “If our suppliers know exactly how certain products are selling, they can ramp up production accordingly.” Pedott explains. “It’s just a question of visibility. We want to extend this information to our suppliers and factories.”

Traditional CPFR software requires parallel investments among suppliers and retailers up and down the supply chain. Partners need to purchase software and install it to link their operations—an expensive and time-consuming process. However, Pedott believes he can achieve much of this same functionality by using the BI toolset to send dynamic, interactive reports to designated users. When properly authorized, these users will be able to pull up inventory and sales information just as if they were using the dashboard in-house, and even control parameterization and sorting.

These dynamic external presentations can include thousands of records—a cost-effective alternative to deploying ad hoc reporting capabilities among the company’s supplier base. Each report can be expanded or contracted as needed, based on individual needs. EMS could even send these dynamic “accordion” reports automatically at regular intervals, so suppliers will always be kept up to date on the state of the retail operation.

It will take some stamina to achieve this level of automation, but Pedott believes the journey will be worth the effort. “The business intelligence dashboard is supplying greater insight and enabling quicker response to events,” he says. “Ultimately, it is our customers who benefit, since this technology allows us to deliver the items they need, when they need them.”
American Healthways Increases Performance and Enables Growth

Commentary by Scott Kozicki, Vice President and Chief Technology Officer, American Healthways

American Healthways (Nasdaq: AMHC) is the nation’s leading and largest provider of disease management, care enhancement, and high-risk health management services designed to improve the quality of healthcare and to lower costs. The company has more than a million lives under management nationwide.

A key component of its operation is information management. To keep up with growing volumes and deliver a high level of customer service, the company acquired an HP Integrity server with multiple Itanium 2 processors running HP-UX 11i v2 and Informatica’s PowerCenter 7.1 data integration software optimized for 64-bit processing. The result: more than a tenfold improvement in performance in preliminary testing. With the new system, a single application that used to take 72 hours was completed in just two hours. “It was a phenomenal result—far better than we had hoped for,” said Scott Kozicki, American Healthways’ vice president and chief technology officer.

The Emerging Industry of Disease Management

While the concept of disease management is relatively new, its premise is not: healthier people cost less. To improve health and, as a result, drive cost savings, disease management providers work with people with chronic diseases and conditions, providing education, coaching, and support to help them become better self-managers of their health. It all starts when a health plan hires American Healthways to pore through massive amounts of claims, lab, and pharmacy data.

Challenge: Data Integration on a Huge Scale

It’s the data analysis that presents the biggest challenge. After growing by more than 25 percent a year for several years, the processing task grew beyond American Healthways’ existing IT infrastructure. Running Informatica PowerCenter 5.2 in a 32-bit Windows NT environment with only three gigabytes of memory, American Healthways surveyed other Informatica customers, asking how performance could be improved. The message was clear: switch to a UNIX operating system. HP consultants added that a major problem was a shortage of memory and memory contention within the operating system.

At the same time, Informatica was preparing for a beta release of PowerCenter 7.1, which takes advantage of 64-bit Itanium processing. The natural choice became an Itanium-based HP server. Informatica and HP arranged a proof-of-concept test utilizing an Integrity server, HP-UX 11i v2, and the beta release of Informatica PowerCenter 7.1. The company chose the HP Integrity rx4640 server with four 1.5 GHz Itanium 2 processors, 16 GB of memory, and a 73GB internal drive, running on HP-UX 11.23. That configuration cut processing from 72 hours to just two hours on one ETL application. And, as it turns out, the system was utilizing just three of its four CPUs.

“The HP Integrity server running Informatica’s PowerCenter 7.1 gave us performance improvements far beyond what we had expected,” Kozicki said, “and that’s before the system was even optimized for our needs.”

In two other tests, run times were cut from nearly two hours in the old production environment to just 15 minutes in the test environment, and from 23 hours to 41 minutes. Processing time was cut by 96 percent or more in all three tests.

Ivan Chong, vice president of product management at Informatica, added that American Healthways is benefiting not just from performance gains, but also from the flexibility of Informatica’s software architecture. “Historically, when you move from one chip set to another, one operating system to another, or one database to another, the change kills your old software. With Informatica, you can simply upgrade to a new version and automatically leverage the advantages of the new underlying hardware and operating systems. So users have extraordinary freedom to change and upgrade their systems without having to start fresh on their software.”

“The HP Integrity server running Informatica’s PowerCenter 7.1 gave us performance improvements far beyond what we had expected, and that’s before the system was even optimized for our needs.”

—Scott Kozicki, Vice President and Chief Technology Officer, American Healthways
SEC Raises Its IQ to Protect Investors and Maintain Market Integrity

Commentary by Lewis Walker, Assistant Director for Application Development in the Office of Information Technology, U.S. Securities and Exchange Commission

The U.S. Securities and Exchange Commission (SEC) is charged with protecting investors and maintaining the integrity of the securities markets. The laws and rules that govern the securities industry in the United States are based on a straightforward concept: all investors, whether large institutions or private individuals, should have access to certain basic facts about a prospective investment prior to buying it.

To address this mission, the SEC requires public companies, stock exchanges, broker-dealers, investment advisors, mutual funds, and public utility holding companies to disclose meaningful financial and other information to the public so investors can judge for themselves whether a company’s securities are a good investment. The SEC monitors the activities of these organizations to ensure they are complying with securities laws. Each year, the SEC brings between 400–500 civil enforcement actions.

High Transaction Volumes Create Multiple Challenges

The SEC tracks the daily stock transactions conducted by the many brokerage houses in the United States. It uses the information it gathers to look for suspicious activity. When it discovers such activity, it initiates an investigation.

With billions of shares traded on the various stock exchanges each day, the SEC needs the ability to collect and analyze large volumes of data. Until fairly recently, the Commission relied on a mainframe-based system comprising an Adabas database and numerous applications written in Natural, COBOL., Java, and Sybase PowerBuilder to do this. Increasingly, it found the system to be labor intensive and costly to maintain, as well as limiting in terms of its ability to handle the ever-growing volume of data, facilitate data analysis, and protect data in the event of a system failure.

To simplify its systems while eliminating performance and analytical constraints, the SEC decided to consolidate its information infrastructure. It migrated to a Sun Solaris platform running Sybase Adaptive Server Enterprise (ASE), and adopted a common application development environment.

The resulting solution was an ASE-powered data warehouse employing Business Objects as the front-end analysis tool.

Growing Data Volume Creates Additional Challenges

When the SEC migrated off the mainframe, it had less than a terabyte of data under management. With its new data warehouse in place, however, it began developing new applications that generated copious amounts of new data to be managed and analyzed.

The Commission realized it now faced a new challenge: how to gather, maintain, and rapidly analyze much larger volumes of data without increasing storage costs.

It found its answer in Sybase IQ, Sybase’s highly optimized analytic engine, also noted for its unmatched storage efficiency. “We were going for high-volume data, speed, and savings on storage,” explains Samuel Foster, president of FosterSoft, Inc., an SEC IT contractor, “and replacing Sybase’s ASE general-purpose database with Sybase IQ enabled us to achieve that.”

Ensuring Data Availability

There was still the matter of ensuring data availability in the event of a system failure or service disruption. The SEC addressed this by building a mirror image of its primary system at a remote site 12 miles away. With this new disaster recovery system in place, failover to the secondary system takes just a few minutes, essentially providing continuous business operations.

Dramatic Results

The migration off the mainframe, the implementation of the new data warehouse, and the creation of a disaster recovery system have paid off handsomely for the SEC.

“We were going for high-volume data management, rapid analytical performance, savings on storage, and a robust and speedy disaster recovery capability. This new information infrastructure has enabled us to achieve all of that,” says Lewis Walker, assistant director for application development in the SEC’s Office of Information Technology.

Results to date include a 35 percent improvement in query response times, an ability to create and run more complex queries, a 50 percent reduction in storage requirements and costs, no unplanned downtime, a robust and rapid disaster recovery system, and an infrastructure that will accommodate future growth.

Several terabytes of data are now stored in the SEC data warehouse, where they are accessed by hundreds of SEC investigators and analysts. The next step is to make the data available to the Commission’s economists, who use SAS tools to identify long-term economic trends.

All of this enables the Commission to make more data available to more people for more purposes with greater efficiency. “That opens the possibility for better analysis and improved enforcement,” says Walker.
Keeping Southwest Airlines One of the World’s Safest Carriers Is No “Accident”
Commentary by Tim Logan, Director of Flight Operational Safety, Southwest Airlines

Southwest Airlines (SWA) is proud of its safety record, but the truth is that this record must be earned every day on every flight. As an industry, flight safety experts from the major carriers meet routinely to share lessons learned and best practices. Through this knowledge-sharing process, the most obvious safety-related issues have been identified and addressed. What remains are the more obscure, subtle, elusive, and hard-to-pinpoint issues. Given that SWA operates over 2,900 flights a day and maintains a fleet of 427 aircraft, their challenge is to proactively identify operational safety issues that—alone or in combination—could contribute to an undesirable incident.

The Challenge
A few years ago, Southwest Airlines (SWA) implemented the Aviation Safety Action Program (ASAP) to capture flight-related incidents. Whenever there is an incident, a flight crew member fills out a form and the data is stored in the ASAP database. The data consists of two parts:

1. Structured data (flight, aircraft, crew, airport, weather, etc.)
2. Narrative in freeform text (unstructured data) that describes the incident

Interestingly, the most useful data is captured in the text.

SWA’s Flight Safety Department (SWAFSD) decided to use cutting-edge software to help them better analyze the ASAP structured data, and more important, the text narratives in a tightly integrated environment. The main objective is to find the proverbial needle, not in one haystack, but in multiple haystacks.

Additional objectives include:

1. Improve the productivity and efficiency of the flight safety staff
2. Understand the root cause of an incident
3. Understand the details that contributed to the reported incident as well as the big picture
4. Identify the sequence of events that could lead to an incident
5. Provide analysis beyond traditional reporting
6. Ability to perform:
   a. Proactive analysis versus reactive analysis
   b. Analysis at the speed of thought
7. Software should:
   a. Be fast and easy to use
   b. Allow exploratory as well as confirmatory analysis
   c. Be able to handle complex data
   d. Have the ability to provide early warnings of factors that contribute to incidents
   e. Discover unknown relationships, anomalies, and correlations
   f. Facilitate the discovery of actionable information to help eliminate incidents

The Solution
Southwest Airlines Flight Safety Department is staffed with experts in flight safety and aviation, but not statisticians. Therefore, one of the main requirements was to find an easy-to-use, yet powerful analysis solution. Starting in 2003, SWA launched an exhaustive search for analysis software, undertook a request for proposal, and performed several proofs of concept with leading BI and data mining vendors. In Q4 2004, SWA selected PolyVista® Discovery Solutions.

The PolyVista solution was implemented and deployed in record time—in only three weeks! The implementation team consisted of three people:

1. SWA flight safety expert
2. SWA data expert
3. PolyVista consultant

PolyVista Discovery software is a tight integration of four technologies:

1. High-performance, multi-dimensional database (MDD)
2. 2-D/3-D visualization
3. Data-mining algorithms
4. Text mining engine
CASE STUDY

them to the attention of the pertinent entity, such as an airport authority, the controller of a particular airspace, and so on. In this way SWA is helping to improve flight safety for everyone.

Another benefit of the solution is the feedback to the crew members. As the crew members realize that their reports are being analyzed and used to improve safety, they are more motivated to capture better data in their reports.

As mentioned at the outset of this case study, achieving a great safety record takes expertise, diligence, and an eye for details. Maintaining that level of performance requires a passion for excellence and innovative technologies. The airline safety environment constantly changes in response to new regulations and procedures, evolving aircraft technology,

“We were very impressed with the ease of use and results PolyVista delivered,” said Tim Logan, director of flight operational safety. “PolyVista’s software doesn’t get in the way of doing our analysis,” Tim added. “It’s like the software is transparent to the user.

“We immediately moved forward with PolyVista, and their solution was implemented in just three weeks! PolyVista brings together both our structured (numeric) data and our unstructured (textual) data from our incident reports. It provides an easy-to-use environment that enables our staff to not only ‘ask a question and get an answer’ but also automatically guides our users to new and unexpected information hidden in our data. The automated Discovery function of PolyVista increases our analysis capabilities without having to add additional staff. It’s like adding really smart and experienced analysts,” Tim said.

Solution Benefits
The short-term benefit is improvement in flight safety operation best practices. The long-term benefit is accident prevention.

You don’t know what you don’t know: While it is important to allow a flight safety expert to explore a hunch, it is more important to help that flight safety expert to think outside the box. This implies that the expert has to search for interesting events in places that he or she might not otherwise think of examining. This objective is accomplished with the help of PolyVista’s prebuilt algorithms. An algorithm can be easily configured to look at a 34-dimensional space; find an interesting event with, say, seven or more dimensions; and identify at least five or more events. Once a relationship is found, the expert can make a determination about the quality of the relationship, and determine the next step. The discovery algorithms have greatly increased the productivity of the safety staff, allowing them to spend more time analyzing issues and much less time searching for them.

As an outcome of this rigorous analysis, the SWA Flight Safety Department is not only finding events that are internal to SWA (events that are within SWA’s control), but they are also finding events that are external to SWA (events that are not caused by SWA, and/or are not in their control). Such events are shared with the FAA, which in turn brings conditions at airports, and ever-increasing congestion of the airspace. Once a safety issue has been detected and fixed, it is unlikely that it will surface again. The next important issues will likely be new, different, unanticipated, and will slip past the existing reports and preprogrammed alerts. In this regard, PolyVista is uniquely positioned and proud to assist SWA as they improve flight safety for their customers and the industry at large.

Most businesses can relate to the importance of finding their own particular needles hidden deep within their ever-shifting haystacks. These needles can be safety issues for SWA, quality issues at HP, or irregular trading behavior at BP. So how about it, what’s “needling” you?

“The automated Discovery function of PolyVista increases our analysis capabilities without having to add additional staff. It’s like adding really smart and experienced analysts.”

—Tim Logan, Director of Flight Operational Safety, Southwest Airlines
Business Intelligence Does Compute for CompUSA

Commentary by Dennis Naherny, Director of Enterprise Data Management, CompUSA

Connected systems increase customer insight and decision making; realize over $6 million ROI in phase one of project

As the largest computer retailer in North America, CompUSA is in the business of helping customers improve their personal and business productivity through technology. When CompUSA looked for ways to improve its own productivity by gathering its sales information from disparate databases into a central data warehouse for analysis, it searched the market and determined that the best platform was Microsoft Windows 2000 Advanced Server and Microsoft SQL Server 2000. Now the company has greater flexibility to gather reporting information based on management needs.

Situation
The name of the game in retailing is to be the first to recognize sales trends, which is all about knowing your customer. But collecting and analyzing customer information can be a challenge when you are CompUSA, which has more than 200 stores located across North America.

CompUSA isn’t a newcomer to using technology. It has a point-of-sale retail sales reporting system running on an IBM 4690, an SAP system running on Microsoft SQL Server 2000, and a collection of Oracle databases. “In a lot of cases, we’ve had to build or purchase point-solutions to accommodate business exceptions,” says Cathy Witt, CompUSA vice president and chief information officer. “But the result is complexity of systems, lots of interfaces, and multiple databases. Trying to get the data into one spot for easy reporting and analytics has been a challenge for a long time.

We needed an inexpensive place where we could dump this data and get it all together and do something with it.”

CompUSA needed a system with the ability to transform raw data into high-value business intelligence. The company saw a big opportunity in solving this problem: “Almost anybody can sell a computer, so what’s going to give us the competitive edge over our competitors is the ability to gather the data from all our systems and present it in a way that is easy for our people to slice and dice,” Witt says. “This is how we learn how to take a sale to the next step. This is how we keep the customers coming back, because creating loyal repeat customers is what you want to bank on.”

Another part of the situation was a need for a fast project timeline, while keeping costs to a minimum.

Solution
The CompUSA information technology team, which has experience with a range of platforms and databases, chose a solution based on the Microsoft Windows 2000 Advanced Server operating system and SQL Server 2000 with Analysis Services and Data Transformation Services.

Completing the solutions were products from two additional companies, which were suggested to CompUSA by Microsoft Consulting Services (MCS) as part of a bundled solution. ProClarity Corporation’s ProClarity Rich Client was deployed in stores as a Web access thin client for reports, and ProClarity Desktop Client, which provides additional reporting functionality, was deployed in regional and corporate offices. MATRA Systems’ Freedom-ISP was used for reading proprietary IBM format from the transaction logs of the point-of-sale devices for input into SQL Server and SQL Server Analysis Services. Users from stores, regional offices, and corporate headquarters were interviewed to determine the most valuable reports, which are delivered through ProClarity using SQL Server Analysis Services. Reports can be customized for the user base.
The Power of Knowledge

In addition to improving the bottom line, CompUSA has made good use of the business intelligence strategy, says Dennis Naherny, director of enterprise data management with CompUSA. “Because ProClarity is so tightly integrated with the upcoming release of Microsoft SQL Server 2005, we will be able to take advantage of the enhanced BI features and new functionality in both product lines.”

Benefits

The Power of Knowledge

CompUSA has made good use of the business intelligence technology that it has been able to harvest from its data warehouse. From the warehouse every morning to pull all my sales information, I begin with a global look at the sales for our region and division. Then I break it down into categories such as the services department and see how I ranked among the other stores in the area. I look at return rates. I look at our margins, at accessory sales, and at the total sales package. The reporting system, in a very short period of time, lets me categorize information, grab data, manipulate it, and massage it into information that helps me do a better job each day.”

The reporting system provides value at corporate headquarters, too. “We have a daily report called the Tracker that captures a half-dozen key metrics that senior management wants to look at every day,” says Steve Ellison, senior director of store operations for CompUSA. “The Tracker lets us closely observe the major drivers of our business. We are able to see product relationships and margin-enhancing capabilities that we’ve never had the ability to see before.”

Anticipated ROI of U.S. $6 Million a Year

Phase one of the CompUSA deployment focused on generating sales reports. Phase two integrates order-entry information to drive aftermarket opportunities (such as selling a technical assistance program) and to better track inventory to prevent loss and fraud. CompUSA sees its data warehouse providing significant opportunities and a good return on investment (ROI). Phase three brought inventory information. Customer analytics are the next item planned for integration.

An early benefit came from CompUSA’s ability to use order-entry information to drive aftermarket opportunities, such as a technical assistance program, and to better track inventory. “We saw a $6 million ROI with just the first phase of our data warehouse, and that’s a very conservative estimate,” said Witt. “Our total ROI is higher now that we have deployed three phases of our data warehouse.”

Agility

Witt knows that the market doesn’t stand still—nor does the ever-changing need for information about what the market is doing. Witt values the agility she gains from Windows 2000 and SQL Server 2000. “This is a system we will be able to keep updated with the latest and greatest technology,” Witt says. “We’ll be able to grow it and change it. I know that because we’ve already done it twice since going live. So we know we can turn on a dime. And turning on a dime is what gives you the cutting edge in the retail business.”

Overview

Company Profile

Based in Dallas, TX, CompUSA is the largest computer retailer in North America, with 240 superstores in 90 major metropolitan markets.

Business Situation

CompUSA required a data warehouse and business intelligence system to interoperate among its disparate legacy databases, and required a flexible, robust reporting system to provide analytics on a per-store, regional, and national basis.

Solution


Benefits

- Store managers are able to easily access information that had previously been in three separate systems.
- A corporate-level daily Tracker report captures a half-dozen key metrics that senior management wants to see every day.
- A first-year ROI of $6 million encouraged CompUSA to move from tracking POS sales data to importing financial, merchandise management, retail analytics, and inventory information into the data warehouse; customer analytics are the next planned addition.
Dell Consolidates European Support System to Achieve 172 Percent ROI in Five Years

Commentary by Mainstay Partners, an independent technology analyst consultancy

Challenges
In just 20 years, Dell has risen from a radical idea hatched in Michael Dell’s college dorm room to a $47 billion global enterprise. One-to-one customer relationships are the hallmark of Dell’s success, coupled with its ability to keep costs low by effectively wielding information technology to manage one of the most efficient supply chains in the world, fueling incredible growth.

This fast growth put a strain on the existing infrastructure in Dell’s Europe, Middle-East, and Africa (EMEA) region, which generates nearly one-fourth of Dell’s total annual revenue (U.S.$9.7 billion). Some 1,200 EMEA decision makers rely on Dell’s large-scale internal data repository, called Eurostar.

To keep up with EMEA’s fast growth, Eurostar had expanded to four servers, each running a separate copy of the database. This distributed system required constant data replication to stay in sync. But with surging usage, updates became more difficult. The database often fell out of sync, which had a serious impact on data consistency and quality, and poorly constructed queries could hang the system, resulting in outages.

Faced with a fragmented system architecture, Dell’s IT staff addressed performance issues by continually reorganizing tablespaces, provisioning additional storage, and constantly restarting and re-synchronizing databases. This meant it was more difficult than ever for Eurostar’s managers to meet the internal service-level agreements (SLAs) of the 1,200 EMEA users.

Solution
Dell decided to replace the fragmented infrastructure with a consolidated system built around Oracle Grid Computing technology running Linux Red Hat Advanced Server. Eurostar’s new system features a cluster of Dell PowerEdge servers running Oracle Database 10g with Real Application Clusters in concert with a high-capacity EMC storage array. The entire system is managed through Oracle Enterprise Manager Grid Control.

Dell successfully consolidated on this new Oracle/Red Hat infrastructure in March 2004, migrating from four separate databases to a single clustered database, and from a complex, siloed computing environment to a more easily managed, single consolidated system. The move to Oracle immediately improved Eurostar’s speed and capacity, laying the foundation for future continued growth.

“What we’ve done is simplify our environment,” says Brian Koster, Dell IT director for data management services. “Part of the reason we save is that we have fewer moving parts, greater flexibility, and more manageability. We’re proving the power of scale-out over scale-up, with a growing terabyte-plus system.”

Results
Mainstay Partners, an independent technology consultancy, has documented a number of performance improvements in the consolidated cluster, ranging from higher system availability and faster data processing to streamlined infrastructure management. Dell’s IT staff now spends less time on troubleshooting and maintenance, and more time on strategic initiatives and delivering better business intelligence. Dell increased productivity a 25 percent improvement. Mainstay also found that consolidating on Oracle has been a boon for end users, as daily reports are now running faster and are available 50 percent sooner, resulting in greater productivity and faster, better-informed decisions.

Mainstay found that Dell should expect to gain approximately $7.15 million in cumulative benefits over five years. Savings come from a combination of labor productivity savings, cost avoidance, software cost savings/avoidance, and hardware cost savings/avoidance. The project is expected to generate $3.3 million in net benefits over five years, achieving an overall ROI of 172 percent and an internal rate of return of 52 percent. Dell’s investment is expected to pay for itself in 19 months.

For Further Information
Read the entire Dell Eurostar/Oracle Case Study from Mainstay Partners at: www.oracle.com/customers/studies/roi/delleurostar.pdf.

“The last bastion of ‘big iron’ is the database. As a hardware company, we want to run our own product, and Oracle’s 10g Grid Computing environment made that possible with Eurostar.”

—Brian Koster, IT Director, Data Management Services, Dell, Inc.
Data Integration Key to “Fashion Intelligence” for Major Fashion Retailer

Commentary by Julio Garcia Florez, Director of Information Technologies, and José Francisco Calero, Development Manager, Grupo Cortefiel

A major retail fashion company in Europe, Grupo Cortefiel assumes a leading position in the fashion retail market in six major European countries, with stores and factories in a total of 29 countries. With more than 1,000 stores, Grupo Cortefiel employs more than 8,500 people and generates approximately €1 billion in annual sales.

The Challenge

For a company the size of Grupo Cortefiel, and in the retail industry, business intelligence is a required tool to drive the business. However, it was difficult for Grupo Cortefiel to apply a standard model to their business. As Julio Garcia Florez, the director of information technologies for Grupo Cortefiel, explains: “Models used by the banking or telecommunications industries could not apply to our business. We had to invent a new concept, driving all aspects of our business, from sales to logistics to customer loyalty programs. We call this model Fashion Intelligence.”

Once the concept was defined, the next challenge was technical: Identify an architecture that would support not only the sheer complexity of the Fashion Intelligence model, but also, and perhaps more important, the massive amount of data involved—over three terabytes.

Architectural Benefits

As José Francisco Calero, development manager at Grupo Cortefiel, explains, “The biggest technical challenge was to identify an ETL tool that would scale well enough to load on our Teradata platform. The fact that Sunopsis first loads the data on Teradata and then executes the transformations in bulk mode, leveraging the power of the Teradata engine, appeared clearly as a tremendous advantage.”

Indeed, traditional ETL platforms, with their proprietary engines, cannot take advantage of database engines. Conversely, Sunopsis uses an E-L-T approach, which generates native SQL for each database engine involved in the process—both sources and targets. When used to load Teradata (or any other RDBMS), Sunopsis takes full advantage of the power of the database engine and achieves an unmatched performance/cost ratio.

Another factor that drove Grupo Cortefiel to choose Sunopsis is its built-in message-oriented middleware—Sunopsis MQ. “In the second phase of our Fashion Intelligence project, we envisioned a need for certain data to be loaded in real time to the data warehouse,” explains Calero. “Sunopsis MQ gives us this flexibility, without us having to redesign our data flows.” Indeed, Sunopsis is the only data integration vendor to combine a message-oriented middleware with powerful data transformation features and changed data capture on sources.

Standardize on a Single Solution

Currently, the first phase of the Fashion Intelligence project is in production—including the sales, logistics, planning, distribution, and buying systems. Other modules are due to follow shortly. Data is extracted from production applications running on IBM AS/400 (iSeries) and AIX servers, running DB2/400 and DB2 UDB, respectively, as well as Windows systems running Microsoft SQL Server. Sunopsis connects natively to all these heterogeneous systems, as well as the Teradata data warehouse.

In parallel to the Fashion Intelligence project, Grupo Cortefiel operates Hyperion financial planning applications in their finance department. “Sunopsis also provides connectivity to Hyperion Essbase, which is a very interesting proposition for Grupo Cortefiel,” explains Florez. “It means that we can standardize around one single data integration solution for the entire group, and that Sunopsis will even increase its already high return on investment.”

Another benefit of Sunopsis is its impressive project reporting and documentation capabilities. “Sunopsis is a fantastic tool to document data integration projects,” explains Calero. “Our user teams use the Sunopsis Web-based metadata access to understand the lineage of data, how transformations are defined, and so on. And with always-increasing regulatory requirements such as Basel II and Sarbanes-Oxley, Sunopsis gives us the peace of mind that our financial data is completely traceable.

“The ease of use of Sunopsis, its extensive capabilities—which go well beyond ETL—and broad connectivity have made Sunopsis our choice for all data integration processes at Grupo Cortefiel,” concludes Florez.
Enabling Insurance Success with Enterprise Business Intelligence

Commentary by Tony Simpkins, Data Warehouse Program Manager, Grange Insurance

With over a billion dollars in written premiums, Grange Insurance is a property and casualty insurer that offers home, auto, and business insurance and a full line of life insurance and financial products through wholly owned subsidiaries Grange Life and The Grange Bank. Grange Insurance uses MicroStrategy to identify areas of improvement in product design, customer management, and to recognize cross- and up-sell opportunities. Grange employees are able to use this insight to assist them in seeking to increase the profitability of each product, region, or agent. Grange selected MicroStrategy for its pixel-perfect and interactive reporting, scalability to large data and user volumes, and its ability to deploy applications quickly over the Web.

MicroStrategy BI Standardization at Grange

MicroStrategy currently supports 12 to 15 BI applications at Grange for various operational functions, including agency analysis and risk pool/book of business analysis. The Agency Analysis application is accessed by over 300 associates—including territory managers, portfolio managers, and customer management personnel—to analyze agency effectiveness, drive decision making regarding agency relationships, and provide insight into opportunities to make agencies more profitable. The application supports the most visible agency analysis performed at Grange. Employees review approximately 1,500 independent agencies annually, and shortlist 25 percent of them for deeper analysis. End users can run additional reports and drill into the details. Business units also conduct subsequent quarterly reviews on a subset of agencies with profitability issues.

Another MicroStrategy-based application is Book Management. This application, the most profitable application at Grange, examines personal property and casualty insurance for auto and homeowners. For example, the application enables end users to compare an agency’s auto book of business to the books of business of Grange’s best agencies to identify opportunities to be more profitable. End users access reports developed using MicroStrategy Report Services that uncover the demographics and other characteristics of select books of business, looking for trends and characteristics from the more profitable books. These reports contain over 35 attributes, and single and multi-variable analysis and basic arithmetic functions are used to make these comparisons.

The Ad Effectiveness application enables Grange’s marketing department to measure advertising effectiveness as a result of doing advertising with independent agents. Grange employees, for example, can track how much money they are spending and where it is being spent in order to correlate new premium dollars with ad spending in a given geographic region. Grange currently does business in 10 states.

Snapshot: The User Community and DW Environment

Grange Insurance has a 2.6-terabyte SQL Server data warehouse, with 600 tables and approximately 1,285 MicroStrategy attributes. Approximately 300 users access the MicroStrategy-based applications, while approximately 200 employees from the total user population regularly access the data warehouse. There is one massive data warehouse project and one massive metadata, resulting in a total of three SQL Server databases. The metadata reuse is a huge benefit of metadata centralization with MicroStrategy. Grange counts six people in report development roles. Two of the six staff are full-time employees who work on MicroStrategy. Another two employees work on maintaining the back end of the data warehouse.

Business Wins

Grange is experiencing the benefits of having one massive, centralized metadata; they do not have to rebuild the same attributes or metrics multiple times. With MicroStrategy, Grange has reduced the entire process from the beginning of the data load to running the report from six months to less than a six-week cycle.

According to Tony Simpkins, data warehouse program manager at Grange Insurance, interactive reporting provided by MicroStrategy was a cultural shift for end users. “End users were accustomed to paper reports that didn’t pivot or sort, so users resisted MicroStrategy at first. But after MicroStrategy Report Services was introduced, Grange noted a cultural change in business processes and reporting. Grange is experiencing a dream solution, because users now have the interactivity to drill into their reports, and can build pixel-perfect business reports for internal and external presentations.”

—Tony Simpkins, Data Warehouse Program Manager, Grange Insurance

"Grange is experiencing a dream solution, because users now have the interactivity to drill into their reports, and can build pixel-perfect business reports for internal and external presentations."

—Tony Simpkins, Data Warehouse Program Manager, Grange Insurance
GALOSI is one of the most innovative service providers in the recovery auditing services industry, performing comprehensive reviews of each client’s accounts payable and purchasing systems to uncover lost profits. CIO Joaquin Lopez explains, “We try to get every transaction that our clients make when they pay a particular invoice to their vendors. We then look for idiosyncrasies to determine if they overpaid their vendors. This can happen for a variety of reasons, including incorrect pricing or an allowance that wasn’t entered into the system. For one of our applications, we also look for duplicate payments by processing all of a client’s transactions in our system.”

Lopez decided to take advantage of Syncsort’s proof of concept offer in order to test the power and performance of DMExpress in the application. For the proof of concept, Syncsort’s technical support team developed a DMExpress solution to find the duplicate payments. “DMExpress completed the processing of the large files that I deal with in a very short amount of time. Compared to just using Microsoft SQL 2000, DMExpress is approximately three to four times faster,” Lopez said. The files vary in size from 50 to 100 GB, depending on the client. Once the data is processed down to only the information needed, the file size is reduced. For example, a 50 GB file can end up being 10 GB after processing.

In order to find duplicate payments, GALOSI was using Microsoft SQL 2000, but performance became an issue; the applications could take too long to complete. The company was also limited by the type of data that could be used. Lopez describes the issues: “I need to be able to process different formats. For example, sometimes the information will be in a flat file. With SQL I have to import the data first before I can use it, so it became a two-step process.”

Due to these issues, Lopez began the search for a solution that minimized the elapsed time of the application while also providing the necessary data transformation and manipulation capabilities. Lopez only examines one vendor at a time for a customer, so the data usually consists of less than 2 GB per session.

The application involves several steps that must be followed in order to determine whether or not there is a duplicate payment. For example, the first step is to search for the same invoice number with the same amount. GALOSI extracts nonnumerical data from the invoice number so that it consists only of whole volume numbers. This is because if a vendor submits invoice #1000 and it doesn’t get paid, the vendor will resubmit that invoice as #1000a. By deleting everything that’s nonnumerical from the invoice number, GALOSI is able to find these types of duplicate payments. Once the processing is complete, a team of auditors has to examine the data visually to accurately determine that a duplicate payment has been made.

Not only did GALOSI improve the performance of the application, but the company also gained the functionality it needed. “With DMExpress, I can work directly with a flat file to redefine the record layouts and start using the information. It also helps that DMExpress works with metadata. I receive information from a number of different files, but I like to provide our auditors with just one because it’s easier for them to examine the data. In order to do this, we’ll join the files using the metadata.” DMExpress also provides GALOSI with enhanced aggregation capabilities including minimum, maximum, count, and average. Using the DMExpress advanced data management (ADM) component in the application, Lopez was able to divide two numerical fields in a record to produce another field needed for analysis. The join feature was also used to associate duplicate payments, while summarization was used to filter by occurrence for certain payments.
Enterprise Business Intelligence: Strategies and Technologies for Deploying BI on an Enterprise Scale


By Wayne W. Eckerson, Director of Research and Services, TDWI, and Cindi Howson, President, ASK LLC

Moving BI to the Enterprise

Business intelligence (BI) is an umbrella term that encompasses the processes, tools, and technologies required to turn data into information, and information into knowledge and plans that drive effective business activity. BI encompasses data warehousing technologies and processes on the back end, and query, reporting, analysis, and information delivery tools (that is, BI tools) and processes on the front end.

This report and survey focuses largely on the front-end BI environment and BI tools. However, it often steps back and puts BI tools into the context of the entire “BI environment” or “BI solution”—in other words, both the back and front ends of business intelligence.

Proliferation of BI Tools

Scattershot Deployments. Most organizations have not deployed BI solutions in a systematic or consistent manner. They have allowed individual workgroups, departments, and divisions to build their own data warehouses and data marts, purchase their own BI tools, create their own BI applications, and define key metrics, data elements, and business views in unique, nonstandard ways. Thus, although BI usage has increased overall, BI deployments remain small and disconnected. Many organizations today are riddled with these “analytic silos.”

This proliferation threatens to undermine the promise of BI to deliver business insight and value to the enterprise. Invariably, each analytic silo uses a different set of BI tools, leading many BI professionals to complain that their organizations have one of every kind of BI tool imaginable. TDWI research shows that organizations have an average of 3.2 BI tools from different vendors. (See Table 1.)

BI Tools by Category. The proliferation of BI tools is more obvious if we count BI tools by category instead of by vendor. The TDWI survey shows that organizations average almost three production reporting tools, three OLAP tools, two dashboard applications, two end-user query and reporting tools, 1.5 data mining tools, and 1.5 planning/modeling tools. Combining these figures with the previous chart, organizations have an average of 13 BI tools, with almost four BI tools or modules per vendor. The good news is that organizations plan to standardize on one BI tool per category within three years (see Table 2).

Expanding the BI User Base

While organizations are trying to reduce the number of BI tools they possess, they are also looking to expand the number of users who leverage BI tools to make decisions. Expanding the use of BI from power users to all users is an important priority for organizations that want to empower knowledge workers with relevant and timely information to make quality decisions and improve performance. The irony of BI tools is that although they have proliferated in most companies, their penetration into the user base has been minimal.

On average, organizations plan to boost the number of BI licenses they purchase for potential BI users from 41 percent today to 60 percent in three years, a sizable increase. At the same time, organizations also want to increase adoption rates among existing BI users. Today, only 45 percent of licensed BI users use...
the tools on a regular basis (i.e., weekly). In three years, organizations plan to expand regular BI usage to two-thirds (65 percent) of licensed BI users. (See Illustration 1.)

Doing the math, this means that currently an average of 18 percent of potential BI users actively use BI tools, but this will more than double to 39 percent in three years. Even if our respondents are overly optimistic (which is usually the case), this is still significant growth in the penetration and use of BI tools.

**BI Penetration and Use**

<table>
<thead>
<tr>
<th>Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All potential BI users with a BI license</td>
<td>41%</td>
</tr>
<tr>
<td>Licensed BI users who use the tools regularly</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td>65%</td>
</tr>
</tbody>
</table>

*Today* | *In Three Years*

**Illustration 1.** Organizations plan to deploy BI tools to a majority of their employees in three years. Based on 594 respondents.

**Characteristics of Enterprise BI Tools.** The key to increasing the penetration of BI tools is multifaceted. In the past, the lack of adequate training, a perception that BI tools are for power users only, and BI tools that are too complex for casual users inhibited the growth of BI tools in many organizations. In the future, organizations need to make sure they deploy BI tools and applications that are fast, intuitive, and customized to a user’s role in the organization. The BI tools and applications must also provide access to timely, relevant, and accurate information and be able to reach into operational systems, if required, among other things.

**Turning Business Intelligence into an Enterprise Resource**

**Critical Success Factors**

TDWI research shows that two-thirds of organizations (66 percent) are now trying to transform BI from a departmental solution to an enterprise one. Only 17 percent of organizations have completed the task, while the remaining 17 percent will continue to deploy BI departmentally. This data shows that BI has a ways to go until it reaches maturity in most organizations. (See Illustration 2.)

**Drivers of Standardization**

There are two main reasons why organizations are intent on standardizing their use of BI tools and delivering an enterprise solution: costs and information consistency. Other, less pressing factors include the desire to better integrate transactions and analytics, support an expanding user base, and reduce the number of suppliers. (See Illustration 3.)

1. The business must recognize the need
2. There must be strong executive support
3. The business must own the initiative
4. Implement a BI strategy, not just a tool
5. Standardize and validate data
6. Standardize architecture, processes, and success criteria
7. Make BI tools conform to users
8. Leverage dashboards and scorecards
9. Develop functionality and reports rapidly
10. Deliver fast response time performance
11. Deliver right-time data
12. Monitor usage
13. Deliver continuous iterations of the project

**Standardizing BI Tools**

Although a discussion of all the steps required to achieve BI maturity is outside the scope of this report, we will highlight a number of tasks that organizations must undertake to transform BI from a departmental resource to an enterprise one. Much of the advice below involves aligning the BI solution with business strategy and making sure the business, not the IT department, owns the solution and guides the IT project teams during implementation and beyond.

**Drivers of BI Standardization**

<table>
<thead>
<tr>
<th>Drivers of BI Standardization</th>
<th>Rank 1</th>
<th>Rank 2</th>
<th>Rank 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce costs</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Single version of truth</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
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<tr>
<td>Integrate transactions and analytics</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Support expanding user base</td>
<td>✔️</td>
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<td>✔️</td>
</tr>
<tr>
<td>Reduce number of suppliers</td>
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<td>✔️</td>
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<td>Sarbanes-Oxley regulations</td>
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<td>✔️</td>
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<tr>
<td>New packaged application</td>
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<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

*Illustration 3. Based on 594 respondents, who were asked to rank the top three drivers of their BI standardization effort.*

**Costs.** The overhead costs of supporting multiple BI tools add up quickly. Organizations must pay software licenses and annual maintenance fees for each BI product they own. In addition, many BI tools require dedicated servers, separate security
approaches, and proprietary metadata, thus increasing hardware, operating system, and administration costs. End-user training and support costs climb with each additional BI product. Organizations must assign and train different technical experts to configure each BI tool and develop custom reports.

**Consistent Information.** But costs are only part of the desire to standardize. Without a common BI toolset, it is very difficult to deliver consistent reports and information. Invariably, groups using different BI tools create overlapping reports with different calculations and formats. Even if the reports run against the same data warehouse, the information they contain will not be consistent.

Given the strategic and tactical costs of multiple BI tools, chief financial officers and BI executives are now working closely together to reduce the burden of supporting multiple toolsets. According to TDWI research, almost one-quarter of respondents (24 percent) have already standardized a single set or small number of BI tools, whether from one or multiple vendors. Almost one-third (32 percent) plan to standardize toolsets within two years, and another 22 percent plan to do so gradually over many years. A minority (22 percent) have no plans to standardize their BI tools. (See Illustration 4.)

**When Will Your Organization Standardize on a Single Set of BI Tools?**

- Already standardized: 24%
- Within two years: 32%
- Gradually over many years: 22%
- No plans: 22%

*Illustration 4.* A third of organizations plan to standardize on a single set of BI tools within two years. Based on 594 respondents.

**Patience Is Key.** Most large organizations are in no rush to standardize BI tools. They realize it takes a long time to undo years of neglect, change long-ingrained habits, and convert users to new BI tools. “We chip away at the old applications,” says Russ Vaughn, former senior vice president of data warehousing at Bank of America.

**Selecting Enterprise BI Tools**

One of the first steps in standardizing on enterprise BI tools is to select a product upon which to standardize. This is not as easy as it may sound. The requirements for enterprise BI tools are more stringent and comprehensive than departmental BI implementations, which serve a homogeneous user population. What organizations really need is not more BI tools, but a BI platform.

A BI platform provides functionality and modules designed to meet the unique information and analytical requirements of a broad range of users within the enterprise. It lets developers rapidly customize and extend the BI platform’s core BI components and services to create new analytic applications or embed BI functionality within existing applications. It also supports metadata linkages to data integration tools and other upstream and downstream systems to create an integrated BI environment that is easy to adapt to evolving business requirements. BI platforms are built on a scalable and extensible infrastructure that meets data center requirements for reliability, availability, and performance.

In short, a BI platform delivers the right information to the right person at the right time, creating a nimble, fast-moving organization that is much more responsive to market changes and customer requirements. Given these new capabilities, organizations should take the opportunity to reevaluate their business needs, user requirements, and technical architecture before purchasing new BI tools or extending existing BI licenses.

**Evaluation Criteria.** When selecting BI tools, organizations need to marry strategic and technical criteria. One approach is to let the IT department narrow down the list of BI tools that meet technical requirements and fit within the company’s technical architecture. Then, a committee that represents a cross section of current and future users of the BI tool should evaluate the finalists and select the vendor most aligned with their needs.

According to survey respondents, there are many important strategic criteria. The key ones are: total cost of ownership (67 percent), quality of vendor support (61 percent), pricing (52 percent), vendor viability and leadership (52 percent), and legacy investments in existing tools (51 percent). (See Illustration 5.)

**Strategic Criteria for Selecting Enterprise BI Tools**

- Total cost of ownership: 67%
- Quality of vendor support: 61%
- Pricing (license and maintenance): 52%
- Vendor viability and leadership: 52%
- Investments of time, skill, money in current tools: 51%
- Vendor relationship with organization: 30%

*Illustration 5.* Based on 490 respondents who rated the above criteria as "highly important" and whose organizations are trying to transform BI from a departmental to an enterprise resource.

**Technical Criteria.** There is a range of technical criteria that organizations need to consider. Most important is meeting user requirements, selected by 83 percent of respondents. (See Illustration 6.) This is why involving users in any selection process is key. In addition, a majority of respondents selected a half-dozen other critical requirements. These include Web delivery (75 percent), data scalability (i.e., the ability to query large volumes of data) (72 percent), response time performance (69 percent), user scalability (68 percent), and integration with existing applications (54 percent).
Technical Criteria for Selecting Enterprise BI Tools

- Meets user requirements: 83%
- Web delivery capabilities: 75%
- Data scalability: 72%
- Response time performance: 69%
- User scalability: 68%
- Integrates with existing applications: 54%
- Web authoring: 39%
- Customization: 39%
- Integrates with ETL tools: 30%
- Runs directly against operational systems: 25%
- Multilingual support: 12%

Illustration 6. Based on 490 respondents who rated the above criteria as "highly important" and whose organizations are trying to transform BI from a departmental to an enterprise resource.

Challenges to Standardizing on Enterprise BI Tools

There are many challenges involved in migrating to a standard BI toolset. Before your organization launches headlong into a BI standardization project, it should understand the potential problems and pitfalls that often afflict such endeavors. There are numerous technical, political, and cultural problems that lie hidden behind a rosy cost-benefit analysis and may cause organizations to rethink their strategy for sweeping their BI environment clean.

A BI standardization effort can also backfire in many ways. How do you select one platform out of many currently in use within your organization? How do you avoid political and cultural battles that can cost more to resolve than the BI standardization effort will save? How can you be sure the new BI platform will scale up to support all users and scale out to support their diverse sets of analytical needs? In most cases, the answer is to tread carefully, plan thoroughly, and go slowly.

According to the TDWI survey, the top challenges for standardization efforts are individual resistance to change (48 percent), followed by departmental autonomy (43 percent), high switching costs (28 percent), and training and support costs (26 percent). (See Illustration 7.)

Standardization Challenges

- Individual resistance to change: 48%
- Departmental autonomy: 43%
- High switching costs: 28%
- Training and support costs: 26%
- Lack of executive support: 17%
- Negotiating pricing with vendors: 12%

Illustration 7. Individual resistance to change is the biggest obstacle. Based on 460 respondents.

Strategies for Standardizing BI Tools

Given the difficulties associated with standardizing BI tools, most take a go-slow approach. “It has actually been harder to shut down a legacy BI tool than consolidate our independent data marts,” says Dirk de Wilde, data architect at Canadian National Railway Company. “The tool drives hundreds of complex reports, not all of which are being used, but which would take us an immense amount of time to convert.”

To make progress toward enterprise BI, many organizations adopt different strategies based on the situation. Most firms grandfather existing BI tools, but with some exceptions: 23 percent remove support for the existing BI tools; 22 percent redirect the queries to a new data/metadata source; and 41 percent continue to support the tools but require new projects to adopt the standard. Only about a third aggressively mandate a cutover to new tools by a certain date. (See Illustration 8.)

Approaches to Standardizing BI Tools

- Grandfather existing BI tools except for new projects: 41%
- Cutover from existing BI tools by a predefined date: 34%
- Remove support for existing BI tools: 23%
- Point existing BI tools to new metadata and/or data: 22%
- Other: 10%

Illustration 8. Most organizations grandfather existing BI tools rather than replace them. Based on 594 respondents.

The Future

If deployed properly, enterprise BI tools begin to fade into the background. Like the electrical grid that we can plug appliances into, we will soon expect the BI utility to deliver insight on demand in response to our queries. Using Web services and service-oriented architectures, our application developers will plug core applications into the BI utility and give users the critical information they need to manage the processes for which they are responsible on a day-to-day basis. The day that BI becomes invisible is the day it finally succeeds.

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What’s Keeping You From Data Warehouse Nirvana?

By DATAllegro, Inc.

With so many years of data warehouse (DW) history and accumulated expertise, you’d think that DW success would be easier. You’d think that DW implementers would be the honored heroes of the business by now, squarely stationed atop broad pedestals. However, according to our survey of DW practitioners and users, people still struggle with issues that hamper their DW implementations. These problems are surmountable, and it is likely that those surveyed have achieved pain-free status at one time or another, but the reward is temporary as the bar rises with each success. Let’s look at two of the most prevalent DW issues as we consider how new technology may assist.

In our recent survey, 560 people reported one or more types of DW pain. Not surprisingly, ad hoc query limitations are the most frequent type of DW pain (52 percent). It seems that ad hoc query is still the most sought-after, and elusive, feature of data warehousing. While many folks admit to having it in some form, ad hoc query is still problematic. Why is achieving ad hoc query so hard? Do you really need it? What can you do to make it easier?

Ad hoc query capability is often the functionality behind exceptional DW success or ROI (return on investment). We’ve all heard reports of extreme revenue gains or cost reductions inspired by a zealot with newly acquired access to detail data. It’s truly a worthy goal. Some practitioners have tried to add this capability to their existing DW amid all the other processing, while others delivered a separate “query sandbox” to power users. The former approach is akin to tuning your car while driving it—definitely risky. Achieving consistent performance for queries you’ve never seen in the context of limitless combinations of known queries is daunting. Plus, there’s the converse effect of the ad hoc query on the existing workload. Unfortunately, a “tuned” ad hoc query ceases to be ad hoc.

The latter approach to ad hoc query is simpler, but hard to justify when high-performance DW systems (necessary for ad hoc) cost millions of dollars. For many years, the effort and cost of ad hoc query made it a luxury and therefore a frequent concession by users. Fortunately, that concession is no longer necessary, as DW price/performance drops dramatically with data warehouse appliances that leverage commodity hardware and open source software. Happily, the appliance model also dictates that ongoing tuning and administration are minimal, so adding systems to the architecture is not as cumbersome as with traditional DW technologies.

Query performance is the next frequent DW pain (41 percent). Reliable query performance garners user acceptance and often drives physical database design efforts. Query performance success is achievable, but fleeting—especially if tuning is done at the query level—because changing conditions require ongoing scrutiny.

Query performance is inextricably linked to scalability (concurrency, complexity, capacity), but just scaling the technology may not achieve desired performance gains. This is why the concept of linear scalability continues to be important. DW teams who don’t test for linear scalability in their benchmarks may find lackluster performance as they get nearer production. Another contributor to poor performance is the complexity of integrating all of the various components, many of which were not built specifically with DW in mind. Fortunately, DW appliances help here too. Being built and tuned for the job, they make optimal DW integration the vendor’s responsibility.

There is not space to discuss the remaining “pains,” but by now you should sense a trend. While DW isn’t yet painless, new approaches show tremendous promise.

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Data Warehouse Pain Points—560 respondents reported the following issues:
Take a Different Approach for Near- and Long-Term DW Success

By DATAllegro, Inc.

Data warehousing is a mature industry with hundreds of vendors and thousands of consultants. There are plenty of well-thought-out data warehouse (DW) implementation methodologies developed by people who have “been there, done that,” and done it well. Best practice awards can be found on nearly every platform and software combination and across all data volumes. And most people agree on the basics of due diligence, design, and development tactics. With all of this expertise and knowledge, still, there are bumps along the road. Why?

Most companies focus on the technology. Instead, focus on the team. Think of building a DW as if it’s a lifelong relationship (it is).

In light of all of the product and methodology enhancements over the last 25 years, there’s one element of data warehousing that hasn’t changed, and that has the most significant impact on project outcome: The human element. I’m not talking about knowledge; I’m talking about character. The people tasked with bringing forth the DW are the most critical success factor, yet they are not typically thought of as such when companies are considering their data warehouse approach. I’m referring not only to the members of the technical DW team, but also to all of the people across all of the departments who will be tasked with some form of DW ownership, responsibility, or commitment.

Most companies focus on the technology. Instead, focus on the team. Think of building a DW as if it’s a lifelong relationship (it is).

Finger-pointing
Place overall responsibility and adequate authority with one person. Provide undisputed clarity of roles and ownership with no gaps and minimal overlap. Establish agreed-upon processes. Don’t shoot the messenger who brings bad news.

Hidden agendas
Air all concerns and get universal buy-in frequently. Establish goals that reinforce straightforward behavior.

Conflicting goals
Management must incent all parties connected to the DW such that they pull together, not apart, and place the same priority on the DW effort.

Poor team dynamics
Communication helps here, but sometimes there is a strong personality misfit or even sabotage. This must be corrected.

A third-party consultant can help, but don’t expect them to work miracles around a severely dysfunctional team.

What are additional positive actions you can take to help the DW team be successful?

- Form a tech-business “bridge” organization to span the gap and ensure good communication between business and IT. A strong, business-savvy person who has jumped over to IT or vice versa is a star player here.
- Tie bonuses, including those of top-level management, to the success of the DW. Incent all of the constituencies so that they have the same goals.
- Eliminate unhealthy bias in the technical evaluation. To get your business, each vendor should be willing to perform a proof of concept. Give each vendor identical requirements and time constraints and stick to them.
- Reduce the number of technology components to oversee (fewer moving parts). Preintegrated technology from a single vendor can help by providing “one throat to choke.”

The human element is one big reason why enterprise data warehousing (EDW) is so difficult. Getting people to agree across the enterprise, such that a data model, physical schema, and metadata can be created, is hard. Unfortunately, there are no DW therapy books. Remember that a stellar team can overcome mediocre technology, but even great technology cannot hide a dysfunctional team. Pick stars.
Helping Customers Help Themselves—The Next Generation of Self-Service

By Rich Guth, Vice President of Solutions Marketing, Actuate

Information is only as valuable as the insight it provides; that’s why putting the right information in the right hands is the ultimate goal of reporting and analytics—customer service, too.

It is critical to push business intelligence outside the bounds of the enterprise, all the way to the customer. Actuate’s customer self-service reporting solutions allow companies to extend value to their customers by making Web-based self-service a truly information-rich experience.

“In real-world implementations, companies in the financial services, telecommunications, logistics, and retail sectors have seen significant call deflection away from the call center as a result of using Actuate’s reporting platform.

Actuate’s reporting platform aggregates data from numerous applications and transactional sources into one unified view. Across the hundreds of self-service reporting projects we’ve worked on, there have been on average between seven and 10 data sources, each holding different aspects of a customer’s records. Most self-service applications today simply aren’t capable of pulling all of this together in a meaningful, high-quality, and easy-to-use view for your most valuable customers: your account holders. That’s the gap that exists in the market, and that’s where Actuate comes in. Our clients are able to see incredible business benefits from coordinating all those streams under one roof.

Actuate’s iServer platform is well equipped to handle the unique demands of Web self-service. It was built from the ground up to scale to thousands of simultaneous users. It was created to allow for maximum flexibility of format and design in presenting the data, so you can control what information your customers see, and how. And it’s flexible enough to handle the wide variety of data formats necessary when you are merging information streams from customer relationship management (CRM) systems, telecom systems, back-end applications, and more.

“Very often we get brought in for the second generation of Web self-service, when a company wants to really take customer-facing reporting to the next level, beyond knowledge bases, e-billing and search to rich, customizable, and interactive account reporting, and what-if capabilities. This really gives the account holders the control they’re looking for and, in turn, relieves the burden on the call center to handle information requests. Now there are no limits.”

— Rich Guth, Vice President of Solutions Marketing, Actuate

Trendlines

- Reduced call costs through deflection of routine inquiries
- Improved customer satisfaction scores and retention levels
- Info-rich self-service becomes a competitive advantage

Through interactive online statements, ad hoc query, analytics, and managed spreadsheet reporting capabilities, customers can get at the information they need—data that was previously locked away behind the firewall and in the hands of IT—all in output formats that meet their specific requirements. You control what they see and how they use it, but they ultimately have a fuller experience of self-service. Two things result from this experience.

One is a better customer relationship, reflected in better customer satisfaction ratings. And the other, just as important, is the realization of the promise of Web self-service to reduce call center costs.

Most self-service applications today simply aren’t capable of pulling all of this together in a meaningful, high-quality, and easy-to-use view for your most valuable customers: your account holders. That’s the gap that exists in the market, and that’s where Actuate comes in. Our clients are able to see incredible business benefits from coordinating all those streams under one roof.

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In real-world implementations, companies in the financial services, telecommunications, logistics, and retail sectors have seen significant call deflection away from the call center as a result of using Actuate’s reporting platform.

Actuate’s reporting platform aggregates data from numerous applications and transactional sources into one unified view. Across the hundreds of self-service reporting projects we’ve worked on, there have been on average between seven and 10 data sources, each holding different aspects of a customer’s records. Most self-service applications today simply aren’t capable of pulling all of this together in a meaningful, high-quality, and easy-to-use view for your most valuable customers: your account holders. That’s the gap that exists in the market, and that’s where Actuate comes in. Our clients are able to see incredible business benefits from coordinating all those streams under one roof.

Actuate’s iServer platform is well equipped to handle the unique demands of Web self-service. It was built from the ground up to scale to thousands of simultaneous users. It was created to allow for maximum flexibility of format and design in presenting the data, so you can control what information your customers see, and how. And it’s flexible enough to handle the wide variety of data formats necessary when you are merging information streams from customer relationship management (CRM) systems, telecom systems, back-end applications, and more.

“Very often we get brought in for the second generation of Web self-service, when a company wants to really take customer-facing reporting to the next level, beyond knowledge bases, e-billing and search to rich, customizable, and interactive account reporting, and what-if capabilities. This really gives the account holders the control they’re looking for and, in turn, relieves the burden on the call center to handle information requests. Now there are no limits.”

— Rich Guth, Vice President of Solutions Marketing, Actuate
If you want to create a sustainable culture of data quality in an organization and want to grow that culture beyond the bounds of one or two functional units, you will need to have an enterprise data quality center of excellence (COE). The important points here are that the culture of data quality be both sustainable and enterprisewide. If your goal involves something less, maybe cleansing name and address data on two or three columns, a single project manager with the help of one or two temporary analysts will suffice. But if you want to grow data quality practices beyond the silo wall, you’ll need a COE.

Organizations with a successful data quality COE share common characteristics:

- They have a formal, permanent organization with a charter.
- They are managed by a data quality champion, usually a director or manager of data quality. This person fervently believes in the value of quality data.
- Their director has strong communications skills, can build and present a strong business case, and has latent sales abilities.
- They are staffed with a combination of skills: people coming from both business and IT. All personnel have formal data quality job titles.
- They practice a clear application of data stewardship, which means their staff is structured in line with sound data management principles and the roles and responsibilities of data stewards.
- They have a business line sponsor, usually a senior manager, with whom the COE director works closely.
- Most have immediate access to an outside consultant to call upon for aid in employing best practices, but more important, as an independent party to validate their findings.
- They have a steering committee or a data governance board.

A data governance board typically comprises senior managers from various line or business units in the enterprise. The board’s primary purpose is to be the final authority on all things data. Many decisions concerning corporate information never reach the board, but those information issues of crucial importance are usually raised by one or more board members at the behest of their direct reports. Beyond the board’s primary purpose, it serves a number of roles, including as a bridge across organizational change. The creation of the board serves as the catalyst to grow a series of functional projects into an enterprisewide initiative—the COE.

When and if the COE loses its data quality champion, the board is there to appoint a new one. With six to eight members on the board, it could lose one or more members and still function until replacements can be found, thus sustaining critical mass.

Without a data governance board, a firm could face issues in overcoming the loss of key personnel. For example, within a four-month period one firm’s COE program sponsor was transferred and the data quality champion left the company. Much rhetoric was given to finding a replacement for the champion, but with the sponsor gone and no other senior manager lining up to support the initiative, it died. Within a month all but the most baked-in data quality practices and projects were dropped. Regardless of all the benefit and payback generated by the various data quality projects up to that point, the model, the culture, at that firm was not entrenched enough to overcome this loss.

The moral? A strong data quality initiative, and the building of a COE, can take place without a board of governance. However, if you’ve put your heart and soul into building a COE, once it’s done, take the time and care to build a data governance board to ensure your legacy’s half-life will never be measured.
The Four Cornerstones of Enterprise Data Integration Performance

By James Markarian, Senior Vice President and Chief Technology Officer, Informatica Corporation

The four basic cornerstones of enterprise data integration performance include: **throughput**, the rate at which rows or bytes of data can be processed; **scalability**, the ability to handle increasingly large and complex data integration scenarios; **availability**, the resilience of the environment; and **performance manageability**, the most important concept encompassing the ability to manage and maintain performance levels.

**Throughput Delivers Fresher Information, Faster**
The first cornerstone is throughput, which determines computing power requirements to process a workload. High throughput matters because it results in fresher data for the business, faster response to customers, and increased operational efficiency.

But hardware is only part of the throughput equation. Multi-threading and data partitioning enable you to break up processing tasks and spread them across hardware resources. Another option is to capture only changed data and process it in real time.

**Scalability Ensures Predictable Growth**
Scalability, the second cornerstone, enables you to accurately predict how much computing power will be required as data volumes grow. Software with good scalability allows precise estimation of project windows, flexible configuration, and optimal resource utilization. Scalability prepares you to deal effectively with growth and is a foundation for long-term performance.

Depending on growth expectations, you might want to consider adding capabilities that enhance scalability, such as server grid/MPP architectures and 64-bit support. Both of these support growth without requiring extensive hardware purchases.

**Availability Reflects the Organization’s Priorities**
The third cornerstone is the heartbeat of a system: availability. If a resource isn’t available in the wake of a component failure, then it has no throughput, scalability, or manageability.

In a recent survey at TDWI’s Winter 2005 World Conference, 55 percent of those surveyed said they expected their company’s data volumes to rise more than 25 percent in the next 18 months.

To assess your organization’s need for availability, quantify the costs associated with downtime for each system or application. Sometimes an outage means users are unable to do their jobs, reducing productivity. It can cost revenue if customers are forced to take their business elsewhere. Compare these costs to the cost of providing increased availability.

**Manageability**
Of the four cornerstones, manageability deserves the most attention. You can’t consistently achieve good performance if you have little ability to manage or monitor across the environment.

It pays to invest in scheduling tools, which help ensure that your warehouses and operational data stores remain up to date and accurate. Monitoring capabilities are also essential—you want to know about any potential bottlenecks or outages. Developers require tools to work effectively across different environments. Template-driven design, object reuse, and inheritance enable developers to make changes more quickly and easily in a multi-developer environment.

Also, the separation of transformation logic and physical execution eliminates any need to make modifications as a result of environment changes. This is useful for migrating and deploying between environments, or providing flexibility in heterogeneous environments so that processing can be done wherever hardware resources are available.

The biggest payoff of performance manageability becomes apparent at runtime. Manageability enables you to process data in batch, on-demand, and real-time modes. You can fine-tune source and target system interaction and handle process requirements such as profiling and cleansing.

**Managing Performance for Business Advantage**
Hardware and network advances have created the potential for far greater performance than has been possible before. But to get from “potential” to “actual” requires greater throughput, scalability, availability, and manageability than most businesses have built into their environments. These four cornerstones of enterprise data integration performance need to be considered at the outset and reconsidered frequently during the operating life of a system.

In a recent survey at TDWI’s Winter 2005 World Conference, 55 percent of those surveyed said they expected their company’s data volumes to rise more than 25 percent in the next 18 months.
Five Ways Data Warehouses can Promote Visual Problem-Solving

By Dan Everett, Product Marketing, Hyperion Solutions Corporation

A sk a group of executives whether they consider themselves visual thinkers, and most will answer “Yes,” excited you’ve divined one of their core character strengths. Visual thinking is one of the most powerful ways to solve problems.

It’s unfortunate, then, that popular business intelligence products do so little to embrace visual analysis. Most reporting and analysis products suffer from five fundamental visual design flaws that defeat problem solving. This article will discuss these flaws and introduce best practice solutions.

1. Show Multi-Dimensional Relationships
   The effectiveness of data warehouses is ultimately constrained by the success of their interfaces. Yet most interfaces struggle to present even two or three dimensions of a business problem effectively. To be effective, interfaces should be designed to display multi-dimensional problems to business people in a compelling way.

2. Provide Customizable Views of Business Problems
   Software vendors like to boast about the large number of canned charting templates in their reporting packages. Yet no number of templates is sufficient to provide all business users with answers to all of their particular questions. The best practice solution to such problems is to give people the ability to easily build custom views using a front-end interface with drag-and-drop functionality, to create the visual analyses they need to answer the particular questions of their departments—without being constrained by templates.

3. Combine Querying and Visual Analysis into a Unified Process
   Most data warehouse deployments separate the process of querying a database from the process of visualizing results. That is, problem solvers must generate queries and then conduct one-off visual analyses using a charting wizard. Hours pass before even a few basic business questions are answered. People can’t answer a series of questions if the process of creating a view of data is divorced from the process of retrieving records.

   The best practice solution to this problem is to use software interfaces that unite querying and visual analysis into a single process. In these deployments, dragging and dropping data fields automatically produces both the queries and the visual results needed to progress to the next stage of analysis, enabling users to focus on the visual layouts without distracting details.

4. Support Visual Data Extraction
   A considerable portion of end-user business questions involve the extraction of data. Unfortunately, most reporting and analysis front-ends suffer from a shortcoming that makes data extraction time-consuming: they separate visual analysis from data extraction. If end users are not able to “reach out and grab” data that interests them, they can’t leverage the full power of databases for their daily workflow.

   The solution is to deploy interfaces that support visual extraction, selecting records or tuples from a graphical view of data and exporting them directly to another application (i.e., Excel). This type of interaction dramatically improves the productivity of knowledge workers.

5. High-Performance Warehouse
   The performance of a visual analysis system is ultimately determined by the performance of enterprise data stores. All of the visual analysis best practices outlined here, for instance, require data sources fast enough for interactive analysis. Characteristics of a high-performance data store that can support visual analysis include scalability, query response, query predictability, and refresh latency.

Conclusion

Software interfaces that facilitate visual problem solving are becoming a successful new addition to business intelligence deployments worldwide. The common theme of successful solutions is that they enable real-time “visual analysis sessions” with data. A first view not only provides an insight (“Costs are increasing”), but also suggests additional questions (“Which products are responsible for the increase?”). Successful deployments enable people to interact immediately with the first picture required for visual problem solving at the speed of thought.

For more information on this topic, select the white paper “Five Ways Data Warehouses can Promote Visual Problem-Solving” on the enclosed card.
Information Builders

More and more people are demanding real-time business information. How can I solve my data latency problems?

You can solve them with your business intelligence technology in two ways. First, your BI solution needs more than batch-loaded ETL. Products like Information Builders’ WebFOCUS offer trickle-fed ETL that provides real-time access. Second, you need direct access to transactional types of data sources. That implies the integration of robust middleware capabilities into your business intelligence solution. WebFOCUS’s built-in iWay middleware is designed for service-oriented architectures and feeds directly accessed, real-time information to any person or system in the operational environment.

Analyst Viewpoint

The demand for real-time access to business information presents some real opportunities. Middleware has matured to the point where direct access to transactional data is quite manageable. The ability to analyze operational data in real time is a boon to applications such as customer relationship management. However, this doesn’t mean that organizations should substitute this capability for real-time data warehousing, where updates in an operational system result in adds to the data warehouse. The real-time data warehouse, which is designed for tactical and strategic analysis, when combined with real-time access to transaction data, maximizes the value of an organization’s data.

MicroStrategy, Inc.

How can an IT department streamline administration and BI report creation?

By providing managed self-service to their user communities, IT departments can more effectively manage the reporting backlog and reduce the need for IT administration. Companies are selecting BI technology that provides managed self-service BI to their users in need of report development, and reduces IT department involvement when report creation requests overflow the queue.

Self-service BI reduces the time involved in report deployment if it does three things: intimately involves the users in report design; increases the amount of reusable metrics and report components; and allows the creation of one report with prompting and “drill anywhere” capability. MicroStrategy provides that balance between self-service and performance.

Analyst Viewpoint

IT needs to understand that its customers will likely be quite varied. Some will want IT to do everything for them, and others will want to retain complete control. An effective IT department will stay flexible and:

1) Promote training in the BI tools of choice for casual and power users,

2) Encourage customers to identify power users who will write the bulk of their reports,

3) Provide support for users in dealing with difficult requests plus any excess demand, and

4) Establish a production environment in which power users (with the aid of support) can publish their reports.
Oracle Corporation

Are real application clusters suitable for data warehousing?

Yes. Deploying a data warehouse on a “grid” of inexpensive, industry-standard commodity servers instead of a large symmetric multiprocessing (SMP) system has become increasingly popular and viable. Software and hardware vendors have devoted years of development into making these systems practical and reliable, and the technology has matured greatly. A data warehousing infrastructure built on RAC has significant advantages in that it provides enterprise-level scalability, performance, and availability at a reasonable cost. Scalability is achieved through incrementally adding additional low-cost servers to a cluster as demand grows. Data warehouse performance benchmarks have shown that RAC-based systems provide query performance equal to or better than that of SMP systems. High availability is provided by the innate failover capabilities of a cluster, where remaining servers automatically pick up the workload of a failed server.

Analyst Viewpoint

In terms of basic capabilities regarding performance and cost/performance numbers, Oracle’s RAC implementations have done quite well on decision support benchmarks (tpc.org, TPC-H), but these numbers tell only part of the story. Oracle developed real application clusters (RAC) to provide their customers with much easier-to-accommodate growth in general application usage and data. In addition, Oracle’s architecture supports strong failover capabilities. As such, RAC does not appear to be targeted specifically for the data warehousing market. However, data warehouses are especially susceptible to rapid if not erratic growth, and as they grow in importance, failover capabilities become increasingly important.

PolyVista Inc.

PolyVista includes discovery mining as part of its analytical client application. What’s the difference between discovery mining and data mining?

The primary deliverable for data mining is the construction of a predictive model, whereas the primary deliverable in discovery mining is new business insight. While predictive models can certainly be useful, few in-house analysts will have the statistical wherewithal to complete this task. Discovery mining, on the other hand, helps guide business users to new and interesting data relationships or anomalies, allowing the business analyst to review and assess the value of the findings.

Analyst Viewpoint

Our industry likes categories. We have OLAP, the analysis of data with known relationships, and data mining, the discovery of relationships between data. Sometimes we supplement OLAP with visualization software, but there has been little in the way of data mining visualization—mainly because there have been few tools to support it. PolyVista has addressed this with their discovery mining technology. Some firms will use PolyVista in place of building data mining models. However, there is another payoff potential for those who do build those models: Now they can visually check their intuition by discovering new patterns in data beforehand.
ProClarity Analytics

What role should analytics play in a modern BI strategy?

With the recent advancements in both the power and simplicity of analytic technology, there remains a huge discrepancy in how organizations adopt and exploit that technology. Some organizations subscribe to an older philosophy where decision makers get reports and a handful of analysts use complex analytic tools and/or manual spreadsheets. Meanwhile, other organizations are deploying simple but powerful analytics deeper into their organizations—specifically into the decision-making ranks—to drive faster and higher-quality decisions than ever before. These progressive organizations employ a different approach, starting with, and staying focused on, simplicity and decision making rather than data and its countless complexities.

Analyst Viewpoint

An organization that empowers its employees, suppliers, and customers to make decisions when questions first arise reduces costs and improves customer satisfaction dramatically. Analytics are applications that support such decision making at all organizational levels. These applications often combine operational data with information from the data warehouse. Organizations with large data warehousing programs, but with information systems that are limited to standard reporting and complex data analysis, are constraining the true potential of the data warehouse. Indeed, TDWI’s Business Intelligence Maturity Model (www.tdwi.org/poster) shows that the greatest ROI comes when analytical services are deployed in tandem with the enterprise data warehouse.

Sunopsis

Data integration seems to be have evolved a lot from the early ETL days. What is the impact on my BI projects, and more broadly on my entire information system?

It used to be a “simple” matter of running daily batch extractions to load the data warehouse. With the advent of real time, new and updated data now needs to be propagated almost instantly. Data integration has evolved significantly, and should now offer capabilities such as changed data capture for event detection, integration of data from asynchronous messaging systems (MOM), and incremental updates on targets.

Furthermore, the BI system is no longer the only consumer of data in the information system, and a data integration strategy should encompass not only the BI needs, but also the batch, asynchronous, and synchronous integration requirements of all systems and applications. Avoid the proliferation of tools and technologies to cover needs that are diverse but very complementary.

Analyst Viewpoint

Ten years ago, BI developers counted themselves fortunate to get good-quality monthly snapshots of production data for their data warehouses. Today, however, business users are demanding real-time or low-latency information from the data warehouse. BI teams faced with this demand will likely see the need for new technologies that handle messaging and changed data capture. Source system technologies will dictate what those technologies will be, but most likely an organization will end up with several data integration products in addition to their ETL tool. Wise teams will look for vendors who can support these capabilities through one integrated product line.
Sybase, Inc.

How can I economically manage data explosion and accelerate end-user reporting requirements?

Most organizations are struggling to deal with data management and data growth. As data volumes explode, so does the cost of managing that data. As data warehouse, reporting, and business analytical application databases increase in size, most organizations’ only line of defense is to apply more processing power to deal with very large databases and increasing numbers of users. Analyzing large amounts of data for a high number of users has always been a formidable and expensive task. Although the “hard costs” of storage are decreasing, the “soft costs” associated with maintaining data are substantial. Using an analytical database engine that is designed specifically for reporting and analytics for many users, complex queries, and large data sets solves this problem—and the business pains that accompany it.

Analyst Viewpoint

Disk storage is cheap nowadays, but given large numbers of users analyzing large amounts of data, BI teams will need to support expensive processing power. Even test data stored inefficiently may elongate development time. Although there are a number of ways of getting through big data, such as specialized indexing, parallel processing, and so on, each of these methods has shortcomings when supporting some types of queries. One of the more elegant approaches to this problem is to reduce the size of the data store itself. Sybase has done this through data management technology that is specifically designed for analysis and reporting.

Syncsort Incorporated

Compliance with mandates like Sarbanes-Oxley and HIPAA is driving stored enterprise data growth to rates of up to 125 percent a year. Is there any way to reduce the volume of data in data warehouses?

One method of reducing the data loaded into data warehouses from transactional databases is to store only the data that has changed—a process called changed data capture or delta processing. There are several ways to do this effectively, including using Syncsort’s DMExpress to perform joins, or sort, merge, and summarize processes. In either case, the technique identifies which records are unchanged, updated or added, or deleted and obsolete, so that only changed or added records are updated. Unchanged or obsolete records are deleted rather than being loaded as duplicates.

Analyst Viewpoint

A surprising number of data warehousing teams are still relying on periodic snapshot data collection. Often, 95 percent of this data has not changed from month to month. However, snapshot processing does miss changes that occur between snapshots, and these changes are becoming critical to compliance reporting. So now we have the prospect of storing more snapshots, with even more redundancy, in order to provide a view into critical changes in the data. At this point, many teams will reconsider their basic strategies and redesign their databases to handle critical changed data while avoiding loading redundant data time and time again.
Storyboarding: Building Effective Dashboards

By Lawrence Pier, Dashboard Specialist, and Shadan Malik, Software Architect, iDashboards

The dashboard is the new face of information management. It offers an instrument panel of business metrics for data-loaded decision makers. It must provide visually rich, responsive, and real-time insight that allows its user to track and drill down through a wealth of information. Storyboarding is required to build effective dashboards that align organizational information with organizational strategy.

Storyboarding

The term storyboarding is derived from the field of multimedia design, in which animation is first conceptualized through a panel of sketches outlining the scene sequence and major changes of action. In other words, storyboarding is the process of telling a story for animation through static images. Similar to a multimedia concept that may involve defining user interaction and corresponding response, a good dashboard is rich with user interactions and responses to those actions.

Storyboarding brings together all key areas of the dashboarding process: information identification, audience definition, and presentation. The following steps should be adhered to when constructing a dashboard storyboards:

1. Identify key user groupings
2. Identify key dashboard groupings
3. Determine the privilege matrix: user groups and dashboard groups
4. Sketch a dashboard layout for each dashboard group
5. Sketch a navigation or drilldown sequence for each dashboard component on every dashboard template

Storyboarding for an Executive Dashboard

Located in Bloomingdale, Illinois, NOW Foods is one of the country’s most respected manufacturers of award-winning products, including vitamins, minerals, dietary supplements, natural foods, and other health-related products. The company manufactures over 1,800 health supplements from its state-of-the-art, 209,000-square-foot facility.

The company’s senior management wanted live visibility to key performance indicators (KPIs) from their Oracle Apps ERP to provide monthly trends and comparison with data from previous years. Prior to implementing dashboards, they could get access to the KPIs only at periodic intervals when the analysts would extract the data, import it into Excel, create charts, and finally transfer them into PowerPoint for presentation.

The following is a storyboarding outline of key performance indicators and their real-time presentation as needed by the senior management in the company:

1. **Filled orders versus average time to ship:**
   A line and bar combo chart comparing the number of orders filled to the average time to ship across all products on a monthly basis. Drilling down from this chart displays another chart showing the percentage of orders shipped by order type within the last 24-hour period. Second-level drilldown from this chart shows a speedometer with the percentage of orders shipped by warehouse for unique order types within the last 24 hours. Third-level drilldown from this chart provides a list of the top 50 orders that took the longest to ship for that month.

2. **Monthly fill rate:**
   A column chart expressing the monthly fill rate for 12 months. Drilling down on a given month provides the fill rate by division for that month.

3. **Percentage of orders shipped:**
   A speedometer showing the company’s total percentage of orders shipped complete on a monthly basis. Drilling down from this chart displays another chart showing the percentage of orders shipped complete by order type. Second-level drilldown from this chart shows a table of the percentage of orders shipped complete by warehouse for that order type. Third-level drilldown provides a list of the top 50 items that failed to ship for that month, causing the low percentage.

4. **Inventory level by state:**
   A map chart showing the current month’s inventory level for each state. Drilling down into the map generates the 50 locations with the lowest inventory levels.

5. **Return on investment:**
   A report showing 12 months of return on equity and return on capital, highlighting the exceptions when either value was above 9.0 or below 4.0.

Illustration 1. A typical production report prior to the executive dashboard deployment.
6. **Assets by equity**: A pie chart showing monthly assets by equity ratio. Drilling down from this chart shows the total assets and equity as line charts trended for the last 12 months.

**End Solution**
A joint team of NOW Foods analysts, database analysts, and iDashboards consultants developed an executive dashboard that met all the requirements of delivering real-time KPIs to the management team.

**Storyboarding for a Performance Evaluation Dashboard**
A leading healthcare organization with more than 500 physicians wanted a performance evaluation dashboard for their physicians. Each physician could monitor his or her performance across different evaluation criteria; scores would be based on patients’ feedback. They could also see the scorecards of the overall department to assess their relative performance.

The following is a storyboarding outline of their performance indicators and the scorecards presentation as needed across the organization.

1. **Physician ratings**: A set of speedometers showing each physician’s rating scores for patient explanation, patient listening, and patient attention. The speedometer colors indicate poor, good, and outstanding performance.

2. **Physician evaluation scores**: Metrics goals chart that would indicate each physician’s scores using a four-color evaluation framework against predefined goals for his or her specialty. These scores are derived from the patient feedback regarding the explanation, listening, attention, and waiting qualities of the physician. Based on patient feedback for each physician, the overall patient satisfaction score aggregated by each specialty for the latest time period. A pie chart for each specialty represents the satisfied versus not-satisfied patients.

**End Solution**
With iDashboards, each physician can now easily monitor his or her individual and department performance with charts that provide synchronous chart highlighting based on the user’s cursor position. When a physician mouses over his ID number in the speedometer chart, for example, he will automatically see his performance highlighted in all other charts.

**Lessons Learned**
At the core of successful storyboarding lies the identification of your key dashboard requirements. These requirements are completed before the first chart is constructed. Storyboarding allows your organization to systematically organize how decision makers will receive, view, and use essential business information. As a result, your dashboards will deliver a more effective and uniform picture of your organization.

As computer systems started to evolve from monolithic mainframes to distributed computing systems, and as business intelligence made its debut, the first ETL (extract, transform, load) solutions were introduced. Since that time, several generations of ETL have been produced.

First Generation: The Origin of ETL and the Legacy Code Generators

Original data integration tools generated native code for the operating system of the platform on which the data integration processes were to run. Most of these products actually generated COBOL, since at that time data was largely stored on mainframes. These products made the data integration processes easier than they had been by taking advantage of a centralized tool to generate data integration processes and by propagating the code to the appropriate platforms—instead of manually writing programs to do so. Performance was very good because of the inherent performance of native compiled code, but these tools required an in-depth knowledge of programming on the different platforms. Maintenance was also difficult because the code was disseminated to different platforms and differed with the type of sources and target.

Second Generation: The Proprietary ETL Engines

Next came the second generation of ETL tools, which are based on a proprietary engine that runs all the transformation processes. This approach solved the problem of having to use different languages on different platforms, and required expertise in only one programming language: the language of the ETL tool itself. However, a new problem arose: the proprietary engine performing all the transformations became a bottleneck in the transformation process. All data, coming from various sources to go to the target, had to pass through an engine that processed data transformations row by row—a very slow approach when dealing with significant volumes of data.

Third Generation: The E-L-T (Extract, Load, Transform) Architecture

Addressing the challenges faced by tools from the previous two generations while leveraging their respective strengths, a new generation of ETL tools recently appeared. Since the inception of the previous generation—proprietary engines—database vendors have invested considerable resources to greatly improve the capabilities of their SQL languages. By leveraging these improvements, they have made it possible for an ETL tool to generate and execute highly optimized data integration processes, driven by the native SQL (or other languages) of the databases involved in these processes.

This third generation—E-L-T architecture—provides a highly graphical environment, along with the ability to generate native SQL to execute data transformations on the data warehouse server. This new approach has several clearly identifiable advantages:

- It eliminates the ETL hub server sitting between sources and target, which was introduced by the second generation of ETL products.
- Using an RDBMS to execute data transformations allows bulk processing of the data. Bulk is up to 1,000 times faster than row-by-row data processing. The larger the volume of data to manage, the more important the bulk processing becomes.
- It also provides for better performance than any other solution, because transformations are executed by the RDBMS engine in bulk instead of row by row with second-generation ETL. In addition, the large database vendors—Oracle, IBM, Microsoft, Sybase, and so on—have had significantly more resources and time to invest into improving the performance of their engines than have the vendors of second-generation ETL software. Relying on the RDBMS engines provides a way to leverage these investments.
- In the E-L-T architecture, all database engines can potentially participate in a transformation—thus running each part of the process where it is the most optimized. Any RDBMS can be an engine, and it may make sense to distribute the SQL code among sources and target to achieve the best performance. For example, a join between two large tables may be done on the source.
- A centralized design tool makes programming and maintenance easy, allowing developers to control which database engine processes which piece of information in which way.

Today’s RDBMSs have the power to perform any data integration work. Third-generation E-L-T tools take advantage of this power by leveraging and orchestrating the work of these systems—and processing all data transformations in bulk.
Migrating to the New Era of Business Intelligence

By Megan Lordeon, Senior Manager, Strategic Marketing, MicroStrategy

Many IT executives, business leaders, and CIOs are increasingly dissatisfied with their overall business intelligence capability. They are not satisfied with simply providing some information to some users. These leaders want to open up their ever-growing data assets to all of the people across the organization, and do so in a cost-effective and scalable way. They are now demanding that their business intelligence technology deliver on this ideal. MicroStrategy shares this vision.

In recent decades, businesses have approached their BI solutions and implementation in varying ways. Some companies started with departmental BI with information silos or islands. Most companies have since moved to the second era of BI implementation, characterized by overlapping disparate islands, and are suffering high user dissatisfaction and excessive IT effort. Today, companies are selecting a BI solution that is built for the long term, with fully integrated and functionally complete architecture. Among these approaches, three eras of BI implementation have surfaced as businesses evolve.

**Era 1 Isolated Departmental Islands of BI Were an Initial Success**

Over the past decade, most companies have deployed BI applications as departmental solutions and have accumulated a large collection of disparate BI technologies as a result. Each distinct technology supported a distinct user population and database within a well-defined “island of BI.” At first, these islands of BI satisfied the early needs of the business, but early success in departmental deployment sowed the seeds for new problems as the applications grew.

**Era 2 Overlapping Disparate Islands of BI Have Become a Major Liability**

Successful applications always expand. The second era is hallmarked by BI applications that have expanded to the point where they are no longer isolated islands. Instead, they overlap in user populations, in data access, and in analytic domain. As a result, CIOs are now faced with an untenable situation. The enterprise is getting conflicting versions of the truth. The quickly growing business user population is distinctly unhappy about being forced to use multiple different BI tools. Departmental BI tools hit scalability limits. The CIO is wrestling with an ever-accelerating maintainability burden to keep all of these disparate systems synchronized.

**Era 3 Enterprise BI Standardization Requires a BI Architecture that Is Fully Integrated, Functionally Complete, and Industrial Strength**

The new era of business intelligence is one where a single BI architecture delivers a single version of the truth through a unified user interface to all people in the enterprise. It can access all of the data, administer all of the users uniformly, eliminate the repetitive data access, reduce the administrative effort, and reduce the time to deploy new BI applications. Such a BI architecture must exhibit three dominant characteristics to fulfill this role. First, it must be a truly integrated architecture to achieve economies of scale. Second, it must offer the full range of BI functionality currently delivered by the myriad of departmental BI products so that it can adequately replace them. And third, it must be “industrial strength” so that companies can confidently deploy applications across the enterprise and at enterprise scale.

World-class companies in every industry leverage the strength of MicroStrategy BI to centralize their business intelligence functions in a “BI center” capable of supporting thousands of users with even greater efficiency than it supports hundreds of users. MicroStrategy was designed to operate with rock-solid, 24x7 performance, minimal effort, and on a worldwide scale if needed.

MicroStrategy ushers in a new era of business intelligence, one where any business user can access any data, located anywhere in the enterprise. MicroStrategy’s unified BI architecture meets modern scalability challenges head-on, allowing thousands of business users to simultaneously access terabytes of data with mission-critical reliability. Only the MicroStrategy architecture was designed from the ground up as an integrated architecture suitable for enterprisewide BI standardization.
Aligning Business Intelligence with Business Process

By Darren Cunningham, Product Marketing Director, Business Objects

With mounting compliance and security pressures and increasing demands for up-to-the-second information access, the need for optimized and transparent business processes has never been more apparent. Operational BI builds on existing technology standards to make business intelligence more flexible, transparent, and cost-effective by tightly integrating business intelligence (BI) with your organization’s constantly evolving business processes. Making BI more process-aware and real-time-enabled results in process optimization, better visibility into daily operations, and a faster and higher overall return on investment and information.

What does it mean for BI to be tightly linked to business process? Let’s look at an example. An insurance underwriter needs to provide quotes to customers quickly in order to maximize customer satisfaction and minimize risk. To be operationally aligned, integrated, and aware, BI must be embeddable within the process to perform risk analysis. BI must allow a user to analyze the process itself to help understand real-time and historical performance. And BI must enable users to define and share best practices for the underwriting process.

In the case of the insurance underwriter, BI is clearly a part of the business process—checking credit scores, analyzing risk, and analyzing overall customer value—as well as above the process, looking for bottlenecks and driving real-time adjustments if processing falls behind.

The Evolution of Operational BI

BI has evolved from solely focusing on data access to focusing more on the people who rely on that data and the decisions they make with it. BI has evolved from solving only IT-centric reporting challenges (by being embedded into application development environments), to becoming truly information-consumer focused (by delivering personalized dashboards, scorecards, and alerts).

Operational BI can broaden and extend traditional approaches to information delivery and align the overall strategy with typically small, but continuous and repeatable, business processes and decisions made by individuals and groups throughout the day.

- Operational BI builds on core BI capabilities to access real-time data sources and provide useful reports and analysis.
- Operational BI leverages performance management capabilities for defining and understanding organizational strategy, goals, and metrics.
- Operational BI builds on an understanding of the day-to-day business processes defined and managed within ERP/BPM systems.

The Impact of Operational BI

Operational BI ensures that trusted and timely information is accessible to more people inside and outside the organization. This information is delivered through embedded analytics, process analysis, and repeatable, decision-centric business processes.

- Embedded analytics brings BI closer to where tactical decisions are made through built-in Web services and a service-oriented architecture (SOA).
- The ability to link performance management initiatives with existing processes allows individuals and organizations to track, monitor, and analyze processes and measure their impact on day-to-day operations.
- By establishing repeatable BI best practices, it becomes possible for individuals and groups to be guided through decision-centric business processes.
- The ability to identify operational inefficiencies and set performance goals and alerts that combine business and process data gives executives and line-of-business managers insight into up-to-the-minute business changes.
- A visual interface assigns accountable owners for each milestone and tracks ongoing progress. This supports collaborative decision making and provides an audit trail suitable for compliance management.

With the right strategy for operational BI, you can think about your BI and performance management initiatives from a process-centric perspective instead of taking only a data-centric view. Operational BI is the vehicle to unify tactical and strategic BI initiatives, link BI to business processes, and make trusted information more useful and available to more users in your organization.
Build a Better Mousetrap and the World Will Beat a Path to Your Door

By Bob Ford, VP Technology Services, PolyVista Inc.

While Ralph Waldo Emerson may be regarded as one of America’s most influential authors, poets, and philosophers, judging by this saying (commonly attributed to him), I understand why “entrepreneur” is not on his list of credits.

In my experience introducing and implementing technology innovations, better mousetraps are built every day, but waiting for the world to line up at your door is just wishful thinking. Introducing step-change innovation involves much more than the technology itself; it involves people and establishing a compelling vision that encourages others to get on board.

This article is targeted to those individuals who are convinced that business intelligence is much more than reports and portals—people who want to deliver innovative tools and techniques to enable their analysts to perform at a higher level, and to exploit the opportunities that their competitors have overlooked. While these goals are admirable, the path forward involves a number of obstacles that must be cleared in order for innovative solutions to take root and grow.

Confucius said, “Only the wisest and stupidest of men never change.” I hope that the rest of us fall into a third category—that is, we are at least willing to consider change as long as we can be shown some tangible benefits for ourselves and/or our companies. As Peter Senge, a noted organizational learning strategist, has observed, “People don’t resist change, they resist being changed.” This implies that a successful transition is contingent upon an individual’s acceptance and belief that there are real and tangible benefits involved.

What follows are some lessons learned in successfully introducing advanced analytical methods into large corporations. While not exhaustive by any means, these featured topics are important to be aware of and address.

- Corporate inertia (overcoming the status quo)
- Analyst attributes (what it takes to be a great analyst)
- Catalyst for change (delivering value)

**Confucius said, “Only the wisest and stupidest of men never change.”**

**Corporate Inertia**

Employees are constantly under the gun to do more with less. With full plates and looming deadlines, little time or energy is available for investigating new or innovative ideas. IT looks to the business to define requirements for new or improved systems, but the business has no time to explore the possibilities. Thus, they end up asking for more of the same. In this way the status quo prevails and innovation never gets a chance. In fact, there are many who benefit by preserving the status quo and do their best to resist any change. New technologies can challenge their historic power base as their area of expertise loses value. Recognize that not everyone will embrace change, but a solid business case should provide the incentive.

**Analyst Attributes**

Not all analysts are created equal. Some are clearly more experienced and creative in their approach to problem solving. Those analysts engaged in developing new business insight and solving complex problems will likely share the following attributes:

1. Deep subject area knowledge and proficiency with computer tools
2. Respect from within the analytical community
3. Persistent intellectual curiosity

This unique combination of skills allows these individuals to couple their strong subject knowledge with computer-based techniques to identify, hypothesize, and validate new patterns or anomalies that can yield new business insights and high-value opportunities.

**Catalyst for Change**

Probably the most important factor in successfully delivering step-change analytics is the identification of a person(s) who is willing and able to drive and grow the program. This individual or team would be:

- Able to articulate and facilitate the program’s vision and deliverables
- Respected by and knowledgeable of both the business and IT communities
- Experienced in navigating corporate politics
- Experienced in developing business unit alignment and buy-in.
When BI Becomes Operational

By Gerald D. Cohen, CEO, Information Builders

When the concept of business intelligence emerged, it was often viewed as icing on the cake. While transaction systems were considered necessary for running day-to-day operations, BI systems were initially intended to provide historical insights on how or why the company was performing as it was. “Back-office” BI, performed by an elite group of business analysts at division or corporate headquarters, has certainly helped thousands of organizations slice and dice corporate performance, enabling them to identify costs, profits, or opportunities for improvement. Nonetheless, BI has traditionally been a reactive solution that was the traditional domain of a company’s “rocket scientists.”

Recently, we’ve seen a growing cross section of organizations proactively working BI into everyday operations. These organizations are benefiting from a new form of “operational analytics” that are providing real-time recommendations and performance indicators, so action can be taken early to correct problems.

For instance, at Moneris, Canada’s largest credit card processor, merchants who subscribe to the company’s services are now receiving daily analytic reports benchmarking their performance against regional or product segment averages. Meanwhile, Ford is cross-purposing data from its engineering system to provide instant trend analyses on warranty and repairs to over 30,000 users across its network of affiliated dealerships. And a leading semiconductor manufacturer is applying the results of quality inspection analyses of wafer samples and converting the information into visual, geocoded maps using ESRI mapping software. That’s helping production line operators immediately visualize the results of their work.

With BI evolving into an operational system, several lessons became apparent. The first is that the boundary between historical and current transaction systems was dissolving. The result was not a debate between historical or real-time BI. Instead, the solution had to include delivering the right blend to address the business problem. For instance, if you are staffing a call center, you will need near-real-time information to gauge traffic patterns within the last hour, plus historical data to understand whether current activity is an anomaly. At the other end of the spectrum, verifying the accuracy of your company’s forecasting process requires historical data to paint the big picture.

Another piece of the puzzle is integration. While traditional, back-office BI applications were often narrowly designed to address a single or small defined set of business issues, operational BI systems by nature tend to be more broadly based. This reflects that a single source cannot provide the big picture on issues such as how well a company is serving various sets of customers. As BI shifts toward an operational focus, it draws on multiple sources and reports. Consequently, integration has to be part of the solution, not an afterthought.

In addition, when BI goes operational, it tends to attract a broader user base compared to traditional back-office data marts. Therefore, ease of use becomes a major goal when developing operational BI systems. As you address larger populations, you have to accommodate people who are not computer experts. Operational use is also likely to increase the number of reports that are developed, maintained, and modified to reflect changing business conditions. Consequently, reporting must become simpler for administrators, developers, and analysts to create and maintain.

In 30 years of serving customers, we’ve learned that there is no such thing as a typical reporting environment. Data sources, competitive requirements, audience sizes, and requirements for timely data for your company will differ from somebody else’s. Your BI solution must be flexible, powerful, simple, and scalable enough to address each of these needs. And it must be ready to step up to the plate when you need the operational analytics that can help you make the right decisions in the course of daily operation.
Keeping up with the demands of today’s enterprise reporting, business intelligence, advanced analytics, and predictive modeling requirements—including Web-based applications—is pushing relational database technology and its users to their breaking points.

The sheer volume of data required to generate accurate trending information, facilitate insightful decision making, and comply with increasingly stringent government and industry regulations is choking the performance of current analytical systems. IT organizations find themselves with no choice but to restrict usage to prevent system failure. These restrictions typically dictate:

- Limits to the amount of data available for analytics
- Limits to the amount of concurrent users and queries
- Limits to the launch of new applications
- Limits to the complexity of analysis
- Limits to access windows

Some performance improvement can be gained through tuning and optimization techniques, technology upgrades, additional hardware, and hardware upgrades. But these methods are costly and come with their own limits. Queries can still take hours, days, or longer to run and return actionable information.

**Column-Based Processing Eliminates Limits**

A fundamentally different approach is required to deliver the speed, scalability, and cost effectiveness organizations need in today’s real-time marketplace. As data volumes increase and response time requirements decrease, relational database, row-by-row processing won’t get the job done. Instead, what’s called for is a column-based approach to analytical and reporting processes.

Unlike ordinary relational databases, which store data in tables by row, column-based engines—like Sybase IQ—store and access data in tables by column. While this would be inappropriate for a transactional environment, in which a transaction is effectively equivalent to a row, it is sensible and necessary in a query-processing environment, since queries are generally created by defining columns.

A major advantage of this column-based approach is that, in effect, the entire database is automatically indexed because selection criteria in a query are defined by column.

**Performance Benefits and More**

One of the main advantages of the column-based approach is the reduction in the amount of data that needs to be read. This dramatically speeds up input/output (I/O) cycles. By reading data on a columnar basis, only the data related to a specific query must be read. In contrast, working with a conventional database, each row must be read in its entirety, regardless of the relevance of the fields to the query. Multiply this I/O reduction by a few million rows per table, and the performance difference is considerable.

While a columnar approach is different from row-based processing, there are few differences from a management point of view. For example, with Sybase IQ, database access is via standard SQL (ANSI 99). Because of this, the learning curve is minimized in organizations familiar with conventional databases.

The limits inherent in using conventional databases to support enterprise reporting and analysis are eliminated with column-based architectures. The result is a system that supports lightning-fast query speeds with:

- No limits to amount of data available for analytics
- No limits to amount of concurrent users and queries
- No limits on launching new applications
- No limits to the complexity of queries
- No limits to access windows

**Best Environment for a Column-Based Approach?**

The benefits of the column-based approach are most significant in environments in which the query load is unpredictable and ad hoc queries are common. This is because a conventional database cannot be pre-tuned for unexpected queries. The column-based approach used by Sybase IQ, however, effectively provides self-tuning capabilities.

In addition, complex queries that involve multiple selection criteria across a variety of tables, and those involving large table scans, can be processed much more efficiently within a column-based environment.

Finally, for large data stores containing detailed transactions and sub-transactions, like clickstream data, a column-based engine like Sybase IQ does not require data to be pre-aggregated for analysis, making it easy for users to analyze transaction-level data.

Request more information
Addressing Performance Bottlenecks in the Face of Exponential Data Growth

By Susan Garretson Friedman, Senior Technical Analyst, Syncsort Incorporated

We all know that enterprises today are facing unprecedented levels of data growth. Compliance initiatives such as Sarbanes-Oxley and HIPAA are only accelerating and exacerbating this growth, and making it even more crucial to accommodate it effectively. A 2003 study by the Enterprise Storage Group, recently recounted in Forbes magazine, projected that the worldwide capacity of compliant records will have a compounded annual growth rate of 64 percent from 2003 to 2006. This seems to be an on-base, if not lowball, estimate.

From Web sites alone, a company can generate several gigabytes of data each day. Then there is other transactional data such as store inventory, monthly sales, and customer addresses. Try to load all this into a data warehouse in a timely manner, and you’ve got all the ingredients of a bottleneck. Further, as these volumes continue to grow, it will become increasingly difficult to transform unrefined data into reliable information efficiently, hindering strategic planning and decision making.

Many organizations also need to process data about customers and markets quickly and frequently in order to anticipate and respond to new and changing business conditions. Generating information and analysis helps a company to stay competitive and empowers it to more effectively monitor and manage business performance.

Side by side with this growth in data volumes and demand for more information and analysis, there has also been an increase in the number of applications being developed and supported in most organizations. This has placed significant demands on IT professionals, since there hasn’t always been a corresponding increase in staff.

Organizations are also increasingly focused on controlling costs. They want...
to solve the challenges caused by growing
data volumes and demand for real-time
information with the minimum possible expenditure of money and resources.

We have found that many organizations share some similar areas where data volumes cause bottlenecks, and also have discovered that the right software tools that optimize the process in question work to break through and improve performance. Moreover, we have seen that it is software that is necessary to do this, as it cannot be accomplished with hardware.

The data parsers needed to handle this kind of data can take huge amounts of CPU for processing. One way to handle this most effectively is with a tool that optimizes pattern matching.

Further, not all database vendors provide highly optimized access methods for extracting data from their databases. Their concern is more with loading data into the database, but a typical organization's data flow usually isn't that simplistic—there are numerous disparate databases and data marts, which the data needs to move between. For the best performance, all data processes, extracting, transferring, and loading need to be speeded and optimized. Also, database loads involve index creation; index creation requires sorting; and using the fastest possible sorting algorithms improves sort performance generally.

We continually run into situations where a system was not originally designed for performance, and performance has to be sutured in afterwards. This is frequently because the system was implemented at an early stage of the business when there wasn't much volume. Often the designers thought that volume growth could be taken care of by simply upgrading the system, or adding additional systems, or that hardware capacity would just continue to increase in the future the way it has for the last 20 years.

There are several reasons why hardware growth generally won't yield the performance gains that are needed:

1. Run times are almost never linear with data volume growth; when the amount of data is doubled, it more than doubles the processing time.

2. Doubling the number of CPUs doesn’t double the throughput, so more hardware is needed to yield less benefit.

3. Adding processors only improves performance if the application was well parallelized to start with.

4. Increases in hardware capacity (faster CPUs, bigger disks, faster networks, grids) allow new applications to be automated, and these new applications typically generate higher volumes of data than the old ones. And then, we want to turn that data into information.

Looking over these bottleneck challenges, you can see a shared need to minimize the elapsed time of each process—whether the process involves a sort, a load, or an extract, and so on. It doesn’t matter what the other aspects of a solution might be, if the deliverables can’t be delivered on time. To improve application performance, the software must manage to speed all aspects of data transformation—every time data is touched in the process. It should be designed to solve performance problems at whatever stage is appropriate, either as a plug-in to an existing ETL system, a redevelopment of a performance-critical subsystem, or for development of the entire system from scratch. The software should also be easy to use, and scalable to grow with the enterprise. Using such a solution to improve performance will yield high ROI by reducing CPU, memory, and disk resource usage; allowing applications to be deployed on significantly smaller hardware systems; and helping to meet the increased demands on reduced staff.
Winners: Best Practices Awards 2005

TDWI’s Best Practices Awards recognize organizations for developing and implementing world-class business intelligence (BI) and data warehousing (DW) solutions. Below are summaries of the winning solutions for 2005. For more information, visit www.tdwi.org/BP05.

**CATEGORY: Business Performance Management—Best Scorecard Implementation**

**WINNER: HP**

As a large, multinational organization, HP had developed diverse and independent reporting systems. The adoption of the balanced scorecard sought to resolve this issue, and led to the development of the PMMS (Performance Measurement and Management System).

Before 2001, the $12 billion Technology Solutions Group (TSG) had no means to measure performance consistently across regions and groups, or to hold individuals accountable for performance. And it had dozens of reporting systems with overlapping or contradictory metrics. The PMMS project has generated a three-year, $26.1 million ROI and vastly improved individual/group performance and accountability.

**Single Version of Truth:** The PMMS provides a single place where executives, managers, and supervisors can check their group’s performance against strategic objectives and examine exception reports. PMMS now displays 300 metrics that provide a single view of the business for 10,000 HP TSG workers worldwide.

**Cascading, Transparent Scorecards:** PMMS is more than an executive scorecard, although that is how it was first deployed. Each scorecard in the hierarchy has a relationship to the one above it, so performance metrics roll up. The performance information is widely publicized, so users and groups can compare their performance.

As a result, PMMS now meets the information needs of 80 percent of the division and has improved productivity and accountability. Supervisors no longer waste time creating custom reports, and they can’t spin the numbers to make their performance look better.

**Tangible Benefits:** In 2004, increased worker productivity accounted for $10.6 million in cost savings; reduced training costs accounted for $1.3 million; and lowered reporting costs were another $8.6 million.

While these gains have made HP TSG more efficient internally, using scorecards has also helped the company make strides toward achieving strategic objectives. For example, since the introduction of PMMS, HP TSG has raised customer satisfaction scores three to five percentage points in its four major divisions.

**CATEGORY: Business Performance Management—Best Enterprise BI Implementation**

**WINNER: IBM**

International Business Machines Corporation (IBM) manufactures and sells computer hardware, software, and services. With 330,000 employees worldwide and revenues of $96 billion in 2004, IBM is the largest information technology company in the world.

In 1997, IBM’s Sales and Distribution organization launched EDGE (Enabling Decisions for Global Execution). The project’s initial objective was to establish a single executive reporting system for IBM’s sales leaders, focusing on the opportunity pipeline and sales execution.

Five years ago it could be late in the sales operational cycle before executives identified a shortfall in the opportunity pipeline—often too late to recover. Today, EDGE helps them see shortfalls early.

There is an indirect benefit as well. By organizing the sales review process in a standard and structured fashion supported by a series of standard, interlocked reports, IBM reduces the time that sellers spend in meetings. Conservative estimates indicate that the time saved from the EDGE report delivery service alone is worth more than $10 million per year.

Although EDGE was originally built to support IBM’s sales management needs, it has expanded to support a variety of enterprise process management systems, and now provides a series of functional, flexible dashboards customized for senior executives. EDGE reports cover the spectrum from planning to customer satisfaction and BPM—approximately 50,000 weekly reports.

The EDGE “Report Factory” is an integrated design, development, and production environment that enables single reports to be made available across multiple delivery mechanisms. Key business metrics are encoded in the source data marts to enable speedy delivery and facilitate consistency across reporting environments.

The Enterprise Information Warehouse (EIW) provides IBM’s sales management community with a worldwide trusted source of lead, order, and financial information. Developed as part of the EDGE program, it has consolidated three separate warehouses to provide a truly global asset, and has become the primary source of sales management information for EDGE BI tools.
CATEGORY: Government and Nonprofit
WINNER: U.S. Army NGIC

The National Ground Intelligence Center is the largest intelligence producer in the U.S. Army. Its mission is to produce and disseminate all-source integrated intelligence on foreign ground forces and combat technologies to provide U.S. forces a decisive edge on any battlefield.

Project Pathfinder is an evolutionary, Army-sponsored R&D project pursuing the development of advanced data mining and visualization tools for intelligence analysts. Pathfinder allows analysts to rapidly translate their requirements through software tools at their workstations. This set of tools enables analysts to digest and interpret enormous quantities of unstructured textual information and data marts drawn from large relational database systems. These tools make it possible to monitor fast-breaking events and rapidly convert massive amounts of raw, uncorrelated information into intelligence.

Business Impact: Pathfinder has brought a sea change to intelligence analysis since its introduction in the mid-1990s. Pathfinder ingests nearly a million intelligence reports a day. The impact can be summarized as follows:

- Single-point access to 500,000,000+ document repository covering 20 years of global intelligence reporting.
- Real-time monitoring of intelligence and the ability to view information in different contexts.
- Enabling analysts to produce intelligence studies in hours rather than weeks.
- High-precision search technology enabling analysts to find critical intelligence reports.
- A collaborative environment in which analysts can share analytic methods and tradecraft and learn from experienced users.

Pathfinder was the first comprehensive data mining tool devoted to attacking the unstructured text problem.

Relevance: Pathfinder has become a core enabling technology in the War on Terrorism. Its capabilities support the integration of data from hundreds of sources, including highly structured data automatically generated by sophisticated platforms, as well as massive amounts of unstructured data. Pathfinder has been used to support every major military and humanitarian operation since 1993. It has been used to identify suspected war criminals, to track the proliferation of weapons, and to plan and execute countless operations.

CATEGORY: Customer Relationship Management
WINNER: sunrise TDC Switzerland AG

sunrise TDC Switzerland AG is the second largest company in the Swiss telecom market. sunrise sells fixed-network voice and Internet services as well as mobile services. Competing for business in a market of 3.2 million households and 400,000 businesses, it currently has more than 2.2 million customers.

When the sunrise management team evaluated its existing CRM solution in 2002, the company faced several challenges:

- The Swiss telecom market was relatively mature; growth would come mainly by winning customers from competitors, increasing wallet share by cross-selling, and increasing usage of each service.
- High customer satisfaction was not translating into loyalty.
- CRM campaigns were segmented and executed manually.
- The company was product-focused; Wireline/Internet (WIN) operated separately from Mobile.

sunrise implemented an entirely new CRM solution using the Teradata CRM analytic application on top of an existing Teradata warehouse.

Impact: The new system integrates and improves customer data and greatly enhances campaign management. Now, every direct contact with customers is managed by the CRM system. Segment and affinity analyses provide the ability to run campaigns with ever smaller, highly targeted audiences. Benefits include:

- Timely, highly targeted campaigns
- Effective marketing campaigns
- Revenue generation through inbound cross-sell/up-sell
- Growth of service contract customers and revenue
- More accurate segmentation
- Shift from product to customer focus
- Organizational alignment and synergy

Innovation: The DW design allows sunrise to store detailed customer data. It provides a 360-degree view of customers. In addition, a direct, two-way interface between the CRM and call center applications allows personalized scripts to appear directly to call center agents when customers call.
Export Development Canada (EDC) is a financial institution providing trade finance services to Canadian exporters and investors in some 200 markets. Last year, Canadian business concluded Can$51.9 billion in export and domestic sales and investments in markets using EDC trade financing services.

EDC’s success in developing its portfolio and customer base has resulted in increasing information demands. EDC looked to create a trusted source of enterprisewide information—a single version of the truth.

In the process of implementing the technical infrastructure of the DW, EDC developed two approaches to enhance development and operation:

- A parameter-driven tool to define significant parts of the ETL process, resulting in speedier development and greater consistency.
- A method for dynamic report generation into the EDC intranet environment, significantly reducing maintenance costs.

The architecture also requires the source application systems to push data to the warehouse. The DW is fed from virtually all mission-critical applications.

The DW’s first project was to implement a monthly risk-management report to analyze commercial credit exposure. This information goes to the heart of EDC’s purpose—understanding the composition of EDC’s financial risk.

Other benefits include improved data validations, enhanced data integration, and improved documentation through the metadata capabilities using SAS software. Errors are now identified earlier and are fully quantified, enabling correction and elimination at the source application. Continued tracking has revealed an 80 percent reduction in errors. EDC has already realized a full return on its investment from the time savings and data quality improvements in the initial monthly risk management report alone.

The success of EDC’s implementation can be attributed to several considerations:

- Communicating strategy is vital. Technology represents a small portion of the task. The real challenge lies in managing data and resolving quality issues.
- Data warehousing is a process—not a product. Implementing a DW strategy requires thinking from a corporate perspective.
- The key data or requirement should be found and used to prime the pump.

ING is a global financial services company with 150 years of experience in providing banking, insurance, and asset management services. Based on market capitalization, ING is one of the world’s 20 largest financial institutions.

ING’s rapid expansion through acquisitions left it facing skyrocketing amounts of data in unconnected silos. In addition, ING wanted to boost corporate performance by ensuring that everyone had the most up-to-date information. ING also needed to satisfy regulations such as HIPAA and the USA PATRIOT Act.

**EII: The Solution**—These objectives required the company to move from batch processing to an enterprise information integration (EII) solution incorporating real-time capabilities and bidirectional feeds. Significantly, ING integrated all systems and moved to real-time processing without disrupting business operations.

**EII: Business Impact**—Seeking to quickly gauge ROI, ING measured its solution in savings, exceeding expectations by $200,000 in the first year. In addition, the following benefits have been achieved:

- Faster, more effective business decisions
- Increased user productivity
- Annual savings of up to $500,000 from more efficient mailings
- Reduction in the data error rate from an estimated 14 percent to less than 5 percent
- Average savings of approximately $450,000 per project through the reuse of data

**Innovation and Best Practices**: The EII solution is based on ING Americas Adaptive Architecture (ia³)—a reference model for business-driven IT solutions yet to be completed. Adopting a reference architecture enables business units to share a common technology language and reduces the ambiguity in technical specifications. Most important, it offers a guide for IT organizations to begin implementing solutions in a way that can be widely understood.

ING’s EII solution demonstrates several best practices:

- Adoption of a common data model and sub-models
- Implementation of information quality management
- Defines and documents new workflows and procedures
- Metrics to quantify data quality
- Industry standard data cleansing tools
- Robust error handling and recycling mechanism
- Regional technology transfer program providing regional technology teams with on-the-job training and mentoring for implementing EII environments
- Regional EII Competency Center
Leadership Award Winner  
CATEGORY: BI Stewardship and Data Quality  
WINNER: CheckFree Corporation  
SPONSOR: Baseline Consulting

CheckFree (Nasdaq:CKFR) provides financial electronic commerce services and products. From powering electronic billing and payment, to automating financial transactions, to streamlining regulatory reporting tasks, CheckFree’s broad range of solutions allows financial services companies and merchants to offer their customers a range of financial electronic commerce applications.

CheckFree’s enterprise data warehouse (EDW) contains cross-functional information about customers, subscribers, transactions, payment history, CheckFree customer and subscriber correspondence, and other critical business information. CheckFree has evolved toward managing its information as a corporate asset, engendered largely through its DW program. Data stewardship has transcended BI and the EDW, and is becoming a part of everything CheckFree does.

Business Rules: The Point of Consensus—One of CheckFree’s first steps to formal data stewardship was to establish clear and consistent business rules for its highest priority business elements. It instituted a business rule process flow that formalizes the definition and consensus around business rules by establishing specific properties for business rules and assigning ownership to subject matter experts.

CDD: The Metadata Best Practice—If business rules are the touch point for business changes and consensus, CDD (CheckFree Data Directory) is the delivery vehicle. The goals for CheckFree’s metadata environment are:

- Understand the meaning of business terms
- Know where to access key data
- Understand which business processes involve which data
- Map core business processes to corporate data elements
- Locate key documentation
- Identify data stewards and “trustees”
- Map core business processes to enterprise systems and applications
- Perform on-demand searches for key issues, projects, and terms
- Support the Six Sigma goal of error reduction
- Establish and evolve the corporate vocabulary

The key benefit of this metadata effort is in productivity enhancements. CheckFree’s business community has even begun referencing CDD metadata when it submits business requirements. CheckFree has estimated that in an average year the CDD saves $300,000 in staff resource time.

Cooper University Hospital is an academic medical center serving southern New Jersey, Philadelphia, and the Delaware Valley. Cooper employs 4,000 people, provides charity care, and is experiencing significant growth.

In 2001, BI at Cooper comprised hundreds of “canned” reports and limited super-user access to multiple ad hoc reporting tools. There was no enterprise BI strategy, and resources were limited. The Proteus BI solution was developed with these components:

- MS SQL Server data marts loaded daily from two systems: IDX and McKesson HealthQuest
- Precision.BI (ad hoc reporting tool), corporate intranet, and SQL Server DTS

Proteus Business Value: The BI solution provides strategic, operational, and financial value.

- A billing manager discovered an insurance company was not reimbursing Cooper and recovered $33,000.
- The Business Development office uses Proteus when creating strategic plans.
- Several departments use Proteus to ensure regulation compliance.
- Proteus alerts executives and clinicians before potential issues can escalate.
- The managed care department uses Proteus to make intelligent decisions when negotiating contracts with insurers.

Throughout the Proteus deployment, the project team focused on selling BI’s relevance and on delivering maximum value in phases with limited resources. Four major strategies helped accomplish these goals:

Creative Partnerships: A major goal of the Proteus solution was to put information into users’ hands. Cooper partnered with Precision.BI, based in Reading, Pennsylvania, which was piloting an ad hoc reporting tool.

Marketing and Branding: An ongoing goal at Cooper is to sell the idea of BI as a pervasive, strategic program. Therefore, they chose to brand and market the information itself instead of the tools used to retrieve and disseminate that information.

Delivery Top-Down and Bottom-Up: Although initial marketing efforts were successful, the project team recognized that long-term success for Proteus required widespread adoption. Their strategy was to accumulate wins, each resulting in additional value, publicity, and ultimately funding and resources.

Creative Delivery: Although Precision.BI is Cooper’s main Proteus ad hoc reporting tool, the BI group has experimented with various methods of disseminating information.
**Mission**

TDWI™, a division of 101communications, is the premier provider of in-depth, high-quality education and research in the business intelligence (BI) and data warehousing (DW) industry. Founded in 1995, TDWI is dedicated to educating business and information technology professionals about the strategies, techniques, and tools required to design, execute, and maintain successful BI and DW projects. Within the community it serves, it provides a comprehensive resource for professional development and fosters knowledge sharing and the advancement of research. TDWI sponsors and promotes a worldwide Membership program; quarterly educational conferences; regional educational seminars; monthly role-based training; onsite courses; certification; solution provider partnerships; awards programs for best practices and leadership in DW, BI, and other innovative technologies; resourceful publications; an in-depth research program; and a comprehensive Web site (www.tdwi.org).

**Membership**

As the BI and DW field continues to evolve and develop, it is necessary for information technology professionals to connect and interact with one another. TDWI provides opportunities to learn from each other, network, share ideas, and respond as a collective to the challenges and opportunities in the industry.

Through Membership in TDWI, these professionals make positive contributions to the industry and advance their professional development. TDWI Members benefit through increased knowledge of the latest trends in BI and DW, which makes TDWI Members some of the most valuable professionals in the industry. TDWI Members avoid common pitfalls, learn fundamentals quickly, and network with peers and industry experts to give their projects and companies a competitive edge in deploying BI and DW solutions.

TDWI’s Membership includes 5,000 BI, DW, and information technology (IT) professionals from Fortune 1000 corporations, consulting organizations, and governments in 45 countries.

**Benefits to TDWI Members include:**

- Quarterly Business Intelligence Journal
- Access to Members-only content at www.tdwi.org, including TDWI articles, research, and archives
- Annual TDWI Business Intelligence Salary, Roles, and Teams Report
- Quarterly Ten Mistakes to Avoid series
- Biweekly FlashPoint electronic bulletin
- In-depth and timely research reports
- Quarterly Member Newsletter
- Special discounts on all conferences and seminars
- A 15 percent discount on all industry books and course books purchased at TDWI conferences
- A 15 percent discount on TDWI merchandise

Membership in TDWI is available to all BI, DW, and IT professionals for an annual fee of $249 ($299 outside the U.S.). TDWI also offers Team Membership for organizations that register five or more individuals as TDWI Members.

**General Membership:**

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Fax: 206.246.5952
E-mail: membership@tdwi.org

**Corporate Membership:**

Margaret Ikeda,
Membership Specialist
Tel: 206.246.5059, ext. 113
E-mail: miked@tdwi.org

**Education Programs**

TDWI offers educational programs throughout North America and Europe that inform IT professionals about industry best practices and the effective use of business information. These programs include quarterly conferences, regional educational seminars, intensive role-based training, and onsite courses.

TDWI has developed a comprehensive BI/DW curriculum, and its faculty includes the highest-rated instructors in the industry—most of whom are well-known consultants, practitioners, and recognized experts. TDWI has helped to educate more than 30,000 IT professionals and business users about BI and DW over the last 10 years.

During these unique educational events, IT professionals share real-world experiences, lessons learned, and tips and techniques they have used to exploit corporate information for competitive advantage. No other organization provides such educational opportunities.

**TDWI World Conferences**

TDWI’s quarterly education and training conferences offer a rigorous training environment in a conference setting and incorporate an intensive, full-day course format and extended course programs that expand over several days. All courses are selected for content and quality and are evaluated by attendees to ensure adherence to TDWI standards. TDWI attendees gain knowledge through a full-day format that prepares them to quickly apply their new knowledge toward a more successful BI or DW initiative. TDWI’s unique conference model has set a standard for education that is now imitated at other conferences.

TDWI’s courses are taught by leading experts on a wide range of topics and include multi-day methodology courses that provide step-by-step guides for designing, building, and maintaining a BI/DW environment. These methodology courses represent a range of approaches, from “top-down” methods for deploying an enterprisewide data warehousing architecture, to...
“bottom-up” data mart methods using dimensional modeling techniques, to everything in between.

Conference attendees also benefit from hearing leading visionaries discuss critical issues and trends in the industry during panel discussions and keynote presentations. In addition, many TDWI courses are designed to be interactive, so attendees receive immediate feedback from instructors as well as other class participants.

**Seminar Series**
The TDWI Seminar Series makes it easier for busy professionals and project teams to receive training closer to home and in less time. These courses assist managers in bringing new team members up to speed quickly and cost effectively.

**Onsite Courses**
For the ultimate in convenience, TDWI can bring top-rated certificate courses onsite. The benefit of onsite education is that the course can be customized to meet a group’s particular challenges and issues. It also provides a quick and easy way to give all team members an equivalent understanding of the core issues and concepts of BI and DW, and how they apply to a company’s environment.

**Certification Programs**
TDWI offers several options for certifying professional development. Certificate Courses provide a record of completion of a TDWI designed and developed course. A TDWI Certificate provides proof that an attendee has completed the course and is prepared for further education, or to begin or join a BI/DW effort for further experience. TDWI Certificate Courses ensure that each member of a team has received the same level of education, to avoid confusion on the fundamentals.

TDWI On-Track is a certificate program based on completion of a carefully selected series of required and elective courses, offered in five different disciplines.

Certified Business Intelligence Professional (CBIP), a true test-based certification program, is offered in five key specialties for BI success: Administration & Technology, Business Analytics, Data Analysis & Design, Data Integration, and Leadership & Management. These specialties are aligned with TDWI’s learning paths and TDWI On-Track, a well-defined curriculum program that directly ties learning objectives with job roles and responsibilities. CBIP is developed and delivered in partnership with the Institute for Certification of Computing Professionals (ICCP).

**TDWI Awards for Best Practices and Leadership**
The annual TDWI Best Practices Awards identify successful BI and DW models to follow. Top professionals and analyst organizations assist TDWI in identifying practitioners (individuals who have implemented BI and DW within their companies) who exemplify the best approaches to solving various problems facing managers and staff.

**Publications and Research**
TDWI supports, develops, and distributes a wide range of publications and research to keep its Members up to date on new techniques, events, and issues in BI and DW, as well as the trends within the vendor community. These publications are available to Members at a special discounted rate.

**Solution Provider Exhibitions**
TDWI’s quarterly conferences provide a forum in which BI and DW vendors and service providers can demonstrate their products and offerings. To enhance the educational value of the exhibits, each exhibitor has the same size booth. Also, TDWI exhibitions are reserved solely for conference attendees and TDWI Members, providing more quality time for attendees and vendors to meet one-on-one and educate one another about their requirements and offerings.

**Solution Provider Programs**
TDWI works closely with the vendor community to bring its Membership the most up-to-date and important information regarding BI and DW solutions. TDWI’s goal is to give Members the opportunity for knowledge sharing with vendors, and also the flexibility to decide the level of interaction for this exchange. TDWI has worked to create a hype-free atmosphere at our conferences, and also in our publications, that is conducive to Members’ education and needs, unlike what may be seen at other conference exhibitions.

**Web Site**
Members may take advantage of a growing collection of reports, white papers, Webinars, case studies, articles, conference programs, vendor directories, schedules of events, subscriptions, registration, and much more at www.tdwi.org.

**The Business Intelligence and Data Warehousing Industry**
The BI/DW industry encompasses a host of disciplines and technologies used to analyze corporate information, including: data modeling, data migration and transformation, data quality, decision support, metadata management, data marts, online analytical processing, database management, data mining, knowledge discovery, closed loop decision support, and various analytic applications, such as customer relationship management, sales force automation, Balanced Scorecards, marketing automation, supply chain management, and vertical industry applications.

Founded in 1998, 101communications is an integrated media company in the business-to-business market aimed at the many specialized targets within the greater information technology community. 101communications’ portfolio includes nine publications, 21 Web sites, 30 e-newsletters, and 40 conferences, trade shows, and seminars worldwide in seven areas: software development, business technologies, government technology, windows networking & certification, office imaging technologies, education technology, and international IT.
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<td><strong>Actuate</strong></td>
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<td>701 Gateway Blvd.</td>
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<td>South San Francisco, CA 94080</td>
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<td>888.422.8828</td>
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<td>Fax: 650.827.1560</td>
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<td><a href="http://www.actuate.com">www.actuate.com</a></td>
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Actuate Corporation is the world leader in enterprise reporting applications that ensure 100 percent adoption by users. Actuate’s Enterprise Reporting Application Platform is the foundation on which Global 9000 organizations (companies with annual revenues greater than $1 billion) and packaged application software vendors develop intuitive, Web portal–like reporting and analytic applications that empower 100 percent of users with decision-making information. These applications are deployed inside and outside the firewall to improve corporate performance across a range of business functions. When tested against other BI products, Actuate’s Enterprise Reporting Application Platform has been proven to offer industry-leading scalability and the lowest total cost of ownership. Actuate has over 3,000 customers globally in a range of industries including financial services, pharmaceuticals, insurance, and distribution services, as well as the government sector.

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<tr>
<td>3030 Orchard Parkway</td>
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<td>San Jose, CA 95134</td>
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<td>408.953.6000 or 800.877.2340</td>
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<td><a href="http://www.businessobjects.com">www.businessobjects.com</a></td>
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Business Objects is the world’s leading BI software company. Business Objects helps organizations gain better insight into their business, improve decision making, and optimize enterprise performance. The company’s business intelligence platform, BusinessObjects™ XI, offers the BI industry’s most advanced and complete platform for reporting, query and analysis, performance management, and data integration. BusinessObjects XI includes Crystal Reports®, the industry standard for enterprise reporting. Business Objects has also built the industry’s strongest and most diverse partner community, with more than 3,000 partners worldwide. In addition, the company offers consulting and education services to help customers effectively deploy their business intelligence projects.

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Cognos, the world leader in business intelligence and corporate performance management, delivers software and services that help companies drive, monitor, and understand corporate performance. Cognos delivers the next level of competitive advantage—corporate performance management (CPM)—achieved through the strategic application of BI on an enterprise scale. Our integrated CPM solution helps customers drive performance through planning; monitor performance through scorecarding; and understand performance through business intelligence. Cognos serves more than 23,000 customers in over 135 countries. Cognos enterprise business intelligence and performance management solutions and services are also available from more than 3,000 worldwide partners and resellers. For more information, visit the Cognos Web site at www.cognos.com.
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DATAllegro’s data warehouse appliances lead the industry in price/performance. DATAllegro’s patent-pending technology enables significantly faster and more complex queries than any other data warehouse appliance on the market. DATAllegro P3™ is a high-performance data warehouse handling up to three terabytes of user data, and is priced at $150,000 per terabyte. DATAllegro C25™ is a high-capacity data warehouse holding up to 25 terabytes of user data, and is priced at $20,000 per terabyte. With its breakthrough technology, DATAllegro has set a new standard in data warehouse price/performance. For more information on DATAllegro, go to www.DATAllegro.com.

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Firstlogic offers data quality software and strategic consulting services to help organizations maximize the value of their data and make effective business decisions. Its industry-leading software measures, analyzes, and reports on the quality of information; cleanses and standardizes customer and operational data; appends third-party information; and builds relationships and corporate households through matching and consolidating records. The software seamlessly integrates into leading CRM, ERP, BI, and data warehousing applications. In addition to developing commercial solutions, Firstlogic partners with many systems integrators, consultants, and original equipment manufacturers to provide its unique technology to their end-user customers. Firstlogic also assists data quality champions and project managers when working through their project lifecycles, and offers strategic data quality consulting services.

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Hyperion Solutions Corporation is the global leader in business performance management software. More than 10,000 customers rely on Hyperion software to provide visibility into how their businesses are performing and to help them plan and model to improve that performance. Using Hyperion software, customers collect data, organize and analyze it, then communicate it across the enterprise. Along with the industry’s most comprehensive and flexible set of interoperable applications, Hyperion offers the leading business intelligence platform optimized to support business performance management solutions.

Named one of Fortune’s 100 Best Companies To Work For (2004), Hyperion serves global customers in 45 countries. A network of more than 600 partners provides the company’s innovative and specialized solutions and services. For more information, please visit www.hyperion.com.
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www.ascential.com

IBM is the world’s largest information technology company, with 80 years of leadership in helping businesses innovate. Drawing on resources from across IBM and key Business Partners, IBM offers a wide range of services, solutions, and technologies that enable customers, large and small, to take full advantage of the new era of e-business. For more information about IBM, visit www.ibm.com.

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Leading executives and managers throughout the business world increasingly rely on dashboard applications to present up-to-date business intelligence and drive decision making. Effective visualization can make the difference between information overload and information insight.

iDashboards’ mission is to enhance business intelligence through Dashboards with Visual Intelligence. iDashboards empowers your organization with real-time Web access to the key performance indicators needed to monitor operations and improve performance. Charts can drill down for greater details. Real-time visual alerts monitor performance. The security framework provides role-based user privileges and a robust J2EE architecture. iDashboards’ innovative engineering and cutting-edge technology gives it compelling advantages as an enterprise-class dashboard solution.

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Informatica Corporation is a leading provider of data integration software. Using Informatica products, companies can access, integrate, visualize, and audit their enterprise information assets to help improve business performance, increase customer profitability, streamline supply chain operations, and proactively manage regulatory compliance. More than 2,100 companies worldwide rely on Informatica to meet their end-to-end needs for enterprise data integration.
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www.informationbuilders.com

Information Builders cost-effectively delivers enterprise business intelligence at the operational, tactical, and executive level, providing the integration, scalability, and self-service usability needed for informed decision making and reporting standardization throughout the extended enterprise. Our iWay Software subsidiary’s more than 280 adapters and universal adaptive framework incrementally facilitate service-oriented architectures.

Information Builders’ award-winning technology has successfully provided quality software and superior services for 30 years to more than 12,000 customers, including most of the Fortune 100 and U.S. federal government agencies. Headquartered in New York City with 47 offices and 26 distributors worldwide, the company employs 1,700 people, and has over 350 business partners.

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MicroStrategy is the global leader in business intelligence (BI) technology. Founded in 1989, MicroStrategy provides integrated reporting, analysis, and monitoring software that helps leading organizations worldwide make better business decisions every day. Companies choose MicroStrategy for its advanced technical capabilities, sophisticated analytics, and superior data and user scalability.

With over 15 years of industry experience, thousands of customer successes, and a reputation for innovation and leadership, MicroStrategy is the safest choice for your business intelligence investment. More information about MicroStrategy is available at www.microstrategy.com.

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Oracle is the world’s leading supplier of software for information management, and the world’s second largest independent software company. Oracle software can be found in nearly every industry around the world and in the offices of 98 of the Fortune 100 companies. Oracle is the first software company to develop and deploy 100 percent Internet-enabled enterprise software across its entire product line: database, business applications, and application development and decision support tools. Oracle’s offerings include new software licenses, software license updates, and product support and services, which include consulting, advanced product services, and education.
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PolyVista represents a step-change in the way that most business analysts approach the analysis process. Our product seamlessly combines three important analysis techniques into a single, easy-to-use application. These techniques include:

1. Interactive query (OLAP)
2. Interactive visualization (2-D and 3-D models)
3. Discovery methods (data mining algorithms)

These advanced features are designed for analysts to help them surface and explore new insights often hidden deep within their corporate databases. PolyVista has successfully been applied in major corporations including HP, BP, and most recently Southwest Airlines (see SWA case study in this issue, page 24).

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ProClarity Analytics gives analysts and business professionals a simple, powerful, and adaptable interface to insight, building on the power of the Microsoft business intelligence platform. ProClarity Analytics empowers users with the ability to monitor business performance, visualize and explore multi-dimensional data, understand root cause-and-effect relationships, and share definitions and analysis best practices to make consistently better decisions.

ProClarity has been delivering innovative analytic solutions to Global 3000 companies since 1995. Located in Idaho, USA, ProClarity currently supports more than 2,000 customers with regional sales and services offices in North America, Europe, and Asia-Pacific.

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Sunopsis is the leading provider of integration software for the real-time enterprise. Optimized for all integration projects, the Sunopsis integration suite provides for integration through the data, through the events, and through the services, for BI and broader integration needs alike. Supporting real-time as well as batch processes, point-to-point as well as publish-subscribe, asynchronous and synchronous integration approaches, Sunopsis provides a comprehensive answer to data integration needs. Quick to deploy, Sunopsis is the most cost-effective solution on the market today. Find out why leading companies throughout the world have chosen Sunopsis: visit our Web site at www.sunopsis.com/us/ww20.
Sybase is the largest global enterprise software company exclusively focused on managing and mobilizing information from the data center to the point of action. Our highly optimized analytic engine, Sybase IQ, is designed specifically to deliver dramatically faster results for mission-critical business intelligence, analytic, and reporting solutions. Sybase IQ delivers unsurpassed query performance and storage efficiency for structured and unstructured data, making it ideal for specialty data stores. Sybase IQ combines extraordinary speed and agility with low total cost of ownership, enabling enterprises to perform analysis and reporting that was previously impossible, impractical, or cost prohibitive.

Syncsort Incorporated is a leading developer of high-performance backup, data management, and data warehousing software for mainframe, UNIX, and Windows environments. For over 35 years, Syncsort has built a reputation for superior product performance and technical support. An independent market research firm has named Syncsort as one of the top Data Warehouse 100 Vendors for seven years in a row, and the company was recently chosen as the leading provider of data acquisition and integration products. Syncsort’s products are used to back up and protect data in distributed environments, speed data warehouse processing, improve database loads, and speed query processing.
The TDWI Partner logo recognizes solution providers that have joined TDWI as special Partner Members for 2005 and share TDWI’s strong commitment to quality and content in education and knowledge transfer for business intelligence and data warehousing. TDWI Partner Members receive TDWI research and education and contribute to TDWI’s goal of knowledge transfer through white papers, journal articles, case studies, and support at TDWI events.
TDWI has gathered a collection of the most outstanding white papers available for the business intelligence and data warehousing industry. Please select as many white papers as you would like to receive in any of the categories below. These will be sent directly to you—with no obligation. (To select your desired white papers, please click on the titles. Note that you must be connected to the Internet.) You can also access these white papers on our Web site at http://www.tdwi.org/publications/whitepapers/ww20whitepapers.aspx

### Analytic Applications and Development Tools

1. Applications of Industrial-Strength Business Intelligence
2. Five Ways Data Warehouses can Promote Visual Problem-Solving
3. Information Objects and Enterprise Information Integration

### Business Analytics

5. Choosing a Business Intelligence Standard
6. Creating and Maintaining Competitive Advantage
7. IBM Content Integration for the On Demand Business
8. Know and Don’t Know: The Knowledge Matrix
9. The Full Promise of Business Intelligence
10. The Informatica Performance Advantage for Data Integration

### Data Integration

11. Change Data Capture Applications Made Easy!
12. Dashboards: Driving Business Decisions
13. Deploying an Operational Business Intelligence Architecture: The WebFOCUS 7 Data Integration Framework
14. Implementing Data Quality as a Corporate Service
15. Operational BI: Taming the Data Explosion by IDC
16. SQL is the DNA of Data Movement

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18. Solving the Challenges of Exponential Data Growth
19. The Data Warehouse Appliance: The Evolution of the Data Warehouse Market