

# What Works

IN ENTERPRISE BUSINESS INTELLIGENCE

**POWERFUL CASE STUDIES, LESSONS  
LEARNED, AND Q&A FOCUSING ON:**

**Enterprise Business Intelligence**

**Operational BI**

**Open Source BI**

**BI For SAP**

**Predictive Analytics**

## **FEATURE**

**Hybrid BI: To Centralize or Distribute—  
That is the Question**

Wayne W. Eckerson, TDWI Research

A hybrid approach to organizing BI teams ensures data consistency, adherence to standards, and business responsiveness.

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## **TDWI RESEARCH EXCERPTS**

**Pervasive Business Intelligence:  
Systems Theory and BI**

PAGE 29

**Customer Data Integration:  
The State of CDI**

PAGE 34

## Letter from the Editorial Director

This new edition of *What Works in Enterprise Business Intelligence* offers a fresh, topically focused collection of customer success stories and expert perspectives. We're proud to offer this resource to enhance your understanding of the tools, technologies, and methods that are central to enterprise BI today. We've arranged these case studies and lessons from the experts into specific categories to guide you through the articles: enterprise BI, operational BI, open source BI, BI for SAP, and predictive analytics.

Here's what you will find inside:

### CASE STUDIES

*What Works* case studies present snapshots of the most innovative BI and DW implementations in the industry today. The case studies included in this volume demonstrate the power of enterprise business intelligence technologies and solutions for industries ranging from restaurants to postage meters to loading dock safety systems.

### LESSONS FROM THE EXPERTS

Included in this issue of *What Works* are articles from leading experts in the services, software, and hardware vendor communities. These lessons provide perspectives about enterprise business intelligence best practices and trends.

### Q&A WITH THE EXPERTS

Our Q&A section presents answers from these same experts to the enterprise business intelligence questions they hear most often, complemented by insight from an independent consultant.

### FEATURE ARTICLE

In this issue, the feature article comes from Wayne Eckerson, director of TDWI Research. In "Hybrid BI: To Centralize or Distribute—That is the Question," he discusses how a hybrid approach to organizing BI teams ensures data consistency, adherence to standards, and business responsiveness.

### TDWI RESEARCH

There's more from TDWI Research. *What Works* includes excerpts from TDWI's recent Best Practices Reports: *Pervasive Business Intelligence: Techniques and Technologies to Deploy BI on an Enterprise Scale*, TDWI's latest report from Wayne Eckerson, and *Customer Data Integration: Managing Customer Information as an Organizational Asset*, from Philip Russom.

We hope you enjoy this collection of case studies, best practices, and expert insight focused on enterprise business intelligence. We look forward to your comments. If there is anything we can do to make this publication more valuable to you, please let us know. And please join me in thanking the companies that have shared their stories and successes, their technology insights, and the lessons they have learned.



**Denelle Hanlon**

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**What Works**  
IN ENTERPRISE BUSINESS INTELLIGENCE

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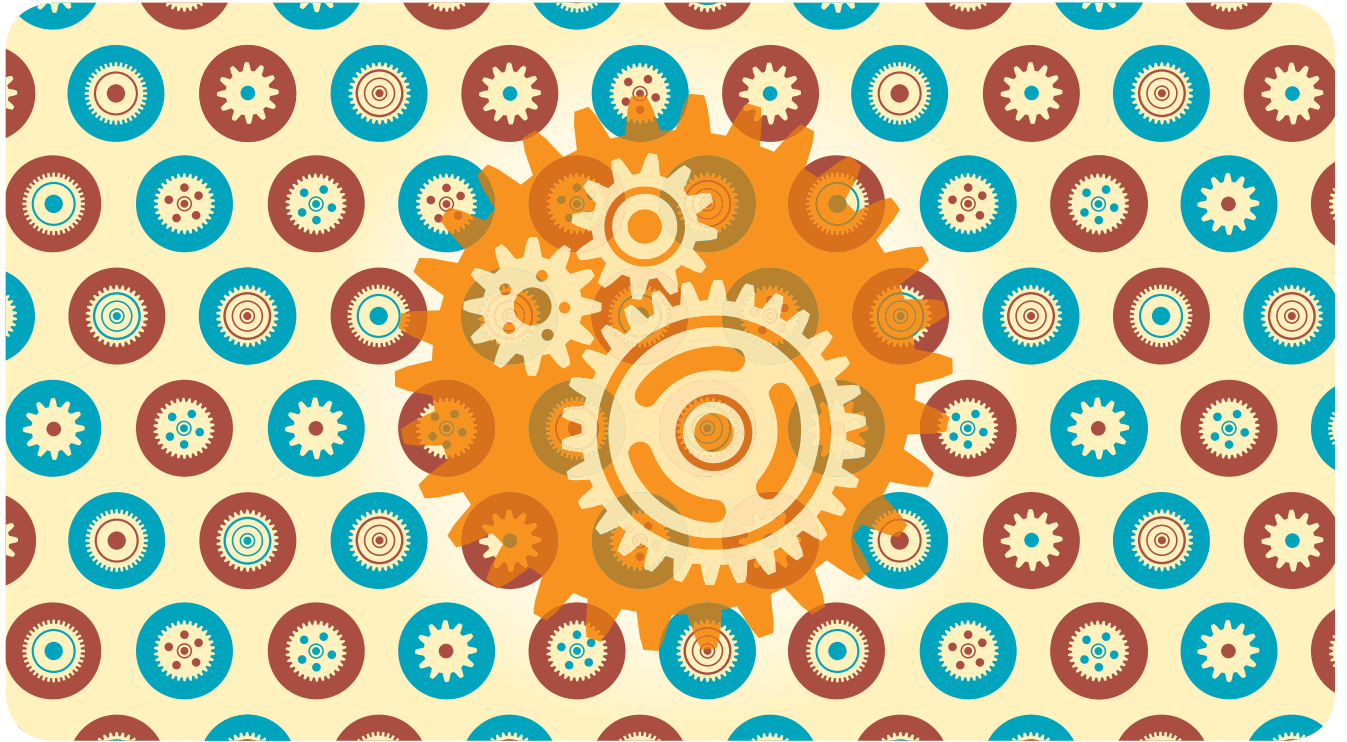
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## Hybrid BI: TO CENTRALIZE OR DISTRIBUTE—THAT IS THE QUESTION

By Wayne W. Eckerson, Director, TDWI Research

**In** an ideal world, your BI architecture and team is managed centrally. You build one architecture with one team located in one place and deliver the output to any group that needs it. This ensures significant economies of scale, avoids redundant effort and infrastructure, and delivers the proverbial “single version of truth.”

Of course, few of us live in the ideal world. Most of us work for organizations that are hopelessly dis-integrated due to countless mergers and acquisitions, corporate restructuring, and corporate “go-to-market” strategies that fluctuate between centralized command-and-control structures and decentralized decision making via local empowerment. In the messy conditions of the real world, the question then becomes: how can you deliver the benefits of centralized BI when your organization and BI architecture are scattered and not aligned?

### Distribute to Align

The answer is not as hard as you might think: a distributed approach to BI may be the ideal solution after all. Think about it—distributed BI means that the people developing BI solutions work in the business units or departments they serve. They are closer to the business: they report to the same business unit leader, operate under the same incentive system, and often work in the same building or floor as the business users they support. They may even have lunch with business users or hang out with them after work.

In essence, the BI managers and developers are on the same team as the business users. They are not segregated in an IT group with its own reporting structure, policies and procedures, jargon, incentive systems, and career tracks. They don’t need to go through an exhaustive, clinical approach to gathering

requirements because they already “live and breathe” the business. As one BI manager in a distributed organization told me several years ago, “We sit side by side with business people and report into the same leadership. The only difference is that we specialize in the data and they specialize in the business processes.”

By embedding BI in business units, organizations can accelerate development and meet business needs more quickly. They break through the IT bottleneck and backlog of projects that tempt ambitious business leaders to circumvent IT entirely and build their own non-aligned systems. What’s not to like?

### Downsides of Distributed BI

Of course, there is a yin to every yang. If you are a BI professional, you know the downsides to distributed BI all too well. When business units are empowered to build their own BI systems (or IT systems for that matter), all hell breaks loose. Every group creates a BI environment in their own image: each defines key entities and metrics differently, and each builds systems and teams that are largely redundant. Business units can’t share information or deliver a consistent view of performance across the enterprise, and overlapping systems undermine efficiency, wasting time and money. In essence, the organization operates as multiple, independent fiefdoms instead of a single enterprise with a unified strategy.

This might not be a bad thing if the business is highly diversified with unique products serving different markets. Yet, most organizations, even highly diversified and decentralized ones, eventually see the need to share consistent information about customers, products, and performance. Usually, this request comes from a strategically minded CEO.

### Architectural Standards

We’ve circled back to where we started: how do you create an agile, responsive BI environment—in a large organization with multiple business units—that doesn’t undermine information consistency? The first key is to document architectural standards and best practices that distributed groups can use to establish and grow BI capabilities on their own in conjunction with a corporate group.

This is the role of the much-discussed BI Center of Excellence, which flourishes in more decentralized environments where “coordination” rather than “command-and-control” is the corpo-

rate watchword. Obviously, creating a robust set of standards and guidelines requires considerable BI maturity and expertise. One reason that many BI Centers of Excellence fail to take root is that the BI teams implementing them don’t have the requisite BI maturity, or they are using a Center of Excellence as a political Band-Aid to revive a failing BI initiative that doesn’t have strong business backing.

Architectural standards provide guidelines that enable distributed groups to work within a corporate BI architecture without breaking it. These standards range from naming conventions, ETL directory structures, file formats, and error logging procedures, to a choice of ETL and BI tools, to dimensional schema, metric calculations, and entity definitions. In addition, the BI team might revise the methodology published by the organization’s project management office to accommodate the nuances of managing BI projects. They might also write guidelines for negotiating vendor contracts, gathering requirements, establishing service level agreements, and managing production processing environments.

These standards work best when the corporate BI shop does the heavy lifting—creating a central repository of data extracted from the organization’s transaction systems and a dimensional schema that defines key areas of the business common to all business units or departments. The corporate BI shop may also be best positioned to handle production processing in a centralized data center that provides 24x7 monitoring, backup and restore, and disaster recovery—things that most distributed groups quickly recognized are best done centrally.

In other words, distributing BI capabilities effectively requires a strong center to hold it together.

### Politics and Incentives

Many BI professionals are skeptical that federating a BI architecture can work. Their big fear is: once you let go of the reins to the sled, how can you make sure it goes in the right direction? In other words, what is to prevent distributed groups from violating architectural and semantic standards and undermining information consistency? Sure, you can configure tools and file systems to ensure that administrators adhere to naming, directory, and other conventions, but eventually it comes down to politics, communication, and incentives. Managing this triad is the third key to making a federated BI environment work successfully.

Business units and departments with robust, ongoing BI environments won't conform to corporate standards "imposed" on them. A smart BI director will enlist these groups to set the standards in the first place and obtain de facto buy in. Conversely, business units just starting out desperately seek standards and guidelines to facilitate their development efforts; they will embrace your plan and be your biggest supporters. Continuous communication and architectural reviews keep distributed groups aligned with corporate standards and objectives.

Some organizations are successfully implementing hybrid data warehousing environments, which try to balance centralized and distributed control. For example, Intuit has created a centralized data warehousing infrastructure within which it allows business units to create their own data marts. This hybrid approach ensures data consistency and architectural economies of scale while giving business units greater flexibility and control over the data that is of interest to them. eBay applies the same approach but at a more granular level, allowing individual business analysts to create their own data marts within the company's enterprise data warehouse. Using partitions and workload management, eBay enables analysts to create data marts in the Teradata warehouse, combining data from the warehouse and external sources. This approach has eliminated hundreds of renegade data marts at eBay and accelerated the "time to market" of valuable insights.

These hybrid approaches require considerable education, coordination, and trust among corporate and distributed groups or analysts. When it works, it can be an optimal solution, providing both information consistency and business responsiveness.

### Mapping to Organizational Structures

Although there is much to be gained by distributing BI capabilities, there are built-in constraints. Ultimately, your BI architecture needs to mirror your company's overall organizational structure to succeed. This makes it easier and more culturally acceptable to deal with the trade-offs between consistency and responsiveness on one hand, and economies of scale and business agility on the other.

For example, if your organization operates in a highly centralized fashion, you will be most successful if you establish a strong

corporate BI shop that creates and maintains the majority of the BI infrastructure for the organization. The only task you should distribute is the creation of ad hoc reports, which can be outsourced to a network of "super users" who write reports on behalf of colleagues in each department. The downside here is that these shops risk creating project backlogs that frustrate business users and tempt them to circumvent the BI team and BI architecture altogether.

If you work in a highly decentralized company, your corporate BI group exists to serve the BI needs of those business units, which may vary greatly. Some business units may have considerable BI expertise and internal resources and may need very little assistance, while others may need full lifecycle support. The downside here is that there may be no way to ensure information consistency across business units or efficient utilization of resources.

### Conclusion: Managing the Trade-offs

Creating an agile BI environment that meets business needs quickly without undermining information consistency is not easy. Pulling these polar opposites together would challenge even the most enlightened Zen master. Distributing BI capabilities can improve BI agility and responsiveness but also can undermine information consistency and increase costs. To resolve the inherent tension, BI teams should:

1. Establish a corporate BI group—or center of excellence—with solid understanding of BI practices;
2. Create architectural standards and best practices that can be adopted by business units and departments when creating their own BI capabilities;
3. Establish a centralized data management infrastructure that creates a single, trusted repository of shared data and manages data center operations to ensure a high degree of data integrity and systems reliability; and
4. Align their BI architectures with their company's organizational structure, distributing as much as is culturally acceptable. ●



**Bogged down  
in your BI project?  
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## Enterprise Business Intelligence Defined

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To help you make your way through the many powerful case studies and “lessons from the experts” articles in *What Works in Enterprise Business Intelligence*, we have arranged them into specific categories: enterprise business intelligence, operational BI, open source BI, BI for SAP, and predictive analytics. What do these terms mean, and how do they apply to your organization?

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### ENTERPRISE BUSINESS INTELLIGENCE

pages 7–17

Enterprise business intelligence involves deploying query, reporting, and analysis capabilities to all employees who can benefit from them as well as to customers and suppliers.

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### OPERATIONAL BI

pages 21–22

Operational BI delivers information and insights to a broad range of users within hours or minutes or seconds for the purpose of managing or optimizing operational or time-sensitive business processes.

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### OPEN SOURCE BI

pages 23–24

Open source BI consists of query, reporting, and analysis tools built on an open source foundation; in other words, they are free to download and use.

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### BI FOR SAP

pages 25–26

BI for SAP includes data warehouses, reports, and analytics that run off SAP data or use SAP data warehousing and/or business intelligence tools.

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### PREDICTIVE ANALYTICS

pages 27–28

Predictive analytics uses analytical models based on statistical and machine-learning algorithms to describe or predict patterns within large volumes of data to help companies better anticipate events and behavior.

CASE STUDY

# Keeping Data Actionable with Changed Data Capture

By Mitchell Light

Senior Technical Analyst, Syncsort Incorporated

## Background

Business intelligence cannot be collected from stale data. The explosive growth of information, coupled with increasing demands for customer service, has left many companies looking for more efficient ways to keep data actionable. Refreshing and maintaining customer databases using changed data capture (CDC), the process of isolating changed records, is one such method. Using DMExpress for CDC, a major provider of telecommunication services saw a 92 percent improvement in its nightly customer care process.

## Challenge

The database and systems administrators at this nationwide telecommunication company recognized the need to upgrade their internal systems. One of their goals was migration of vast customer care databases from mainframe to UNIX with subsequent implementation of another vendor's management, monitoring, and automation software infrastructure.

In the company's mainframe environment, refreshes had been executed every night. Now on UNIX, the arduous PS/SQL process, plus the massive amounts of nightly loads, became unwieldy and prevented implementation of the other vendor's infrastructure. CPU and memory bottlenecks, caused by the enormous refreshes, needed to be unclogged.

The administrators realized that instead of loading upwards of 57 million records per night, which the other vendor's refresh required, they needed to load only a fraction of those records—those that had changed or were new. They set off to implement a method to isolate changed and new records,

and they discovered that the CDC/delta processing is among the most resource-intensive data processing functions.

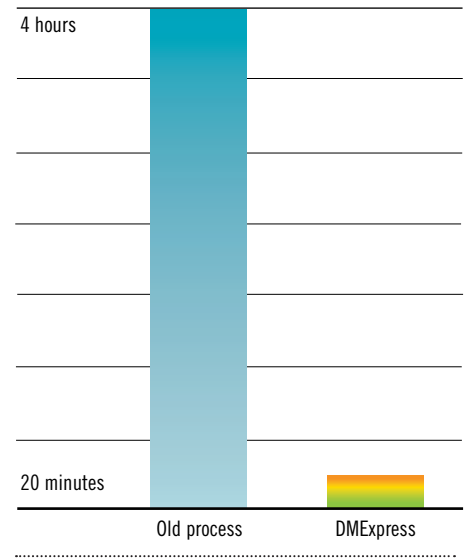
## Solution

With processing still on the mainframe, the administrators unsuccessfully sought a way to perform efficient CDC using the tools they had in house. These efforts continued throughout the mainframe-to-UNIX migration process. Finally, they turned to Syncsort Inc., which offered to demonstrate the CDC capabilities of DMExpress, which is capable of fast and sophisticated joins, sorts, merges, and summarizations.

It took only one demonstration for the telecom company to be convinced that DMExpress provided the solution they sought. Syncsort's proof of concept was performed on the company's actual data and equipment and was immediately adopted. The proof of concept was carried out on the company's existing databases, running on a second vendor's servers with four dual core processors in their operating system.

By exploiting its advanced data management (ADM) functions, as well as the first vendor's source and target features, DMExpress was easily inserted into the customer care nightly job flow, where it now swiftly identifies new and changed records and then neatly updates the customer care databases each night. The total savings in elapsed time is an astounding 92 percent—reduced from four hours to 20 minutes. And, more importantly, the process has freed CPU and memory so that the company has been able to implement the first vendor's infrastructure and complete its year-long conversions.

## 92% Improvement in Customer Care Process



A process that once took four hours to complete now takes 20 minutes.

## Conclusion

Through Syncsort's free proof-of-concept program, this telecommunication company learned that DMExpress's CDC is the fastest and most efficient in the industry. Their database and systems administrators are happy with the results: freed CPU and memory, and significant savings in elapsed time for their overnight jobs. These improvements have enabled the company to provide improved customer service. Plus, as one DBA asserted, they are already discovering new, unexpected ways to make beneficial use of DMExpress. ●

For free white papers on this topic, click [here](#) and choose the title "Speeding ETL Processing in Data Warehouses" or "Using DMExpress for Changed Data Capture Applications." For more information about Syncsort, click [here](#).

## LESSON FROM THE EXPERTS

## A Lick and a Promise

By **Lia Szep**  
*Syncsort Incorporated*

The stack of service level agreements (SLAs) seems to grow as fast as the processing slows. Deadlines slip away unmet and the head scratching begins. Knowing it's not a permanent fix, you hammer out a few code tweaks and slap in just enough hardware to stay within budget. But as hundreds of thousands of records turn into millions, you quickly realize that your "quick fix" amounts to little more than "a lick and promise."

### Get Back to Basics

Information delivery comes down to two things: data integration (DI) and business intelligence (BI). With two major players on the field—data producers and data consumers—a company's success comes in part from its ability to get data from the hands of one to those of the other. The faster you can process customer and market data, the better you can anticipate and respond to changing business trends. The key to getting the most out of your BI solution is finding the right DI tool. Start with the challenges.

### Growing Data Volumes

As businesses thrive and customer bases enlarge, data volumes have skyrocketed. Many large corporations maintain data warehouses teetering on the line between terabytes and petabytes. Take, for instance, one of the most successful retailers in the world. With more than 170 million customers weekly, Wal-Mart was once touted by Teradata as having the largest database in the world. Forrester Research estimates that the average growth rate of data repositories for large applications is 50 percent each year. Even that may seem like an understatement when you consider Internet-generated transactions. Data warehouses of companies with significant Internet presence can grow by billions of records daily. Mining a large amount of data is daunting enough; add exponential growth rates, and the task seems insurmountable.

### Decentralized Information Systems

With expansion, mergers, and acquisitions, most corporations today have more than one location. No matter how well planned business expansion is, a central data hub may no longer be practical. Furthermore, while decentralized information systems may seem a necessary alternative, multiple systems often translate to major disparities. Data exist in multiple formats, on disparate sources, and are often duplicated elsewhere. Forrester estimates that the latter is the case with 35 percent of all application data. Also, whether it's budget concerns or an unwillingness to change tried-and-true procedures, the internal workings of an individual IT department can also play a part in the disparity.

### Migrating Legacy Systems

Most IT environments run a number of different platforms. While certain platforms may become less cutting-edge or less proficient with time, the applications that reside on them may still be critical to the company. The best option for maintaining mission-critical processes and increasing the performance of the application is to migrate it to another platform. While this may be necessary, it's no small task. The planning phase alone is cumbersome and time-consuming; and the implementation of legacy migration can become a painful game of trial and error.

### Demand for Timely Information

BI is often dependent on the ability to process customer and market data quickly enough to anticipate and respond to changing business trends. With this necessity to analyze mission-critical information comes an

incessant demand to get it done faster. For the IT professional, it may seem that faster data processing is never fast enough.

### Cost Control

With exponentially expanding data volumes and an increasing demand for faster analysis, the number of applications being developed and supported in most organizations has multiplied. Without a corresponding increase in staff, there are major implications for IT professionals. It can often mean increased workload, less time for individual projects, and more deadlines.

### Finding a Solution

With a grasp of the challenges you will likely face, focus on a few main objectives.

First, cutting processing time should always be the top priority. A BI solution empowers business users to make crucial business decisions. But even the best BI solution is worthless if the data become stale. The faster a DI tool, the more timely and actionable the data, so look for a solution that speeds querying and quickly creates and loads aggregate tables.

Second, a solution must be scalable. As companies go from gigabytes to terabytes and ultimately petabytes, scalability becomes a necessary tool in managing exponential data growth.

Also, if you are dealing with a vast amount of data on disparate sources, then you'll want to find a solution that runs on multiple platforms

and provides support for different sources and targets.

Third, a solution that performs well *and* helps cut costs should be a frontrunner. People sometimes add hardware to solve performance problems. If a DI tool is strong enough, you can reduce the amount of hardware resources required to support powerful processing—plain and simple. Also, while user interfaces are underrated by hand-coders, a product that is easy to use can help control the cost and time of training new staff members who are not likely hand-coders.

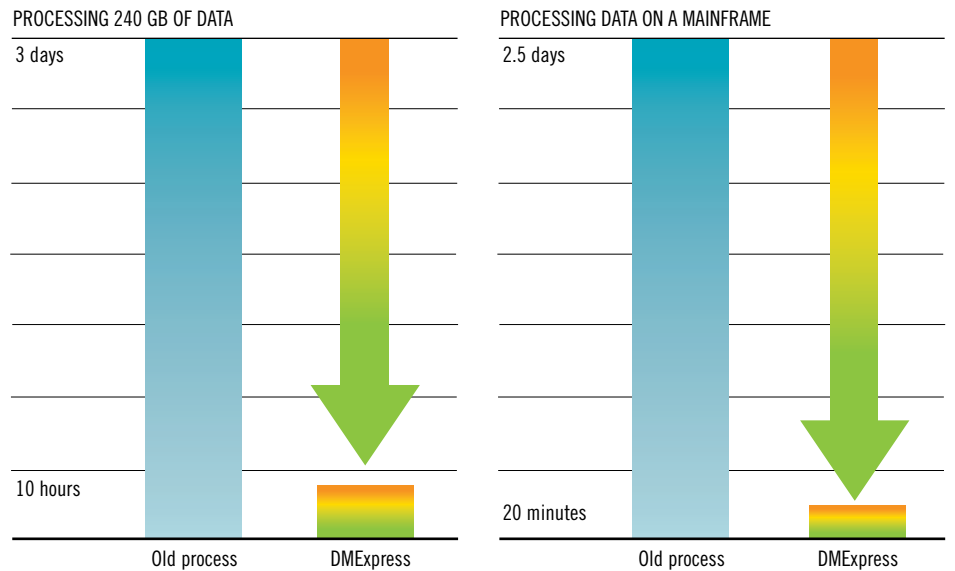
Finally, before committing to a purchase, test the product in your own environment, with your own data. Needs are never the same, and this is the best way to identify the best solution for you.

**Real-Life Example**

Reporting had become all but impossible for one direct marketing company. Processing that took too long ran past deadlines, leaving one group to search for “a better way.”

The company’s primary focus is building and managing customer databases for Fortune 1000 corporations. This provides the necessary framework for organizations to aggressively apply database marketing strategies to their marketing programs. Many of these customer databases house data on nearly every individual in the United States. With anywhere from 250 to 300 million names, addresses, and other demographic information, extracting demographic data, analytics, profiles, and model scores for

**Direct Marketing Company Dramatically Reduces Processing Time**



Using DMExpress reduced processing time of 240 GB of data by 86 percent and processing time on a mainframe by 99 percent.

processing can be a cumbersome and time-consuming task.

With the tool they were using, it would take three days to run analytics on 240 GB of data. Through a software evaluation in their own environment, the process was completed in less than 10 hours. They were able to assess the performance improvement and determine other processes where the solution could bring them valuable results.

In another project, the company was processing data on the mainframe. The project involved importing data to the mainframe, scheduling the job, running the processing, and outputting the data to a flat file. All of this would occur while other processes were running on the mainframe. Because of this

overload, the entire job would take two to three days to complete. Using the high-performance software solution, they were able to completely remove the mainframe from the process and use a much smaller system. The entire job completed in 20 minutes. Because of the improved performance, the company can now process data fast enough for the reporting processes to be run on a weekly basis.

**Bottom Line**

With success so dependent on business intelligence, a complete, open system, information delivery solution should be a top priority. Only a full solution—not a quick fix—can give users across the enterprise the actionable data they need—how, where, and when they need it. ●

## CASE STUDY

# Rite-Hite Corporation Evolves to Enterprise BI

## Commentary by Tony Stokman

Director of Planning, Analysis and Reporting,  
Rite-Hite Corporation

Rite-Hite Corporation, headquartered in Milwaukee, Wisconsin, is the worldwide leader in the development, manufacture, and sale of loading dock safety systems and industrial door solutions. Rite-Hite's complete product line includes hydraulic, mechanical and air-powered dock levelers, vehicle restraints, truck levelers, dock seals and shelters, high speed doors, cooler/freezer doors, traffic/impact doors, and a complete line of after-market parts, accessories, and service. Rite-Hite directly employs approximately 1,600 worldwide, and maintains more than 30 different representative organizations at more than 100 locations throughout Asia, Europe, and North and South America.

### Challenges

Prior to 2003, Rite-Hite executives and management relied upon multiple systems, in addition to spreadsheet experts, for reporting and analysis. Efforts were redundant, untimely, and inaccurate. Rite-Hite eventually came to the conclusion that a business intelligence (BI) solution was needed to replace all of its reporting and analysis tools.

Rite-Hite's goal was to build a one-stop-shop for all data that would replace historical reporting tools and reports and deliver intuitive executive dashboards to the user community. Rite-Hite personnel wanted a BI tool that was easy to use and delivered accurate and quick answers.

### The BI Solution

After evaluating MicroStrategy and two other vendors, Rite-Hite chose MicroStrategy for its ease of use, spreadsheet-like functionality, speed to develop reports and perform analyses, and ability to bring in data from multiple data sources. MicroStrategy's outstanding

support staff and convenient training programs also impressed Rite-Hite.

Rite-Hite deployed its first MicroStrategy BI application in 2004, and it replaced most of its reporting and executive information systems. Over the next several years, the BI environment evolved into a multiple source platform delivering mission-critical reporting and alerting via dashboards and reports.

.....

Improving access to trusted information and extending the BI environment across the enterprise is driving better decisions and business performance at Rite-Hite Corporation.

.....

Today, Rite-Hite's primary BI application is the sales and customer service application. Rite-Hite relies on this application to analyze data across the manufacturing, sales, and service areas for greater insights into profitability. Through relationship filtering, Rite-Hite can measure the profitability of its products and customers. This analysis is critical

to pricing decisions and improves company personnel's understanding of sales force productivity. Rite-Hite's executives and senior management primarily use scorecards to monitor high-level corporate key performance indicators (KPIs) on a daily and monthly basis. They can interactively drill into lower levels of data and track performance trends across the organization to make better business decisions.

In addition, Rite-Hite has a manufacturing application that enables analysis of product mix, inventory levels, manufacturing quality, and warranty analysis information. Company personnel also use the manufacturing application to quickly learn the status of jobs that are held up within the ERP system, resulting in better customer support. Another major BI application is the general ledger, allowing employees to track balance sheet activity and analyze income statement information.

### Benefits

The benefits of using MicroStrategy are abundant. Rite-Hite users can perform product analyses to determine what product line and category relationships are the most or least profitable. With the data, sales management can determine which salespeople or regions are top performers and what customers are being presented with the ideal product solution. For instance, alerts are sent out when a sale takes place and a complimentary product was not included on the sale.

In addition, enhanced reporting of Rite-Hite's financial performance and trends has led to favorable cash flow for future investment in products. Because the report creation process has been cut drastically, the company can spend more time analyzing results and utilizing data proactively.

Improving access to trusted information and extending the BI environment across the enterprise is driving better decisions and business performance at Rite-Hite Corporation. ●

For a free white paper on this topic, click [here](#) and choose the title "Summary Results from the BI Survey 7." For more information about MicroStrategy, click [here](#).

LESSON FROM THE EXPERTS

# Finding the Right Answers in a Sea of Data

By Calli Wright  
Product Manager, MicroStrategy

Identifying business opportunities, problems, or relationships in a table of data can be difficult and time-consuming. Trying to find the answer to an important business question in terabytes of data can be like trying to find a needle in a haystack. Dynamic dashboards with advanced visualizations solve this challenge by displaying a tremendous amount of data in a highly visual and interactive manner to augment data comprehension and enhance decision making. One of the best approaches to visually communicate data anomalies or business opportunities to nontechnical audiences is through the use of advanced visualizations.

Advanced visualizations support business objectives by enabling users to slice and dice organizational data into easily understood and expressive graphical displays. Using advanced visualizations on dashboards facilitates immediate information discovery and enhances the overall user experience, resulting in increased user adoption. Let's explore how advanced visualizations can improve the comprehension of data.

## Improving Data Discovery

As corporate data increases in size and complexity, the value of advanced visualizations increases exponentially. It is unrealistic to expect a business user to scroll through a large grid of data or attempt to develop complicated metrics for data analysis to answer tough business questions. Alternatively, advanced visualizations can dynamically reorganize and redefine the data so that answers are quickly identifiable.

In this MicroStrategy dashboard, you can see how multiple visualizations are combined to deliver information in various formats. On the far left, a fisheye selector visualization tool is used to magnify and display areas of interest,

while filtering out other dashboard content when a selection is chosen. Media visualizations can provide information that is relevant to the audience of the dashboard through images, data-driven movies, and Web content. An example of a media visualization, seen in the upper right corner of this dashboard, is a data video that provides projections on the growing population in California. A bullet graph is used in the lower right corner to compare the performance-to-target for each county's year-over-year growth in population. The ability to combine data from a variety of sources onto a single dashboard with several different visualizations gives the user a multidimensional view of information to make faster, more informed decisions.

## Identifying Opportunities and Bottlenecks

Advanced visualizations can be used to bring to light business opportunities and bottlenecks. Using advanced visualizations with predictive metrics, users can accurately and quickly predict future behaviors based on a current course of action or impending changes made to business processes. For example, if users want to predict net income based on increases or decreases in future costs, they could use visualizations to perform a "what-if" analysis of the data and adjust their budgets accordingly. Likewise, if a large manufacturing company can predict a decline in sales for a particular region, they can decrease production levels to prevent a surplus in inventory. Advanced visualizations help users quickly analyze problematic



Using advanced visualizations on dashboards facilitates immediate information discovery and enhances the overall user experience.

or opportunistic scenarios for more effective and efficient decision making.

## Summary

According to "Emerging Graphic Tool Gets People Talking," an article published in the Harvard Business Review, authors Wattenberg and Viegas found that using graphics, such as advanced visualizations, to convey data increased user adoption. The number of users analyzing and discussing data increases when advanced visualizations are used with dashboards. The wide range of data visibility and information exploration options available through advanced visualizations provides organizations with the essentials to quickly uncover and communicate business-critical information from their sea of data. ●

## CASE STUDY

## Analyzing Operational Data to Improve the Guest Experience

### Commentary by Kenny Sullivan

Senior Director of Business Intelligence,  
Brinker International, Inc.

As one of the world's leading casual dining restaurant companies, Brinker owns or franchises more than 1,800 restaurants in 24 countries and employs more than 120,000 people. Its restaurant brands include Chili's Grill & Bar, Romano's Macaroni Grill, On The Border Mexican Grill & Cantina, and Maggiano's Little Italy.

Managers at all levels of the organization depend on business intelligence technology to plan, manage, and control many aspects of the business. It's a worthwhile endeavor—not only for guests but also for the our balance sheet. Brinker is in a low margin, high volume business where a single percentage point increase in productivity will drive a million dollars to the bottom line.

The organization selected WebFOCUS to build an operational reporting environment called the restaurant performance management (RPM) system. WebFOCUS fulfills two primary needs: the ability to create versatile parameterized reports and a powerful ad hoc reporting environment.

Brinker has a custom point of sale (POS) system in each restaurant, which collects data on sales transactions, cook times, employee time cards, and other data. Each night an ETL system polls the restaurants to gather this detailed information. Every single check issued to a customer is recorded, including what was purchased, how much it cost, and how much tip was included.

Brand analysts at each restaurant chain continually review this data to fine-tune their operations. For example, store managers and supervisors can view sales and labor figures for the previous day as well as historical data going back three years.

Brinker's enterprisewide reporting environment includes new dashboards, a new data warehouse, and an automated system for delivering information throughout Brinker's worldwide operation. Users log in via standard Web browsers to run reports on the corporate intranet. So far, 10 reports are available, including the kitchen display system cook time report, daily average cook time report, cook station report, guest check times, and check times by restaurant. Each report can be sorted by brand, date, store, and other variables.

.....  
**Restaurant managers don't have a lot of time to run reports or analyze data, so they like being able to view pertinent information just by pushing buttons in a dashboard.**  
 .....

For example, managers can run a daily sales and guests report that compares the current day's metrics to the same day a year ago. They can quickly examine sales volume in any time period and drill down to sort the data by categories such as food, liquor, beer, wine, banquet, and to-go. Restaurant managers don't have a lot of time to run reports or analyze data, so they like being able to view pertinent information just by pushing buttons in a dashboard.

Other reports compare theoretical and actual labor costs. This insight helps each restaurant achieve best practices by comparing its costs and performance with others in its region or brand. Brinker also collects cook-time information for each dish as an indication of kitchen efficiency. This

information helps the organization monitor efficiency by station as well as overall cook time to ensure guests aren't waiting too long for their food.

Brinker is currently rolling out these capabilities to its entire organization. Ultimately, between 3,500 and 4,000 people will use the dashboards and parameterized reports, while another 100 to 200 analysts will create custom reports with the ad hoc reporting environment.

As the BI deployment gets underway, Brinker already is seeing tighter controls around food costs and labor costs, thanks to theoretical food costing algorithms that let people manage by exception. They use WebFOCUS Report Caster to schedule and deliver new information whenever it is available, which helps to hold managers accountable for agreed-upon milestones.

Brinker has tangible goals for this BI implementation. If they reach these goals, the RPM system will pay for itself in a matter of months. With 1,800 restaurants, even small changes can make a huge difference. ●

*For a free white paper on this topic, click [here](#) and choose the title "How Business Intelligence Should Work." For more information about Information Builders, click [here](#).*

LESSON FROM THE EXPERTS

# Three Essential Components of an Enterprise Reporting Environment

HOW STRATEGIC, ANALYTIC, AND OPERATIONAL BUSINESS INTELLIGENCE WORK TOGETHER WITHIN AN ORGANIZATION

**By Kevin Quinn**  
 Vice President of Product Marketing,  
 Information Builders

Enterprise reporting environments are designed to support many types of users with ad hoc query, reporting, and online analytical processing (OLAP) capabilities. Useful as these tools have become, however, many organizations fail to deploy them properly or to fully understand their power.

The biggest issue is accessibility: You need to make it easy for users to get the information they need. Casual business users don't want to spend time trying to figure out the structure of database cubes or learn sophisticated analytical software. They want to access information with a couple of clicks, ideally in conjunction with familiar tools such as e-mail programs, search engines, Web browsers, and spreadsheets.

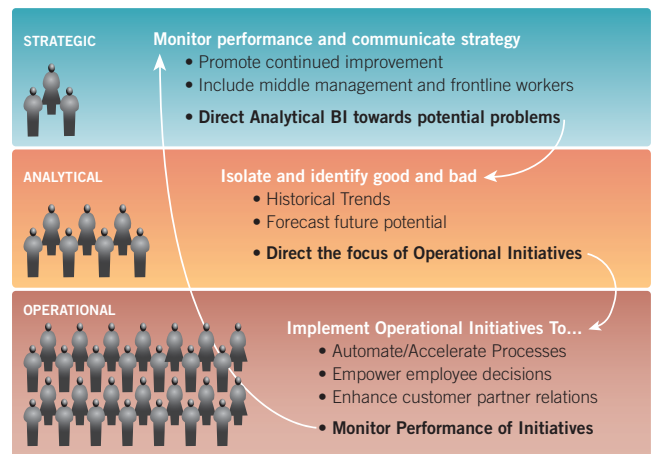
Companies that are successful with their BI initiatives understand how different people use information. Employees need information they can use immediately and understand readily, in a form that suits their requirements. Industry experts commonly acknowledge three levels of business intelligence: strategic, analytical, and operational. While unique in their own way, they are not mutually exclusive. They should be directly connected to each other, working in concert. Strategic analysis drives analytical BI, while analytical BI directs the focus of operational initiatives.

For example, senior executives are concerned with strategy and results. Thus the primary goal of strategic business intelligence is to drive the performance of the company

as a whole, as well as the individual departments and business units that produce and deliver the company's products or services. That generally means highly summarized, functional reports delivered through a portal, dashboard, or balanced scorecard interface.

While strategic BI sets the foundation in the form of key performance metrics, analytical BI is employed to identify the source of an issue once it has been uncovered. Line of business managers responsible for analyzing the performance of their departments need to know why certain events occurred or did not occur. For example, if customer churn rates are rising, is it because of poor product quality or lack of success in customer loyalty initiatives? With analytical BI, companies can investigate the factors that affect business performance from many different angles.

The results obtained from analytical BI activities then drive operational initiatives. Operational business intelligence facilitates the kind of day-to-day decision-making that happens at the lower levels of an organization and enables the attainment of strategic goals. These BI applications must be simple, straightforward, and ubiquitous. They succeed by making operational information actionable, and they support critical business processes through their integration of real-



The three types of business intelligence complement each other to keep the entire organization in focus.

time or near-real-time data into the context of daily activities.

Not every BI product has the right capabilities to create these distinct types of information systems. For example, analytically focused BI products typically don't scale well, they don't read all the data sources you might have, and they can't combine different back-end sources into a cohesive presentation. A complete enterprise-reporting environment must be able to access data on the fly in native formats and combine dissimilar data types. It should not require a data warehouse; rather, it should be able to directly access data in production information systems. Technically, this implies strong integration capabilities and a thin-client, browser-based architecture that can efficiently deliver information to thousands or even tens of thousands of people. ●

## CASE STUDY

## Pitney Bowes Improves Total Cost of Ownership with Enhanced Business Intelligence

### Commentary by William Duffy

Data Warehouse Project Manager, Pitney Bowes Inc.

Pitney Bowes Inc. is the world's largest producer of postage meters, laying claim to some 2 million customers worldwide, 1.6 million of them in North America.

The company also makes other mailing equipment and provides shipping and weighing systems, as well as online postage services, financing for office equipment purchases, and facilities management services. Pitney Bowes also develops software to create mailers and manage shipping, transportation, and logistics for government agencies and corporations.

To manage its massive customer base, Pitney Bowes operates 4 call centers and employs 1,250 sales associates and 1,500 field service representatives in North America alone. Despite this huge commitment of resources, the company lacked a unified, coordinated approach to its vast customer service, marketing, and sales operations.

To remedy the situation, Pitney Bowes turned to Oracle for a comprehensive business intelligence (BI) solution that not only brought cohesiveness and greater analytical capabilities to its sales and marketing operations, but also would work in the context of Pitney Bowes' multifaceted IT infrastructure.

"Our technology requirement spans more than 10 legacy systems deployed on different technologies," said William Duffy, data warehouse project manager at Pitney Bowes Inc. "Oracle Business Intelligence Enterprise Edition was one of the few business intelligence tools capable of meeting the challenge."

### Dashboards and Analytics

Pitney Bowes implemented Oracle's BI applications for sales, service, and marketing analytics to manage its call centers, field service organization, and sales force. Oracle Business Intelligence Suite Enterprise Edition marries the information to provide key information to the management of the company.

"Oracle's business intelligence solution gives us a 360-degree view of our customers and an infrastructure to keep on growing," Duffy said.

As the company hoped, the information has translated to better service. "By providing analytics to all customer-facing associates, we provide a consistent and positive experience to Pitney Bowes customers," he said.

.....  
**"With Oracle's business intelligence solution, we were able to deliver more than 400 reports to a large organization with just one person—now that's cost effective."**  
 .....

*William Duffy, Pitney Bowes Inc.*

### Building on Oracle

The new Pitney Bowes business intelligence component was part of a series of technological advances the company has undertaken in the past few years.

In considering its business intelligence solution, Pitney Bowes wanted continuity and compatibility with the CRM solution and its larger IT infrastructure, which is made up of several Oracle databases for its data warehouse environment. Ultimately, Oracle's business intelligence solution was the simplest and most sensible way to integrate and maximize the company's legacy systems and applications while adding new analytic and marketing capabilities to the mix.

"It was a good way to bring all the information together to provide key information to management," Duffy said.

### Why Oracle?

Pitney Bowes chose Oracle's business intelligence for three reasons. First, the company is a long-time Oracle customer; second, it considers Oracle's business intelligence solution to be the most capable and comprehensive platform on the market; and third, it wanted to take advantage of the prebuilt business intelligence applications.

Because the solution has hot-pluggable architecture that allows its components to integrate easily with third-party solutions, Pitney Bowes was able to integrate its business intelligence into its business processes, get insight from its legacy system, and analyze information from historical and real-time data sources, Duffy said.

Ultimately, however, what sold Pitney Bowes on Oracle was the possibility of lowering ownership costs even as it gained new functionalities. "One of the most important values of Oracle's business intelligence solution is its TCO," Duffy said. "The productivity we can achieve is astounding. We created 400 reports used by 1,250 users with a staff of one within a few months—that is very cost effective."

### Implementation Process

The key factors to Pitney Bowes' success in implementing a comprehensive business intelligence solution include gathering feedback directly from the business users, delivering the information that the business users were requesting, availability of the right information to the right people at the right time, and ease of use of the business intelligence tools. Pitney Bowes created over 400 reports by a staff of one in a matter of a few months—a very rapid and cost effective business intelligence deployment. ●

*For a free white paper on this topic, click [here](#) and choose the title "Oracle Business Intelligence Suite Enterprise Edition Plus." For more information about Oracle, click [here](#).*

## LESSON FROM THE EXPERTS

## Best Practices and Emerging Trends in Enterprise BI

By **John Kopcke**

Senior Vice President, Business Intelligence & Enterprise Performance Management Global Business Unit, Oracle

Business intelligence (BI) solutions have evolved beyond the traditional query, reporting, and dashboard tools that tell you how your business performed in the past. Cutting-edge analytic and predictive capabilities, and visualization and delivery enhancements are examples of the advances of the past few years. But these new choices can seem daunting to customers seeking to implement a new BI strategy or to rationalize their existing BI toolset. Oracle's observations on how leading edge companies are implementing BI can help other organizations focus on what's important when researching BI solution providers.

**Leading-edge businesses are demanding BI software that can help them automate management processes.** The competitive advantage of operational excellence enabled by ERP/CRM is beginning to diminish. Many companies now recognize that the next frontier of competitive advantage is in *management excellence*. The key to achieving that comes from having defined management processes as well as software to support those processes. Just as ERP helped organizations put structure around operational processes such as "order to cash" and "procure to pay," BI can help organizations put structure around management processes.

**We are seeing an increasing trend towards the "democratization" of data, where business users have increasing access to intuitive BI tools.** Not so very long ago, business intelligence software was confined mostly to a small group of highly trained experts in the average business. But today, more and more business people have access to intuitive BI tools. What has driven that trend, and how has the technology evolved to help in this "democratization?"

Oracle is bringing Web 2.0 concepts to BI in ways that simplify information access and facilitate collaboration in order to serve a much broader range of users. One example of that is the integration of BI and popular search engines. Today, using BI can be as easy as using Google.

.....  
**Many companies now recognize that the next frontier of competitive advantage is in *management excellence*.**  
 .....

Desktop gadgets represent another example. Most people use consumer gadgets for monitoring things like local traffic conditions, airline discounts, and stock prices. Now they can have BI gadgets on their desktops to do things like monitoring their relevant KPIs, sharing and discussing BI reports in real time, and even executing management processes.

User self service is another way to democratize BI. Oracle's innovative BI semantic layer enables business people to create, manage, and deliver personalized BI reports and queries from multiple heterogeneous data sources without having to rely on IT professionals.

**BI projects work more effectively when they're collaborative efforts by the IT department and the business.** IT and business need to work together as equal partners. Many of our customers have embraced the concept of BI Competency Centers to evangelize the use of BI, share and promote best practices, establish standards, and implement governance processes for change management,

security, and internal controls. Packaged applications that leverage lessons learned from prior BI projects can provide a great starting point for identifying requirements and implementing solutions.

**BI architecture continues to evolve in ways that are great for the modern business.** One of the recent trends that we're excited about is the application of business intelligence and service-oriented architecture (SOA) technology to enable what we call "insight to action." When you can embed business intelligence in business processes, you give people the ability not only to gain insight, but to actually do something about it right then and there. As time goes on, the lines between discrete business intelligence, ERP, and CRM applications will become increasingly transparent.

In addition, Oracle is doing some exciting things to drive the convergence of BI, content management, enterprise search, and Web 2.0. One example of that is a unique solution that uses data mining and BI technology to help sales people determine when and how to use specific sales and marketing assets to prospect and close business. ●

# Scaling Very Large Data Warehouses in an MPP and Grid World

## Jesse Fountain

Microsoft Principal Group Program Manager,  
SQL Server Customer Advisory Team (formerly VP,  
Pre-Sales Services, DATAlegro)

Corporate data warehousing has seen dramatic increases in volume and complexity over the last several years. Increasingly stringent regulatory requirements coupled with dramatic business success stories have catapulted organizations towards low-cost DW appliances to manage VLDW (very large data warehouse) projects. Indeed, VLDW projects in the hundreds of terabytes are increasingly commonplace. There are considerations beyond speed and price, however. The processes, methods, and resources required to successfully realize an enterprise VLDW deployment on these appliance technologies must keep pace with the eye-popping performance metrics.

The hardware platform can quickly become the smallest piece of a VLDW budget. Data quality, security, monitoring, ETL, business intelligence, and administration are likely, but not exhaustive, aspects of one of the most challenging IT projects a business will face. While the scope of a VLDW project can seem overwhelming, there are some key considerations that can help realize the potential of the newer MPP database technology:

- Adopt an iterative project methodology such as agile or spiral.
- Choose an integrated hardware environment that supports your development methodology.
- Identify and leverage the strengths of the database platform. For example, higher speed loading is useful only if your infrastructure supports it.

- Ensure that training and functional practices are adopted that support and leverage the new technology.

## Hardware is Only a Part of the Project Solution

The promotion of iterative methodologies for data warehouse project development has been an important industry shift in recent years. Nearly every purveyor of warehouse hardware or services touts a methodology that supports iterative prototyping, rescoping, and decoupling of project phases in a meaningful way. Yet, revisiting the project scope and design based on results from iterative prototyping exercises can quickly bog down a project timeline. A chief reason for this is contention, availability, and scale of development environments. Very few companies can afford test and development environments that are representative of their production counterparts given legacy hardware prices. Yet many organizations fail to consider the effect hardware choices can have for project delivery.

Data warehouse appliances are fundamentally resource-rich, providing dedicated network resources, shared nothing CPU, IO, and storage at a price point that makes scale-out realistic. They create a solid foundation for project teams to focus on iterative development practices. Loosely coupled systems with high-bandwidth connectivity can isolate individual project teams from each other's mistakes while driving collaboration and information sharing at VLDW scale.

## Hardware and Methodology Aligned

DATAlegro offers high-speed grid connectivity between DW appliances. Grid offers alternative solutions to VLDB ETL and project management issues that would be unthinkable in a traditional environment. Consider

our customer with a 100+ terabyte production system. That production appliance is mirrored by a same-size development/staging system and a smaller (if you consider 12 terabytes small) fully dedicated test appliance. All of this resides within the same 10 Gb/second grid-connected network. This environment allows the *practice* of an iterative project methodology to be realized. Instead of taking days to provide a small sample of production data in a test environment, more substantial samples are generated and copied to the test or development systems in minutes. This allows functional teams the luxury of revisiting methods in a fully scaled development environment even after they have been passed forward to other teams or promoted to production.

A telling example from another project of similar scale illustrates how valuable this can be. Several subject areas of a core data model had already been deployed to production when a situational test team uncovered the need for a significant change. The data model was the core dependency for other major functional teams such as ETL and BI, and any changes would be very costly in time and effort. In this case the team was able to promote the changes to one of two development systems first. This gave each functional team a chance to fully evaluate the effect of the changes in a full-scale environment. In the end, changes were still required, but the working prototype allowed each functional team a chance to provide input and offer time-saving modifications. The overall effect on the project was significantly reduced while navigating one of the most difficult challenges in iterative development.

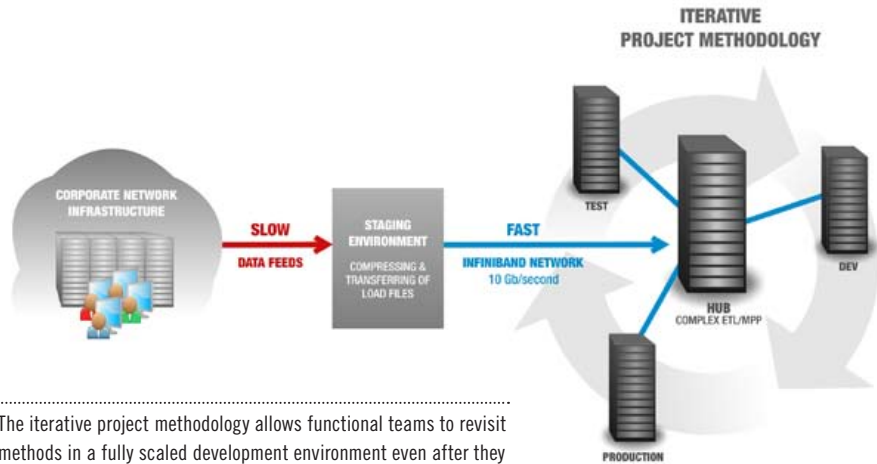
## Capitalizing on Super-Fast Appliance Data Loaders

Loading at rates that exceed one terabyte per hour has become *passé* in the DW appli-

ance market in the last few years. Nearly every appliance vendor can now demonstrate rates at or above this mark with most types of data. What is often overlooked (at least until the appliance arrives in the data center) is that these load rates are nearly always overkill for existing corporate network infrastructure. The data has to come from somewhere, and the legacy source systems and network are typically resource-constrained, expensive, and not in-scope for upgrade in context of a data warehouse project. Given this, it is very important that appliance vendors provide a solution that goes beyond flashy load rates.

More than one DW appliance vendor now provides a dedicated “load staging” server as centerpiece of load operations. This approach provides an expansive and scalable staging area for pre-load staging and export operations. In addition, the server typically sits inside the appliance’s private network, providing direct, uncontested access to the appliance’s high-speed bulk load capability.

An issue common to VLDW deployments illustrates why positioning this type of staging resource within the appliance “stack” is so important. Lower priority source data files can sit for hours in the ETL staging environment behind higher priority files or database tasks. Delays in source system or ETL process are commonplace and leave little time to catch up on these lower priority files. Furthermore, loads to the data warehouse are effectively limited to network transfer rates from the ETL staging system to the data warehouse platform. To address this problem and leverage the higher potential load rates of the newer DW appliance technologies, data transfers from the ETL staging environment to the data warehouse are decoupled. This is accomplished by compressing and transferring load files to the staging server(s)



The iterative project methodology allows functional teams to revisit methods in a fully scaled development environment even after they have been passed forward.

as soon as they are complete in the ETL stage environment, rather than waiting for database loader availability. While some files invariably need to be loaded immediately, it becomes far easier to catch up on lower priority files as they leverage the full bandwidth of the dedicated appliance network and bulk loader.

**MPP Expertise Is Important**

Similar to Teradata in concept, the more successful DW appliances are massively parallel, distributed systems. This means that data is uniformly shared (distributed) across many discrete (typically shared nothing) units of work. Compared to an SMP system such as Oracle, this provides many performance advantages for VLDW deployment. However, a basic theory of MPP systems provides a useful illustration in this case; a parallel operation is only as fast as its slowest unit of work. This is also true of the practice of deploying a data warehouse on an MPP system. The environment is only as fast as the methods and procedures that define the environment will allow.

A common barrier encountered in VLDW projects is the counterintuitive nature of many MPP system best practices. For example, index-supported operations often underperform IO optimized full scans. Furthermore, full scans take on new meaning in a distributed, MPP system. Parallel scanning provides full-table scan operations in the

time it takes to perform a scan for the largest distribution of a table (as little as 1/192 of the data on a large system). Partitioning, a common performance paradigm for distributed systems, also fundamentally differs from indexing strategies. Partitioning relies on the context of user queries (specifically restrictions). Index-based strategies focus on join criteria and the physical characteristics of the data. These are just a few brief examples that underscore the importance of expertise and training for a VLDW project.

**The Right Mix of Hardware and Solution**

Wrapping endless methodology and bottomless resources around the wrong hardware solution is just as unlikely to deliver a successful VLDW as providing the fastest hardware in the world with no solutions or experience. Although it is true that DW appliances have proven the ability to scale active data warehouses into the hundreds of terabytes while achieving dramatic performance improvements, developments in the methodology and practices used to deploy these massive environments are equally important. Although it is common to ask “how fast” when evaluating these systems it is just as important to ask “how.” ●

For more information about DATAlegro, click [here](#).

## Q&A with the Experts

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. Mark Hammond, an independent consultant, provides his analyst viewpoint for each Q&A.

### Collaborative Consulting

**Q.** Most of the big BI providers have been bought by either ERP/CRM vendors or platform vendors. What impact does this have on the BI landscape?

**A.** The most obvious impact is that anyone who has aligned strategically with these providers and is considering BI solutions should first look at the offering of that vendor. That does not mean the choice is a given, but now it must be seriously considered. The potential synergy is too compelling to overlook. However, even if the software is virtually free, there will still be a substantial adoption cost, and in most environments there will still be many applications outside of the platform to consider. Now, however, given the robust nature of the BI offerings, applications have strong viability beyond use with the platform solution.

#### ANALYST VIEWPOINT

BI market consolidation has triggered plenty of hand wringing among customers. On the positive side, mega-vendors are positioning comprehensive BI stacks that can reduce the difficulties of dealing with multiple vendors. Nevertheless, questions over licensing costs, product overlap, support quality, and continued product development are all issues that organizations are being forced to examine in plotting out the next five years of BI strategy—especially organizations that, for instance, may run Business Objects (acquired by SAP) in a non-SAP environment. In the overall landscape, look for consolidation to create a vacuum of sorts that startups and open source BI providers seek to fill.

### DATALlegro

**Q.** What is the benefit of Microsoft's acquisition of DATALlegro?

**A.** With this acquisition, the SQL Server product line will span data warehouses of all sizes. Microsoft has made significant investments into data warehouse scalability in SQL Server 2005 and SQL Server 2008. The acquisition of DATALlegro extends that and allows SQL Server data warehouses to scale out to petabytes. Customers will benefit through continued innovation, product integration, and low total cost of ownership.

#### ANALYST VIEWPOINT

In the market at large, Microsoft's DATALlegro acquisition adds momentum to the trends towards shared-nothing, massively parallel architectures that can support 100s of terabytes and intense concurrent user activity. The acquisition gives Microsoft a card to play in the high-end DW market, which it has been effectively shut out of with SMP-based SQL Server systems not well suited for high-end scalability. And it's fueling speculation that Oracle, SAP, and others may be on the prowl for DATALlegro competitors. Though it will take Microsoft time to transition from DATALlegro's open source Ingres/Linux architecture to the SQL Server platform, organizations can expect to enjoy another option for high-end data warehousing.

### EasyAsk

**Q.** What's the biggest barrier to deploying BI to the extended enterprise?

**A.** From our experience, the single biggest issue for this audience is usability. Your challenge is that you will likely not have direct authority to enforce best practices or ongoing education. To make BI accessible to casual users inside and outside of your organization, you need a robust strategy to address two key obstacles: 1) Users won't readily learn (or remember) how to use overly complex tools; and 2) users won't understand the structure and nomenclature of the data. For truly pervasive BI, it just has to be easy.

#### ANALYST VIEWPOINT

Multiple challenges confront any organization looking to deploy BI to the extended enterprise. Ownership of BI systems and strategies needs to be addressed decisively if a BI solution is to transcend organizational or geographic boundaries. Collaboration among business and IT department heads is essential to achieve buy-in and eliminate confusion. For IT, sound architectural strategy, open systems, and finesse are required to effectively transition from siloed infrastructures towards an integrated enterprise solution. User engagement, training, and feedback are critical to meeting user requirements and broadening adoption.

## Information Builders

**Q.** What specific tools and applications connect users to the three levels of BI—strategic, analytical, and operational?

**A.** Strategic BI applications include strategy maps, scorecards, and dashboards that present and track critical metrics such as customer satisfaction scores, market share, profit margins, or overhead costs. By closely monitoring those factors, companies can immediately detect problems and take corrective action. Analytic BI applications such as OLAP tools, predictive analytics, and ad hoc queries help determine the cause of a major problem. For example, if profits are declining, is it because of low sales or increasing expenses? Operational BI applications monitor business activities as they are executed (such as entering orders, restocking inventory, fielding customer inquiries), enabling rank and file workers to manage these activities or respond to issues.

### ANALYST VIEWPOINT

As BI implementations mature, organizations are looking to build on connecting users to strategic, analytic, and operational BI systems by connecting the systems themselves. The three levels, though distinct, should not be viewed as silos but as focus areas that can complement each other with mix-and-match functionality. For instance, substantial value can be derived by equipping an executive dashboard (the strategic level) with ad hoc query and predictive analytics (the analytic level) to enable executives to conduct root cause analysis and forecast trends. Use of open standards and a service-oriented architecture can supply a common platform for pervasive and richly functional BI.

## Oracle

**Q.** How do you think consolidation in the BI industry will affect the market?

**A.** With Oracle's acquisition of Hyperion Solutions last year, customers no longer must choose between a vendor offering "best of breed" products or an enterprise application vendor offering more integrated solutions. Today, customers can have the best of both worlds. Our customers see tremendous value in having the ability to partner with a financially strong vendor who offers market-leading, hot-pluggable BI solutions that can integrate with enterprise applications, middleware, and database technologies. Other major enterprise software vendors are now attempting to follow Oracle's strategy. We can expect to see an increasing trend among buyers toward consolidating the BI technologies used within their companies and aligning BI investments with their choice of strategic vendors.

### ANALYST VIEWPOINT

Despite customer questions and concerns over BI market consolidation, it's unlikely to affect the continued brisk growth in the overall BI market. Gartner, for instance, forecasts an 8.1 percent compound annual growth rate in the BI platform market, reaching \$7.7 billion in 2012, as BI remains a top priority across industries and organizations progress towards enterprise-level maturity. The question is with which vendors customers will be spending that money. Consolidation is forcing customers to diligently size up their BI options from a strategic perspective and ask hard questions (amid considerable hype and FUD) over how to best capitalize on the business value of data.

## MicroStrategy

**Q.** What are the benefits of an open systems BI solution vs. a closed systems solution?

**A.** In today's BI marketplace, companies must choose between open systems solutions from independent BI providers and closed system, all-in-one-stack solutions from conglomerate vendors. With open systems BI, companies are not locked into a single vendor and can freely assemble technologies best suited for their organization. Freedom of choice gives the BI purchasers greater leverage for better pricing and the flexibility to change software components as needs change. Additionally, open systems vendors are solely focused on BI and meeting customers' requirements through ongoing technical innovation.

### ANALYST VIEWPOINT

Viewed another way, the issue facing organizations in the market for BI technology is whether to opt for solutions from independent pure-play BI vendors or mega-vendor BI providers. The spin from both camps is naturally quite different. Independent BI vendors tout a singular BI focus and greater interoperability in heterogeneous environments. Mega-vendors promote an end-to-end platform and the manageability benefits of dealing with a single vendor. In the wake of industry consolidation and the diminished population of pure-play BI vendors, customers are carefully weighing these and other factors in setting direction for vendor and product selection from both strategic and tactical perspectives.

## Portrait Software

**Q.** Are your customer programs leaving money on the table?

**A.** Marketers today are challenged with breaking through the clutter and getting the attention of customers. No longer are traditional outbound campaigns sufficient—marketers must be able to evolve their marketing to engage with customers on the “inbound” or when they choose to contact the organization. To make these unpredictable interactions more predictable, marketers need to equip themselves with the ability to strategically map delivery of the right message at the right time across all marketing and service channels. Portrait’s integrated solutions leverage innovative yet easy-to-use analytics to conduct two-way intelligent dialog with individual customers and build stronger and more profitable customer relationships with them while maximizing ROI.

### ANALYST VIEWPOINT

In CRM, there’s the traditional integration challenge and the new Web 2.0 challenge. The traditional challenge is to tightly integrate customer data across Web, email, store, and other channels. After substantial investment in CRM, organizations are turning attention to such granular technological challenges as creating a single view by reconciling different email addresses, names, orders and other dimension that a single customer may have logged across multiple channels. The new Web 2.0 challenge is building Web-based communities that enable customer feedback and collaboration in forums, comment fields, wikis and other social networking tools. Web 2.0 is swiftly becoming de rigueur for marketers to build customer loyalty.

## Syncsort

**Q.** As data volumes continue to grow, uploading data to the data warehouse has become much too time-consuming. Is there a way to speed this process?

**A.** The process of uploading data can be simplified by using a data management solution with changed data capture (CDC). CDC, or delta processing, is a technique in which an older file and a new file are compared to identify changes that have occurred. Only the data that has changed is updated in the master file. This type of processing will help reduce the amount of data that will need to be uploaded to a data warehouse, improving performance.

### ANALYST VIEWPOINT

Though it’s been around a while, changed data capture (CDC) has found its sweet spot with the advent of the real-time data warehouse. Available as a built-in or optional component in leading ETL tools, CDC can drastically reduce the volume of data to be moved into a warehouse (or to an operational application or other system, for that matter). Naturally, if data loads are reduced by, e.g., 85 percent, load times are reduced commensurately, making multiple intraday loads practical. The additional benefits of minimizing impact on operational applications, bandwidth, and I/O make CDC worth a close look by any organization that wants to freshen its warehouse data to enhance its value to the business.

## Talend

**Q.** Open source data integration is making the headlines, but is it ready for the enterprise?

**A.** Beyond the technical aspects (open source data integration offers today the same level of features and performance as proprietary vendors), the true answer lies in the ability of commercial open source vendors to meet the demands of enterprise customers. These vendors control the road map of their products, provide enterprise-grade technical support and IP indemnification, and reduce the dependency of their customers on a single mega-vendor that controls their entire IT stack and budget. Open source is today a true alternative to proprietary data integration and many companies of all sizes are proving it every day by making the switch.

### ANALYST VIEWPOINT

Open source data integration has been on a fast track in 2008. For instance, Talend in June introduced change data capture technology into its flagship product, enabling acceleration of processing times by moving only data changed since the last load, an important feature for enterprises with large data sets and time sensitivity. While the steady maturation of enterprise features in open source data integration is prompting interest, change won’t happen overnight. History shows that open source initially tends to be adopted tactically and incrementally before moving into the mainstream, and signs point to continued growth in the open source data integration market in the next several years.

## CASE STUDY

# Hartford Hospital Simplifies Access to Enterprise Information

**Commentary by Jack Alberti**

*Director of IT Special Projects, Hartford Hospital*

Hartford Hospital has deployed Progress EasyAsk to support operational business intelligence (BI). EasyAsk for Operational BI provides natural language ad hoc query and search capabilities that empower information users at Hartford Hospital to quickly find and retrieve critical information from multiple enterprise data sources.

“Prior to implementing EasyAsk, the IT department spent hours each day on behalf of our users simply pulling data from disparate systems,” said Jack Alberti, director of IT Special Projects for Hartford Hospital.

EasyAsk’s natural-language query enables access to data and content across more than 225 data formats. Its industry-specific dictionaries enable users to ask plain-language business questions of their applications and information stores. These dictionaries are continuously refined with the everyday language of departmental business users.

## Helps with Payroll/Personnel Administration

The first deployments were for the hospital’s payroll and personnel departments. Alberti explained, “From having only a handful of users with the technical knowledge to query the mainframe database, we suddenly had dozens of users who could access payroll data. They could suddenly ask plain-English questions such as ‘how much vacation time was accrued in a particular department’ or ‘on what date did a particular employee begin working for purposes of employment verification’ to easily access the information they need to make informed decisions.” EasyAsk now allows more than 50 users within the payroll/personnel department to pull data for virtually any kind of use instantly, reducing departmental reporting requirements.

## Alerts Staff of Hospital Acquired Infections (HAIs)

After learning that the infection control staff members were spending 60 to 90 minutes each day manually searching through files for hospital-acquired infections (HAIs), the hospital started customizing EasyAsk’s query tool. By migrating separate databases and creating a dictionary within EasyAsk that explains the relational structure of the database to the query tool, the infection control staff was able to quickly determine the types of HAIs and related patient information they needed. Instead of having a hospital worker manually mine stacks of paper, EasyAsk automatically generates a report, saving 5 to 10 hours per week.

“Once [users] realize how easily they can access operational business intelligence, they become experts on using EasyAsk.”

*Jack Alberti, Hartford Hospital*

## Leverages Data to Help Manage the ER More Efficiently

Analysts regularly leverage EasyAsk to extract data from multiple applications used by emergency room personnel. “We analyze utilization data to identify patterns in emergency room care so we can staff appropriately and project staffing, equipment, and inventory requirements for the future,” said Alberti. “We also look at patterns to identify public health concerns that should be investigated further. For example, if we see an above-average influx of upper respiratory patients, clinicians can drill down to correlate patient information and more quickly identify the root cause.”

## Provides Analysis Used to Improve Patient Care

The hospital runs regular queries to identify standard metrics for analysis, such as average waiting time for emergency room services. Easy access to complex information helps the organization optimize productivity and improve patient care. “Analysts and clinicians can also analyze diagnosis patterns to detect patient care trends, and caregivers can search legacy data sources for historical patient care information,” stated Alberti.

## Support for Remote Users and Locations

Hartford Hospital is a wholly owned acute care subsidiary of Hartford Healthcare Corporation, and authorized users at several affiliated institutions also leverage EasyAsk, including the Connecticut Children’s Medical Center, the Midstate Medical Center, the Hartford Medical Group, and Connecticut Lab Partners. “These affiliated institutions have access to their own patient care and operational information,” said Alberti. Users from more than 20 departments now regularly rely on EasyAsk to analyze patient care and business operations.

As for end-user training, Alberti explained, “It’s about 40 minutes with me. It’s so easy; I show new users the basics and send them away to play with it. Once they realize how easily they can access operational business intelligence, they become experts on using EasyAsk.” ●

*For a free white paper on this topic, click [here](#) and choose the title “Pervasive Business Intelligence: Usability Is Key for Casual Users.” For more information about EasyAsk, click [here](#).*

## LESSON FROM THE EXPERTS

## Giving Business Users the Power to Make Data Actionable

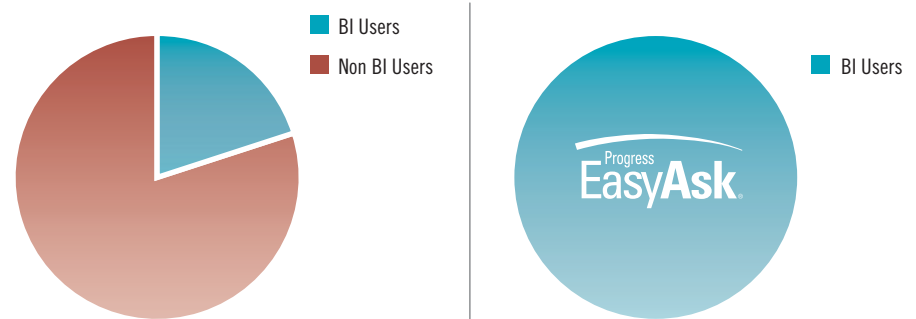
By Steve Walsh

Vice President of Strategy and Business Development, Progress Software, EasyAsk Division

Most business users don't have access to the data they need to make better decisions, although most of this data already resides in their company systems. Search technology can find data if it exists in a cell, report, or document that someone else has generated. But if you're looking for something new—aggregated, summarized, or trending data that requires you to create a new report—then you'll need a technology that conducts analysis as well as search. Historically, business intelligence (BI) tools have been the answer, but usability has limited accessibility and prevented positive results. TDWI research reports adoption rates in the low 20% range of users within the enterprise.

(Wayne W. Eckerson, *TDWI's Best of BI*, Vol. 5, 2007, "Contemplating Consolidation," p. 14.) The problem is not just the complexity of BI tools, but the need to understand the data—where it's stored, what it's called, and how it's structured. IT and BI analysts have historically owned the data and access to it, because they know how to get at it and have learned the tools of the trade used to leverage it.

Let's look at an example of someone in a sales role who probably already understands the high level data and would ask questions such as: "Where am I versus quota?" "How much do I have left to hit my goal?" The logical next step is to plan how to reach your goal, with the likely questions being: "What products can I up-sell?" "To whom?" "Which customers bought X and not Y?" A new report is needed that includes specific information that will allow you to act immediately. This information is inherently unique to the specific role, and, in this example, to the specific selling situation based upon where that sales person is versus their goals or



According to research from TDWI, only 20% of an organization's employees have adopted business intelligence.

plans. This presents the need to look at only a subset of relevant data.

BI companies have tried to address this with drag and drop user interfaces, but it's difficult to get a drag and drop tool to answer a question such as "Who bought X and not Y?" because a complex query is required (including "sub-selects" and "not exists" clauses in SQL).

Combining the two technologies of search and BI holds promise of a solution. Web search tools have created awareness and acceptance of the "search box" as a user interface that requires little, if any, training. If we marry the search UI to the capabilities of BI tools, the issues of access and usability of information are addressed head on.

Unfortunately, adding a search front end onto a BI tool will only allow you to search for existing BI reports or some cells in the data warehouse. The technology isn't designed to query structured data using a structured data language like SQL or MDX. Industry analyst

commentary recognizes a need for a translation layer—Something that would allow users to express their needs in terms akin to those used for searching, then parse this request into a language that the underlying databases can understand and use to generate a new report. (Forrester, "Search+BI=Unified Information Access," May 2008.)

The key enabling technology is a natural language processing (NLP) layer that maps and translates the conceptual view of an average business user to the logical view of the structured data, while at the same time surfacing reporting assets (and in the case of integration with an enterprise search technology, other unstructured data). The result is information highly accessible to a vast number of business users with the power to act immediately. ●

## CASE STUDY

# ETL Unlimited Package for Business Intelligence at Virgin Mobile

**Commentary by Lionel Beaudet**  
*Technical Manager, Virgin Mobile France*

Virgin Mobile France, the leading alternative mobile operator in France, leverages Talend Integration Suite to drive its business operations.

## The Leading French MVNO

Virgin Mobile France, a mobile virtual network operator (MVNO), has been offering since April 2006 a simple, innovative, and competitive offering, leveraging the Orange network. Launched in the United Kingdom by Sir Richard Branson, Virgin Mobile is also present in Australia, the United States, Canada, South Africa, and India. More than 10 million customers in the world are benefiting from its services.

## Open Source: Architectural Choice and Economic Necessity

Since it began its operations, Virgin Mobile France has chosen to adopt open source technologies. “We made this decision for both economical and philosophical reasons: the MVNO business is a very specific one, and there is no turnkey solution dedicated to our activity. We had important customization needs, and we wanted to be able to modify the code easily,” explained Lionel Beaudet, technical manager at Virgin Mobile France. “Even if the open source solutions have a cost, their quality-price ratio is unbeatable. Moreover, through an access to the source code, we can keep control of our information system.”

Today the vast majority of the information system at Virgin Mobile France relies on a LAMP (Linux, Apache, MySQL, PHP/Perl) stack: Web Applications, CRM, and Back Office. MySQL constitutes the foundation of the architecture: “Our databases need to

manage important data volumes; our customer base will reach 1 million subscribers in 2008 and their calls generate about 5 million invoicing tickets per day. These volumes are increasing continuously,” continued Beaudet.

## The Only Enterprise-Ready Open Source Data Integration Solution

The solution deployed covers sales performance management, marketing management, customer service data, and financial data. Virgin Mobile France uses Talend Integration Suite to extract data from the production databases, transform this data, and integrate it in the data warehouse database. Organized according to a star schema, this database allows for efficient and fast selection and aggregation of selected data to guarantee analytical accuracy.

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**With hindsight, we can affirm that Talend offers the only open source data integration solution that is really enterprise-ready.**  
 .....

“Talend Integration Suite organizes data by fetching it in different production database tables and consolidating it in the data warehouse. It helps us go beyond the limits of transactional systems and offer our users high performance reporting services,” said Beaudet. “With hindsight, we can affirm that Talend offers the only open source data integration solution that is really enterprise-ready and that provides all the necessary features, the performance of a professional solution, quality technical support, and a high degree of integration with MySQL and the rest of

our environment. Its appropriation is easy and fast, and it offers many customization options.”

Virgin Mobile France chose Talend Integration Suite for two main reasons. “On one hand, we benefited from high quality and very reactive support services. The implementation of the solution was performed by Logica, but we now manage it in-house, even though we sometime require support. On the other hand, the solution facilitates collaboration work and gives us the ability to work as a team on the same project, which helps us save time,” Beaudet said.

The benefits gained by Virgin Mobile France can be found in two strategic domains: first, the senior management has gained better visibility on the business, allowing them to respond quickly to changing market conditions and to define priorities. Second, the marketing team now has the information it needs to gain market share and to grow customer loyalty.

After the deployment of the last two parts of the initial project, Virgin Mobile France plans to develop further its reporting system, particularly in order to integrate new offerings and take into account the evolution of regulations. “A data warehouse project never ends, and we will continue to refine our tools in order to respond more and more accurately to the needs of our users. Versatility and ease of maintenance are also very important aspects of the integration solution,” concluded Beaudet. “Concerning that point, Talend Integration Suite also gives us full satisfaction.” ●

## Faster, Higher, Farther: Open Source in BI

### BRINGING OPEN SOURCE TO ENTERPRISE BUSINESS INTELLIGENCE

**By Yves de Montcheuil**  
Vice President of Marketing, Talend

Open source brings important advantages to business intelligence (BI) projects, especially when compared with proprietary solutions.

Just at the time when nobody argues anymore that open source databases are ready for the deployment of enterprise BI projects, a new layer of open source products is becoming prevalent in many of these same projects: open source ETL/data integration and open source BI tools. The advantages of such products are clear and cannot be ignored.

Even for large organizations, extracting data from multiple databases and systems is always a complex proposition. Fundamentally, proprietary solutions consist of “black box” tools, which either run or don’t—but if they don’t, nobody has any way to figure out why, unless the reason is obvious: the vendor did not find it useful to support such and such source system, because the market for it is too small. And if they do run, the acquisition costs, coupled with ongoing maintenance and deployment costs, will always end up making it an extremely expensive project.

Among the high costs of proprietary data integration, one typically finds (in no particular order): license and training; rarity of skills for proprietary environments; per-source, per-target, per-CPU, per-core development and runtime licenses; need for dedicated high-performance hardware, etc. Indeed, these solutions are deployed in monolithic architectures: the software is installed on a physical server, and all the transformation processes are centralized on this server. With fast-increasing data volumes, performance of the data server will be degrading, and the only response of proprietary vendors is to

recommend buying additional servers—with additional licenses of their tool.

Compared to these constraints, open source brings numerous advantages to the data integration table. They start with a zero-programming interface and a fast learning curve. Then comes the use of industry standards (Java, Perl, SQL, SOA, etc.) that makes finding trained consultants a lot easier. The code generation approach brings a huge advantage compared to proprietary engines—both from the standpoint of performance and the ease of deployment and ramp-up.

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### What is holding companies from transitioning to open source data integration? Not much, actually.

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But where open source brings maybe the most value is in the breadth of its technological coverage. Proprietary vendors focus only on the subset of technologies that bring them the most revenue and hence provide only a few dozen connectors to the mainstream databases and ERP. Conversely, the contributions of the open source community—carefully reviewed and vouched for by the vendor’s development team—allow such solutions to cover databases (proprietary and open source), data warehouse appliances, ERP and CRM (conventional and SaaS), files, Web Services, and many more technologies. Connectors are available for all users to download and use, at no extra charge.

Finally, the cost is a critical factor. Not that open source is free—this is a myth. Open source vendors are well aware that the cost

of the project goes well beyond license costs—and furthermore they are not charitable organizations. Commercial open source vendors are companies backed by reputable venture capitalists who expect a return on their investment. However, open source data integration is free to adopt through a downloadable version, licensed under GPL and not restricted in use. Commercial subscriptions to additional features and enterprise-grade support cost only a fraction of what proprietary vendors charge. And since there is no charge per-source, per-target, or per-CPU, incremental deployments are not hindered by budgetary considerations.

What is holding companies from transitioning to open source data integration? Not much, actually. Already many large and small organizations have made the choice, including leading financial institutions, telecommunications operators, retailers, entertainment companies, manufacturers, institutions of higher learning, and government agencies. ●

*For a free white paper on this topic, click [here](#) and choose the title “The Return on Investment of Open Source Data Integration.” For more information about Talend, click [here](#).*

## CASE STUDY

# Recommendations— Pre- and Post- BusinessObjects Acquisition

By **Steve Kent**

Senior Business Data Architect,  
Collaborative Consulting

## Background

A worldwide consumer products company (WCPC) is in the middle of a multi-year, multi-regional, multi-faceted (the main R/3 application, Advanced Planning Optimization—APO, Master Data Management (MDM) and Business Warehouse –BW) SAP implementation. At this stage of the implementation, each region is in a similar state of evolution.

Each has:

- A single, but differing, instance of the SAP suite (also different versions)
- Varying degrees of completeness with the SAP implementation
- Numerous non-SAP data sources such as Manugistics or BPICS
- Either a solitary BW instance or uses BW in conjunction with an external data warehouse to house other data such as Point of Sale information.
- Chosen to adopt different facets of SAP's BW product suite – to either use BW for reporting and analytics or BW in conjunction with another competing BI product.

## Business Need

In order to gain economies of scale from its operations, WCPC established a global supply chain organization to look at its strategic planning process. This organization embarked on an information strategy to provide end-to-end “visibility” into its supply chain as it related to the strategic capacity planning process. The main information needed was to consolidate and aggregate

long term demand data from a multitude of different systems (including product master data from MDM) to a level to facilitate analysis and comparison with both actual and maximum machine capacities.

## Recommendation pre-BusinessObjects Acquisition

Even though the IT organization, for primarily financial reasons, wanted to go directionally with an SAP solution, after careful analysis the following solution was recommended:

- As the majority of data sources needed were from non-SAP systems, in a variety of different formats and with data quality issues, WCPC should use a non-SAP ETL tool, with good data quality capabilities to consolidate and align the data – Informatica was one of the corporate standards.
- WCPC should use a global data mart to stage and store the required data. As BW query performance had been an issue across the organization, Oracle was recommended.
- To report and analyze the consolidated information, the business should use a third party Business Intelligence tool such as Cognos (which was used extensively throughout WCPC and has a robust set of capabilities).

## Recommendation post-BusinessObjects Acquisition

During the process of finalizing the architecture SAP AG acquired BusinessObjects. This substantial change to the BI landscape forced a reconsideration of the solution. The IT organizations direction to go with an SAP centric solution is now much more viable and more importantly, optimal. The BusinessObjects suite of products would bridge the gaps that existed prior to acquisition, namely:

- Data Services XI 3.0 provides an enterprise-wide set of robust Extract, Transformation and Load (ETL) as well as data quality capabilities in order to standardize, consolidate and align the data from both the numerous non-SAP data sources as well as the SAP data sources. In addition, the BusinessObjects Metadata management capabilities allow data lineage analysis to be performed, which in this particular case, although not specifically required by the business community would in no doubt be used to trace data back from the report to its source.
- BusinessObjects XI provides a set of robust, market leading, reporting and analytic capabilities that allow the business users:
  - Present and analyze Supply Chain Metrics and KPI's through the use of dashboards such as Xcelsius, along with some interactive visualizations
  - Report and analyze the information on an ad hoc basis through the use of Web Intelligence
  - Use predictive analytics to assist with the long term demand projections and forecasts

## The Landscape Has Changed

The implications of this are obvious. Whereas previously BW was only truly viable in end-to-end SAP environments, now any company now considering SAP and a BI implementation should strongly consider the SAP BI and data integration options. They have acquired one of the premier BI platform providers and, with it, a strong position in the BI domain. ●

# SAP BI: A Robust New Platform for Enterprise BI

**By Steve Kent**

Senior Business Data Architect,  
Collaborative Consulting

## Introduction

SAP AG recently announced its business intelligence (BI) product roadmap and not surprisingly, it is based upon the business warehouse (BW) foundation—along with an optional hardware appliance—a BI Accelerator—to enhance query performance.

Business intelligence is getting the right information in the right format at the right time. Data quality and data integration are fundamental capabilities for ensuring that you get the right information. The products acquired from BusinessObjects (now one product, called Data Services XI 3.0) feature extensively in the new SAP product landscape.

How this new product roadmap affects companies depends upon on number of factors, namely:

- Where the companies are with their SAPs implementation—new versus existing
- What their data enterprise data warehousing strategy is—whether they use SAP BW or an independent data warehouse
- What features and functions the companies need from a business intelligence perspective

## The Roadmap

Data Services XI will significantly boost SAP's ETL service offering and provide enterprise-wide capabilities for companies wanting access to data that is in non-SAP systems or in unstructured formats such as e-mails, MS Office documents, and Web content.

Data Services XI, especially the data quality aspect, can now also be integrated within the core ERP / CRM applications for real-time address verification, deduplication, and standardization. SAP is positioning it as a key component for its MDM tool providing bulk loading, standardization, and cleansing capabilities as well being featured in the “getting data to and from BW” space, along with the existing SAP ETL components.

All of BusinessObjects' core components around enterprise reporting (Crystal Reports), analysis (Web Intelligence), and dashboards (Xcelsius) are being offered as premium products for reporting against either SAP data sources or against any other non-SAP data such as that contained in another data warehouse or data mart.

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**Business intelligence is getting the right information, in the right format, at the right time.**  
 .....

The biggest change will be for existing SAP BI customers who use the Business Explorer products—BEx Analyzer, Excel or Web, for ad hoc analyses. These products, along with BusinessObjects' Voyager (for OLAP analysis), will be phased out and replaced by a new product called Pioneer sometime in 2009. Another significant change involves BEx Report Designer, which is being phased out and replaced by Crystal Reports light (for SAP data only).

The dashboard space still needs clarity, as there are multiple products to choose from: BO's Xcelsius product (personalized dashboards and interactive visualizations) and

Dashboard Builder (featured less prominently), as well as SAP's existing product, Visual Composer, which is being positioned more for building applications.

The last big change on the roadmap concerns the budgeting and planning offering. SAP's existing offering (originally from OutlookSoft) is the single survivor in this space.

## Conclusion

The new product stack significantly enhances SAP's capabilities in the BI arena to access and report on non-SAP data (a situation that most companies would be faced with and an area that has been historically neglected), as well as SAP data.

The new BI stack favors well against BI capabilities offered by SAP competitor Oracle's Business Intelligence Enterprise Edition (OBIEE). A key differentiator is the data services offering.

Data Services is a hidden gem in the product stack. This could, and should, play a significant role with companies that are about to embark on an SAP core application (ERP, CRM, or MDM) implementation to cleanse, standardize, and enhance their data prior to load.

Historically, BW query performance has been an issue. BusinessObjects XI 3.0, as well as SAP's BI Accelerator, should significantly improve this. ●

*For a free white paper on this topic, click [here](#) and choose the title “The Evolution of Business Intelligence.” For more information about Collaborative Consulting, click [here](#).*

## CASE STUDY

# In-depth Customer Insight: A Winning Go-to-Market Advantage for a Leading Insurance Company

By **Mark Smith**

Executive Vice President, Portrait Software

## The Issue: Falling Profits, Flagging Loyalty

A large insurance industry icon, which we'll call "LIII," needed to develop a strategy and process that would enable it to retain customers and minimize risk over an extended period of time. A project team was assembled to evaluate the company's general insurance value chain. It quickly determined that LIII's marketing and sales had fallen short in creating a truly compelling customer experience.

The company recognized that it had a fragmented view of the customer. However, a better and deeper understanding of its customers would not only foster a deeper and more intelligent engagement but would also positively affect the company and improve its bottom line. The company possessed volumes of information about its customers but had no process in place, nor did it have a comprehensive way to cull the information necessary to enable segmentation of its customer base. Without the capability to look at the individual customer, LIII would continue to spend money, perhaps unnecessarily, by targeting the wrong people at the wrong time. This lack of insight had several negative implications, including customer dissatisfaction, increased risk, and faster attrition.

The team embarked on a mission to develop an internal customer insight capability and supporting technology infrastructure.

## Insight for Incremental Revenue

In order to gain the desired depth of insight, the team made key technology infrastructure

improvements, including the addition of Uplift modeling as an extension of the existing Quadstone Customer Analytics solution (an analytics product from Portrait Software for segmenting and profiling customer data).

Their two main objectives for refining the targeting approach were to remove the negative effects associated with the retention programs and to identify customers who renew only because they are contacted.

Portrait Uplift modeling was applied to business processes and systems to enable insight into the individual customer and to provide information that helped the company target its direct marketing to only those customers who would respond positively (not just those who were likely to respond, which could include "negative" responses). The ability to quickly infuse innovative analytics into the business processes resulted in tremendous cost savings and increased the view into the customer base.

## Stellar Retention Results

LIII estimates that by applying this approach early to a single retention campaign, the full cost of implementing Uplift modeling will produce a 152% return on investment within the first year. The technique is applicable to a range of retention and acquisition campaigns.

Increased marketing ROI was achieved by implementing Uplift modeling and resulted in the following:

- Reduced contact volumes
- Increased retention rate or maintenance at a lower cost
- Reduced missed opportunity costs
- Increased customer satisfaction by eliminating counterproductive calls

Throughout the course of developing the consumer insight solution, the company experienced several analytical breakthroughs:

- Reduced number of customers wanting to cancel
- Improved direct mail cost per sale (CPS) and ROI
- Improved door-drops CPS and ROI
- Identified best time and way to approach ex-customers or not-taken-up-quote
- Identified cross-media dynamics of response (online and offline)
- Geographical analysis to identify best selling practice and share

## Flexibility and Long-Term Sustainability Pays High Dividends

The customer insight solution, based on technology from Portrait, was designed to help the organization quickly adapt to changing market conditions and business requirements. The company built both intelligence and flexibility into the solution to enable quick analyses of customer behaviors and on-the-fly modification of offers. The company initially considered a five-year timeframe when embarking on the solution. However, LIII has established a solution that is easily repeatable and extendable across all customer campaigns, based upon its inherent ability to reevaluate customer interactions within its business processes quickly and with the benefit of analytics. This has had significant impact on the organization's marketing profitability and the ability to deliver highly focused and targeted customer campaigns linked to customer needs.

For more information on Portrait Uplift modeling and Portrait Quadstone Customer Analysis, visit [http://www.portraitsoftware.com/uplift\\_optimizer/tdwi](http://www.portraitsoftware.com/uplift_optimizer/tdwi). ●

For a free white paper on this topic, click [here](#) and choose the title "The Relevance Revolution: Making the Move from Personalized to Individualized Marketing." For more information about Portrait Software, click [here](#).

LESSON FROM THE EXPERTS

# Boosting Marketing Revenues through Actionable Customer Intelligence

LEVERAGING INTELLIGENT DIALOG TO STRENGTHEN CUSTOMER ENGAGEMENT AND INCREASE PROFITABILITY

**By Mark Smith**  
Executive Vice President, Portrait Software

In a challenging economy, providing a rich customer experience is one of the key factors to sustaining profitable customer relationships. Customer-focused companies recognize this and are leveraging inbound marketing campaign strategies to engage with customers who have exercised the option of being placed on Do Not Call lists and/or have opted out of e-mail campaigns. The simple and compelling premise for an inbound campaign strategy is that customers who contact the organization are already engaged and, according to research by leading industry analysts, are 10 times more likely to respond to an offer.

## The Inbound Campaign—Making the Unpredictable More Predictable

Best-in-class organizations have recently elevated the importance of the “inbound” campaign. Inbound campaigns enable marketers to connect with a customer when he or she contacts a company through inbound customer touch points such as service channels, Web sites, call centers and IVRs, and other new social media channels.

However, dealing with the unpredictability is a critical challenge for the campaign manager since it is very difficult to ascertain when and how a customer will choose to make contact. There are several variables that must also be considered—for example, the reason for the contact, the mood of the customer, and the channel through which the customer is making contact, etc. For some organizations the temptation is to make the latest offering irrespective of any of these

critical variables. This will often do more to drive away the customer than to drive up revenue.

## Converting Cost Centers into Profit Centers

To truly connect with customers, organizations need to turbocharge and evolve their existing systems to create an intelligent dialog with each customer. Doing so would enable an organization to make the right offer at the right time, and even to anticipate customer needs. Customers benefit by receiving “next best recommendations” at the exact point of interaction.

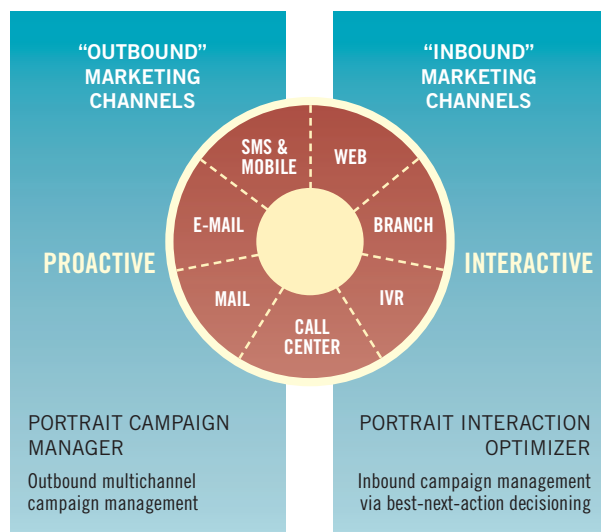
## Beyond Revenue—Building Trust between Customer and Company

The benefits of intelligent dialog extend beyond revenue. The creation and existence of an intelligent dialog within an inbound campaign can also have a profound effect upon the customer experience. Some of the most common mis-interactions are:

- Repeatedly making previously declined offers
- Not acknowledging a recent complaint
- Offering the latest “new product” launched by a line of business without considering what the customer needs at that point in time
- Making contrary offerings through different manned and unmanned channels
- Multiple unconnected mailings from different business units

Trust and loyalty can be strengthened by demonstrating knowledge of the individual customer and acting upon that knowledge with the assistance of next-generation marketing automation.

Real-world response rates to inbound campaigns have proven to be as high as 40 percent, contrasting starkly to typical response rates to an outbound marketing program (averaging 1 to 5 percent).



Integration of inbound marketing campaigns with existing outbound campaigns can change unhappy customers to happy ones and cost centers to profit centers.

For one such company, a major financial services organization, recognizing the potential to improve the customer experience and incrementally increase the profitability of its nearly 1 million annual call center customers compelled it to implement a marketing automation system. In just six months after going live, the company was able to:

- Automatically present the right offer to the right customer at the right time
- Benefit from new insights into customer response behavior
- Increase the responsiveness of the frontline customer-facing employees—empowering them to address customer needs flexibly and innovatively
- Manage delivery of consistent messages across all managed and unmanaged channels

Inbound marketing campaigns that are tightly integrated with existing outbound campaigns promise to change how companies engage with their customers and drive new revenues both in the short and long terms. Such integration can create happy customers from unhappy customers, profit centers from cost centers—and cannot be ignored. ●

# Pervasive Business Intelligence

SYSTEMS THEORY AND BI

BY WAYNE W. ECKERSON

## The BI Tipping Point

Does this scenario sound familiar?

You've deployed BI tools, and usage spikes—but then gradually declines. Some users are generating lots of reports, in fact way too many. Other users still request custom reports, and your backlog has grown bigger instead of smaller. People who have tried the BI tool say the “data isn't right” and performance is poor. You then spend the next six months reconciling your reports to legacy systems to verify that the data in your reports is accurate—which you already knew, but you can't seem to convince certain vocal and influential users. You also discover that several analytics experts are bogging down BI performance by issuing massive queries against the data warehouse so they can populate their local data sets.

Although you and your team are working harder than ever, upper management is beginning to question the value of BI. They've invested considerable money and hear only negative feedback, and they have yet to see significant payback. BI has become a dirty word within the organization, and it's likely that your funding will get reduced or eliminated next year. Your reputation is on the line, and there's not much you can do to salvage it.

Unfortunately, too many BI teams are stuck in this scenario or some version of it. They are caught in a negative feedback cycle that seems impossible to change. There seems to be no magic formula that can cure this malady.

**The Lucky Few.** What makes this situation intolerable is that a few lucky teams seem to experience the opposite phenomenon. Instead of witnessing decelerating usage, they can't keep up with demand for new BI applications, data, and BI licenses. Rather than circumventing the BI offerings, business users

pitch ideas to the BI team for how to leverage the BI platform to drive new value to the organization. Not surprisingly, these BI teams boast strong partnerships with sponsors and users who are actively involved in setting priorities and direction for the BI portfolio via BI steering committees or a BI center of excellence. In addition, executives recognize BI as a strategic asset that delivers huge ROI and almost immediate payback from their investments. They give BI priority in the IT budget and want to expand the team to keep up with demand.

Hopefully, you are among the fortunate few whose teams are immersed in the exuberant whirlwind of a positive feedback cycle. It's clear that you've passed a magical tipping point where every effort amplifies user satisfaction and business value. It seems like there is nothing you can't accomplish.

**Have and Have Not.** Obviously, there is a huge disparity between these two scenarios. The BI “haves” are caught in a positive reinforcing cycle, while the BI “have nots” are stuck in a negative reinforcing cycle. What's true in life is also true in BI: the rich get richer, and the poor get poorer.

“On one end of the spectrum are IT shops that are order takers, reacting to user requests and creating a backlog that gives rise to spreadmarts. On the other end, BI is proactive and driven by the business. Here, designated ‘super users’ in each department create reports for themselves and their colleagues using self-service BI tools with support from the BI team. Since they reside in the business, they can anticipate requests before they happen and deliver better reports faster,” says M. C. Sankar, senior vice president of Wachovia Securities.

**Breaking the Cycle.** Sankar has a formula for BI shops that want to cross the tipping point and change roles from reactive order takers to proactive providers of information

## BI Systems Dynamic

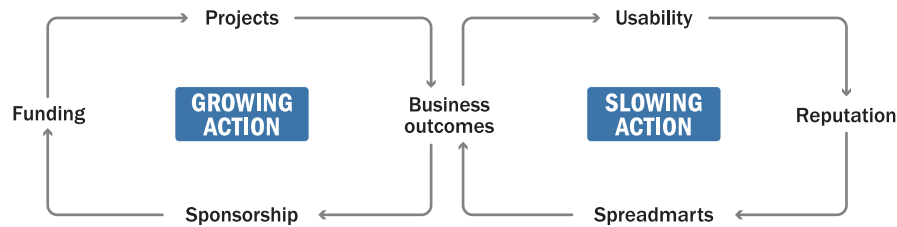


Figure 1. When applied to BI, the limits to growth archetype depicts two adjacent feedback loops: one that slows growth and another that accelerates growth.

and insights: 1) get strong executive sponsorship; 2) educate managers and users about the importance of fact-based decision making and the dangers of spreadmarts; and 3) establish a partnership with power users in each department and meet with them weekly to prioritize BI initiatives.

“At this point, they stop complaining that IT isn’t delivering because they are part of the solution. They also see how individual requests can be consolidated to serve multiple needs, improving efficiency,” says Sankar. This group also selects tools, develops a semantic layer, trains their business counterparts to use them, and recommends enhancements to improve the user experience, such as upgrading the platform to optimize performance.

“As soon as backward demands are satisfied, then people start looking forward. BI gets embedded in the way people make critical decisions, and that’s when you have a huge uptick in usage,” says Sankar.

**BI Counseling.** The key to breaking a negative feedback cycle is to understand the dynamics driving it, find the leverage points, and take action. We can use systems theory to understand what we’re facing, but it takes a lot of willpower, perseverance, and discipline to take action that changes system dynamics. The challenge is similar to what an alcoholic faces in trying to break an addiction or a married couple faces in trying to repair a soured relationship.

This report will serve as professional BI counseling to help you recognize the system dynamics that might be undermining your ability to meet user needs. It will also help identify leverage points that you can use to help ensure your BI solution is widely adopted and used.

### “Limits to Growth” Archetype

**Feedback Loops.** In his groundbreaking book, *The Fifth Discipline*, Peter Senge says that systems theory “is a discipline for seeing wholes ... a framework for seeing interrelationships rather than things.” Systems theory depicts various types of feedback loops that show how actions can reinforce or balance each other. Reinforcing loops accelerate quickly—either for good or bad—and often catch people by surprise. Change often happens slowly at first, and rapidly at the end. For example, according to systems theory, we can expect the effects of global warming—which are mutually reinforcing—to accelerate rapidly and more quickly than most people anticipate.

**Archetypes.** Some types of feedback loops work in concert to form “patterns of structure” that occur repeatedly. Senge calls these “systems archetypes.” One of the most common systems archetypes is called “limits to growth.” By applying this archetype to BI, we can understand why some BI teams face an uphill battle to increase adoption and usage, while others grow at a rapid clip. It can also help identify leverage points that enable struggling teams to reverse the dynamic and start growing, or that cause fast-growing teams to hit a wall and go into decline.

**BI Dynamics.** Figure 1 shows a “limits to growth” archetype applied to BI. It consists of two adjacent feedback loops: one that inhibits growth (i.e., a negative reinforcing cycle) and another that accelerates it (i.e., a positive reinforcing cycle). Both hinge on a single condition called “business outcomes,” which represents the value that the BI solution offers the organization. (See Figure 2 for a concept map of business outcomes.)

## Concept Map of Business Outcomes

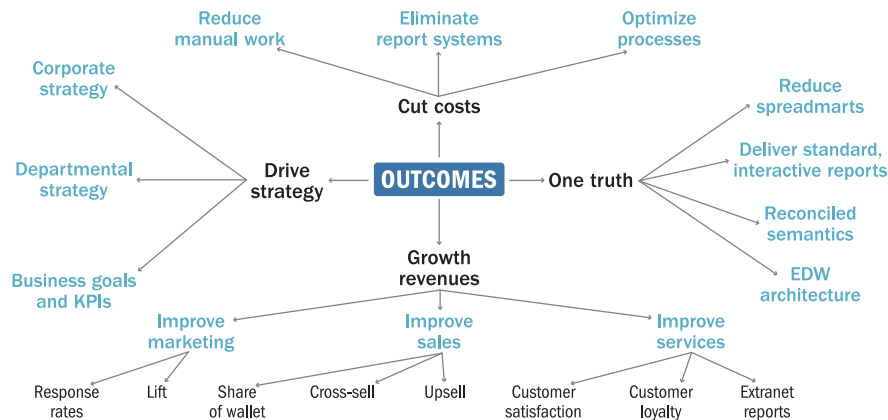


Figure 2. Business outcomes tie together positive and negative reinforcing cycles within a BI environment. BI teams in the negative loop see outcomes decline, while those in the positive loop see outcomes improve.

**Negative Cycle.** The right-hand cycle shows how a lack of usability in a BI solution gives the BI team a bad reputation, which causes users to create spreadsheets—renegade BI systems or data shadow systems built outside of IT—rather than use the corporate-provided BI tools. This causes executives to question the value of their BI investment and reduce funding, which further limits a BI team’s ability to deliver a usable solution. The cycle repeats until the organization either cancels the BI program or the BI team finds a way out of the negative loop.

Some BI teams break this cycle by finding time within an ever-growing backlog to deliver a “quick-hit” application or dashboard that is easy to use and highly performant. Word spreads quickly, and soon other groups want a similar application. They petition senior executives to fund an expansion of the BI application and perhaps other new BI initiatives. With an infusion of support and funding, the BI team ramps up its existing data infrastructure, accelerating deployment times and usability. As its reputation builds, the BI team frees itself from the negative reinforcing loop.

**Positive Cycle.** The left-hand cycle depicts how business sponsors fund new BI projects that lead to positive business outcomes. Once a BI project demonstrates that it can reduce costs, increase revenue, or advance business strategy, executives are likely to boost funding to undertake new projects, which add more business value. This positive reinforcing cycle accelerates until it reaches the natural limits of its growth and begins to reverse course. (Hence the archetype name, “limits of growth.”)

In BI, this reversal happens when the BI team grows too big to work efficiently and its architecture and standards become too ponderous to respond rapidly to user requests. As

a result, user satisfaction declines and the growth of the BI initiative slows. Unless the BI team moves quickly to improve responsiveness, the BI initiative will switch from the positive to negative feedback cycle and begin to contract rapidly. External events can also derail a fast-growing BI initiative, such as an across-the-board budget cut or a new strategic initiative that reallocates BI resources to other projects.

Given the fluidity of these feedback cycles, BI teams need to continually monitor the momentum of their BI initiatives to ensure they are on the right track. “We’ve crossed the threshold where the business is now excited by what we have to offer,” says a BI director at a large financial services firm that recently deployed dashboards and a data warehousing appliance to augment an enterprise data warehouse that took years to build. “But we are cautious, because we know that it can tip back the other way very quickly.”

### Leverage Points

According to Senge, most people react to limits-to-growth situations by trying to push too hard. “Unfortunately, the more vigorously you push the familiar levers, the more strongly the balancing process resists, and the more futile your efforts become.” Senge recommends finding the leverage points within the systems, which often “require actions you may not have considered, choices you never noticed, or difficult changes in rewards and norms.” In other words, sometimes we have to challenge our innate assumptions about what works—and try doing the opposite.

**Backsliding.** For example, many BI teams find themselves at a crossroads after they consolidate shared data elements into an enterprise data warehouse and centralize development within an enterprise BI team. Although they deliver high-

Sponsorship Concept Map



Figure 3. Obtaining and maintaining sponsorship is a key leverage point for creating successful BI solutions.

quality solutions and ensure a single version of truth, the centralized team now struggles to keep up with user demand and becomes a bottleneck to growth. Most BI teams in this situation buckle down, work harder, and plead for more funding and resources to grow the team, expand the hardware platform, and increase database performance. While all these things might be necessary, they are usually not enough to counter the system dynamics that the team has created through its own success.

The primary option is counterintuitive. Instead of continuing to expand central operations, the team must forfeit hard-won control and distribute ownership back to the business units. This is a scary proposition for most BI teams, because business units can easily undermine information consistency by creating non-standard data marts, cubes, reports, and so on. But if the central BI team doesn't distribute work to business units, users will become so dissatisfied with the pace of development that they will build their own systems (i.e., spreadmarts) anyway, derailing the BI initiative and moving it into a negative feedback loop.

In this situation, enlightened BI executives recognize that they need to give back some control to continue growing. "We will soon hit the wall, and it's clear that we need to decentralize our operations if we want to achieve the kind of growth and capabilities the business desires long-term," said a BI director at a major manufacturing firm.

In a decentralized environment, BI managers maintain "control" by defining standards for development rather than performing the development themselves. They define standards for project management, ETL processes, data quality, and other architectural elements. They educate remote developers about these standards and review their work to ensure that they are adhering to the standards. In this way, BI teams maintain a reinforcing cycle of growth.

**Components of Leverage.** In the world of BI, each element within the dual feedback loops is a point of leverage that BI teams can use to alter the cycle of growth or decline: usability, reputation, spreadmarts, sponsorship, funding, and projects (see Figure 1).

For example, there are numerous techniques to eliminate spreadmarts, such as my five Cs: communicate, coerce, convert, coexist, and co-opt. There are also dos and don'ts for acquiring sponsorship for an initial project or ongoing program.

"BI projects succeed from the top down with strong executive sponsorship; I've never seen it successful from the bottom up," says Mike Ferrante, manager of data services at Habitat for Humanity International. (See Figure 3 for a concept map of sponsorship.)

**Usage and Projects.** While sponsorship and spreadmarts are important elements, the two most powerful leverage

points for changing the nature of system dynamics within a BI environment are usability (see Figure 11) and project management. These are areas in which BI professionals can exert the most control over the shape of the BI environment and its eventual outcome. By focusing efforts here, BI managers can obtain the necessary leverage to change system dynamics and move their initiatives in a positive direction.

However, each leverage point is complex in its own right, consisting of multiple components and subcomponents, each of which can affect the usability of the system or the effectiveness of a project overall. Typically, BI teams need to address all the components within a leverage point to ensure a successful outcome. This is the equivalent of juggling multiple balls at once without dropping any.

## Recommendations

The key to making BI pervasive is persuading users to adopt and use the BI tools that an organization purchases for them. This seemingly straightforward equation is actually very complex because of all the variables that go into making a BI tool easy to use. It's why the penetration of active BI users in organizations is only 24%.

To increase the adoption of BI tools, we recommend the following:

1. Although the cost of BI tool licenses is not insignificant, the real costs are the time and complexity to configure the tools and integrate them into an existing architecture (e.g., security, Web servers, databases, etc.) These costs increase exponentially in an enterprise deployment. Therefore, one way to make the cost of BI tools more affordable is to deploy them departmentally first, gain buy-in, and then expand incrementally.
2. Conduct an inventory of users to ensure that you purchase only the licenses you need. For example, many casual users may need only static reports pushed to them each night via email or to a Web folder. Replacing full-client licenses with less expensive "recipient" licenses will reduce overall license and maintenance costs and make it more affordable for your company to purchase licenses for all who need them.
3. Create a working committee of power users from each department, and have them create a roadmap for BI with IT's assistance. Getting the power users on board will create a cost-efficient program that prioritizes the delivery of BI functionality in an optimal way, leaving more time and money to purchase and deploy the right BI tools for each category of user.

There are many factors involved in making BI pervasive, and BI teams need to address all of them. Systems theory can help BI teams understand the dynamics that drive BI initiatives. With this understanding, BI teams can better focus their efforts and increase their chances of delivering a successful solution.

**Wayne W. Eckerson** is the director of TDWI Research at The Data Warehousing Institute. He is an industry analyst and the author of *Performance Dashboards: Measuring, Monitoring, and Managing Your Business* (John Wiley & Sons, 2005). He can be reached at [weckerson@tdwi.org](mailto:weckerson@tdwi.org).

This article was excerpted from the full, 32-page report, *Persuasive Business Intelligence: Techniques and Technologies to Deploy BI on an Enterprise Scale*. You can download this and other TDWI Research free of charge at [www.tdwi.org/research/reportseries](http://www.tdwi.org/research/reportseries).

The report was sponsored by Business Objects, an SAP company; Corda Technologies; InetSoft Technology Corp.; LogiXML; Microsoft; MicroStrategy; SAS; and Strategy Companion.

# CUSTOMER DATA INTEGRATION

BY PHILIP RUSSOM

THE STATE OF CDI

## The Perceptions and Realities of Sharing Customer Data

The first question in this report’s survey asked respondents to rate their organization’s perceptions and efforts as high, medium, or low for issues related to sharing customer data. (See Figure 1.) In the question, issues were grouped in pairs to reveal conflicts between perception and reality.

- **Most organizations think that sharing customer data is highly valuable (59%).** But sharing mostly reaches medium and low percentages of the enterprise (44% and 38%, respectively). Here, as with many CDI issues we’ll see in this report, the perception of potential benefit is way ahead of the action being taken to achieve the benefit.
- **Employee access to customer data is medium to high in most organizations.** Yet, the completeness of the data is mostly low (55%). The good news is that organizations are sharing customer data; the bad news is that the data being shared is sketchy.

- **All respondents rated very highly both benefits and problems.** In fact, few respondents rated benefits or problems as low. Clearly, shared customer data yields perceptible benefits, just as the lack of it results in noticeable problems.
- **The perceived quality of customer data is mediocre, as is the effort put into improving it.** This isn’t bad, given that customer data (due to its constantly changing nature) is more prone to quality problems than most data domains. This explains why the majority of data quality solutions focus on customer data, whereas other domains get little or no quality improvement.
- **Half of respondents consider their organization’s CDI success mediocre (50%).** Few rate their success as high (11%), and a considerable percentage (38%) rate their success as low. This shows that CDI solutions have plenty of room for improvement in most organizations.

### Rate your overall organization for:

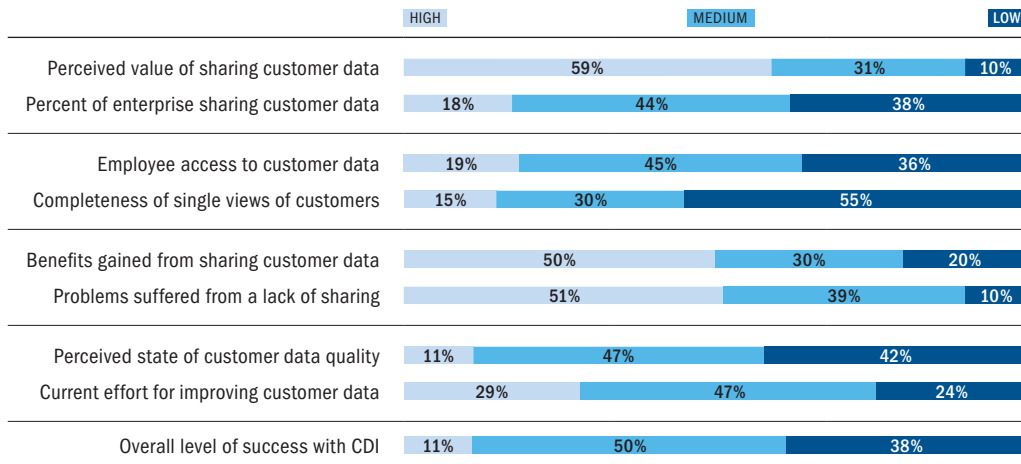


Figure 1. Based on 352–357 respondents per answer.

**For your primary CDI solution, what is the scope of customer data sharing?**

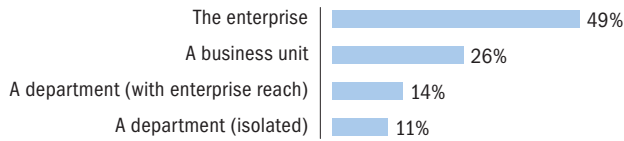


Figure 2. Based on 344 respondents. Percentages total 100%.

**Enter the number of CDI solutions in your enterprise.**

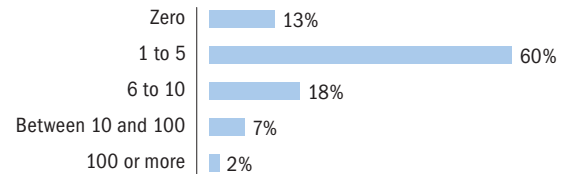


Figure 3. Based on 308 respondents. Percentages total 100%.

**The Scope of CDI Solutions**

One of TDWI’s positions in this report is that organizations don’t share enough customer data or share it broadly enough. In a related trend, CDI is like a lot of data management practices in that it’s broadening beyond departmental silos into enterprisewide usage. Hence, the scope of individual CDI solutions—plus the aggregate effect of multiple solutions—is an important metric for gauging the breadth of customer data sharing.

In an effort to quantify the current state of CDI scope, TDWI Research asked survey respondents: “For your primary CDI solution, what is the scope of customer data sharing?” (See Figure 2.) Half of respondents (49%) claim that their organizations are already practicing CDI with enterprise scope, while another 14% report reaching the enterprise from a departmental CDI solution.

This is a surprisingly high number of organizations reaching the enterprise, given that CDI has a reputation for departmental and spreadmart solutions. Users interviewed for this research reported similar progress, corroborating the survey data. Also, many interviewees described work they had done in recent years to consolidate CDI silos into fewer solutions, extending the reach of the surviving solutions in the process. The gist of the market data is that many organizations are well down the road to enterprise-scope use of CDI techniques and practices—and that’s a big improvement for CDI.

**The Number of CDI Solutions per Organization**

TDWI’s impression is that the number of CDI silos and other isolated customer data solutions has decreased in recent years. After all, many corporations have run consolidation programs to reduce the number of databases and data marts—and many of these are customer data hubs. And don’t forget: customer data hubs have been around for more than 15 years, so CDI solutions deployed in the 1990s have, this decade, become legacies needing migration or retirement.

To get a feel for the number of CDI solutions per organization today, TDWI Research asked survey respondents to “enter the number of CDI solutions in your enterprise.” (See Figure 3.)

- **Organizations have 5.2 CDI solutions on average.** This is a manageable number, and it’s less than TDWI Research anticipated. In fact, multiple solutions are desirable in some companies, especially multinational firms with distinct customer bases that are complementary by region.
- **Some organizations have no CDI solution, at all.** Although CDI has been with us for decades, there is still a minority of firms (13%) that aren’t leveraging and sharing customer data officially through a CDI solution.
- **The majority of organizations (60%) have one to five solutions.** Again, this is good news, showing that most organizations have successfully controlled the proliferation of CDI solutions.
- **A few respondents (18%) have 6 to 10 CDI solutions.** If you have more than five, you might consider tightening controls on the spread of customer data.
- **A minority of respondents (7%) has more than 10 CDI solutions.** If you fall into this category, your situation is highly abnormal and needs immediate attention, perhaps via a consolidation project.
- **Some organizations have 100 or more CDI solutions.** Only 2% of survey respondents fall into this category. An extreme case like this is reached when an enterprise doesn’t control the proliferation of customer data marts, spreadmarts, and operational data stores. Hence, great numbers of CDI solutions are possible, but not common—luckily!

## CDI Funding, Use, and Maintenance

It's always telling to discover which departments fund, use, and maintain an information system, since this reveals who has the money versus who has the greatest need for the system. To sort this out, this report's online survey instructed respondents to enter the name of the persons or departments that fund CDI, need it the most, and maintain it. There were no prewritten answers to select; instead, each of the 294 respondents typed an answer in his or her own words. The answers were quite diverse, but a handful of departments and job titles appeared much more commonly than others:

- **Information technology (IT)** is the most common source of CDI funding (according to 24% of survey respondents), and IT usually gets stiffed maintaining it (63%). Yet, IT rarely needs or uses CDI (3%).

### USER STORY CRM CONSOLIDATION IS A COMMON PENANCE FOR THE SINS OF THE 1990S.

A midsize software vendor in New England went on a shopping spree in the late 1990s—as did many companies—and bought and built several CRM and CRM-ish applications for internal use. Most of these applications overlap, because they automate customer-oriented functions such as order entry, shipping, billing, direct mail, customer base analysis, and multiple approaches to sales force automation. Synchronizing customer data across these is too complex to be effective, so the firm does not have a clean or complete view of customers. Today, this firm is paying for the indulgence of the 1990s by migrating and consolidating redundant applications and their databases into a single instance of a packaged application for CRM, plus extending that instance to fill in missing functions. This is a multiyear, multistage project that employs many data management tools, as well as extensive process reengineering to ensure that end users and the business get full value from the new application.

- **Marketing and sales** occasionally fund CDI (19%), and they are certainly its most common users and grateful beneficiaries (38%). But they rarely lend a hand to maintain it (7%).
- **Corporations and enterprises** (12%) and chief officers of various types (10%) were listed as funding sources, though none of them use or maintain CDI.
- **Business intelligence (BI) teams** weren't identified as a source of funding for CDI, although they occasionally use (3%) and maintain (6%) it.<sup>1</sup>

**Philip Russom** is the senior manager of TDWI Research at The Data Warehousing Institute, where he oversees many of TDWI's research-oriented publications, services, and events. He can be reached at [prussom@tdwi.org](mailto:prussom@tdwi.org).

The article was excerpted from the full, 32-page report, *Customer Data Integration: Managing Information as an Organizational Asset*. You can download this and other TDWI Research free of charge at [www.tdwi.org/research/reportseries](http://www.tdwi.org/research/reportseries).

The report was sponsored by Acxiom, DataFlux, HP, IBM, Informatica, Syncsort, Teradata, and Trillium Software.

<sup>1</sup>According to these numbers, BI teams don't use CDI much, which is inconsistent with other findings of this report. Other numbers show that data warehouses and customer analytics are the most common applications integrated with a CDI solution.

## Best Practices Awards 2008

TDWI's Best Practices Awards recognize organizations for developing and implementing world-class business intelligence and data warehousing solutions. Here are summaries of the winning solutions for 2008.



### TDWI BEST PRACTICES AWARDS JUDGES

TDWI thanks this year's panel of expert judges:

**Barb Wixom**, Associate Professor, University of Virginia

**Claudia Imhoff**, President, Intelligent Solutions, Inc.

**Evan Levy**, Partner, Baseline Consulting

**Hugh Watson**, Professor of MIS, University of Georgia

**Jed Summerton**, Chief Solution Architect, CONNECT: The Knowledge Network

**Jill Dyché**, CBIP, Partner, Baseline Consulting

**James Thomann**, CBIP, Principal Consultant, DecisionPath Consulting

**John Bair**, Information Strategy

**Jonathan Geiger**, CBIP, Executive Vice President, Intelligent Solutions, Inc.

**Joyce Norris-Montanari**, CBIP, President, DBTech Solutions, Inc.

**Mark Peco**, CBIP, Partner, InQvis

**Mike Lampa**, President, TeamDNA, Inc.

**Nancy Williams**, CBIP, Vice President and Principal Consultant, DecisionPath Consulting

**Patty Haines**, President, Chimney Rock Information Solutions

**Philip Russom**, Senior Manager, TDWI Research

**Sid Adelman**, Principal, Sid Adelman & Associates

**Steve Dine**, President, Datasource Consulting, LLC

**Steve Williams**, President, DecisionPath Consulting

**Wayne Eckerson**, Director, TDWI Research

### BI/DW ON A LIMITED BUDGET

#### ► WINNER: JEA

SOLUTION SPONSOR: BASELINE CONSULTING

JEA owns, operates, and manages the electric system established by the City of Jacksonville, Florida, in 1895. JEA also owns, operates, and manages Jacksonville's water and wastewater system, beginning in 1997. JEA is Florida's largest municipally owned electric utility, the 8th largest in the United States, and the 113th largest of the more than 3,000 electric utilities in the country.

**Business Impact.** JEA's BI project, referred to internally as the Distribution System Loading—Phase I (DSL—I), made Automated Meter Read (AMR) data useful by combining daily and 15-minute interval consumption from individual meters with customer and connectivity data. It delivers BI reports and analytical models and enables JEA's business areas to analyze utility load data, to analyze actual transformer load by transformer rating and time, and to supply load (such as summer peak data) at the transformer level to the GIS system.

Users can access standard reports and create ad hoc queries on load information to support on-demand business inquiries. The reports and queries help the utility identify overloaded transformers that may fail (degrading service reliability) and underloaded transformers that could serve additional customers, increasing system efficiency and reducing operational cost.

**Maturity.** Phase I further extended JEA's "enterprise" data warehouse, reaching broadly across lines of businesses and constituencies. Phase II will integrate customer load and GIS data for improved distribution planning and operations. It will aggregate customers' loads by phase to upstream devices, such as group switches, so the company can analyze load at any point along a lateral or feeder by phase from the transformer to the substation breaker.

**Relevance.** Using the data warehouse environment to integrate the AMR data with data from other essential systems to solve critical business needs related to system reliability and operational savings has made JEA an acknowledged early adopter in the industry. The data models created for this initiative provide an extensible platform for developing additional analytical tools, such as long-term planning reports and drill-down analysis tools.

**Innovation.** Using daily and interval data provided by AMR for analytics and performing transformer-load management calculations with complex engineering formulas—a business solution not currently available in commercial software—have made this a groundbreaking project.

Despite its limited budget and resources, JEA believes its solution can be implemented in other utilities deploying AMR technology. Its cost (\$350,000), paid back in less than a year, is proof that it only requires imagination, dedication, and executive-level vision—not huge capital outlay—to create an innovative and useful business solution using a data warehouse.

## CUSTOMER INTELLIGENCE

### ▶ WINNER: CISCO SYSTEMS, INC.

Cisco Systems, Inc. designs, manufactures, and sells internet protocol (IP)-based networking and other products related to the communications information technology industry worldwide.

**Business Impact.** Cisco's new customer intelligence center (CIC) initiative is a framework and a platform based on an enterprise data warehouse (EDW) that focuses on customer data integration (CDI). The EDW integrates data from many sales, marketing, and financial applications, and serves up the data to support multiple analytic and operational applications. Through powerful application logic, coupled with data models in EDW that integrate data across multiple domains, Cisco can correlate revenue bookings with sales and marketing activities; more than \$500 million in bookings have been assisted by the CIC program, fully justifying the cost of this initiative.

**Maturity.** Following deployment in June 2007, Cisco's CIC had 250 users within a month, and in one year it had 1,700 active users logging into the application many times a week. User adoption is one of the most important metrics for gauging the success of an application, and a detailed deployment plan is in place to continue this success and double the adoption and usage in the next five months.

**Relevance.** It's been proposed that a 360-degree view of customers can increase sales through up-sell and cross-sell activities. In many ways, Cisco's CIC proves this to be true, with the application using customer data and its interactions with Cisco to the fullest extent.

**Innovation.** Cisco applied well-known data warehousing platforms, data integration tools, and reporting/analysis tools to its customer intelligence solution. Innovation in Cisco's diligent focus on tracking revenue in multiple dimensions lets data both enable and track sales accurately. This helps Cisco increase revenue and provides an understanding of customer needs that will lead to greater efficiency and effectiveness in sales and marketing.

## DATA GOVERNANCE

### ▶ CO-WINNER: AIRLINES REPORTING CORPORATION

Airlines Reporting Corporation (ARC) is an airline-owned company that provides financial settlement solutions and data and analytical services to the travel industry, including airlines, railroads, travel agents, corporate travel departments, airports, and industry analysts.

**Business Impact.** Since data is the fundamental building block of all of ARC's products and services, ARC designed, developed, and implemented a phased approach for a data governance program. Data governance has improved accountability for data content, attained a single version of the truth for core industry data, improved productivity and reusability around data, improved time to market for data products and services, and increased revenues.

**Maturity.** ARC's business intelligence and data warehousing (BI/DW) implementation has been in place since 2002, and many data governance functions were handled in an ad hoc manner around the BI/DW implementation. However, ARC management saw an opportunity to formalize and improve data-oriented business processes by instituting a formal data governance program, which rolled out in mid-2004. BI/DW infrastructure still supports governance, though data distribution and data classification are now handled more rigorously, with rules controlling these activities based on whether data will be accessed internally or delivered externally to customers.

**Relevance.** ARC's need for rigorous processes around data access and usage was driven by the fact that data for them is a product delivered externally to customers. Even so, IT departments that only handle data internally could learn a lot from ARC's sophisticated policies and procedures that define how all data is classified, identify priority areas for data improvement, and enforce strict rules for how, when, and to whom data may be distributed.

**Innovation.** ARC's innovation is demonstrated in its BI/DW infrastructure (which is designed and extended to serve both internal employees and external customers and partners) and in its comprehensive data governance policies and procedures for data classification, security, improvement, and distribution.

## DATA GOVERNANCE

### ▶ CO-WINNER: HSBC

SOLUTION SPONSOR: ASG

HSBC, headquartered in London, is one of the largest banking and financial services organizations in the world. HSBC's international network comprises more than 9,500 offices in 79 countries and territories in Europe, the Asia-Pacific region, the Americas, the Middle East, and Africa. Through an international network linked by advanced technology, including a rapidly growing e-commerce capability, HSBC provides a comprehensive range of financial services: personal financial services; commercial banking; corporate, investment banking, and markets; private banking; and other activities.

**Business Impact.** As with many financial institutions, HSBC has been under pressure in recent years to control data access and usage to comply with multiple regulations coming from multiple sources. In particular, HSBC had immediate needs to demonstrate compliance with UK data protection laws, California data privacy laws, and Basel II—not to mention internal policies. By instituting a data governance board, HSBC achieved these compliance goals. HSBC also automates many data governance policies and procedures via a global metadata repository.

**Maturity.** HSBC rolled out the new global metadata repository (GMR) in January 2003. For more than five years, the GMR has provided business and technical users a day-to-day reference tool to better understand their data through the display and analysis of their business metadata. The GMR aids in the discovery and display of relationships among various metadata components (including relationships within business units and across the organization), and in compliance to group standards (e.g., model compliance to the group enterprise data warehouse model).

**Relevance.** Data governance is still quite new, so best practices for the organization of data governance boards and committees are just now becoming known. Very little is yet known about how software automation can assist with coordinating the many people and processes of data governance plus help with policing data access and usage. HSBC is ahead of the pack in that it has tackled both of these new areas, and its example can guide companies in a wide variety of industries and geographic regions.

**Innovation.** One of HSBC's innovations is the use of an enterprise metadata repository to classify data so various applications and users can handle it automatically according to rules that comply with the classifications. Further automation enables reporting tools to generate reports based on the data classifications.

#### ENTERPRISE BI

##### 🏆 CO-WINNER: CISCO SYSTEMS, INC.

Cisco is the leading supplier of networking equipment and network management for the Internet. Cisco hardware, software, and service offerings are used to create Internet solutions that allow individuals, companies, and countries to increase productivity, improve customer satisfaction, and strengthen competitive advantage.

The enterprise BI platform for Cisco's quality organization is known as quality data infrastructure (QDI). This cross-functional effort was sponsored by corporate quality, global supply chain management (manufacturing), and the Cisco development organization (engineering).

The goal was to build the foundational framework for these diverse communities; a key objective was to define, deploy, and institutionalize the Cisco-wide quality data architecture (QDA) and enable the best-in-class processes, systems, service predictability, and operational excellence to meet and exceed customer expectations.

**Business Impact.** Standardized quality world class metrics (KPIs) have shown tremendous improvements in the past two years and include immediate returns, production yields, component DPMO, supplier quality measurement, and poor quality cost reduction.

QDI provides BI that allows prediction of customer quality issues so staff can prevent surprise by customer escalations; it provides a single point enablement for reviews with Cisco's external customers and compliance with industry and government regulations. Estimates of major productivity gains were as high as 35–40 percent per user.

**Maturity.** QDI is currently used by approximately 3,500 distinct users per quarter (compared to 1,200 users in 2006) and by about 20,000 external customers. Recent QDI internal customer satisfaction scores averaged 4.67 out of a total of 5 (up from approximately 4.3 in 2006).

Upcoming releases include correlation capabilities across subject areas for predictive analysis via new conformed dimensions. QDI will soon provide enhanced end-to-end visibility for key data correlations.

**Relevance.** QDI has implemented a robust data management and data governance model aligned with the enterprise data management strategy with a well-defined “system of record (source) determination” and “single source of truth” structures for single-point accuracy.

By incorporating an elaborate data profiling methodology into the project development life cycle, the company can measure the quality of data at the onset and assess the worthiness of proposed solutions up front.

**Innovation.** An innovative business model exists for iterative dashboard development by the business team with leverage on an onsite, offshore development model. In addition, working closely with Oracle Corporation, Cisco implemented a single sign-on (SSO) “securely” between Enterprise Oracle Analytics dashboards, enterprise-based Oracle 11i applications, and hundreds of other applications, including homegrown J2EE applications and third-party vendor solutions, all secured by the enterprise authentication engine.

#### ENTERPRISE BI

##### 🏆 CO-WINNER: GE RAIL SERVICES

GE Rail Services (GERS) is a leading service provider to the global rail industry. As a member of General Electric Company (NYSE: GE), GERS leases the most diverse fleet of railcars in the industry as well as a full range of intermodal assets to transport vital commodities.

**Business Impact.** GERS's latest comprehensive information delivery solution, a “one-stop-shop” enterprise BI portal, meets a wide spectrum of user needs—from self-service and ad hoc analysis to standardized metric reports organized by business function, to dashboards and many sophisticated strategic and operational analytics applications.

The senior management at GERS views the enterprise business intelligence (EBI) platform as a strategic investment. It has helped GERS improve the efficiency of operational, commercial, financial, and services aspects of the business, generating significant financial benefits and a unique competitive advantage.

**Maturity.** GERS began developing its EBI platform in 2000 and continues to invest in developing innovative cross-functional BI capabilities. It has tailored the delivery of BI content to meet the unique requirements of different decision makers.

“The EBI practice at GERS has ... matured through several business and leadership cycles. The four drivers behind our EBI success story are strong business ownership, a centralized core BI team, strategic technology partner relationships, and mature processes,” said Vijitha Kaduwela, BI leader at GERS.

**Relevance.** GERS has mastered all key ingredients needed to be successful in EBI. The standardized reports on the portal have helped free up key resource capacity to focus on business activities, while SMEs and power users leverage self-service.

**Innovation.** The BI function reports to the CIO organization and consists of three core functions: data warehousing, reporting and metrics, and business analytics, an area that is traditionally on the business side. The innovative centralized approach allows GERS to capitalize on the synergy. The functional expertise, combined with the IT process rigor, has helped the BI team become highly productive.

#### ENTERPRISE DW

#### ▶ WINNER: AVNET, INC.

Avnet, Inc. is one of the largest technology distributors globally. It provides distribution and marketing services, optimizes the supply chain, and provides design-chain services for the products of the world's leading electronic component suppliers, enterprise computer manufacturers, and embedded subsystem providers. Avnet generated more than \$15.6 billion in revenue in more than 70 countries during its fiscal year ending June 30, 2007. It is currently ranked 168 on the *Fortune* 500.

**Business Impact.** By implementing a data warehouse for its U.S. electronic components organization, Avnet's BI team transformed a series of disassociated legacy reporting systems, fed by data from multiple data repositories, into a single, flexible reporting environment serviced by an efficient, scalable data repository populated by OLTP applications. Avnet's sales force benefited from the efficient BI process and could produce reports within minutes rather than weeks, saving them substantial time in the collection of data and preparation of reports.

By retiring legacy reporting applications and supporting infrastructure, reducing the data footprint, and recouping productive time from business users, Avnet has delivered millions of dollars in bottom-line benefits.

**Maturity.** Avnet has implemented international BI reporting capabilities. Its data warehouses are multiregional, gathering and disseminating mission-critical data throughout Avnet's global business. Widespread use of BI tools speaks to its success: more than 3,000 users generate more than 35,000 reports each month.

**Relevance.** Avnet's practices of standardization on best-of-breed technologies and straightforward configuration of the technology have benefited its bottom line. Its data warehousing practices focus on providing information that senior executives can use to drive intelligent business decisions. Finally, its innovative practice of data stewardship is a strategic tool any large enterprise can use to scale data quality.

**Innovation.** Avnet's data steward program goes far beyond similar programs normally associated with data warehouse implementations. At Avnet, business users are the rightful owners of the data warehouse and the BI reporting environment, ensuring the quality and accuracy of the data.

#### GOVERNMENT AND NONPROFIT

#### ▶ WINNER: SINCLAIR COMMUNITY COLLEGE

SOLUTION SPONSOR: SAS INSTITUTE INC.

Sinclair Community College in Dayton, Ohio, is a League of Innovation and Vanguard college with an enrollment of approximately 23,000 students.

**Business Impact.** Sinclair Community College implemented a business intelligence system to improve access to data for decision making and continuous improvement efforts. Examples include targeting outreach efforts for recruitment and for retention.

Before implementing SAS, Sinclair focused recruitment efforts on establishing relationships with high schools and middle schools and participated in outreach programs. With a new analytics-driven approach, Sinclair can identify and target prospective students who would most likely register and succeed at the school by mining 10 years' worth of student data, including age, gender, GPA, graduation rate, field of study, and marital status.

**Maturity.** Before SAS, Sinclair's internal research group had to rely on IT to write custom applications to extract data. The quickness by which Sinclair has been able to answer questions and the enterprisewide use of the technology indicate a mature solution; more than 75 departments analyze data gathered by the college's ERP system and more than 100 reports are available to the hundreds of users accessing the system daily. Demand for system use continues to escalate.

**Relevance.** To ensure consistent data and confidence in reporting, Sinclair uses one software platform for reporting, ad hoc analysis, and high-end analytics (data mining). A single SAS platform can pull data from existing systems and optimally integrate individual technology components within its IT infrastructure.

**Innovation.** To spearhead the implementation and maximize the value of the business intelligence warehouse, Sinclair created the Research, Analytics, and Reporting Office, its version of a BI competency center, which serves as a “front door” to data needs. In addition, the office quickly became the institution’s single source of decision-support information.

#### OPERATIONAL BI

##### ➤ WINNER: THE BOEING COMPANY

Boeing is the world’s leading aerospace company and the largest manufacturer of commercial jetliners and military aircraft combined. The company also designs and manufactures rotorcraft, electronic and defense systems, missiles, satellites, launch vehicles, and advanced information and communication systems. Boeing has customers in more than 90 countries.

**Business Impact.** The Boeing Company combines three separate aerospace companies (heritage Boeing, McDonnell Douglas, and Rockwell). In this large, multinational entity, each heritage company had its own accounting system, so consolidating the company’s financials was extremely complicated and cumbersome, taking between 12 and 30 days. Furthermore, the ability to analyze the data was limited because data came from multiple systems and the tools being used (primarily Microsoft Excel). In 2006, Boeing implemented the first phase of an enterprisewide Finance Transformation.

The delivered solution provided an environment within which financial accountants could quickly find and understand the reasons for anomalies in the consolidated ledger. This information helps them make correcting journal entries that are captured in the next consolidation cycle and then incorporated into the next set of cubes.

**Maturity.** The vision for the application originated in March 2007. Although the application has robust functionality, in some respects the project is still in the early stages of maturity. Much work can still be done to improve performance as the company gains a better understanding of the users’ actual application use. Data quality measures, archiving of dynamic content, and user training in the application (versus the tool) need further refinement.

**Relevance.** Though the drill-down, drill-through application may not be relevant to other companies, the technique of integrating an analytical environment with a relational set of detail data may be considered a best practice. It allows the user to easily analyze large data sets, identify anomalies, and discover the underlying reason for the anomaly, which then forms the basis for taking corrective action.

**Innovation.** The innovations in this application are as many and as varied as the challenges the company encountered. The project was able to handle data volume and complexity, a low tolerance for data latency, and presented a synchronized view of the data, integrating an existing cube with a new DMR model, as well as complying with SOX regulations.

#### PREDICTIVE ANALYTICS

##### ➤ WINNER: BP

BP is one of the world’s largest oil and gas companies, serving millions of customers every day in more than 100 countries across six continents. BP’s businesses include exploration and production; refining and marketing; and alternative energy, its low-carbon energy business. Through these activities, BP provides fuel for transportation, energy for heat and light, retail services, and petrochemical products for textiles and packaging.

**Business Impact.** BP developed and deployed early warning systems that monitored heavy machinery and control systems, markedly increasing the reliability, operational integrity, and performance of equipment.

The company’s initial trial generated value of \$2 million during the trial alone, at a cost of only \$50,000. Additional trials provided further savings of almost \$3 million through detections such as pump seal problems, failing instrumentation, control problems, and turbine fouling.

**Maturity.** In slightly more than a year’s time, BP has made significant implementations at more than half of its facilities in one business segment and online pilots in all other business areas. Millions of dollars have already been saved; BP’s goal of significantly reducing unplanned maintenance is well on its way to being realized.

**Relevance.** Predictive analytics supporting machinery and controlling health is one BP best practice. Although a skilled technician must look at the system’s output data, far fewer experts are required to spot developing problems than with traditional data monitoring methods, and more problems are caught. Quick-win maintenance savings more than pay for the technologies in the first year, and the safety benefits in a potentially hazardous environment are priceless.

**Innovation.** BP’s aggressive adoption of wired and novel wireless technology to capture more measurements has significantly increased the volume of data available. This wealth of data put BP in an even better position to leverage predictive analytics technology.

The technologies' data-driven approach has many advantages over the traditional trending or first principles models used in the past. It's generally faster to implement, easier to maintain, does not require sophisticated engineering knowledge, and makes use of a wealth of existing but unused data, representing a breakthrough in the area of equipment health.

#### RADICAL BI

### ▶ WINNER: GUY CARPENTER & COMPANY, LLC

#### SOLUTION SPONSOR: MICROSTRATEGY

As a part of the Marsh & McLennan Companies, Guy Carpenter & Company, LLC, creates and executes reinsurance and risk management solutions for clients worldwide. In addition, Guy Carpenter's InStrat unit utilizes industry-leading quantitative skills and modeling tools that optimize the reinsurance decision-making process and help make the firm's clients more successful.

**Business Impact.** Guy Carpenter's expertise is in helping its insurance company clients understand the level of risk in the context of particular geographies, demographics, economic conditions, etc. To this end, Guy Carpenter offers i-aXs, a Web-enabled platform that allows clients to interpret and analyze vast amounts of their insurance data. Since Guy Carpenter custom developed i-aXs for each client company, it has made a radical departure from standard business intelligence (BI) practices and embraced the new practice of "BI mashup."

**Maturity.** i-aXs has been in operation since November 2006 and currently supports approximately 2,000 users internally and across a wide range of client companies.

**Relevance.** Risk exposure is a complex analytic problem because it involves multiple dimensions (e.g., geography, economic brackets, and consumer demographics) represented by data from multiple sources. Because of the diversity, conducting analytics often requires multiple tools, yet results must be aggregated in a single user interface. The BI mashup is natural for complex analytic problems like this because it enables the developer to quickly bring diverse data and analysis resources together and present the results in an integrated (and sometimes overlaid) fashion in the user interface.

**Innovation.** Guy Carpenter's i-aXs creatively combines complex risk exposure data with maps, satellite images, and innovative data visualizations. These come together in a professional-looking BI mashup, along with traditional charts and tables. This innovative combination is enabled by various in-house tools and data plus Internet-based datasets and applications.

## Solution Providers

The following solution providers have shared their data integration stories and successes, technology insights, and the lessons they have learned for *What Works in Enterprise Business Intelligence*.



### Collaborative Consulting

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Collaborative Consulting is a leading professional services organization that specializes in optimizing its clients' business and technology capabilities. We combine exceptional business knowledge and market-leading technology expertise with an effective partnership approach, allowing us to understand and solve even the most complex business problems. By aligning business and technology initiatives, we can help clients achieve superior, cost-effective business solutions. Our services include business architecture, business intelligence, technology architecture, data integration, software quality and performance, and program and project management. Collaborative Consulting is committed to building long-term relationships and strives to be a trusted partner with every client. Founded in 1999, Collaborative Consulting serves clients from offices across the United States.



### DATAlegro, Inc., a subsidiary of Microsoft

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Since 2004, DATAlegro has provided data warehouse technology that allows organizations to analyze huge volumes of data quickly and at a low cost. Since being acquired by Microsoft in 2008, DATAlegro's data warehouse technology is being integrated into the SQL Server product line. As a result, Microsoft's SQL Server product roadmap will offer customers a broad range of enterprise-class data warehouse technologies capable of scaling up and scaling out from gigabytes to petabytes.



### EasyAsk

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www.progress.com/easyask

Progress EasyAsk, a division of Progress Software, delivers BI to the masses with its EasyAsk for Operational BI software. EasyAsk can be used by virtually any authorized user within or beyond the enterprise to easily query, analyze, and share business intelligence information on demand. The software leverages natural language technology to provide a simple user interface that contains a familiar search box where users can input a question such as, "How many tables were purchased in June 2008 compared to June 2007?" In the same view, EasyAsk delivers an answer to the question in the form of a report and provides links to existing reports that are relevant to the user's question.



## Information Builders

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Information Builders' award-winning combination of business intelligence and enterprise integration software has been providing innovative solutions to more than 12,000 customers for the past 30 years. WebFOCUS is the world's most widely utilized business intelligence platform. It provides the security, scalability, and flexibility needed at every level of global extended enterprises.

iWay Software suite provides state-of-the-art, multipurpose, prebuilt integration components that address all SOA, application, data, and information management requirements. Its integration adapters have been adopted by the leading software platform providers. Together, these products give Information Builders' customers the ability to live up to the company motto: Your business. No barriers.

Headquartered in New York City with 90 offices worldwide, the company employs 1,450 people and has more than 350 business partners.



## MicroStrategy

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MicroStrategy is the leading independent provider of open systems business intelligence software. 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 more than 15 years of industry experience, thousands of customer successes, and a reputation for innovation and leadership, MicroStrategy is the clear choice for your business intelligence investment. More information about MicroStrategy is available at [www.microstrategy.com](http://www.microstrategy.com).



## Oracle

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[www.oracle.com](http://www.oracle.com)

Oracle is the leader in enterprise performance management (EPM), unifying performance management and business intelligence (BI), supporting a broad range of strategic, financial and operational management processes. Oracle provides a complete and integrated system for managing and optimizing enterprisewide performance. This allows organizations to achieve a state of management excellence—being smart, agile, and aligned—which provides competitive advantage and leverages their operational investments. For nearly three decades, Oracle has provided software and services that enable organizations to get the most accurate and up-to-date information from their business systems. Today, Oracle has more than 275,000 customers—including 98 of the *Fortune* 100—in more than 145 countries.



## Portrait Software

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Portrait Software enables B2C companies to drive sales, reduce customer attrition, and optimize marketing spend with a next-generation marketing suite. Our integrated next-generation marketing solutions empower marketers to automate engagement with targeted individuals and strategically map delivery of the right message, at the right time, across all marketing and service channels. The Portrait marketing suite seamlessly integrates leading-edge, easy-to-use analytics that enable powerful, event-driven, and highly personalized customer campaigns. Customer-focused organizations benefit from being able to conduct two-way, intelligent dialogs with individual customers and to build stronger, more profitable customer relationships while maximizing ROI from customer-focused programs.

## Syncsort

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Syncsort is a leading developer of high-performance data management and data warehousing software. For nearly 40 years, Syncsort has built a reputation for superior product performance and reliable technical support. Most of the *Fortune* 500 companies are Syncsort customers, and Syncsort's products are used in more than 50 countries to speed data warehouse processing and improve performance of data-intensive applications and processes.

DMExpress is Syncsort's high-speed data integration tool. It speeds large-volume applications, saving customers hours—even days—of processing time.

## Talend

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Talend is the first provider of open source data integration software. After three years of intense research and development investment and with solid financial backing from leading investment firms, Talend revolutionized the world of data integration when it released the first version of Talend Open Studio in 2006.

Talend's solutions are used primarily for integration between operational systems, as well as for ETL (extract, transform, load) for business intelligence and data warehousing, for data quality management, and for migration.

Unlike proprietary, closed solutions, which can only be afforded by the largest and wealthiest organizations, Talend makes data integration solutions available to organizations of all sizes and for all integration needs.

## About TDWI

**TDWI, a division of 1105 Media, is the premier provider of in-depth, high-quality education and research in the business intelligence and data warehousing industry. Starting in 1995 with a single conference, TDWI is now a comprehensive resource for industry information and professional development opportunities. TDWI sponsors and promotes quarterly World Conferences, regional seminars, onsite courses, a worldwide Membership program, business intelligence certification, resourceful publications, industry news, an in-depth research program, and a comprehensive Web site ([www.tdwi.org](http://www.tdwi.org)).**




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### MEMBERSHIP

[www.tdwi.org/membership](http://www.tdwi.org/membership)

Through TDWI Membership, business intelligence and data warehousing professionals learn about the latest trends in the industry while enjoying a unique opportunity to learn, network, share ideas, and respond as a collective whole to the challenges and opportunities in the industry.

TDWI Membership includes more than 7,000 Members who are business and information technology professionals from *Fortune* 1000 corporations, consulting organizations, and governments in 45 countries. TDWI offers special Membership packages for corporate Team Members and students.

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### WORLD CONFERENCES

[www.tdwi.org/conferences](http://www.tdwi.org/conferences)

TDWI World Conferences provide a unique opportunity to learn from world-class instructors, participate in one-on-one sessions with industry gurus, peruse hype-free exhibits, and network with peers. Each six-day conference features a wide range of content that can help business intelligence and data warehousing professionals deploy and harness business intelligence on an enterprisewide scale.

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### SEMINAR SERIES

[www.tdwi.org/seminars](http://www.tdwi.org/seminars)

TDWI Seminars offer a broad range of courses focused on the skills and techniques at the heart of successful business intelligence and data warehousing implementations. The small class sizes and unique format of TDWI Seminars provide a high-impact learning experience with significant student-teacher interactivity. TDWI Seminars are offered at locations throughout the United States and Canada.

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### ONSITE COURSES

[www.tdwi.org/onsite](http://www.tdwi.org/onsite)

TDWI Onsite brings TDWI courses to customer sites and offers training for all experience levels. Everyone involved gains a common knowledge base and learns in support of the same corporate objectives. Training can be tailored to meet specific business needs and can incorporate organization-specific information.

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### CERTIFIED BUSINESS INTELLIGENCE PROFESSIONAL (CBIP)

[www.cbipro.com](http://www.cbipro.com)

Convey your experience, knowledge, and expertise with a credential respected by employers and colleagues alike. CBIP is an exam-based certification program that tests industry knowledge, skills, and experience within five areas of specialization—providing the most meaningful and credible certification available in the industry.

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### WEBINAR SERIES

[www.tdwi.org/education/Webinars](http://www.tdwi.org/education/Webinars)

TDWI Webinars deliver unbiased information on pertinent issues in the business intelligence and data warehousing industry. Each live Webinar is roughly one hour in length and includes an interactive question-and-answer session following the presentation.

baseline  
CONSULTING

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Raising Intelligence

## TDWI Partner Members

These solution providers have joined TDWI as special Partner Members and share TDWI's strong commitment to quality and content in education and knowledge transfer for business intelligence and data warehousing.

