Data Management for Business Intelligence

March 2008

Executive Summary

As the sheer amount of information available for Business Intelligence (BI) applications has grown, and the sophistication of BI capabilities has accelerated, organizations are striving to improve time-to-information for business users. Data storage and retrieval decisions have started to be made based on cost rather than fulfilling a business need, and this has led to compromises that impact business performance. In January and February of 2008, Aberdeen Group conducted a research program among 333 respondents from several industry sectors, geographies, company sizes, and job roles. The program included an on-line survey and several one-on-one interviews. Thirty six (36) respondents were disqualified due to their status as either a software vendor or solution provider, leaving a total of 297 respondents that were included in the analysis. This report investigates the strategies, capabilities, and supporting technologies that Best-in-Class companies are employing to alleviate the pressure to accelerate the delivery of actionable information within their enterprises.

Best-in-Class Performance

Aberdeen used four key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard organizations:

- **Time-to-information for users of BI applications.** Best-in-Class companies achieved an 8% mean average decrease in time-to-information in the past 12 months, compared to a 2% mean average decrease among Industry Average companies, and a *1% mean increase* among Laggards.

- **Number of end-users receiving access to BI applications.** Best-in-Class companies achieved a 10% mean average increase in the number of users receiving access to BI applications in the past 12 months, compared to a 5% mean average increase among Industry Average companies, and a 3% mean average increase among Laggards.

- **End-user productivity and efficiency.** Best-in-Class companies achieved a 12% mean average improvement in end-user productivity and efficiency (measured as time spent looking for business information within BI applications), versus a 3% mean average improvement among Industry Average companies, and a 7% *mean average decrease* in productivity among Laggards.

- **Data management infrastructure costs.** Best-in-Class companies achieved a 7% mean average decrease in data management infrastructure costs (hardware and software) to support BI applications in the past 12 months versus the prior 12 months, compared to a 2% mean average decrease among Industry Average companies, and a 6% *mean average increase* among Laggards.

In combination, these metrics provide a means by which respondents can be benchmarked based on their ability to achieve improved business performance.

"Our data is not organized in a way that can provide insight. As a Six-Sigma black belt, my job is to influence management and IT to organize information correctly. The process by which we make decisions based on KPIs is a struggle. Fulfillment is one of the big KPIs and involves an end to end process from order received to actual order shipped. We have also acquired many companies with many systems to manage and many data sources. It takes a lot of time to extract the data, and on the business side, to determine what data to extract. Many things are missing when we try to aggregate data from disparate systems."

~ Six Sigma Process Improvement Lead, Large US Manufacturer

Competitive Maturity Assessment

Survey results show that the firms enjoying Best-in-Class performance shared several common characteristics. There is no one specific capability that is more important than another, but rather a mix of capabilities that must be balanced in order to achieve improved data management performance for BI deployments. These include:

- The ability to understand end-user needs early in the implementation process

- The ability to automate the integration and cleansing of data from multiple sources

- The establishment of query optimization and prioritization rules for data access

- The ability to measure and plan for data and end-user growth

Required Actions

In addition to the specific recommendations in Chapter Three of this report, to achieve Best-in-Class performance, companies must:

- Realize that data management for BI initiatives requires a balance of several factors. This includes gaining a deep understanding of business user information requirements before a data management roadmap or strategy can be developed and executed.

- Understand both the human and technological elements of data management. End user requirements must be understood at the beginning, and an investment in training should be made to ensure rapid and deeper adoption of BI applications.

- Be aware that the nature of the data queries and reports should be investigated to uncover poorly designed or structured queries and corrective action taken.

Send to a Friend

Table of Contents

Figures

## Tables

Aberdeen *Group*
A Harte-Hanks Company

Chapter One:
Benchmarking the Best-in-Class

Business Context

The volumes and complexity of data within business intelligence applications are growing, resulting in a new set of challenges for organizations that are attempting to deliver more relevant information to the right people at the right time. "Data management" involves capabilities, methods, and technologies that companies may employ separately or in combination to alleviate this challenge.

Research completed in December 2007 for Aberdeen's *Operational BI: Getting Real-Time about Performance* report revealed that data volumes are increasing at alarming rates within many organizations (Figure 1). Seventy-eight percent (78%) of respondents reported growth of data volumes, and 40% reported growth rates of 21% or more over the past 12 months.

Figure 1: Percentage of Data Volume Growth during the Past 12 Months by Percentage of Respondents
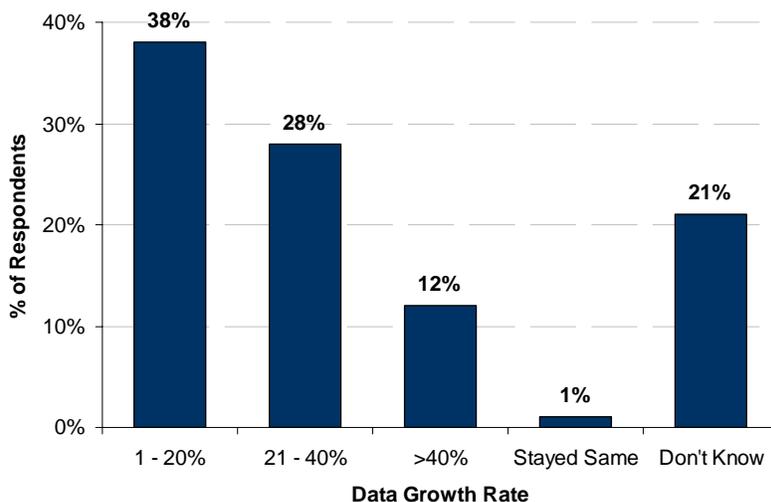
Source: Aberdeen Group, February 2008

As data volumes have increased, organizations have struggled to maintain rapid "time-to-information" performance for business users. In January and February of 2008, Aberdeen Group conducted in-depth research among over 330 business and IT decision-makers to identify the primary business pressures driving companies to focus on data management strategies that are supporting business intelligence initiatives. The predominant pressure driving companies to adopt new data management strategies for BI applications is the need to reduce time-to-information for end-users (Figure 2).

Fast Facts

√ **88%** of all respondents (and 95% of Best-in-Class respondents) rate "ease of use for end-users" as the most critical criteria when selecting a data management vendor for BI initiatives - yet **41%** complain that end-users have not provided well-defined information needs

√ **74%** of all respondents (and 84% of Best-in-Class respondents) prioritize system scalability for the handling of increased users, data volumes, and complexity as the most critical criteria when selecting a data management vendor for BI initiatives

Figure 2: Top Five Pressures Driving Data Management Initiatives within BI Deployments
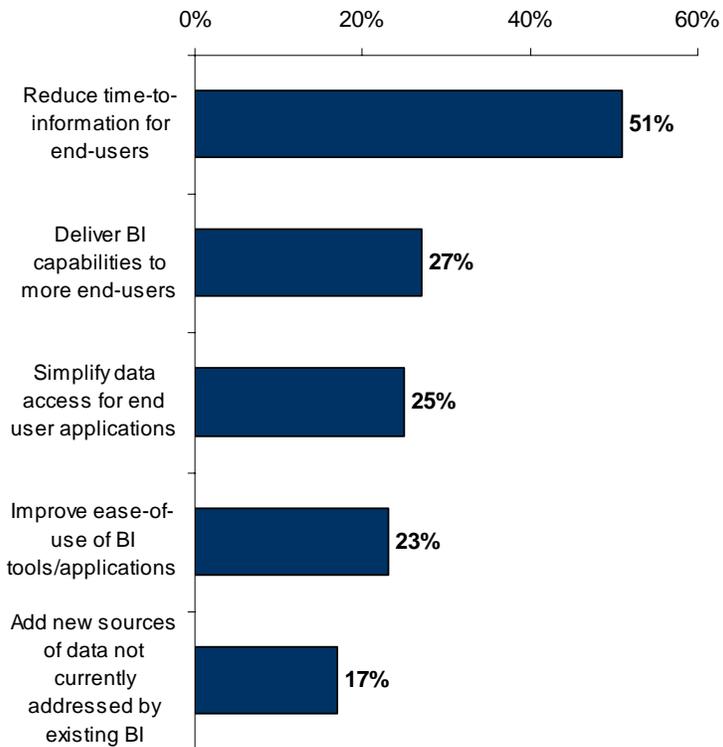
Source: Aberdeen Group, March 2008

The following research findings describe the strategic and tactical approaches, as well as the technologies and services that are being adopted and deployed by companies that are best-equipped to deal with these pressures.

The Maturity Class Framework

Aberdeen used four key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard respondent organizations:

- **Time-to-information for users of BI applications.** Percent increase / decrease in the time between actual business activity and the delivery of information to decision-makers

- **Number of end-users receiving access to BI applications.** Percent increase / decrease in the number of business users who receive access to BI applications, but did not in the past 12 months

- **End-user productivity and efficiency.** Percent improvement in time spent looking for business information

- **Data management infrastructure costs.** Percent increase / decrease in cost of data management infrastructure (hardware and software) to support BI applications

In combination, these metrics provide a means by which respondents can be benchmarked based on their ability to achieve improved business performance (Table 1).

Table 1: Top Performers Earn Best-in-Class Status

Definition of Maturity Class	Mean Class Performance
Best-in-Class: **Top 20%** of aggregate performance scorers	▪ Achieved 8% mean average decrease in time-to-information in the past 12 months ▪ Achieved 10% mean average increase in number of end-users receiving access to BI applications in past 12 months ▪ Achieved 12% mean average improvement in employee productivity ▪ Experienced 7% mean average decrease in data management infrastructure costs associated with supporting BI applications
Industry Average: **Middle 50%** of aggregate performance scorers	▪ Achieved average 2% mean average decrease in time-to-information in the past 12 months ▪ Achieved 5% mean average increase in number of end-users receiving access to BI applications in past 12 months ▪ Achieved 3% mean average improvement in employee productivity ▪ Experienced 2% mean average decrease in data management infrastructure costs associated with supporting BI applications
Laggard: **Bottom 30%** of aggregate performance scorers	▪ Achieved average 1% mean average increase in time-to-information in the past 12 months ▪ Achieved 3% mean average increase in number of end-users receiving access to BI applications in past 12 months ▪ Suffered 7% mean average decrease in employee productivity ▪ Experienced 6% mean average increase in data management infrastructure costs associated with supporting BI applications

Source: Aberdeen Group, March 2008

The Best-in-Class PACE Model

Using data management approaches to reduce time-to-information for more users requires a combination of strategic actions, organizational capabilities, and enabling technologies that can be summarized in Aberdeen Group's PACE framework (Table 2).

Table 2: The Best-in-Class PACE Framework

Pressures	Actions	Capabilities	Enablers
▪ Reduce time-to-information for end-users	▪ Understand end-user requirements for BI ▪ Define the business rules and calculations required for reports and analysis views ▪ Create data management strategy roadmap	▪ Integrate data from multiple sources ▪ Measure growth of existing database and data warehouse assets ▪ Automate the cleansing of data ▪ Committee or group for obtaining end-user and corporate BI requirements ▪ Method for prioritizing high-demand data for end-user access	▪ Data warehouse software ▪ BI query and reporting tools ▪ Systems integration tools ▪ Data warehouse appliance ▪ Data integration tools ▪ Data mining algorithms and tools ▪ End-to-end BI software solution (ETL, cube / model, interface for reporting, dashboards, etc.) ▪ Data cleansing tools ▪ IT / systems integrator consulting services ▪ Training services ▪ Management consulting services ▪ Stand-alone ETL tools

Source: Aberdeen Group, March 2008

Best-in-Class Strategies

In addition to the desire to reduce the time-to-information for end-users of business intelligence applications, one fourth of all respondents also identified the need to deliver BI capabilities to more people, simplify the access to data, and improve the ease-of-use of BI applications.

Best-in-Class companies' use of input from the end-user community is the top strategy for developing a successful data management program for supporting business intelligence initiatives. Yet, 44% of all respondents reported that end users are not doing a good job of expressing their information needs.

Conversely, Best-in-Class companies are not focusing as heavily on building data management strategy roadmaps or identifying data sources for BI applications. This is a result of the fact, as revealed in one-on-one conversations, that Best-in-Class companies have already addressed these challenges, and the realization among this group that without a clear understanding of end-user information requirements, work on a data management roadmap or identification of appropriate data sources cannot begin (Figure 3).

"I spend too much time worrying about one-off projects that have started within departmental pockets of the company, and not enough time understanding the requirements of the enterprise as a whole. This has caused several false starts that waste valuable resources and saps the life out of the IT teams tasked with supporting several operational groups."

~ Senior System Architect, Large Travel Services Company

Figure 3: Top Five Strategic Actions
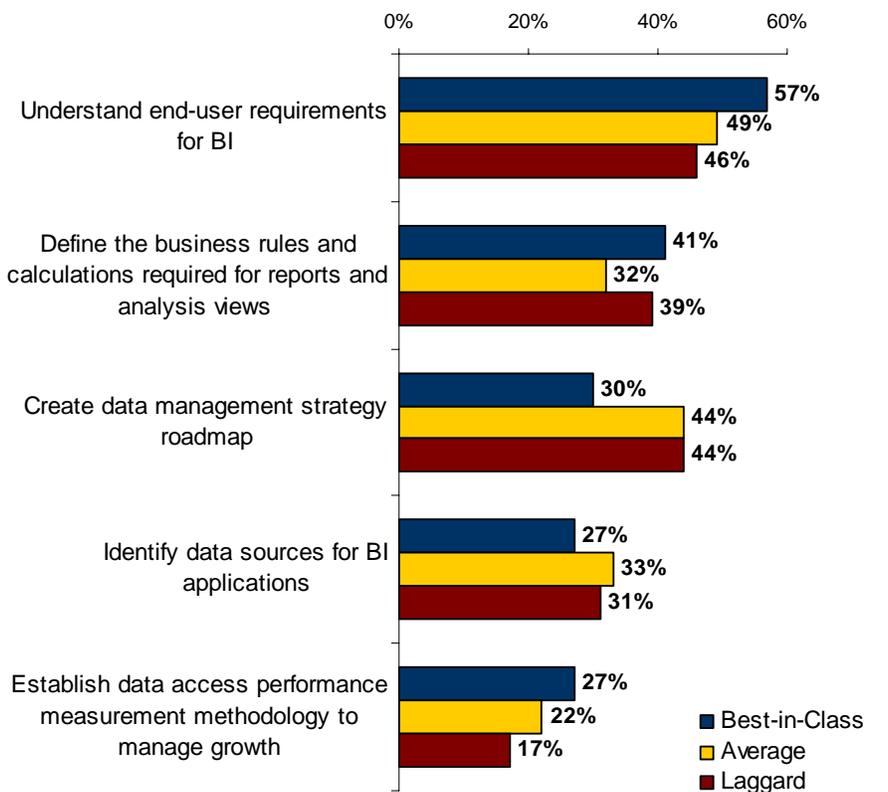
Source: Aberdeen Group, March 2008

Aberdeen Insights — Strategy

Businesses are feeling the pressure to compress information delivery timeframes to real or near-real-time (See Aberdeen Group's December, 2007 study *Operational BI: Getting Real-Time About Performance*). As the pressure to deliver more relevant, actionable information in less time increases, BI project budgets and timelines can increase beyond initial expectations. The effects of data management strategies on the success of BI initiatives are felt most powerfully when it comes to measuring the ROI of BI implementations. While 62% of Best-in-Class organizations have achieved at least a 100% ROI on their BI projects, only 43% of Industry Average and 33% of Laggards have found the same success. As companies struggle with the cleansing and integration of complex and high-volume data sets, the ability to achieve a 100% ROI on BI investments becomes more difficult, and may erode management buy-in and support as time frames increase well beyond expectations (Figure 4).

continued

Aberdeen Insights — Strategy

Figure 4: ROI Time-Frames for Business Intelligence Projects

Source: Aberdeen Group, March 2008

In the next chapter, we will see what the top performers are doing to improve timeframes for information delivery and achievement of ROI.

Aberdeen *Group*
A Harte-Hanks Company

Chapter Two:
Benchmarking Requirements for Success

The selection of a data management strategy, methodology, and technology approach can dictate the level of success that can be achieved in meeting end-user requirements for information.

Case Study — Advantage Sales and Marketing Shares Their Experience with a "BI Appliance"

As North America's largest CPG sales and marketing broker, Advantage Sales and Marketing acts as a liaison between manufacturers and retailers across all 50 states and Canada. They offer a full range of value add services to CPG companies including category management and retail merchandising, all delivered as turn key solutions to customers.

The company's product is represented by its people (over 22,000 strong and growing) and the challenge that Advantage Sales and Marketing had was a growing need to make strategic decisions based on current, factual data.

"We were making broad strategic plans based on gut feel and without the level of data needed to substantiate the decisions we were making," states John Thamm, Advantage's National HR Technology and Communications Director. "We had a lot of ad hoc reporting capability, but the data that could be accessed by these systems was limited. We realized that we needed to learn about new solutions, and see if there was something that could meet our requirement of near real-time visibility into the business."

The company needed to gain visibility into its existing data in order to improve human resource hiring and development plans. This required a solution to some specific needs:

- Detailed analysis of headcount and human resource allocation

- Understanding of turnover rates and their affect on the business

- Visibility into employee termination reasons / causes

Thamm and his team investigated several vendors and tools, and narrowed it down to two vendors with similar solutions. They ultimately decided to work with a BI appliance vendor that offered a bundled hardware and software solution that was specialized for meeting their unique requirements. "The solution we chose offered what appeared to be the most seamless implementation and deployment for our organization," said Thamm. "Our journey was not without challenges, but overall we are very pleased with results to date and expect to continue our development and roll out of this technology."

Fast Facts

√ **92%** of all respondents indicate that they require business information to be delivered within a day of actual business activity - yet, only **64%** of respondents currently receive information this quickly

√ **100%** of Best-in-Class companies have achieved at least 20% ROI on their BI initiatives compared to only **65%** of all others

"This was not the cheapest option, but the value for money is there. One thing I would recommend to anyone thinking about this is to plan for one full time employee to be dedicated to this project. We did not commit this resource up front, and had we done it, we would have saved quite a bit of time."

~ John Thamm, National HR Technology and Communications Director; Advantage Sales and Marketing

Case Study — Advantage Sales and Marketing Shares Their Experience with a "BI Appliance"

Some of the challenges that were experienced along the way included:

- **Proper assignment of IT resources and skill sets.** The process of working within SQL to build BI cubes was complex and not within the skill sets of the IT administrator originally assigned. This introduced a consulting services requirement from the vendor which was provided and helped alleviate the skill set requirement.

- **The implementation timeframe was longer than expected.** Due to the need for consulting services, and limited internal IT resources, the implementation went from an expected 60 days to a year. The solution is not yet fully deployed, but it is implemented locally. The company is limiting exposure to a larger user base until wrinkles are ironed out.

Once the first full deployment is completed, management will develop metrics for measuring ROI, with a goal of achieving 100% ROI within 18 to 24 months.

"The first set of applications and dashboards were developed for the HR management group as a beta project. This includes about eight people who are shaking out the wrinkles and engaging in very open dialog about changes and improvements," continues Thamm. "Once that is completed we will deliver an expanded set of deliverables to the executive team, and then to a larger audience of over 150 business leaders around the country. We have had a great experience working with the solution provider. We know that challenges should be expected, and their approach to working with us to solve them was top notch. This was not the cheapest option, but the value for the money is there. One thing I would recommend to anyone thinking about this is to plan for one full time employee to be dedicated to this project. We did not commit this resource up front, and had we done it, we would have saved quite a bit of time."

Competitive Assessment

Aberdeen Group analyzed the aggregated metrics of surveyed companies to determine whether their performance ranked as Best-in-Class, Industry Average, or Laggard. In addition to having common performance levels, each class also shared characteristics in five key categories: (1) **process** (the approaches they take to execute their daily operations); (2) **organization** (corporate focus and collaboration among stakeholders); (3) **knowledge management** (contextualizing data and exposing it to key stakeholders); (4) **technology** (the selection of appropriate tools and effective deployment of those tools); and (5) **performance management** (the ability of the organization to measure their results to improve their business). These characteristics (identified in Table 3) serve as a guideline

for best practices, and correlate directly with Best-in-Class performance across the key metrics.

Table 3: The Competitive Framework

	Best-in-Class	Average	Laggards
Process Management	Ability to optimize queries		
	40%	33%	15%
Organizational Management	Committee or group for obtaining end-user and corporate BI requirements		
	53%	52%	21%
	Training assets for deploying BI to end-users		
	37%	27%	9%
Performance Management	Measure growth of existing database and data warehouse assets		
	57%	50%	16%
Data / Knowledge Management	Method for prioritizing high-demand data for end-user access		
	51%	39%	12%
	Formalized end-user polling or survey		
	44%	29%	15%
Technology Management	Integrate data from multiple sources		
	77%	54%	22%
	Data cleansing capability		
	56%	51%	35%

Source: Aberdeen Group, March 2008

Capabilities and Enablers

Based on the findings of the Competitive Framework and one-on-one interviews with end users, Aberdeen's analysis of the Best-in-Class demonstrates that no one specific capability or technology investment provides a silver-bullet solution. Rather, it is a combination of capabilities and prioritizations of technology investments that leads to improved time-to-information, simplification of data access, and inevitably ease of use of BI applications by end-users.

Process

Reducing the time-to-information for end-users necessitates an understanding of the information queries that place a burden on the data management system. Best-in-Class companies have identified this as the top process management capability needed for performance improvement (Figure 5).

"Overall, the biggest gain from our BI efforts has been speeding up our time-to-action. This has been particularly evident with our loss prevention initiatives. We can now see discount anomalies faster, and can stop undesirable activity before it impacts the performance of a store or the company. The data is out there and utilizing it to react more quickly is the ultimate source of benefit."

~ Retail Business Consultant, Global Footwear / Apparel Company

Figure 5: Ability to Optimize Data Queries
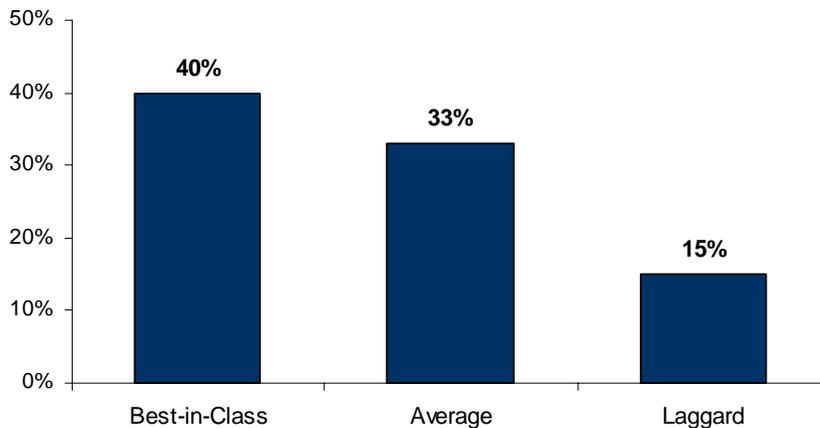
Source: Aberdeen Group, March 2008

Query optimization entails a two-phase process:

- The ability to monitor and assess all queries in aggregate, and determine which types of queries place the most strain on the data management system

- The ability to alter data structures and query assemblage in order to make the most optimal use of the data management resource
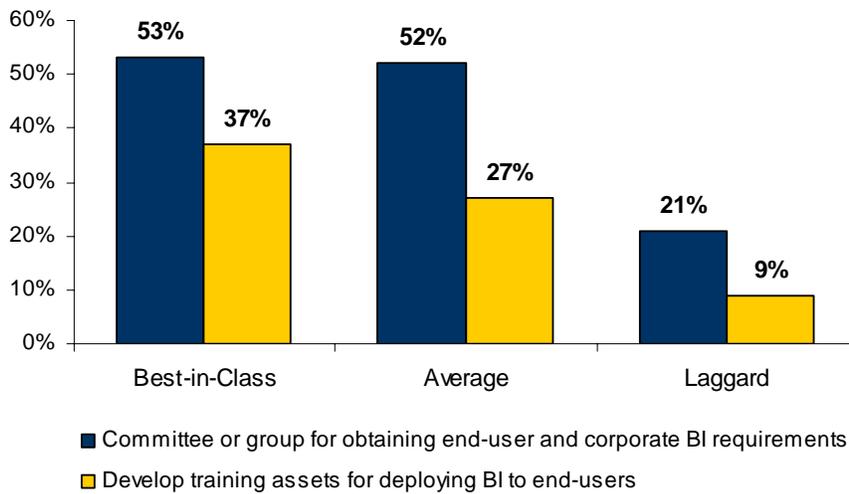
Optimization is achieved when the system's ability to handle query load and deliver desired information falls within the timeframes required by end-users. Often, end-user queries are presented in non-optimal ways. One user may start by segmenting data by product type, while others may begin by filtering data on region or customer type. Query optimization, therefore, involves an understanding of the data structure, but just as importantly, an understanding of the end-user needs and query assembly is also required. Optimization is achieved when the two are brought together, and end-users are either trained on optimal query assembly, or technology is used to automate the process of re-assembling poorly constructed queries.

Organization

Best-in-Class companies are far more likely to take an enterprise approach to organizational management of their business intelligence initiatives. When it comes to data management for BI, over half of Best-in-Class and Industry Average companies are currently prioritizing the creation of a formal corporate committee for obtaining end-user BI requirements. Unfortunately, the same cannot be said of Laggards (Figure 6).

Analyst Insight

Depending on how the data is stored and accessed, a query that is structured one way may drastically outperform a query that is structured differently. For example, imagine the difference between searching for a phone number by area code, then prefix, and then last four digits versus searching by last name, then first name. Both methods will eventually yield the phone numbers you are seeking, but one will take much less time. The same can be said of data queries that are structured improperly. Many organizations interviewed for this study stated that they have sought external assistance to solve their query structure challenges.

Figure 6: Top Organizational Capabilities

Bar chart showing percentages for Best-in-Class, Average, and Laggard:

- Best-in-Class: Committee or group for obtaining end-user and corporate BI requirements 53%; Develop training assets for deploying BI to end-users 37%
- Average: Committee or group 52%; Develop training assets 27%
- Laggard: Committee or group 21%; Develop training assets 9%

■ Committee or group for obtaining end-user and corporate BI requirements
□ Develop training assets for deploying BI to end-users
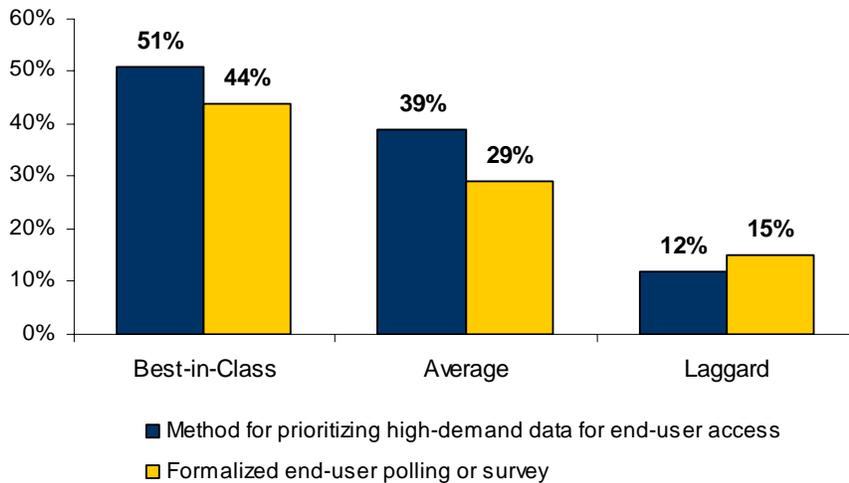
Source: Aberdeen Group, March 2008

This aligns with the findings in Chapter One regarding the strategic objectives that Best-in-Class companies are emphasizing around end-user requirements above technical or system-oriented strategies. In addition to obtaining end-user requirements, Best-in-Class companies are also far more likely to have implemented training programs around BI deployment to end-users. Without a thorough knowledge of how to use BI applications, much of the effort that goes into the construction and maintenance of data warehouses and operational databases can be wasted. Effective data management requires that both the back-end database and data warehouse *and* the front-end user interface and query engines work together cohesively. Without a formal training program, the front-end side of the equation can be thrown into jeopardy.

Knowledge Management

In addition to query optimization, identification of high-demand data is critical to the successful BI implementations. As BI usage grows within an organization, it is typical that specific data sets are in higher demand at particular times during the business day. For example, each morning, the previous day's sales results and analysis might be of highest importance to customer-facing sales and marketing staff. At the end of a fiscal business period (week, month, quarter) financial reports and analysis will be in high demand among financial / accounting staff and executives. The ability to tune access to these data sets and provide prioritization for queries related to them is therefore a Best-in-Class capability (Figure 7).

Figure 7: Knowledge Management - Data Prioritization and User Demand Intelligence
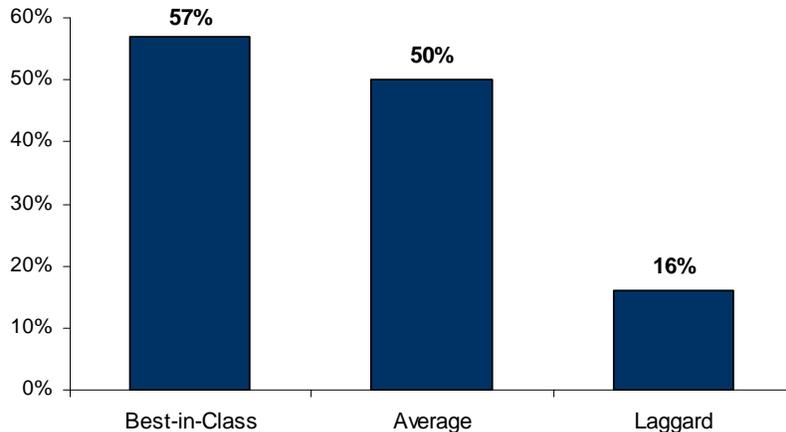

Source: Aberdeen Group, March 2008

The ability to identify and fine-tune systems for high-demand data requests stems from, once again, gaining an accurate understanding of end-user requirements. Best-in-Class companies are significantly more likely to employ end-user polling or survey methods to gain this understanding. While high-demand data can also be identified through the study of transaction logs, and certainly should be, the inclusion of end-user polling adds a dimension that cannot be found in transaction logs - predictability. Logs only reveal what has happened in the past, and while this is a good indicator of what might happen in the future, only the human end-users can tell you this based on their knowledge of information needs that are on the horizon.

Performance Management

Awareness of data volume growth and the implications of this on system performance is an important component to successful data management for business intelligence initiatives. Companies are beginning to wake-up to the realization that there are untapped data sources in the form of internal documents, emails, customer service field notes, as well as external data such as web pages, wikis, blogs, and a plethora of government and association databases. As integration of these new data sources commences and grows, new stresses will be placed on data management initiatives by data volumes that will be and are increasing exponentially. Best-in-Class companies are realizing this and are more likely to have the ability to measure growth of existing database and data warehouse assets (Figure 8).

Figure 8: Ability to Measure and Manage Growth of Database and Data Warehouse Assets
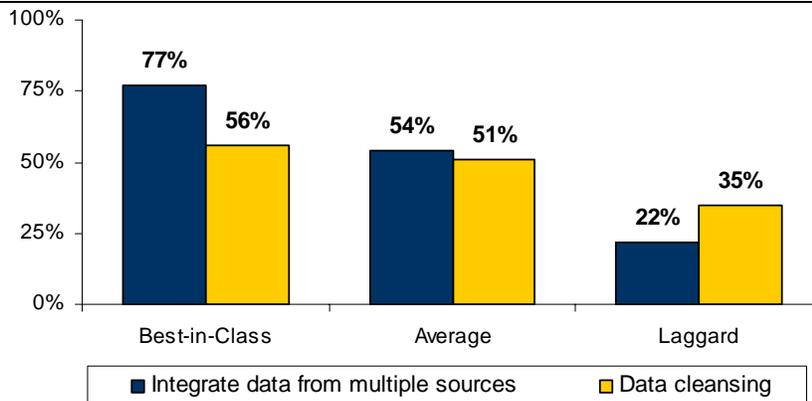

Source: Aberdeen Group, March 2008

Technology Management

As the data volumes and the number of data sources continues to increase, the ability to integrate new sources with existing data is becoming more critical to BI implementation success. The speed at which this integration occurs may be the lynchpin that determines whether or not end-user time-to-information requirements are met.

In addition, the level of trust that users have in the data dictates the level to which user uptake and adoption will occur. Integration of data from multiple sources not only needs to happen quickly, but it also must result in accurate information. The support of a BI deployment that is tasked with delivering actionable information can only survive if end-users believe the data they are consuming. Therefore it is extremely important to incorporate both data integration and cleansing capabilities into a data management strategy (Figure 9).

**Figure 9: Best-in-Class Data Integration and Data Cleansing Capabilities**

Source: Aberdeen Group, March 2008

Enabling Technologies and Services

Best-in-Class companies have made a significantly higher investment in technology than all other respondents. More than half of Best-in-Class respondents report that they are making use of all but one of the technology enablers shown in figure 10 below. This further illustrates the fact that data management for BI encompasses several capabilities and technical requirements, and should not be viewed as just one function within the IT organization (Figure 10).

Figure 10: Best-in-Class versus All Others - Technology Enablers Currently Deployed
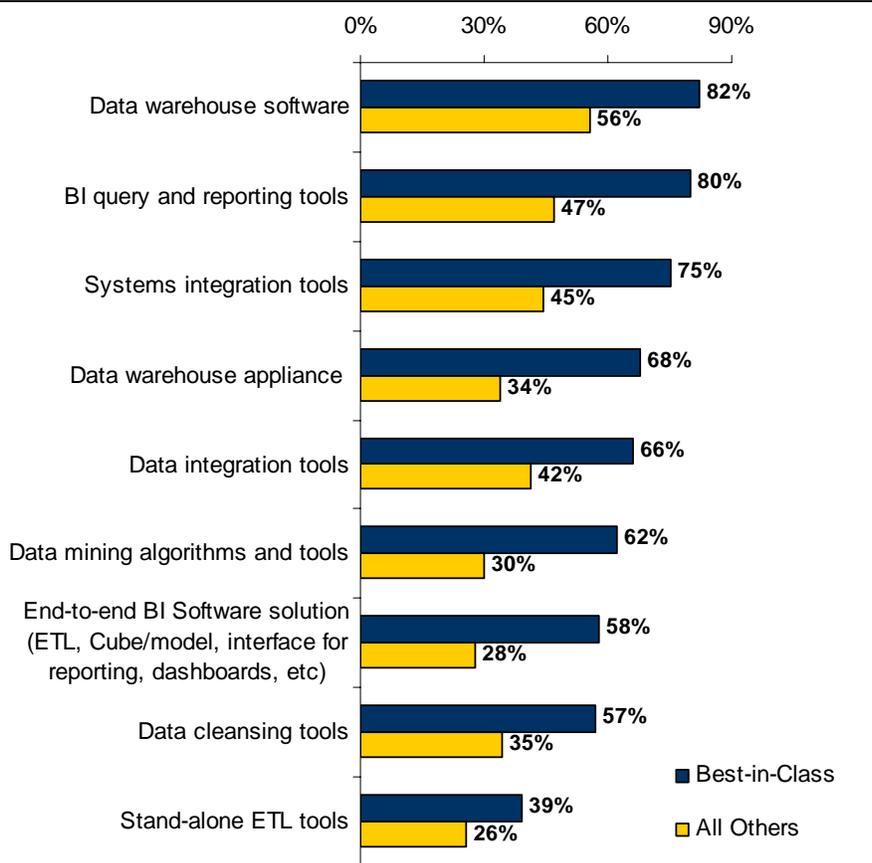
Source: Aberdeen Group, March 2008

Data management strategies may also require external assistance in order to ensure successful implementation and deployment. Forty-eight percent (48%) of all respondents list "the lack of IT resources" as the top inhibitor preventing successful BI implementations. For companies that fall into this category, a lack of IT resources can often be remedied through the establishment of partner relationships with IT services firms or consulting divisions of software technology vendors (Figure 11).
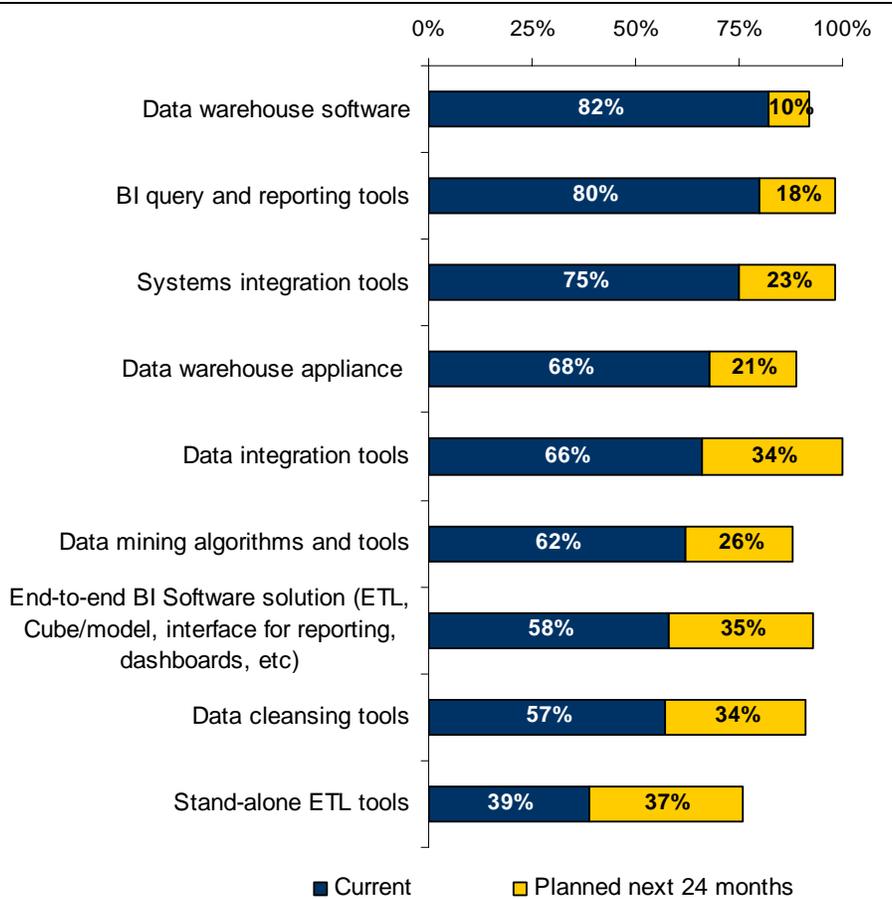
Figure 11: Best-in-Class versus All Others – IT / Consulting Services Currently Utilized
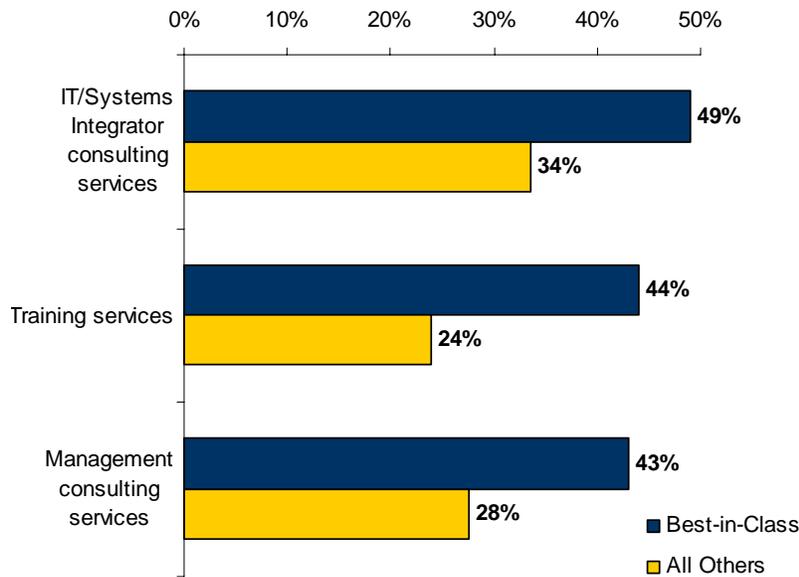
Source: Aberdeen Group, March 2008

As Best-in-Class companies look forward, their planned investments in technology are focused on data integration, cleansing, and the incorporation of these capabilities within and end-to-end business intelligence application platform (Figure 12).

Figure 12: Best-in-Class Technology Enablers Current versus Planned Deployment

Technology Enabler	Current	Planned next 24 months
Data warehouse software	82%	10%
BI query and reporting tools	80%	18%
Systems integration tools	75%	23%
Data warehouse appliance	68%	21%
Data integration tools	66%	34%
Data mining algorithms and tools	62%	26%
End-to-end BI Software solution (ETL, Cube/model, interface for reporting, dashboards, etc)	58%	35%
Data cleansing tools	57%	34%
Stand-alone ETL tools	39%	37%

■ Current   □ Planned next 24 months

Source: Aberdeen Group, March 2008

Aberdeen Insights — Technology

Data management for BI is not a single technology, nor is it confined to being solely an IT function. Rather, it is an accumulation of organizational, operational, knowledge, process, performance, and technology enablement. Best-in-Class companies have taken a multi-faceted approach to data management in order to support their BI implementations. This entails a mix of both internal management actions as well as investment in technologies and services.

Case Study — Sendio Improves Competitive Positioning With Innovative Approach to Data Management

Sendio is an Irvine, CA based company that provides "email integrity" technology products and services to customers who want to eliminate viruses, "trojans," "bots," and spam while not risking the inadvertent loss of legitimate email messages. As part of the process to guarantee that customers receive all of the email they want and none of the junk, Sendio required a bullet-proof data aggregation and analysis tool that they could provide to customers in a packaged implementation which could be quickly and easily deployed.

In just four years, the company has grown its customer ranks to over 800 companies. While the increase in customer activity was a welcome boon to Sendio's growth, the demands that customers started placing on Sendio for more sophisticated reporting and analysis of their email activity was causing significant business pressure.

"Competitive positioning was another business pressure driving our search for a better data management solution. Our sales team was identifying a threat from competitors who were delivering analytic capability with their email anti-spam solutions, and management came under pressure to leap-frog the competition," said Tim Lee-Thorp, Sendio's vice president of Marketing. "While reporting capabilities are a 'given,' the sophistication of analytical capabilities represents a real differentiator."

Sendio's management team assessed building a centralized data collection, analysis, reporting, and alerting facility with a combination of traditional relational database and data warehousing software, but the resource requirements for this approach using either in-house developers or third-party contractors was significant. The option to simply provide local reporting for individual customers was also rejected, since this also did not allow for real-time transaction analysis across the entire Sendio user community, something customers wanted to have in order to identify emerging threats as they occurred and actively address them before they could harm the organization. Local reporting is also CPU-intensive, which could impact the basic email processing workflow.

continued

"Competitive positioning was another business pressure driving our search for a better data management solution."

~ Tim Lee-Thorp, Vice President of Marketing, Sendio, Inc.

Case Study — Sendio Improves Competitive Positioning With Innovative Approach to Data Management

Instead, Sendio chose to invest in a data warehouse appliance approach that is deployed in a "split-architecture" environment. While the email processing / transactional system runs locally to insure speed and performance within the customer's email server environment, a data warehouse appliance is installed and hosted remotely by Sendio to maintain and deliver real-time data for customer ad-hoc and custom analytical reporting and analysis purposes. As the system usage scales upward (data volumes and number of user sessions), the appliance approach enables Sendio to simply add additional server capacity centrally.

"Our core email integrity services are delivered to customers via a distributed appliance architecture, so we were very comfortable with the concept of a data warehousing appliance. Simple deployment, rapid applications development, and predictable scaling lets us easily deliver aggregate reporting and global trending in a 'virtual data warehouse' model that customers seem to like. They can now see their email performance dynamics versus 800+ other companies. This provides a higher level of service and valuable peer analysis that customers can use to benchmark their performance and see progress over time."

Chapter Three:
Required Actions

Whether a company is trying to move its data management and related BI performance from Laggard to Industry Average, or Industry Average to Best-in-Class, the following actions will help spur the necessary performance improvements:

Laggard Steps to Success

- **Focus on understanding end-user requirements.** Best-in-Class companies have shown that a successful data management strategy starts with an understanding of end-user information requirements. Too often, companies launch data management projects to support the technical requirements of a BI implementation without spending the necessary time up-front with a representative group of business users. Taking this step can prevent wasted effort later when the potential need for multiple iterations of data constructs and modeling arise due to lack of BI deliverable alignment with business requirements.

- **Establish implementation performance metrics for data management projects.** In order to reduce the time-to-information for end-users, data management projects must also be completed in a compressed timeframe. This requires that initiatives include both business and project metrics that can be tracked and measured from the outset. By adopting this method as a standard practice, a deeper understanding of project roadblocks and inhibitors will be gained, allowing decision makers to be more aware of potential problems and proper solutions before project budgets and timelines are affected.

- **Invest in data integration enablement.** Best-in-Class companies are 30% more likely than all respondents, and nearly three-times as likely as Laggard companies to adopt and utilize data integration tools to enable automation and acceleration of data access for BI applications. Respondents are dealing with an average of over 10 unique data sources within their data management systems underlying BI implementations. The degree to which each of these sources differs from the others adds a level of complexity and therefore potential added time to data management projects.

Industry Average Steps to Success

- **Institute a formal process for polling end-users about information requirements.** To move from Industry Average to Best-in-Class status, companies should consider institutionalizing a regular method for collecting and updating end-user information requirements. While it is important to conduct this activity at the start of a project, it is just as critical that polling of end-users' needs becomes a regular activity. The dynamics of today's business climate necessitates that

Fast Facts

√ **68%** of Best-in-Class companies have implemented their data warehouse in less than one year, compared to 45% of Industry Average and 19% of Laggard companies

√ Respondents are managing an average of **10.2 unique data sources** to support current BI initiatives

"Our business end-users are all non-technical people not used to writing queries and reports. We needed a combination of data access that was simple enough for non-technical people to use, and an internal training program focused on how to create information views, reports, and analysis applications. We have found that a half-day workshop with a hands-on tutorial containing real company data is the key to success."

~ Director of Financial Systems, Large Transportation and Logistics Company

frequent review of information requirements be incorporated into any data management strategy.

- **Develop training assets for non-technical business end-users.** While the top pressure driving data management projects relates to compression of time, the next two business drivers deal with ease-of-use and simplification of data access. Best-in-Class companies have illustrated that investment in data management projects that support BI deployments must encompass the education of users. Otherwise, the initial investments in back-end technology and services may go to waste as users find the level of difficulty a barrier to adoption.

- **Investigate methods for optimizing data queries.** Business intelligence reporting, ad-hoc query, and automated analytic applications can place demands on a data management system that outstrip its ability to respond to all users in a timely manner. In order to understand the system-level strains, a method for gaining visibility to query performance is necessary. Discussions with respondents revealed that often, there are only a handful of queries that cause problems, but it only takes one "runaway query" to bring down a system and cause information delivery delays enterprise-wide. The ability to identify and correct these anomalies, and even determine a new format or structure for the problem query can provide immediate time-to-information performance improvement.

Best-in-Class Steps to Success

- **Identify and prioritize data sources for BI.** Conversations with respondents have revealed that there is often a temptation to try to incorporate all data sources into one centralized data management system for the support of multiple BI deployments and users. While technology enablers may make this possible, it might not be the best approach to take. Consider a prioritization process for determining which data sources are necessary to answer which business questions and information requirements. This may result in the creation of multiple data "marts" or "domain warehouses" that address specific needs with a more efficient use of resources and resulting in greater speed of delivery.

- **Plan for future growth of data volumes, complexity, and addressable end-users.** There is no question that data volumes are growing, business requirements are becoming more sophisticated, and the number of addressable end users is increasing. To deal with this, companies must establish a planning process that incorporates several of the capabilities outlined earlier. An integrated approach to continually updating intelligence about end-user requirements, combined with the identification and prioritization of data sources, and powered by the automation of data integration and cleansing will lead to increased ability to deal with the non-stop growth of data management requirements for business intelligence initiatives.

Aberdeen *Group*
A Harte-Hanks Company

Aberdeen Insights — Summary

Data warehousing has historically been the leading method for supporting BI implementations, but within the next 12 to 24 months, a shift is occurring. Integrated technological approaches are gaining the attention of performance-minded Best-in-Class companies that are seeking to further improve their ability to compress the time-to-information for their business end-users.

Success of business intelligence implementations depends upon the ease and speed by which relevant and actionable information can be delivered to business users. Best-in-Class performance toward this goal is determined by several factors that must be taken into account before, during, and on an ongoing basis with data management projects. This starts with gaining a deep understanding of business user information requirements before a data management roadmap or strategy can be developed and executed. Several data management capabilities and technology enablers are required to ensure success, and no one "silver bullet" exists that can provide a shortcut. Best-in-Class companies have illustrated that performance improvement comes from a holistic approach that includes both organizational and technological elements.

Send to a Friend

Appendix A:
Research Methodology

Between January and February 2008, Aberdeen examined the use, the experiences, and the intentions of 247 enterprises using data management technologies and methods for the support of Business Intelligence (BI) initiatives.

Aberdeen supplemented this online survey effort with interviews with select survey respondents, gathering additional information about strategies, experiences, and results.

Responding enterprises included the following:

- *Job title / function:* The research sample included respondents with the following job functions: procurement, supply chain, or logistics manager (15%); operations manager (13%); IT manager or staff (37%); sales, customer service and marketing staff (19%); finance (4%); and consulting / other (13%).

- *Industry:* The research sample included respondents from several industries: manufacturing (17%); heavy industry / engineering (14%); high tech / software (13%); retail / wholesale / CPG (13%); finance / banking / insurance (9%); public sector / education (9%); supply chain / logistics (8%); and telecommunications (6%) were the largest responding sectors.

- *Geography:* The majority of respondents (55%) were from North America. Remaining respondents were from Europe (22%), the Asia-Pacific region (13%) and Rest-of-world (10%).

- *Company size:* Thirty-four percent (34%) of respondents were from small enterprises (annual revenues below US $50 million); 38% were from midsize enterprises (annual revenues between $50 million and $1 billion); and 28% of respondents were from large businesses (annual revenues of greater than $1 billion).

- *Headcount:* Twenty-two percent (22%) of respondents were from small enterprises (headcount between 1 and 100 employees); 34% were from midsize enterprises (headcount between 101 and 1,000 employees); and 44% of respondents were from large businesses (headcount greater than 1,000 employees).

Solution providers recognized as sponsors were solicited after the fact and had no substantive influence on the direction of this report. Their sponsorship has made it possible for Aberdeen Group to make these findings available to readers at no charge.

Study Focus

Responding executives completed an online survey that included questions designed to determine the following:

- The degree to which companies are defining a data management strategy for BI initiatives

- The level of capability respondents have to provide access to relevant information for all types of end users

- The extent to which companies can accelerate the "time-to-information" through a variety of data management approaches

- Respondent performance toward decreasing the cost and resource requirements associated with supporting data access for BI users

- The degree to which end-users obtain information autonomously without requiring IT intervention

The study aimed to identify emerging best practices for data management within BI implementation environments, and to provide a framework by which readers could assess their own management capabilities.

Table 4: The PACE Framework Key

Overview
Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows: **Pressures —** external forces that impact an organization's market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive) **Actions —** the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product / service strategy, target markets, financial strategy, go-to-market, and sales strategy) **Capabilities —** the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products / services, ecosystem partners, financing) **Enablers —** the key functionality of technology solutions required to support the organization's enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)

Source: Aberdeen Group, March 2008

Table 5: The Competitive Framework Key

Overview	
The Aberdeen Competitive Framework defines enterprises as falling into one of the following three levels of practices and performance: **Best-in-Class (20%) —** Practices that are the best currently being employed and are significantly superior to the Industry Average, and result in the top industry performance. **Industry Average (50%) —** Practices that represent the average or norm, and result in average industry performance. **Laggards (30%) —** Practices that are significantly behind the average of the industry, and result in below average performance.	In the following categories: **Process —** What is the scope of process standardization? What is the efficiency and effectiveness of this process? **Organization —** How is your company currently organized to manage and optimize this particular process? **Knowledge —** What visibility do you have into key data and intelligence required to manage this process? **Technology —** What level of automation have you used to support this process? How is this automation integrated and aligned? **Performance —** What do you measure? How frequently? What's your actual performance?

Source: Aberdeen Group, March 2008

Table 6: The Relationship Between PACE and the Competitive Framework

PACE and the Competitive Framework – How They Interact
Aberdeen research indicates that companies that identify the most influential pressures and take the most transformational and effective actions are most likely to achieve superior performance. The level of competitive performance that a company achieves is strongly determined by the PACE choices that they make and how well they execute those decisions.

Source: Aberdeen Group, March 2008

Appendix B:
Related Aberdeen Research

Related Aberdeen research that forms a companion or reference to this report include:

- *"On-Demand" Is Not Far Behind BI on the Technology Wish List* June, 2007

- *Data Management 2.0: Making Sense of Unstructured Data* July 2007

- *Delivering Actionable Information to the Enterprise: Does On-Demand Solve the Skill Set Shortage?* July 2007

- *On-Demand BI: Not Just for SMB* August 2007

- *Serving the Underserved: Is On-Demand BI the Answer?* August 2007

- *Enterprise BI: Comparing the BI Giants* September 2007

- *Smart Decisions: The Role of Key Performance Indicators* September, 2007

- *Measuring Marketing Performance: The BI Roadmap to Information Nirvana* October 2007

- *Operational BI: Getting Real-Time About Performance* December 2007

- *The Expansion and Contraction of Business Intelligence* January 2008

- *Managing the TCO of Business Intelligence* February 2008

Information on these and any other Aberdeen publications can be found at www.Aberdeen.com.

Author: David Hatch, Research Director, Business Intelligence, david.hatch@aberdeen.com