



BeyeNETWORK Custom Research Report

Performance Management and Business Intelligence: A Power Combination



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Background and Key Findings

THE HISTORY OF business management reflects continuous improvement in the methods and tools used to drive company performance. Since the beginning of the industrial age, company leaders and managers have sought to predict, plan and control company performance—in part to satisfy shareholders and in part to advance their own careers. Just about any lever that affects business performance has been studied, and disciplines ranging from industrial engineering to industrial psychology have informed and influenced how managers go about the central task of achieving targeted performance.

Today, in the face of intense global competition, the pressures on managers to perform are high, and thus it is increasingly important that companies capitalize on the best available methods and tools. In this context, our research shows that more and more companies are

adopting business performance management (BPM) and business intelligence (BI) to drive performance and profits. In concert with BeyeNETWORK and with the support of Host Analytics, Infor and Teradata, we conducted a survey in which 200 people from a wide range of industries participated, sharing their experiences with BI and BPM and their insights into the results BPM and BI initiatives have had for their companies. The companies ranged in size, with 18% being very large (>\$5 billion annual revenue) and 74% being small and medium-sized businesses. Key findings follow.

BPM/BI ALIGNMENT FINDINGS

1. Sixty-six percent (66%) of companies that have both BPM and BI initiatives underway are attempting to formally align and coordinate these efforts.

2. Seventy-eight percent (78%) of companies seeking alignment state that their BI initiative is aligned to support the business focus of their BPM initiative.

3. Companies with coordinated BPM and BI initiatives are three times as likely to have achieved major business performance improvements compared to organizations with uncoordinated efforts.

4. Companies that have exploited available BI and BPM technologies to support their business improvement initiatives have had **higher success rates in achieving business objectives** than those who have not exploited them.

BPM FINDINGS

1. There is widespread adoption of BPM: 41% of respondent companies have BPM initiatives, 23% are considering or planning one, and 18% recognize that their company would benefit from a BPM initiative. Based on this data, it is reasonable to conclude that BPM has become a mainstream tool within the managerial toolkit.

2. Of the companies that are using BPM:

- Seventeen percent (17%) report that BPM has delivered major performance enhancement, another

28% report moderate performance enhancement, and 16% report minor performance enhancement. In total, 61% report that BPM has had a positive performance impact.

- The predominant uses of BPM are for planning, budgeting, forecasting and generation of scorecards and dashboards. More than half of companies with BPM initiatives reporting the use of these key BPM capabilities. This suggests that companies are attracted to the basic BPM value proposition—the systematic use of advanced planning and control methods and tools. In effect, BPM provides a closed-loop performance control system with the ability to align, measure, manage and improve all core aspects of business performance—which ultimately improves profits.

- Fifty-five percent (55%) have invested in BPM products/tools, which provide scalable core functionality to efficiently and effectively execute recurring planning/budgeting, control and business improvement processes for organizations of all sizes. At the same time, 27% have not invested in BPM products/tools, and 37% report that they rely on manual processes, static reports and Excel spreadsheets to gener-

ate performance measures and key performance indicators (KPIs). This suggests there is a large value creation opportunity for companies that have not invested in BPM products/tools, given that the cost of manual processes for generating performance measurement information often exceeds \$100,000 per year and sometimes exceeds \$1 million per year.

- There is widespread use of BPM to measure business performance after the fact (63%), to analyze and correct the root causes of under performance (49%) and to use past performance to predict future performance (35%). In the future, there will be an increased emphasis on using BPM to correct performance problems and predict future performance as companies mature in their use of BPM.

BI FINDINGS

1. There also is widespread adoption of BI: 67% of respondent companies have BI initiatives, 15% are considering or planning one, and 6% recognize that their company would benefit from a BI initiative. Based on this data, it is reasonable to conclude that BI also has become a mainstream tool within the managerial toolkit.

2. Of the companies that are using BI:

- Twenty percent (20%) report that BI has delivered major performance enhancement, another 41% report moderate performance enhancement, and 19% report minor performance enhancement. In total, 80% report that BI has had a positive performance impact.

The predominant uses of BI are to improve core processes that drive performance and profits ...

- The predominant uses of BI are to improve core processes that drive performance and profits, including financial management (64%), sales and marketing (59%), business performance management (47%), operations/supply chain (42%) and customer service (37%). It is interesting to note that 47% of respondent companies are using BI for BPM purposes—most likely for scorecarding and dashboarding but possibly for budgeting (historical financial data), root cause analysis of performance problems (trend data) and predicting future

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performance. This suggests an overlap and confluence between BI and BPM capabilities and methods as well as the need to coordinate BI and BPM investments and execution.

- Eighty-eight percent (88%) have invested in BI products/tools, which provide scalable core functionality to deliver business information and analytic applications that are used to measure, manage and improve the performance of key business processes and to thereby drive profit improvements. Over 50% have used BI for more than 3 years, 26% have used BI for between 1 and 3 years, and 19% are just getting started. In terms of scope, over 50% report that BI is used by many or all functions within their companies.

Viewed as a whole, the survey results clearly demonstrate that BPM and BI are widely adopted and, used individually, they have had very positive impacts on business performance. More importantly, survey results indicate that superior busi-

ness results can be achieved when BPM and BI are aligned, supported by technology, and managed as a power combination. Given the complexity and information intensity of modern business, it is easy to see why leaders and managers would want to have

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the best possible tools for driving performance and enhancing their own professional success. In the next section of our research report, we examine key challenges and barriers to successful use of BPM and BI in concert to drive business performance. ■

BPM and BI: A Power Combination

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TO **EFFECTIVELY** discuss how BPM and BI can be used in concert, it is important to have a useful working definition of terms. For purposes of our survey, we defined BPM and BI as follows:

Business performance management (BPM) is a systematic management process for planning and budgeting enterprise performance, measuring performance against financial and operational targets, and taking corrective actions.

The BPM process can leverage modern tools for planning, budgeting, forecasting, predictive analysis, and financial reporting and consolidation. Full-function BPM implementations typically use:

1. Strategy mapping, cascading and balanced scorecards to establish and communicate performance

targets across functions and up and down organizational levels.

2. Historical transactional data for budgeting, forecasting and predictive analysis.

3. Workflow technology to coordinate budget formulation and approval processes.

4. Current period and year-to-date financial and operational data to report performance against targets, often using scorecards and dashboards but also using standard financial reports.

5. Recurring variance analysis and corrective action planning techniques to identify and correct the root causes of unfavorable performance variances.

Business intelligence (BI) is a systematic approach to delivering and leveraging business informa-

tion and analytical applications to improve business performance.

BI can leverage modern data integration, data quality, data presentation, data analysis and decision support tools to provide leaders and managers with a powerful tool for driving process improvement, business performance and profit improvement. Full-function BI environments typically deliver high quality, timely business information and analytical applications that enable companies to clearly understand the specific factors that drive their performance, recognize opportunities for performance improvement, analyze the root causes of performance issues, and predict

the financial and operational outcome of corrective actions.

A close look at the definitions and at the technology products that enable BPM and BI reveals that both approaches: 1) rely heavily on historical performance data and reference data about, e.g., customers, products, financial results, operational results and company business units; and 2) have overlapping uses, e.g., for generating scorecards, dashboards, financial and operational reports, forecasts and predictive analysis. Given these facts, it is important that BPM and BI be implemented within a common and coordinated framework, such as the one shown as **FIGURE 1**.¹

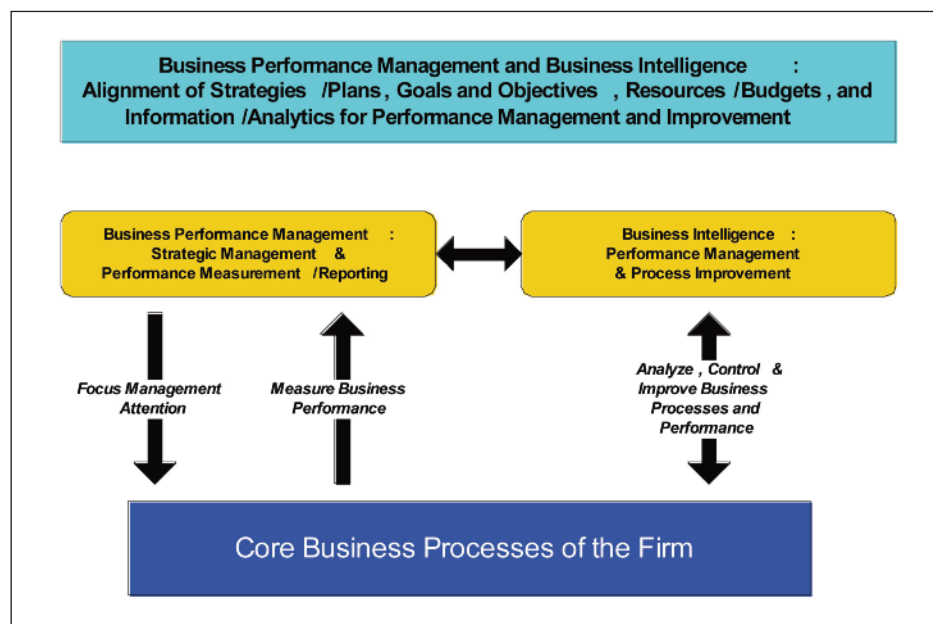


FIGURE 1: BPM and BI Used in Concert to Drive Business Performance

1. Figure 1 is adapted from Williams, S. "Power Combination: Business Intelligence and the Balanced Scorecard," *Strategic Finance*, May 2008.

BPM tools generally have taken an application-specific view of business information.

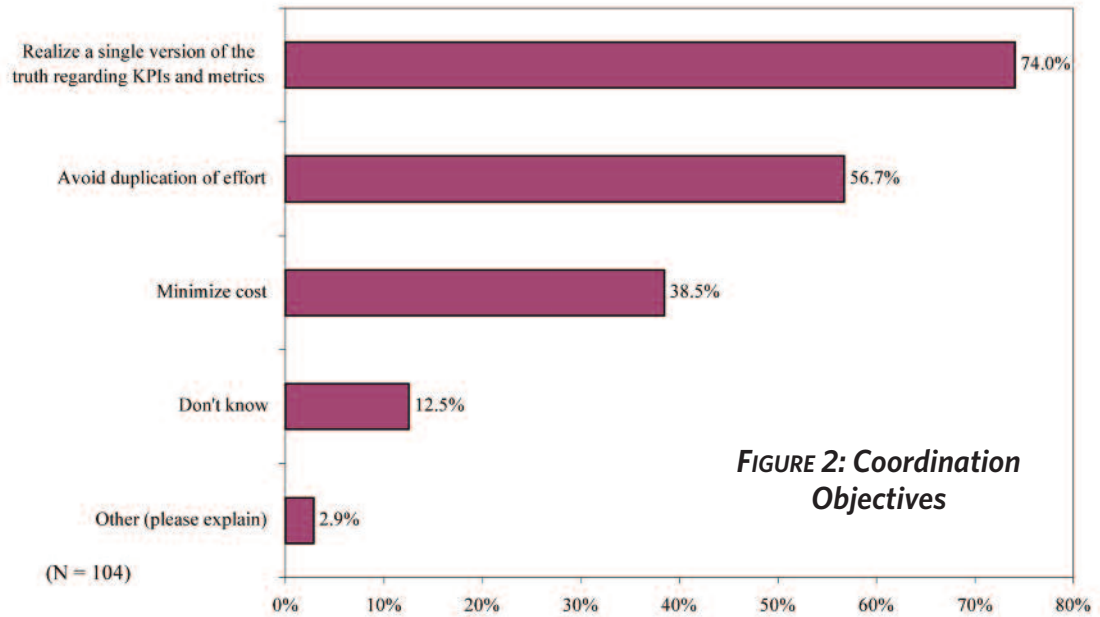
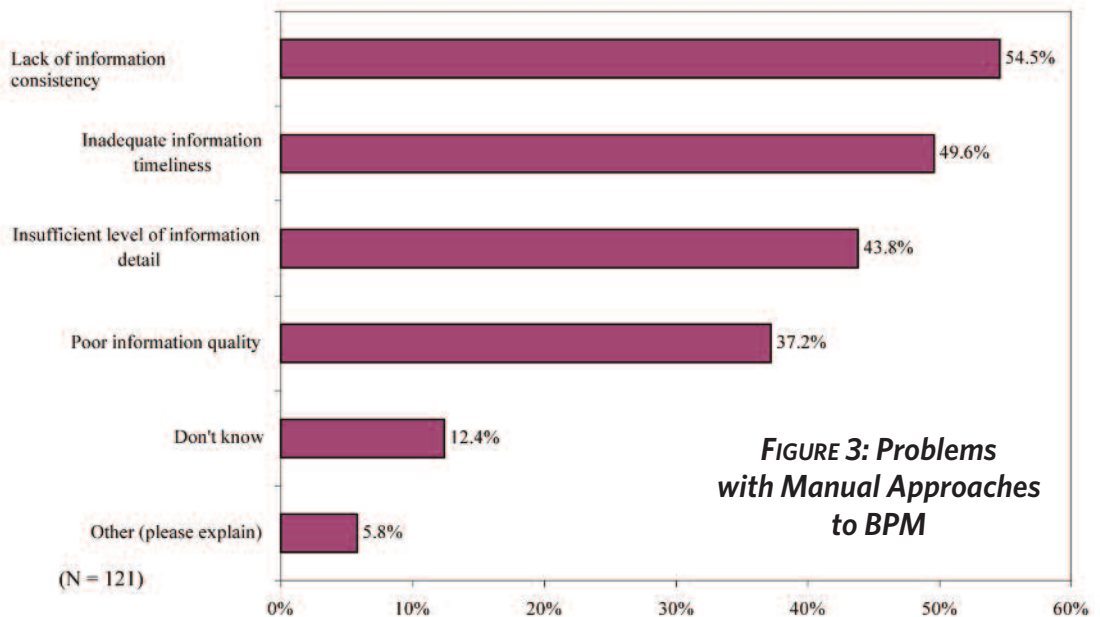
Working from the top down within Figure 1, we see that effectively using BPM and BI in concert requires alignment between strategies, plans, goals, resources/budgets and the information and analytics needed to measure, manage and improve performance. Traditionally, BPM (the box on the left) has been aimed at strategic management and performance management and reporting, and a common BPM approach is to use strategy maps and balanced scorecards to formulate and communicate strategies, goals and objectives and then report actual performance. Advanced BPM tools help automate the strategy mapping process and the subsequent cascading of performance targets to business units. These tools also help with budgeting, financial modeling and financial reporting. That being said, BPM tools generally have taken an application-specific view of business information, i.e., each budgeting or financial modeling tool creates and provides a data repository that is designed for the use of each specific BPM application as opposed to sharing data at the enterprise level, which

is where BI comes into the picture. As shown in the box on the right side of Figure 1, BI is aimed at performance management and process improvement, and to accomplish these tasks BI ideally delivers business information and analytical applications obtained from a single source of enterprise data—the so-called “single version of the truth.”

BPM AND BI ALIGNMENT: WHY ARE THEY DOING IT?

Both BPM and BI are concerned with business performance, which is determined by the sum of a company's value chain activities—that is, the core business processes of the firm shown across the bottom of Figure 1. BPM has traditionally been more about planning and measuring performance, whereas BI has been more about measuring, managing and improving performance. Given that both focus upon the use of information and fact-based management to achieve improved business performance, organizations that formally coordinate BPM and BI efforts and that use BPM and BI technologies to do so have the following motivations, reflected in the survey results as shown in **FIGURE 2** (see page 8).

Many of the problems these coordination objectives address stem from using manual approaches for BPM which is shown in **FIGURE 3** (see page 8). The shortcomings of man-

Survey question: What are the objectives of coordinating your company's BPM and BI initiatives?**FIGURE 2: Coordination Objectives****Survey question: Which of the following issues has your company encountered with manual BPM?****FIGURE 3: Problems with Manual Approaches to BPM**

ual BPM were explored by another survey question and primarily relate to turning data into the information BPM requires.

These data problems are generally solved by IT through the use of data warehousing, data integration and data quality methods and tools, which can provide an integrated data environment to support both BPM and BI. In fact, survey respondents indicate that the primary roles for IT within BPM initiatives are:

- Data architecture support (65%)
- Data integration support (60%)
- Tool selection and/or implementation (52%)

These data problems suggest that strong coordination between BPM and BI is fundamental for using these complementary and reinforcing tools cost-effectively. Further, the results indicate that strong IT involvement is essential to avoiding a number of data quality issues, which can quickly derail adoption of advanced tools such as BPM and BI. If business users don't trust the data, they won't use the tools—a major opportunity lost in today's competitive environment.

For those organizations that do not currently utilize a coordinated BI and BPM approach to achieve an optimal information advantage, common organizational barriers to adoption included the following:

These data problems suggest that strong coordination between BPM and BI is fundamental for using these complementary and reinforcing tools cost-effectively.

- Lack of awareness of potential BPM benefits (54%)
- The need for BPM not being recognized by the right people (37%)
- The perception that BPM is too expensive or not worth it (17%)
- Lack of knowledge about how to begin and implement a BPM initiative (14%)
- The need for BI not being recognized by the right people (33%)
- The perception that BI is too expensive or not worth it (25%)
- Lack of awareness of potential BI benefits (17%)

These findings suggest that the IT function within companies, the consultant community, the analyst community, and the BPM and BI vendors need to do a better job of explaining the value propositions for BPM and BI. Since 60% of BPM initiatives and 54% of BI initiatives are launched by the business side of companies, the identified challenges and barriers

also suggest that business leaders and managers need to be educated about BI and BPM so that they understand the potentially powerful impact these managerial methods and tools can have on performance and profits. We see the need for education as a joint business/IT responsibility: the business side needs to invest in education, and the IT side needs to promote education to the business.

BPM AND BI ALIGNMENT: HOW ARE THEY DOING IT?

FIGURE 4 indicates that a variety of coordination mechanisms are used to coordinate the requirements for

BPM and BI, including joint governance and planning (56%), common definitions, data architecture and data stores (46%), and BPM/BI liaison (40%). Twenty percent (20%) have a formal competency center; however, that mechanism was only selected in combination with one or more of the other three. Fifty percent (50%) of the time, multiple coordination mechanisms are used.

BPM AND BI ALIGNMENT: WHAT ARE THE RESULTS?

Our survey indicates that there is a strong business performance payoff for organizations that invest in and

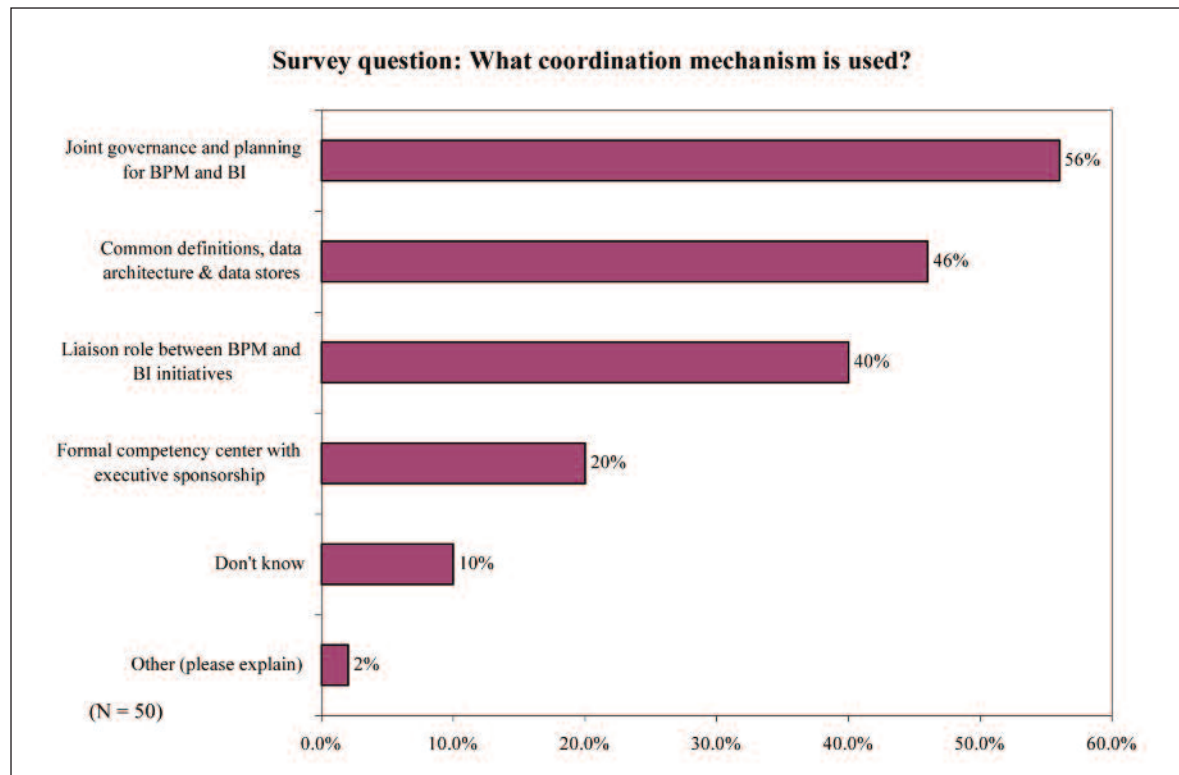


FIGURE 4: Coordination Mechanism

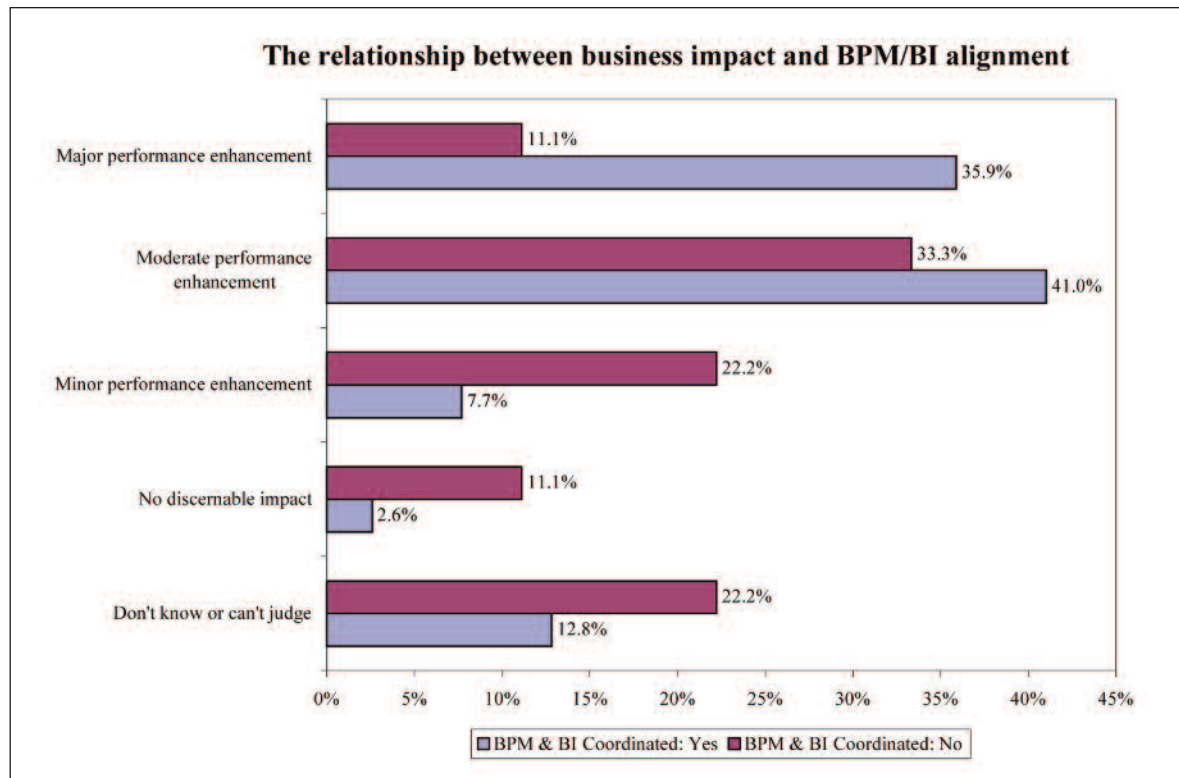


Figure 5: Strong Payoff for Coordinated Programs

coordinate BPM and BI programs. As indicated in **FIGURE 5**, almost 36% of organizations that have formally coordinated these efforts report major business performance enhancements compared to only 11% that do not. Almost 80% of organizations with coordinated efforts report either moderate to major business performance improvements versus only 44% that do not coordinate.

Another interesting finding was that organizations with coordinated

efforts were more likely to have BPM initiatives initiated by the chief executive officer (CEO) in comparison with uncoordinated BPM efforts, which were more often initiated by a chief information officer (CIO). In summary, these survey results support a compelling business case for coordinated BPM and BI efforts that fully leverage organizational information and existing BPM and BI technologies to monitor and actively manage business performance. ■

Methods and Tools for BPM and BI Alignment

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BPM AND BI initiatives both aim to leverage business information to improve the performance of core value chain activities of the firm. They are focused on the same business processes and generally the same business information. If uncoordinated, there is a good chance of incurring adverse consequences such as inefficiency, data redundancy, data quality and comparability issues, and IT maintenance cost increases.

More broadly, lack of alignment may have adverse strategic and economic implications for the company. For example, absent a clear alignment with BI, the BPM initiative may create a false sense of security among business executives that they have the business information, analytical tools and structured decision support they need to improve business performance, which could translate to lost performance improvement opportunities that

may have a materially adverse profit impact. In contrast, companies that have well-aligned BPM and BI initiatives exhibit the following:

- **Organizational alignment.** The BPM and BI teams operate with clearly defined and mutually reinforcing charters that encompass, in part, a shared responsibility for linking BPM performance measurement with BI performance management and improvement.
- **Business process alignment.** The BPM and BI teams each focus on the same business processes for improvement and in the same order of priority. Each BI release will either: a) improve the efficiency of the BPM performance measurement, reporting process, variance analysis and corrective action process; and/or b) deliver new business information, analytical tools and/or decision support to enable management and

improvement of the targeted business processes.

- **Budget alignment.** Funds for actual performance measurement—the scores in the scorecard, performance reporting via the BPM, and development of BI for performance management and improvement—are rationalized across the initiatives.
- **Data and technical architecture alignment.** The BPM and BI teams work within a unified data architecture and suitable technical architecture that enable automation of BPM processes and that deliver BI for managing and improving the business processes that drive the scorecard and dashboard results.

Achieving these elements of BPM and BI alignment requires conscious

effort. A BPM initiative typically begins with construction of a strategy map, selection and definition of KPIs and supporting measures, and the selection of target values for each.

Implementation of this BPM design often is done in phases rather than with a “big bang” approach. Each BPM implementation phase includes a project that supplies the necessary data, calculates the KPI/measure values, and presents these actual values compared to their targets—and this is where BI makes its contribution.

In addition to projects to support BPM, the company almost certainly has a number of non-BPM-related opportunities for BI to add value. BPM and BI alignment entails managing all of these BPM and BI activities as a managed portfolio of projects. **FIGURE 6** depicts a methodology for doing so.

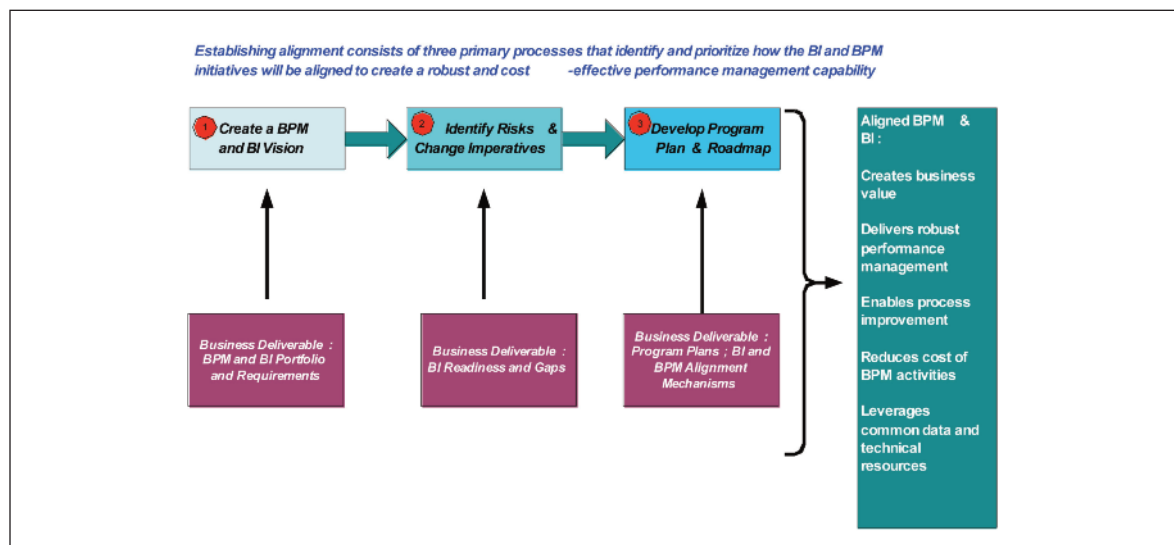


FIGURE 6: Method for Aligning BPM and BI Initiatives

Working from left to right across the top of Figure 6, we see three primary processes and specific business deliverables. The first process is to create a BPM and BI vision, which is done by analyzing BPM and BI opportunities to leverage business information, analytical tools and structured decision support techniques to improve business performance. Since the key objective for both BPM and BI initiatives is performance improvement, we also need to have a high-level understanding of the core business processes that need to be measured, managed and improved.

From these analyses, we can understand common information requirements for both BPM and BI initiatives, and align those information requirements within the BI portfolio. For example, we would not want a BPM application to show different performance results than BI applications would show for the same process. By systematically identifying common needs for business information between BPM and BI initiatives, we avoid the inefficiency and data quality issues spawned by uncoordinated efforts. Further, by identifying the core business processes of interest for BPM purposes, we can align BI applications that offer not only performance measurements, but also business information, analytical tools and structured decision support for improving the core processes

that drive the performance measures reported via BPM scorecards and dashboards. The result is a much more robust performance management asset.

The second part of the alignment process is to identify risks and change imperatives associated with the BPM and BI initiatives in general and the alignment process in particular. This is done via a structured BI and BPM readiness assessment, which looks at such factors as whether the company is leveraging the reported BPM performance measures and available BI, and whether the company has the technical ability to deliver an integrated data and technical environment that would support both BPM and BI. The process also evaluates the BI and BPM data architecture from efficiency, responsiveness, flexibility, scalability, cost and data quality perspectives.

The last process incorporates the results and deliverables from the first two processes into a comprehensive BI and BPM program plan that is customized for a given company with respect to alignment between BPM and BI initiatives. The program plan provides a roadmap for achieving alignment between the BPM and BI initiatives, and sets the stage for technical execution that ensures that BPM and BI information requirements are met.

Once a program plan has been

developed and implemented, a key task will often be to select and implement the technology and tools required to deliver BPM and BI functionality. There is a wide range of relevant tools to consider, and a detailed treatment of these is beyond the scope of this report. That being said, modern BPM and BI tools provide a wide range of functionality that is essential for leveraging BI and BPM as a power combination to improve performance and profits. Key functional capabilities include:

- Robust data warehousing, data integration and data management platforms that enable a shared data environment that can be used by BPM and BI applications alike.
- Specific BPM and BI capabilities offered within a single solution package, e.g., BPM application platforms that leverage BI tools for data integration, storage and reporting within a BPM suite that enables planning, financial modeling, budgeting, financial consolidation and predictive analysis.
- BPM/BI solutions based on the software-as-a-service (SaaS) delivery paradigm as a means of starting quickly and reducing initial investment in BPM/BI.

The importance and prevalence of technology and tools to enable BPM

and BI is attested to by our survey results, where we found that:

1. Fifty-five percent (55%) of companies surveyed have invested in BPM products/tools.
2. Forty-nine percent (49%) of companies reported using BI technologies and tools to automate the recurring process of generating BPM measures and KPIs.
3. Eighty-eight percent (88%) of companies surveyed have invested in BI products/tools.
4. Sixty-five (65%) of companies have implemented BI using enterprise data warehouses and/or data marts.
5. Thirty-nine percent (39%) of companies have implemented BI using independent data marts.
6. Thirteen percent (13%) of companies have deployed BI using the SaaS (on-demand) model.

There are many highly regarded tools available from strong BPM and BI vendors, including the exciting tools provided by our sponsors for this report: Host Analytics, Infor and Teradata. We encourage readers to review the case studies and vendor overviews included at the end of this research report. ■

BPM and BI in Action

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A **S OUR SURVEY** discovered, 54% of companies who have adopted BPM are using the scorecard and dashboard functionality. Further, 47% of companies that have adopted BI are using it for enterprise performance management. This suggests a confluence between BPM and BI, and we will illustrate how the two combine to provide a robust and scalable performance management capability.

In addition to being a strong tool for communication of key strategies, BPM provides clear linkages between strategies, the business processes by which the strategies are executed and the key measures needed to gauge business performance. BPM provides the baseline for performance measurement; and according to industry research, many companies who adopt BPM are satisfied with the method and plan to continue its use. Whether

you call it enterprise performance management, business performance management or corporate performance management, there is no denying that the ability to measure performance from financial, customer, operational and learning perspectives is valuable.

Another view of BPM is as a recurring management process. After the initial strategy maps have been created and cascaded, the objectives have been decided and the targets have been defined, there is a regular performance measurement and reporting cycle, which is often monthly. As you might imagine, for a company of any size and complexity, the number of measures to be reported every month as the measures are “cascaded” into the organization can become unwieldy. Further, the scope of business information required to report the measures can be quite broad and may require data integration from several sources. Many companies that use

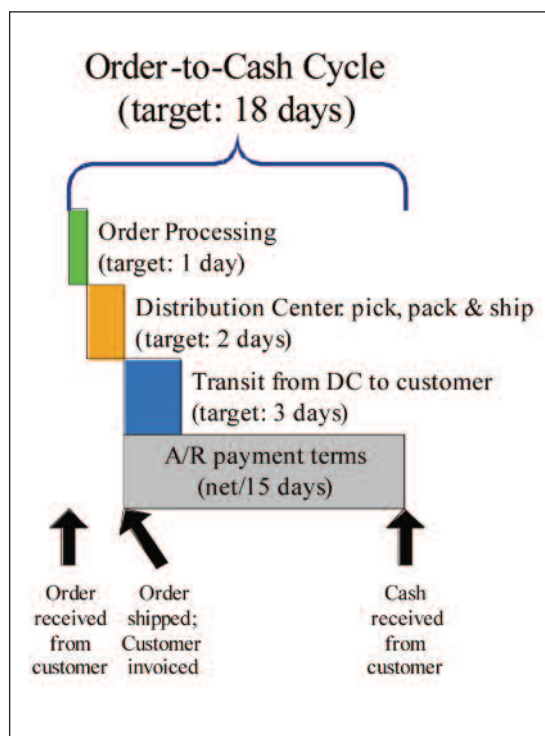


FIGURE 7: Resulting Reports

largely manual methods for BPM expend large sums of money to produce BPM report—in some cases more than \$1 million per year. **Given the current state of BI practice and tools, there is no reason why the**

recurring BPM reporting process cannot be automated and based on integrated data.

More broadly, performance measurement is only one part of the performance management cycle. To illustrate, let's say that an enterprise-level performance measure is order-to-cash cycle time. Let's further assume that this measure has been cascaded down to the component business processes, e.g., order processing; pick, pack and ship; transit to customer; and so on, as depicted in **FIGURE 7**.

At the end of a reporting period, the designated executive and managers receive the information regarding the measures appropriate for their positions as shown in **FIGURE 8**.

From this performance measurement data, we see three measures for which targets were not met. That being said, **these measures, and BPM in general, do not provide the business information, analytical tools and structured decision sup-**

Business Role	Measure	Target Value	Actual Value	Status
COO	Order-to-cash cycle time	18 days	18.8 days	●
Customer Service Manager	Order processing time	1 day	1.2 days	●
Distribution Center Manager	DC order residency time	2 days	2.6 days	●
Transportation Manager	Transit time	3 days	2.8 days	●
Accounts Receivable Manager	Days Sales Outstanding	15 days	15 days	●

FIGURE 8: Cascading Cycle Time

port that is needed to actually improve business performance in relation to specified targets. For that we need BI. For example, BI could enable us to investigate order processing time and find out that one of our large customers exceeded its credit limit, causing its orders to go on credit hold and driving the order processing time measure above target. Or it could enable us to drill into distribution center order residency time and find out that several orders were held waiting for the arrival of an out-of-stock item from one of our suppliers.

Looked at holistically, BPM establishes a performance measurement baseline. BI can automate the performance measurement process, and it can deliver business information, analytical tools and structured decision support to improve the core processes that drive the ability to achieve targeted business performance. Accordingly, BPM and BI should be aligned to work together as complementary tools in the performance management toolkit. This idea is shown in **FIGURE 9**.

Viewed as a whole, Figure 9 illustrates how BPM and BI can be

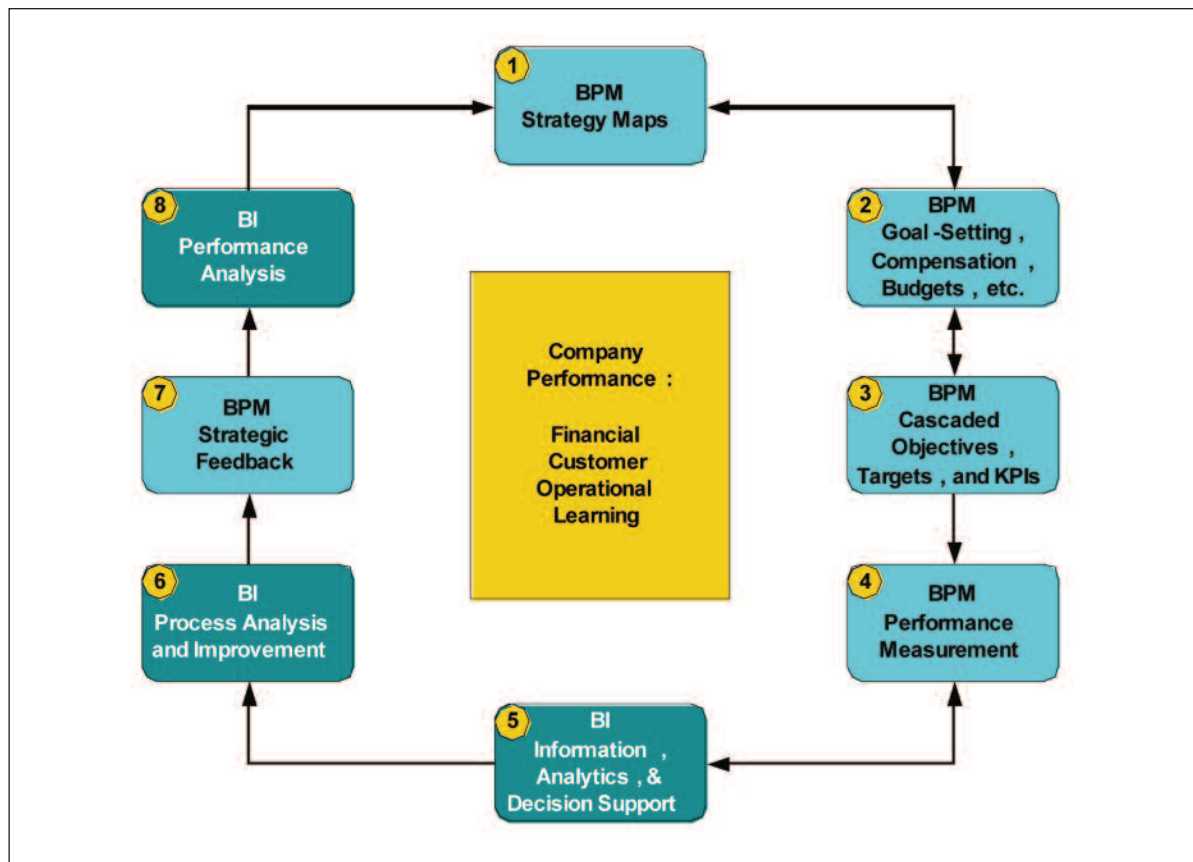


FIGURE 9: BPM and BI in the Performance Management Toolkit

aligned and interleaved to create a dynamic performance management asset. At the center of it all, of course, is company performance, which in a BPM environment that uses the balanced scorecard as its framework is viewed from the four key perspectives: financial, customer, operational and learning. BI is also focused on company performance, particularly if guided by business-driven design and portfolio management methods.

Starting at the top of Figure 9 and moving clockwise, **step 1** of the performance management cycle begins with using the balanced scorecard method of strategy mapping to link company strategies to the core business processes via which the strategies are realized. This sets the stage for **step 2**, in which the strategic management framework is used to guide goal setting, compensation alignment, budgeting, improvement initiatives and so forth. We show a bidirectional flow between steps 1 and 2 because of the possibility of budget and resource constraints shaping business strategy. In this context, companies that have adopted BPM tools might also use the financial modeling and budgeting capabilities of those tools to formulate balance sheet and income statement targets and allocate these to business units. Further, they might use the profit modeling and business optimization capabilities of

the BPM tool to generate inputs to the budget process.

The goal setting part of step 2 sets the stage for cascading financial and operational objectives, performance measures and performance targets throughout the organization. These can be simple hierarchical cascades or quite complex cascading to cross-functional business processes based on different organizational roles. In any event, the objectives, measures and targets need to be relevant and clearly tied to business processes that drive company performance. Skillful completion of **step 3** establishes the performance measurement framework and baseline, which when linked to compensation and artfully reinforced will ensure management attention to the business processes that contribute to strategic success.

Step 4 is the recurring management process we described earlier. Generally on a monthly cycle, but possibly more frequently depending on the level within the company and the appropriate operational control cycle, BPM is used to report actual performance results from the four balanced scorecard perspectives. Within this context, the financial consolidation and financial reporting capabilities of a BPM tool can be leveraged to create the appropriate reports. More broadly, the publication of BPM reports triggers vari-

More specifically, BI can be used to drill down into the root causes of performance variances and to improve the underlying core business processes that drive the actual performance measured and reported by BPM.

ance analysis, management reviews and corrective action planning.

In larger companies, the process of generating the measures, formatting BPM reports and variance analysis/corrective action planning can be complex and manually intensive. In our survey, 37% of respondents reported that performance management measures and KPIs are generated manually or by a manually intensive process of drawing information from standard reports and entering it into spreadsheets. As a result, 39% of companies spend more than \$100,000 per year to generate manual BPM reports, with 14% spending more than \$500,000 per year. When these facts are combined with the reported data problems associated with BPM report—lack of consistent information (54%), inadequate

information timeliness (49%), insufficient level of information detail (44%) and poor information quality (37%—it becomes clear that leveraging BI to automatically generate and cascade BPM measures and KPIs is a substantial economic opportunity in many cases. This is why we show a bidirectional flow between **steps 4 and 5**, whereby BI can be used to automate this recurring management control process. That being said, a BPM report is a kind of BI and is a key driver of management motivation to use BI to understand unfavorable variances and develop improvement strategies. More specifically, BI can be used to drill down into the root causes of performance variances and to improve the underlying core business processes that drive the actual performance measured and reported by BPM. This is reflected by the interplay between **steps 5 and 6**.

In addition to the specific process analysis and improvement capabilities delivered by BPM/BI combination, the results of steps 4 through 6 provide strategic feedback, as shown by **step 7**. For any given BPM reporting cycle, there are actual performance measures and BI-enabled analysis of variances and improvement opportunities, which provide valuable strategic learning that feeds into a higher-level company performance analysis during **step 8**.

The performance management cycle is then able to close the loop by using strategic feedback and enterprise performance information within the BPM strategic planning process. Steps 7 and 8 are more likely to be done on a quarterly or annual basis, whereas steps 4 through 6 will often be recurring monthly and/or biweekly management processes, with the frequency dictated by the nature of the business and the industry.

Moving back to overall performance management perspective, we see that BPM and BI are compatible and complementary tools that focus on company performance. If we drop BI from the equation, we see that BPM is very suitable for establishing the strategic management framework and performance management baseline, and it can be used for

BPM and BI are compatible and complementary tools that focus on company performance.

timely performance measurement. But measurement alone is not enough. Managers have continually expressed the need for business information, analytical tools and decision support so that they can improve the actual processes that drive the performance measurement numbers. And that is what BI is about. Taken together and skillfully aligned, BPM and BI provide a robust tool set for enabling highly effective performance management, which is ultimately management's most essential and fundamental task. ■

Conclusion

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IT IS CLEAR FROM our survey results that BPM and BI have made their way into the mainstream as key tools in the managerial toolkit. Both are widely adopted, both have produced positive results, and both are focused on improving the core business processes that drive profits and business results. It is also clear from the survey that substantial economic opportunities exist for the minority of companies that have not adopted BPM and BI, and for those companies that have adopted BPM but have not leveraged BI to automate recurring management processes such as strategic planning, goal setting, financial modeling, forecasting, budgeting, scorecarding, dashboarding, variance analysis and the use of predictive analytics to model and optimize business performance. These companies are leaving money on the table year after year, and their leaders and managers are competing with their hands tied

behind their backs. Given that the cost of modern BPM and BI tools is minor relative to their returns, this would appear to be an unduly risky state of affairs. For public companies, one could also argue that failure to capitalize on BPM and BI is a

BPM and BI have produced positive results, and both are focused on improving the core business processes that drive profits and business results.

breach of management's fiduciary responsibility to shareholders because inadequate planning and control mechanisms increase risk and reduce profits in relation to a more optimal performance profile. In today's competitive global economy, that seems reckless. ■

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Host Analytics Solution Overview

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COMPANY BACKGROUND

[Host Analytics](#) is a provider of BPM solutions delivered via a software-as-a-service (SaaS) delivery model and supports continuous improvement in methods and tools. Founded in 2000, it serves the enterprise, large and midsize company and public sector markets.

The Host Analytics Decision Platform reveals the full implications of decision—both risk and reward. As the industry's first on-demand corporate performance management (CPM) suite, Host Analytics improves budgeting, forecasting, financial consolidations, dashboarding, scorecarding, reporting and analysis to drive fact-based decisions for all executives. Host Analytics has been named among JMP Securities' Hot 100: The Best Privately Held Software Companies and the AlwaysOn OnDemand 100.

Host Analytics has customers in a number of industries, including con-

sumer packaged goods (Otis Spunkmeyer, Paramount Farms), financial services (DHI Mortgage, JPMorgan Chase), manufacturing (Signet Armorlite, Inc.), retail (McCoys), services (MWH Global) and technology (Sigmatel). Gartner added the company to its 2010 magic quadrant for corporate performance management (CPM) suites. (Note: both Host Analytics and Gartner use the term corporate performance management (CPM) whereas this report uses the term business performance management (BPM). For the purposes of this report, CPM and BPM are synonymous.)

A privately held company, Host Analytics has venture capital backing from Advanced Technology Ventures, StarVest Partners, Trident Capital and Next World Capital.

BPM SOLUTION

The Host Analytics solution is composed of three applications:

- Host Analytics Budget, including Expense Planning and specialized applications for Revenue Planning, Capital Planning, Workforce Planning and Project Planning
- Host Analytics Consolidator
- Host Analytics Scorecard

All three applications share:

- A unified database
- A common Excel-like user interface for collecting and updating plan, actual and metric information normally not captured through other systems
- A consistent modeling methodology providing the ability to flex actual results with plan information
- Robust scenario management for using understand the decisions that need to be made given different economic and operational scenarios
- Integrated reporting

HOST ANALYTICS BUDGET

Host Analytics Budget helps executive decision making become a fact-based, highly efficient process and helps managers, during the planning cycles, understand the full impact of decisions, both risk and return.

Save time with familiar Excel format.

Decision makers can simply use their Internet browser to access

business information that is stored in a central location for quick and easy access. The browser displays and functions in Excel format so it's very familiar to users.

The Host Analytics solution is composed of Host Analytics Budget, Host Analytics Consolidator and Host Analytics Scorecard.

Reduce time on maintenance. With the flexibility of Excel comes risk, but Host Analytics Budget mitigates that risk by providing database-driven templates. Formulas and values are not trapped in the cell metaphor but centrally stored for dynamic reporting with database-driven calculations.

Stay on top of the process. In order to control the budgeting process, it is critical to know the progress of all plans and have the ability to pinpoint bottlenecks and delays. Host Analytics Budget will validate budgets automatically based on an organization's guidelines and targets. Reports are available on who has the budget, when they got it and who submitted it.

Maintain an accurate, dynamic plan throughout the year. Host Analytics Budget simplifies the reforecasting process by eliminating problems associated with multiple linked spreadsheets. Host Analytics Budget's flexibility will assist in modeling different company scenarios and monitoring company performance as the year progresses.

Access reports easily. Host Analytics Budget data is stored in an OLAP database for easy information access. Report output can be easily set to HTML or Excel formats. Reports can be organized and stored together in "briefing books," so that groups of reports can be accessed or printed quickly and easily.

Initiative-based project planning. Host Analytics Budget has unique functionality that allows managers to plan and compare the outcome of alternative investment decisions. Executives have access to all the required data and visibility into financial risks and returns in order to allocate resources in the most profitable way.

Specialized packaged functional modules. Host Analytics budget has specific modules for workforce planning, revenue planning and capital planning.

HOST ANALYTICS CONSOLIDATOR

Host Analytics Consolidator provides visibility and structure to drive quick and controlled consolidations.

Helping with Sarbanes-Oxley. Host Analytics Consolidator reduces the effort of Sarbanes-Oxley compliance in financial reporting. Internal and external transparency is improved and complete audit trails are provided.

The control panel manages and processes all financial consolidation tasks. Host Analytics Consolidator goes the extra step by providing an outline and live snapshot of the entire workflow process through the Host Analytics Control Panel, which has a closing and locking mechanism built in. If any validation rules or journal entries are not complete, the reporting site and administrator are alerted and the entire process will display incomplete and data is not rolled up.

Checks and balances.

- Displays the steps needed for the conversion and who is responsible
- Provides status on completion of Sarbanes-Oxley checks and processes Enables the administrator to view the entire status of the consolidation process
- Identifies and prevents bottlenecks

- Allows the administrator to execute tasks

Built-in financial consolidation and reporting functionality. Business rules, not cryptic scripts, offer a simple way to manage the complexity of the consolidation process.

Organization rules manage the complexities of minority interest calculations, subsidiaries on multiple fiscal years, complex equity ownership, multilevel elimination journal entries and multiple accounting methods.

Currency conversion rules manage currency conversion based on FASB 8, 52 and 95, including the temporal method of currency conversion as required for remeasurement or hyperinflationary environments.

Allocation rules allow for the configuration of multilevel allocations across divisions and departments.

Consolidation rules manage the sequence and processing of subsidiaries in the financial consolidation process.

HOST ANALYTICS REVENUE PLANNING

Host Analytics Revenue Planning solution is flexible, provides consis-

tent revenue planning and drives predictable sales growth.

Establishing an accurate view of future sales is the cornerstone of financial planning. For most companies, the business plan is driven from the revenue forecast, from ordering supplies, planning operations, projecting inventories, determining headcount and approving capital expenditures. Yet many businesses still create the revenue forecast from an ad hoc, antiquated system supported by linked spreadsheets and the workflow is managed by email.

Top-down, middle-out and bottom-up planning. These modeling tools minimize time wasted building multiple spreadsheets and maximize model flexibility. This flexibility allows managers to analyze the business in a dynamic way: by customer, by store, by location, by SKU channel or delivery method and adjust numbers based on changing business conditions.

Flexible, feature-rich budget templates. Host Analytics Revenue Planning input templates are rendered in a browser, in an "Excel-like" smart grid. The interface is data driven, dynamic and configurable to revenue planning dimensional requirements (e.g., product by customer, by channel, etc.). These tem-

plates handle discrete formulas to manage complex pricing schemes and multistage sales contracts. Users can create scenario comparisons in order to drive the reforecasting process. The system supports complex revenue recognition modeling including perpetual licensing agreements, maintenance revenue calculations, subscription revenue calculations, accretions and amortizations.

Customized workflow. This intuitive process helps users create their forecasts and budgets and allows managers to understand everyone's status in the plan creation and update process. This applies to any type of planning frequency: forecasting once per year, every quarter or monthly. Workflow reports on where an organization is in the process, who participated and who has not yet provided data, including sales, marketing, operations and finance.

Sales and operations planning automation. Host Revenue Planning provides the functionality to automate the sales and operations planning (S&OP) process. Utilizing input templates, key team members provide their expectations regarding unit sales and delivery. The group then meets to form a consensus estimate of the expected future sales and delivery. Through this

streamlined process, sales, operations and finance can anticipate future performance, manage customer expectations and allocate resources with reduced costs.

HOST ANALYTICS SCORECARD

Host Analytics Scorecard offers visibility and flexibility to drive accountability-focused scorecards.

Driving success through metrics.

Visibility in every direction is essential to measuring business performance. The balanced scorecard is a tool that is specifically designed to let managers understand higher level KPIs and how these drive the metrics in their area. Senior executives can analyze how the performance measures cascade through the organization and report variances to plan and make course corrections when required.

Help management ask the right

questions. Simply log into the secure corporate network and view KPIs. These indicators may show problems with KPIs such as on time delivery and average time for order entry to shipment which can shift focus to underperforming areas.

Stay focused on objectives. The ultimate purpose of Host Analytics

Scorecard is to guide daily behavior toward continuous improvement. Host Analytics Scorecard is effective because it translates big picture goals into objectives that management can track and employees have the ability to impact. The solution has dashboards with signals, alerts, dials and graphs to make sure variances are communicated to decision makers.

Full configuration to match solution to processes and KPIs. Use Host Analytics Scorecard as a standalone for performance management or combine it with Host Analytics Budget to have integrated performance-based budgeting that aligns strategy with the budgeting process.

TECHNOLOGY AND PARTNERSHIPS

Because, in a SaaS deployment, the customer's data is in the "cloud" rather than on site, security is a potential customer concern that SaaS solution providers must address. Host Analytics operates two SAS 70 Level II certified data centers to provide the SaaS environment for its solution. Its applications have C2 level security.

Host Analytics is a Microsoft Gold Certified Partner. Its solution was built using Microsoft development tools and uses the Microsoft BI stack (SQL Server database, SQL

Server Analysis Services OLAP engine and thin client integration with Excel). The Host Analytics solution utilizes a multi-tenant architecture.

Host Analytics has partnered with Boomi and uses its integration adapters to common source systems, such as Salesforce, SAP ERP, Microsoft Dynamics CRM, WorkDay and more.

Host Analytics has partnerships with two BI SaaS vendor—PivotLink and Birst—to complete the BPM and BI vision along with providing transactional level drill down within the Host Analytics product suite.

HOST ANALYTICS' STRATEGY

Host Analytics offers two primary differentiators.

One is the SaaS BPM solution. Host emphasizes the fundamental aspects of the SaaS value proposition: quick implementation and lower cost as well as supporting continuous improvement in methods and tools used to drive performance. Customers can start their implementation with Host Analytics Budget, Host Analytics Scorecard or Host Analytics Consolidator and work through the other implementations as the internal processes adjust to support the complete BI/BPM process.

Secondly, Host provides a decision platform for exposing the full

implications of decision—both risk and reward.

Host Analytics leverages its SaaS model to offer external content and benchmarks. It is working to offer external content and benchmarks specific to selected vertical industries.

Host Analytics more explicitly links BPM and BI than some other BPM vendors, and knows that “scorecards are the table of contents of corporate information.” Host Analytics BPM adds an “intelli-

gence” layer—containing business rules, business models and business logic—to BI and partners with Birst and PivotLink to complete this vision.

Host Analytics targets the finance function in its sales efforts, because finance departments are the buyers of BPM solutions. For about 60% of its customers, the legacy system being replaced is Excel-based, so it emphasizes the “Excel-like”-ness and ease of use of its user interface. ■

HOST ANALYTICS CASE STUDY:

Acciona Energy-North America

COMPANY BACKGROUND

Acciona Energy, a wholly owned subsidiary of the Spanish company Acciona, develops and operates renewable energy projects, including solar, wind, biomass, biofuels and small hydro. Parent company Acciona, publicly traded on the Spanish stock exchange but controlled by the Entrecanales family, had 2009 revenue of €6.5 billion (\$5+ billion).

Acciona Energy-North America, the subject of this case study, owns operational wind farms in North America, totaling 525 megawatts (MW). Its most recent wind

farm, EcoGrove Wind Farm in Illinois, can produce 100.5 MW of energy to power more than 25,000 U.S. homes.

For solar power, Acciona Energy-North America employs Concentrating Solar Power (CSP), a technology that uses thousands of mirrors to concentrate the sun’s rays onto a solar receiver, providing clean, reliable and cost-efficient renewable energy. Its joint venture Nevada Solar One, the first CSP plant to be built in the last 17 years and the third largest in the world, is a 64 MW plant with the capacity to create electricity equivalent to the needs of

approximately 14,000 homes annually. The company also has a plant that builds wind turbines.

The spokesperson interviewed for this case study was Tom Sullivan, Manager of Financial Planning and Analysis of Acciona Energy.

THE BUSINESS PROBLEM

When a new director of accounting and manager of financial planning and analysis joined the company in mid-2008, problematic accounting processes and systems were found. A Peachtree accounting system was in place, but the closing process was inefficient and the result was lengthy reporting timetables. All financial reporting was done using Excel. The budgeting process, also Excel-based, took input from almost 50 people. Creating the consolidated company budget used more than 90 intricately linked Excel workbooks.

Compounding the problem, Acciona Energy-North America has no internal IT resources: all IT work is outsourced. This meant that no IT resources were available to help implement, operate or support more automated budgeting and financial reporting systems.

THE SOLUTION

The company evaluated two BPM alternatives, the Host Analytics

SaaS solution and an on-premises system from another software vendor. The 5-year total projected cost of both systems was similar, but the on-premises system entailed more up-front cost and required internal IT support, which Acciona Energy would have had to hire or contract. Acciona Energy selected the Host Analytics solution and had it up and running within 60 days.

Acciona Energy-North America uses the Host Analytics Budget and Consolidator applications. It intends to, but does not yet, use the Scorecard application. Actuals from the Peachtree accounting system are loaded into Host Analytics, which is used for all financial reporting and analysis.

The company is licensed for 55 users. Almost 50 people use the system during formulation of the annual budget, and many of these users are beginning to use Host Analytics for ad hoc reporting. The finance department has 10 to 15 users, 5 to 6 of whom use the system every day.

BENEFITS

Host Analytics is a cost-effective solution to Acciona Energy-North America's budgeting and financial reporting needs. The SaaS model fits well with its lack of internal IT resources.

The finance function has expanded

Reports now are available at the individual department level, which has helped uncover anomalies.

the amount of information it makes available to executives and the operating departments. As an example, reports now are available at the individual department level, which has helped uncover data anomalies. Financial information is more accurate, available sooner and with greater detail than before.

The monthly financial close process and especially the annual budget development process are automated, less error prone and less

laborious for the finance department to execute.

FUTURE PLANS

At present, only the wind energy portion of the company uses the Host Analytics solution. It is working to extend its use to the solar energy operation and eventually to the wind turbine plant.

Acciona Energy-North America intends to implement an ERP system, but its plans to do so have been put on hold due to economic conditions. It hopes to be one of the first adopters of ERP software to be selected by Acciona, its Spanish parent company, for the entire enterprise. ERP implementation will entail changes to the data sources for its Host Analytics solution. ■

Infor Global Solutions Technical Overview

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COMPANY BACKGROUND

[Infor Global Solutions](#) offers enterprise software for enterprise resource planning (ERP), customer relationship management (CRM), enterprise asset management, financial management, human capital management, product life cycle management, performance management and supply chain management. A global company with offices in more than 100 countries, Infor has solutions for manufacturing, distribution, and services industries. Its customers include:

- The top 10 aerospace companies
- 9 of the top 10 high tech and electronics companies
- 21 of the top 35 life sciences companies
- 7 of the top 10 brewers
- Many others

Infor is a privately held company whose primary shareholder is pri-

vate equity firm Golden Gate Capital Partners. It has over \$2 billion in revenue, 70,000+ customers and more than 8,000 employees. The company was founded (as Agilisys) in 2002 and since then has made more than 25 acquisitions, including MAPICS, Geac and SSA Global.

BPM SOLUTION: INFOR PERFORMANCE MANAGEMENT (PM 10)

Infor Performance Management (PM 10) is designed for companies in all industries that seek to better monitor, measure and manage their business performance in real time to improve competitive advantage. With PM 10, a company can harness its data—wherever it resides—to better understand the business environment, streamline and improve the effectiveness of financial processes and prepare options for competing successfully.

Closed-loop performance manage-

ment follows a cycle from strategy to execution and incorporates the results of the strategy into the next cycle. It includes business processes for strategy, planning, budgeting, consolidation and forecasting. Infor PM 10 supports the processes of closed-loop performance management via a set of core components:

- Strategic management
- Planning and budgeting
- Forecasting
- Financial consolidation
- Reporting and analysis
- Multidimensional analysis
- Advanced query and analysis

Strategic management. Use a cause-and-effect framework to link strategic plans to operational plans, performance measures and people. Management gains an intuitive, visual method of reporting on how the actions of operating units and individuals are contributing to the success of strategic goals.

Planning and budgeting. Easily create and compare multiple “what if” scenarios, test assumptions, assess the impact of events and model the business to meet targets and high-level objectives. At the same time, any number of zero-based, historical-based, and rolling budgets and plans can be designed.

Forecasting. Create statistically

accurate forecasts that help manage performance expectations, make tactical adjustments and achieve performance goals. Generate rolling forecasts, check the accuracy of submitted plans and receive automatic alerts that allow issues to be easily spotted as they arise—so action can be taken quickly.

Financial consolidation. Improve corporate accountability, increase financial transparency and meet government-mandated reporting deadlines confidently. Collect, process, report and analyze data in multiple currencies as well as report on the effects of currency fluctuations. IPM helps organizations ensure compliance with GAAP, IFRS, Sarbanes-Oxley, FASB, Basel II and XBRL. IPM also provides financial reporting capabilities to automate the generation, formatting and distribution of book quality financial statements and management reports.

Reporting and analysis. Provide business intelligence by accessing, filtering, analyzing and publishing information throughout the organization. All reports are instantly web enabled and can be deployed using standard web browsers. With integration to other Infor PM applications, reports for production reporting, budgeting and planning can be built.

Multidimensional analysis. Get memory-resident OLAP capabilities that ensure fast access to large volumes of summarized data. The underlying technology of this solution makes it simple to browse data from any angle and level of detail.

Advanced query and analysis. With a powerful, flexible and customizable Microsoft Excel add-in, report and analyze data in Excel without needing multiple tools or dealing with time-consuming imports. This solution can also be used as a platform for building and deploying analytic applications.

INFOR STRATEGY

The product strategy supports Infor's value proposition to customers:

Continuous innovation:

- More software choices
- Customers can add solutions at their own pace
- Service-oriented architecture (SOA) enables faster, less disruptive response to changing business requirements
- Faster implementation
- Fast start programs
- Template-based business editions for many solutions
- OnePoint implementation methodology

Better global service and support:

- Localized versions of solutions
- Support and training available in 20 languages
- Infor365 collaborative community

Flexible buying options:

- Traditional software licenses
- Hosted applications
- Software as a service

Specific to its PM 10 performance management solution, Infor offers these points of differentiation:

Integrated information presentation via MyDay.

Infor MyDay is a user interface for Infor solutions based on the concept of user personas. Each persona is based on in-depth research into how an end user does his/her work and interacts with information to do that work. It encompasses that person's responsibilities, daily tasks, skills, work environment, management hierarchy, and goals and challenges. Based on understanding each user persona, Infor has prebuilt reports and metrics specific to it. The user does not need to know in which application, module, database table, etc. the information of interest to him/her resides.

Source system inclusivity. PM 10 can draw data from other Infor solutions,

non-Infor ERP, general ledger and other applications, Access databases, Excel spreadsheets, etc. It is designed to be able to take data from whatever source(s) the customer has.

Unified database. All the core components of PM 10 share the same database, in contrast to some of its competitors which have a separate database for each performance management module.

Comprehensiveness of solution. Infor PM 10 supports the entire closed-loop performance management cycle.

Scalability of solution. Infor PM 10 is an appropriate performance management solution for enterprises of all scales and levels of complexity. It is used by companies ranging from very small to global companies with more than \$4 billion of annual revenue. ■

INFOR CASE STUDY: BlueLinux Corporation

COMPANY BACKGROUND

BlueLinux Corporation was born in 2004 when Cerberus Capital Management, a private equity firm, and a team of executives purchased the distribution division of Georgia-Pacific Corporation. It became a publicly traded corporation in 2005, with Cerberus retaining 55% ownership.

BlueLinux is a Fortune 1000 company (2009: \$2.78 billion revenue; #722) and the largest distributor of building products in the United States. It distributes products in two categories: structural products (plywood, oriented strand board, rebar and lumber) and specialty products (roofing, insulation, vinyl products

and more). Major competitors are Weyerhaeuser Company and Boise Cascade LLC.

BlueLinux operates a network of 68 warehouses and a fleet of 600+ tractors and 1,000+ trailers and has sales centers in Denver and Atlanta. It distributes more than 10,000 products from 750 vendors to 11,500 customers.

The BlueLinux spokesperson interviewed for this case study was Michael D. Shaw, IT Project Manager.

APPLICATION LANDSCAPE AND BI ENVIRONMENT

When spun-out from Georgia-Pacific, BlueLinux took its application sys-

tems and associated infrastructure with it. One of these systems was Infor Infinium, an IBM AS/400-based ERP system that BlueLinX uses for procurement, general ledger, accounts payable and accounts receivable. Most of the other application systems were internally developed custom applications running on SQL Server; these include customer order processing and warehouse management systems.

The BlueLinX culture of internally developing applications extends to its BI efforts. It has a SQL Server-based data warehouse that supports both reporting and a number of analytic applications. One of these analytic applications is a “contribution model” that allocates costs to products and customers. (Each of BlueLinX’s 68 warehouses is a separate profit center and has its own P&L; this entails complex cost allocation.) A pricing model that uses full product costing and a desired gross margin to dynamically determine the price to quote customers is being implemented.

BlueLinX uses the SQL Server tool set, Visual Basic and .NET to develop both its transaction processing and BI applications; it does not use a BI tool.

THE BUSINESS PROBLEM

During its days as a Georgia-Pacific

division, BlueLinX did financial reporting using Microsoft Access as the reporting front end to a SQL Server database, with both the database and the reporting being owned by the accounting department rather than IT. This approach worked for a division with no external reporting requirements—its operations were included in Georgia-Pacific’s external reporting.

The spin-out from Georgia-Pacific in 2004 and the IPO in 2005 brought significant new financial reporting requirements—all those of a publicly traded company. The home-grown Access-based financial reporting system could not satisfy those additional requirements. In addition, the monthly close process took 1.5 weeks, even though the accounting staff worked significant overtime; both the elapsed time and the staff workload were unacceptable.

THE SOLUTION

Leveraging its existing relationship with Infor, BlueLinX selected Infor’s Performance Management Suite, PM 10, to replace its home-grown Access-based financial reporting system. It considered financial reporting solutions from Cognos and Hyperion, but chose Infor PM 10 because it met the requirements at significantly less cost.

BlueLinX used Infor Professional Services to improve the perform-

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ance of its PM 10 implementation. Professional Services recommended that BlueLinx build multidimensional cubes using Microsoft SQL Server Analysis Services (SSAS) and have PM 10 access the data from the cubes, rather than using the relational Business Integration Services (BIS) database that comes with PM 10. The SSAS cubes approach dramatically improved performance.

IT has taken over responsibility for the back end (the SQL server database and SSAS cubes), while accounting staff self-serve their reporting needs using PM 10.

BENEFITS

Infor PM 10 fulfills BlueLinx's external reporting needs. The monthly close process now takes 3.5 days

down from 10.5 days, a reduction of one week, with the accounting staff working normal hours.

FUTURE PLANS

BlueLinx is working to implement inventory reporting using PM 10. It will build a separate SSAS cube containing the inventory data, and PM 10 will draw data from that cube.

BlueLinx has licensed the entire Infor PM 10 suite, which has five core components: strategic management, planning and budgeting, forecasting, financial consolidation, and reporting and analysis. It currently uses the financial consolidation and reporting and analysis components, and might use additional components in the future. ■

Teradata Corporation Solution Overview

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COMPANY BACKGROUND

[Teradata Corporation](#) focuses on improving decision agility through database software, integrated data warehousing, data warehouse appliances and business analytics.

Teradata has more than 950 customers worldwide and over 1,900 installations of its parallel database management software. It has large and prominent customers in retail (Walmart, Tesco, SUPERVALU Inc.), banking (Royal Bank of Canada, Wells Fargo, Bank of America), telecommunications (AT&T, Bell Canada, Vodafone), airlines (American Airlines, Continental Airlines) and other industries. In 2010 Teradata was recognized as a “Top 10 Most Strategic Vendor” by *InformationWeek*.

Teradata is a Fortune 1000 company (2009: \$1.709 billion revenue; #979). Founded in 1979 in a garage in Brentwood, California, Teradata has 6,000 employees in 60 countries. From 1991 to 2007 it was

owned by NCR Corporation, but then spun-off as a public company (NYSE: TDC).

BUSINESS ANALYTICS OFFERINGS FOR BPM AND BI

Using a full suite of tools, applications, consultants and partnerships, Teradata users integrate financial data with customer, operational (e.g., POS, web clicks, orders, product production and supply chain data) and industry data, facilitating cross-functional analyses throughout the enterprise. By linking financials to key operational drivers, Teradata serves as a crucial foundation for both business intelligence and business performance management.

Teradata complements its core scalable data warehouse technology and services with a wide array of applications and partnerships pertinent to BI and BPM.

**TERADATA DECISION
EXPERTS**

Used by customers such as Qantas Airlines, Office Depot and O2, Teradata Decision Experts (TDEs) are flexible, prepackaged and integrated data models for key subject areas including general ledger, accounts payable, accounts receivable, purchasing, fixed assets, project accounting, inventory, order management, human resources and payroll. Leveraging Decision Experts with Teradata's industry data models provides customers the ability to link financial data and operational drivers, and provides a platform for consistent calculation of all KPIs and metrics.

**TERADATA VALUE
ANALYZER**

Companies such as DHL and Royal Bank of Canada use a calculation engine called Teradata Value Analyzer (TVA) to understand the profitability of processes, products, programs and customers. Teradata Value Analyzer (TVA) drives the analysis of activity-based profitability at both detailed and aggregate levels. TVA captures object level financial events by defining business rules associated with the drivers (or components) of profitability, e.g., calculation of direct costs versus indirect costs.

**TERADATA RELATIONSHIP
MANAGER**

Teradata Relationship Manager (TRM) assists companies such as Hallmark Cards, National Australia Bank and Lloyds Banking Group to gauge and optimize the performance of marketing activities. Analytical insights from TRM ensure that businesses communicate with their high value customers with the right content and offers at the right time. TRM has three interrelated modules Campaign Management, Offer Optimizer and Marketing Resource Manager (MRM). Teradata MRM is "BPM for Marketing," so marketing leaders can:

- Manage, coordinate and track marketing budgets
- Manage and simplify distribution of digital assets
- Automate and coordinate marketing process workflows enterprise-wide
- Track and analyze marketing campaign performance
- Improve coordination and management of outside agencies

**TERADATA/ORACLE HYPERION
PARTNERSHIP**

Companies such as BNSF, Nationwide and Verizon benefit from the partnership of Teradata and Oracle for BPM and BI solutions. The partnership integrates and optimizes

Teradata with Oracle Business Intelligence, Oracle Essbase and Oracle Enterprise Performance Management which includes Oracle Hyperion Financial Management and Oracle Hyperion Planning.

TERADATA/SAP PARTNERSHIP

As a database platform for SAP Business Objects Business Intelligence and Information Management solutions, Teradata improves BI across SAP and non-SAP data. Freescale, a major semiconductor manufacturer, used Teradata and SAP joint technology to optimize its financial close process. Another quality analytics project drove \$100 million in improved gross margin from increasing manufacturing lot yields. Other reference customers include Coca-Cola, Ford and the Hershey Company.

TERADATA/SAS PARTNERSHIP

The Teradata and SAS partnership focuses on ability to run and optimize key SAS analytics within the Teradata database engine, leveraging the core parallel processing inherent in Teradata's architecture. The Business Insight Advantage program combines the Teradata database platform with the SAS Business Analytics Framework to

accelerate the deployment and execution of business analytics. This includes data integration, model development and deployment, and forecasting and reporting. The two companies have participated in more than 350 global customer engagements spanning multiple vertical markets.

ADDITIONAL PARTNERSHIPS

Teradata and MicroStrategy have a 14-year-old alliance based on several years of successful integration at approximately 200 customers, including Hudson's Bay and the U.S. Postal Service.

Teradata partnerships with IBM Business Analytics (Cognos and SPSS) date back more than 12 years. Together, Cognos, SPSS and Teradata provide a flexible and comprehensive performance management solution used by more than 200 joint customers such as Sabre Holdings and Barclays Bank.

BUSINESS ANALYTICS STRATEGY FOR BPM AND BI

Teradata believes that a successful BPM implementation requires tightly linking a company's entire information flow to business processes, corporate strategy and BI capabilities. As a company's official keeper of results and statistics, the

finance organization doing BPM derives value from the ability to see all financial data in one place with common data definitions and common business rules. **FIGURE 10** shows the Teradata Reference architecture for BPM/BI and critical elements delivered through Teradata technology, tools, professional services and partnerships.

A shared, warehouse-centric approach to BPM and BI has several advantages over stovepiped, separate but independent, approaches to building BI applications, scoreboards/dashboards and BPM capabilities:

1. Lower cost. Data needed by BI and BPM usually has high overlap. A shared data warehouse approach dramatically reduces storage costs. Companies can simultaneously

leverage the same data source for BPM tools for forecasts and monitoring actuals as well as for BI investigations that drill into manufacturing production anomalies or show shifting markets or customer purchase patterns.

2. Innovation. Often 80% of the cost of a new project is finding and sourcing data. By sharing the data, business groups can more quickly invent and build new KPIs and value-added applications.

3. Business alignment. Aligning front-line groups whose actions impact daily operations with back-office departments effectively puts everyone in the company on the same page. Teradata customers often use BI to discover leading versus lagging indicators, which can

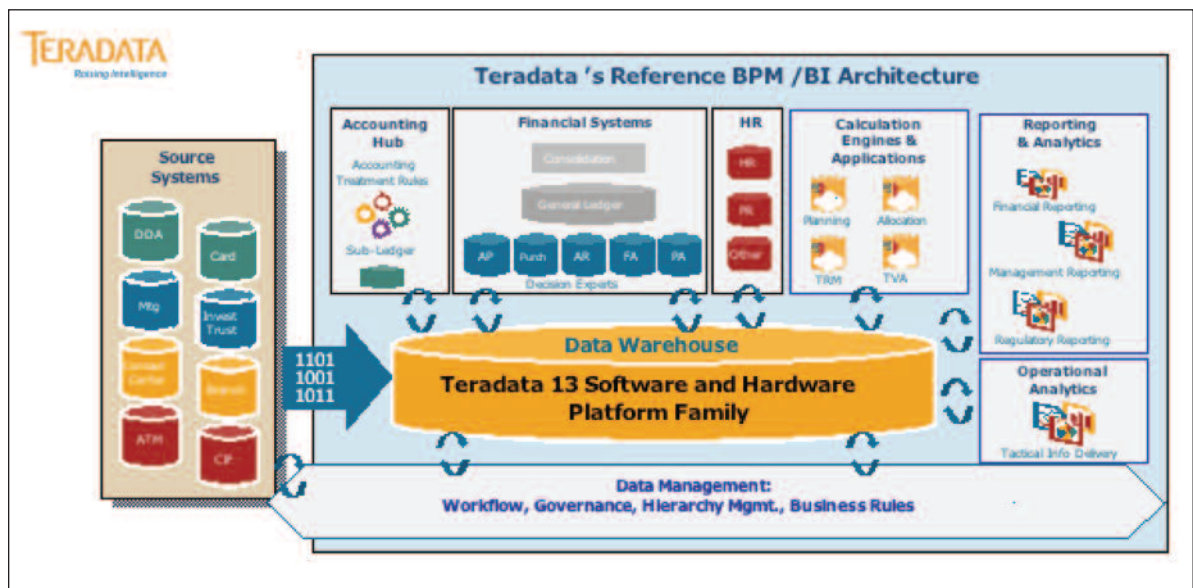


FIGURE 10: Shared Warehouse-Centric Approach

then be put on BPM dashboards. Or BPM-based financials or sales anomalies can be investigated with BI tools to drill into details and detect causative factors.

4. Accelerated insight and action.

When data is loaded rapidly, insights are fresher. The use of triggers in Teradata helps analysts or front-line users react decisively to time-critical business events, decreasing response times for customer-critical events with positive impacts on dashboard scores for customer delight.

Teradata's Data Warehouse is based on a platform family of hardware products as well as Teradata 13 software, which runs across all sizes of platforms.

HARDWARE

The hardware platform family includes:

- **Active Enterprise Data Warehouse** for enterprise-wide centralized data computing, supporting tens of thousands of simultaneous users, up to 14 petabytes (PB).
- **Extreme Performance Appliance** for intensive, high performance analytics and lower data workloads, featuring the first data warehouse composed entirely of

solid state disks, up to 24 terabytes (TB). Improves query performance by a factor of 20.

- **Extreme Data Appliance** for higher data, lower analytic compute applications, up to 50PB of data. Provides high amounts of cost-effective online data for companies with large data storage compliance requirements.
- **Data Warehouse Appliance** for companies just starting their enterprise data warehouse (EDW) efforts or for workgroups who require a production data mart, up to 514TB.
- **Data Mart Appliance** is a starter kit for first implementations or testing/development, up to 6TB.

SOFTWARE

All these platforms run Teradata 13, which features in-database processing for SAS analytics and statistical functions, and recently announced native support for SAP BW and Business Explorer BEX with Teradata 13.10, which will be available later in 2010. These capabilities are also used by a variety of BI reporting and analytics partners such as IBM Business Analytics (Cognos and SPSS), MicroStrategy and SAP Business Objects. In-database processing moves intensive computing inside

the Teradata system, so complex SQL generated by these BI tools can exploit Teradata's parallel processing capabilities. This is much more efficient than copying data from Teradata into separate data sets, computing remotely, and putting results back into Teradata, resulting in dramatically improved query processing times and far lower storage requirements.

New features in Teradata 13 include native geospatial capabili-

ties for spatial analytics and visualization as well as enhanced workload management tools for DBAs to create and monitor workload queues for various kinds of simultaneous workloads (ETL, ad hoc queries and operational queries with tight service level agreements). Teradata Express for VMware and Amazon's EC2 are two new offerings customers or prospects can use to explore the use of private or public data warehouse clouds. ■

TERADATA CORPORATION CASE STUDY: AT&T Mobility

COMPANY BACKGROUND

AT&T Inc. is a telecommunications company comprised of pieces of the former "Ma Bell" AT&T Corporation, which was broken up in 1984, and numerous acquisitions. It includes 11 of the original Bell Operating Companies and the AT&T Corporation long lines division.

In 2005, SBC Communications Inc. (formerly, Southwestern Bell) acquired AT&T Corporation (the original "Ma Bell" parent company) and changed the name of the combined entity to AT&T Inc. In 2006, it acquired BellSouth (originally, Southern Bell and South Central Bell). The BellSouth acquisition con-

solidated ownership of Cingular Wireless and Yellowpages.com, which previously were joint ventures between AT&T and Bell South. All services now are offered under the AT&T brand name.

AT&T is #8 in the Fortune 500, with 2009 revenue of \$123 billion. This case study is about the wireless business, AT&T Mobility, which is a \$53.6 billion operating segment. AT&T Mobility interacts with 60,000 customers per day through its retail stores, call centers and other venues. In addition to its own 2,200 retail stores, AT&T Mobility also sells through national retailers and independent agents.

AT&T Mobility is organized into 27 geographic regions, each of which is headed by a vice president/general manager who has full P&L responsibility for all aspects of operations: network, infrastructure, stores, distribution, etc. The culture is very sales-oriented, with an emphasis on growing top-line revenue.

AT&T Mobility articulates its objectives as:

- Growth: penetration of new markets and growth in existing markets
- Return on operations and investments
- Customer service and reputation
- Financial contribution to the parent company

Matt Boos, Director of Performance, Planning & Analysis, and Tim McCabe, Executive Director of Data Warehousing for AT&T Mobility, were the spokespeople for this interview.

DATA WAREHOUSING AND BUSINESS INTELLIGENCE LANDSCAPE

AT&T is an enormous enterprise whose piece parts themselves are quite large. Predecessor companies AT&T Long Lines, SBC, Bell South, Cingular Wireless and AT&T Wireless all had multi-terabyte Teradata-

based enterprise data warehouses; these all continue in the combined enterprise.

One of the enterprise data warehouses used by AT&T Mobility, and the subject of this case study, is a 700-terabyte "eCDW" Teradata data warehouse that consolidated:

- All wireless business
- Most consumer landlines
- No regulated landlines

Historically, eCDW services 400 to 600 simultaneous users, a maximum of 2,500 to 3,000 users per day, running 200,000 traditional BI queries per day. AT&T Mobility uses most of the major BI reporting and analysis tools, including:

- Business Objects, primarily by sales
- MicroStrategy, primarily by consumer marketing
- Hyperion, primarily by finance
- Cognos and many others

The eCDW data warehouse is used for more than just reporting; it supports a number of BI applications, including:

- Deriving sales targets and new KPI options.
- Marketing campaign management, using an analytic application from Unica.
- Unified household view, which

provides call center agents a unified view of an AT&T Mobility customer.

- Personalized course of action, which uses customer history and lifetime value to determine a series of “next best” offers for a salesperson to present to a customer.

Most of the sales reporting from eCDW is via the Sunrise data mart running on the same Teradata hardware, which integrates and conforms data from many sources across a common organization hierarchy, product and other dimensions. The Sunrise data mart also applies complex business rules to calculate business defined metrics. Information from the Sunrise data mart is accessible via Business Objects and delivered via HTML reports.

THE BUSINESS PROBLEM/ OPPORTUNITY

AT&T Mobility has a large portfolio of Business Objects sales reports, and each regional VP/GM has a reporting manager and staff who develop new reports. Historically, access to sales metrics was limited to standard HTML reports delivered late in the day or new custom reports developed by the regional reporting staff. While useful, the available reporting did not com-

pletely satisfy the need for sales information so a project was launched to widen access for front-line users, specifically store managers. The requirements included:

- **Access.** Provide self-service access to an order-of-magnitude more users, including store managers, marketing and finance employees who need sales information, and executives, some of whom need the ability to slice and dice, drill, and trend data.
- **Fast value.** Quickly and easily tell store managers what they need to know about the operations of their stores. Store managers have little time—they want to spend less than 10 minutes per day getting their metrics—and are not interested in learning or using BI tools.
- **Customization.** Each of the 27 regions has a unique competitive situation, market share, and capabilities, and therefore has a unique strategy and objectives (or, at least, a unique prioritization of them). Each region and store needs a unique subset of performance KPIs/metrics, with unique weighting/prioritization tailored to its situation.
- **Ease of use.** Although AT&T had a standard web access tool, it was

too expensive to license and required too much training to be the right tool for store managers or executives. None of the many BI tools in use within AT&T Mobility had the right functionality to meet all the requirements of this application.

- **Up to date.** An infrastructure that could deliver updated information timely (by 9:00 a.m. each day), provide sub-second response time and handle tens of thousands of users.

THE SOLUTION

AT&T Mobility developed what it calls a sales dashboard, although the functionality of the application is substantially more than a dashboard. It devoted significant time and effort to working with all levels of users to understand their needs, spending more than 6 months in iterative prototyping.

The sales dashboard application leveraged the existing Teradata-based eCDW and Sunrise data mart. The front end is a custom Java user interface that:

- Uses cascading dropdowns to navigate through the organizational hierarchy. Each organizational level and region combination sees a customized view of what is useful to it.

- Enables slice and dice by breaking down star schemas into checkboxes, radio buttons, dropdowns or list boxes.

- Realizes a “browse for my metrics” experience chosen from a “cafeteria” of 150 KPIs.

- Provides configuration choices used to drive the nightly ETL to load the right metrics.

- Achieves quick response time by precalculating all metrics.

To support both the response time requirements and the large user population, both the data model and the queries were highly tuned to deliver the specific and predictable requirements of the sales dashboard.

BENEFITS

The sales dashboard application has been deployed and enables regional and store managers to proactively monitor and manage sales performance based on the set of customized KPIs that support their business objectives based on unique regional and store demographics and characteristics.

This project effectively leveraged AT&T Mobility’s existing investment in Teradata (eCDW enterprise data warehouse and Sunrise data mart).

SOLUTION OVERVIEWS AND CASE STUDIES

PART 1: SURVEY AND RESEARCH FINDINGS

PART 2: SOLUTION OVERVIEWS AND CASE STUDIES

AUTHOR INFORMATION

Thanks to the tuning of the data model and queries, the sales dashboard:

- Has consistently met all performance goals specified in the service level agreements with user groups.
- Required minimal additional hardware investment. The dashboard queries run on the same box as the BI queries with high priority compared to BI workloads.
- Has had no negative impact on other eCDW query performance.

This project was estimated to cost \$1.5 million to initiate and \$1

million for the first production release. AT&T uses a waterfall-oriented development methodology called the IT Unified Process (ITUP). To reduce the elapsed time to deliver new BI/reporting, AT&T Mobility changed how it organizes BI projects: IT is responsible for the infrastructure and the back end, while the business group (sales operations) is responsible for the front end, and the front-end developers belong to it. Building the sales dashboard using this new approach cost only \$650,000 of internal labor, a significant cost savings to alternate approaches for doing BPM. Using the same system for BI and BPM paid big dividends for AT&T Mobility. ■

AUTHOR INFORMATION

PART 1: SURVEY AND RESEARCH FINDINGS

PART 2: SOLUTION OVERVIEWS AND CASE STUDIES

AUTHOR INFORMATION



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Steve has written for many business journals and magazines, including *Strategic Finance*, *Business Trends Quarterly*, *Business Intelligence Journal* and *Information Management* (previously *DM Review*). With Nancy Williams, he is co-author of *The Profit Impact of Business Intelligence* (Elsevier/Morgan Kaufman Publishing, 2006). Steve's clients have included Pinnacle Foods Group, United Natural Foods, Inc., McCormick & Company, Toronto Hydro Corporation, Principal Financial Group, the U.S. Treasury and the U.S. Social Security Administration. He may be contacted at steve.williams@decisionpath.com.

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