



Corporate **Renaissance** Group



TURNING DATA TO INSIGHT

MICROSOFT BUSINESS INTELLIGENCE:

A PRIMER FOR BUSINESS DECISION MAKERS

INTRODUCTION

The twenty-first century belongs to the agile enterprise: organizations that gain insight from their data then act with speed and decisiveness. Today, less than ten percent of organizations are satisfied when it comes to providing decision makers with easy and timely access to enterprise data. According to Betsy Burton, VP Distinguished Analyst, Gartner, *"Many business managers find themselves overwhelmed with a plethora of data and content, but, due to a lack of access, consistency and quality, they are unable to actually use this information to drive their business."*¹

Many business intelligence (BI) vendors have provided solutions to deal with the challenge of providing timely and accurate enterprise data; Microsoft® is now making a serious entry into the market. Armed with a product arsenal that includes Microsoft SQL Server™ 2005, Microsoft Office® 2007, Microsoft Excel® 2007, ProClarity™ Analytics 6 and Microsoft Office PerformancePoint™ Server 2007, the BI landscape has changed significantly, seemingly overnight.²

*"We will also see an aggressive push from Microsoft this year, seriously entering the market with their launch of Microsoft Excel Services as part of Office 2007 and the associated PerformancePoint Server applications that will use Excel. This will be particularly attractive for small and medium sized businesses as standard BI functionality applications suddenly become available at a reasonable price."*³

The following paper is intended to provide an overview of the Microsoft Business Intelligence solution and Corporate Renaissance Group's approach for implementing business intelligence platforms. As an organization, we have extensive experience with Microsoft solutions as well as the tools offered by large "pure-play" BI vendors. Our intent is not to compare and contrast Microsoft solutions with those other vendors but, to provide an overview of the Microsoft solution. This paper is written for the business decision maker, not IT professionals; as such, we have deliberately minimized, or even eliminated, the "technical" jargon. This is consistent with our belief that BI projects must be driven by business users with active support from IT: not the other way around. BI projects are business projects and business users should dictate the design and the evolution of the project.

THE CHALLENGE—TRANSFORMING DATA INTO INFORMATION

We have seen this challenge again and again even with Fortune 500 companies: many organizations recognize the fact that they are "Data Rich, Information Poor" (DRIP). Quite often these same organizations have made substantial investments in business systems, including Enterprise Resource Planning (ERP) solutions, only to find that decision makers continue to be hindered by an apparent lack of timely information. In many companies, Microsoft Excel continues to be used as a reporting tool, in spite of their technology investments.

We believe there are ten challenges faced by decision makers with regards to making fact-based decisions.

1. **Consolidating Dispersed Data.** Data resides in many systems and there is often no linkage between these data sets in terms of ownership, timeliness and relevance. Additionally, too much time is spent in discussing "whose numbers are right or the most recent."
2. **Extracting Relevant Data.** Many organizations have made excessive investments in IT-driven data warehouse projects in an effort to consolidate data, only to find that the ease of reporting and analytics has not changed. They are still unable to extract relevant data.
3. **Facilitating Event-to-Knowledge (ETK) and Timeliness.** With organizations increasing their focus on controls and the timely delivery of information, decision makers are looking for real-time, exception-based monitoring. They want the key performance indicators (KPIs) pushed to them; to their desktops and to their wireless devices. They want more than just the numbers; they want key insights on status and trends. And they want it fast, not in five days.
4. **Monitoring KPIs and Balanced Scorecards.** Many enterprises have implemented Balanced Scorecards as a means of monitoring KPIs and other Business Value Drivers; however, the data used tends to be financial in nature, since financial KPIs are easier to produce. The "one-view" of the organization and key non-financial dimensions—customer, processes, learning and growth—have proven difficult to determine and remains elusive.

¹ Gartner Survey Shows Disconnect Between BI Vision and Strategy, Online News published in DMReview.com, April 23, 2007

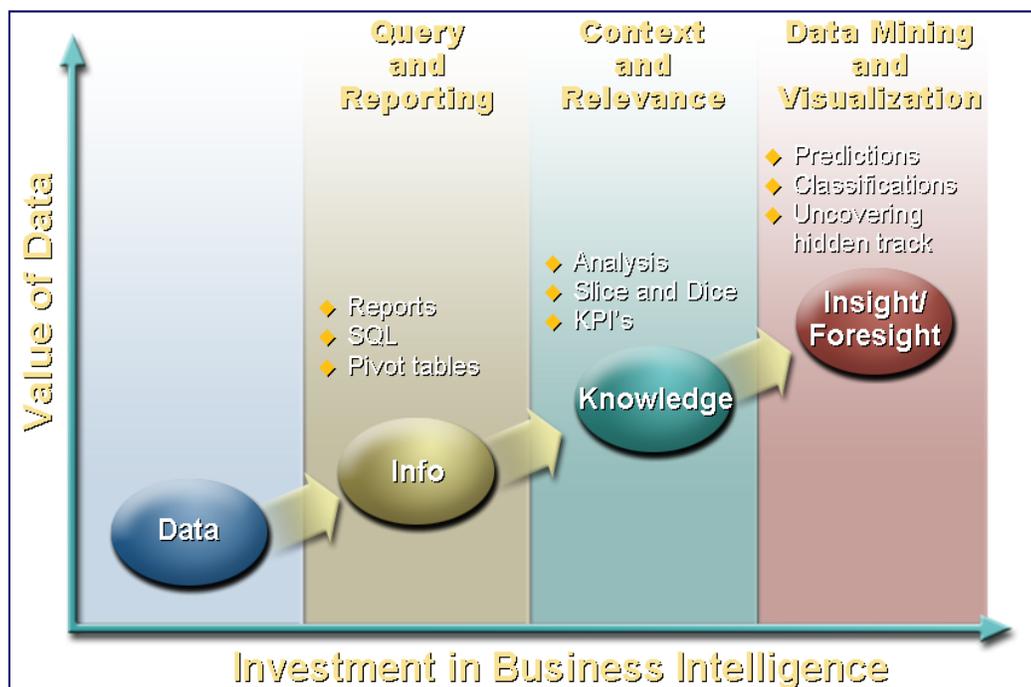
² Microsoft announced their decision to stop selling Microsoft Office Performance Point Server after this white paper was written and updated.

³ *Business Intelligence Market Will Grow 10 Percent in EMEA in 2007 According to Gartner, Gartner 2007 Press Releases, Carina Forsling.*

5. **Interacting with Data.** Business professionals are continually looking for easy ways to analyze timely, relevant data. A popular method for analyzing results is multi-dimensional analysis. This involves providing an intuitive “drag and drop” interface that allows business users to report, query and drill-down to the details on large amounts of data whenever they want and using an interface they are comfortable with rather than relying on proprietary systems.
6. **Relying on Closed Systems.** Many BI vendors provide rich solutions that require significant investments and force clients into a vendor-dependent relationship due to the proprietary nature of their BI tool kit. The complexity of the solution can drive other problems such as continuous organizational investment in training and knowledge. Another problem is the heavy reliance on IT resources, which are in short supply, instead of providing front end users with a seamless and intuitive experience.
7. **Looking Ahead, Not into the Past.** Many solutions analyze and report on past performance; however, the ability to predict the future or forecast continues to be illusive.
8. **Receiving Reports: Push vs. Pull.** Decision makers require key, standard reports, with simple but powerful filtering capabilities that can be “pushed” to them on a scheduled basis, as opposed to “pulling” it from complex, corporate repositories.
9. **Personalizing Information.** Decision makers in different areas of the business require accurate information that is presented in a relevant manner and is specific to their role or function. Individuals may also want to further personalize their information to meet their own personal needs and preferences.
10. **Deploying Solutions Efficiently and Effectively.** Organizations are looking for cost effective solutions that can be delivered in an efficient manner. They are not interested in another, long drawn-out IT project that involves time and money, but rarely delivers on the promise.

The challenge for organizations is to increase the value of the data in an effort to provide both insight and foresight in order to help make better decisions, faster.

FIGURE 1: TRANSFORMING DATA TO INSIGHT

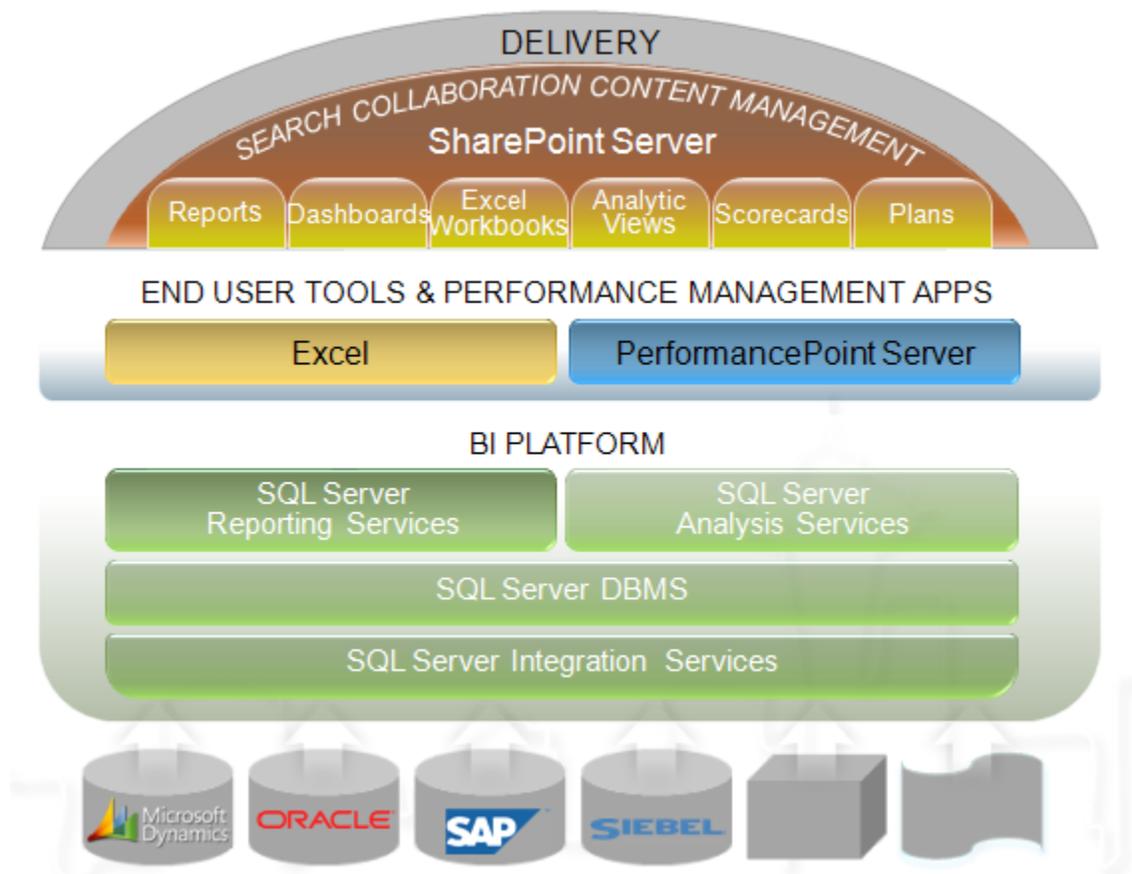


THE MICROSOFT SOLUTION

Microsoft has developed an impressive BI solution centered on the Microsoft SQL Server 2005. Microsoft has also created a compelling value proposition based on three important principles:

- ◆ **Affordable for Broad Deployment.** The Microsoft solution has a lower TCO (Total Cost of Ownership) and is more affordable than many “pure-play” BI vendors. The level affordability is particularly evident when one considers enterprise-wide deployment for items such as web-based reporting: clients using an enterprise license of SQL Server are not required to pay additional report consumer licenses; this is not always the case with other BI vendors. In addition, Microsoft is aggressively pricing the new release of PerformancePoint server in an effort to support this strategy.
- ◆ **Leverage Existing Microsoft Investments.** In many cases the client already has the required licensing in place to implement a significant part of the solution: the key pieces are SQL Server and Microsoft Office.
- ◆ **Commitment to BI.** Microsoft is committed to building a sustainable, easy-to-use BI solution. The solution is focused on the end user experience. The belief also exists that traditional BI tools are too expensive and too often deployed in the hands of few versus the many. As Steve Ballmer stated at the Microsoft BI Conference, “We are dead serious about BI.” (Steve Ballmer, CEO Microsoft, Microsoft BI Conference, May 11, 2007, Seattle, WA). Many industry observers have noted that when Microsoft gets “serious” about a space, they tend to dominate it within a few years.

FIGURE 2: THE MICROSOFT BUSINESS INTELLIGENCE SOLUTION



4 Microsoft SQL Server 2005 consists of a number of different components. Each component is designed to fulfill a specific purpose and is targeted to a specific type of enterprise user.

FIGURE 3: THE MICROSOFT BUSINESS INTELLIGENCE PLATFORM

Microsoft SQL Server 2005	
Component	Description
SQL Server 2005	A database software platform that provides enterprise-class data management and integrated BI tools. It has a number of different components: SSRS, SSAS, SSIS.
Reporting Services (SSRS)	A solution that creates, manages and delivers both traditional, paper-oriented reports and interactive, web-based reports.
Analysis Services (SSAS)	A solution that performs detailed analytics on large and complex data sets using multi-dimensional storage, with online analytical processing (OLAP) capabilities.
Integration Services (SSIS)	A solution that populates the data warehouse and integrates data using extraction, transformation and loading (ETL) processes to ensure data quality.

Microsoft Business Intelligence Tools	
Report Builder	An ad-hoc reporting tool that allows business users to create their own reports and explore corporate data.
Report Designer	A tool that allows users to design reports within Visual Studio.
Microsoft Excel	Spreadsheet software that allows users to analyze data.
Business Scorecard Manager	A tool that allows users to develop strategies, monitor performance and assign accountability using Scorecards and Strategy Maps.
ProClarity Analytics	A tool that provides ad-hoc analysis and data visualization using Query and Analysis, Dashboards, Scorecards and Reporting.
Microsoft Office PerformancePoint Server	With Microsoft PerformancePoint Server, users can monitor, analyze and plan their business activities. It has two components: <ol style="list-style-type: none"> 1. Budgeting and Forecasting 2. Monitoring and Analysis Business Scorecard Manager and ProClarity Analytics are being migrated into PerformancePoint Server.
Microsoft SharePoint Server	Allows the use of internet and extranet to offer a comprehensive content management and collaboration platform across the entire organization.

At first glance, this comprehensive solution from Microsoft appears to be complex and technical. Our reason for highlighting these various tools and the components of the Microsoft platform is to illustrate that it provides a robust selection of tools that can be used selectively depending on the size and urgency of the challenge, the sophistication of the user, and the budget for the BI initiative.

However, the bottom line is simple. Most mid-sized organizations already license SQL Server and Microsoft Office; a simple upgrade to SQL Server 2005 provides all the licensing required to build a Microsoft BI foundation. SQL Server 2005 has the built-in functionality, technology and tools required to address many of the data challenges. Integration Services (SSIS), SQL Server Analysis Services (SSAS) and SQL Server Reporting Services (SSRS) are all bundled into the SQL Server 2005 database license.⁴

⁴ The details of SQL Server licensing can be found at <http://www.microsoft.com/sql/howtobuy/default.aspx>

Each situation is unique and this detailed level of functionality may not be necessary in all instances. From the simple situations to complex scenarios, we can tailor an affordable solution within the Microsoft environment:

- ◆ In a simple situation, Microsoft Excel connected seamlessly to SQL Server Analysis Services OLAP cubes (multi-dimensional models) may provide sufficient functionality.
- ◆ If all that is required is “Pushing” reports with some filtering capabilities to a selected group of users, then Reporting Services could be deployed to provide web-based access to pre-defined, richly formatted reports complete with prompts, drill-downs and filtering. This solution can be deployed without requiring further licensing. This may be one of the most definite sources of differentiation from the “pure-play” BI vendors, where one may have to pay a license fee just to view a report. Furthermore, Reporting Services is highly scalable and can serve as a “one-stop shop” for all enterprise reporting.
- ◆ For sophisticated analytical needs, ProClarity Analytics can provide even more robust and intuitive analytical functionality and visualization capability. Business decision makers will prefer the web-based views offered by ProClarity Analytics.
- ◆ To increase the level of sophistication, SSAS has data mining capabilities that give users the ability to decipher patterns in the data and predict potential future outcomes allowing for organizational insight and foresight. With the planned incorporation of data mining into Excel, Microsoft is giving this robust functionality, that used to be the exclusive domain of the statisticians, to the business user. Data mining can be used for a number of different business activities: targeted marketing, market basket analysis, risk management, and more.
- ◆ If the organization requires monitoring and planning around metrics, the PerformancePoint Server will be of great use. In this sever, Microsoft is combining the best-of-breed scorecarding capabilities of Business Scorecard Manager and ProClarity Analytics, specifically, the ProClarity Dashboard. This gives users a robust, scalable and affordable tool to visualize information and publish scorecards. New functionality has been added to improve the budgeting functionality, which is a significant part of the planning process. The planning module allows organizations to create detailed budgets and forecasts with contributions from required organizational members. The contributions to the plan are made through a Microsoft Excel interface. Results are monitored from the Office PerformancePoint portal. There is a high level of role-based personalization. In its partner pre-release training, Microsoft representatives revealed that the planning component of the solution that seems to be developed to compete head-to-head with similar products from IBM Cognos and Hyperion.⁵
- ◆ The Microsoft Office SharePoint Server provides the architecture for web portals, providing content management, enterprise search capabilities and facilitating information sharing. It offers various views on data, publishes SQL Reporting Services reports and provides end-users with personalization and alerting capabilities.

The prospect of developing tailored BI solutions emphasizes what we believe are the key principles of the Microsoft solution:

1. It is affordable for many mid-market organizations because the core SQL Server and the Microsoft Office suite are most likely already licensed.
2. It is a modular solution—organizations can deploy it once piece at a time or all once. This makes the solution affordable for most organizations.
3. It is deployable to a broad range of users and it focuses on the final experience as users work in a familiar environment, such as Microsoft Excel.

With this comprehensive offering from Microsoft comes the business challenge: What are the optimal deployment options?

In our view, and based on our experience, the deployment options depend on a number of factors:

- ◆ the number of business systems
- ◆ the size of the data held within the systems
- ◆ the number of users
- ◆ the sophistication and knowledge of the enterprise and its users
- ◆ the willingness of the organization to invest and train internal resources to shorten the “time to market” period.

All things being equal, the Microsoft SQL Server 2005 solution provides the best value for money compared to the alternatives. This is especially true when you consider the fact that most mid-market organizations already license it or its predecessor, Microsoft SQL Server 2000. It is also important to note that the realization of an organizational BI strategy is something that may take several phases and steps over a finite period of time. In practice, we have found that “mix and match” deployment approach works best: choose the option that best suits the individual user needs and satisfies the organization’s short and long-term requirements.

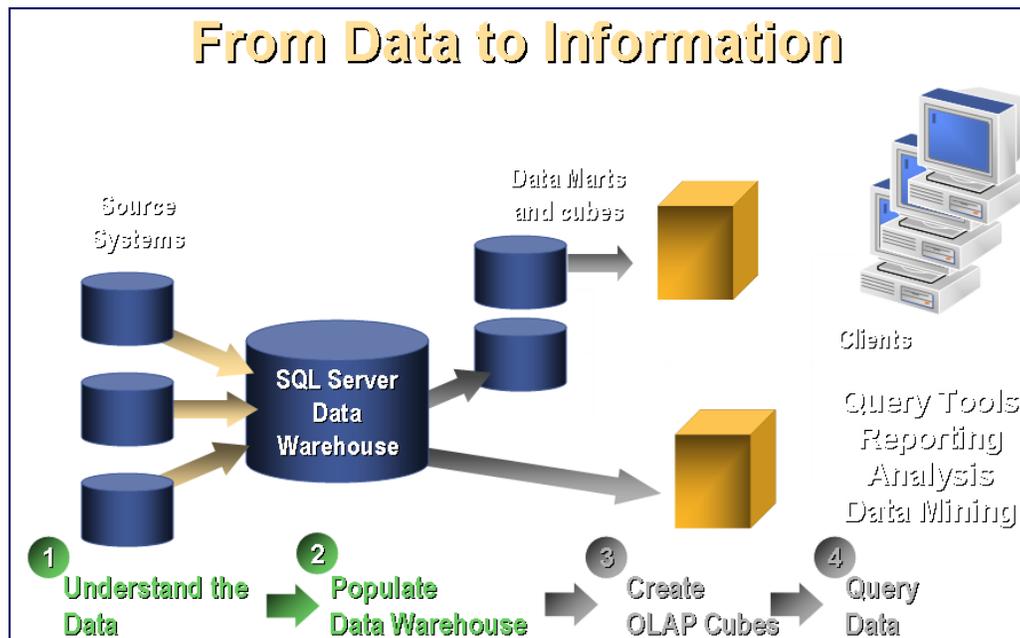
FURTHER INSIGHT INTO THE MICROSOFT BUSINESS INTELLIGENCE SOLUTION

CONNECTING AND AGGREGATING

One of the main challenges faced by a typical enterprise is that data exists in many relational and non-relational databases and spans many types of platforms (SQL Server, Legacy databases, Oracle, XML, Excel files and various web services). Consequently, a key implementation challenge is to ensure that the right data is available to decision makers at the right time and that it is aggregated (and normalized) properly by following the business rules.

In the Microsoft environment, SQL Server 2005 Integration Services can be used to connect the various data sources, “massage” data and then load it all into a data warehouse or a data mart. This is typically referred to as an ETL (Extract, Transform and Load) process.

FIGURE 4: ELT—TURNING DATA INTO INFORMATION

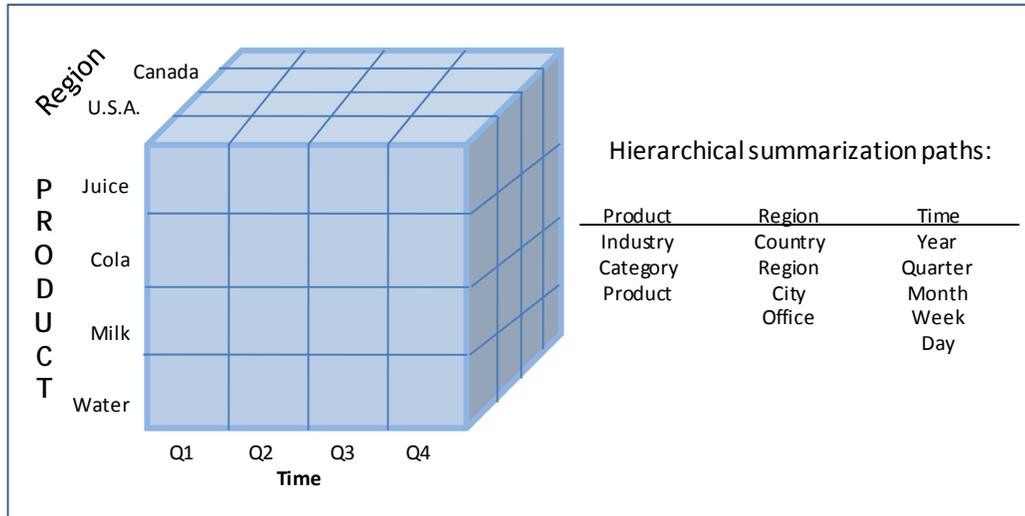


MULTI-DIMENSIONAL VIEWS OF DATA

Many business questions can be researched, analyzed and answered using multi-dimensional views of the data. A decision maker may review a number or a report at a high level and want to understand the source of the information. For example, let’s assume that profits are declining. A multi-dimensional OLAP “cube” provides the user with tools to explore the data through “drag and drop” analysis. As this person begins to “slice and dice” and explore the data on the different profitability dimensions, they are able to see which customers, products, seasons and regions that are having the greatest impact on the bottom line. Figure 5 shows the nature of this challenge and the solution.⁶

⁶ In addition, a number of data mining algorithms – “Time Series,” “Naïve Bayes,” “Association,” “Sequence Clustering,” and “Neural Networks” – are available to help businesses identify trends and to improve forecasting and decision-making.

FIGURE 5: LOOKING FOR ANSWERS—MULTI-DIMENSIONAL DATA



Simple, analytical functionality is delivered with the Analysis Services component of Microsoft SQL Server 2005. The end user can simply open a Microsoft Excel pivot table (Figure 6); or for more visualization and sophistication, the user may choose to use ProClarity Analytics (Figure 7). The core functionality is the ability to answer a business question in a matter of seconds. No data dumps, no custom reports, no special “coding”—just fast, powerful and correct results.

FIGURE 6: LEVERAGING YOUR EXISTING MICROSOFT INVESTMENT—USING MICROSOFT EXCEL 2007

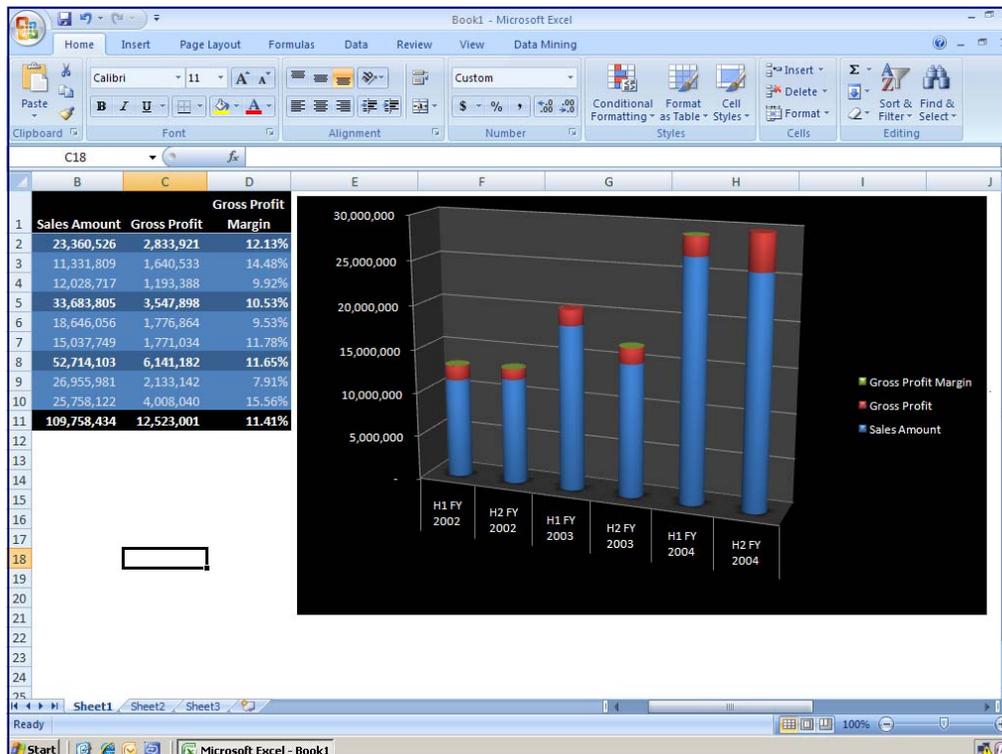
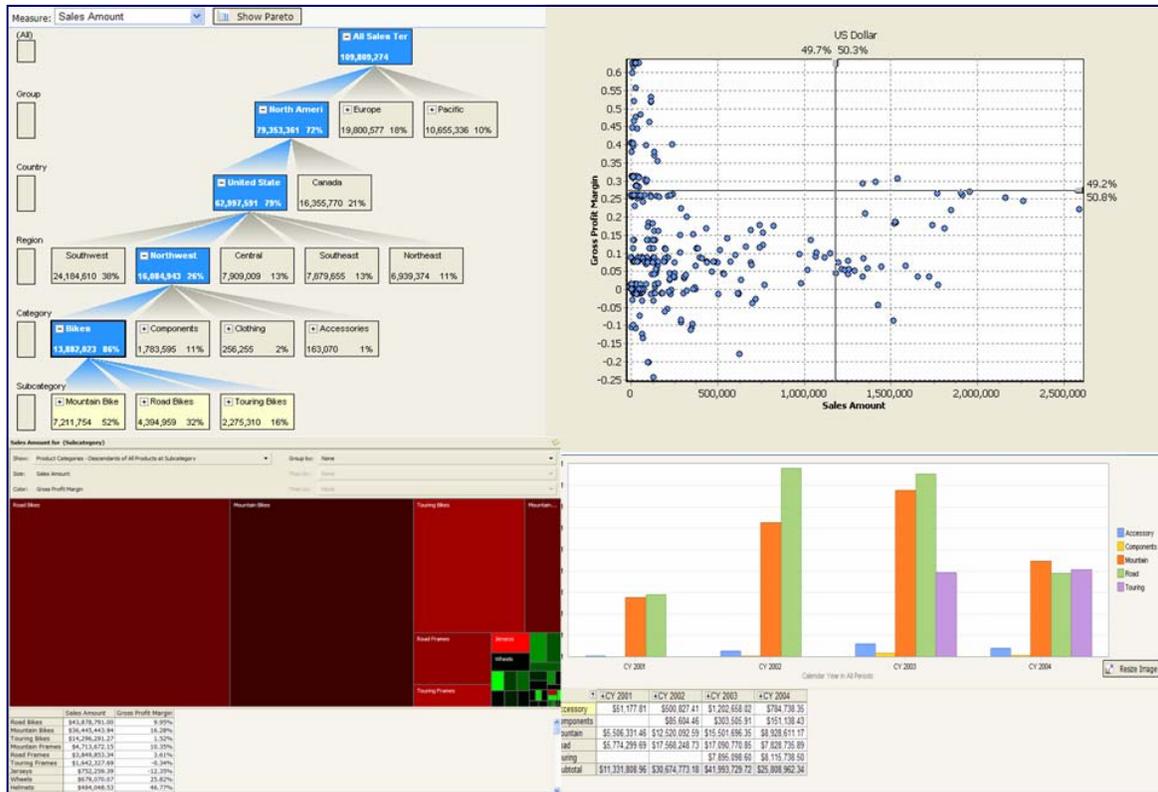


FIGURE 7: DIGGING DEEPER INTO THE DATA-
USING PROCLARITY ANALYTICS



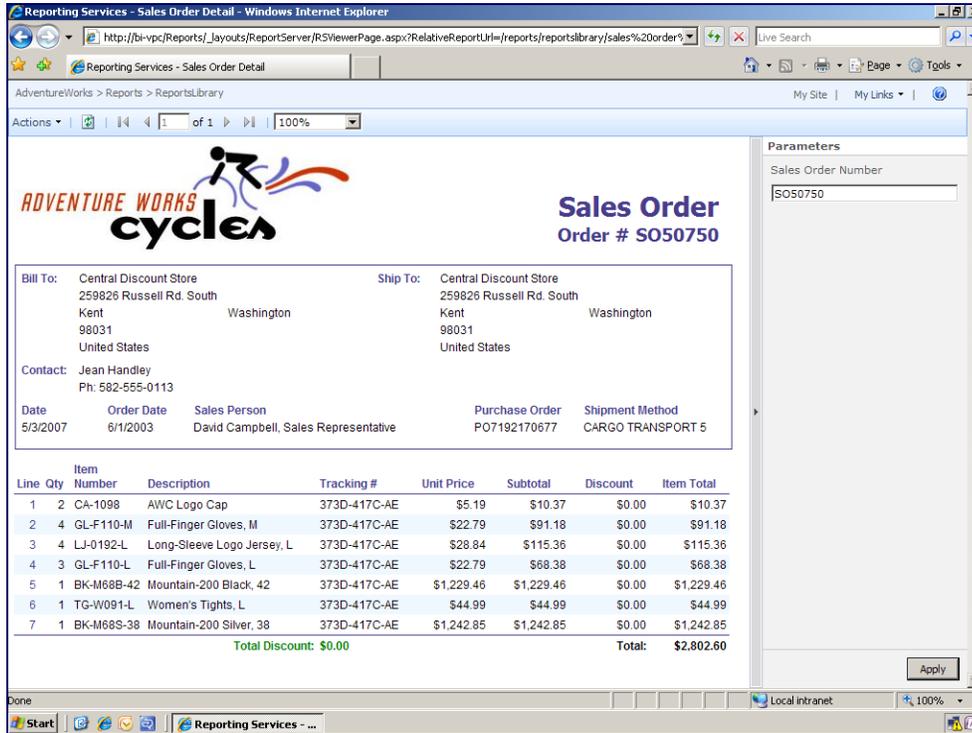
STANDARD REPORTS

All organizations need standard, pre-defined reports that contain prompts, drill-downs and filtering capabilities. Information consumers want the reports, delivered over the web, in real-time, 24/7. At times, users desire some level of personalization and may have the need to create ad-hoc reports. Included in both SQL Server 2000 and SQL Server 2005 is SQL Server Reporting Services (SSRS), which is the required technology to author, administer and deliver standard reports over Internet Explorer®. SSRS is a comprehensive and robust reporting tool that can be used for all types of reporting from Financial Statements to Product Catalogues. It has been referred to as a "Crystal-killer," referring to its capability to be the sole reporting tool used inside the organization.

There are occasions when complex, detailed reports with special formatting, drill-down and drill-through capabilities are required. These reports can be created using Report Builder by simply writing SQL Server queries against the source data. Once developed, the report can be deployed and controlled, by security, with viewing privileges being granted. The report can be posted on a central web page, where it is accessible for users to:

- ◆ view the information
- ◆ run reports
- ◆ select options from prompts
- ◆ subscribe to the report using for pre-defined delivery options: access the report on the server or receive an e-mail with the report as a Microsoft Excel or PDF attachment.

FIGURE 8: A SAMPLE "REPORTING SERVICES" REPORT



ADVENTURE WORKS cycles

Sales Order Order # SO50750

Parameters
Sales Order Number: SO50750

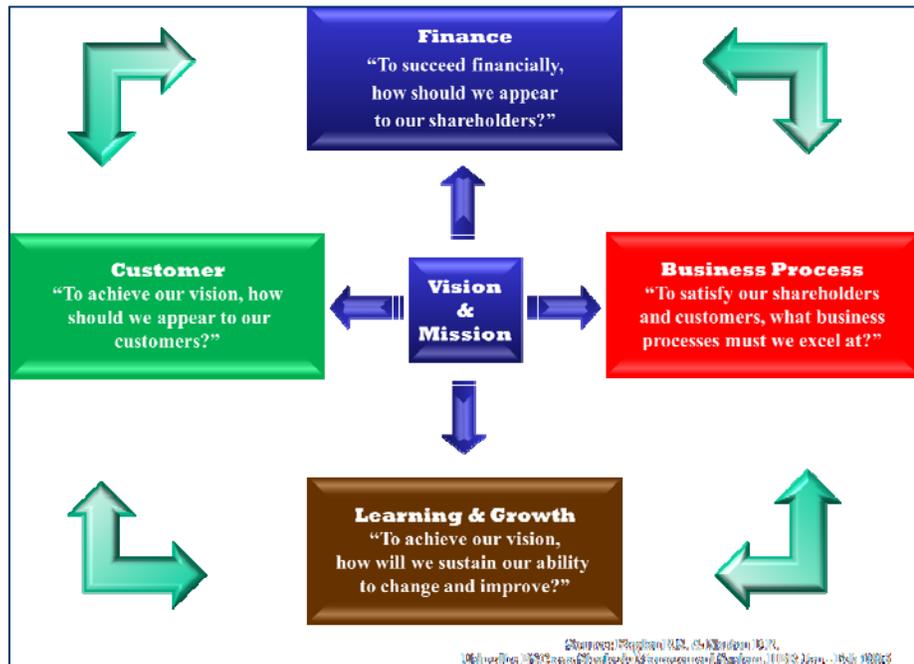
Bill To: Central Discount Store, 259826 Russell Rd. South, Kent, Washington 98031, United States
Ship To: Central Discount Store, 259826 Russell Rd. South, Kent, Washington 98031, United States
Contact: Jean Handley, Ph: 582-555-0113
Date: 5/3/2007, **Order Date:** 6/1/2003, **Sales Person:** David Campbell, Sales Representative, **Purchase Order:** PO7192170677, **Shipment Method:** CARGO TRANSPORT 5

Line	Qty	Item Number	Description	Tracking #	Unit Price	Subtotal	Discount	Item Total
1	2	CA-1098	AWC Logo Cap	373D-417C-AE	\$5.19	\$10.37	\$0.00	\$10.37
2	4	GL-F110-M	Full-Finger Gloves, M	373D-417C-AE	\$22.79	\$91.18	\$0.00	\$91.18
3	4	LJ-0192-L	Long-Sleeve Logo Jersey, L	373D-417C-AE	\$28.84	\$115.36	\$0.00	\$115.36
4	3	GL-F110-L	Full-Finger Gloves, L	373D-417C-AE	\$22.79	\$68.38	\$0.00	\$68.38
5	1	BK-M68B-42	Mountain-200 Black, 42	373D-417C-AE	\$1,229.46	\$1,229.46	\$0.00	\$1,229.46
6	1	TG-W091-L	Women's Tights, L	373D-417C-AE	\$44.99	\$44.99	\$0.00	\$44.99
7	1	BK-M68S-38	Mountain-200 Silver, 38	373D-417C-AE	\$1,242.85	\$1,242.85	\$0.00	\$1,242.85
Total Discount: \$0.00							Total:	\$2,802.60

SCORECARDS, DASHBOARDS AND STRATEGY MAPS

In addition to the standard requirements for financial information and key performance indicators (KPIs), there is a growing realization that non-financial measures of performance are required to manage a twenty-first century enterprise: measures and metrics that are well thought out and consistent with the organization’s strategy. A popular way of visualizing this information is to use the “Balanced Scorecard” framework. Beyond the standard financial view, it adds three additional, non-financial dimensions or perspectives: “Internal Business Process,” “Customer” and “Employee.”

FIGURE 9: BALANCED SCORECARD



Monitoring metrics around each of these dimensions is expected to broaden the management perspective and provide a richer view of the organization's performance. Of course, this requires gathering data from other areas of the business system or from an entirely different system all together: CRM, HRM, Timesheets, Services Tracking systems, Production systems etc.

FIGURE 10: DISPLAY OF BALANCED SCORECARD METRICS

Dashboard views provide an excellent means of visualizing KPIs and uncovering the root causes of business issues. Scorecards can be personalized for different users and roles within the organization. They can also be developed to allow users to drill-down on their metrics to for further insight into the results.

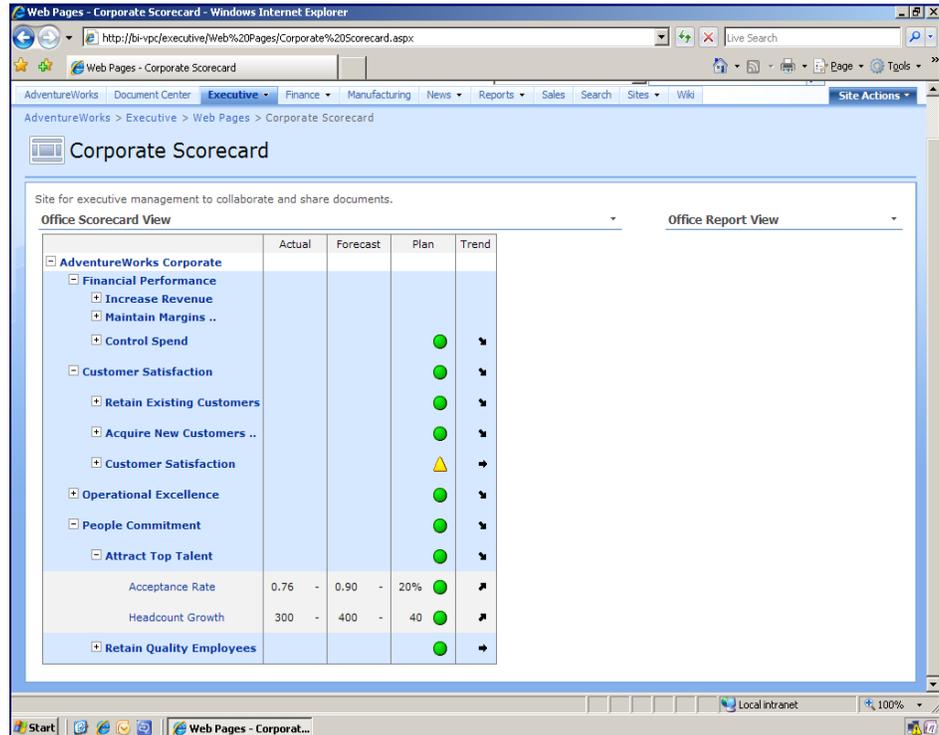
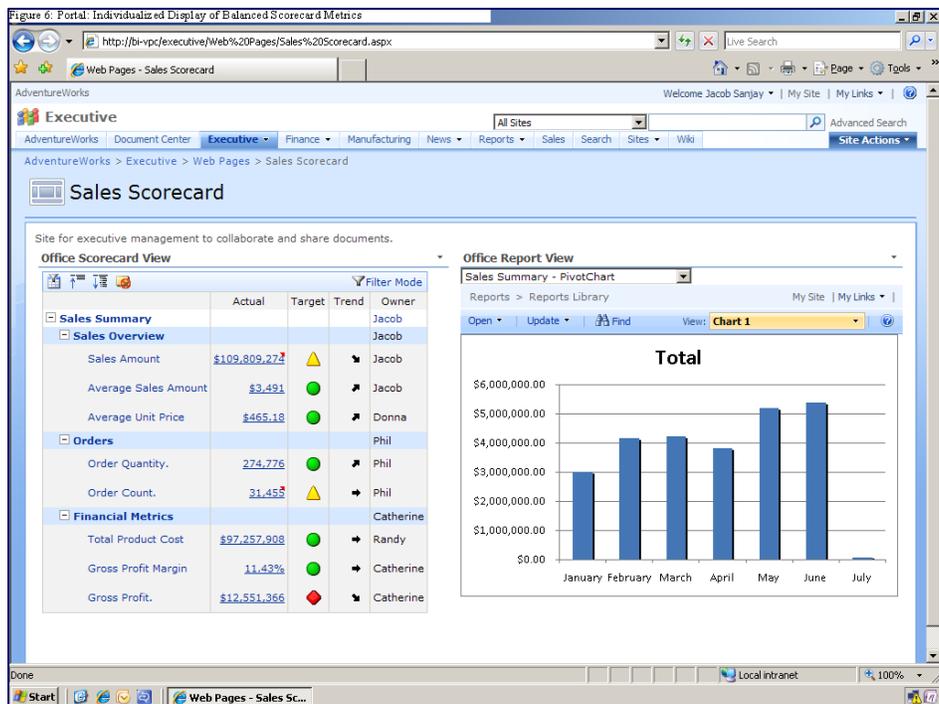


FIGURE 11: A SALES SCORECARD

Beyond the compelling visual layout, this sales scorecard (Figure 11) allows the sales manager to access different report views and analysis to further understand the results.



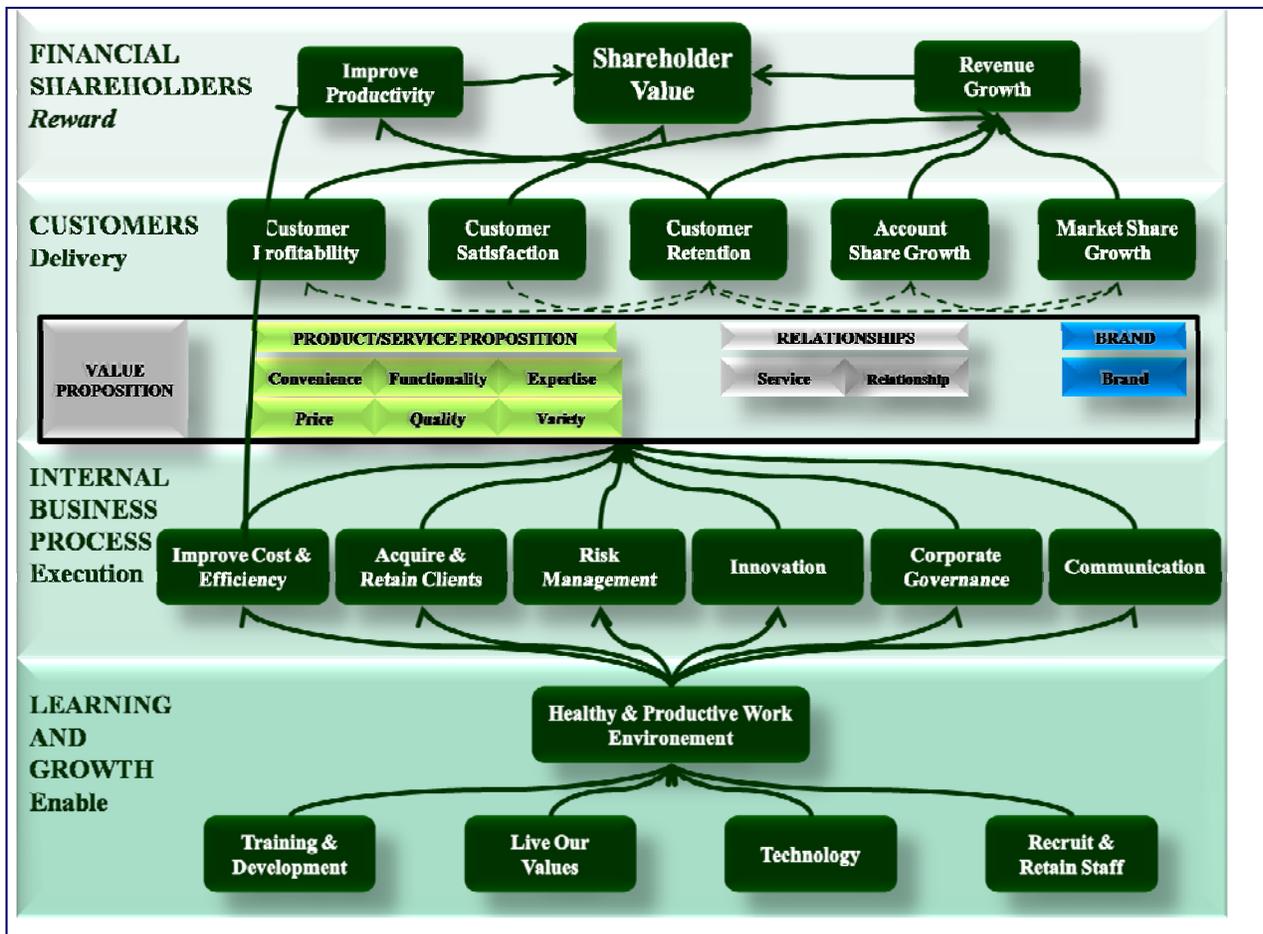
The scorecard visuals can be deployed on the SharePoint server. This is a portal or hub for all organizational scorecards and reports. With the SharePoint server, users can:

- ◆ subscribe to reports
- ◆ drill-down on dashboards
- ◆ view web-based, Microsoft Excel pivot table views
- ◆ view Reporting Services reports
- ◆ contribute to and share documents with colleagues.

It is security-specific and will show the different users the information that they are entitled to access, as per the set-up.

The balanced scorecard can be taken one step further—the Strategy Map builds on the balance scorecard’s metrics and dimensions.

FIGURE 12: STRATEGY MAP



CRG—DELIVERING YOUR BI SOLUTION

With all the compelling functionality and limited investment required to leverage the Microsoft BI platform, the question arises: What is the optimal way of reaching the desired end state quickly and within budget?

At the end of the day, project complexity, time considerations and resource requirements will influence the final decision. CRG is often selected to implement a BI solution because we have experience in delivering an end-to-end BI platform. This is consistent with the opinions of Gartner.

Completing BI initiatives in a timely manner takes a significant investment in building the requisite expertise that most companies are unwilling or unable to make. As a consequence, the demand for services to close the BI skills gap that exists in many organizations is growing, and consulting and systems integration (CSI) companies are offering services to help fulfill this demand.⁷

Our Reporting & Analytics team consists of business consultants and technical experts who follow a three step thought process:

- ◆ analyze business needs and determine user familiarity with reporting tools
- ◆ assess the underlying technical infrastructure
- ◆ find the most optimal way to leverage people, process and technology.

We highly recommend a pilot that proto-types a solution in the area of “most and immediate pain.” This pilot project can be in any area (sales, marketing, HR, operations, financial, inventory, project) before a full scale implementation. We focus on results and address the immediate pain points first, all the while ensuring that the business decision makers see results.

CONCLUSIONS

Microsoft now has a compelling story in the Business Intelligence space. It has created a solution set that builds on existing technology and puts power in the hands of business users. Our experience indicates that a successful implementation requires a well thought-out selection of Analysis Services, Reporting Services, Microsoft Office SharePoint Server, Microsoft Office, Office Excel, ProClarity Analytics and Microsoft Office Performance Point Server, all connected to a centralized Microsoft SQL Server data warehouse.

At CRG, we have extensive experience and expertise to select the right tools in order to help our clients to satisfy their information objectives.

Twenty-first century enterprises must react quickly to voluminous information. They must have the capabilities to harness the ever increasing size of data and use it to analyze and predict. They must have easy access to key information without relying on scarce IT resources. They must spend more time analyzing and less time in getting the data. It is absolutely critical that all decision makers have “one single version of truth”. The CRG Reporting & Analytics team can help you meet this challenge and ensure the delivery of a state-of-the-art BI solution that leverages existing infrastructure and fits the specific needs of any enterprise.

⁷ Majic Quadrant for Business Intelligence Services, North America, 2007, Gartner RAS Core Research Note G00146673, Alex Soejarto, Bill Hostmann, 13 March 2007

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Established in 1989, Corporate Renaissance Group is a global provider of innovative solutions and services that drive better business management and performance. With expertise in shared services, corporate finance, business intelligence and value-based management, CRG has established itself as a leading provider of solutions that transform financial performance and operational effectiveness.

CRG is headquartered in Ottawa, Canada, with offices in the United States, South Africa and India. It is strategically aligned with technology partners Microsoft and Cognos. Products include a suite of Financial Systems (ERP), Shared Services, Activity-Based Costing, Performance Measurement, Business Management and Personnel Performance applications which are sold directly and are also available through a global network of partners and resellers.

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