Q A

THE BENEFITS OF BI IN ERP:

- Utilize customized analytics to meet business needs

- Enable users to develop individual reports and "what if" analysis

- Present key information in dashboard views

- Drill through data to find details

- Merge information from multiple systems to provide a "golden source" of data

- Perform trend analysis using historical data

- Represent data using a range of graphs and presentation formats

ERP & BUSINESS INTELLIGENCE (BI)

CAN BI DELIVER BETTER REPORTING FROM YOUR ERP APPLICATION?

Most ERP solutions provide prebuilt standard reports that meet the most basic transactional reporting needs of an organization. However, today's fast-changing world demands better tools that enable executives to extensively analyze data and manage their businesses while at the same time producing boardroom-quality reports and analytics.

Organizations have enormous amounts of data in a multitude of systems. Although the majority of financial data lies in ERP applications, executives often require data from other systems as well, such as sales, inventory, and customer relationship management (CRM). For an executive to obtain a quick overview of the business, these disparate information sources need to be merged. Merged data sets provide executives with the capability to seamlessly navigate across different subject areas and then slice and dice the information across multiple dimensions to analyze specific business questions, such as:

- How are revenues compared to the same time last year, and how will they impact the bottom line?

- What is the job turnover rate by department, geographic location, business unit, etc.?

- What is the latest accounts receivable aging information, and what is the current trend?

- How is the company performing in terms of customer churn rate?

Business intelligence (BI) solutions are the answer to achieving comprehensive analytics and providing executives with a single version of the critical information needed to make informed business decisions. In this Q&A, we review some of the basics of BI applications and how they integrate with ERP applications.

Q *Our ERP tool has built-in reports. Do I need a BI reporting and analysis solution?*

By nature, ERP systems are transaction-based. They are built to streamline back office business processes such as accounts payable, accounts receivable, and other accounting functions. Therefore, the reports that come with your ERP application are built to support these processes, not to provide analytics and "what if" forecasting capabilities to your executive team.

In addition, these built-in standard reports are generic across industries to meet the most basic reporting requirements, so they often require extensive customizations to meet your unique business needs. For example, a built-in project financial status report (PSR) provides detailed information about projects from an operational perspective, such as who charged each project, what expenses were accrued, and what the profitability was for each particular project.

MorganFranklin® CONSULTING

The same reports built from a BI perspective could combine project data with data from other systems (e.g.,HR, sales) to allow executives to analyze the project finances in regards to the budgeting and forecasting of other departments.

Because executives are able to focus on anomalies and exceptions, they can subsequently drill down to the individual transactions. For example, a comprehensive BI solution could allow users to examine sales information from sales systems, overlay it with the latest economic situation, and then calculate the deadline for placing orders based on the inventory level in the ERP system.

What are the advantages of a BI solution?

Organization-specific analytics
BI solutions provide analytics that are customized to your organization's specific business rules. In contrast, standard reports bundled with ERP tools fail to provide such information without extensive customization.

Drill-through capability
BI solutions provide "go anywhere" drill capability that allows executives to view summary data and then navigate to analyze exceptions or drill into detailed information. To simulate this drill through capability, ERP standard reports may provide separate sets of summary data and detailed reports that have to be manually mapped. Drill-through reports increase the attractiveness of the BI solution as a one-stop shop to answer all end user questions.

Report customization
BI solutions provide drag and drop capability to analyze data and create boardroom-quality reports using standard formatting templates that can be easily used by non-technical staff. Reports from ERP tools have only basic formatting, so modifying them involves manually updating each report. This often results in your technical team spending extensive time and effort developing the reports.

Comprehensive analytics
Custom BI solutions merge ERP data with other transactional data outside of the ERP solution, allowing executives to analyze data from multiple sources via a single Web-based interface. Executives can view revenues at the summary level, for example, and then drill down to inventory status to find top products in the inventory system.

Can I leverage the BI solution that is packaged with my ERP tool?

Packaged BI solutions come with tools for implementing the key components needed for a business intelligence solution. These tools can be leveraged to extend the BI solution and develop a comprehensive solution. Key components of a BI solution include:

Reporting tool—Most BI solutions provide a robust front end that allows users to analyze data in a dashboard view and then drill into data elements to launch additional reports. Many BI solutions also provide a graphical drag and drop reporting front end where users can create their own reports.

ETL tool—Extract, transform, and load tools packaged with ERP solutions can be leveraged to load and merge external data for a comprehensive BI solution. Prepackaged scripts for ETL can be customized and implemented for data cleansing and merging. The data model for a BI solution is dramatically different from the data model for your ERP solution, and the ETL tool is the mechanism for transforming your data for your BI solution.

So how (and why) are the data models for my BI solution and ERP solution different?

ERP solutions are geared toward transactional processing (i.e., the underlying tables are optimized for faster data write capability). Most ERP reporting solutions use the existing ERP schema as the foundation for building the standard reports, and therefore are inefficient for analytical reports. Analytical reports churn through huge data sets and require tables to be optimized for faster read capability. The dimensional data structures are ideal for queries that analyze millions of rows and provide summarized information and trends across multiple dimensions.

When developing your BI architecture, the two main data modeling concepts are fact tables and dimension tables.

Fact tables

Fact tables are at the center of the star schema. These tables contain the most granular level of transaction data and are usually the largest tables within a data warehouse. For example, all of the sales transactions for a retail store would be stored in a fact table.

Dimension tables

These are supporting tables that contain master information about the attributes that define the transactions in a fact table. For example, for each transaction in the fact table, information about the customer, product, store location, store address, etc., would be stored in supporting dimension tables.

The advantages of a dimensional structure include:

Fast response—Fact and dimension tables provide excellent response for queries that need to aggregate numerous rows, or for queries that extract slices of data from large data sets.

Standard dimensional information—The dimension tables gather data from multiple sources, cleanse the data, and merge them to provide a standard value across the organization. These tables essentially become a golden source of lookup data (customer lists, product lists, locations, etc.) for organizations.

Data cleansing—Dimensional structures are ideal for implementing source data cleansing. Data from multiple sources is extracted and compared against standards as defined by business rules before being loaded into the dimensional structures. Data issues are then reported to the respective source system for further analysis and data correction. This provides a feedback system that allows the data warehouse to become the single source of truth across the organization.

Q What are the major phases of a successful business intelligence project?

BI projects include the following five key phases and their associated activities:

PHASE	GOALS
Assess	Analyze reports from the ERP system to assess any gaps between the existing system and user expectations. Involve key stakeholders and impress the need for BI solutions to produce effective analysis and meet reporting needs.
Gather	Analyze the organization's business processes and map requirements to the appropriate processes. Encourage hands-on participation by developing a proof of concept that answers many of the business users' most important questions. (BI requirements start flowing from business users once they experience the capability of a BI tool.)
Design	Analyze the requirements and finalize the design approach (i.e., data warehouse for enterprise or multiple data marts for departments).
Develop	Develop the star schema and ETL procedures by taking into account the business rules and reporting requirements. Build feedback mechanism to cleanse data and report data issues back to the source system. Develop analytical reports with drill-down, drill-through, and slice and dice capabilities. Implement single sign-on for seamless integration.
Test	Implement extensive testing process to ensure data quality and instill confidence within the end user community. Migrate the acquired organization's data onto your system platform. Perform system testing to ensure that the data aligns with the design requirements. Make changes to address any issues that arise during testing.
Deploy	Execute training plan. Ensure that acquired organization's personnel have appropriate support during the first few months after go-live.