Chapter 10

SAP Gives Business Intelligence

In This Chapter

- Understanding the purpose of SAP® Business Intelligence
- Reviewing the parts of SAP Business Intelligence
- Creating applications with SAP Business Intelligence
- Seeing how SAP Business Intelligences works with other parts of SAP NetWeaver
- Looking to the future of SAP Business Intelligence

Everybody from the mail clerk to the CEO is making business decisions today. Of course a good business decision is usually based on data, and not just any old kind of data. You need good, consistent data all around your organization. Otherwise, the CEO (or mail clerk) could decide to close the most lucrative plant and invest all the company's money in swamp land in Florida.

The mission of SAP Business Intelligence (SAP BI) is to create a single container in which all the data necessary for making good decisions is stored, analyzed, and served up to the right people at the right time. In the ideal situation, when a decision needs to be made, the relevant, organized, timely information is available in an easy-to-use form. Informed decisions should help you avoid the sticky problem of building a new plant in a swamp.

SAP Business Intelligence is one of the largest umbrellas for functionality in SAP® NetWeaver™, and your brain may hurt a bit as we go through all the moving parts. But be of good cheer: We explain nice and clearly how it all fits together.

First, What Is SAP BI?

At the center of SAP BI is a data warehouse, which is an unfortunate term because it gives the impression of trucks arriving with pallets of data that are then stowed away on a shelf. Before that metaphor starts to stick, here's a better one.

SAP BI as a whole is like the cockpit of a super airplane. The enterprise is the plane and SAP BI is the onboard computer, collecting data like speed, gas airflow, fuel level, and weather conditions. That data is promptly sorted, analyzed, and displayed so that both the pilot and navigator have the information they need in the form they need — whether a diagnostic readout or a speedometer — to make the right decision in real time. Knowing your speed is useful. Realizing you're about to hit a major storm pattern is critical.

Collecting and sorting the raw data for decisions is the job of the data warehouse. Resting on top of it in SAP BI are analytical and reporting engines that transform that data into useful information.

What's It Do?

So, if the enterprise is an airliner zooming around the corporate sky, what does the instrument panel show? Where is the information coming from? How can it be simplified so that you can use it to fly the plane?

Of course we could leave you to the mercy of several-thousand pages of documentation that explain the millions of lines of code in all of the different programs that make up SAP BI. This seems a bit lazy on our part, though, so instead we read that material for you, whittled it down to the big picture of SAP BI, and go through each part.

The Job of SAP BI in SAP NetWeaver

The role that SAP BI plays in SAP NetWeaver is that of a central, integrated repository for information from distributed and heterogeneous sources. Hmmm . . . that's accurate, but a bit dry. We can do better.

In your enterprise, just as in your home, data is stored all over the place, from the box of tax papers in the basement to the recipe file in the kitchen. In your enterprise, the good old Enterprise Resource Planning (ERP) system has its data, the friendly Customer Relationship Management (CRM) system has its data, and a grandfatherly legacy system that has been running for 20 years

on a mainframe has even more data. Add to that your Web site data, your co-workers' spreadsheets of data, and even that department down the hall that nobody's quite sure what it does might have some data. To find out about the big picture, say customer or sales activity, the data from all these applications must be brought together.

But wait. What if the data is quarterly sales in ERP but monthly sales in CRM? What if different customer ID numbers or overlapping sales regions are used in different databases? What if one system keeps its data in dollars and other uses euros? How can all this be brought together and analyzed? SAP BI.

SAP BI is the database hub, the universal translator, the statistician, and report writer for SAP NetWeaver. When people think of systems that use data warehouses, they frequently think of reams of reports cranked out in batch mode. That sort of thing is still useful and SAP BI can do a great job of it, but at its best SAP BI is more like an airliner computer, transforming raw data into more useful information by integrating it into the context of the enterprise and historical insights. That's how SAP BI prevents the CEO in the pilot's seat from hitting a major air pocket.

Figure 10-1 shows how SAP BI sits squarely in the information integration area of SAP NetWeaver capabilities.

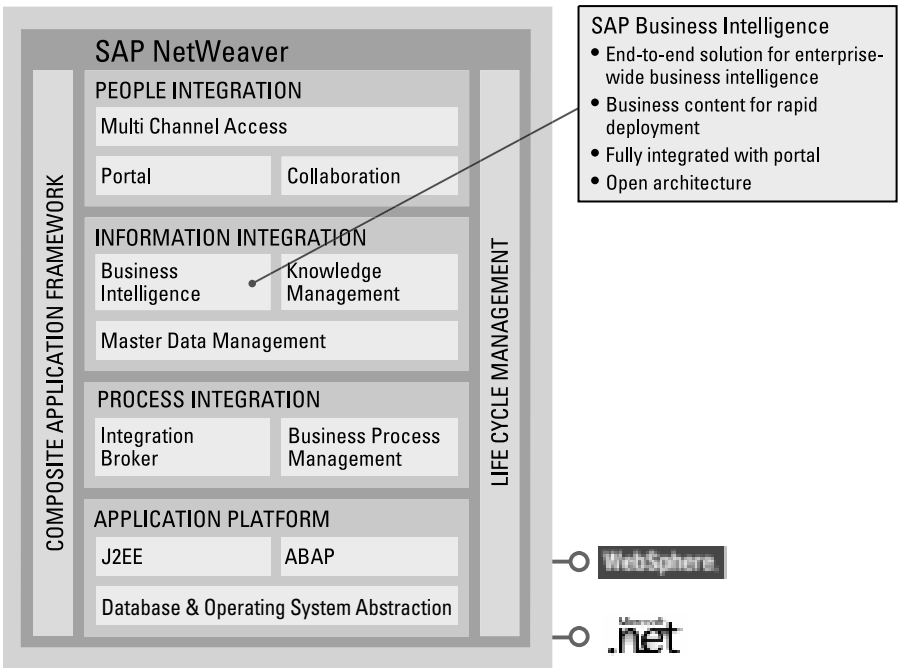


Figure 10-1: SAP BI's role in SAP NetWeaver capabilities.

SAP BI and your business

So, SAP BI helps people in your business who need data. Now who could that be . . . everyone in the company?

From handling a customer inquiry about an order to running a huge pharmaceutical research division with a thousand different research projects, pretty much every industry and every job in every company can make use of SAP Business Intelligence.

You can basically break down into three groups who benefits from SAP BI:

- **Authors and analysts** who need advanced analysis tools as well as the ability to ask questions on an ongoing basis. For these folks, everything must be easy to use.
- **Executives and knowledge workers** who need personalized information tailored to the context of their jobs and presented by an intuitive user interface. They want a playbook for how to analyze data and the ability to do their own in-depth analysis.
- **Information consumers** who need a snapshot of a particular data set to perform their operational tasks and who can do without more advanced, interactive analysis features.

Of course, then there are your customers, partners, and suppliers — everyone who uses quantitative information to make or enhance their decisions. SAP BI is about aligning strategy with execution — about getting the right information to the right user at the right time in the right format to make the right decision. Right?

Example 1: Decision support

You and your co-workers drew straws to decide who would sign off on next year's promotions and marketing budget. You lost. Now you need to figure out what changes you have to make to be more responsive to customer

demands. And to do that, you first need to pull together as much information as you can to create the most complete picture possible of this year's sales and what difference (if any) your marketing efforts made.

Some of your company's key customer and supplier information resides within the SAP system. Some of it lives on in the legacy mainframe that was already in place when you started with the company. And still more data is arriving through the company Web site every day in the form of a steadily growing stream of orders. However, you aren't sure who's ordering what.

You can't favor the data from one source over the other — the person in Singapore making purchases via your Web site at 3 a.m. may not be your average customer, believe it or not — so what you need to do is combine the streams of data arriving from each portion of your enterprise to get the bigger picture. By integrating information from the Web site — Who buys online? How often and how much? What time of day? — with seasonal and historical data from legacy systems, SAP BI can both provide an historical picture of your sales and provide trending information and upsell guidance with just the right level of detail.

What if you're the CEO and you need the biggest picture available? What if you want to know who your best customers are, who your best suppliers are, and how they intersect? Within SAP BI, you can integrate the data coming from your suppliers' systems, your retail channels, and even your own HR system. After matching and integrating all three, trends and patterns emerge. Do the best suppliers line up with the best customers? Are the suppliers delivering the best mix of products for your needs?

By combining data from multiple systems in different parts of your business, a holistic view of your company and its process gradually swims into view. For example, take a look at Figure 10-2, which shows what a user interface might look like that provides an integrated environment for sales analytics. With delivery of information like this, SAP BI grants you the power to spot where and how you can adjust your process to make the entire enterprise run more efficiently.

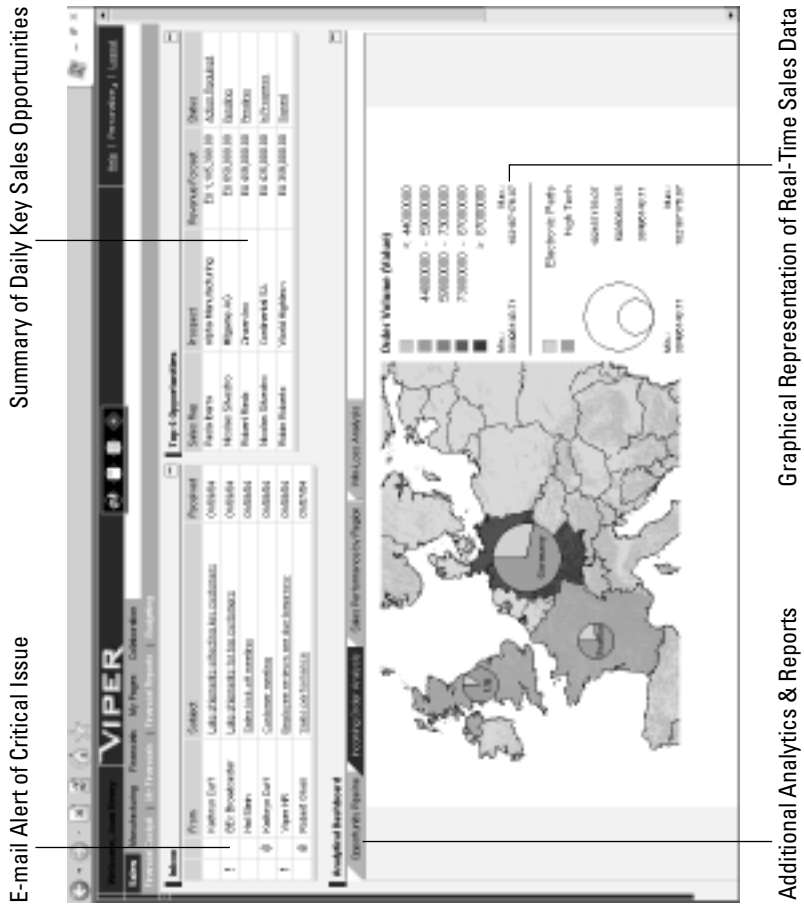


Figure 10-2: User interface for sales analytics.

What about the cost of all this? As Figure 10-3 shows, the investment to enhance the information for a large number of employees need not be huge. It's possible to provide a small amount of information simply and cheaply in a way that will improve the performance of a huge number of people.

Example 2: Corporate Performance Management

CEOs, as a rule, don't need minute-by-minute updates about their companies' best suppliers — they'd rather be playing golf with each other. Churning out massive, alarmingly comprehensive portraits of the business might strike the quiet types in the CFO's office as fun, but most executives would find this overwhelming and would rather have just the information they need to take action, preferably delivered to them in the simplest form possible at the very moment they need it. They need to know when alarm bells are ringing, not how well the alarm bells are working.

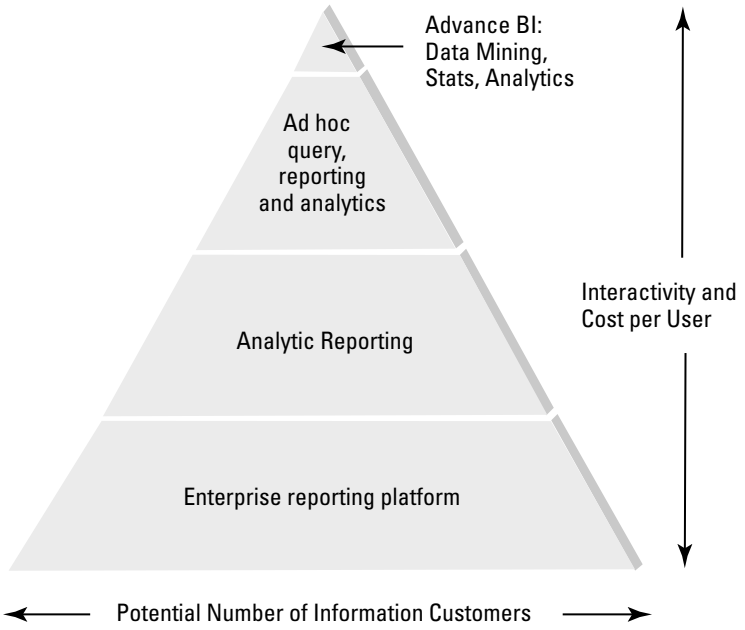


Figure 10-3: IT investment versus benefit.

SAP BI has the ability to tailor its results to the level of detail and summary that its users need to do their jobs. In the CEO's case, that may be a single number representing total company performance or earnings per share, taking into account profitability, efficiency, revenue growth, churn, and so on, displayed in a corner of his or her computer screen. That might be the ultimate top-level view of the enterprise, but the principle can be applied to rating customers, employees, or other key metrics of a company's health. After data have been collected and integrated in the SAP BI data warehouse, the analytical process and end result can happen with whatever level of detail you need.

SAP BI: How It Works

One simple way to think about SAP BI is as a data warehouse, surrounded by tools to move information in and out, clean and summarize the information, and then analyze it to answer important questions.

Although the data warehouse aspect of SAP BI is vital and important, don't let it overwhelm your understanding of the product. As we mention earlier in this chapter, resist the urge to picture loading docks and teamsters when reading the words *data warehouse*. Unlike the brick-and-mortar variety, a data warehouse doesn't replace the databases used and produced by legacy

systems, CRM, ERP, or any other three-letter abbreviation solutions. It rests on top of them, collecting streams of data from each system and reformatting them for use by analytics software. The original data isn't touched — the warehouse uses a duplicate, cleansed, consolidated data set.

So think of BI instead as a metadatabase that invisibly contains the databases your enterprise already has in place. With that in mind, you are now ready to get a tour of the parts of SAP BI.

SAP BI: The Sum of Its Parts

Figure 10-4 shows SAP BI in all its complex glory. As you can see, a lot is going on — data flowing from the information sources, through the data warehouse, into object models tailored to the different mySAP™ Business Suite solutions, and then for presentation through the SAP Enterprise Portal. The following sections walk through each part and show you how they do what they do to make this all come together.

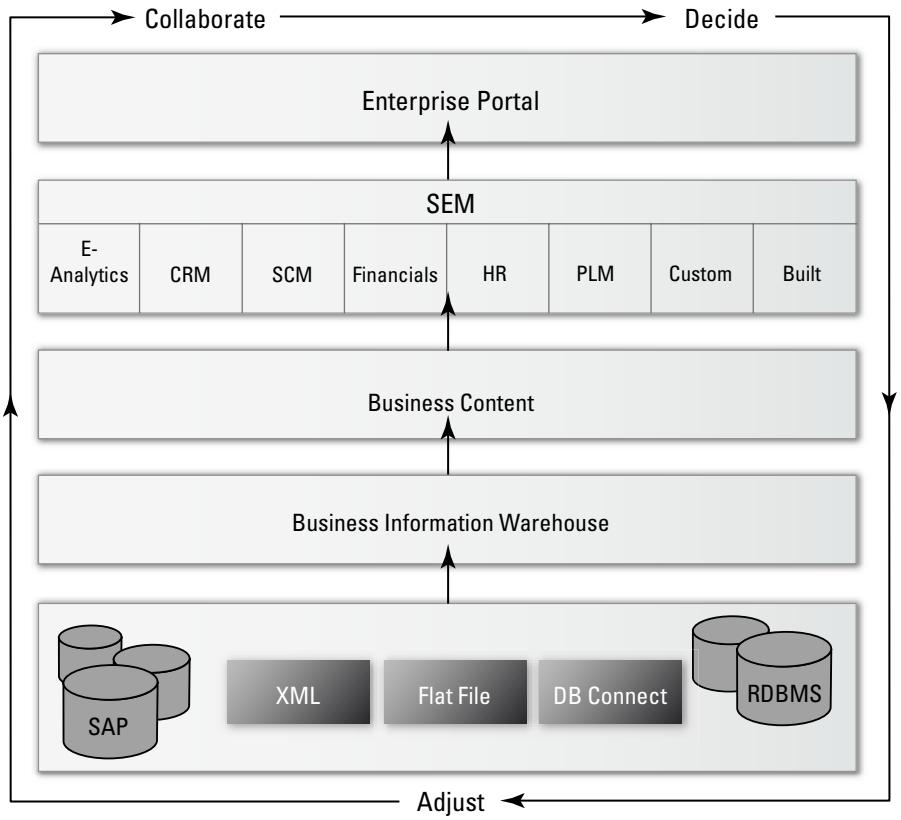


Figure 10-4: The structure and flow of information through SAP BI.

Parts for moving data around

The parts that we describe in this section are used for moving data from the source systems that contain it to the SAP BI data warehouse, and then organizing it, passing it out to others who need chunks of it, and preparing it for analysis.

Extraction, transformation, and loading clean up data's act

Okay, call us fickle: As much as we fought it before, it might be time to bring the warehouse metaphor into play. Picture the data arriving at the warehouse on pallets from the far-flung systems of the enterprise — SAP systems, suppliers' systems, the Web-based transaction engine, systems written in COBOL 30 years ago by programmers who are living in Florida retirement homes by now. Some of this data arrives on virtual palettes, some in electronic boxes, other in digital bags.

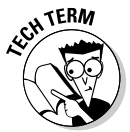
Before that data can be unloaded and stored in the warehouse, the SAP BI extraction, transformation, and loading routines communicate with these systems, extract the data, and clean it up to make it consistent.

Cleaning it up is the hard part here. The software has to scan the data in question for errors, redundancies, and irregularities. SAP BI then transforms the data into formats that you previously selected. For example, based on business rules that your organization chooses to implement, nine-digit ZIP codes may be reduced to five digits, or vice versa; dates, social security numbers, or other similar data are transformed to fit a standard designed to make delivery a smooth process.

Stashing things in a data warehouse

When the data arrives, it's sent first to the Persistent Storage Area (PSA), where it's copied and kept for backup purposes and to minimize the load on the systems providing the data, which can't handle the stress of doing their jobs and answering questions. So, if warehouses had waiting rooms, the PSA would be it. Upon arrival, the data takes a number, kicks back with a newspaper, and stays put until needed. Then, it undergoes another round of cleaning and is passed along to InfoObjects in the Operational Data Store (ODS).

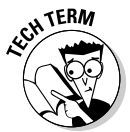
In the ODS, SAP BI begins to thoroughly massage and aggregate the data according to your enterprise's wishes. Here, InfoObjects that represent the scope of a user's request are assembled. One InfoObject might represent a customer, another a sale, another sales data by region. All these would be populated by using corresponding data back in the PSA. Another object might require the same data for a global sales analysis or sales in Chicago last year. All these objects begin life in the ODS. More complex analyses are distilled into a form called InfoCubes, which live still further up the information chain.



InfoCubes are one of the most important types of containers in the SAP BI data warehouse, so take a moment to reflect on them. InfoCubes are structures that make it easy and fast to answer questions about data. Here's how InfoCubes work: The kinds of analysis and investigations that are likely to be done are anticipated and appropriate data is stored in a multi-dimensional way that makes answering questions very fast.

To do this, the InfoCube uses a special structure for storing data called a *star schema.* This is a structure where data is organized in interrelated database tables for simplified analysis. Those interrelated tables might store the same piece of data many times, but given the importance of being able to provide a fast, accurate, comprehensive answer and the fact that storage is cheap these days, that doesn't pose a problem.

Business modeling

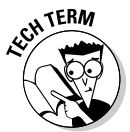


Even after data has been scrubbed thoroughly clean, it's still just a collection of facts and figures until it's been subjected to the question and analysis that provide the information that users are looking for. *Business modeling* is the art and science of transforming vast seas of data into structures and models that make asking and (more importantly) answering questions as painless and as comprehensive as possible.

This occurs with InfoCubes. (The previous section explains InfoCubes.) By filling up these structures when the data is loaded, much of the work of crunching the analysis happens in advance. The goal of business modeling is to design these containers so that the widest possible range of questions can be rapidly answered.

In the context of SAP BI, business modeling refers to the process of building InfoCubes.

Process chains keep track of things



As data moves through the warehouse, being transformed from mere data into useful information, SAP BI keeps track of these transformations through something called process chains. These *process chains* document the changes at each step as data is cleansed and massaged from its native format into the preferred SAP BI structure. This provides a trail of transformations and mappings in case something goes wrong or processes need to be modified.

SAP BI attaches metadata to the information (see the later section "Metadata Repository") at each step on the trip through the data warehouse to allow you to track changes and allow real-time monitoring of the data.

After the data has finished analysis, process chains allow you to reverse-engineer the data or backtrack through a set of transformations to see how results were achieved, or whether mistakes were made.

Going downstream: Open Hub Service

Raw data is transformed and flows into the data warehouse, and it can just as easily flow out. Open Hub Service allows SAP BI users to selectively request that key business information be exported for use in downstream analytical or other applications outside the data warehouse.

If, for example, a company's Marketing department wants to pitch a new anti-aging cream to retirees living in Orlando (including any former COBOL programmers), it might ask the warehouse for a data subset including all customers over the age of 65 within 50 miles of Orlando.

The subject-specific data subset is sent to a data mart outside the warehouse where the Marketing department can conduct subsequent analysis on the subset — slice and dice it by age, household income, order size, and so on. The Open Hub Service extracts data from the data warehouse and pumps it into relational databases for use by all sorts of applications.

Parts for data analysis

So what good is data that just gets moved around a lot? No good. So we move on. The parts in this section focus on actually using the data in the data warehouse to answer your questions and perform advanced analysis.

The part where the questions get asked

While the data in the warehouse is transformed into InfoCubes to speed up asking questions, here is the part where the questions actually get asked.

Online Analytical Processing (OLAP) is the star of the SAP BI show, as far as users are concerned. OLAP is a collection of tools and mechanisms for analyzing and prodding the data with questions and getting useful results.

The OLAP partner, SAP BI Reporting function, is another user favorite because it's the part of the program responsible for presenting answers as visually appealing graphs and well-formatted reports. The Reporting feature can also be customized to pretty much any end product that you desire.

Hidden treasure: Data mining

Data miners, data shovels in hand, are big believers in serendipity. Their job is the pursuit of patterns, trends, and other hidden indicators buried inside the mountains of data stacked in warehouses like yours. They believe that patterns detected in past behaviour or attributes (a customer's spending habits, her home ZIP code, level of education, or the number of household cats, for example) can be accurate predictors of similar or desired future behavior.

Data mining, therefore, can be a powerful tool for decision-makers; it's not quite knowing the future before it happens but it enables a pretty good guess at identifying key predictive characteristics.

SAP BI includes a number of common, powerful tools and techniques for data mining, including Classification, Decision Tree Analysis, Clustering, Association Analysis, Approximation, Scoring, and a raft of other techniques that statisticians talk about to show off at cocktail parties.

Setting off alarm bells

The SAP BI alerting mechanism is what triggers the alarm bells when the CEO's magical indicator of company performance drops below 3.8, or when any other key performance indicator (KPI) is met or not met, based on your business's rules.

Alerts are usually generated by the final results of an OLAP analysis. They're not necessarily meant to signal a warning alarm — SAP BI could be asked to send an alert to a company's head of sales when a routine analysis produces higher-than-expected numbers in the third quarter.

Like reports, you can customize alerts to fit your preferred interface and level of analytical detail.

Metadata Repository

Data can't keep track of itself on its way through the warehouse. It's too busy being scrubbed, squeezed, and prodded to jot down notes on what happened, where it's going, and where it's been.

You need descriptive data to keep an eye on the herd flowing through to the warehouse: *metadata.* In this case, metadata is data that describes attributes of the data. (Yes, you could create meta-metadata to keep an eye on the metadata, but wouldn't that be like putting your spring jacket on over your winter coat?)

Metadata includes everything that happens to your data upon and after arrival in the data warehouse including the transformations it's undergone; when, how, and with what parameters those transformations occurred; and where it came from.

That metadata requires its own repository inside SAP BI, and the Metadata Repository is it. (Catchy name, huh?) Not only is a central repository for metadata necessary for efficient processing — the more metadata your data has, the more complex a question you can ask it — but it's also vital in this day and age of increased scrutiny and regulation to have a metadatabase vouching for your data's integrity at each step of the way.

Performance is key

Key performance indicators (KPIs) are important at many companies because they indicate how the company keeps score of its success or lack thereof. KPIs are set with great care because as soon as you start keeping score, most people try to get the highest score possible without always thinking about the bigger picture of the business. One way to think of SAP BI is as a massive system for defining, calculating, and managing KPIs. Because they're so central to the way that companies think about themselves, they're frequently used in conjunction with alerts.

Planning with data

We pause here for a moment so that you have the chance to ask yourself what you were planning to do with the answers printed in a pretty report after SAP BI finishes poking and prodding your data with questions. If you don't have a good answer, don't worry — SAP BI has a few suggestions about that, too.

The SAP BI Planning Framework is a set of features that are designed to guide and define enterprise planning for your Finance, Marketing, Sales, or even Operations departments. The framework is a playbook and environment for running different types of planning processes. Your company may prefer the top-down approach of "Here's the target number, now make it work, or else!" Or maybe your managers plan from the bottom up — submitting their budgets and then waiting to hear from the CFO about whether the numbers add up.

Either way (or with any other approach, actually), the planning framework delivered within SAP BI enables you to define and plan corporate objectives, knitting together input from multiple tiers of the enterprise along the way.

Parts for publishing

After you've gotten the answers that you sought, use this following set of parts to get information to those who need it when they need it.

SAP BW Business Explorer

It's time to switch metaphors again. Considering how much more exciting Daytona is than your standard-issue widget factory, a visit to the NASCAR circuit appears to be in order.

Imagine that the data warehouse is actually roaring under the hood. While raw data is fuel that's injected into the engine, the results are output to the dashboard (user interface) and to the crew (business people) in the pits (cubicles).

This is a particularly apt metaphor for discussing OLAP and SAP BW Business Explorer (SAP BW BEx, for short). That's because after data in the warehouse is squeezed into InfoCubes, it's analyzed with OLAP, but all this takes place underneath the hood. BEx is the user interface.

BEx leverages the OLAP suite of analysis tools to query data, receive answers, and then continue drilling down into the data by using interactive analysis. BEx enables you to define the queries and specific analysis and reports that you or your users might be interested in seeing.

Business Explorer Broadcaster

BEx Broadcaster is a new capability in SAP BI that provides access to analysis and reporting, such as BEx. But unlike BEx, which requires users to get off the couch and start asking well-thought-out questions, BEx Broadcaster automatically publishes reports of predefined OLAP queries at predefined, user-specified intervals. Ask the question once, tell BEx Broadcaster how often you'd like it asked again, and then it takes care of the rest.

At the end of every quarter, for example, BEx Broadcaster might be triggered to run a detailed analysis of gross profits and issue reports in a specific format that's automatically sent (via e-mail or what have you) to a preset list of executives in the CFO's office.

BEx Broadcaster expands SAP BI publishing abilities to aggressively produce reports whenever important trigger points or other conditions are met — whether the triggers are based on the calendar or the internal conditions of your business.

Open interfaces

SAP BI is the friendly type and it plays well with others. SAP BI supports a number of open interfaces and standard application programming interfaces (APIs) for use by third-party tools, including OLE DB for OLAP, OLAP BAPIs, and XML for Analysis. The ability to allow you to ask questions no matter what setup you have opens a huge number of possibilities for including SAP BI functionality in other programs.

Parts for specific industries and functions

Like all of SAP's products, SAP BI is tailored to the needs of many industries in the following different ways.

Business Content: A handy shortcut

If SAP BI is analogous to an airplane cockpit in a box, Business Content is a sample set of blueprints to get your flight analysis and reporting started.

SAP BI ships with a large collection of already defined, industry- and function-specific components designed to run as soon as it's out of the box. Based on the best practices of each industry, SAP's Business Content options are essentially toolkits filled with predefined data structures, query types, data cleansers and extractors, and other building blocks of a solid, if a bit generic, SAP BI implementation.

Analytical Applications

If Business Content can be likened to the airplane cockpit blueprint, the SAP BI preloaded Analytical Applications can be likened to an automatic computer that can build that cockpit for you based on the blueprint. It can't fly the plane for you but it has already calculated every successful take off and landing and has a few strategies that it wants to recommend.

The Analytical Applications are similar: They're preloaded applications containing best practice analytical models. One application might contain all the common calculations that are needed for a company in the retail industry. Another application might contain best analytical techniques common to any business — calculating the lifetime value of a customer, for example.

Creating Analytic Applications with SAP BI

Analytic applications combine all the different parts of SAP BI for a particular purpose. In creating such environments, all of the parts of SAP BI come together to turn data into meaningful information that can help you make the right choice or plan effectively. Here is a mini primer for creating such applications.

Start with Business Content

SAP has spent decades developing literally thousands of predefined elements of its Business Content portfolio, spanning all major industries. You may think your company is special (and it probably is), but SAP has built some predefined Business Content which might fit your needs as is or with only slight customization. In any case, you don't have to start from scratch.

Business Content defines standard InfoObjects, ODS objects, and InfoCubes that can dramatically speed up development. (Figure 10-5 shows how many objects are defined at each stage as data flows through SAP BI.) It's like starting to build an airplane from pre-built parts instead of starting with raw aluminum. When installing an SAP BI system and linking it to other SAP applications, a shared library of industry-specific Business Content radically simplifies the task of passing data back and forth from ERP software, a point of purchase, or mobile device, and the data warehouse.

A set of Business Content tailored to the airline industry, for example, would include data fields, such as dollar-per-passenger-mile, that are standardized across all SAP software components. They're also jumping-off points for creating customized data objects for your company's particular needs.

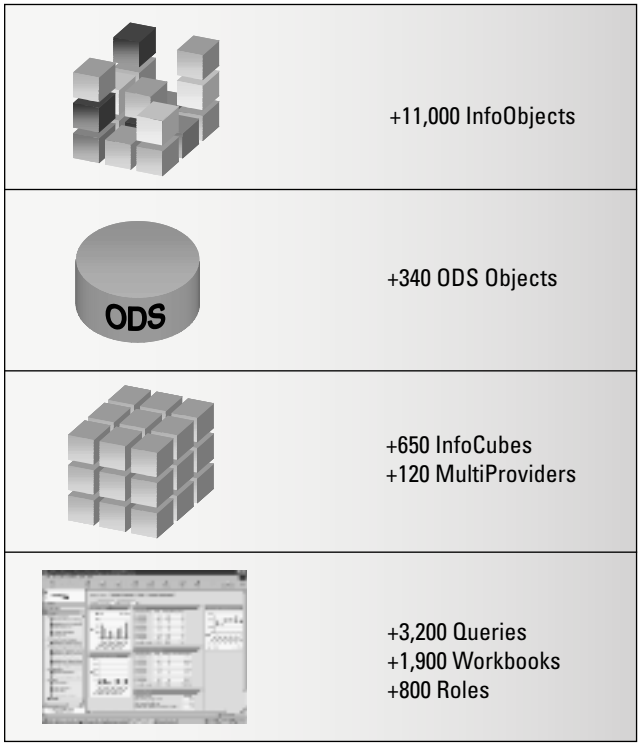


Figure 10-5: SAP BW 3.2 Business Content add-ons.

Neat tools for building applications

Unlike most applications, the SAP BI development tools are tightly integrated into the application itself. Imagine opening the hood of your car to find a toolkit and handy how-to illustrations nestled next to the engine.

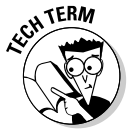
Every level of SAP BI — the data warehouse, analytical engines, and reporting mechanisms — contains its own tools for customization that reside parallel to the components themselves. No standalone development environment exists, but administrative and development interfaces do exist to build, extend, and modify each component. One environment is for creating new ODS objects and one is for building InfoCubes. One interface is for creating new data-cleansing routines and another for outlining new OLAP procedures. They're all there, just not in one big development environment.

SAP BI and All the Other Parts of SAP NetWeaver

SAP BI is the master unifying repository and analytical environment for SAP NetWeaver. Here's how this capability is used by the other components.

SAP® Enterprise Portal

The ultimate in user-interface technology, the SAP® Enterprise Portal (EP) is perhaps the most powerful and fluid interface to SAP BI.



Within a single window, reports can be published as *iViews.* iViews are special content modules that reside in SAP EP and can be connected to applications outside or inside the portal, to documents on the user's desktop, to collaborative tools, and so on.

SAP EP is also *role based,* meaning that you can easily customize it to match your users' particular position inside the enterprise. From an SAP BI perspective, this means that reports can be aggregated and published on a need-to-know basis that the user has previously defined.

After these capabilities are combined, say, with the BEx Broadcaster, you might easily imagine a scenario where a business analyst is busy playing Minesweeper. Suddenly, the BEx Broadcaster issues a report in the form of a loud alarm. Still within the portal, the writer quickly instant messages colleagues about the alarm, and then checks for a link to a document with step-by-step procedures for solving the problem that the alarm announced.

Two elements of SAP EP are worth an even closer look — SAP Knowledge Management and Information Broadcasting.

Integration with SAP Knowledge Management

If you think of the data in your company as a huge attic full of information, the SAP® Knowledge Management (SAP KM) feature of SAP EP is the fastest way to search and manage that attic.

Although SAP BI is masterful at handling *structured data* (data organized in databases), SAP KM and its Repository Manager evolved to handle unstructured ones — Word documents, e-mails, and digital scribblings of any kind. The Repository Manager can also display in the portal window any documents residing in the data warehouse.

Users that need to rifle through the information without predefined analysis can harness the SAP KM array of indexing, searching, and rating tools. The real power of SAP BI with SAP KM is that unstructured data (the contents of your attic) can be used to provide contextual insights and relevance to your structured, SAP BI information.

Information Broadcasting

Similar to BEx Broadcaster and in fact enhancing it, the SAP EP Information Broadcasting feature has the ability to automatically push reports straight to the user via previously defined conditions (such as a time of year, when certain business conditions are met, and so on).

Following users wherever they go with SAP® Mobile Infrastructure

The world out there today is very mobile. Not every employee is sitting at a desk tapping into SAP BI happily through a workstation. Employees who prefer to work from the comfort of the beach can receive reports on wireless computing devices, thanks to SAP Mobile® Infrastructure.

You can easily connect SAP BI components to enable the broadcasting or analysis of reports to mobile devices.

Collecting data

Real-time analysis is never quite real time enough, somehow. With SAP® Exchange Infrastructure (SAP XI), you get an entire framework built atop XML for the automated collection and delivery of data to SAP BI. This delivery service moves as fast as your hardware allows.

Thanks to the SAP XI use of a well-defined open standard like XML, it's able to pull data not only from your own company's systems, but potentially from suppliers' and partners' systems as well. Adding that data ups the possibility of getting useful conclusions from the analyses you make.

SAP® Master Data Management

While SAP BI is busy crunching data, SAP® Master Data Management (SAP MDM) ensures that the data that's being provided from across the enterprise is consistent, and so is its metadata.

The reverse is also true: SAP MDM can be used by SAP BI to harmonize its results with the original, far-flung sources of data.

SAP® Web Application Server

SAP BI loves open standards, which is why SAP® Web Application Server (SAP Web AS) is its foundation and guarantees its operating system and database independence. By accepting queries and issuing reports through Web-based services built using SAP Web AS, IT departments don't have to think twice about the platforms that the data warehouse is running on.

The Future of the SAP Business Intelligence

The core of SAP BI is set. The data warehouse is already the indispensable hub for data flowing through the enterprise, and it's a key component of SAP NetWeaver.

Although the fundamentals of SAP BI will keep their current focus, and more and more Business Content and Analytical Applications will be added, the current mandate is to shift its use from reactive to proactive. Rather than wait passively for InfoCubes to be created and new queries logged, future generations of SAP BI will become more automated. This means that SAP BI will react to change and real-time conditions and work with other SAP NetWeaver components to deliver reports before users even know that they need them.

The other frontier to keep an eye on is the corporate firewall. The life of the enterprise doesn't end at the fringes of a company's network. The urge to create ever more complete portraits of an enterprise's performance will lead to more efficient methods of collecting data from vendors and customers and then melding that data with your company's own.