

# UNDERSTANDING ANALYTICAL REPORTING

3 November, 1998

## **Businesses Demand More from Decision Support**

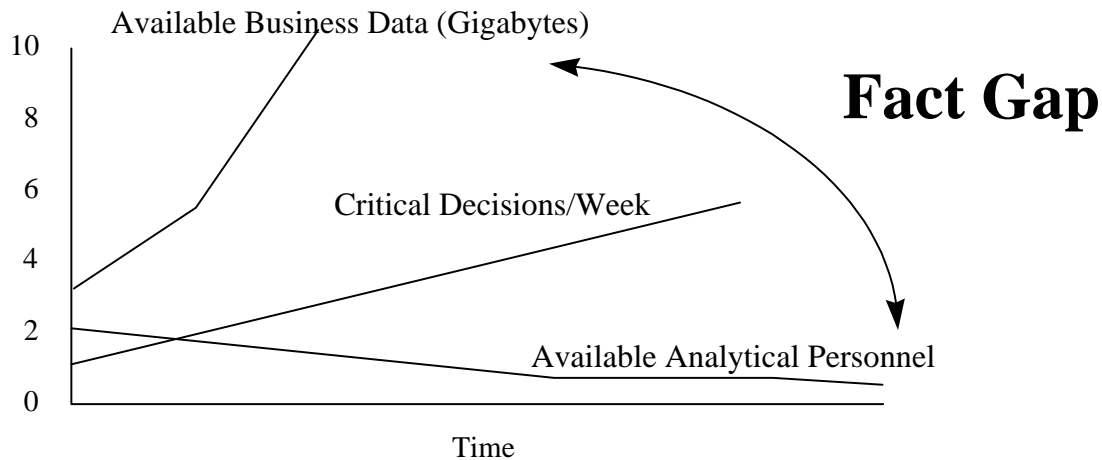
In business today, competition gets tighter every quarter. Globalization, deregulation, and privatization are increasing competition in many markets, and driving the need for shorter product cycles to attract and retain customers. To help businesses face these challenges, decision support systems (DSS) have evolved, delivering data warehouses, datamarts, and advanced DSS solutions to query them. All help you manage a growing body of information about your business, as well as the business of your competitors.

Data volumes keep rising steadily, as businesses collect and maintain more and more data.

Using advanced decision support solutions, these immense stores of data can yield information that lets enterprises make timely, informed business decisions. In fact, the past two years have seen advances in the power and integration of DSS solutions, bringing increased information democracy to line managers and others in positions where decisions must be made on a routine basis.

Nevertheless, many decisions are still made in a vacuum of facts. A recent study of managers<sup>1</sup> found that 88% of management admit to using instinct instead of known facts up to 75% of the time for making business decisions. So we see that there is clearly still room for improvements

in decision support solutions. While the evolutions of the past few years help, there is still a clarion call for the "next step" to further advance decision support.



**Figure 1: Fact-free decisions in the fact gap.<sup>2</sup>**

## **Historical DSS Offerings and Their Origins**

Until 1996, decision support solutions arguably had three distinct origins: query and reporting, online analytical processing (OLAP), and enterprise reporting. Because of these different origins and their differing geographic bases, the software developers involved in each community did not communicate frequently, and as a consequence, integration between these paradigms did not occur quickly. However, Business Objects integrated query and reporting with OLAP in 1996, and this combination of technologies in one DSS tool has proved very popular since. Trends during the past 2 years show that a fully integrated marriage of technologies from these two roots (query and reporting plus OLAP) is growing much more quickly in acceptance than a patchwork "suite" of semi-integrated tools from both branches.

Query and reporting was an outgrowth of the relational database management system (RDBMS) community, largely based in and around California's well-known silicon valley. In RDBMS, the focus was on online transaction processing (OLTP), and how to record such transactions quickly. As data piled up, it occurred to management that access to that data would be very helpful to decision makers. Unfortunately, live OLTP systems do not lend themselves to interactive queries. Even more of a roadblock was the fact that everyday business people, who need access to the data in OLTP systems, rarely understand the database query language and technical structure to the extent needed to interact with RDBMS systems. Such knowledge rests exclusively with database programmers and administrators.

So, query and reporting tools were born from the RDBMS world, allowing mainstream business users to interact with RDBMS data sources easily by using a simple graphical interface, thus avoiding the technical complexity that relational databases contain. Query and reporting tools let anyone who has basic computer skills access and report on data stored in otherwise complex relational databases.

The OLAP side of modern DSS solutions has different roots, from the executive information systems (EIS) community, which was geographically based largely in the eastern United States and in the United Kingdom. An EIS interface is sometimes called an executive "dashboard" – a very high-level summary of business issues incorporated into a simple graphical interface featuring "gauges" or "dials" designed to streamline and simplify the executive's interaction with the system. For example, a red button might flag problem areas, a green button good news, and a question mark those areas for which a decision is required. The executive needs merely to click on the colored buttons to "drill down" into the details below each one.

OLAP tools are bringing multidimensional analysis within the reach of advanced business analysts. Due to their advanced multidimensional analysis power, OLAP tools have become more common as advanced data analysis tools for professional business analysts. But because they do not have query and reporting abilities, self-service access to data for analysis was not possible for mainstream business users. Before users could access data, programmers had to handle the job of loading all relevant data into the OLAP tools, or "cubes". Programmers were also tasked with refreshing the data on a regular basis.

### **Integrated DSS Solutions Enjoy Success**

In 1996, Business Objects introduced BusinessObjects 4.0, an integrated solution that lets users on Windows clients and thin clients benefit from both the power of OLAP and the easy self-service data access of query and reporting. This made available a new breed of DSS solutions from the marriage of query and reporting plus OLAP tools: Integrated query, reporting, and analysis (see figure 2, below). Business Objects was the first DSS vendor to integrate both types of tools into one simple interface for everyday business users and information workers worldwide.

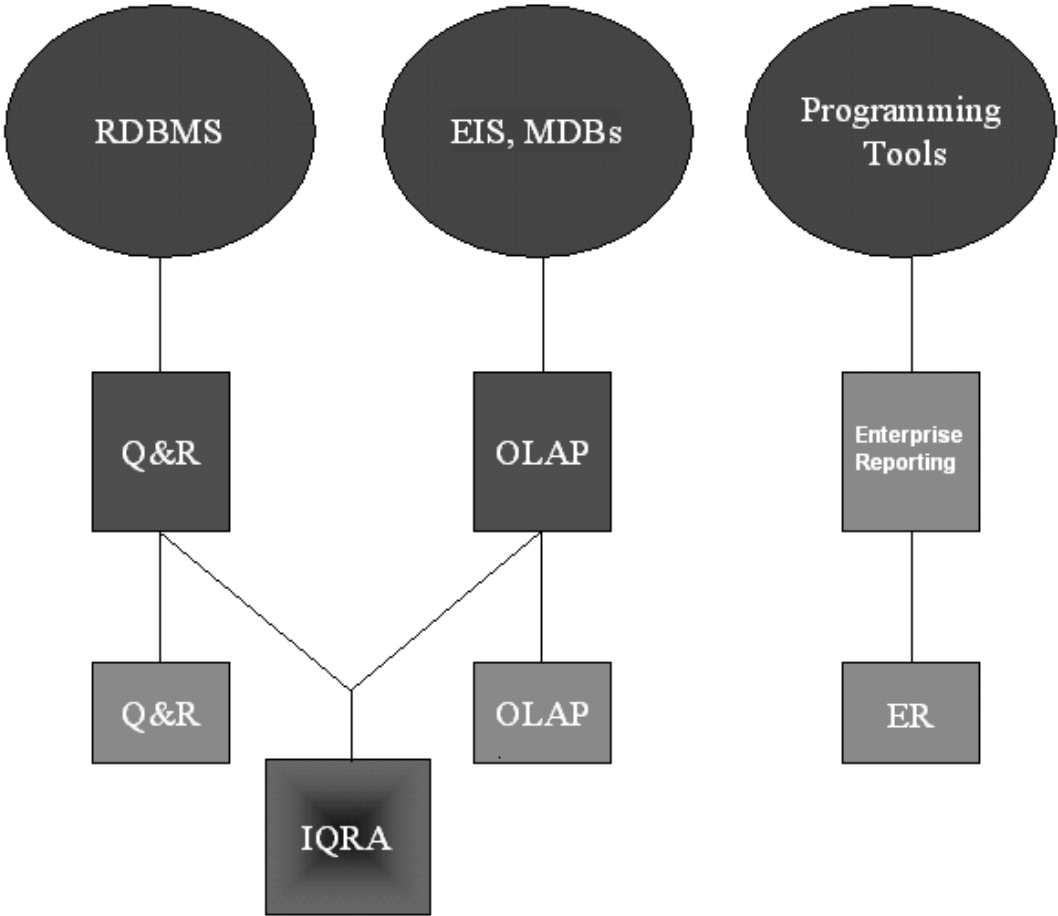
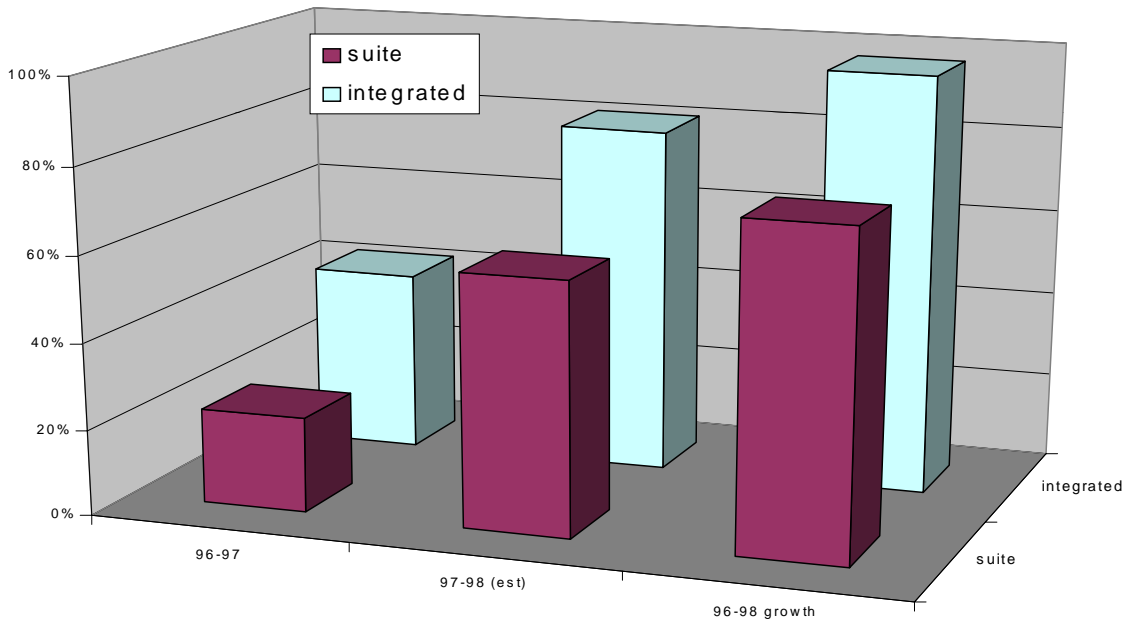


Figure 2: DSS family tree and the evolution of integrated query, reporting and analysis tools.

Since 1996, such integrated query, reporting, and analysis solutions have had much better acceptance by businesses worldwide than older attempts to solve the same issues by patching together unrelated products in a loosely-knit suite. The software license revenue growth rate of integrated DSS solutions now far outstrips the growth rate of non-integrated suite DSS tools. The market is clearly showing its preference for integrated DSS solutions.



**Figure 3: Product revenue growth rates since 1996, integrated versus suite DSS.**

### **Current Challenges for Enterprise Reporting**

So we see that the integration of query and reporting with OLAP dramatically increased the growth rate of acceptance for this new breed of integrated solution (see figure 3, above).

Today's DSS market continues to have potential for innovation through integration. Currently, two major paradigms exist, both from distinct origins. These are the enterprise reporting model, which has its roots in the classical programming community, and the aforementioned successful integrated query, reporting, and analysis solution. Again we see two DSS tools that have different roots, which explains why software developers in the communities involved have not yet intercommunicated sufficiently to attempt useful integration of their respective toolsets.

Existing enterprise reporting tools offer powerful report formatting capabilities accompanied by an infrastructure enabling rigid, predefined or "canned" reports to be distributed to users.

Creating such reports and their distribution schemes requires classical programming experience, because programming is required to build reports.

Enterprise reporting tools have enjoyed good success in replacing paper reports. What they provide is essentially "electronic paper" reports, which offer excellent formatting and distribution of existing information, with little or no interaction. However, this does not fully meet the needs of increasingly sophisticated business professionals. This is because users cannot have self-service access to data. Business users are unable to select exactly the data that interests them, because they can only access the data already provided in canned reports. In addition, users do not have access to reports or data that is not already in the existing catalog of reports. Reports on legacy systems and data on the internet, for example, are not available.

### ***Historical limitations of enterprise reporting tools***

Although enterprise reporting tools offer robust access to a catalog of canned reports, they offer no self-service access to the information that they need to modify or rebuild reports. This is because the tool provides no "semantic layer" to give users autonomous access to data using their own business terminology, or worse, it gives access to information but without the guarantee of robust data security.

At best, enterprise reporting offers limited analysis of information in existing reports. What you see in the production report is all you get, because enterprise reporting tools deliver information largely on an "as is" basis. The user cannot drag and drop items around on the report to better suit their needs or do other "on-report analysis," such as local slice, dice, and

drill. Existing enterprise reporting tools simply don't offer users the interactive flexibility to conduct on-report analysis. For example, a user interested in a pie chart of tax rates by state, is unable to double click on the pie chart to drill down from the state level in order to see tax rates by county or city.

Enterprise reporting offers no ad hoc report building, because the report "development" tool was designed to be used by software development professionals, not business users. Simple business calculations often need to be coded in programming languages. Business users neither have the background nor the desire to engage in programming tasks. They don't know, and they don't care about the programming needed to build even a basic report.

### ***Artificial divisions***

These limitations of enterprise reporting tools impose artificial divisions on the iterative DSS work processes of query, analysis, reporting, and sharing of results. Users don't know whether a given DSS tool has its roots in programming or not, and frankly, they don't care. Users approach a task with a solution mindset – they want to get a certain job done. Current artificial divisions between enterprise reporting and query, reporting, and analysis serve only to frustrate today's increasingly sophisticated business users.

For example, if a canned report contains state-wide summary sales numbers that pique the interest of a business user who reads it, that same user may wish to select detailed sales and cost information for their particular region. The natural work process would be to use the same enterprise reporting tool to get the detail data, but today's enterprise reporting tools impose artificial divisions which prevent that. The decision maker will be forced to contact their IT department to request another, detailed report. Users don't care about artificial divisions such



as the fact that "drilling" is an OLAP capability, report scheduling an enterprise reporting capability, and formatting and local calculations the capabilities of query and reporting tools. Users prefer to work directly and naturally towards a goal, using all of these capabilities and others in one intuitive interface.

## **Enter Analytical Reporting**

So, we can see the need for a new breed of DSS solution – one that provides the flexibility and interaction of self-service data access, the analysis power of OLAP, seamless integration capabilities, plus the scaleable and reliable report distribution power of an enterprise reporting tool. We refer to this new market segment as **analytical reporting**. With analytical reporting, artificial divisions between query and reporting, analysis, and enterprise-wide report integration and distribution disappear. Users can now do it all from one familiar interface. Analytical reporting should provide an interactive view of data, ad hoc reports, canned reports, and on-report analysis. In addition, it should serve both Windows full clients and internet thin clients.

## **Requirements for Analytical Reporting**

In its research working with customers, Business Objects has identified five key requirements for the successful delivery of analytical reporting solutions:

**Powerful, interactive, and easy-to-use reports.** An analytical reporting solution should allow powerful, interactive analysis right on reports. This means the ability to perform on-report drill, on-report pivot, on-report calculations, and direct report manipulation and formatting via drag and drop, whether running on Windows full clients or thin clients using internet browsers. Advanced features such as conditional formatting and financial reporting should be supported.

Moreover, any analytical reporting solution should provide an easy-to-use interface that allows non-technical business people to feel at home and be productive.

**Self-service information access.** An analytical reporting solution should serve as an easy self-service portal to reports, data in corporate databases, data on the internet, and data in legacy systems. Self-service information access should be provided to existing users as well as new users, on full- or thin-client computers. This means that every user in the enterprise can turn to the analytical reporting solution as their portal of choice to scan and view existing reports (even in legacy systems), or information that is not yet in a report, but rather stored in corporate databases or other data sources such as pages on the internet.

**Scaleable enterprise report and broadcast server.** An analytical reporting solution should not shortchange any of the traditional strengths of existing enterprise reporting tools. Companies need to be able to choose whether they base report execution and information broadcasting on simple scheduling or on more sophisticated methods, such as trapping business events. Once reports are run, the information they contain should be available for broadcast to various devices such as email, fax, and pagers. Advanced broadcasting to, and even interaction with, more mobile devices should also be possible. An analytical reporting solution should scale easily up to many thousands of users, while accommodating numerous user profiles including both Windows-based full clients and internet thin clients. To achieve this, a distributed architecture is essential, allowing load balancing, software and hardware self healing, and the ability to easily expand the solution as needed.

**Seamless application integration.** An analytical reporting solution should integrate easily and seamlessly with existing systems in use, or applications under development. Ideally, a value added reseller (VAR) should be able to painlessly integrate components of an analytical reporting solution into its specialized offerings. One solid way to achieve this integration would be the adoption of an industry-accepted standard scripting language for application interoperation. This would also allow analytical reporting customers to build customer interfaces such as executive dashboards as an entry point to their applications. In addition, seamless application integration would allow the analytical reporting solution to work smoothly with emerging advanced technologies such as geographic information systems (GIS) and voice actuated interfaces. The seamless integration solution should be usable by a large number of programmers, and not require extensive specialized experience for effective use.

**Minimum total cost of ownership.** An analytical reporting solution should build upon a robust existing infrastructure to avoid imposing additional costs on customers. New tools and infrastructures entail costs in training, deployment, and maintenance. Analytical reporting should minimize such costs by leveraging existing investments in the areas of metadata, administration, and user training. The existing corporate metadata should be suitable as the base for analytical reporting deployment. Administration of an analytical reporting solution should be done from interfaces that are already familiar to IT professionals. Finally, users should not require retraining to embrace an analytical reporting solution – their existing skills in query and reporting should easily drive acceptance of the expanded capabilities offered by analytical reporting. For those without query and reporting experience, learning the analytical reporting solution should involve a minimal investment of time.

## **Introducing BUSINESSOBJECTS 5.0**

BUSINESSOBJECTS 5.0 is an enterprise analytical reporting solution that provides non-technical end users with ad hoc query, reporting, and analysis of information stored in corporate data warehouses, data marts, and packaged business applications, as well as the enterprise reporting functions of robust report distribution and management. BUSINESSOBJECTS 5.0 meets the five key requirements of an analytical reporting solution:

- Powerful, interactive, and easy reports
- Self service information access
- Scaleable report and broadcast server
- Seamless application integration
- Minimum total cost of ownership

### ***Powerful, interactive, and easy reports***

On-report analysis means that users can switch their business perspective with a single drag and drop of the mouse, drill into a report for detailed information, and easily insert on-report calculations. BUSINESSOBJECTS 5.0 has been designed from the ground up for easy on-report analysis. Drag and drop capabilities have been significantly enhanced, making on-report analysis both easier and more powerful.

- **Drag and drop reports.** BUSINESSOBJECTS 5.0 includes a new "report manager" window that shows all of the objects available in the report, so that users can modify reports by simply dragging objects from this window and dropping them onto a blank or existing report. Analyzing and building reports is now easier than ever.
- **Drag and drop calculations.** This enables users to insert popular business calculations such as quarter on quarter percentage revenue variation into reports, simply by selecting the quarters in question, e.g., "Q1" and "Q2" and dragging them or clicking a toolbar calculation

button. BUSINESSOBJECTS 5.0 automatically performs the required calculation, inserting cells as appropriate to display the derived values. This makes building reports including business calculations more accessible for first time users and more productive for experienced users.

- **Point and click grouping.** Users often need to create dynamic groups for analysis and reporting purposes. For example, in a retail application a revenue comparison may be required between a particular brand of soft drink and all other drinks in the category. With BUSINESSOBJECTS 5.0, users can easily select related values and group them together with a single mouse click.
- **Point and click calculations.** Users often need dynamic calculations. For example, a budget review may require that last quarter's expenses be compared with this quarter's, and displayed in an adjacent column of the table. With BUSINESSOBJECTS 5.0, this type of on-report calculation is as easy as a mouse click.
- **Fast report navigation.** A new report manager displays an intuitive outline of the report so that users can navigate between sections instantly. The report manager also lists all the objects available in the report.
- **New OLAP dimension bar.** When in drill mode a new "dimension bar" appears, making it visually easier for users to explore data using drill-down analysis. The dimension bar gives a graphic representation of exactly where the user has drilled down so far in every dimension of analysis.
- **Conditional formatting.** A single report can drive the generation of numerous different output reports based on conditions found in the report data. For example, a report listing monthly individual credit card activity could contain conditional formatting which would print a different statement for an overdue customer than for customers who are fully paid

up. Another example would be a customer invoice that will print a customized message for each invoice. A first-time customer will receive a special greeting message, whereas a high-value established customer will receive a VIP offer. A condition can be associated with any block or chart that will determine whether or not it is displayed. To manage these blocks, the report map allows users to easily manipulate overlapping blocks. This means that non-specialist users can easily build customized production reports.

- **Financial reporting.** In addition to regular and cross-tabular tables, financial tables are available in BUSINESSOBJECTS 5.0. This makes creating standard financial reports much quicker and easier. For example, a user can switch the orientation of a report from vertical to horizontal by clicking one button.
- **Transparent drill through.** As users conduct drill-down analysis, they sometimes find that the report they are viewing does not contain the lowest level of detail they require. With BUSINESSOBJECTS 5.0, they can "drill-through" from the report directly into the relational database, to pick up the desired level of information with one mouse click.

### ***Self-service information access***

To be successful, an analytical reporting solution must be easy to use, and it must give end users access not only to a catalog of reports, but to the information they need to modify or build reports. Users want a single integrated solution to access reports, information in databases, data on the internet, and reports in legacy systems. Today, self-service information access and ease of use remain top priorities for product releases. The new features in BUSINESSOBJECTS 5.0 help raise levels of information accessibility even higher.

- **Report catalog.** A new searchable, personalized report catalog offers autonomous access to reports for every BUSINESSOBJECTS user. You can search the report catalog by category, date,

or author. A web report viewer means that reports may be viewed and refreshed without client-side software being installed.

- **Categories.** Categories offer flexible, logical arrangement of reports across departmental, functional, or hierarchical barriers. Categories are virtual communities of reports that allow your business to create report groups that are tailored to the needs of the varying user communities in your enterprise. A category is not a simple, rigid, hierarchical division of reports. One report can be listed in numerous categories if desired, but only those users who have the right to open it will see the report. Categories allow logical groups of reports that fit your business needs.
- **Autonomous access to data.** Since 1991, Business Objects has given regular business users access to information stored in their organization's databases so they can make better business decisions. Business Objects invented the patented semantic layer that shields business users from the complexities of relational databases. The semantic layer means that anyone can see and understand business data that would otherwise be hidden except to those few database programmers with specialized skills. Thus, business users have the autonomy to access data or build reports, but remain subject to centralized data access rights control by IT staff.

### ***Scaleable report and broadcast server***

BUSINESSOBJECTS 5.0 is designed for high availability, high performance, and maximum scalability. New with BUSINESSOBJECTS 5.0, BROADCAST AGENT offers report scheduling, intelligent agents, and personalized information broadcasting. Its powerful distributed component architecture (DCA) means that components may be distributed across different

servers on an organization's network. BROADCAST AGENT offers solid, reliable benefits for traditional enterprise reporting needs and beyond.

- **Scheduling.** BROADCAST AGENT can schedule execution of reports by calendar, or by trapping business events. Calendar-based scheduling lets you run production reports on a regular basis, while event-based execution lets conditions in your databases or existing systems trip execution of reports. Reports can also be executed based on the appearance of a trigger file in your file system. This means that any system on your local area network (LAN) or wide area network (WAN) can trigger a BROADCAST AGENT report.
- **Intelligent agents.** Running on BROADCAST AGENT, intelligent agents offer all the power of visual basic for applications (VBA), allowing use of the full range of programming power, as well as interoperation with virtually all other systems in your enterprise. Intelligent agents can also be used to "chain" reports, so that their execution is sequential and/or dependent on other business events that occur or are detected in your databases.
- **Broadcasting.** In many cases, simply publishing a report to the BUSINESSOBJECTS repository or pushing it to the desktop will be sufficient to make the information in the report broadly available. But in time-sensitive or business-critical situations, users may wish to broadcast information in real time. For these needs, BROADCAST AGENT can take action of a more immediate nature – information may be broadcast immediately or later to most standard devices, by means including email, pagers, fax, and personal digital assistants (PDAs).
- **Advanced event notification and response.** For situations that are even more critical, advanced notification can be arranged via a technology partnership with CuraSoft, allowing advanced notification and response capabilities that exceed any other currently available. CuraSoft, based in Fremont, California, specializes in advanced event notification and response. With advanced notification, no computer is needed to interact with BROADCAST



SERVER – the phone booth is the computer. Report execution can be launched via a telephone keypad, or even via voting pagers. Voice synthesis allows BROADCAST AGENT to read information over the phone.

- **Personalized distribution.** One report, be it a production report or an ad hoc report, can be "burst" so that each recipient receives only the data to which they are entitled. Using the security profile of the BUSINESSOBJECTS SUPERVISOR tool, BROADCAST AGENT will deliver personalized copies to every recipient. For example, when a new employee is hired, a report on his or her hiring might be burst to numerous employees. The facilities department's copy would contain only the information needed to establish a phone, workspace, mail slot, and computer for the new hire. Sensitive employee data will be excluded from their copy of the report, but human resources (HR) employees would receive all relevant data including sensitive data appropriate only for the HR department.
- **Distributed component architecture (DCA).** This provides customers with a distributed virtual server that is both highly available and highly scaleable. High availability is ensured because automatic failover is provided when a server machine fails. Scaleability is ensured because the architecture allows the dynamic addition of BROADCAST AGENT components to meet increased demands. Optimal response times are ensured because the DCA automatically performs load balancing across component servers. Another key part of the DCA is implemented via a common object request broker architecture -compliant (CORBA) object request broker (ORB). This technology provides self healing, which means that if any software component of BROADCAST AGENT should fail, the ORB will automatically restart it.
- **Push.** BUSINESSOBJECTS 5.0 will support "push" of BUSINESSOBJECTS reports to web users. This means that browser users will be able to subscribe to a "channel" containing BUSINESSOBJECTS reports in HTML format. Web technology will then ensure that the latest

reports associated with that channel are automatically pushed to the user when they are refreshed.

### ***Seamless application integration***

BUSINESSOBJECTS 5.0 presents significant improvements in application integration abilities. As BUSINESSOBJECTS is deployed to vastly larger user bases world wide, the ability to integrate with existing enterprise applications is critical. Businesses have invested enormously in various internal applications that are essential to their operations. To ensure that BUSINESSOBJECTS can be easily integrated with those applications, and VAR applications, BUSINESSOBJECTS 5.0 has integrated the world's leading application environment, Microsoft VBA.

- **The world's best customization technology.** Microsoft VBA allows millions of programmers to instantly feel at home when working with BUSINESSOBJECTS 5.0, because its integration via VBA is standardized and widely used. The scripting language in earlier versions of BUSINESSOBJECTS will be replaced by VBA, with conversion to VBA occurring automatically the first time that an existing script is run.
- **Extensibility.** Should custom functionality be desired, VBA allows the development of add-in modules that extend or modify the capabilities of BUSINESSOBJECTS 5.0. If geographic mapping systems or voice recognition capabilities are needed, they can be handled by a VBA add-in that adds the specialized functionality to BUSINESSOBJECTS.
- **Extended and new application program interfaces (APIs) for application integration.** Past versions of BUSINESSOBJECTS offered an "object model" which allowed programming interoperability with other programs. With BUSINESSOBJECTS 5.0, the default exposed object model has been broadened to include all user functionality, and even some administration functionality. This functions as a new, more granular object programming API to BUSINESSOBJECTS, allowing finer control of application integration, and allowing

BUSINESSOBJECTS functions to be called from other applications. Within the updated BUSINESSOBJECTS DESIGNER module, a new API allows metadata integration via the Microsoft Repository initiative.

- **Components for VARs and homegrown applications.** Useful integration can often be as simple as making a catalog of reports and report viewers available within an existing enterprise application. Alternatively, integration could be more comprehensive. In both cases, BUSINESSOBJECTS 5.0 will offer the ability to easily integrate components of its overall solution into customized applications built by VARs or built in house. With VBA, adding the BUSINESSOBJECTS report catalog to an application can be as easy as dragging and dropping it from within your development toolkit.

### ***Minimum total cost of ownership***

Business Objects offers numerous ways to reduce the total cost of software ownership, but one common thread runs through every option: invest in a shareable infrastructure, then reuse it as much as possible. To this end, BUSINESSOBJECTS 5.0 builds on an enterprise-scalable infrastructure, including its patented semantic layer that insulated users from database complexities by showing them a simple visual representation of their business, using their own business terms. The semantic layer is stored in a relational repository that supports local or network deployment. The repository can be thought of as a common metadata store that describes your business data. The Business Objects administration tools are also leveraged fully across the BUSINESSOBJECTS 5.0 product line.

- **DESIGNER.** Thanks to numerous evolutionary improvements with version 5.0, setting up and maintaining the semantic layer has never been easier or faster. Setting up for the first time can be done in as little as 15 minutes. Changes can be made easily at any time afterward.

- **Supervisor.** The fully visual model of your user base now offers additional improvements for version 5.0, such as an enhancement to its world class security model that allows easy, seamless use of your existing RDBMS security layer. SUPERVISOR now also allows import and export of security domains, via standard delimited files.
- **RAPID DEPLOYMENT TEMPLATES™ (RDTs)** let you get a deployment up and running quickly by offering "prefabricated" semantic layers for leading packaged applications such as Baan, Oracle, PeopleSoft, and SAP.
- **Web report viewer component.** BUSINESSOBJECTS 5.0 includes a web-based report viewer. The BUSINESSOBJECTS 5.0 web-based report viewer is optimized for printing quality and on-screen report reading. It uses technology which best fits the need for the particular deployment, including html, BUSINESSOBJECTS full client, WEBINTELLIGENCE™, orActiveX. The reader will be installed automatically the first time it is used, requiring no middleware or application software installation, and no further maintenance or installation. Demand paging means minimized network traffic when users view lengthy reports.
- **New, common administration tool for all server components.** The existing WEBINTELLIGENCE server administration tool has been improved so that administration of all server tools is now included in BUSINESSOBJECTS 5.0. This means that IT staff also benefit because they only need to learn, deploy, and maintain one administration toolset.
- **Web and legacy access.** With BUSINESSOBJECTS5.0 you can build reports that contain data from html pages on the internet or reports from legacy systems. This means that BUSINESSOBJECTS 5.0 is the only business intelligence portal you need to access and report on information anywhere in your enterprise, and beyond. BUSINESSOBJECTS 5.0 can also integrate data from such differing sources into one report.

## **Conclusion**

Decision support tools have come a long way in helping businesses manage competitive pressures and modern business practices, but many vendors' products still impose artificial divisions between three closely related DSS solutions. Building on its success with an integrated query, reporting and OLAP tool, launched in 1996, Business Objects has again combined fundamentally complementary technologies into one integrated solution, which delivers greater power and ease of use to everyday business users.

BUSINESSOBJECTS 5.0 is the industry's first analytical reporting solution. It provides five key advantages for organizations:

- Powerful, interactive, and easy reports
- Self service information access
- Scaleable report and broadcast server
- Seamless application integration
- Minimum total cost of ownership

## **About Business Objects**

Business Objects is the world's leading provider of integrated enterprise decision support solutions. Business Objects products provide non-technical business users with access to information stored in data warehouses, data marts, and packaged business applications.

Business Objects provides a complete suite of decision support tools including query, reporting, online analytical processing, data mining, and DSS administration for both client/server and Internet environments. Business Objects has sold more than 900,000 licenses to over 7000 organizations in more than 60 countries worldwide.

*BUSINESSOBJECTS 5.0 Product Backgrounder*

Business Objects may be reached by phone at 408-953-6000, or on the worldwide web at <http://www.businessobjects.com>. The company's stock is publicly traded under the ticker symbol BOBJY.

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<sup>1</sup> Deloitte & Touche: The Deloitte & Touche Consulting Group Information Management Survey.

<sup>2</sup> The Gartner Group: The Gartner Group's Fact Gap.