Finding the Answers with Oracle Business Intelligence

Oracle Business Intelligence for the Public Sector
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ARE WE THERE YET?

Enterprises seeking business intelligence solutions are typically looking to gain insights from the vast amount of data distributed throughout their organizations. The demand for software to support better business decisions has remained constant for decades. Yet after twenty years, the problem still is not solved – business intelligence is still listed as the top need in annual CIO surveys on IT spending priorities. Despite the variety of business intelligence tools deployed in the past, businesses have too many stovepiped reporting systems and spend too much money on business intelligence products that never make it off the shelf and into the users’ hands.

The public sector today is being asked to deliver more than ever before, facing demand for greater transparency, greater access to data and greater security for the data. IT organizations in the public sector have many options for meeting these demands. With so many choices and such limited resources, it can seem like the demands will never be met. These IT organizations need a fundamentally different solution than what has been previously available for reporting and analytics. Oracle’s next generation business intelligence platform is uniquely qualified to help the public sector communicate with constituents and stakeholders, meet objectives in the most cost effective manner and, ultimately, accomplish the mission of the agency or department.

THE UNFULFILLED PROMISE OF BUSINESS INTELLIGENCE 1.0

Why have the past iterations of business intelligence tools been inadequate? These business intelligence 1.0 solutions did not address some of the major impediments to realizing the promise of business intelligence. Consequently, many past investments in business intelligence technology have ended up as costly “shelfware”. To understand where these solutions have come up short, we must first take a look at the key requirements that business intelligence has attempted to address.
A first step taken in many business intelligence projects is to build a data warehouse. This is where many business intelligence projects stall. Building a true enterprise data warehouse can be a lengthy process. For a large, custom-built data warehouse, 18 months is a very aggressive timeframe in which to build the warehouse and deploy reports to end users. Many data warehouse projects are measured in years, rather than months. Once their enterprise data warehouse is designed and loaded, an organization must then select a tool to build reports and dashboards from that data.

But time marches on. When the data warehouse finally begins to fulfill its original mandate, the business landscape has been altered dramatically. Perhaps new legislation was passed, leadership changed within the organization, or requirements evolved as new source systems came online. It is quite typical to see radical changes requested by the users as soon as a data warehouse project goes live. This highlights a second obstacle to realizing true business “intelligence”.

**Presentation Too Close to the Data**

Virtually every business intelligence tool available will offer a unique method to construct a layer of presentation metadata, or data that describes the data. This meta-layer is needed for a number of reasons. One requirement is that the databases being queried do not always describe data in a way that end users can understand. Columns in the database often have cryptic names. For example, a table may contain a column called “GR”, populated with data comprised of seemingly random numbers. Without more descriptive reporting metadata, most users will not know that “GR” means “Geographic Region” and that those seemingly random numbers are the unique identifiers for the regions. Presentation layers provide flexibility to respond to users. A database administrator will not generally rename database columns in a production system to improve the user experience, but business intelligence developers can readily change the presentation layer to accommodate the business requirements.

The advent of reporting metadata can be a great boon for the users of a business intelligence solution. However, most business intelligence 1.0 tools directly
associate this presentation layer with the database metadata. A byproduct of this tight coupling of database and reporting metadata is an inability to adapt to changes in the data sources. When systems are migrated to a new database technology or database tables change, reports and dashboards that access that data source are invalidated. Because of the tight connection between the end user layer and the data sources, most business intelligence tools have been limited in their ability to respond to the modifications required by regular application upgrades and change requests.

**Where Is My Report?**

Another limitation of traditional business intelligence has been an overemphasis on generating large libraries of tactical, historical reports. A review of available business intelligence platforms reveals that most are focused on providing and distributing standard departmental reports. Business users understandably want information on performance, but do not always get the chance to pose the question to the data in a timely fashion. Instead of up-to-the minute results, users receive answers to today’s questions with yesterday’s data. How many claims were processed last month? How close to our budget did we get last year?

Users want information at their fingertips as they are doing their jobs, not after the job is done. Reporting has not delivered the value it promised because the available tools have failed to make the leap from IT-centric solutions to invaluable resources for functional analysts.

**Too Many Choices**

Most of the leading business intelligence vendors have existed for a long time. The current versions of their tools have evolved from client-server to Web interfaces. In many cases, the “suite” is a blend of different tools from product acquisitions that have not been fully integrated. Users are presented with a mixture of reporting tools, dashboard tools, ad hoc query tools, and more. A business intelligence user might be presented with a Web-based interface to view a report, but then need to move to a locally installed client application to create or modify a dashboard view.

While IT workers may be accustomed to using different tools for very specific tasks, business user adoption of tools that require different local product
installations has been poor. Tools like word processors, spreadsheets, and Web browsers are familiar. A dashboard creation tool from the business intelligence vendor is not. Installing a new tool on a user’s machine and adequately training that user so he or she can help build reports or dashboards might happen occasionally, but it limits the widespread adoption that is the goal of enterprise business intelligence.

This leads to a classic end user/IT request loop. The end user describes the desired report, performance indicator or dashboard to IT, and developers go off and build something for them. The end users then tell the developers what they don’t like about it, and the developers go off again and modify what they built. This iteration goes on until the end users are happy, or until the end users are so frustrated that they feel forced into a decision that has historically posed the greatest impediment to realizing enterprise business intelligence.

**Rogue Development and Desktop Databases**

Even in organizations with stated standards for databases and business intelligence tools, users constantly pull data into local spreadsheets or desktop databases. The fact that business users are developing their own solutions suggests that they are not getting the information and access they need from the tools that have been provided. This manual duplication and distribution of key business data can lead to all kinds of issues. The information contained in a local desktop database or spreadsheet extract is only as reliable as the logic used to retrieve the data – not exactly a “single source of truth”. This activity also poses huge security issues. Security hacks for the leading desktop database solutions can be easily found on the internet for as little as $20.

The tactical need to deviate from the enterprise standards for business intelligence and data management solutions is remarkable, because the dearth of information has been the very reason business intelligence tools came into existence. So how can we fix business intelligence?

One way to start is by fixing business intelligence tools. As tools mature, it is possible to see how their interfaces have evolved over the years. If a tool was built in the client-server era and then moved onto the Web, the telltale signs are evident. Does the back button work? If not, it is not really a Web-based tool; it is a client-server tool that just happens to be working in a browser. If a reporting tool is given a fresh new look to support *ad hoc* query, it is easy to see its origin as a reporting tool. It works, but often not the way
an end user would expect it to. The availability of browser-based tools that work the way users expect them too (that function like a Web site, for example) makes a huge difference in user adoption.

**BUSINESS INTELLIGENCE 2.0 – BUSINESS INTELLIGENCE GROWS UP**

The foundation of Oracle Business Intelligence Enterprise Edition (OBIEE) Plus started in 1997, when a team of business intelligence and data warehousing industry veterans came together to develop a next-generation business intelligence platform. The platform was designed for the Web, with a new and emerging set of needs in mind—the need to deploy business intelligence capabilities to broad new audiences of users and the need to make business intelligence easier to use, more intuitive, and more interactive, so every person in an organization could benefit from it. This technology would bring together data from virtually any data source to provide the most complete, real-time, detailed, and actionable information available. From these roots, the concept of the Actionable Intelligence platform and the OBIEE Plus product were born.

This original OBIEE development team recognized that the Internet was fundamentally changing business intelligence. Data volumes were increasing tenfold. User counts were increasing at a similar rate. Business users did not want reporting; they wanted to be able to see what was happening to the data while they were doing their jobs. When issues with a business process arose, it would not help users to discover the problem after the transactional data was loaded into a data warehouse. Users needed access to business information in real time, as they were interacting with citizens and stakeholders.

The OBIEE developers jumped at the opportunity to build a solution from the ground up with an architecture that took into account two key things: 1) the historical failures of existing business intelligence platforms, and 2) the huge influence of the Internet and Web-based standards.

**Oracle Business Intelligence Enterprise Edition Plus**

The OBIEE Plus platform removes the information bottleneck that too often exists between the data collected across an organization and the business demand for access to and insight from that data. OBIEE Plus enables IT organizations to define a single, logical view of all enterprise data—whether housed in a central
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data warehouse or across multiple operational and analytic sources. Oracle’s BI platform provides the business with new levels of self-sufficiency to access and use this information. Complete, up-to-the-moment insight is always available. It is proactively delivered to users where, when, and how they can use it, empowering each person with relevant and actionable information to be more effective.

The OBIEE Plus platform was designed from the ground up to handle the largest enterprise business intelligence deployments. It features a modern, server-centric Web architecture that is designed for enterprise-wide scalability, 24x7 performance and manageability, handling tens of thousands of concurrent users and terabytes of detailed, transaction-level data.

Simple Tools, Powerful Ideas

The foundation of the OBIEE Plus platform is a true business intelligence application server designed to be highly scalable, optimizing concurrency and parallelism to make the value of business intelligence applications available to the largest possible audience. It provides centralized data access and calculation, essentially creating a large pipe through which anyone can consume any information in any form anywhere in the enterprise. The analytics server is central to all of the business processes that consume information, including dashboards, ad hoc queries, intelligent interaction capabilities, and other Web service-based applications (J2EE and .NET). All of these applications require rich access to broad sets of data across the enterprise, and they all require a sophisticated calculation and aggregation infrastructure that the platform provides to deliver value.

The platform also includes a full complement of access, analysis, and information delivery options, all in one fully integrated Web environment. These components each serve distinct communities of users with different appetites for the underlying data that exists across the organization. Since these tools were created after the Web revolution, they were designed from the ground up to work the way the Web works. For reporting, users can also help build highly formatted report layouts with standard desktop tools like Microsoft Word, Excel, PowerPoint, and Adobe Acrobat. No longer must the user mock up something and hand it off to IT so that it can be recreated using a professional client-server tool. Instead, users see their actual layout templates transformed from a Word document into their desired report.

The more that users are involved in directly creating BI content, the better off a business intelligence initiative will be. The quickest and easiest way to involve users is to allow them to contribute with the tools they already have on their desktops. By allowing users to actively participate in the report creation process with tools they use everyday, user adoption increases greatly. Unlike other business intelligence
tools, the OBIEE Plus components are integrated with a common architecture, enabling a seamless and intuitive user experience for every user.

**Separate Presentation from the Data**

OBIEE Plus was designed for use by end users who are not necessarily analysts or business intelligence experts, so several aspects of the platform minimize the complexity of end user tasks, while maintaining the power and flexibility of a best-in-class analytics platform. By creating a logical layer that represents a business model, end users are shielded from the complexities of the underlying physical data sources and do not have to know anything about joins, group-bys, or other SQL syntax.

This makes all end user interfaces very easy to use—users simply point, click, drag, and drop to do the full range of analysis. With a single, centralized logical model and a central access point from which to manage user security and visibility, the OBIEE Plus platform lowers the time and expense of maintaining business intelligence applications and enables a “single version of the truth” across an organization.

**More Data, More Users, Better Performance**

The OBIEE Server is unique in the business intelligence industry for its ability to provide robust, efficient access to multiple heterogeneous data sources. This aspect of the solution enables organizations to build a single, unified, logical view of all of the data in the enterprise and make portions of it available to anyone that needs it. Rather than managing multiple database instances, each of which covers only a portion of an enterprise's data, Oracle’s true enterprise data access capability allows for the most cost-effective management available on top of one integrated security model.

Sophisticated caching mechanisms contribute to the world-class scalability and performance of the OBIEE Server. Each query sent to the business intelligence server is matched against cache to determine if it could be satisfied by a previous request—either an exact match or a superset query that can be further filtered or aggregated by the business intelligence server to satisfy the request. Caching even works across users, maximizing overall system performance and delivering unrivaled response times. Additionally, Web client caching ensures that graphics and other views of data do not get regenerated unless needed.

The OBIEE Server generates high performance SQL, off-loading many powerful functions to the particular database management system that supports those functions. For analytic functions that cannot be performed by the database in question, the business intelligence server has its own powerful calculation engine to
produce joins across disparate data sources and perform mathematical and statistical functions “on the fly” that are not easily performed by SQL.

**Actionable Intelligence**

Public sector organizations require information to accomplish their respective missions. These agencies are often drowning in data and lack a coherent strategy to deliver all this data to their stakeholders in a way that addresses the needs of a widely disparate community of information seekers. When information can be made available faster and in a more useful format, agencies can serve the public better and more efficiently. Oracle Business Intelligence Enterprise Edition Plus goes beyond delivering reports to delivering the intelligence that is needed to take action.

Whenever we can deliver intelligence to application users as they are making decisions, we have transformed business intelligence into actionable intelligence. This is what we call business intelligence 2.0: an actionable intelligence platform, built from the ground up to work in the Web and standards-based world. Oracle has addressed the shortcomings of the previous generation of business intelligence tools, helping customers save money and find improved ways of doing business. With Oracle Business Intelligence Enterprise Edition Plus, Oracle has realized both the premise and the promise of business intelligence.

**ORACLE – SUPERIOR INSIGHTS AND SIMPLER SOLUTIONS**

As we have seen with CIO surveys calling out business intelligence as a top priority each year, implementing a business intelligence product will not guarantee the operational insights required to realize the goals of an organization. Some tools are not easy to use; have functional limitations; do not scale to meet increased demand or are difficult to manage. To realize the ultimate vision of becoming an information-driven enterprise, organizations need to deploy technologies and business processes specifically designed to embed business intelligence into daily operations, so that staff at every level become proactive and prescriptive when it comes to information analysis.

Oracle is uniquely qualified to offer a unified architecture for both traditional transactional systems and advanced reporting and analytical solutions. Other business intelligence products require customers to maintain separate analytic databases and tools. Oracle delivers a true enterprise information model and business intelligence platform that reaches across disparate systems and sources. The openness of the platform reduces or eliminates the overhead associated with data movement, while increasing data quality and delivery speed to end users.
The Oracle Business Intelligence product family has been one of the world's fastest growing business intelligence product suites. Originally introduced in 1999, the Oracle Business Intelligence Suite Enterprise Edition (formerly known as Siebel Analytics) was developed after the dawn of the Internet. Instead of retrofitting or re-architecting older client-server products to the Web—a step other business intelligence tools vendors are just completing—all Oracle Business Intelligence Suite Enterprise Edition products have always been 100% Web-based. They are now proven at over 1,000 customers and fifteen of the world's twenty-five largest businesses, with broad adoption in virtually every major industry.

With its business intelligence suite, Oracle can facilitate the alignment of your organization’s goals and strategies, processes and performance by embedding business intelligence into business workflow. While capable of leveraging powerful business intelligence capabilities such as Spatial and Data Mining within the Oracle database, the business intelligence suite can perform analysis against virtually any data source within the enterprise. Embedded business intelligence drives effectiveness by empowering staff with the right information when and where it is needed. These same technologies deliver real-time business insight to management with actionable recommendations that can be integrated into operational systems; provide comprehensive institutional intelligence by incorporating both structured and unstructured data; and support the entire continuum of analytics from real-time business intelligence to enterprise aggregation for executive strategy and planning.