



What Is So Different about Business Intelligence Today?

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On my worldwide BI-related speaking tours, one question invariably pops up from the audience: What is so different about business intelligence (BI) today?

This article will try to show the differences between business intelligence today and “other” implementations. Within this article I have included a number of links that explain the material in more detail.

What Is So Different Today?

A number of recent developments in technology have eased access to the Internet, changing the computing scene drastically. Access to the Internet, and as a result to the Web, has become affordable to billions of people merely with a click of a mouse. The Web has become a commodity. People can buy access to the Internet from various vendors for comparable prices and with comparable performance.

The days have changed forever as far as the user interfaces are concerned. In the past, instead of developing user-friendly systems, the technologists had to look for “system-friendly” users. Because of new “consumer-friendly” interfaces, many more people are using computers not only in their workplaces, but also in their personal lives, day in and day out. Since the interfaces developed for the consumers by Lands’ End, L.L Bean, Costco, WebMD and the like are much friendlier, the same consumers – when they function as employees in their jobs – have come to expect similar ease of use and interactivity.

The businesses are aware of it, and if they are not, they should be. They have to not only provide friendly interfaces, but they also have to provide access to information to the right people, at the right time and at the right price so that the employees can make sound business decisions. That is business intelligence in a nutshell.

Now we come to the differences between the implementations so far and the BI implementations of today.

1. **Access to computer-based information for most of the employees:** Almost every employee is accessing a computer directly or indirectly in the industrialized world. BI systems are not only for power users – the systems are for various groups of users, from power users all the way to users in the “trenches.” There is a very large, varied, computer savvy and, as a result, demanding user base in the “trenches” – today’s employees. Employees are expecting similar interfaces in the company implementations as in the consumer Internet applications. The Lands’ Ends, L.L. Beans, Costcos and WebMDs of the world are providing customizable retail systems, and today’s employees are expecting very similar information systems in the workplace! The implication is that the information has to be “customizable” to the employees’ needs.
2. **IT staff needs training in business issues and business terminology:** IT staff gets training in many technologies, but hardly any in the businesses for which they are developing computerized systems. Business intelligence has changed that premise. Since the information is provided not only to the so-called “power users,” who might be quite computer savvy, but to the people in the “trenches,” who may or may not be, the IT staff has to learn to communicate in the user-language – which means mostly using business terminology through intuitive, dynamic interfaces.
3. **IT staff needs training in people communication:** The majority of IT staffs are trained in computer technologies; and as a result, they are quite conversant in computer “lingo.” That, in most of the instances, alienates the users, particularly those in the “trenches.” Since business intelligence is supposed to be serving the needs of users at various levels of responsibilities, it is imperative that IT staff members learn how to communicate with all of the users.
4. **Presentation of the BI systems:** Now that users are so acquainted with the web-based environment and its attractive interfaces, BI systems also have to provide the information in an attractive, graphical, media-oriented format in the workplace. The days of “boring” user interfaces in the business environment are history.
5. **BI systems have to follow the scenario of “plug and play” instead of “plug and pray”:** Users at all levels will be using the BI systems, and it will be too expensive if the users have to receive training to use them. Not only will it be too expensive to train every user, but the users will not want to spend the time. The BI systems have to be developed such that they are intuitive to use without training. Does anyone actually study the user manual received when purchasing an appliance?
6. **Three-month delivery:** Set “short” milestones so that IT can provide some BI systems deliverables every 3 months or so. The days of providing deliverables in years are gone!

7. **Web-based EVERYTHING:** More and more people want to work on the Web as they do in their personal life – it is the consumers who are in the driver’s seat! Most of the BI systems have to be delivered on the Web.
8. **Structured data and unstructured data:** Users want to access unstructured data, such as emails, documents, video clips, blogs and all multimedia-based data. A relational database model has to coexist with the multimedia-based repositories.
9. **Mobile computing:** Organizations are going to and already are benefiting from mobile computing-based BI applications. Companies like Federal Express and UPS have long ago proven that. “Mobile” employees expect to be able to use their mobile devices to determine the status of inventories, delivery schedules and the like.
10. **Tight economy:** When economic conditions are good, “better access to information” or “improved data quality” are enough to get a BI project funded. With a “tight economy,” real bottom-line business benefits have to be demonstrated.

Meeting These High Expectations With BI Applications

Let us look at some of the technologies that are available today to meet these goals:

Rich Internet Applications: The World Wide Web is making the consumer a powerful change agent. Consumer-facing applications are the driving force behind the pressure put on businesses that sell products/services on the Web. If the businesses don’t provide what the consumers expect, the consumers will go elsewhere to buy the goods and services. The consumer can customize products and orders and can read pages of books before buying them. If they are not satisfied, the consumer can move from one business to another with a click of the mouse.

This amazing consumer power mandates that the applications on the Web have dynamic content with rich visualization and extreme interactivity. In short, these applications have to be rich in all these capabilities. Let’s appropriately call them rich Internet applications (RIAs).

RIAs are [web applications](#) that have some of the characteristics of [desktop applications](#), typically delivered by way of an [Ajax framework](#), [proprietary software](#), [web browser](#), [plug-ins](#) and advanced [Javascript compiler](#) technology.

Once people become accustomed to the consumer-facing RIAs in business-to-consumer (B2C) interactions, they expect the same everywhere. These RIA expectations translate to interactions between businesses (business-to-business, or B2B) and employer/employee interactions (business-to-employee, or B2E).

Providing dynamic, interactive access with rich visualization and RIAs, B2C, B2B and B2E applications will require a robust back-end server with comprehensive access to

disparate data, scalability to support millions of people, reliability, security features and improved performance to provide all of this in a matter of seconds. This development is driving the BI future – no matter what we call BI! And on top of it, “democratization of computing” is arriving on tip toe in the form of open source!

Open source: Open source software (OSS) is defined as computer software for which the source code and certain other rights, normally reserved for copyright holders and provided under a software license, is in the public domain. This permits users to use, change and improve the software, and to redistribute it in modified or unmodified forms. It is very often developed in a public, collaborative manner. Open source almost represents the spirit of [“democratization of software access and development.”](#)

One of the prominent development platforms for open source is [Eclipse](#). More and more organizations throughout the world are looking to get involved in development and use of open source software. And they are not doing it only for the new applications, but also to replace the existing applications as the need arises. Not only is open source considered for new and to-be-replaced applications, but more and more for BI applications and reporting. And the majority of people in the organizations feel that the benefits of open source software outweigh the inhibitors. More (curiously, they happen to be younger) people are getting involved in the implementation of open source because of minimal cost involved, and they are using more and more mobile technology, creating need for mobile computing.

Mobile computing: Wireless computing has started to become as ubiquitous as the cell phones – and across the entire world! Wireless data access, including WiFi, is gradually becoming very popular; but as with cell phone networks, there will always be some geographic gaps in service. The difference is that while telephone service is necessarily synchronous (for the most part, voicemail notwithstanding), computer applications need not be. They can be asynchronous. Applications are evolving in order to support the mobilized workplace and lifestyle so that when users lose connectivity, they can still keep working. [Mobile computing](#) represents one’s ability to use technology while moving, as opposed to portable computers, which are only practical for use while deployed in a stationary configuration. Mobile computing in the form of banking or checking the status of packages is becoming the norm of today’s mobile workforce. Since the Internet has taken the entire world by storm, Internet-based software is, by default, becoming more and more desirable. On top of that the model becoming more and more popular is software as a service (SaaS) in the Internet world.

Cloud computing: The cloud is a metaphor for the Internet as it is depicted in computer network diagrams, and is an abstraction for the complex infrastructure that is lying underneath – SaaS (software as a service) and grid computing. It combines the concepts of content management, virtualization, collocation and outsourced web hosting to form a concept called “cloud computing.” Enabling factors include extreme broadband and wireless Internet access. Examples of companies using cloud computing extensively are Amazon, Yahoo and Google, just to name a few.

Content management: A content management system (CMS) is a computer application used to create, edit, manage, search and publish various kinds of digital media and electronic text. In order to provide various features necessary for the BI systems of today and tomorrow, CMSs have to support various types of media available today and types that will possibly be coming in the future. On top of it, the authors creating the “content” don’t need to know where the contents are located. These contents are providing service to the users at large.

Service-oriented architecture (SOA): Business intelligence is supposed to enable user self-sufficiency by providing interactive content through a service-oriented architecture (SOA). An SOA defines and provisions the IT infrastructure to allow different applications to exchange data and participate in business processes. An SOA separates functions into distinct units (services), which can be distributed over a network and can be combined and reused to create business applications. These services communicate with each other by passing data from one service to another, or by coordinating an activity between two or more services. SOA concepts are often seen as built upon older concepts of distributed computing and modular programming. This is called virtualization of IT resources.

In the virtualization of IT resources, the customers, employees or suppliers don’t need to know what is where as long as they have quick access to it, preferably via the Internet. The data is becoming a commodity because of the tools that are used to access it. It is affordable for people to buy computers – quality laptops are cheap, storage in gigabytes is not expensive and Internet access providers are vying to get customers by supplying high-speed bandwidth for pennies. People receive approximately the same quality of hardware and Internet access independent of which vendor they select. That is commoditization – delivering solutions to thousands and thousands of consumers!

With the use of SOAs, business intelligence has to support dashboards, spreadsheets and predictive analytics – as well as anything and everything that will help people make better decisions faster. But so far, with its B2E applications, BI has catered only to a limited group of users, known as power users. BI has to look beyond the power users. But what does BI need to be equipped with in order to address the needs of thousands of other users within organizations? Scalability! Scalability is also a must for the use of the technology by thousands upon thousands of the consumers with B2C applications. In order to have this massive scalability, it is important to realize that one can’t do everything. Some aspects of BI computing have to be outsourced! “Divide and conquer” applies in effective computing.

Business process outsourcing: Business process outsourcing (BPO) is a form of outsourcing that involves the contracting of the operations and responsibilities of specific business functions (or processes) to a third-party service provider. Originally, this was associated with manufacturing firms, such as Coca Cola, which outsourced large segments of its supply chain. In the contemporary context, it is primarily used to refer to the outsourcing of services.

BPO is typically categorized into back-office outsourcing (which includes internal business functions such as human resources or bookkeeping and accounting) and front office outsourcing (which includes customer-related services such as contact center services). Anyone calling the toll-free numbers at night realizes that they are speaking with an individual who is located 10,000 miles away with bright sunshine pouring through the windows!

With all of this, one question that needs to be asked is: Is all data that we are asking for neatly stored in rows and columns? The answer is unequivocally “no” – the world of data is not necessarily so neat! It is not necessarily that structured! Structured data is only tip of the iceberg! A major chunk, possibly 80%, is in unstructured format – far away from the neat rows and columns. And there are nuggets of information hiding that must be detected by the BI applications – that is unstructured data.

Unstructured data: The management of unstructured data is recognized as one of the major unsolved problems in the information technology industry. The main reason for this is that the tools and techniques that have proved so successful in transforming structured data into actionable information simply do not work when it comes to unstructured data.

I have written numerous articles on unstructured data that cover the topic in more detail. To read these pieces, please [click here](#).

There are a few differences between business intelligence today and “other” implementations. In the technology-based, fast-moving world of today, one has to run just to stay in one place. In this technology-based world, Internet services and the Web are accessible to not only millions but to billions of people of our planet. Thanks to this web world, business intelligence is no longer a luxury but is a necessity. By selecting appropriate business projects, appropriate infrastructure of hardware and software, and steadfast, disciplined project management, BI applications can be successful today. With that said, appropriate use of business intelligence can mean not only the difference between profit and loss but even the difference between survival and bankruptcy.

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[Why are Operational Business Intelligence Applications so Important](#)

[Operational Business Intelligence Applications: Business Case Assessment](#)

[Operational Business Intelligence Applications, Part 1](#)

[Operational Business Intelligence Applications, Part 2](#)

[Two Main Pillars of Operational Business Intelligence, Part 1](#)

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[Data Analysis: A Pivotal Activity for Operational Business Intelligence, Part 1](#)

[Data Analysis: A Pivotal Activity for Operational Business Intelligence, Part 2](#)

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Shaku is a world-renowned expert on business intelligence and on database technology. Shaku is the Founder and President of the [Atre Group, Inc.](#), and has written six, very successful books on database-related topics that are translated in many languages. She frequently speaks at conferences around the world, has been widely quoted in the trade press and has served as a columnist for many leading technology publications. Previously, Shaku was a partner with PricewaterhouseCoopers. She also worked at IBM for 14 years, where she taught at their prestigious Systems Research Institute. She also held various technology related and management positions at IBM in Europe and in the United States. Her award-winning book on database management systems, [Data Base: Structured Techniques for Design, Performance and Management](#) has become a definitive reference on the subject. Most recently, Shaku co-authored [Business Intelligence Roadmap–The Complete Project Lifecycle for Decision Support Applications](#).