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Introduction to Business Intelligence Today

Business intelligence is defined as “mission critical” by many senior executives today. The emphasis and interest in BI, as we will often refer to it, has placed it in the forefront of the list of major corporate objectives. This adjective is quite valid because the value of unlocking critical information held in corporate and external data sources can be a significant game changer. At the enterprise level, BI is often just a stated goal with little actual practice other than perhaps setting a standard for a suite of tools. Having an enterprise goal and set of standards does not end with creating an approved vendor list—it is just the beginning. BI at the enterprise level suggests that there is a common vision and set of goals in the deployment and use of BI on a broad scale within the entire organization.

In my opinion, business intelligence is the application of end-user query, reporting, dashboards, and other non-programming technologies to provide information that is not available to the business using traditional programming methods and services. BI requires a clear direction at the enterprise level with the realistic expectation of the skills required to deliver BI output that is mission critical. It also requires a support

infrastructure to ensure accuracy of results produced and that the proper skills are in place.

Let’s think about how you would proceed with a corporate-wide ERP or CRM system and the resources, dedication, and critical scrutiny you would apply in selecting, implementing, and supporting one of these major application solutions. Would you have the system installed, show a few people how to use it, tell everyone it’s now the corporate standard, and then trust its acceptance to mere synergy? I certainly hope not! Yet, this is often the case when a BI solution has been chosen.

In this book, I have taken the approach of opening a frank, personal dialogue with you. It is an open discussion about enabling BI at the enterprise level. It rarely mentions any product, but rather addresses the requirements and thought processes necessary to succeed at the macro level of BI. It is intended to assist in forming, articulating, and defending a global BI strategy and vision. For the most part, the days of acquiring a set of independent BI tools and turning them loose in the enterprise are over. However, the majority of clients I talk to have an already-established set of BI tools in-house. They may have from three to a dozen different BI tools with overlapping functions. One of the first steps in establishing enterprise BI sanity is a bit of winnowing out of the less productive or dated ones. I will have much more to say about this later.

One of the first rules of thumb today regarding BI enablement is to totally avoid the “Fire! Ready! Aim!” approach. Uncoordinated, anarchistic BI has never been effective, and it can be costly. Your end users can easily populate a spreadsheet in a myriad of ways and run amok without much assistance. When you do not have a plan for BI, this is the most common form of analysis within any enterprise. End users will always find their own way if they are not led in a positive, orderly manner.

If you believe that a BI solution can change your corporate world, there must be an internal paradigm you adhere to. Typically, BI is thought to have the following characteristics, at a minimum:

- An effective set of tools for accessing data and delivering business information
- A means to gain insight into areas of the business not accessible with existing systems
- Advanced analytics that, if applied, can actually “discover” new information

- The capability to make people more productive and less reliant upon IT
- The capability to provide a different interpretation of critical information than we have today

The corporate BI quagmire becomes deep when a mismatch between desire and commitment becomes apparent. I often get engaged in BI conversations where a client will talk about his avid interest in BI and how he feels it can make a significant difference in his success. Then, as I probe a bit about the overall plan, it becomes apparent far too often that much of the “plan” is based upon assumptions about what BI solutions really do, along with the ease of use factors the client believes will be in play but that have not been proven.

In this chapter, we discuss overall BI scenarios today, the view of the CIO, the IT perspective, the end user perspective, and establishing a vision. Lewis Carroll wrote in *Alice in Wonderland*, “If you don’t know where you are going, any road will take you there.” I would also add: “How do you know when you’ve arrived?”

Setting Expectations

“I am not sure what BI really is these days, but our execs tell me we need it.” This was quoted in a seminar on business intelligence by an experienced IT individual who had been forced to attend the event in mid-2009. You may be tempted to snicker at this naïveté in this day and age but, as the old saying goes, sometimes ignorance is bliss. When probed a little further regarding his inquiry, what he was really asking was: “Why is BI suddenly such a hot topic with our senior management team? We are already using several end-user tools and yet they want more!”

Having worked in this arena since 1981, I can think of countless customer engagements where this question arose in some manner or another. My answer in 2003 (Mike Biere, *Business Intelligence for the Enterprise*, Upper Saddle River, NJ: Prentice Hall PTR) was, “Business intelligence is a *word problem!*” What I meant was that BI transcends simple query and reporting. It eclipses dashboards and charts and portals. It is often applied to solve complex business problems and provide an answer heretofore unknown. It often requires complex logic to be applied. I also constantly ranted about the lack of BI skills that fell short

of the desire to deliver BI analyses. There is a certain level of skill required for the various degrees of BI complexity being addressed that many end users ignore until they get in over their heads. There is a continuing gap between user groups where "power users" still produce the bulk of the output for consumers, regardless of how much easier to use many BI tools are touted to be.

BI skills are not easily mastered; nor are they acquired by those who do not have the proper technical skills to work with a tool that may require extensive manipulation of data. This text is not a rehash of the first edition but a guide on BI today. The world of BI today is dramatically different than a few years ago and must be examined in a new light.

The emerging tidal wave of BI interest was beginning to dramatically build in 2003 and, at that time, the emphasis was on making people aware that BI efforts needed to be properly supported, that skills had to be assessed realistically, and that we must not assume that just anyone in the enterprise would be able to use a tool effectively. The ongoing myth of ease-of-use and universal applicability of a BI tool being a trivial exercise had to be addressed. The transition toward self-service, on-demand BI was beginning to take place, and it deeply affected the marketplace and how many viewed BI in a new light.

BI should be considered a "potentially" powerful weapon in the hands of all employees within an enterprise. In today's world, it is best to think of BI as an integrated solution suite, where its power and functionality may be utilized by anyone who touches data within a particular context. It is all about equipping individuals with the proper functions based upon their needs and skills. It is far less about equipping everyone to be a BI hands-on tools "mechanic." The push today is to drive BI deployments as broadly and deeply into the organization as possible. It is also about providing BI functions that add tremendous value without the end user having any skills in the tools being used. This is referred to as "embedded BI." The age of the BI consumer is here.

The business intelligence market is heating up but with an entirely new suite of players, such as options available on the open source market. Well-established vendors are piling on to this enormous market by acquiring others to fill in portfolio gaps, and thus we see a series of mergers absorbing some of the longer-standing independents. This is wonderful news to a BI vendor but, for anyone involved in the acquisition process, it can be a nightmare. There are decision points and options not available in the past, but the options have also become far more complex in many ways.

The Face of Business Intelligence Now

Business Intelligence today is vastly different than in years past in so many ways, as follows:

- Mergers and acquisitions have dramatically altered the marketplace.
- Economic influences have driven initiatives such as server consolidations and BI tool consolidations.
- BI solutions have emerged as integrated platforms, not loose collections of tools.
- Service providers have offered alternatives (Software as a Service—SaaS) to in-house infrastructure and support.
- Initiatives such as cloud computing have changed the deployment strategies for many.
- Appliances have emerged with “black box” BI solutions.
- Real-time or near real-time BI projects have appeared.
- Increased emphasis has been placed upon the merger of BI and collaboration.
- ...and many more.

At the enterprise level, we see a keen interest in providing a corporate infrastructure for BI solutions that is extensible, cost-effective, secure, highly available, and scalable. BI for the Enterprise is all about having vision and goals to attain that vision. Recent surveys have shown BI to be the top priority of most CIOs—CIO surveys for the past four years have placed BI at the top of the list. I suggest that you use your favorite search engine to query CIO surveys rather than have me cite specific ones. With these surveys suffice it to say, there have been many, and the responses have consistently placed BI and analytics at the top of the list (see Figure 1-1).

Why do we find BI to be such a critical initiative after all these years of applying end user-oriented technology to solve business problems? Don't most enterprises have it under control today? The answer is, no.

BI is on the agendas of the majority of CIOs because they have become extremely aware of its importance in providing a competitive differentiator at all levels of the business. They read about some competitor who is using a BI infrastructure to cut costs, improve customer

A Typical CIO Survey

Topics you may see listed on a CIO survey today might encompass the following when asked “What do you believe will add the greatest impact upon your business today?”

Risk management and compliance
Customer and partner collaboration
SaaS (Software as a Service)
Cloud Computing
Mobility solutions
Self-service portals
Application harmonization
Business process management
Virtualization
Business Intelligence and analytics
Service-oriented architecture/Web services
Unified communications



Business Intelligence and Analytics has emerged as #1 every time!

Figure 1-1 A typical CIO survey

satisfaction, shorten sales cycles, and more. They may have had some success internally with a new BI project and now want more.

Regardless of the vision held, there is an ongoing dilemma with most BI initiatives—effective deployment. As shown in Figure 1-2, there is a definite “gap” in the intended usage of BI technologies and the actual application of them. The casual users are often locked out of participation due to a number of factors, as follows:

- The data provided is too difficult to work with.
- The end user has no time to develop skills other than rudimentary usage.
- The tool provided is too difficult for the user based upon his level of technology skills.
- The business problem faced is too complex for the casual user.
- The software provider has overstated their case for ease of use and deployment.
- The training is inadequate, and there is no support organization, such as a BI competency center.
- All of the above.

The BI utilization and uptake 'gap'

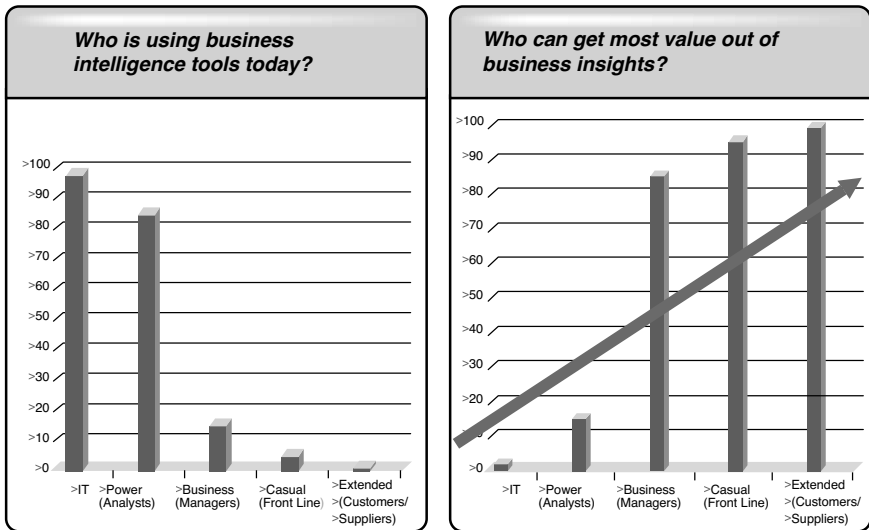


Figure 1-2 The BI utilization and uptake gap

As shown in Figure 1-2, there is a wide gap between deployment and usage, with a preponderance of BI usage on the IT and power user end of the chart. The desire by most is to drive the bar to the right. For a vendor, this often translates to trying to make their wares easier. For the organization, it most often translates to thinking, "There has to be something out there that our end users can use more effectively."

Shifts in closing the gap and moving to the right will not occur by maintaining the present course and speed, hoping that momentum will naturally build. Any BI tool has its unique strengths as well as a set of end users who find it to their liking. To assume that others should be able to use a BI tool because a few have taken to it easily is a severe error. "We don't understand why those other folks in sales aren't using our new BI gadget! Why, Ray and Frieda worked with it for a week, and look what they can do now!" There is a natural tendency to cover your struggles on the job when you see others having great success with a new gadget. Allowing users to flounder because they don't quite "get" the tool is inexcusable. I'll cover this more when we discuss the impact of BI on roles within the enterprise.

The Characteristics of a BI Vision and Strategy

BI visionaries today see an enterprise approach from vastly different perspectives depending upon where they reside in the corporate infrastructure. If you are a part of the IT organization, the emphasis is clearly upon the technology. How does any proposed BI tool comply with our standards? What is its behavior within our infrastructure? Does it use our data sources effectively? How does the vendor support it? The usual IT concerns apply.

From the perspective of end users, the issues are more functionally oriented and business related. They want to know how to use the tool. How easy is it to learn? How do they access their data and how do they perform a specific task? What do they need on their workstation? Can they access their BI “stuff” from their PDA? It’s all about usage and results.

So, now we face a real conundrum with our BI plans. The CIO and other “C Level” individuals have made BI a priority for our enterprise. We already have a smattering of tools, each with their own population of loyal users, as well as processes and possibly applications in place. Do we just make changes in how we operate and support BI within the organization, or do we take a step back and map our vision to a set of clear goals and objectives? Why not start with a clear, concise vision statement? I’m not talking about one where someone has it printed in pretty lettering and hangs it on the walls in corporate meeting rooms (well...maybe I am), but where everyone involved and responsible could articulate it when asked: “What is your strategy—your enterprise vision of BI?”

It may sound a bit trite, but I have seen some very senior people go blank when I ask them this question. It is imperative that a person be able to articulate his BI plan, or we will watch him continue down the same path with little or no hope of change.

A sample vision statement might look something like this:

Our corporate vision for BI is to create and support an infrastructure with secure and authorized access to data held anywhere in the enterprise. Our corporate standard for a BI tool is _____. We staff and measure our BI competency center based upon end-user satisfaction surveys and successful deployments. An important segment of our end-user community requires near real-time data access. Therefore, we have provided such an infrastructure to accommodate them. We currently support ____ users representing ____ % of our

user population. Our goal is to increase the usage by ____ % by (date). We weigh the potential costs of increased BI usage against the business value and ROI we receive. Thus, we have a clear view of our success that is measured, accountable, and defensible.

If your view of BI is the provisioning of a suite of tools and gadgets that are low cost and designed to get the end users out of your hair so you can do the real work, this book is not for you. If, however, your goal is to establish something akin to the vision statement articulated previously, please read on.

Setting the Stage for BI Success

No successful BI endeavor occurs within the full synergistic cooperation of IT and the business users. This is particularly true at the enterprise level, although you will find occasional pockets of success where the end users prevailed despite their poor relationship with IT. You need to keep in mind that everyone involved should be acknowledged as having taken part in a challenging journey that has reaped significant rewards and is far from over.

I reference the enterprise throughout this book. The enterprise encompasses all facets, all functional areas, and all business processes that interact to drive the entire organization. I mean that an enterprise cannot provide an effective infrastructure for BI by allowing multiple tools to be disseminated throughout the organization. I mean that an enterprise cannot have BI success without a plan and a proper support organization in place. I do not mean that you need to drop all BI tools except for one thought that would make life far easier. I do mean that it is not wise to maintain 5 tools that perform query and reporting just because they have all been adopted over time. It is an organizational nightmare to continue to maintain a poorly planned BI infrastructure that is not cohesive and clearly understood by all throughout the enterprise.

Within the IT Organization

IT must be equipped to handle BI from an infrastructure perspective as well as a business standpoint. The primary factor driving most IT decisions today is cost. Perceived platform costs (for example, a distributed environment versus a mainframe) often drive a BI decision without

any thought being given to the incremental work and loss of productivity associated with data capture, replication, increased server growth, staff to support a large distributed environment, lag time in replicated data, and more. Looking at BI through cost-covered glasses will often result in a disconnection within the organization.

Such a disconnection is usually due to the lack of emphasis upon aligning the BI infrastructure with clearly understood business goals. One CIO told me: “All anyone seems to pay attention to is my overall cost; they don’t understand the value my organization brings to the business.” Was this the CIO’s fault, or was the organization myopic in their view of IT? I don’t know, but I suspect it may be a little bit of both.

Here is an example of aligning BI efforts in IT with key business areas. There is the emerging trend of operational intelligence where there is an increased emphasis on near real-time BI to provide a better experience for customers. Customer service reps are being equipped with up-to-date information about a customer’s buying records so they can have a closer, more personal conversation with the prospect.

In order to deliver operational intelligence solutions, IT often has to make significant changes in their infrastructure. For an enterprise whose directions in data warehousing and BI have been to offload data from a mainframe, reversing course to take advantage of the information without offloading is not a trivial pursuit. If such realignment is required, then the effort and additional cost for IT must be understood and approved. IT must be made to understand the significance of such a change, and the end users need to support this fully.

In an operational intelligence scenario, it is imperative to place the BI functionality as close to the data as possible at point of capture. These applications traditionally utilize more highly detailed data than what may be fed to a data warehouse. In many scenarios, an operational data store (ODS) is provided as an intermediary source for capturing the data in a real-time mode and then being a source to an operational scenario as well as trickle-feeding a data warehouse. I will cover this more in-depth in Chapter 4, “The Scope of BI Solutions Today and How They May Relate to You,” when we discuss the scope of BI solutions today.

If we map the business requirement (an operational scenario) to the current infrastructure, and we have a clear understanding of the business

value and ROI associated with it, the challenge now facing IT is to construct the most effective delivery system for the end users, where business value is the primary driver and cost is second.

Within the End User Community

The first and foremost issue end users have to grapple with is being able to articulate their requirements and associated business value to complete the IT mission in crafting an enterprise BI framework. “We just need to get to the data and get some reports out and maybe create a few dashboards for our management team.” There is nothing in that statement that suggests one iota of business value, yet it is often the best that many end users can articulate.

If you are an end user, spend some time assessing how much time and effort you are willing to invest in any BI project; make sure you have the time. Once you have a clear evaluation and realistic view, it is time to spend some quality time with your IT folks to understand the data they will provide and how you will access it. It will be critically important to map your analysis requirements to the proposed data structure. Later, I will discuss BI efforts based upon roles and skills within the organization.

Figure 1-3 shows a theoretical graph of BI skills in contrast to the complexity of the business problem and analysis required. This is not an uncommon mismatch seen in many organizations. When we look at the right-hand side of the chart, we see a horrendous mismatch between the user skills and the problem at hand. If we have a realistic view of our own situation, we may evolve a better approach to our proposed BI infrastructure. In particular, we may drastically alter our data structure we provide.

You will not make up for the skills gap in such situations by acquiring a tool that is considerably easier to use than what you have in-house (unless you are writing in the assembler language or Sanskrit). Such a tool does not exist. At this point, it is more important to have a proper business case handy for the potential ROI for the required BI process and to make sure it is understood and agreed upon. If the return is high enough, additional resources are easily justified.

Skills versus Complexity of the Business Problem

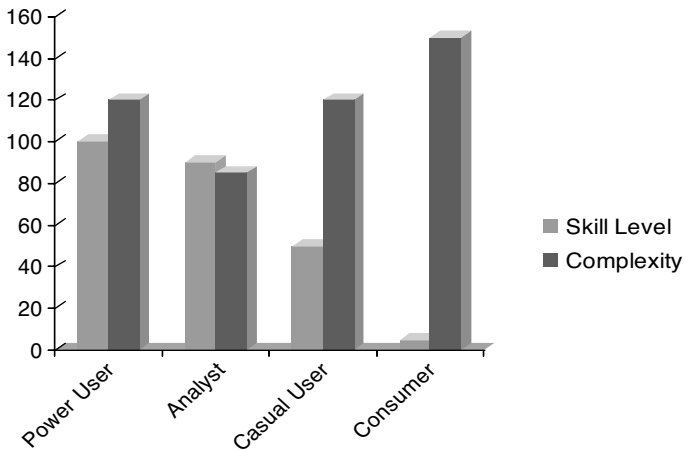


Figure 1-3 Skills versus complexity of the business problem

Summary

As we continue our story about how best to enable and utilize BI at the enterprise level, it is beneficial to keep our vision statement in mind. If you really don't have one, it may help to take a moment and see if you can write one down. BI at the enterprise level is drastically different than departmental, localized efforts. It requires a holistic view of the organization, as well as a more altruistic approach to creating a BI infrastructure that benefits all associates.

The primary goal of BI at the enterprise level is to deliver critical business information and analysis from all data sources in context and in a timely manner. It requires a rock-solid infrastructure, a set of common goals by all, and a crystal-clear vision statement in which everyone truly believes. Terms such as “best effort” and “attempt” have no place here. It is not a game of horseshoes, where coming close to the stake may earn you a point; it is about speed and accuracy. Coming in #2 in a race may bring you more money than the others, but you are still behind #1. Being #1 is what it's all about.

We now begin looking at business intelligence in today's world and define it in today's terms.