



## **Assessing Business Intelligence Readiness in Your Organization**

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### ***Introduction***

Since early 2002, business intelligence has steadily moved to the top of executives', including CEO's, CFO's, and CIO's, priorities. Part of the increased visibility of business intelligence is driven by regulatory requirements, especially the Sarbanes-Oxley Act of 2002. Another equally important driver for increased attention for business intelligence is the marketplace. Most organizations spent the latter 1980's and much of the 1990's automating and streamlining back office processes in an effort to achieve a sustained competitive advantage. To maintain their advantage many companies started looking to customer relationship management and its enabler business intelligence.

Due to organizations' initial focus on transactional systems and their related issues, early business intelligence projects failed to achieve a satisfactory return on investment. This paper examines business intelligence as an enabler of competitive advantage, components for a successful business intelligence program, and elements of a business intelligence readiness assessment.

### ***BI Trends***

BI has actually been around for quite a while. Initial forays into delivering BI involved simple query and reporting. One person described business intelligence as evolving in 15 year arcs. The first one (Q&R) began in 1975 and continued through 1990. The second arc, which started around 1990-1, involved query, reporting, and analysis (Q, R, & A). We are seeing the end of that arc now. With its conclusion, many in the field believe that the BI marketplace is poised for a transformation that will bring new significance for the organization — predictive analytics.



Gartner surveyed 1400 CIO's in 2006 to understand current IT investment strategies. Highlights of the results are in the diagram below.

To what extent will your investment in each of the following technologies change in 2006?

|   | Ranking |      | Spending |
|---|---------|------|----------|
|   | 2006    | 2005 | Increase |
| Business Intelligence                   | 1       | 2 ▲  | +4.8%    |
| Security Enhancement Tools              | 2       | 1 ▼  | +4.5%    |
| Mobile Workforce Applications           | 3       | 3 ↔  | +3.9%    |
| Collaboration Technologies              | 4       | *    | +3.6%    |
| Customer Sales and Service Technologies | 5       | 8    | +3.4%    |

\* New question for 2006

Source: Gartner EXP 2006 CIO Survey of 1400 CIO's across 30 countries

### ***Definitions for Business Intelligence (BI)***

Numerous definitions exist for business intelligence (BI). Gartner says "The key to thriving in a competitive marketplace is staying ahead of the competition. Making sound business decisions based on accurate and current information takes more than intuition. Data analysis, reporting and query tools can help business users wade through a sea of data to synthesize valuable information from it — today these tools collectively fall into a category called 'Business Intelligence.'" Gartner Group report (September 1996)

The Data Warehousing Institute, a provider of education and training for data warehousing and business intelligence, describes it as "The processes, technologies, and tools needed to turn data into information, information into knowledge, and knowledge into plans that drive profitable business action. Business intelligence encompasses data warehousing, business analytic tools, and content/knowledge management."<sup>1</sup>

The definition is really simple! It is getting the **right information** to the **right people** at the **right time** so that they can make **good decisions** that **improve organizational performance**.

### ***Different Perspectives of BI***

With BI as a pervasive driver for an organization, employees tend to have varying perspectives regarding what BI is, its usefulness, and the tools necessary for accomplishing it. These different views of BI can be categorized as business and technical or as segments

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<sup>1</sup> The Data Warehousing Institute Faculty Newsletter, Fall 2002



of end users — executive management, middle management, knowledge worker or power user, and transactional user.

There is a seeming business/technical dichotomy that would lead many people to think that BI is viewed differently by business managers and IT professionals. To a certain extent these two groups approach BI from opposite ends of the spectrum. The end point for both groups, however, is the same — better business decision making that improves the organization's performance. The challenge for business managers and IT professionals alike is to learn the coordination and collaborative skills needed to begin, implement, and sustain a successful BI program.

Let's briefly look at the definition for BI from a technical perspective.

...[A] broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions...<sup>2</sup>

Obviously, IT professionals have a tools and technology focus, but look at the last line in the quotation, “[U]sers make better business decisions.” This is similar to the business view of BI.

How does that translate for a manager or executive? Almost 15 years ago business managers realized that standard accounting and financial information was backward looking. As the pace of business and the marketplace increased, they looked for ways to get more current views of their operations. Similarly, marketing executives began to understand that CRM and its associated operational reporting was backward looking, while customer experience management and its associated analytical reporting was more forward looking and predictive. Metrics and KPI's (balanced scorecards) were simply the beginning.

From the knowledge workers' perspective BI has the potential for solving common and well-known problems, such as,

- ❑ Multiple versions of “the truth” in meetings—no single set of business rules nor definitions
- ❑ Empowers end-users to do own analysis
- ❑ Eases task of data selection
- ❑ Drill-down
- ❑ Limited knowledge of SQL or tables required

Analysts and power users in the business tasked with gathering and analyzing data find themselves dealing with these issues constantly.

From the IT perspective, BI holds the promise of resolving equally compelling problems, such as:

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<sup>2</sup> searchcrm.techtarget.com glossary ([http://searchcrm.techtarget.com/gDefinition/0,294236,sid11\\_gci213571,00.html](http://searchcrm.techtarget.com/gDefinition/0,294236,sid11_gci213571,00.html))



- ❑ Standard reports that do not meet business users' requirements
- ❑ Custom reports that take too long to produce
- ❑ Report development activities that consume too many IT resources
- ❑ Business users' need for daily production reports and exception reporting in dashboards, scorecards, and alerts
- ❑ Business users' inability to drill down from summary data to consistent details for clean, accurate, and timely data
- ❑ Data manipulation is required, creating an extensive use of Excel (can be problematic vis a vis internal controls audits necessary for Sarbanes Oxley) "Spreadsheets are the duct tape of BI"
- ❑ Business users complaining that they have no tools or time to do detailed analysis
- ❑ Business users discovering that there are multiple data sources, complex table structures with no central repository for business and technical information

Those of us in the Oracle technology and applications arena have heard numerous tales of the:

- ❑ inadequacy of the Oracle Applications' standard reports
- ❑ backlog for custom reports that develops in the IT department with users turning to alternate tools, such as Discoverer, only to realize that they lack comprehension about the underlying table structure needed to get consistent details

BI is the gray matter of an organization. As the human brain requires oxygen and blood flow to function, BI needs online transaction processing (OLTP). Further, irrespective of where you find yourself within an organization, the goal for BI is the same – better decisions for better business.

### ***Who Uses BI and Why?***

Operational reporting users most often ask, "What happened?" This question typifies the operational employee's perspective. She is primarily dealing with end-customer commitments and internal company relationships. The thought pattern for an operational focus is that of workload scheduling, in-and-out baskets, and daily tasks completed on time and under budget. The operational worker is concerned with gathering data.

Analysts, sometimes called power users, are principally concerned with asking, "Why did this happen? And can I find a trend?" This view is the knowledge worker's perspective. It includes evaluating data and trends both within and without the organization. The knowledge worker focuses on converting data into information.

Middle management asks a somewhat different question — "Given the trends what is likely to happen?" This view is the architect's perspective. It embraces a department or area along with the workflow process for which it carries responsible. The architect's thought pattern is one of internal controls, quality checkpoints, and workflow efficiency. Ultimately, the



architect wants to use information to arrive at a sense of knowledge about the organization and its environment.

Executive management is charged with understanding what is happening within the organization and in the marketplace, examining the trends, and determining “where should we be going?”

This view is characterized as the business owner's perspective. It encompasses the full enterprise, adapts to changes, both internal and external, over time. The thought pattern is one of forecasting, strategic direction, and execution effectiveness. The business owner must be able to formulate middle management's knowledge into effective action for the organization.

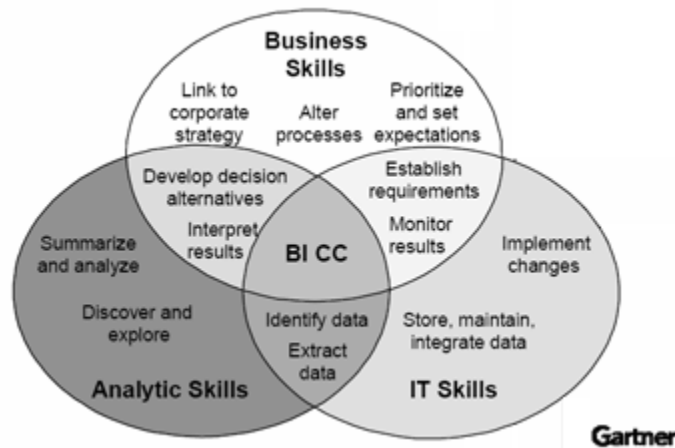
Forrester believes that end user classification and profiling is the key to BI success. While it is extremely important, a BI program will not fail due to misclassification of end users alone.

Businesses are beginning to move beyond “What happened?” to more complex questions, such as “How are today's events and actions likely to affect the organization tomorrow?” Further, “What will be the best course of action going forward?”

### ***Necessary Components for a Successful BI Program***

Another challenge associated with a successful BI program is the different skills necessary for implementing and sustaining business intelligence in an organization. The challenge becomes greater with the realization that BI requires a different kind of thinking.

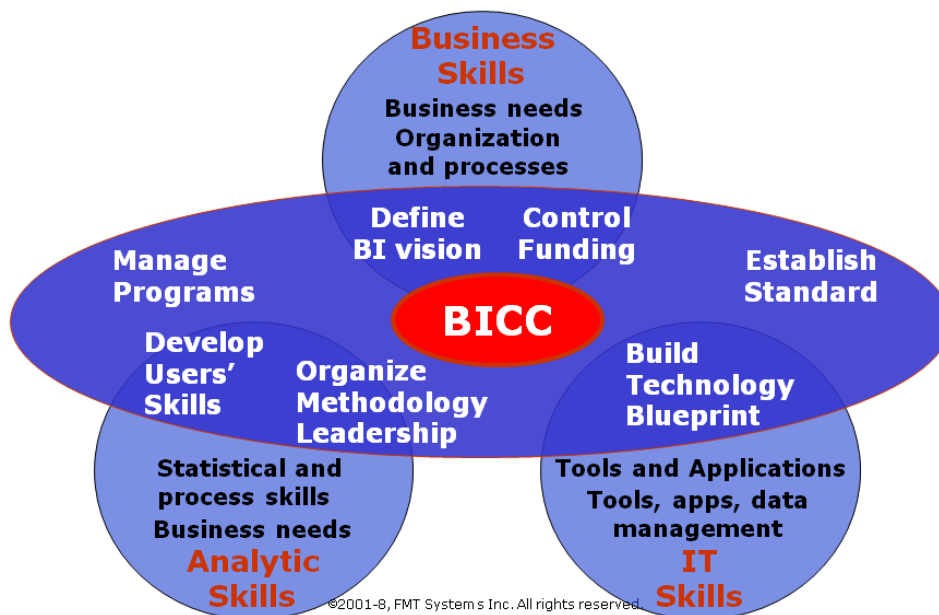
A few years ago the Gartner Group tried to organize the different skills sets required for success into three overlapping islands. It is not mandatory that all three skills sets exist in a business sponsor or even in one person, but the entire team **must** contain all of these skills in some combination. Companies can use this diagram as a survey for potential team members to ensure that all the appropriate skills are present somewhere on the BI team.





These skills are analogous to three legged stool — remove any one leg, or have one leg weaker than the other two, and the whole structure comes crashing down!!!

However, as BI has evolved so has the thinking of those working in the space including Gartner's. The current view, as illustrated in the diagram below, assumes that companies have addressed, or are in the process of addressing, the BI skills issue and are ready to move toward process issues.



Further Gartner is encouraging organizations to develop and refine these processes within a framework called the Business Intelligence Competency Center (BICC).

### Function of the BICC

- ❑ Provide vision and strategy along with the business plan for integrated BI initiatives
- ❑ Define standards and establish the overall BI applications architecture
- ❑ Define and manage the product portfolio
- ❑ Provide program management across business, IT, and service providers
- ❑ Define information standards, including data, business rules, governance, and quality
- ❑ Drive competency and consistency through education and support
- ❑ Develop BI into a CORE COMPETENCY!



## ***Critical Success Factors for a BI Implementation***

Before going into a discussion about critical success factors, let's consider some of the common assumptions that ensure failure<sup>3</sup> for BI projects. They can be summed up with the following statements.

"Give me a dashboard"

"Darwin was wrong: BI doesn't evolve."

"Our enterprise application vendor will do it all."

"If you build it, they will come."

"We can outsource this whole darn BI thing!"

"Managers need to 'dance with the numbers!'"

"Data quality problem? We don't have one."

Business intelligence is more than publishing a set of dashboards. It is constantly evolving. As we saw earlier in the BI trends discussion, understanding of business intelligence and how we arrive at our understanding of BI has changed enormously over the past 20 years. Despite the fact that enterprise applications suppliers' marketing departments are trying to convince the marketplace, no one vendor can meet all the needs of all user categories. Further, BI is so thoroughly mission critical that outsourcing it is dangerous for an organization that intends to use it to sustain competitive advantage. Managers need to dance with the corporate strategy and use the number to adjust the roadmap. Anything else is sheer folly! Finally, every organization discovers its data quality problems upon embarking on a BI initiative.

## **Success Factors<sup>4</sup>**

The necessary success factors for a business intelligence program are actually quite similar to the requirements of any program that involves the use of technology and seeks to change how the organization functions on a daily basis.

- Capable, Astute Business Management Sponsor
- Strong Business Driver
- Feasibility
- Functioning IT/Business Partnership
- Current Analytic Culture

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<sup>3</sup> Hostmann, Bill, Research Vice-President, Gartner Research; 19 July 2006, ComputerWorld IT Management Summit, "Unlocking the Value of Business Intelligence"

<sup>4</sup> Kimball, Ralph, **The Data Warehouse Toolkit**, 2nd Edition, 2002



“Our CEO is a real data dog!” says a Sara Lee executive. The CEO at Sara Lee has convinced, not only the senior executives but, all of the management team that their competitive advantage depends upon using BI well. The Boston Red Sox realized that money combined with analytics is better than just money. At Harrah’s, Gary Loveman asks his team, “Do we think or do we know?” Each of these examples illustrates ways in which critical success factors come into play in an organization.

### **Business Management Sponsor**

This person is one of the most critical factors for success. She needs a clear vision of the potential impact of a BI program on the organization. In addition, he must be passionate regarding the program’s value. She must, further, be capable of communicating the vision and gathering commitment from the entire management team.

For credibility the business management sponsor should have a track record of success with other company initiatives. Finally, unless he is astute politically and can work well with his peers in persuading them to lend their assistance and support, the proposed BI project will not materialize.

### **Strong Business Driver**

For a business driver to motivate members of an organization, it must be real and pose a genuine threat of pain — financial, regulatory, or operational — if it is not addressed. Senior and middle managers must understand how BI will solve their immediate need or pain point. When they do, they will align themselves and their teams to support a BI program. Furthermore, limit the scope of the initial BI implementation to the most serious pain points.

### **Feasibility**

The feasibility of a BI program depends upon three separate issues.

- ❑ Skill sets
- ❑ Data
- ❑ Ability to communicate about the data

The skill sets needed for BI have been discussed already. However, understanding data issues and being able communicate not just about the issues, but the data itself, is equally crucial. Some of the data issues experienced by companies that started a BI initiative are:

- ❑ Is the data available? If it is being collected today, where is the repository? Or can the data be derived from source data?
- ❑ What state is the data in regarding cleanliness, consistency, granularity, and referential integrity?
- ❑ What does the data model look like?

In most instances, organizations begin looking at a BI initiative several years after an OLTP system has been implemented. Data needs for a transaction processing are different than



those for analysis. Hence, users discover that the data they need is not available because it was not collected. In addition, users find that when data is “moved” from a variety of transaction systems into a repository (a.k.a. data warehouse) for analysis, it is inconsistent or too granular or not granular enough. In an ideal world companies would be able to map their business intelligence and analytic reporting requirements before they install a transaction processing system. In the real world with OLTP already in place, discussions between business users and IT professionals about the data model become critically important. Discussion about the organization’s data model can form the foundation of a successful business/IT relationship.

### **Functioning Business/IT Partnership**

Data modelling is a means for stakeholders, business users, and technical users to communicate about the organization’s data.

The conceptual data model assists business users with their understanding and definition of the data requirements. From the conceptual data model, business users can determine the kind of model that must be built to satisfy the BI needs of the organization. Once the conceptual data model is complete, a data architect, usually an IT professional, can use it to build a logical data model. The logical data model represents the true structure of data, independent of software or hardware implementation constraints. It is possible that multiple logical data models are needed to implement one conceptual data model. The logical data model also defines data entities and their relationships, along with their key attributes. When the logical data is complete, it can be given to a database architect who will use it to create a physical data model that represents a data design which takes into account the facilities and constraints of a given database management system.

As the discussion about the data model moves from the conceptual understanding by the business users to the physical data model implemented by the database architect, all parties involved in the BI implementation can arrive at a common appreciation for the business goals and drivers that are to be satisfied by the BI implementation.

Management will learn which facts must be measured by which dimensions. The common dimensions, i.e., periodicity, geography, lines of business, or customer segments will be determined and the differences that might exist can be identified before the BI implementation gets underway.

TDWI<sup>5</sup> has an excellent course on data modelling. Also, the Oracle Development Tools User Group (ODTUG)<sup>6</sup> usually has sessions at their June conference where data modelling and its related issues are discussed.

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<sup>5</sup> <http://www.tdwi.com>

<sup>6</sup> <http://www.odtug.com>



## **Current Analytic Culture**

As discussed earlier, end user definition is not a key to success. Tools and applications cannot guarantee success. However, we have seen how focussing on process and basic process control can form a solid foundation for bringing together all the critical success factors necessary for achieving ROI on a BI program.

All affected parties in the organization must be a part of the processes that are the underpinning of a BI program. From executive management aligning and defining the BI vision with the current corporate strategy and maintaining funding control to middle management and analysts managing the BI program initiatives, developing users' skills, and organizing methodology to drive consistency to IT establishing and monitoring standards and building a technology blueprint, all constituencies in the organization must have a stake in the success of BI. Also by keeping the focus on business processes, the organization has a better chance of keeping politics out of a nascent BI program.

## ***What is a BI Readiness Assessment?***

The purpose of a business intelligence readiness assessment is to enable business managers and IT professionals in an organization to:

- ❑ Clarify the organizations goals for a BI initiative
- ❑ Develop a consistent methodology for the initial BI implementation effort
- ❑ Identify current team skills and deficiencies and prepare a roadmap for filling gaps
- ❑ Identify and develop needed processes necessary to sustain the organization's BI program
- ❑ Research technical architecture and tools for current BI needs and develop a roadmap based upon the organization's changing BI requirements over the next 2 to 3 years
- ❑ Identify potential data quality issues in existing OLTP systems

The activities described above represent numerous hours of work on the part of executive management, middle management, and IT professionals employed by an organization. Further, it is sometimes essential to create "quiet space" between the conclusion of one activity before starting the next one. This allows everyone involved to take a moment to evaluate and review the organization's progress to ensure that the efforts toward BI readiness are on track and do not get derailed by a "crisis du jour."

The goals clarification portion of the assessment involves developing a core team that will in time become the organization's founders of the business intelligence competency center (BICC). In addition, interviews and meetings should be held with representatives from all affected levels and units that comprise the organization to learn their concerns and expectations regarding business intelligence requirements for their specific area as well as the company as a whole.



A consistent methodology, like data modelling, provides the basis for a common language among users and producers of business intelligence. It can also provide a means for measuring the progress of a BI project.

Another critical part of the readiness assessment is the identification of skills and deficiencies in the core team. Some tools useful to the identification process are interviews, surveys, and questionnaires that address issues of potential team members' expectations, goals, skills, and learning styles.

Developing business processes to support the BI implementation project and its transition to a program is one of the critical success factors to ensure that BI achieves ROI for the organization and becomes an enabler of sustained competitive advantage. This portion of the assessment is iterative as it is affected by the changing BI requirements that the organization will experience going forward.

Researching technical architecture options and tools is equally important. When mapping the architecture for the initial BI implementation, issues such as usability and scalability must be addressed. Further, categorizing tools in terms of the organization's user community is essential. No one tool will work for everyone and finding the right tool mix can be challenging.

Although data quality has been mentioned before, it cannot hurt to reiterate that this portion of a BI readiness assessment must not be skipped. Every organization has data quality issues. The forward thinking and competitive organization starts addressing data quality earlier rather than later in the assessment process.

The deliverables that must result from a BI readiness assessment include a high level implementation plan, a draft RFP that creates a level playing field for any upcoming supplier "proofs of concept," a skills gap analysis along with a learning and (possibly) hiring plan, and a high level roadmap for accomplishing the necessary transition from the initial BI implementation to an ongoing BI program.

## ***Conclusion***

While BI may start as a project in business unit or the IT department, to achieve a satisfactory ROI it must evolve into a key initiative for the enterprise. Several critical success factors must be present to implement BI and sustain it — a business sponsor who can communicate a sense of urgency to the rest of the organization, a business driver with a real pain point, an appropriate scope, a functioning partnership between business and IT, and genuine desire to use analytic information as the basis for business decision making.

Organizations that successfully manage their business intelligence programs will have a significant competitive advantage. However, a BI program is the end of a long road that begins with an organization assessing its readiness for business intelligence. The BI readiness assessment provides the foundation for not implementing a successful BI project, but building a core team that can create a BICC that will support the enterprise's BI program going forward.



### ***About the Author***

Faun deHenry is the president and CEO of FMT Systems Inc., a woman-owned California corporation that provides business process integration consulting to organizations throughout North America, Europe, and the Pacific Rim.

Ms. deHenry started work in the data warehousing and business intelligence arena in 1996 when she participated in an evaluation of business processes, technical architecture, and reporting tools for a data warehouse initiative for a global clothing manufacturer. Since that time Ms. deHenry has worked with manufacturing, financial services, and utility companies to assist them with business intelligence and data warehousing initiatives to improve their operations.