

White Paper: Modern Business Intelligence

Intro

This paper presents an overview of Business Intelligence. Beginning with the history of BI, then giving a definition up to the present day, and forecasting BI's future development, the paper offers insight into some of the market demand trends that are shaping the BI solutions of tomorrow. Last, the paper provides a summary of the major BI vendors, and their current market perspectives.

History and Evolution

The earliest reference to non-business intelligence occurs in Sun Tzu's *The Art of War*, written during the 6th century BC. Sun Tzu claims that to succeed in war, one should have full knowledge of one's own strengths and weaknesses and full knowledge of one's enemy's strengths and weaknesses. Lack of either one might result in defeat. A certain school of thought draws parallels between the challenges in business and those of war, specifically: collecting data, discerning patterns and meaning in the data (generating information), responding to the resultant information.

Before to the start of the Information Age, businesses often had difficulties in collecting data from non-automated sources. Furthermore, businesses lacked the computing resources to analyze their data properly, and often were forced to make business decisions based primarily on intuition.

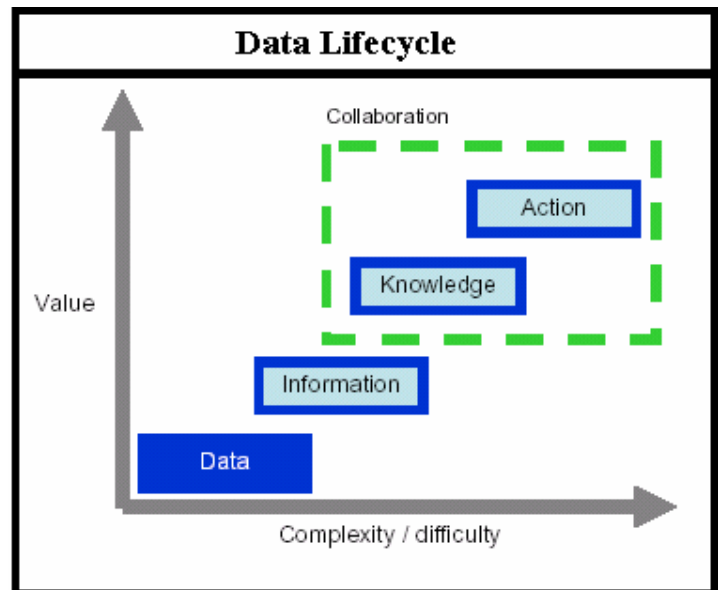
As businesses began to automate more systems, more data became available. However, collecting that data was still a challenge, due to a lack of infrastructure for data exchange or as a result of incompatibilities between systems. Analyzing gathered data and developing reports sometimes took months to generate. These reports did allow for informed long-term strategic decision-making, but short-term tactical decision-making continued to be based on intuition.

Leading into the present, technological advances, automation, and better standard setting have created vast quantities of available data. Data warehouse technologies such as Data Cubes provide a means by which to store this data. Improved Extract, Transform, Load (ETL) and, more recently, Enterprise Application Integration tools have enhanced the rapid collection of data. OLAP reporting technologies have allowed for faster generation of reports by which to analyze this data. Business intelligence has now become the science of sorting through large amounts of data, extracting the relevant information, and transforming that information into knowledge upon which actions can be taken. In this way, data can progress through a lifecycle of increasing value, as depicted in the chart on page 2.

At its core Business Intelligence is the extraction of useful information gathered from data sources that adds value to the company. Business Intelligence *technology*, in its

simplest form, facilitates the gathering of data from its original source(s) and its presentation to business users.

Complete Business Intelligence solutions today have evolved to gather information from disparate internal (operational systems) and external (market intelligence) data sources, to help analyze information in the appropriate context, to present this information to business users in various departments and at various levels in a format to fit their needs and to facilitate collaborative decision making – **with the goal to improve performance**. In improving performance, a new concept rises in prominence– Performance Management.



BI and Performance Management

Ventana Research asserts that Performance Management will be the competitive differentiator for this decade. They define it:

Performance Management is the leveraging of assets to better understand, optimize, and align strategies and processes to improve effectiveness throughout the enterprise to create additional value for the company.

The key section of the above definition is, "...to improve effectiveness *throughout the enterprise...*" This is the concept that defines effective Performance Management. In the past, performance enhancement initiatives were largely implemented in single departments or divisions of companies, without an overarching strategy behind them. Performance Management effects improvement on a company-wide scale, using metrics and standards spanning from end to end of an organization. Taking an interdepartmental collaborative approach, Performance Management initiatives synchronize both process and strategy toward the goal of overall company efficiency.

Performance Management initiatives are driving adoption of BI technology. Based on a study conducted by Ventana Research, Business Intelligence is the most utilized software approach today and planned in the future for measuring and monitoring business activities and processes to improve performance. However, the adoption of Performance Management initiatives necessitates a new approach to Business Intelligence.

Past BI deployments were often limited to individual departments, resulting in information localized to a specific problem or area. As new needs or problems came up, companies created or purchased a separate BI tool to address them. What companies are starting to realize is an abundance of disparate BI tools, which is decreasing the value of Business Intelligence. This goes against the very essence of Performance Management. Performance Management is heavily dependent upon precise information; therefore, it demands a collaborative means of producing information. With different BI tools accessing information, different information can be the result – marketing forecasts one number, sales getting another number, finance getting yet another number, and the CEO is wondering which is right.

The BI solution that companies are looking for must be capable of delivering visibility at all levels and throughout the entirety of the company. This means it must be able to deliver both high-end strategic knowledge at the executive level and insight into day-to-day operations at the end user level.

Market Demand for BI

Companies have come to recognize the necessity of a strong BI component in optimizing their businesses, both at the strategic and a tactical level. In fact, BI has been acknowledged as the crucial technological concern; as a recent survey of 1,400 CIOs conducted by Gartner Group found that Business Intelligence has become the top technology priority for the year 2006.

One of the major trends shaping the market demand for BI solutions, as mentioned above, is the push toward standardization and consolidation. According to Forrester Research, the majority of companies have multiple BI tools, some having as many as 10 to 15. Companies are realizing that effectively managing their BI tools gives a huge competitive advantage over companies that simply deploy BI tools without a unified plan, lowering costs and increasing performance.

The effect on the vendor side of the BI market has been a rush toward developing a more standardized, consolidated BI solution. However, no complete BI solution exists on the market. While some BI vendors, such as Cognos, Business Objects, and SAS Institute, offer multifaceted BI solutions, certain deficiencies prevent each from successfully answering the complete needs of the market.

Current Industry

The current BI industry encompasses over 200 companies, offering a varying range of BI tools and solutions. However, a group of large BI vendors holds the majority market share.

The first tier of BI companies, with annual revenues in the \$700 million to \$1.5 billion range, is occupied by Cognos, Business Objects, SAS Institute, and Hyperion Software.

Currently, the Tier 1 companies are focused on coming out with a product that satisfies 75 to 80% of the market need, and turning to niche solutions from smaller companies for the remaining demand.

A second tier of BI companies, with annual revenues in the \$200 million to \$300 million range, is occupied by Information Builders, MicroStrategy, and Actuate. One could also classify Microsoft Dynamics, Oracle, and SAP as tier 2 BI vendors. And while BI sales account for a relatively small portion of these companies' overall revenues, BI has become an integral part of their overall products.

At this time, the Tier 2 companies are on very shaky ground, having to make a decision to either merge with or make an acquisition of another BI company in order to vault up to Tier 1, or be acquired by a Tier 1 company.

This analysis obviously does not apply to Oracle, Microsoft, and SAP. Instead, the challenge faced by these companies is to strengthen their positions in the BI market. Oracle in particular has had problems in establishing their BI presence. The strategy these larger companies have adopted has largely been to acquire smaller BI companies in order to bolster their own solutions. An example of this would be Oracle acquiring Siebel, and then incorporating Siebel analytics into the Oracle BI product line. Another would be Microsoft's recent acquisition of ProClarity, a Tier 4 BI vendor. This strategy of acquisitions is also being practiced by the Tier 1 BI companies, with an example being Business Objects' acquisition of Crystal Decisions, and integrating its Crystal Reports application with Business Objects' overall BI solution.

The third tier of BI companies, with revenues in the \$40 million to \$60 million range, is occupied by Proclarity, Applix, and Panorama Software, as well as a few others. Formerly, Siebel would have been classified as a tier 3 BI vendor for their analytics tools. However, Siebel has recently been acquired by Oracle, so their market share is now incorporated into Oracle's. The fourth tier of BI companies is comprised of the numerous BI vendors with annual revenues below \$40 million. In fact, most of these companies bring in revenues significantly smaller than the \$40 million threshold.

The Tier 3 and 4 BI companies tend to address a specific need in business intelligence, and then are usually swallowed whole by a larger BI company if the product is attractive enough.

At the periphery of the BI market exists a number of companies that cannot be classified as pure BI vendors, yet nevertheless offer something very similar to a BI tool. Significant companies within this category include Ascential (a subsidiary of IBM), SPSS, and Teradata. Also, a number of tier 2 ERP vendors offer BI tools, companies such as Lawson Software and Extensity (formerly Geac).

Summary

Business Intelligence is not a new technology. In fact, the underlying precepts have been around since 6th century BC, during the Warring States Period in China. The Information Age has ushered in a new era of technology, which has revolutionized the gathering, storage, and manipulation of data. The concept of Business intelligence is actually very simple. Gather data and transform that data into valuable information. Due to technology and the large amounts of data it can produce, Business Intelligence has now become the science of sieving through large amounts of data, extracting pertinent information, and turning that information into knowledge upon which actions can be taken. The purpose of Business Intelligence is to provide a clear understanding of a company's own inner workings to improve performance throughout the company. This draws parallel to effective Performance Management, which is driving adoption of BI technology. Performance Management initiatives are expanding the scope of today's BI offerings. Companies are realizing that they have an abundance of BI tools, and that, if they continue implementing disparate BI tools, they will suffer severe penalties. Due to mandates to reduce costs and improve performance, companies are demanding a standardized BI solution to eliminate costs of current and future BI implementations. The market demand for a standardized and consolidated BI solution is quickly changing the current BI industry, which encompasses over 200 companies, offering a varying range of BI tools and solutions. However, a group of large BI vendors offering solutions comprised of several BI applications holds the majority market share. Smaller BI vendors who are offering solitary BI applications are in danger of being acquired by larger BI vendors who are looking to further expand their current BI offerings.