THE BUSINESS INTELLIGENCE AND THE BETTER DECISIONS IN MANAGEMENT

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ABSTRACT
The paper intends to present more reasons in the favour of promoting the business intelligence (BI) in the managerial practice. Business intelligence *is an umbrella term that encompasses the processes, tools, and technologies required to turn data into information, and information into knowledge and plans that drive effective business activity. BI encompasses data warehousing technologies and processes on the back end, and query, reporting, analysis, and information delivery tools (that is, BI tools) and processes on the front end. Organizations need to **increase their focus on decision-making**. In particular, they need to think again about the relationship between information and decision-making. Business intelligence and its predecessor concepts decision support, executive information systems, have been circulating for several decades in business.*

The new view on decision taken with the help of BI tools

The business intelligence applications and their underlying data warehouses can support the needs of the management only if they are tightly integrated into the overall IT environment. The idea is that better information would lead to better decisions and better ways of managing organizational processes. Whether this idea was called decision support, executive support, online analytical processing, or business intelligence, there was always another goal waiting to be achieved. Because organizations' efforts and attentions were being spent on automation, to improve decision-making was never the primaryfocus. Today it has taken center stage [Davenport 2008].

The importance of business intelligence and the need to integrate it into the enterprise is highlighted in the following representation – fig.1. The main forces that drive business operations - people, plans, processes and performance - and the IT systems that support them are represented in connection.

Business process management is a growing technology for modeling, simulating, deploying, integrating and monitoring business processes. At present, process management is used primarily with operational business transaction applications, but the need to manage document and information workflows is bringing process management concepts and technologies into the collaborative application environment.

The role of business intelligence applications is to monitor, analyze and report on those operations. The output from business intelligence applications is used to determine how well actual business operations are doing, compared against business goals and targets. If these business goals and targets are not being achieved, then either business plans or business operations must be adjusted accordingly. This aspect of business intelligence is often called *business performance management*, which is easily confused with business process management, especially given that process management also supports the monitoring of business performance. A genuine business performance management application is closely tied to business plans and planning systems so that performance measures can be related to business goals and targets.
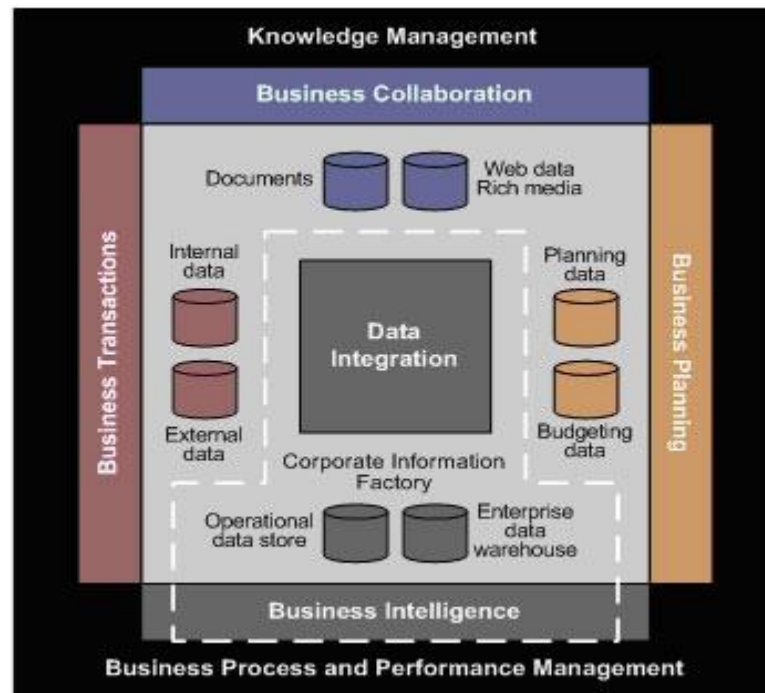

Figure 1 The Smart BI Framework[1]

Most business performance management applications deliver information that is *reactive* in nature, i.e., the information produced identifies business problems after they have occurred. Ideally, business users would like to be able to predict or anticipate business issues before they occur. The integration of business intelligence predictive technologies and planning methodologies into the business performance management environment helps satisfy this requirement.

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[1] White Colin - The Smart Business Intelligence Framework, *B-EYE Network* Copyright BI Research and Intelligent Solutions, 2005

At present, business intelligence is *data-centric*, but as it becomes more integrated with business operations it will need to become more process-centric so that business intelligence results can be more easily related to business processes and their associated business activities. Yet, there is obvious that most organizations have not deployed BI solutions in a systematic or consistent manner. They have allowed individual workgroups, departments, and divisions to build their own data warehouses and data marts, purchase their own BI tools, create their own BI applications, and define key metrics, data elements, and business views in unique, nonstandard ways. Thus, although BI usage has increased overall, BI deployments remain small and disconnected. Many organizations today are riddled with these "*analytic silos*". This proliferation threatens to undermine the promise of BI to deliver business insight and value to the enterprise. Invariably, each analytic silo uses a different set of BI tools, leading many BI professionals to complain that their organizations have one of every kind of BI tool imaginable.

The TDWI survey shows that organizations average almost three production reporting tools, three OLAP tools, two dashboard applications, two end-user query and reporting tools, 1.5 data mining tools, and 1.5 planning/modeling tools [Eckerson, 2005]. Organizations have an average of 13 BI tools, with almost four BI tools or modules per vendor (table 1), but signs of improvement do appear as it seems that organizations plan to standardize on one BI tool per category within three years.

Table 1 Types of BI applications

	Reported in 2005	Planned for 3 year horizon	Change
OLAP	2.7	0.99	-63%
Production reporting	2.8	1.4	-50%
Dashboards/scorecards	2.1	1.1	-48%
Query & reporting tools	2.1	1.2	-43%
Data mining tools	1.6	1.2	-25%
Planning/modeling tools	1.5	1.3	-13%

While organizations are trying to reduce the number of BI tools they possess, they are also looking to expand the number of users who leverage BI tools to make decisions. Expanding the use of BI from power users to all users is an important priority for organizations that want to empower knowledge workers with relevant and timely information to make quality decisions and improve performance. The irony of BI tools is that although they have proliferated in most companies, their penetration into the user base has been minimal.

The key to increasing the penetration of BI tools is multifaceted. In the past, the lack of adequate training, a perception that BI tools are for power users only, and BI tools that are too complex for casual users inhibited the growth of BI tools in many organizations.

In the future, organizations need to make sure they deploy BI tools and applications that are fast, intuitive, and customized to a user's role in the organization. The BI tools and applications must also provide access to timely, relevant, and accurate information and be able to reach into operational systems, if required, among other things.

There are numerous tasks that organizations must undertake to transform BI from a departmental resource to an enterprise one. This means aligning the BI solution with business strategy and making sure the business, not the IT department, owns the solution and guides the IT project teams during implementation and beyond – table 2.

Table 2 Recommendation for preparing the organization management to implement BI

The business must recognize the need	There must be strong executive support
The business must own the initiative	Implement a BI strategy, not just a tool
Standardize and validate data	Standardize architecture, processes, and success criteria
Make BI tools conform to users	Leverage dashboards and scorecards
Deliver continuous iterations of the project	Monitor usage
Deliver right-time data	Develop functionality and reports rapidly

There are two main reasons why organizations are intent on standardizing their use of BI tools and delivering an enterprise solution: costs and information consistency. Other, less pressing factors include the desire to better integrate transactions and analytics, support an expanding user base, and reduce the number of suppliers.

Table 3 The main drivers of standardization

Costs	The overhead costs of supporting multiple BI tools add up quickly. Organizations must pay software licenses and annual maintenance fees for each BI product they own. In addition, many BI tools require dedicated servers, separate security approaches, and proprietary metadata, thus increasing hardware, operating system, and administration costs. End-user training and support costs climb with each additional BI product. Organizations must assign and train different technical experts to configure each BI tool and develop custom reports.
Consistent Information	Without a common BI toolset, it is very difficult to deliver consistent reports and information. Invariably, groups using different BI tools create overlapping reports with different calculations and formats. Even if the reports run against the same data warehouse, the information they contain will not be consistent.

A recent study ***on this topic***[1], carried out the sponsorship of IBM's Information Management business unit, enlists 26 efforts to improve decision-making in organizations. The following ten things are of the most importance in the mechanism envisaged for evolving the role business intelligence (BI) in decision making:

1. decisions are the unit of work to which BI initiatives should be applied;

2. providing access to data and tools isn't enough if you want to ensure that decisions are actually improved;

3. if there is a need to supply data to a decision-maker, it should be only what is needed to make the decision;

4. the relationship between information and decisions is a choice organizations can make-- from "*loosely coupled*", which is what happens in traditional BI, to "automated," in which the decision is made through automation;

5. "*loosely coupled*" decision and information relationships are efficient to provision with information (hence, many decisions can be supported), but don't often lead to better decisions;

6. the most interesting relationship involves "*structured human*" decisions, in which human beings still make the final decision, but the specific information used to make the decision is made available to the decision-maker in some enhanced fashion.

7. one can't really determine the value of BI or data warehousing unless they're linked to a particular initiative to improve decision-making.

8. the more closely one wants to link information and decisions, the more specific it has to get in focusing on a particular decision.

9. efforts to create "*one version of the truth*" are useful in creating better decisions, but one can spend a lot of time and money on that goal for uncertain return unless it is very focused on the decisions to be made as a result.

10. business intelligence results will increasingly be achieved by IT solutions that are specific to particular industries and decisions within them.

The cited study intents to search answer to the question: How do organizations ensure that decisions are made on the basis of the best possible information, and that the right information is gathered and analyzed to support decision processes? There are at least three different levels of relationship between information and decision-making:

◉ *Loosely-Coupled Information and Decisions* - This loosely-coupled approach would characterize most organizations' approaches to business intelligence, or what was previously called "decision support." Data suitable for analysis and decision-making is extracted from transaction systems, and made available in a data warehouse or mart. Standard reports are produced, perhaps in easier-to-understand "scorecard" or "dashboard" formats. The appeal of this approach is that providers of information can supply it without regard to difficult

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[1] Thomas H. Davenport - *Linking Decisions and Information for Organizational Performance*, October 2008

and sensitive issues such as managerial psychology, organizational politics, and decision rights.

◉ *Structured Human Decision Environments* - The advantage of this approach is that these additional efforts created a stronger linkage between the information and the relevant decisions, making it more likely to be used effectively. The challenges of this approach relative to the loosely-coupled one are its narrower focus on particular decisions, and the additional effort needed to create the decision environment. If the decision is an import ant one for organizational success, however, it may be worth the additional effort.
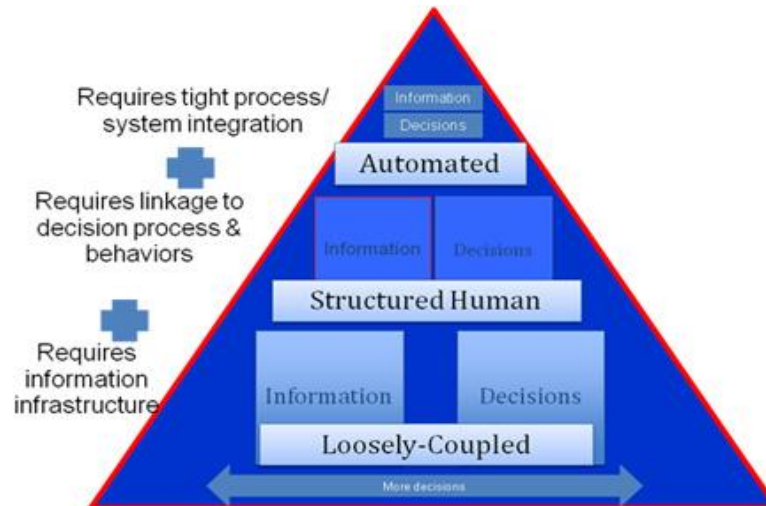

Figure 2 Three approaches - The Relationship Between Decisions and Information[1]

◉ *Automated Decisions* - The closest linkages between information and decisions usually come when decisions are made by computer. When it is critical for information to be applied to a decision in a structured, formula-like fashion, the answer is automated decision systems. While the majority of press and visibility came to artificial intelligence and expert systems two decades ago, many firms have quietly implemented more straightforward automated decision-making in a variety of business domains. In order to optimize operational decision-making, companies have embedded decision rules and algorithms into key business processes.

There is a range of technical criteria that organizations need to consider. The most important is meeting user requirements, selected by 83 % of respondents. This is why involving users in any selection process is key. In addition, a majority of respondents selected a half-dozen other critical requirements: Web delivery (75%), data scalability (i.e., the ability to query large volumes of data 72 %), the response time performance (69 %), user scalability (68 %), and integration with existing applications (54 %) [Eckerson, 2005]**.**

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[1] Davenport, T. - *10 Principles of the New Business Intelligence*

Conclusions

Given these three options for relating decisions to the information that informs them, organizations should follow a process for establishing and maintaining the connection:

Strategic Focus on Key Decisions – Since connecting information and decision-making often requires a major investment of resources, it's important to ensure that any decision selected for intervention is actually important to the organization's strategy and performance.

Information Provision - Given an important decision that's key to an organization's strategy, organizations must begin to provide information for it.

Decision Design - In this step, the key aspects of the context for the decision being made are designed, or at least evolve in a preferred direction. Important considerations in the design process include identification of the roles different individuals will play in the decision, the level of structure for the decision, the ability of human decision-makers to process the relevant information, and the roles of humans vs. computers in the decision process.

Managers have the responsibility to make the best possible decisions based on the available date at one specific point in time; the BI instruments can help them in analyzing and processing the relevant information but getting insight and taking responsibility on the results is only a human ability, yet possible to be improved.

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