

## Strategy for Selecting a Business Intelligence Solution

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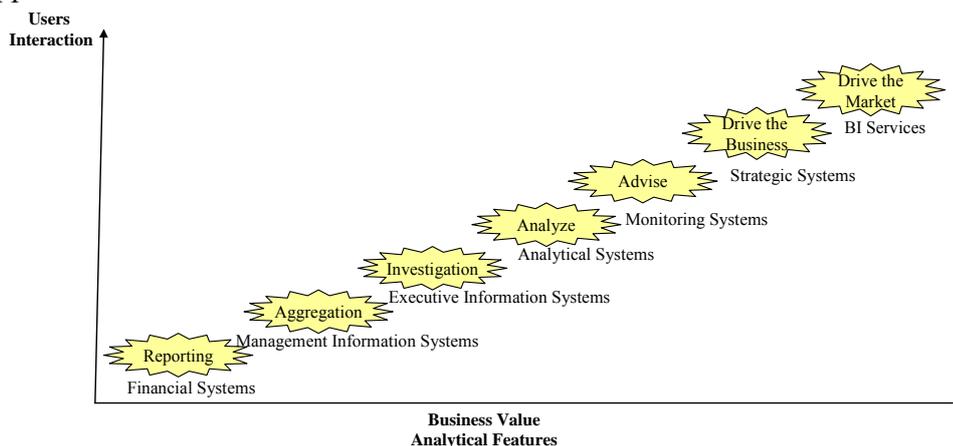
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Considering the demands imposed by the knowledge society, each organization strives to become an intelligent organization and, by the means of new and innovative Business Intelligence (BI) strategy, to gain a market competition advantage. Therefore, within organizations became apparent the need for proactive, extensible, performance oriented instruments, with stronger impact than conventional reports, score cards, OLAP system and the year 2007 being the start of a new BI era. This paper intends to analyze BI tendencies and the selection strategy for a new BI solution within organizations.

**Keywords:** business intelligence, knowledge society, innovative strategy, intelligent organization.

**D**ue to industry changes, the year 2007 marked the end of what was generally known about BI – namely “methods, instruments and systems of handling quantitative data used in building performance visions and analyses needed in the process of decision making” and the beginning of a **new era, one of proactive, extensible, performance oriented BI**. This new era may be regarded as a new perspective by which BI is combined with business process management, business rules engines and other instruments and techniques directly and immediately applied to business decisions. Ac-

ording to the new trend, organizations feel the need for proactive, aggregated systems, with stronger impact than conventional reports, scorecards, and analyzes by OLAP systems (figure 1), while the BI market marks changes both at the level of technology and products (“performance management” – Cognos, “business performance management” – SAP, “pervasive BI” – Microstrategy), and at the level of the balance of forces (IBM takes over Cognos in 2007, Oracle – Siebel in 2006 and Hyperion in 2007, SAP - Business Objects in 2007).



**Fig.1.** Evolution from static reports to business intelligence

The new BI era integrates information into the decision process through the means of decision services, relates business processes to business rules that may be changed at any time, and integrates BI benefits to capabilities provided by teamwork, cooperation, and business process management. The best or-

ganizations are still in the first stage of BI maturity. According to John Hagerty, vice-president of AMR Research, organizations may be in one of the following stages of BI maturity [Henschen, 2008]:

a) Stage 1: introduction of BI instruments into the problem areas of the organization.

- b) Stage 2: introduction of BI instruments into different business parts.
- c) Stage 3: cooperation and recognition of cause-effect relation between different business parts.
- d) Stage 4: running the organization so that “everyone singing from the same sheet of music”.

### BI market trends

Although BI market may be seen as relatively mature, Datamonitor considers it to be into ongoing expansion and consolidation. Thus, between 2007 and 2012 the BI market will continue to expand with an average growing rate between 12% and 13%, due to *a)* the effort of capital investment in adjacent applications such as ERP, CRM and *b)* the increasing data volume within the organization [Datamonitor, 2007]. BI market has the following maturation trends:

❖ *BI expansion.* BI will be developed within the organization as a decision-making support instrument that will allow managers to access intelligence and relevant key performance indicators at each level.

❖ *Organizational consolidation.* Organizations that went through the first stages of BI maturity aim at consolidating BI capacities around a single BI solution. The benefits of unification are mainly economy in acquisition, integration and maintenance, but also

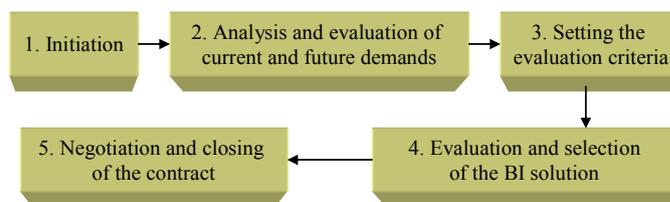
advantages such as active monitoring of business performance and strategic objective alignment throughout the organization.

❖ *Advanced instruments of analysis.* The use of procedures of analysis within management process, increased data volume within organization, and change in the use of analyses (from past performance analysis made by superior management to forecast analyses on a larger basis of users) impose the need for advanced instruments of analysis. Analyses become oriented on decision and intelligence and directly integrated into business process.

❖ *Advanced management instruments.* Trends recorded in 2007 and also valid for 2008 are *a)* integration of MDM (Master Data Management) into data and BI providers portfolio, *b)* development of operational intelligence with the support of CEP technology (Complex Event Processing) focused on monitoring and analysis of events and on integration with business processes and regulation management, and *c)* virtualization of data by SOA, MDM, and so forth.

### Selection strategy for BI solution

The large variety of BI instruments on the software market entails for each organization the need to create a BI selection strategy, which generally means passing through the following stages (figure 2).



**Fig.2.** Stages of selection strategy for BI solution

#### 1. Initiation

Initiation of the acquisition process may start as result of noticing a problem within the organization or an opportunity. At this stage, among other things, the type of BI solution is identified and the project team is built.

Considering the present business environment, organizations tend to focus on implementing long-term BI solutions and on their integration within the organization. There are

cases when immediate problems need to be solved (the present model of analysis does not function properly or is too difficult to maintain, etc.) or the change of organizational policy is taken place, which lead to need for immediate acquisition of short-term solutions, as there is no time for detailed analysis of demands and for the process of solution selection.

Table 1. Comparison between short-term and long-term solutions

<b>Solution</b>	<b>Short-time solution</b>	<b>Long-time solution</b>
<b>Characteristics</b>		
Complexity	relatively simple	complex
Implementation place	single place	throughout the organization
Costs	low	high
Acquisition process	simple	complex and long
Focus	on acquisition and implementation costs	on analysis of demands, decisions, capacities of the provider and of the product, maintenance costs
Changes	few	at all organizational levels

Acquisition of a BI solution for the organization means buying it, and creation of a team of specialists from within the company, or from a counseling firm, in order to make the acquisition. The team of specialists must be made of representative end users, IT specialists and key managers. The service of a consulting firm must be adopted for the selection of a BI solution, when within the organization one of the following cases occurs:

- such a team of specialists can not be created;
- there is not enough time for solution / provider analysis;
- technology is unfamiliar;
- political environment within organization makes impossible an objective selection process;
- a third party is needed to assist in identification of demands and their correlation to available BI solutions;

This means having prior information about consulting firms and selecting one of them according to cost, recommendations, and the time needed for solution selection process.

## 2. Analysis and evaluation of current and future demands

Analysis of current and future demands may start with answering the following questions: **who** needs BI, **which** information is needed, **when** do users need the information, **where** must the solution be implemented, **why** is information important, **how** may BI represent value-added [Stodder, 2008].

Depending on current and future analysis of demands of the organization, the project team may take one of the following decisions:

- actualization of the present BI system (if there is one);
- building a new system based on the demands of the organization;
- purchasing a commercial BI solution.

If a decision to purchase a commercial solution is made, the project team has the duty of setting the criteria for selection, first taking into account the identified demands, and also the facilities that the solutions provides, providers' quality, the costs of implementation, etc.

## 3. Setting the evaluation criteria

The main criteria for evaluation of BI solution are *a) technology* and *b) provider's quality* and a balance must be ensured between given relevance of technology and of the quality of the provider. In the past, excellent software solutions had been eliminated from the market in a few years because of problems faced by the company, such as: lack of financial management, poor features of human resources, poor strategic vision and poor abilities of business management, legal problems, etc. Possible criteria for the evaluation of BI solutions are presented next.

### a) Technology.

- *Platform*. An IB provider may offer a basic platform, a package solution, or a comprising BI platform that integrate components from various individual technologies into a synergic system. At the end, the BI platform includes data integration elements, intelligent stocking, questioning and reports, advanced analyses.

- *Advanced instruments of analysis*. These instruments comprise sophisticated technology that incorporates predictive capacity, like

data mining, text mining, prognosis and optimization.

- *Interoperability and integration.* This feature expresses easiness and speed with which a technology is able to exist, interface, combine and work along products, services, and solutions from other providers.
- *Standardization.* Standardization represents the use of generally accepted protocols, methods, data structures, business principles, and interfaces. In BI, standardization regards native data, application connectivity, compliance to industry standards and support for popular technology platforms [Datamonitor, 2007].
- *Maturity.* Maturity represents for the product the measure of being developed in comparison to other similar products available on the market.
- *Expansion.* Measure for products meeting the business demands of different industry sectors.
- *Processing capacity and scalability.* Scalability represents the ability of an offer to meet business demands [Datamonitor, 2007]. In identifying the platform there must be taken into account the present and future demands concerning the volume of processing data, which may be measured as actual number of transactions, number of records into the most tables of the existing operational systems, etc.
- *Performance management.* A set of BI applications that help organizations in optimizing of business performance and that focus on business processes like planning and forecasting [Datamonitor, 2007].
- *Administration and development.* Cover several areas, including security, metadata management, centralized administration and support facilities, web based administration facilities, log files and other key areas [Datamonitor, 2007].
- *Pre-constructed applications.* Monitoring of business activity, fraud detection, risk evaluation, sales analysis are some of the applications offered by BI providers [Datamonitor, 2007]
- *Compatibility with existing software.* Possibility that the provider has of ensuring

integration of BI solution with present or future planned applications that must be integrated and the means of achieving it.

- *Easiness of use.* Easiness to use is best evident in demonstrations of provided solutions. It represents an important criterion in choosing a platform, as it may determine a project's success in the case of *a) a long time needed for the adoption of BI system* by the technical team of the beneficiary, *b) a long period of training time* needed for BI system users, and *c) the management not using the facilities of the system.*
- *Organizational extension* – regards solutions' horizontal and vertical applicability, meaning serving users from all levels of the organization and BI sharing to functioning areas and to a large and mobile public.
- *Means of implementation.* Features that must be taken into account in the selection of a BI solution: *a) type of implementation methodology used, b) average time of implementation of similar projects* (example: time needed to get the first report to a final user, time needed to close the first stage of the BI project, *c) knowledge about data base platform and integration instruments used to extract, transform and load data from other applications.*
- *Flexibility.* Considering the dynamic context of present business environment that imposes permanent improvement of all providers, a performing BI system must provide the flexible means of dynamic technology.

In selecting the evaluation criteria there must be taken into account the creation of a balance between the relevance granted to choosing the best solution and the time needed for analysis and evaluation of all the criteria.

### **b) Provider's quality**

The quality of a provider may be seen in the satisfaction of the final users and the impact on the market.

**b.1) Users' satisfaction** may be acknowledged by a survey among BI technology users and the evaluation of their technology providers according to several criteria, such as [SAS, 2006]:

- quality and level of the support services provided (counseling, integration, maintenance, management),
- capacities and level of technical support,
- level of counseling, services provided and specialists,
- BI provider's income reinvested in research and development,
- percentage of active official users,
- the way in which the client has influence on support activities and on research and development activities,
- existing references on the BI provider from clients of the same industry.
- product quality – organization's perception on the quality of provider's products.

**b.2) The market impact** is determined by evaluation of the following criteria:

- *Income*. Datamonitor determines income as percentage of the income of the market leader. This percentage is multiplied by the market maturity value and rounded up to the next integer. The market maturity value is determined in inverse proportion to the market global growth rate.
- *Income increase*. Datamonitor determines income increase as percentage of the company with the most rapid growth on the market. The percentage is multiplied by 10 and then rounded up to the next integer.
- *Global extent and local presence*. The global extent means that the provider has offices on most of the markets, global communication for clients' services and that it provides support by all international offices [SAS, 2006].
- *Vertical extent*. Datamonitor determines the seller's income on 11 vertical markets (energy and utilities, financial services, public sector, retail sales, distribution, telecommunication, tourism, transport, logistics, hospitality). These incomes are calculated as percentage of the market leader of each market, multiplied by 10 and rounded up to the next integer. The extent value is the arithmetic mean of the 11 values.
- *Geographical extent*. Datamonitor determines the income of each provider in three regions: America; Europe, Middle East and

Africa; Asia Pacific. These incomes are calculated as percentage of the market leader of each region, multiplied by 10 and rounded up to the next integer. The level of geographical extent is the mean of the three values.

- *Size coverage*. Datamonitor determines the income of each provider in three types of companies: big, middle-sized, and small enterprises. These incomes are calculated as percentage of the coverage of the market leader multiplied by 10 and rounded up to the next integer. Dimension coverage is calculated as the mean of the three values.
- *Strategy and execution*. In this category are evaluated several aspects of strategy such as capacity of execution. There are analyzed provider's characteristics, including financial stability, training options, support policies and maintenance options, development services and implementation partners [Datamonitor, 2007].
- *Vision and stability*. Vision shows if the provider will continue to grow as market leader, if it will intensify and increase products and services. Stability means serious reinvestment in research and development and in keeping key talents inside the organization. This indicator represents a supplementary safety element regarding the company's future existence on the market [SAS, 2006].
- *Market recognition*. Is calculated as a rate between a provider appreciation and the highest appreciation on the market, multiplied by 10 and rounded up to the next integer. Appreciation of a provider is calculated as the number of affirmative answers to the question on remaining in association with a certain provider.
- *New clients*. Growth rate in the number of licenses on the last 12 months is calculated as percentage of the company with the highest growth on the market. The result is multiplied by 10 and rounded up to the next integer [Datamonitor, 2007].
- *Installation basis*. Dimension of the installation basis of the provider comes from the maintenance income that the provider is able to obtain from the client. The maintenance models may not be identical between

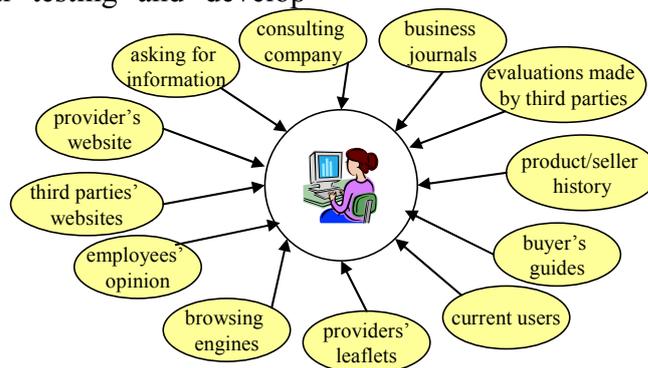
providers, as dependent on their type of licensing. Maintenance income is calculated as percentage from the market leader, multiplied by 10 and rounded up to the next integer [Datamonitor, 2007].

- *Other criteria, such as:* availability for higher quality training, and support in different regions and zones; powerful direct channels of distribution; use of high-tech in development, production, implementation, and support; professional testing and develop-

ment methodologies; good strategies and directions for the future, a list of products from other providers that are using their products; providing hosting service directly or through providers of application services.

#### 4. Evaluation and selection of BI solution

Identification of BI solutions and providers may be achieved through browsing engines, counseling firms and other sources (figure 3).

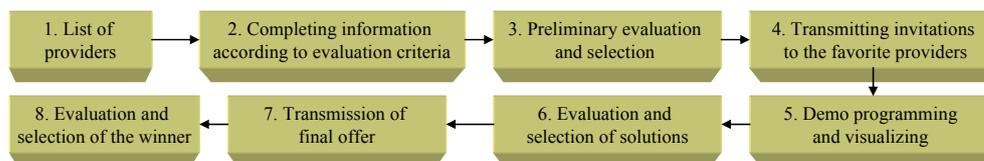


**Fig.3.** Sources of information used in research of providers and products

Due to profound movements on the technologic market generated by globalization and the new economy, the balance of forces on BI market gains new structure and sense. Therefore, identification and evaluation of solutions/providers must be done based on the most up to date sources (provider, counseling firms, newest articles), and the rest of

information sources should represent a basis for a global view on the BI market.

The process of evaluation may be achieved in two steps *a)* evaluation, classification and selection of favorite providers (preferably a maximum of 5) and *b)* final evaluation that entails meeting with providers, presentation of solutions offered, and their later analysis, and has the following stages (figure 4).



**Fig.4.** Stages of the process of evaluation and selection

In the final stage all selected providers are invited for the presentation of their BI solutions. For better analysis it is recommended that along with the invitation should be transmitted a true image of what is happening inside of the organization. To the presentation of solutions the whole team must take part. The final markings for each provider will result from the individual markings of each member of the team.

The provider with the best score will be selected, to whom a final offer application will

be sent (detailed with maintenance, implementation, and support costs, implementation time, project plan sample, etc.) If there is more than one provider, a final evaluation will be made, and a winner will be chosen.

At this stage the key for success is matching the demands and needs of the organization with the software characteristics of the solution.

#### 5. Negotiation and closing of the contract

Based on the final offer of the provider and the contract sample, the contract provisions are negotiated: the price, service conditions, payment, implementation period, obligations for the parties, etc., and the contract is closed.

### Conclusions

In selecting a BI solution, organizations must take into account the latest trends on the BI market, the present and future demands, and the opportunity of integration (regarding both the time needed for selection and the cost/benefit ratio). In order to achieve success, BI selection must be made in an objective manner by a team of specialists, on the grounds of well analyzed and weighed criteria according to the present and future needs of the organization.

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