

# Performance assessment of a Business Intelligence system acquisition using Balanced Scorecard software

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**Abstract:** - Our paper emphasizes the way in which IT&C tools – particularly Balanced Scorecard Designer software - provide a real support to the managers which have a global vision on the key factors that assure Business Intelligence performances. Our approach model can be included in the interdisciplinary and frontier research area, responding to some present problems of the following domains: information technology, performance management, business excellence and strategic behavior of the companies in the acquisition process of a Business Intelligence system. Our project regarding the performance assessment of a Business Intelligence system acquisition proposes the implementation of a customized Balanced Scorecard model based on competitive intelligence using Balanced Scorecard Designer software as a promotion tool. The information resulted after the performance assessment of a Business Intelligence system acquisition can be considered precious knowledge that allows a multidimensional analysis at the top management level of a forward-looking company which is able to adjust its strategy to e-business.

**Key-Words:** Business Intelligence, Balanced Scorecard, performance, target, acquisition

## 1 General considerations regarding the stages of a Business Intelligence system acquisition

In the knowledge economy perspective, Business Intelligence system can simplify access to the historical, current, and predictive views of operations needed to make better decisions.

Business Intelligence represents an information architecture based on software applications suites, integrated multidimensional databases and decisions support systems which provide a fast access to strategic information. [1] The “competitive intelligence” based information represents a strong weapon which provides competitive advantages in e-business.

The acquisition of a Business Intelligence system involves the same stages as in the case of the acquisitions of some software packages to support the different business processes.

The choice of a BI system presupposes an organized approach of the acquisition program and the strict schedule of each stage: the identification of the organization’s needs in the BI domain, the creation of the offer request, the identification of the list of potential providers, sending the offer request to the providers, the evaluation of the solutions proposed by providers, based on the demonstrative software applications, the selection of an offer in order to buy the BI system (fig.1)

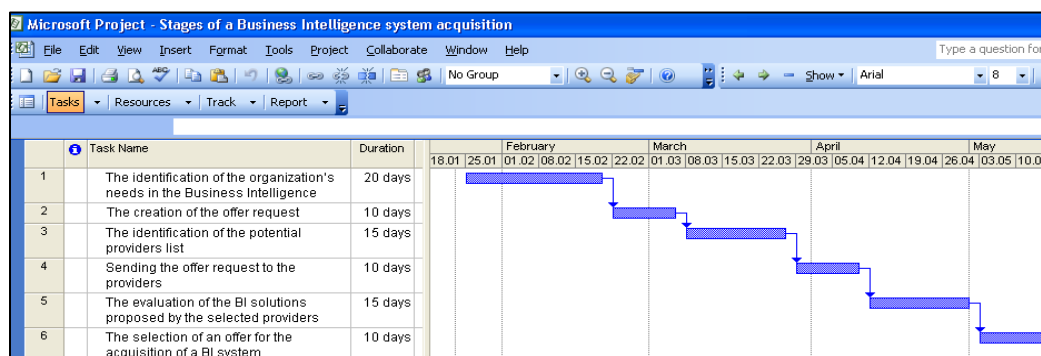


Fig. 1 – Gantt Chart for a Business Intelligence system acquisition stages provided by Microsoft Project software

The acquisition of the BI software application packages depends on the support given by the IT Department in order to create and maintain the data warehouses and the OLAP data cubes and to implement the ETL tools.

#### **The identification of the organization's needs in the BI domain**

The project manager must identify in the planning stage the needs of the organization in the BI domain, expressed by means of needs specific to each category of users. Three strategic options referring to the BI projects are taken into consideration when the organization's needs in the BI domain are identified:

- the upgrade of the current BI system by adding new modules if the company has a BI system;
- the creation of a customized BI system, based on the information needs of 'competitive intelligence' type;
- the acquisition of a standardized BI system, existent on the market and the its further customization to the company's needs.

The module designed for business process management (BPM) represents an important component of a BI system.

The top management of a company has the obligation to disseminate the information regarding the concrete ways in which the BI system will render efficient the information workflows concerning the business processes at all hierarchical levels. [2]

#### **The creation of the offer request**

When the manager project decides on the acquisition of a BI system, he will have to contact the potential providers by means of an offer request that will contain the description of the functionalities in the specific use domains (financial report, aggregated data analysis within the balanced scorecard, multidimensional analysis of the sales, etc.). [3]. In the same time, the offer request has in view that the BI system provides analysis reports customized on hierarchical levels (according to the user's rights).

A BI complete solution must generally integrate three distinct elements, with a major impact on the information management of 'competitive intelligence' type: the data analysis, the knowledge management reports and the proactive survey of the performances.

#### **The identification of the potential providers list**

The project manager must focus his attention on maximum five offers that correspond to the organizational needs in this domain because the market of Business Intelligence solutions is now characterized by the spectacular increase of the BI

applications and their complexity. We consider that a company can appeal to the services of a consulting firm which has both expertise and experience in the processes of BI system acquisitions and can select the most relevant offers.

#### **Sending the offer request to the providers**

This process can be achieved by sending the offer request by Internet to the providers' e-mail addresses or contacting the sale representatives of the selected providers. The offer request must contain a deadline to send the offers not to delay their evaluation.

#### **The evaluation of the BI solutions proposed by the selected providers**

The next stage consists in establishing some meetings with the sale representatives of the selected providers in order to present the advantages of the BI solutions they offer by means of the demonstrative programs. If the acquisition project manager of a BI system considers that he needs more clearing up regarding the solutions offered by providers, he may ask for the organization of a workshop, where he will invite all the sale representatives of the selected providers in order to understand exactly what are the benefits brought to the business processes by each BI application.

#### **The selection of an offer for the acquisition of a BI system**

Once choosing the BI system adapted to the organizational needs, it is necessary to negotiate with the selected provider and sign a contract with him that will contain details concerning the final price of the software application package, the hardware requests, the chart of the system implementation process, the training activities offered by the provider for the final users of the system, the licenses and the documentation of the system.

## **2 Design of a Balanced Scorecard system for the performance assessment of a Business Intelligence system acquisition**

Balanced Scorecard represents a performance assessment system that assures a unitary presentation of the management vision regarding the performance control and supposes the relational approach on four dimensions: financial perspective, customers' perspective, internal business processes and organizational learning and growth perspective. In the design and the implementation of a performance management system – especially when we take into account the information system – the

aspects concerning the definition of goals and the setting of the results measurement become essentials. [4]

Balanced Scorecard Designer is software realized by AKS LABS that simplifies the processes referring to the creation and the management of the Balanced Scorecard. It provides reports characterized by a set of measures linked to the organizational performance. We used for our the performance assessment of a Business Intelligence system acquisition project the free trial version of Balanced Scorecard Designer software downloaded from the website: <http://www.strategy2act.com>.

In the knowledge management approach, the selection of performance indicators focuses on a set of “strategic objectives” associated to a “strategy map”. [5] The managers should identify the goals they have in each perspective of the Balanced Scorecard and must prove the relationships by means of the network links discovery. [6] In what concerns the goals and the inter-relationships, the Balanced Scorecard measures are conceived by the selection of the appropriate indicators. [7]

In view to emphasize the performance assessment of a Business Intelligence system acquisition by a Romanian company which develops its business on FMCG sector, we designed a Balanced Scorecard system based on two perspectives: BI system implementation and Competitive Intelligence capabilities. Although the standard Balanced Scorecard involves four perspectives, we customized this application in order to achieve our goal and we conceived a set of seven indicators that we shared to these two perspectives.

Our approach focused on a qualitative survey based on the system of seven indicators and we defined the same target for all the indicators took into account in the design of the Balanced Scorecard evaluation scale: from 1 – very low to 5 – very high. The real values appreciated by the project manager – responsible for the Business Intelligence system acquisition - for these indicators are revealed in table no. 1.

Table no. 1  
The distribution of the indicators used for the performance assessment of a Business Intelligence system acquisition by a Romanian company

Perspective	Indicators	Minimal value	Real value	Maximal value	Weight
<b>Business Intelligence system implementation</b>	the possibility to integrate the BI system in other information systems implemented in the company	1	4	5	3
	the capacity to access and display information provided by different data sources implemented in the BI system	1	3	5	3
	the capability to reduce the search time in the data warehouses implemented in the BI system	1	5	5	4
<b>Competitive Intelligence capabilities</b>	the capacity to identify the critical factors emphasized by data mining and OLAP tools of the BI system	1	3	5	3
	the capacity to provide reports with multidimensional analysis of the competitive intelligence	1	4	5	3
	the capacity of the BI system to use interactive scorecards in view to assess the results and to communicate them to the deciders	1	3	5	2
	the capacity to explain the performance indicators associated to the BI system in the management reports	1	5	5	2

The optimization function implemented in Balanced Scorecard Designer emphasizes the manner in which each indicator contributes to the global performance of the project and depends on the goal pursued in each situation. As our survey was based only on maximization goals, the optimization function involved the following formula:

$$\text{Maximize } RP = MP * \text{Score} / \text{Max} \quad (1)$$

where RP – real performance; MP – current value of the indicator had in view

The sum of the weights allocated to each dimension indicators from the decision tree which reflects the Balanced Scorecard must be equal to 10. The minimal respectively the maximal values are planned by the manager before the implementation of the project.

The application of the software optimization functions associated to Business Intelligence system implementation perspective leads to a performance of 77,5%. (fig. 2)

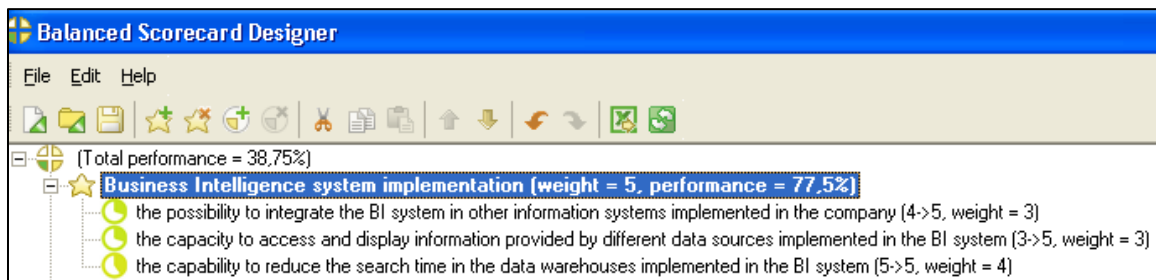


Fig. 2 – Performance associated to Business Intelligence system implementation perspective

The application of the software optimization functions associated to **Competitive Intelligence capabilities** perspective leads to a performance of 67,5%. (fig. 3)

The global performance of the project is calculated as a weighted average of the performance indicators associated to each perspective of the Balanced Scorecard system.

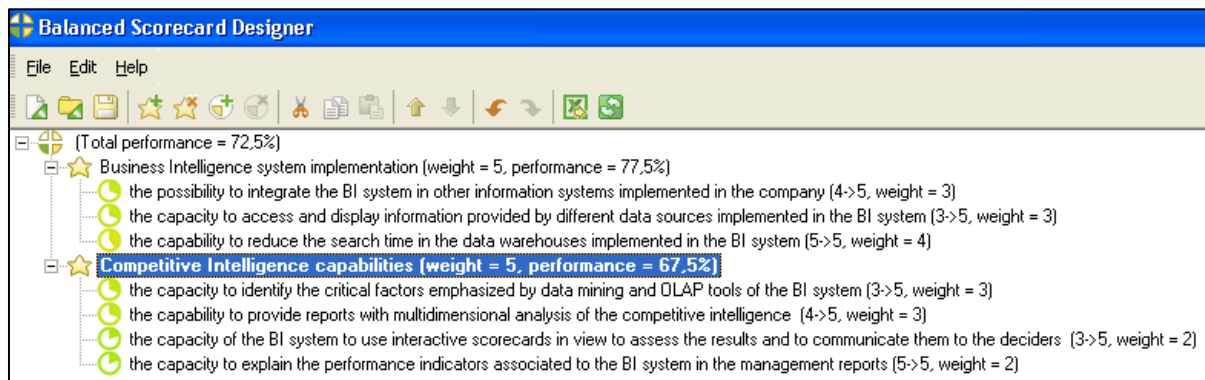


Fig. 3 – Performance associated to Competitive Intelligence capabilities perspective

The value of the global performance (72,5%) proves a remarkable success rate of the Business Intelligence system acquisition, because a satisfactory success rate for a project is between 50% and 70%, and the values that exceed this target signify an important success of the project.

The use of the information technology as a support which helps to the implementation of the methods and techniques referring to global performance evaluation by Balanced Scorecard is one of the steps focalized on the performance control management.

### 3 Conclusions

The Balanced Scorecard Designer software facilitates the assessment of the Business Intelligence system acquisition performance, providing a real support for the determination of the performance indicators according to certain target values. We customized a Balanced Scorecard system to a particular situation that can appear in a company – acquisition of a Business Intelligence system, but in the same time, we consider that our model can be applied successfully to any company which evaluates its performances in different projects.

The design of the decisional tree afferent to these two perspectives of our model concerning the Business Intelligence system acquisition performance involved the application of optimization functions, after the introduction of both planned and real values of the performance indicators. Our approach refers to the decider perspective and we appreciated the dimensions' weights taking into account the opinion of the Romanian company BI project manager. The determination of the global performance of our model allows the appreciation of the project's success rate and it also emphasizes the contribution of each perspective of the Balanced Scorecard to the global performance.

We consider that the idea concerning the simulation of a performance indicators system planning, organization and control, based on specialized software, can be successfully applied by the companies' managers, which can transpose their vision into action and can achieve the performances targets.

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