

Business Intelligence Solutions - a Way of General Improvement of Efficiency and Effectiveness

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Abstract

Business Intelligence (BI) solutions provide organizations the opportunity to make the best decisions in order to have a better image of business environment. Today, the organizations can not focus on solving problems just at the departmental or functional level in an isolated way. An integrated knowledgebase enables at organizational level to improve access to everyday decisions. In this respect, these organizations must select BI tools, easy to use, flexible and allow the user to see different parts of the business.

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JEL classification: A19, O30.

1. Need For BI Solutions Type Adoption

For organizations, especially those that lack actionable information, to get a better grasp on the internal and external forces that are driving their business, and to measure and improve their performance, business intelligence systems are the kind of IT investment to focus on (Popovic). After full deployment of a business intelligence system is important as companies strive to get the most benefits from business intelligence investment. (Chamoni & Gluchowski 2004, Williams, 2004b).

Daily activities of a company have to overcome competition, finding customers, increase revenues, optimize operations. According to a research by IT Strategies, Inc. (2008), business intelligence systems have one of the greatest potentials in differentiation from competitors (Marchand et al., 2002) and respectively thus achieve competitive advantage through IT investments. Continuous improvement of operational efficiency involves giving more time to analyze the present status, prediction, planning and not necessarily solve problems based on company history. Modern analysis tools come to support the modern leader that must draw up a strategy for the development of the company using the key core competencies of the organization (Năstase, 2010).

Meanwhile the leaders discover that their needs are the same with their company (Năstase, 2007), the efforts should focus to one direction or another and

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both organization and leaders must be able to determine this. An analysis of each detail is not possible, but each company must be able to monitor operations, identify and resolve any issues with the identification and maximization of new opportunities. In a same time, Business intelligence aims to support better business decision-making. Thus a BI system can be called a decision support system (Bui, 2000). The activity of employees and assessments from departments must be aligned with the strategic objectives of the company. With the exception of number of national companies, organizations do not always have great resources, but can compensate for the work that employees make, which may be more concerned with customers. BI solutions are known to all companies regardless of their size and are used both by large companies and their competitors.

A company should opt for BI because:

- It required a single version of truth. Discussions occur frequently between departments, especially in meetings regarding the accuracy of figures in spreadsheets.

- It requires an analysis in depth. Companies that own retail outlets typically know which the volume of sales is, but not always know according to seasons which are best-selling products, for instance.

- The localization of relevant information is not always at hand. Data may be communicated from a particular compartment to company website, but not always this information it's easy to identify.

- It is necessary that the reporting be accessible to all. Most often, functional compartments using common applications like word processors to generate various documents and can get to a situation where the same information is recorded in two different documents (invoices issued to the client twice).

- Applications not integrated into BI solutions are usually difficult to use. The use of analysis tools learned over time by employees are usually applied in different workplaces. A company can purchase more licenses for several different applications, but the time spent by employees for learning these tools is too high and often they return to spreadsheets.

- Historical values should be stored and the disparate BI tools have no policy or practice storage. An example is the comparison of sales to each customer in the current year with similar one from last year. Traditionally, these situations are kept in the form of spreadsheets, and if these records were kept by each employee and one of them leaves, restoration (when can be done) is difficult.

- Operational flexibility it's necessary. If exists a large number of clients, establishing a list of volume of the first top 10 customers is difficult Establishing this list means that the company may give special attention and incentives to those customers. Sometimes this operational flexibility is limited by slack or no BI technologies.

- Differentiation and setting priorities of problems are essential. Problems exist in every company; they must be addressed and as a result must identify those who need special attention. Typically, projects are identified when those are outdated and with delay budgets and only after those are in difficulty.

- Aligning the operations with the strategic objectives. Although the company has set strategic goals, it is doubtful that they are in keeping with its daily operations. According to a study by SAP (2010) many managers even know how to optimize the activity of their departments they would like to better understand how their efforts support the overall objectives of the company.

- Tax reporting, often changing, need of government conformity. During a fiscal year schedule changes may occur or changes in legislation and is difficult to maintain a relationship between current and past data reporting.

BI solutions enable companies to make predictions about what is happening in their company and business generally, to analyze and better understand these relationships. Most of the information presented is about the current situation of the business. It is organized to support structured decisions, instead of meeting the complex requirements that BI addresses - the entire “decision spectrum”, strategic decisions, tactical decisions, and operational decisions (Taylor & Raden, 2007). The data that a company obtained are transformed into useful information and then transmitted through BI tools, to the decision makers who need to make informed decisions and in timely when they need whenever needed. This is an opportunity for a company to have a general overview of data.

BI solutions are important for companies that do not have enough resources (resources that cannot be compared with those of multinational companies), because they can quickly implement these solutions and these can quickly improve business decisions.

The BI environment encompasses all the development, information processing, and support required to deliver reliable and highly relevant business information and business analytical capabilities about the environment in which is acting company. (Williams & Williams, 2007).

Traditionally, BI solutions from a company can be used for:

- Estimate of inventory level.
- Sales hierarchy for different features and checking these hierarchies for all distribution channels.
- Hierarchy customers according to different criteria such as volume purchases and incentives for those who have maintained the same volume.
- The use specific reporting elements from BI solutions such as dashboards and scorecards in order to quickly identify exceptions and performance indicators that falling outside the acceptable ranges.
- Performing measurements, monitoring them and making corrections where necessary.
- Performing sales forecasts for next year based on sales data comparison of two consecutive years.
- Customer order management and delivery of data to ensure the correlation of finished goods inventory and manufacturing cycle inventories to reduce costs.

- Providing a single version of truth by integrating spreadsheets and historical data to provide analysis and coherence.
- Performing ad hoc reports for operational analysis without the use of other IT resources.

Within their business environments, organizations look for designing and building successful business intelligence systems (Popovic). These can be defined as information systems that help organizations improve business operations, align daily activities with strategic objective's development that helps a company in the decision-making process. (White, 2005). BI provides solutions that are a gain for the IT department because employees can be more productive. Combining the two aspects of the business - analysis and current activity - is better achieved through BI solutions.

2. Typical structure of BI solutions

It is necessary that business intelligence solutions to operate in many modern enterprises. (Dewett & Jones, 2001, Li & Ye, Davenport & Short, 2003). Scope of BI is very large in terms of its tools and their functionality. The basis of this area is the traditional functions of query, reporting and analysis. We must not forget quality and data integration from multiple sources. Reporting forms visualization represented by dashboards and other techniques help users understand better and easier analysis of results and this is an essential component of BI solution spectrum.

Other elements of the BI solutions include:

- The possibility locates information and reports.
- Finding hidden patterns that can be used for the "what if" analysis.
- Scorecards for assessing and monitoring performance management that helps business measurements and performance indicators relating to customer satisfaction, profitability, etc.

2.1. Specific reports for a company

Some examples of common queries database of an organization are: "What the customer total sales were recorded in Q4 of last year?" or "which is total revenue recorded by the sales agent B?" or "How many units of the product C is in inventory?". Query tools offer the possibility construction of simple reports.

Reporting in a company regardless of profile activity is performed regularly and involves working with large data volumes. For example, sales director may consider the volume of monthly sales commissions given to each salesperson, customers from a month, inventory level, etc. Other criteria may be included in detailed reports such as entries of products, warehouse location, and total product sales. Other examples of reports include: the presentation of a personalized profile made based on employee hours worked, vacation, income or generate reports for each client. These reports can be viewed in addition to e-mail and through a Web browser.

2.2. Analyses of a company's activity

Business Intelligence technologies, including corporate dashboards, hypercubes and visualization systems, have been successfully applied in enterprise operations such as sales, marketing and finance (Schlegel, K.; Hostmann, B.; Bitterer, 2007). Analysis function offers the possibility viewing data for different classifications or more dimensions (e.g. product, price, quantity, location, time, provider, etc.) and data can be grouped for different combinations of dimensions for the region, month, products customer bought last year and this year. Advanced analysis function allows companies to define hierarchies for viewing after a certain size, then through the details can be viewed and other dimensions (e.g. sales area, and sales in each area over a period of time, etc.). Following the same procedure, can be viewed by each product sales in each store in each city. These functions provide speed and convenience of analysis in comparing recorded data in different time periods, allowing the user to see details and compare them from period of time to another for certain features. Other functions of analysis offer the possibility of filtering data which implies the exclusion or inclusion of items such as area, store, and sales agents. According to a study by SAP (2010), ability to see the results more dimensions and easily presentation of data interpretations when combined with detailed, with filtering functions provides a powerful analysis, but easy to use.

Initial, reports provided a simple passive overview of current activity and past operation. Over time BI solutions has made it possible to become a more interactive analysis. The part BI solution which enables interactive analysis of this is called OLAP. OLAP requires the existence database and specialists with a high level of qualification. Nowadays this function is integrated in BI solutions that allow business users to interactively analyze data and identify causes of potential problems quickly and easily. Effectiveness of BI solutions consists of the interactive and dynamic query and analysis it offers. From practice it was found that a user with a static report will want to know details of the activity report and can perform a dynamic query or analysis the data. The part reporting, interactive analysis and query are used for viewing or analysis of recorded data, while predictive analysis can provide forecast of what will happen in the future. For today's uncertain economy is very important to apply sophisticated techniques offered by BI solutions to identify hidden patterns or a series of factors that are not obvious.

2.3. Visualization methods

Techniques of BI solutions are as complex and sophisticated as it is easy to use. Using visual elements by similarity with elements that are found in everyday life makes BI solutions to be implemented quickly. Most times, the visual elements forms of dashboards are similar to those of cars. Different parts of the dashboard indicate the presence of various stages of alert colors on performance indicators,

for example. A red light indicates a state of alert; a yellow indicates a warning and so on. Once the user observe these warnings can turn his attention to the problem and can timely action. Therefore, problems can be immediately ranked by priority. Other visual graphic elements can be map form or slide bars. Friendly visual environment enables that predictive analysis performed to provide an overview suggestive as possible of the future. For example, how profit margins would increase if the revenues were increased or were reduced distribution costs.

2.4. Distribution and control

Due to the complexity, once implemented BI solutions are used at different departments in all departments of a company. The involvement of staff assumes that there are strict rules and clear use of BI solutions. The role of each employee who accesses a BI solution must be well defined in terms of access to each report or analysis, the administration, monitoring and control. Spreadsheets can be further used even if there are BI solutions. But have established how they come to complete different aspects covered by BI to keep the value of "one truth" information. Once obtained the reports, these are made known by those who are interested in posting on the Web and the information contained in these reports must can be found easily.

2.5. BI, Data Warehouse, Operational Systems

BI solutions can be used with other tools that help business operations. Can be used with data warehouse environments to integrate data from different systems for the purposes of analysis or can be used with operational systems. Concomitant use with operational systems (which helps to run a business) offers various information's such as customer situation, the salary level or the current value of the inventory.

If you want to compare data of the last period and the current period is useful to use BI solutions with data warehouse containing data from historical periods or different systems. Frequently is used to compare sales from one period to another.

The main difference between traditional information support (e.g. decision support systems, executive information systems, etc.) and business intelligence systems is that traditional information support is more application oriented. Technologies used in business intelligence systems (e.g. dashboards, graphical interfaces, KPI, drilldown, filtering, etc.) have been previously used in executive information systems; however, organizational data was scattered around different data sources often connected to a single decision support solution. The key problem was providing a uniform and integral view on the data. The solution was offered by the data warehousing and comprehensive concept of business intelligence with a data-oriented approach (Frolick & Ariyachandra, 2006) where the centre of the architecture represents integral data sources for analytical decision-making.

Accuracy of data entry is a key item for the entire information system of a company. Delivery to a wrong address or transfer to a wrong bank account is not desired by anyone. Decisions based on inaccurate data, inconsistent incomplete is not helpful to anyone. Therefore, combining business intelligence with other operational systems or data warehouse environments offers the advantage of data quality technology.

Therefore any company that uses BI solutions can improve their daily work, comparing results from different time periods to assess the trend of increased activity and may in time to capture the problems and remove it before they get too serious.

Conclusions

Over time many companies have relied, as main tool for working on classic spreadsheets. As the BI technologies were developed, users quickly understand the advantages that BI solutions have. Therefore, they have increasingly refocused more attention to these solutions.

BI solutions offer users the possibility to better understand through analysis made which are the results of the company, the way in which everyday activities are aligned with business objectives. These company solutions offer a perspective on how it relates to suppliers or customers.

Company can better understand the environment in which business operates and relates to competition in this environment.

Decisions taken within the firm should be based by quality data be correct, complete and on time. The capacity analysis should not be diminished by the lack of technology to ensure data quality.

Therefore a company should use the BI technologies. This does not mean renunciation of the use of spreadsheets, data warehouse environments or existing operational systems. Just need to find a way to bring together these elements to get the best profit with least effort.

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