An Approach to Building and Implementation of Business Intelligence System in Exchange Stock Companies

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Abstract: The Object of this paper is describing the process used in Business Intelligence (BI) building. According to specification of Exchange Stock markets, we suggest creation and implementation of Business Intelligence system in this market. This consideration is focused on objective and functional area of the BI in these companies. The strategy of these companies involves two main stages that are BI creation and BI consumption. A large part of this paper present tasks and objectives for BI implementation in Exchange Stock companies. At this paper the literature of business intelligence system has been studied and the results are used in stock exchange company programs. Building and implementation of business intelligence system in this stock exchange company has design and report.

Key words: Business intelligence system, methodology of building and implantation, business decision making, knowledge management, stock exchange.

INTRODUCTION

In a 1958 article, IBM researcher Hans Peter Luhn used the term business intelligence. He defined intelligence as: "the ability to apprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal"(Luhn, 2008).

Business intelligence as it is understood today is said to have evolved from the decision support systems which began in the 1960s and developed throughout the mid-80s. DSS originated in the computer-aided models created to assist with decision making and planning. From DSS, data warehouses, Executive Information Systems, OLAP and business intelligence came into focus beginning in the late 80s.

In 1989 Howard Dresner (later a Gartner Group analyst) proposed "business intelligence" as an umbrella term to describe "concepts and methods to improve business decision making by using fact-based support systems" (D.J. Power,). It was not until the late 1990s that this usage was widespread (Power, 2010).

Business intelligence (BI) refers to computer-based techniques used in spotting, digging-out, and analyzing business data, such as sales revenue by products and/or departments, or by associated costs and incomes.

BI technologies provide historical, current, and predictive views of business operations. Common functions of business intelligence technologies are reporting, online analytical processing, analytics, data mining, business performance management, benchmarking, text mining, and predictive analytics.

Business intelligence aims to support better business decision-making. Thus a BI system can be called a decision support system (DSS) (Bui, 2000). Through the term business intelligence is sometimes used as a synonym for competitive intelligence, because they both support decision making, BI uses technologies, processes, and applications to analyze mostly internal, structured data and business processes while competitive intelligence gathers, analyzes and disseminates information with a topical focus on company competitors. Business intelligence understood broadly can include the subset of competitive intelligence (Chaudhary, 2004).

Socio-economic reality of firms and companies has made organizations face some necessity to look for instruments that would facilitate effective acquiring, processing and analyzing vast amounts of data that come from different and dispersed sources and that would serve as some basis for more benefits in stock- exchange.

The Managing Information System (MIS) simply do not handle integration of different, dispersed and heterogenic data well in stock- exchange, they cannot interpret such data in any broad contexts effectively and they are not capable of sufficient discovering new data interdependencies.
Business Intelligence (BI) systems provide a proposal that faces needs of contemporary organizations. Main tasks that are to be faced by the BI systems include intelligent exploration of information data of stock-exchange, integration, aggregation and a multidimensional analysis of data originating from various information resources. Systems of a BI standard combine data from firms and companies information systems of stock-exchange and they integrate data coming from the particular environment e.g. statistics, financial and investment portals and miscellaneous databases. Such systems are meant to provide adequate and reliable up-to-date information on different aspects of enterprise activities.

The research results show, the BI systems in question contribute to improvement and transparency of information flows and knowledge management in stock-exchange cause ability of firms and companies in:

- Follow profitability of their products sold;
- Analyze expenditures;
- Monitor corporate environments; and
- Discover business anomalies and frauds.

BI differs from MIS (i.e. DSS, EIS, and ES) in, first of all, their wider thematic range, multivariate analysis, semi-structured data originating from different sources and multidimensional data presentation.

It is assumed that BI may support decision making on all levels of management regardless of the level of their structuralization.

On the strategic level, BI makes it possible to set objectives precisely and to follow realization of such established objectives. BI allows for performing different comparative reports, e.g. on historical results,
profitability of particular offers, effectiveness of distribution channels along with carrying out simulations of
development or forecasting future results on the basis of some assumptions that cause improvement of
exchange- stock market.
On the tactical level, BI Systems may provide some basis for decision making within marketing, sales,
finance, capital management, etc. The systems allow for optimizing future actions and for modifying
organizational, financial or technological aspects of company performance appropriately in order to help
enterprises realize their strategic objectives more effectively.

**Methodology:**
Building and implementing BI systems require organizations to have some culture of working with
information and information technologies about stock- exchange, which is related to:
- Thorough and ongoing research into organizations’ informational needs (present and future) and role of
stock- exchange market in country economics.
- Authentic co-operation of the users involved (i.e. decision makers and operational personnel) with
organizations’ IT departments and knowledge management centers;
- Information sharing; and
- Abilities to interpret analyses and use such analyses in stock- exchange market.
Suggesting the methodology of building and implementing BI systems in stock- exchange, we use any BI
system that suggested a set of guidelines and some kind of a pattern for owner stock- exchange firms and
companies. The model in question pays particular attention to the role of end users in the whole life cycle of
the BI systems including the phase of the BI usage in particular.

All the above has to be manifested in the system performance. Taking into account significant influence
users have on the BI system performance allows for suggesting two major iterative stages in the approach to
building and creating the systems in question:
1. Creation of BI in stock- exchange evaluation
2. Use (“consumption”) of BI in stock- exchange transaction

BI creation is the most time consuming and this stage requires the greatest part of financial and manpower
resources in the whole BI life cycle. BI creation consists of numerous stages including in particular:
• Definition of the BI undertaking, i.e. determination of the BI system development strategies;
• Identification and preparation of source data;
• Selection of BI tools;
• designing and implementing of BI; and
• Discovering and exploring new informational needs and other business applications and practices.
The BI “consumption” stage is predominantly associated with end user application in stock- exchange of
firms and companies. The stage shows its major role in popularizing and promoting practices that are related
to data analyses and BI systems in stock- exchange market. This stage may be divided into several different
steps to be taken at the discretion of users and according to their needs or tasks to be faced. The steps mainly
include the following:
• Logistic analyses that enable to identify partners of supply chain quickly;
• Access, monitoring and analyses of facts;
• Development of alternative decisions;
• Division and co-operation; and
• Change in the effect of company performance.
A scale of effort undertaken at the stage of designing and implementing BI varies in stock- exchange
market. Such effort predominantly depends on the system complexity and the level of its popularity. However,
in the majority of cases, creation of a customized BI application requires a lot of time. The time required is
spent not only on designing individual interfaces but also on making sure that the whole BI application is
logical and consistent. Another important stage of designing BI involves building a data warehouse that is
supposed to perform two functions: of a repository for further analyses, and of a base for the BI system.

Depending on tasks to be undertaken by users, a process of using different data repositories along with
ready to use analyses starts. Data are compared and interpreted. This stage requires users to show much
initiative. Depending on emerging needs, users should create author analyses and reports and be able to ask
relevant questions and interpret results to be obtained.

Analyses of different facts may reveal alternative methods of solving a particular task and some other
possibilities of optimizing numerous activities. A selection of a final decision to be made frequently requires
consultations with other employees and decision makers.
Analyses of the already mentioned questions and answers should cover co-operation and communication of all individuals who participate in decision making of an enterprise. Such behavior involves some necessity to eliminate problems related to, inter alia, privacy and data appropriation in an enterprise.

Work with information and tools used to analyze and explore data allows for carrying out fundamental changes in a decision making process. Changes in enterprise performance involves, inter alia, looking for new forms of co-operation or outsourcing, new markets and business partners, etc.

Accomplishment of the last stage of the cycle of building and using BI systems does not mean that all BI related problems are dealt with in a given enterprise. As it has already been mentioned, the cycle in question is of iterative nature, thus being some kind of a loop that continuously requires carrying out more and more analyses of informational needs, re-evaluation of already existing solutions and their modifications, optimizations and adjustment.

**Conclusions (Dresner, 2002; Gray, 2003; Gray and Watson, 1998; Grossman, 1998):**

Each methodology of information system of stock-exchange market designing and implementing should be characterized by certain canons. In case of BI systems particular attention ought to be paid to the following issues:

1. BI systems in general companies should be rapidly implemented, which is quite difficult because such systems are specific for each enterprise. Although basing on standard components shortens time required to build BI, each implementation necessitates adjusting of a particular system to specific requirements of an enterprise. While choosing ready to use BI solutions, it is necessary to be very careful.
2. BI solutions in stock-exchange market ought to be flexible. As soon as business changes, organizations should adjust their BI systems to new conditions;
3. BI systems ought to be independent of their hardware and software platforms. Hence, it is recommended that a system of multidimensional analyses should co-operate with different bases (e.g. DB/2, Oracle, MS SQL Server or Informix) and work in already tested and commonly applied operation systems (e.g. Windows NT, UNIX or OS/400). Such solutions will allow for better adjusting the system in question to information technology related infrastructure of an enterprise.
4. BI solutions have to be scalable. Flexibility and open architecture allow for easy expansion of the system. It is necessary in a situation when there are new informational needs or when an amount of information to be processed remarkably increases; and
5. BI systems should be based on modern technologies. It is necessary to pay much attention to solutions provided by household names of the computer industry. Only then, it is possible to expect stability and reliability of purchased technologies.
6. BI systems pose a chance for the effective management of an enterprise. However, they require analysts’, designers’ and users’ high business, information and organizational culture. Skills to identify, model (in the processes and organization structures) and share knowledge constitute only some factors that determine a correct development of the BI systems.

**REFERENCES**


