



## CURRENT BUSINESS INTELLIGENCE PRACTICES IN WESTERN AND EASTERN EUROPE

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**Abstract:** The article examines Ukrainian and Western European companies' operation in the context of their information needs and Business Intelligence (BI) practices. Author defines and analyses current BI trends and the practice of BI tools integration in companies' operation.

**Keywords:** business intelligence, information needs, ERP, enterprise information strategy

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### Introduction and goals of the study

Nowadays with the rapid emergence and development of information and communication technologies, especially concerning data collection and storage methods, business intelligence (BI) approach is becoming more and more common in the corporate world.

The term “business intelligence” first appeared in 1958 in the article by IBM researcher Hans Peter Luhn. He defined the term as: “The ability to understand the links between the presentation of the facts” (Luhn 1958). BI in today's understanding had evolved from decision-making systems, which emerged in the early 1960s and developed in the mid-1980s. In 1989 Howard Dresner defined BI as a general term to describe “concepts and methods to improve business decision-making using systems based on business data” (*What is Business...*, n.d.).

BI is often described as “the set of techniques and tools for the transformation of raw data into meaningful and useful information for business analysis purposes” (*Big Data and Business...*, 2014).

BI technologies being capable of handling large amounts of unstructured data are today helping identify, and develop new strategic business opportunities. Identifying new opportunities and implementing an effective strategy based on insights can provide businesses with a competitive market advantage and long-term stability (Rud 2009).

The goal of this article is to identify and describe the current BI trends and practices in Eastern and Western Europe.

## The Current State of BI Practices

Today practical aspects of implementation of BI approaches into the company business processes is more an art than it is a science and is focused on providing business value to the organization, reinforcing the importance of the requirements at all levels and through the agile business architecture. Business analytics today are developing new skills to expand their capabilities and meet the needs of a greater number of cross-disciplinary roles. As for the latest changes in BI concept understanding, we have a shift in defining BI as the practice of engaging changes in the organizational context by identifying needs and making recommendations that benefit stakeholders. Today it is proposed to understand the profession of business analyst and its role in much broader aspect than in the nearest past, and move beyond information technologies. The analyst has a professional role to initiate a change that would: synchronize the business needs of all stakeholders, and to avoid undesirable changes.

As for today, one can identify six key concepts related to business analysis: changes, needs, stakeholders, solutions, contexts, value. Latest developments in these domains are as follows:

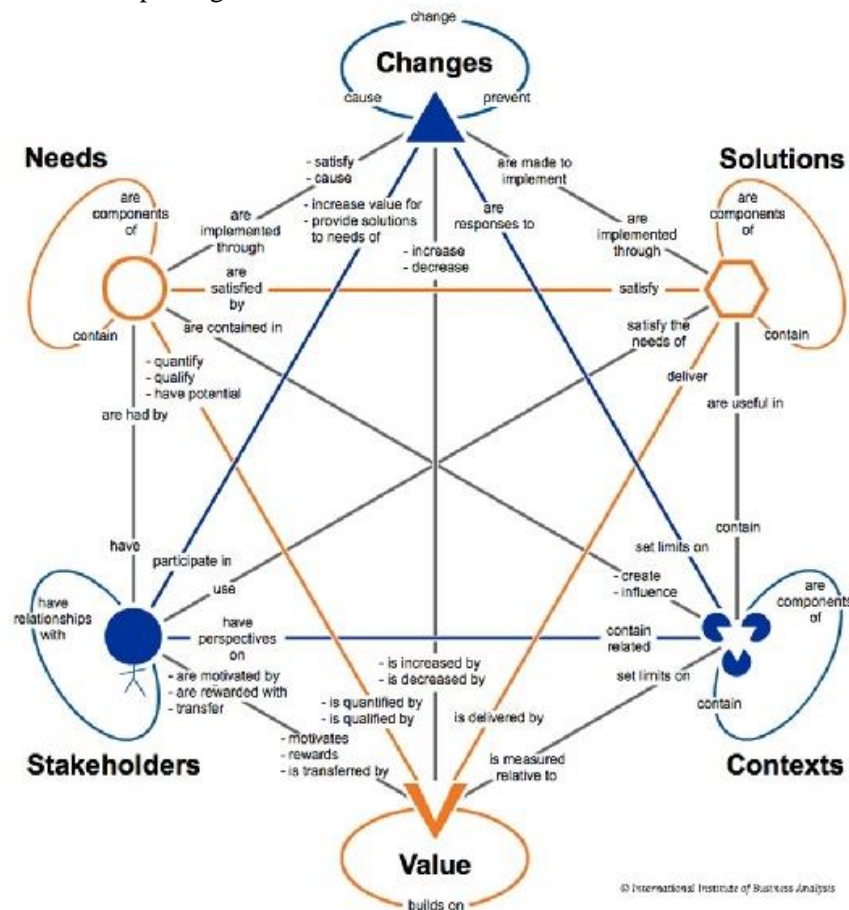
- *Changes*. BI is about change management and is applied in BI practices as controlled transformation of an organization.
- *Needs* is about challenges, opportunities and constraints that have potential importance to the stakeholders. The *need* can be understood here as goals, tasks, risks, benefits, acceptance criteria, transition requirements, etc.
- *Context* is a very interesting latest addition to the group of the basic concepts. International Institute of Business Analysis defines the term as “part of the environment, which includes a change”. This essentially includes everything that has to change, except the change itself. The context may also include such things as culture, infrastructure, relationships, and other areas related to business changes.
- *Solutions* are specific ways of satisfying *needs* in a certain *context*.
- *Stakeholders* are group of individuals who have a relationship to *changes* or *solutions*.
- *Value* can be defined as the importance of something to *stakeholders* in a *context*.

These core concepts exist in a relationship mix that is called Business Analysis Core Concept Model™ and is visualized in such a way that all the concepts are cross-connected and related to others (see *Figure 1*).

All the relationships and interconnections between the core concepts are described in the literature and numerous articles. But moving deeper into the practical aspects, we should note that BI and business analytics (BA) are sometimes used interchangeably, but there is a difference between them. First of all BI refers to the collection of business data to reveal the information, especially through the questionnaires, reports and online analytical data processing. BA on the other hand uses statistical and numerical tools for the understanding of the current situation and forecasting.

In an alternative definition, Thomas Davenport (Davenport 2014) asserts that BI should be divided into stages:

- Information Retrieval,
- Analytical real time processing (OLAP),
- Tools warnings about deviations from expected performance,
- Business analytics,
- Business Reporting.



**Figure 1. Business Analysis Core Concept Model**

Source: (Sammy n.d.)

T. Davenport's definition offers BA as a subset of BI and focuses on statistics, forecasting and optimization. Thus, BI cannot be narrowed just to reporting.

More to it, talking about the current technological trends in BI, we should name some of them. The SaaS (Software as a Service) ideas are today actively implemented in the field of BI in form of various instruments of data collection and integration and other informational services with such tools being developed by major software development companies. Open-source solutions are also becoming

more and more popular, competing on a large scale with commercial software. We also should mention that the decision making processes today are more often based on a vogue, poorly structured information, and it makes the demand for information search and structuring tools incredibly high. The wave of innovations in the field of data visualization also significantly influences BI software.

### **The Current State of BI Practices in Eastern Europe and Ukraine**

The Ukrainian market of BI-systems consist mainly of software developed by foreign companies. Besides that automated BI systems have low-to-none demand among the Ukrainian companies because it is believed that BI-solutions are irrelevant to the current low level of automation in the country. Some steps to creating their own domestic BI-systems are carried in Russia, but these tools are usually devoted to solve only some narrow aspects of business performance management. The largest companies that are now developing BI-systems in Russia are TopS BI, Columbus IT Russia, BARS Group. However, the most advanced BI products are products of foreign vendors, including such as Actuate BIRT, IBM Cognos 8 Business Intelligence, WebFOCUS (Information Builders), SQL Server 2008 R2 (Microsoft), MicroStrategy (MicroStrategy), Oracle Business Intelligence (Oracle), NovaView (Panorama Software), QlikView (QlikTech), SAP BusinessObjects (SAP), SAS Enterprise Business Intelligence (SAS), TIBCO Spotfire Analytics (TIBCO Spotfire).

The main problem is that most Ukrainian companies don't use information or analytical systems in their day-to-day work, and those that do, spend a lot of money doing it without proper knowledge and continue to operate with information of very poor quality. This undoubtedly affects their functioning in a negative way.

Despite the existence of new tools for qualified managers, which are designed to make it easier to build complex analytical models, the demand for data scientists remains high and continues to grow. Unlike the situation in the western markets domestic data scientist actually adapt to the business objectives in the working process, that is connected with the fact that there are no ready-made training or teaching programs for the appropriate application of analysis methods.

Pioneers in the field of business intelligence in Ukraine are the telecommunication companies with their large volumes of data. For example, Business Objects products in Ukraine are used by four major mobile operators. However, despite the fact that the interest in such products arises now among financial institutions and industrial enterprises as well, in our opinion, the mass demand for BI tools has not yet come.

Currently, a growing interest arises in "portal technologies", in particular solutions based on Microsoft SharePoint Portal Server. These tools are popular among companies seeking to increase the transparency of their business processes and are ready to place data for internal or external use on-line.

The need for the organization of collective work, which more often today involves people outside of the corporate network perimeter, significantly increase the demand for cloud-based BI-services. This will be the new impetus to further

evolve the concept of social enterprise. Cloud services, including analytical, is a perfect solution for small geographically distributed companies and organizations. They allow to save resources in IT infrastructure. Usually these solutions are considered of high risks because of transferring company's data to external agents, so it is preferable to store and process data on their own servers for large businesses. But the unstable political and legal situation in Ukraine is the reason cloud corporate solutions are becoming even more popular among the local businesses as servers and data are stored in much more safe jurisdictions and business data can not be withdrawn by domestic security agencies, as it often happens to Ukrainian businesses in recent years.

### **Comparison of Ukrainian and Western European business information needs and BI practices**

According to statistics more than half of large multinational companies are experiencing problems due to high data fragmentation and/or incorrect data: 40% of big international businesses name the incomplete information and its' inaccuracy as the main difficulty associated with effective corporate governance. Nowadays the number of daily decisions made in companies is constantly increasing. And these decisions, in turn, are being based on the ever-increasing volume of information. The availability of the necessary data is becoming much more important than ever before.

The general trend, which is observed on Ukrainian BI market is the dissemination of data analysis tools from senior management level to the level of managers who work with customers and partners on day-to-day basis.

It is pertinent to say that the companies have outgrown the stage where decisions could be based on memory and intuition. Today it is difficult to operate without the proper tools. Today the major trend is the collaboration of IT and management units that is becoming an absolute requirement for companies wishing to effectively exploit their information assets for competitive advantage. To ensure this, it is of the first necessity to develop and implement an effective information and communication strategies and BI tools.

Currently, most western companies operate in an integrated way by comparing the effectiveness of the operational and financial performance. As a result, they are focusing their efforts on building an integrated strategic management system that covers the entire organization and its value chain. Many enterprises have made significant steps to improve the efficiency of operations through business process reengineering, ERP-implementation, and methodological innovations. So now when companies realized the need to assess the results of these actions, they have realized the opportunities that BI offers.

Professor A. Oettinger (Harvard University) (Oettinger 1980, p. 191-198) considers that the information is converted into a primary resource just as well as materials and energy, so relative to this resource the critical question should be formulated: who owns it, who are interested in it, and is it available? Empirical experience and results of our research show that the majority of domestic enterprises

and companies are not aware of their information needs, do not focus on the information market and do not know the information resources needed to ensure the successful long-term company success. Low degree of knowledge of the theoretical problems of information support of the company at the operational and strategic levels should be noted as well.

The survey and consultations with representatives of Ukrainian companies revealed the need to address the problem of identifying the information needs of domestic companies, including those based on the comparison of national experience shaping the behavior of companies in the information space of foreign experience. Performing this task involves: assessment of the importance of different types of data for manufacturing enterprises and trading companies, and compare them with those of foreign companies; detect patterns of information needs at the level of specificity criterion for enterprises of different industries and comparison of the structure of domestic and foreign companies; identify differences in priorities of selecting of information sources for domestic and foreign companies.

The study of information needs of modern companies conducted by us makes it possible to make the following conclusions (Grebeshkov 2010, p. 177-189) (data revised mid-2015). First of all, we have to admit that most domestic companies do not focus on the information market, they have the question of what they want and know, how and where such information is available unresolved.

The structure of the information needs of Ukrainian industrial enterprises is topped by the analytical accounting and management information, data on the availability of financial and investment resources, political information, information of legal nature. Unlike domestic manufacturers, foreign companies have different information priorities: the top demand goes to information about new technologies and innovations, as well as the results of fundamental and applied research. This is determined by innovative focus of foreign manufacturers and their Ukrainian colleagues to focus on issues of compliance requirements in unstable legal and regulatory space prevailing in Ukraine. Moreover, it should be noted that the market infrastructure in Ukraine is undeveloped, and it heavily depends on its own actions and regulatory institutions, which, in turn, is evidence of the high degree of opacity of the market space in Ukraine. Regarding trading companies, domestic firms put the need for commercial information and information about the availability of financial and investment resources first, while for foreign trade companies of primary interest is the data on the status and dynamics of commodity markets and stock news, and trends in financial markets.

The results of the survey of domestic enterprises in various fields of operation showed that the list of information resources that can be attributed to the group of universal (that is equally important for manufacturing companies and trading companies) is quite wide: from the official information from the authorities and regulatory legal documents to marketing and educational information. Substantially similar estimates appeared as well for different foreign companies. The universal information resources turned out to be relatively narrow and contain the most important information about the company – accounting and analytical data of “internal” origin, information on human resources and personnel and data on

foreign commodity markets. In our opinion, such structure of information resources, recognized as the most important by companies from different fields of activity (industrial and commercial), is a clear evidence of awareness sustainability and information needs of foreign companies, as well as their clear orientation in the rapidly changing information environment.

Based on the above assessment of the importance of information resources, the structure of information needs of domestic and foreign companies was determined: while for Ukrainian companies the share of demand for general information does not exceed 60%, for foreign companies this estimation goes as high as 86%, while the specific information needs are estimated as follows: 14% for Ukrainian companies, and 1% for foreign companies.

Analysis of the importance of different information for domestic and foreign manufacturing companies showed that in comparison with foreign practices Ukrainian industrial enterprises highly overrated value of information of legal, official, business and political nature (deviation of estimates of domestic enterprises by foreign varies from 50% to 35%).

In addition, local production companies have shown high importance of information on the labor market and the financial market. However, foreign companies significantly undervalue market infrastructure data and management skills development opportunities.

As for the trading companies, deviations in their assessments of the significance of various information resources from foreign practice is not as significant. Revalued is the legal information (which is a common hallmark of all domestic enterprises, regardless of activity), while commercial and innovation information is significantly undervalued.

## Conclusion

Based on the identified characteristics of the information needs of domestic companies, we can say that on the one hand the information needs of enterprises specify the general state of the economic system of the country (the level of development of market infrastructure, the influence of political power on economic relations, etc.). On the other hand, domestic companies are in an urgent need for the formation and increase the level of information culture, mastering the technology and tools to work with information resources, including the BI tools.

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## OBECNE PRAKTYKI BUSINESS INTELLIGENCE W EUROPIE ZACHODNIEJ I WSCHODNIEJ

**Streszczenie:** Artykuł bada działania ukraińskich i zachodnioeuropejskich przedsiębiorstw w kontekście ich potrzeb informacyjnych oraz praktyk Business Intelligence (BI). Autor definiuje i analizuje bieżące trendy BI oraz praktykę integracji narzędzi BI w działaniu firm.

**Słowa kluczowe:** Business Intelligence, potrzeby informacyjne, ERP, strategia informacyjna przedsiębiorstwa