



## **BI-SYSTEMS AND THEIR USE IN SOLVING PRACTICAL PROBLEMS**

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<b>Article history:</b>	<b>Abstract:</b>
<b>Received:</b> 25 <sup>th</sup> January 2024 <b>Accepted:</b> 20 <sup>th</sup> March 2024	This article provides a theoretical basis for BI-systems aimed at the implementation of intellectual analysis of currently evolving data, based on resource analysis, to compare existing BI-platforms and draw the necessary conclusions. The analysis of large volumes of data has aroused great interest not only among researchers, but also among practitioners. It is possible to form a mechanism of analysis of large volumes of data in different views and sections. Among such tools, there is a growing need for BI systems. As a result, as a prelude to the study, based on comparative analysis, the advantages and disadvantages of many systems have been revealed. The basics of the formation of BI-systems aimed at analysis from the generated information systems are given.
<b>Keywords:</b> Database, analysis, data science, management, BI systems, Artificial intelligence, Data Connectivity Gateway, 1C, Google analytics, Yandex metrika, Oracle, SQL Server, SAP, Excel, API, BITRIX, CRM	

### **INTRODUCTION.**

The development of the world information community, the creation and consistent development of large-scale information resources, the improvement of the mechanisms of data processing and the creation of meta data remains one of the important issues. Because data analysis, coverage of different sections, development of prospective decision alternatives based on in-depth analysis depends on the quality of knowledge (meta data) generated in the subject area. On the basis of qualitatively formed knowledge, it is possible to reduce the errors of information analysts' activities, analyzes and conclusions in the subject area. This issue is strengthening the demand for the correct establishment of socio-economic relations formed in the conditions of globalization, the introduction of artificial intelligence methods and tools on the basis of modern information technologies in the establishment of comprehensive analysis mechanisms, and introduction into various cross-platform systems.

Nowadays, big changes are taking place in the global information space covering the market, society and the state. The expected third renaissance in society is expected to demand major changes, and to implement these changes with the widespread introduction of the "digital economy", it is expected to open up opportunities that will take socio-economic growth to a whole new quality indicator. According to the analysis agency IDC, the growth in the big data market will increase by 25% in 2021 compared to previous years, despite the severe pandemic conditions, we can see the economy adapting to the new reality. According to the prediction given for 2022, "digital existence" is expected to increase by almost 2 times compared to 2021. Due to the almost 50% increase in the amount of data in the cloud environment, wireless equipment and tools, "internet of things", intelligent devices and technologies, augmented and virtual existence have developed and led to a large wave of increase in the number of users. It shows that today's trend embodied in the concept of "digital transformation" will have a decisive effect on enterprises and institutions. This trend is the main determining factor in current market relations. Any enterprise or institution affected by the "digital economy" is required to have a mechanism for rapid data collection and analysis in production and corporate management to meet market requirements.

Analysis of popular BI platforms in the world market. Today, there are many solutions in the market of BI systems. The complexity of the choice is that almost every proposal claims to be the "best and universal" BI. Below we look at five of the most popular systems: Microsoft Power BI, Polymatica, QlikView, Qlik Sense, and Oracle Business Intelligence.[1, 2-9]

Management-oriented reporting management platform. QlikView (Figure 3) is one of the best systems on the market with advanced dashboards and the ability to create reports. A unique feature of the platform is that any objects can be customized and configured. With this, you can alleviate any user scenarios. A unique associative model simplifies the creation of dashboards for finding relationships between loaded data.

The capabilities and uniqueness can be seen in the following [2,3,9]:

- Simplified integration with various data sources thanks to built-in ETL with more than 200 built-in filtering functions.
- Ease of scaling (scoping).
- An associative storage model in which fields with similar names are related to each other. This allows the user to select specific data in the table and see the values related to each other in the entire database.
- Includes a large number of charts, tables, and other elements that allow for data analysis. The elements in the control panel themselves are easily edited, by clicking on one of them, the user receives complete information about the principles of its operation.
- Data is processed in the server's RAM, which is one of the main distinguishing features of the platform, which significantly speeds up the work of the dashboard. The system can compress data, so their size is several times smaller than in the source.
- Supports Microsoft products.

An analytics-focused platform. Polymatica is an online analytical platform for processing large volumes of data. It is a software product built from scratch with its own software kernel by the Russian company of the same name. It provides an opportunity to analyze several different indicators at the same time with a high level of detail and to formulate decision alternatives with high efficiency.

Work with resources in the system, information for control panels is formed from the following sources [4,5]:

- PostgreSQL, MySQL, Oracle and MS SQL database;
- Polymatica Analytics has a large array data processing platform;
- CSV, Excel, JSON and XML files;
- REST API;
- Google and Yandex tables;
- With 1C and a number of other system environments.

The number of supported sources is constantly growing, and all downloaded data sets are stored in the system and updated according to the settings. The system has a cross-platform (desktop and mobile version) that provides a friendly interface that can be used without special training.

A comprehensive BI platform. Microsoft Power BI is a multi-purpose and cost-effective platform focused on making business data accessible to everyone, with its Power BI Desktop (free) and Power BI Pro (minimum fee per user) views for employees for business discovery (mining) and analytical reports. Given the necessary tools, it is possible to create a culture of information in the organization.

There are monthly or weekly updates that improve Power BI features and functionality. These updates are based on thousands of ideas from a community of more than half a million registered members worldwide each year.

Powered by industry-leading AI (Artificial Intelligence) tools, the system is armed with the latest AI tools to quickly generate responses, both in text and image form. Anyone working with Microsoft 365 can easily connect Excel queries, data models, and reports to the Power BI dashboard. With the help of Microsoft Power Platform, it is possible to analyze data and create metadata. The system integrates Power BI, Power Apps, and Power Automate to make it easy to create a variety of presentations and automate workflows.

The ability to quickly perform real-time data flow analysis adds a new dimension to the analytics data segmentation. Real-time analysis of data from any source provides the basis for quality decision-making.

The Power BI system incorporates the following functions [6]:

- Automatic update of reports up to 8 times a day, 1 time a day for free;
- Ability to use artificial intelligence to analyze reports;
- The free version has a streaming data processing limit of 10,000 lines/hour and 1 GB of memory;
- Data processing limit in the paid view is 1 million rows/hour and 10 GB of memory per user;
- Access to data directly through the Data Connectivity Gateway;
- Availability of the ability to establish a relationship between tools such as Office 365 and Active Directory groups;
- The ability to protect public reports, as well as the presence of role management.

Power BI was developed by Microsoft, so the program interface is similar to other products of this company. The free version has a set of tools with no time limit for use. This allows the user to fully use the system if he is satisfied with other technical limitations.

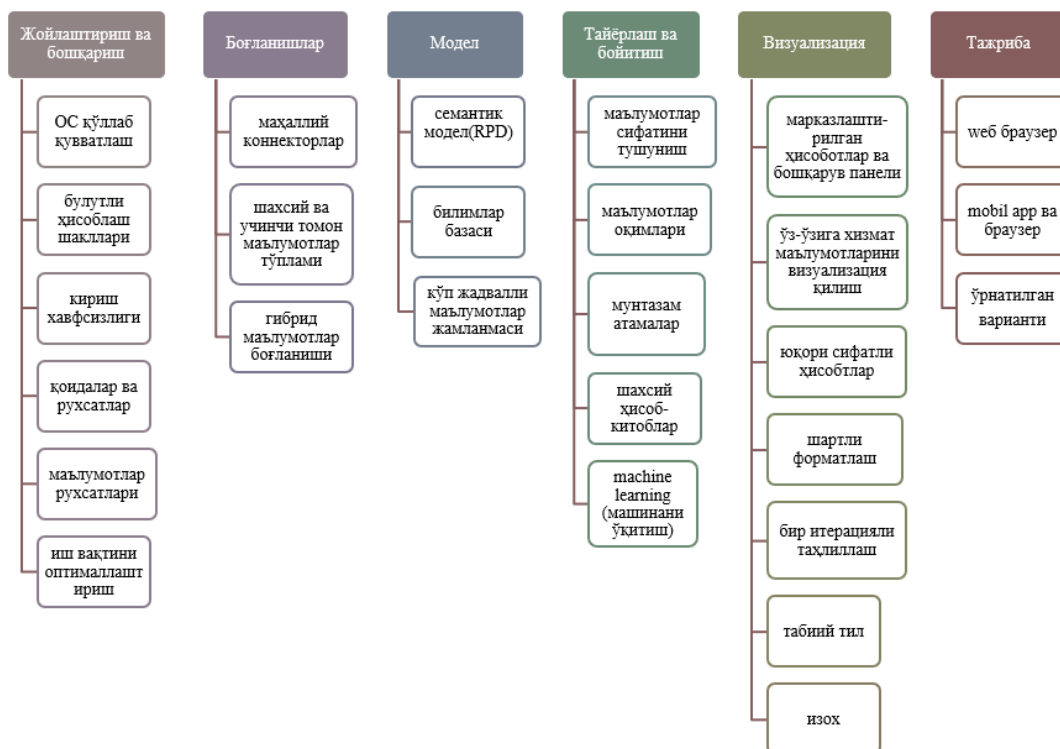
The Microsoft Power BI system can collect data from more than 70 sources, including Excel, CSV, XML, Azure, MySQL, Google Analytics, Oracle, and others [2,9].

Business analysis platform. Qlik Sense is a modern business analysis platform that allows you to process any data at high speed and with a set of modern graphics. Qlik Sense has the following features.

- Data mining. Ability to generate metadata while providing reports that incorporate specific principles of data handling.
- Independent work. The product allows the user to independently work with analytics, create new graphs and change logic, without resorting to the help of IT specialists.

- Simplicity and convenience. It will be possible to prepare the necessary report or presentation in a few seconds without resorting to the help of IT specialists.
  - Qlik Sense allows you to collect data from different sources in a single information system. At the same time, Qlik Sense does not require a special database.
  - In connection with the 1C environment, it is possible to select various documents, directories and other objects.
- A manager of any level working with Qlik Sense can find answers to various questions, taking into account the unique characteristics of the organization's activities, and its implementation is simple and easy [7].  
Qlik Sense system can work with 1C, google analytics, yandex metrics, Oracle, SQL Server, SAP, Excel, API, BITRIX, CRM systems.

Cloud-based intelligent analysis systems. The Oracle Analytics platform is designed for companies that need versatile, fast and intelligent decision-making, and this platform includes industry-leading cloud analytics modules. Oracle Analytics analyzes on a modern, standardized and integrated platform



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**SUMMARY.** BI is a flexible and effective tool that can be used in almost any industry. Companies' data sharing and collaboration efforts will grow as they strive to become more data-driven. Data visualization becomes even more important when teams and departments collaborate. This article covers the simple basics of choosing the best software and tools for business intelligence, and in the analysis selected systems that are world-famous and have a high position in the BI-system market. It was decided to continue the research based on this concept.

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