

СОВРЕМЕННЫЕ ТЕХНОЛОГИИ АНАЛИЗА ДАННЫХ. POWER BI DESKTOP

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В этой статье рассматривается такой инструмент представления и анализа данных, как Power BI Desktop, который помогает проводить самоанализ данных на предприятии и получать достоверные результаты с использованием интеллектуальных данных. Рассмотрим преимущества работы с современными технологиями анализа данных, а также отличие от возможных аналогов. На примере использования Power BI Desktop проведем анализ данных торгового предприятия.

Ключевые слова: Power BI Desktop, отчеты, диаграммы, технологии анализа данных.

MODERN TECHNOLOGIES OF DATA ANALYSIS. POWER BI DESKTOP

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This article discusses such a data presentation and analysis tool as Power BI Desktop, which helps to conduct self-analysis of data in the enterprise and obtain reliable results using intelligent data. In this study, we will consider the advantages of working with modern data analysis technologies, as well as the difference from possible analogues. Using the example of using Power BI Desktop, an analysis of a trading enterprise data is conducted.

Key words: Power BI Desktop, reports, charts, data analysis technologies.

The concept of automated data processing and analysis dates back several decades. The definition of the term 'business intelligence' was introduced by IBM researcher Hans Peter Lohn in 1958. In his opinion, business intelligence was supposed to provide "the ability to understand the relationships between the facts presented." Until recently, the most popular data processing tool was only one, specifically Microsoft Excel. However, the era of big data has arrived. These days, there is no shortage of information, but business executives are getting an overabundance of unnecessary data. According to IDC, an information technology market research firm, by 2021 the total volume of information in the world will be 40 times greater than it was in 2010 [1]. These new circumstances mean that old tools and methods cannot be used to handle the data that is already beginning to accumulate on the expensive servers of large companies.

BI systems by no means supersede accounting transactional systems such as CRM, 1C, ERP and others. They are not obsolete; they just solve some different problems. Their purpose is to collect information about different aspects of business through manual data entry. All these accounting and control systems are built on relational databases containing information in a tabular form, and are intended for rapid processing of multiple transactions and subsequent storage of information, rather than for operational analysis, data processing and comparison. When a company has a dozen or more systems in place to record information, a single solution is needed to use all the data quickly to make sound, confident decisions. Otherwise, the information collected through expensive systems and large staff will simply be stored in numerous servers.

From this perspective, the need for a system that reduces the effort required for reporting and visualization by a factor of two, or reduces the time it takes to process queries and retrieve data, becomes clear. Such a system is certainly essential for the modern manager. An example of such a system is BI.

Of course, an enterprise can use a standard Microsoft Excel program. At first glance, it performs the same functions of structuring data and presenting it visually. But unlike Excel, Power BI has the ability to share with private users,

and also has a protection system like this. that the data can only be viewed by users registered in this company, which reduces the risk of information leakage [2]. In addition, with Power BI Desktop, you can connect to several different data sources and combine them into a data model. Let's take a closer look at this program.

The purpose of research is to review some modern technologies for data analysis. The tasks involved are: to describe the Power BI Desktop big data analysis tool; to use Power BI Desktop for merchant data analysis. The relevance of my work lies in the fact that for the operation of an enterprise it is necessary to have a certain system of data classification and visualization. This is why you need to consider a collection of software services, applications that work with each other to turn disparate data across the enterprise into consistent, visually structured analytic data.

Power BI Desktop is a free local application that lets you connect to data sources, transform, and visualize data. Power BI Desktop integrates proven Microsoft technologies: efficient query processing, data modeling, and visualization. Power BI Desktop centralizes, simplifies, and accelerates what might otherwise be the scattered, messy, and complex process of designing and building business intelligence repositories and reports. The most common uses for Power BI Desktop are: data connectivity; transforming and cleaning data to create a data model; Creation of visual elements such as charts and graphs that visually display data; creation of reports, which are collections of visual elements on one or more report pages.

In Power BI Desktop, one can connect to data (typically multiple data sources), shape that data (using queries that create informative, visual data models), and use that model to create reports (which users can use in their work, including joint). After completing these steps (data connection, data generation, and reporting), the results of work can be saved as needed in the Power BI Desktop file format which has the PBIX extension.

Power BI Desktop files can be shared like any other file, but the most efficient way to share these files is to upload them to the Power BI service.

Power BI Desktop centralizes, simplifies, and accelerates what might otherwise be the scattered, messy, and complex process of designing and building business intelligence repositories and reports. [3]

In order to start working with data, it is required to:

- upload data to Power BI in excel or access format (for the period 2018 and 2019);

- for proper work with tables, it is necessary to establish links between them;

- filter out the necessary data;

- build diagrams.

The most common uses for Power BI Desktop are:

- data connection;

- data transformation and cleaning to create a data model;

- Creation of visual elements such as charts and graphs that visually display data;

- creation of reports, which are collections of visual elements on one or more report pages;

- sharing using the Power BI service.

Further a closer look at the principle of construction and types of charts in Power BI is given.

To obtain primary skills, as an example, it was considered how much an employee brought profit to the enterprise.

For doing this the option “Stacked histogram” is selected in the “Visualizations” menu. [4] Figure 1 shows an example of setting up a chart in Power BI.

Figure 2 represents an employee's profit bar chart.

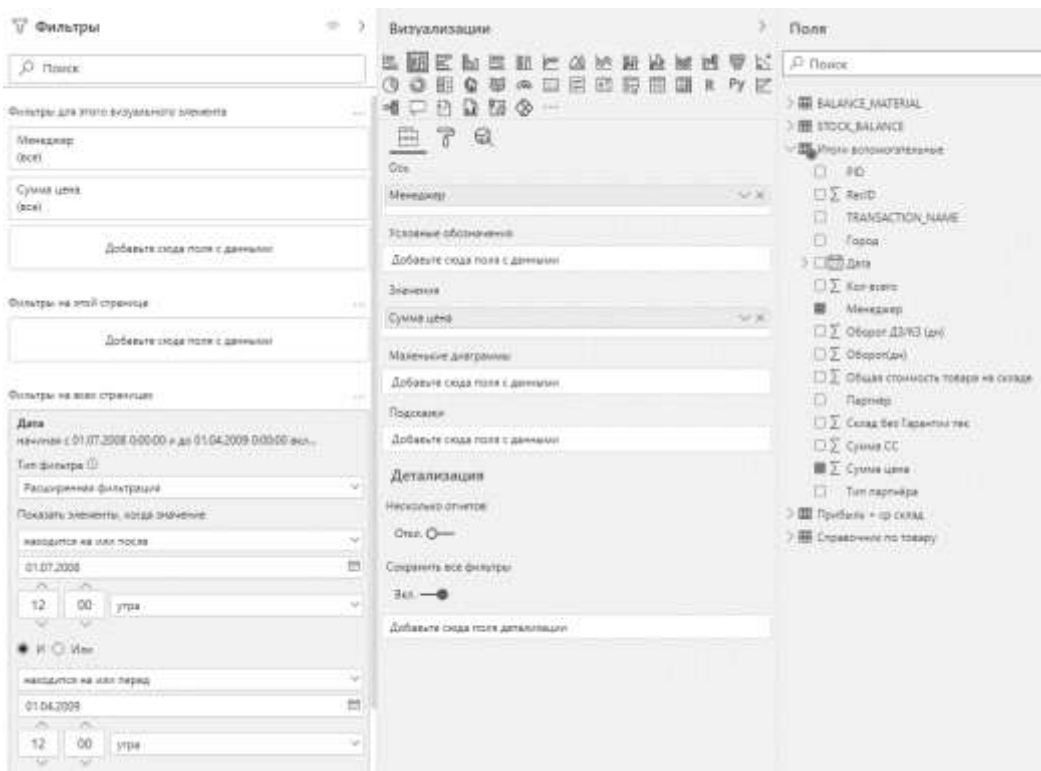


Figure 1 - Bar chart settings in Power BI

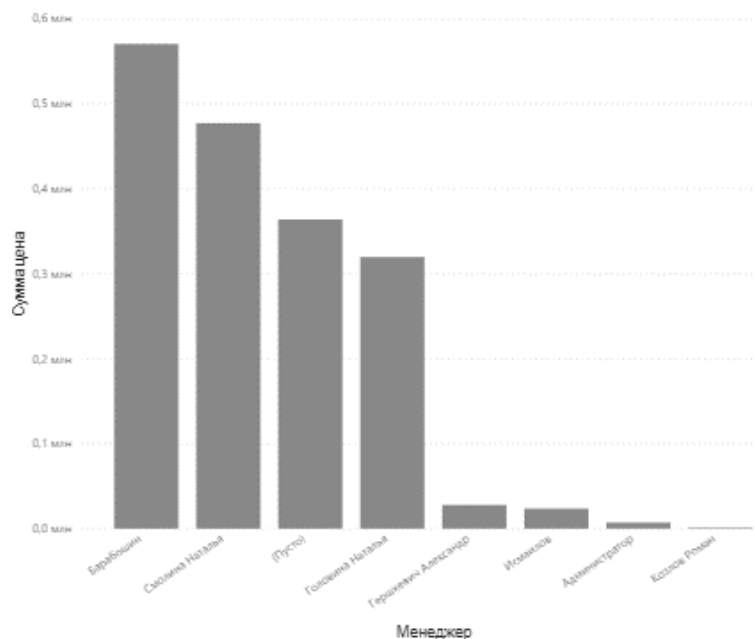


Figure 2 - Employee profit

It is clear that within the period from 01.07.2008 to 01.04.2009 a manager (Baraboshin) brought the greatest profit to the enterprise. Figure 3 shows the report on number of items sold.

PowerBI allows to work with large amounts of data, create queries at the DBMS level and generate detailed reports, while no special skills are required. [5]

As the next step it was necessary to answer the questions about sales in value and quantity terms for a certain period of time. Figure 3 shows such results.

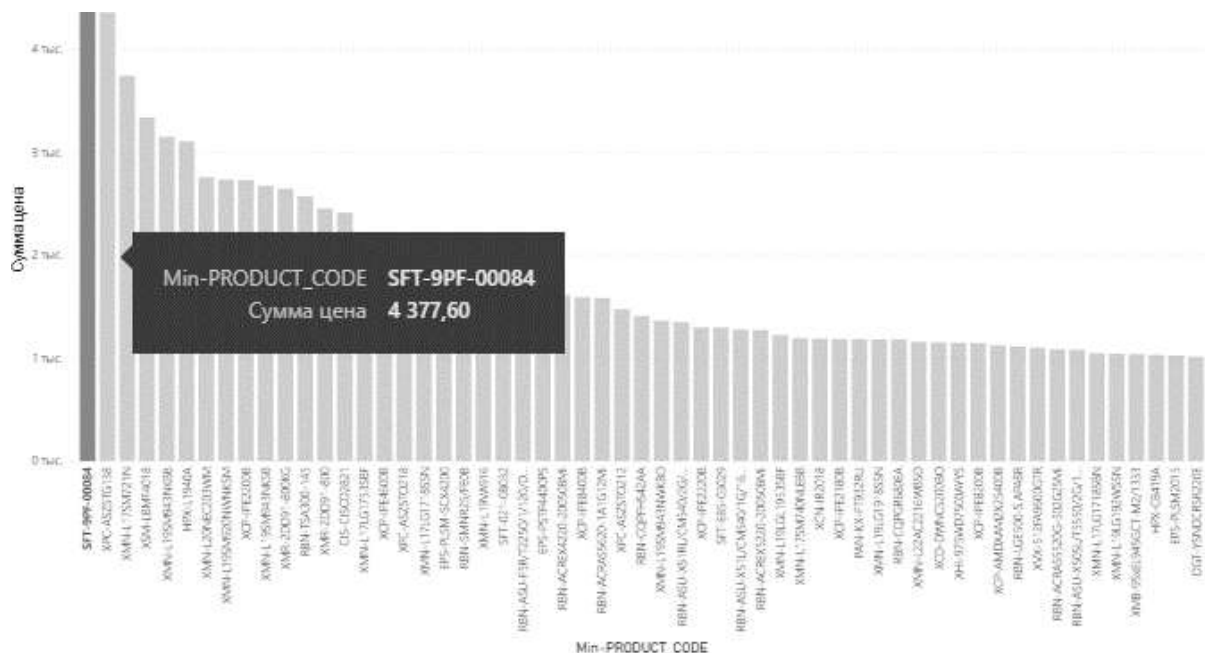


Figure 3 - Sales in July 2008

Thus, a bar chart with the accumulations displays sales for different periods in value terms. Based on Figure 3, it can be seen that SFT-9PF-00084 in July 2008 was the most expensive item.

Another question to be asked is about which partners are serviced in a most successful way. Figure 4 shows the most successful partner service, that is ITS.

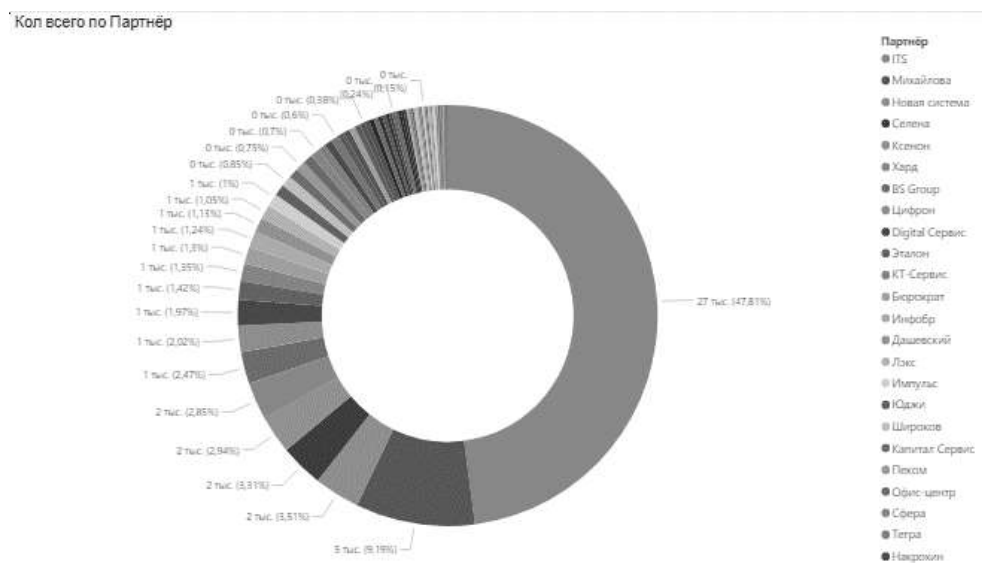


Figure 4 – The most successful partner service

The final question is to find out the most successful cooperation with cities. Figure 5 shows that the most successful cooperation is carried out with the Novosibirsk city.

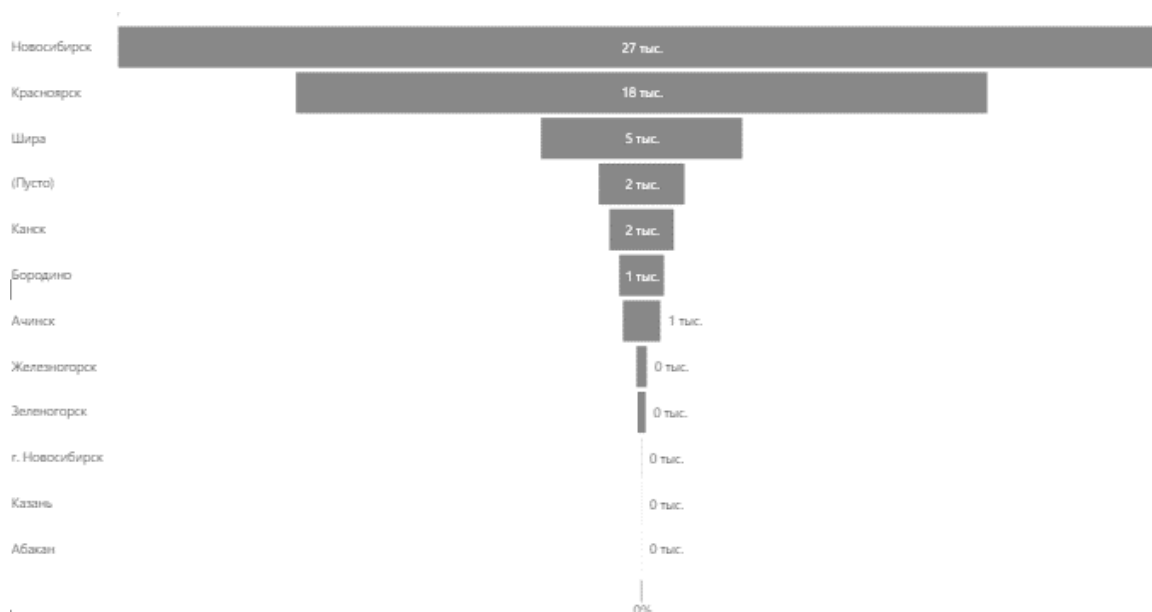


Figure 5 - Funnel of cooperation with cities

Also, Figures 6 and 7 show the most work in the city. The bar and pie charts show that Novosibirsk takes the leading place among 12 cities, followed by Krasnoyarsk. The difference between the two successful cities is 9,000 items.

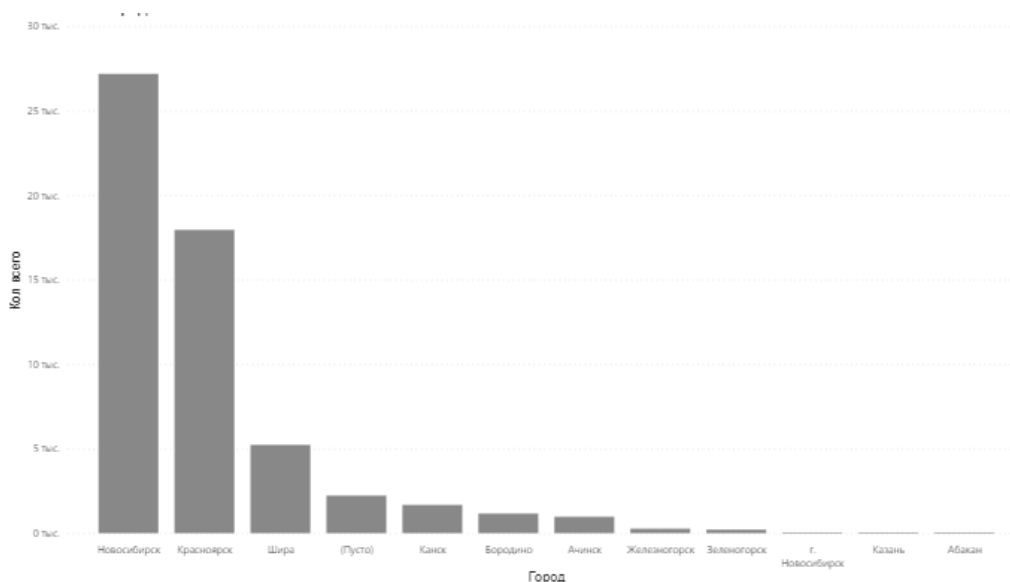


Figure 6 - Bar chart of successful work with cities

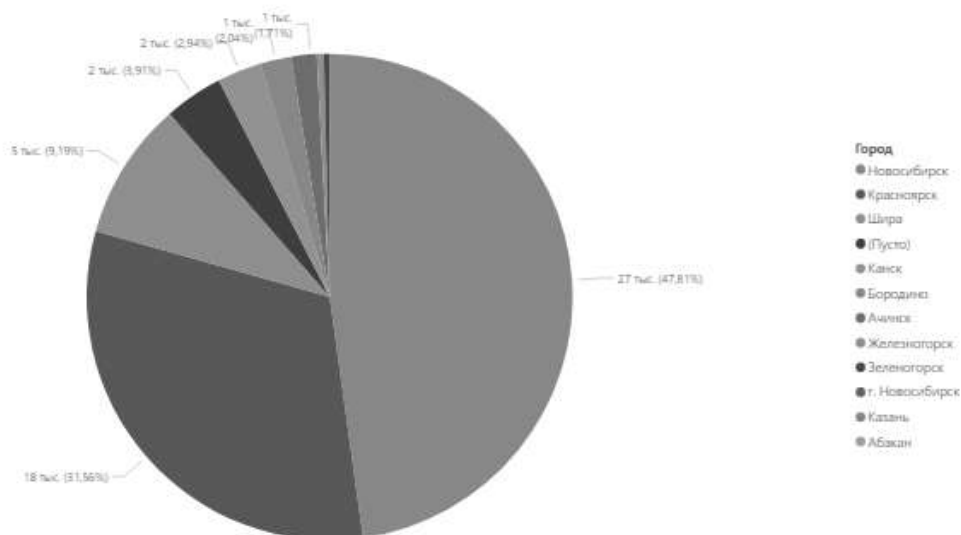


Figure 7 - Pie chart of successful work with cities

With the help of Figures 5, 6 and 7, I presented you with the possibility of using various graphs and diagrams to visualize your work.

In conclusion, I would like to stress that Power BI Desktop mitigates the additional cost, complexity, and security risks of working with multiple solutions. It also enables smart, reliable results and sharing. Power BI transforms company data in a visual and easy-to-read format for PC and mobile devices. Power BI dashboards turn corporate data into interactive, easy-to-read, visual reports. To get the most out of data, it is needed to make more efficient use of it. Data visualization helps to visualize information and makes it possible for all employees to understand it, regardless of their training and skills. Changes in dashboards are automatically synchronized for all users, and employees receive up-to-date information on time.

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