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DEVELOPMENT "BIGDATA" TECHNOLOGY

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Abstract:

The article is devoted to the analysis of Big Data, areas of application of "Big Data" at the present stage. The use of the global technologies "Big Data" will play a big role in the modern innovative development of the country's economy. Big Data technologies are a completely new development trend. The processing of large amounts of data is changing business processes and the business environment of any country.

Keywords:

Big Data global technologies, innovative development, information technology, global economy.

Introduction

The term "Big Data", which arose in the last decade, is directly related to the emergence of the problem of a rapid increase in data volumes, arising primarily in business structures as a result of the full-featured informatization of business processes; in scientific organizations - due to the emergence of new measurement opportunities; in government organizations - with an increase in the volume and functionality of services, as well as in public communication networks. Big data is currently one of the key drivers for the development of information and communication technologies in the context of high-tech production. This direction, relatively new to business, has become widespread in Western countries. The ever-increasing capabilities of processing large volumes of data today are radically changing business processes and the business environment. The use of global technologies "Big Data" can play a key role in the modern innovative development of the post-industrial economy. "Big Data" technologies are a completely new development trend, as confirmed by representatives of the world community.

Big Data is a series of approaches, tools and methods for processing both structured and unstructured huge volumes. The "three Vs" are noted as the defining characteristics for big data (from the point of view of the problems of their processing): volume, speed (velocity, in the sense of both the growth rate and the need for high-speed processing and obtaining results), variety, in the sense of the ability to simultaneously process various types of structured and semi-structured data). Other "Vs" are also added to them, for example, veracity (in the sense of the problem of unreliability, unverified data) and visualization (visualization), in the sense of the need for new approaches to presenting the results of data analysis. This term is understood as a range of technologies and methods of their practical use. For example, Forrester defines Big Data as a hardware and software technology that integrates, organizes, manages and analyzes data characterized by the "four Vs": Volume, Variety, Variability and Velocity).

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Big data refers to a collection of data with potential exponential growth that is too large, unformatted, or unstructured to be analyzed by traditional methods. The tools and methods for processing big data are fundamentally different from working with conventional databases. Today, world-famous companies - Microsoft, Oracle, IBM, SAP - are developing tools for working with Big Data. The problems of processing big data have particularly acutely raised the problem of combining the efforts of mathematicians, programmers, specialists in the field of business engineering and business analysis. Obviously, the search for a solution to the problem of big data is also associated with the interest of businesses to generate income from the use of huge volumes of stored information, compensating for the costs of storing it. Today, these issues also require study by specialists in the field of economics. The appeal "Core Techniques and Technologies for Advancing Big Data Science & Engineering" talks about the development of key scientific and technical approaches to managing, analyzing, visualizing and collecting information from large, distributed and heterogeneous sources, which, in particular, will allow solving problems with which previously could not be dealt with. New methods, tools, and infrastructure will enable innovation in science, technology, medicine, commerce, education, and national security that NSF hopes will ensure U.S. competitiveness for decades to come. Mobile communications and the global positioning system (GPS), geospatial information and social networks are considered as the main sources that generate big data for their subsequent application in statistics. Some of this data is not publicly available, but is the property of the private sector, so there is a need to establish interaction between statistical research bodies and companies. NSF awarded $10 million to the University of California Berkeley for the Expeditions in Computing project to develop new machine learning algorithms that can process large-scale, heterogeneous data sets. In addition, the Cyberin Frastructure Framework for 21st Century Science and Engineering (CIF210) program is accepting applications for the implementation of EarthCube - organizing a real-time Big Data infrastructure for the Earth sciences. $1.4 million will go to a group in which biologists, together with mathematicians, will continue to create digital models of protein operation based on accumulated data sets, and $2 million will go to the development of educational infrastructures on Big Data topics. A new profession is a data scientist, whose competence includes working with big data, and every year more and more relevant educational programs appear. Important prerequisites for the implementation of the program are the successful implementation of programs related to the use of information technologies in the field of business analytics, modeling of enterprise business processes, and design of corporate information systems. Big data technologies also allow you to analyze more types of data than business intelligence tools, which makes it possible to focus on more than just structured repositories. The white paper Oracle Information Architecture: An Architect's Guide to Big Data points out that when working with big data, you need to approach information differently than when conducting business analysis.

While the goals are similar, the difference between big data technology and business analysis is as follows (Matt Slocum, O'Reilly Radar): -Big data technologies are designed to process larger volumes of information. - Big data is designed to process faster, faster-changing information, which means deep exploration and interactivity. In some cases, results are generated faster than the web page loads. - Big data is designed to process unstructured data, requiring algorithms and the ability to dialogue to facilitate the search for trends contained within these arrays - Mathematical and technological knowledge and skills to select, evaluate, analyze and use big data tools and technologies; - Competencies that provide an understanding of business architecture, the impact of the introduction of new IT technologies, including big data technologies, on the efficiency of enterprise management, changes in the value chain; - Managerial competencies in the field of implementation of big data systems and services based on big data technologies; Research competencies in the field of big data analytics, stochastic optimization, predictive modeling, forecasting, enterprise data management, business analysis, economic and mathematical modeling. - carry out work on the implementation and evaluation of the effectiveness of big data technologies and tools in the enterprise - manage enterprise data (DataManagement); -implement and apply analytics and decision support tools based on big data technologies, implement decision management; -develop new models of enterprise information infrastructure taking into account the capabilities of big data technologies (Model Management). The main tools for achieving the set goals in relation to the promotion of “Big Data” include measures to promote: - the use of metadata in infocommunication technologies, the fields of television and radio broadcasting, education, healthcare, transport; - further improvement of Big Data technologies and platforms; - personnel training; -organization of a center for R&D support and pilot projects in the field of “Big Data”; -creating a favorable environment for the dissemination of Big Data technologies; - protecting personal information and minimizing its abuse; -structuring the regulatory framework for doing business based on Big Data. The scope of Big Data is quite wide. In particular, these technologies are actively used in the communications, media and entertainment industries. Organizations in this industry simultaneously analyze customer and behavioral data to create detailed customer profiles that can be used to: Create content for different target audiences; Recommend Content upon request; Measuring the effectiveness of Content. Using Big Data technologies, you can optimize transport flows. To do this, the movement of cars online is taken into account, social media and meteorological data are analyzed. Today, a number of cities have committed themselves to using data analytics to combine transport infrastructure with other types of public services into a single whole. This is the concept of a “smart” city, in which buses wait for late trains, and traffic lights are able to predict traffic congestion to minimize traffic jams. The stock market is no exception to the use of BigData technologies. The Securities Exchange Commission (SEC) uses big data to monitor stock market activity. They are now using network analytics and natural language processors to catch illegal trading activity in the stock markets. Retail traders, large banks, hedge funds and others in the stock markets use big data for trading

analysis, used in high-frequency trading, pre-trade decision support analytics, sentiment measurement, predictive analytics, etc.

Big Data technologies have made it possible to develop more complex forecasting algorithms and monitor their effectiveness in real time. Collection, filtering, in-depth analysis using sophisticated statistical models and easy visualization of the huge volume of data generated by the stock market create a competitive advantage for investors who use Big Data technologies in the formation of successful trading strategies. Currently, global BigData technologies are the key technologies of the future. In central New York, thousands of infrared cameras are aimed at the windows of houses - they collect information about when residents fall asleep and wake up, when they turn on the lights, even know what types of light bulbs they use, and collect information about environmentally harmful emissions from buildings. Sound sensors on traffic light poles record noise levels from traffic and house parties. In Chicago, sensors on the streets record data not only on the state of the environment (carbon dioxide concentration, noise level, wind speed), but also on the behavior of pedestrian flows. In Houston, authorities monitor citizens' smartphones to learn about traffic congestion and synchronize traffic lights. In Barcelona, analysts commissioned by the authorities are studying a simply huge number of parameters of city life - from economic and demographic indicators to statistics on the use of rented bicycles and the congestion of bus routes; computer programs scan messages on social networks about certain city events, and sensors on garbage containers, meanwhile, help optimize the work of sanitation services. This is big business for the world's largest companies - IBM, Microsoft, Cisco Systems, Qualcomm and others. According to the Wall Street Journal, the installation of multifunctional sensors in Chicago cost $200 million (the federal government paid that much) plus subsidies from large businesses. IBM - not only on urban projects, but on big-data solutions in general - earned $1.3 billion in 2012, more than any other company in the world. At the same time, this business (especially if we put aside paranoia about total surveillance) is really capable of improving life in cities.

References

1. Phillips, T. Data-driven management. How to interpret numbers and make quality business decisions. – M.: Mann, Ivanov and Ferber, 2017.
2. Ivanov, P. D., Vampilov, V. Zh. Big Data technologies and their application in a modern industrial enterprise. Engineering journal: science and innovation [Electronic resource]. – 2014. – Issue. 8. – Access mode: http://engjournal.ru/catalog/it/asu/1228.html.
3. Tabakov V. Big Data as part of corporate strategy. SAP will help you [Electronic resource]. – Access mode: http://www.sapevents.edgesuite. net/uasapforumkiev/2014/pdfs/01_Tabakov-20Big%20Data.pdf.
4. Leskovets, Y., Rajaraman, A., Ullman, D. D. Analysis of large data sets. – M.: DMK Press, 2016. 5. Mayer-Schoenberger, V. Big data. A revolution that will change the way we live, work and think. – M.: Mann, Ivanov and Ferber, 2014.

6. Medetov A. A. The term Big Data and methods of its application // Young scientist. – 2016. – No. 11. – P. 207–210.
7. Fowler, M., Pramodkumar, J. S. NoSQL: a new methodology for developing non-relational databases = NoSQL Distilled. – M.: Williams, 2013.
8. Morrison, A. et al. Big Data: how to extract information from them (Russian) // Technological forecast.
9. Wikibon [Electronic resource]. –Access mode: http://wikibon.com.
10. Gartener Says Solving 'Big Data'Challenge Involves More Than Just Managing Volumes of Data (English) Gartener (27 June 2011).
11. Kolesnichenko, O. Yu., Smorodin, G. N., Ilyin, I. V. et al. Text analytics Big Data: prospects for supercomputers // National Supercomputer Forum, 2015. Electronic publication of reports, article 09-475, section "Supercomputer technologies when working with large volumes of data (Big Data)". Institute of Software Systems named after A.K. Ailamazyan RAS. Pereslavl-Zalessky. November 24-27, 2015
12. Franks, B. Taming Big Data. – M.: Mann, Ivanov and Ferber, 2014. – Access mode: http://bfveteran.ru/rabota-v-internete/925-poyavlenie-bolshix-dannyx-potrebnost-vstandartax.html. 13. Tech Pro Research [Electronic resource]. – Access mode: http://techproresearch.com/topic/big-data.
14. Bill Franks. Revolution in analytics. How to improve your business in the era of Big Data using operational analytics. Alpina Publisher, 2016.
15. Report of the Global Working Group on the Use of Big Data for the Preparation of Official Statistics - 2015. [Electronic resource]. – Access mode: http://www.cisstat.com/BigData/CISBigData_02%20UNSC%202015%20GWG %20BD-report.pdf. 16. Report of the Secretary-General of the UN Economic and Social Council. Big data and modernization of statistical systems - 2014. [Electronic resource]. – Access mode: https://unstats.un.org/unsd/statcom/doc 14/2014-11-BigData-R.pdf.