

# IMPACT OF BIG DATA ON MANAGEMENT OPTIMISATION IN VIRTUAL BUSINESS ENVIRONMENT

Neeti Jain

*Sri Guru Gobind Singh College Of Commerce, Delhi*

---

## ABSTRACT

*The issue of leveraging big data to inform management decision-making is examined in this article. The concept and key features of big data are defined, its sources and analysis techniques are disclosed, a comparison between traditional management information analytics and big data analytics is provided, and the potential applications of big data in developing organisational and functional strategies are illustrated. The big data market's growth prospects in the context of business digitalisation are assessed.*

## INTRODUCTION

Massive information flows with a fantastic rate of change define the information age. The advent of digital technologies fundamentally alters managerial structures, business procedures, and methods of conducting business. In the face of uncertainty and quickly changing facts, managers must make strategic judgements. Making management decisions in real-time with access to a wide range of digital information is directly related to how well the organisation operates. investigation of the potential applications of big data in managerial decision-making. research techniques. The following methods were applied: content analysis, abstraction, induction, deduction, and analysis. Utilising big data in the management process is a critical necessity that enables real-time analysis of all accessible unstructured information from many sources, strategy development, functional strategy construction, and management decision-making.

Every second, enormous volumes of data are created in the digital world. The job of contemporary analysts is to extract from this array the precise data that will enable the manager to make a management decision as quickly and effectively as possible. The primary benefit of big data is predictive analytics, which is derived from the Internet and internal data sources. These sources of big data are where those who make managerial decisions might find the most useful data for predictive analytics.

## METHODOLOGY

Big data analytics-based predictive models enable you to evaluate an organization's potential while accounting for particular variables and potential hazards. Based on big data technology, predictive analytics allows for the competent development of advertising campaigns, the optimization of product sales, and the prediction of market conditions. Ultimately, this enables you to raise sales and lower expenses—that is, to increase the efficiency of marketing initiatives. Big data is utilized in human resource management to build work schedules, analyze internal communications,

optimize corporate operations, and choose personnel. Business processes are optimized through the use of big data technologies. To increase the effectiveness of big data analysis, you must integrate all information sources onto a single platform. This will improve departmental communication within the organisation and shorten the time needed to prepare data for analysis.

The information age is defined by massive information flows and an amazing rate of change. The advent of digital technologies fundamentally alters managerial structures, business procedures, and methods of conducting business. In the face of uncertainty and quickly changing facts, managers must make strategic judgements.

In the digital age, the ability to make management decisions in real-time, with access to a wide range of digital information, is directly linked to the organisation's overall performance. A multitude of factors influence how well a firm is managed [1]. The data environment is one of the key elements influencing management quality. Future-focused decisions are the foundation of all management decisions. As said in [2], managing entails foreseeing the future. Furthermore, you can only predict the future through study.

Information, the core of a manager's work, is instrumental in making management decisions. The quality of these decisions is intricately linked to the quantity and quality of the data used. Leveraging current knowledge and real-world experience is a key strategy in mitigating uncertainty and risks. There are numerous data collection methods available to aid in making managerial decisions, and the digital world, with its vast amounts of data being generated every second, provides an abundance of resources. The job of contemporary analysts is to extract from this array the precise data that will enable the manager to make a management decision as quickly and effectively as possible. As said in [3], the possibilities of its analysis are more significant than the quantity of information. Predictive analytics is the primary benefit of big data. Strategic planning is centred on predictive analytics. As you know, one of management's primary responsibilities is planning. Thirteen years ago, the term "Big Data" first emerged, and since then, it has become generally accepted in both the scientific and economic worlds. The article "How can technologies that open up opportunities for working with large amounts of data affect the future of science?" appeared in the journal *Nature*, edited by Clifford Lynch in 2008. "Big data" is a development in the infrastructure of information technology. According to [4], big data is a collection of ever-increasing amounts of information with the same context but distinct display forms, together with techniques and instruments for quick and easy processing. Big data is characterised mainly by the degree of organising and presentation techniques rather than the volume since the definition of "large" in today's world is subjective, and the volume and pace of information are changing too quickly. Nonetheless, the notion of 'Big Data' is characterized by a number of key elements, including speed, diversity, volume, and value. The Internet and internal data sources are the sources of big data, and it's this wealth of information that holds the potential to revolutionize data analysis in the future.

Broadly speaking, "big data" refers to an array of analysis techniques and information processing and storing procedures. According to McKinsey, big data analysis tools and methodologies include artificial neural networks, simulation, crowdsourcing, data mixing and integration, predictive analytics, and more. Those who make managerial decisions might be most interested in using

predictive analytics. I refer to this process as "predictive analytics" occasionally. By forecasting how things will behave in the future and employing a variety of data analysis techniques, such as game theory, data mining, and statistical methodologies, predictive analytics seeks to optimize management decisions. Big data analytics-based predictive models enable you to evaluate an organization's potential while accounting for particular variables and potential hazards. The industries that use predictive analytics the most include retail, financial services, insurance, healthcare, telecommunications, and advertising campaign planning. Predictive analytics ignores qualitative changes because it relies primarily on quantitative methodologies. It is considered a "weak link".

## **BIG DATA TECHNOLOGIES**

The planning system places significant emphasis on strategic planning, a key component that influences the functional areas of the organization's activities. As highlighted in [2], the organization's overall strategic plan is a culmination of the strategic plans for each functional area, shaping the business's operations.

Predictive models allow marketing professionals to maximize expenses while enhancing marketing communications. Big data technology provides predictive analytics for developing advertising campaigns, optimizing product sales, and predicting market conditions. Big data can be used to pinpoint the ideal customer base for products and services, paint the most accurate picture of them, and forecast how they will respond to marketing initiatives such as lowering tariffs or prices, expanding their market, running a campaign, remarketing, customising ads, and raising the standard of service. Determining the cause of a product's popularity among customers is very crucial. Big data analytics is also directly responsible for contextual advertising automation. The following services are used in marketing to optimise business processes: Big Data, RTB-Media, Analytics, Crosses, and 1C-Bitrix [3]. Using consumer data, the cloud solution "1C-Bitrix Big Data" enables you to generate customised offers and boost sales. Digital advertising is purchased using the RTB-Media service. It's employed to retarget searches and products.

With the end-to-end analytics solution, you can automatically manage advertising budgets, relevant advertising, and interactive reports. The Cross service allows you to create targeted mailings and customise online shopfronts. And with the help of this service, you can confidently forecast customer behaviour, knowing that you're making data-driven decisions. Therefore, you can research the company's capabilities, assess competitors, and assess both future and actual customers of the company's products by using big data in planning and developing a marketing strategy and marketing plan. Ultimately, this enables you to raise sales and lower expenses—that is, to increase the efficiency of marketing initiatives. Another vital area where "Big Data" is used is in human resource management. Big data is used by 60% of HR departments worldwide, according to a study conducted in [5] by the audit firm KPMG. The field of big data analytics encompasses a wide range of areas, including analytics related to the establishment and growth of the corporate competence model, critical employee competencies, staff workload, staff turnover and labour requirements, corporate culture, personnel recruitment channels, management, and individual labour performance.

Big data technologies are used to analyse internal communications, create social packages, create work plans, improve corporate processes, and, of course, make hiring decisions [6]. Applying these technologies leads to judgments about personnel policy, social policy, automation of corporate processes, and load redistribution. The field of big data analytics encompasses a wide range of areas, including analytics related to the establishment and growth of the corporate competence model, critical employee competencies, staff workload, staff turnover and labour requirements, corporate culture, personnel recruitment channels, management, and individual labour performance.

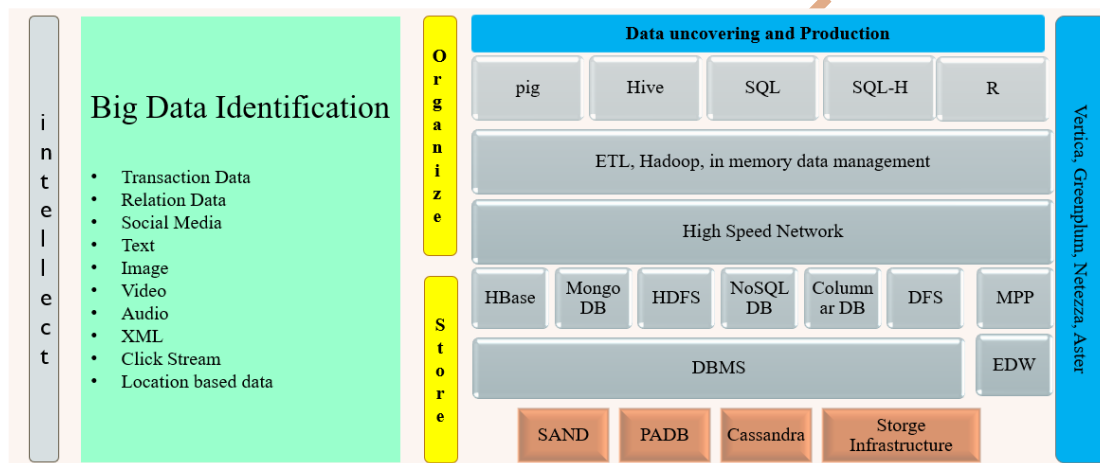


Figure 1: B-DAD Framework

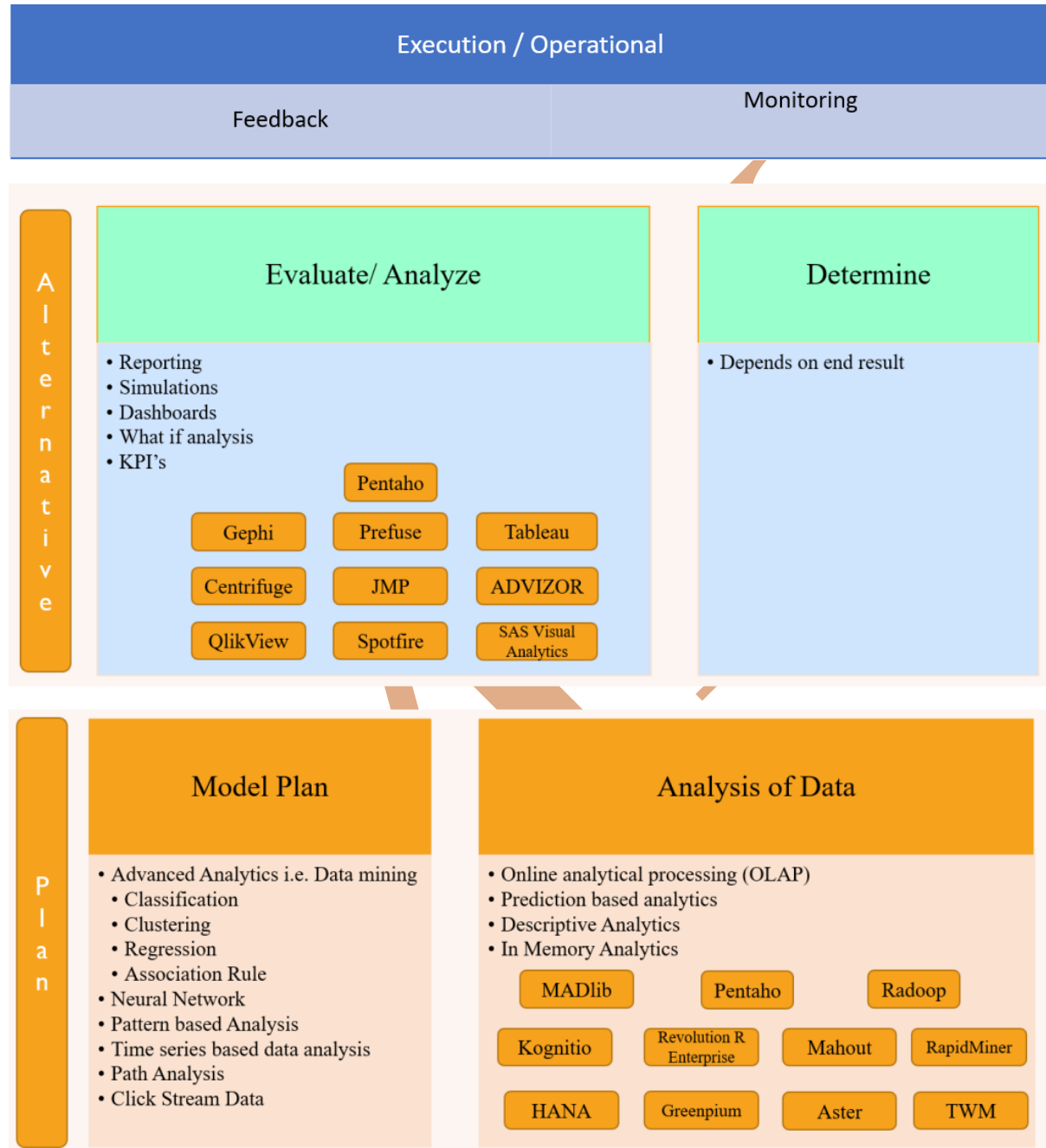
Big data technologies analyse internal communications, create social packages, develop work plans, improve corporate processes, and make hiring decisions [6]. Applying these technologies leads to judgments about personnel policy, social policy, automation of corporate processes, and load redistribution. Big data analytics instantly processes all available information in its current form, whereas traditional analytics gradually analyses data in small portions after altering them. This enables us to search the complete data collection for a correlation [3].

## APPLYING OF BIG DATA TECHNOLOGIES

Like any analysis, extensive data analysis starts with information gathering. The information environment as a whole, or anything that produces data, is the source of information for big data. This covers internal reports and the Internet (including social network message streams). You must integrate all information sources onto a single platform to increase the effectiveness of extensive data analysis. This will improve departmental communication within the organisation and shorten the time needed to prepare data for analysis. Thanks to blockchain technology, big data analytics can now be done at a higher level. Blockchain technology can significantly impact an organization's business processes, even though it is already commonly employed in the financial and public domains to process massive volumes of data.

It's crucial to remember that not all data is suitable for blockchain technology. In marketing, for instance, where data often has a high rate of change but a low value as a distinct record, blockchain may not be necessary. Understanding these limitations is critical to making informed decisions

about technology use. Therefore, in this case, it is not advisable to use the blockchain, since it involves storing unchanged and even outdated information. It is advisable to use blockchain technology where the immutability of information is required, for example, when creating an automatic archive of operations.



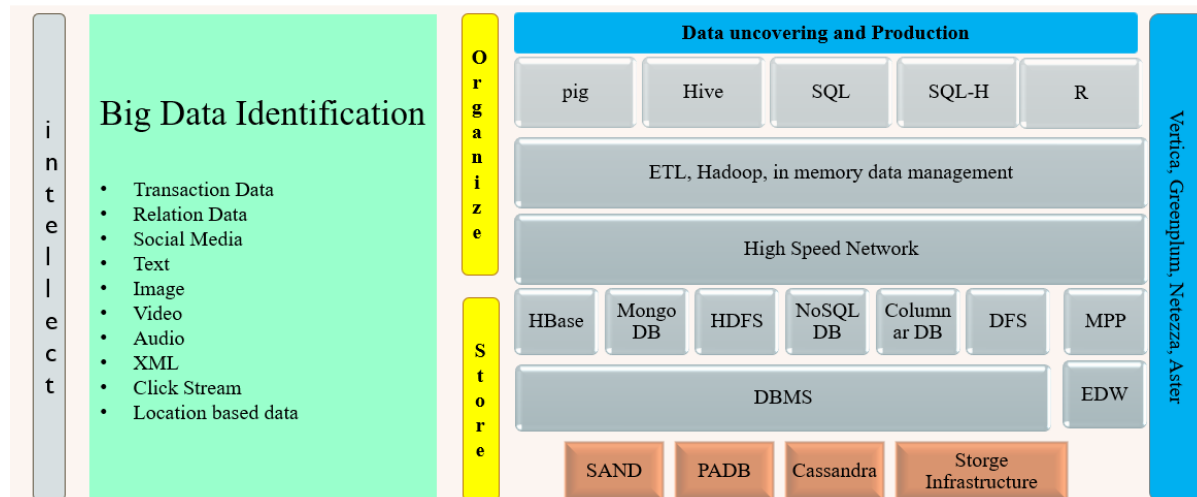


Figure 2 – Updated B-DAD Framework

## CONCLUSION

Effective combination of blockchain technology and big data is advisable [6]:

- 1) in the cloud services of big data storage Storj and FileCoin;
- 2) in a service that combines big data analytics and blockchain, thanks to which you can compare the company's performance with competitors and partners, Omnilytics;
- 3) in a decentralized information storage network aimed at monetizing individual data-Datum;
- 4) in the platform for cryptocurrency investors - Rublix ;
- 5) in the service for manufacturers, sellers and consumers - Provenance.

When analyzing big data, machine learning is used, which allows processing data arrays without human intervention, reducing the complexity of the strategic decision-making process.

The most prominent players in the big data market, including PJSC Rostelecom, PJSC Megafon, LLC, PJSC Sberbank, JSC Gazprombank, JSC Tinkoff Bank, JSC QIWI Bank (QIWI), LLC Yandex, and LLC one-factor, are members of the Big Data Association (ABD), which was established in Russia in 2018. The Russian Federation's government welcomed the Big Data Association as a member of the Association of the Analytical Centre in 2019. ABD and Boston Consulting Group created a big data market development strategy in 2019. The plan is set to last until 2024. Pessimistic, inactivity, basic, optimistic, and "dream scenario" are the five scenarios included [6].

These projections indicate that the big data industry will contribute between 0.3% and 2.4% of Russia's GDP, facilitating data access, offering a legally controlled environment for research, and standardising the rollout of new technology.

Therefore, in the context of economic transformation, using big data analytics is a must for an organization's effective management.



## **REFERENCES**

1. Klesareva E. Yu. Formation of the strategy for the development of telecommunications enterprises on the basis of the marketing concept of management Dis. Cand. econ. sci.: 08.00.05; [Place of defense: MTUCI]. - M., 1996. - 169 p.
2. <https://www.uplab.ru/blog/big-data-technologies>.
3. <https://habr.com/ru/company/dca/blog/267361>.
4. <https://www.hr-director.ru/article/67163-big-data-v-menedjmente-18-m6>].

**MIJ**