Journal of Informatics Education and Research
ISSN: 1526-4726
Vol 4 Issue 2 (2024)

Big Data Analytics in Support of the Decision Making Process in IT Sector

[1]Dr. Sri Hari V, [2] Dr.Raju B.P.G, [3] Dr. Karthik Reddy, [4] Dr Lavanya K

[1]Associate Professor, Dept. of Commerce, Sindhi college, Bangalore, sheshadri77@gmail.com

[2] Professor, Al-Ameen Institute of Management studies, Bangalore, Email: bpgraju@gmail.com

[3]Assistant Professor, Department of Management Studies, Nitte Meenakshi Institute of Technology, Bengaluru, Yelahanka, Bengaluru, Email: mbaskreddy@gmail.com, Orcid id: 0000-0002-1810-6570

[4]Associate Professor, C.B.Bhandari Jain college , Bengaluru , Email: lavanyak41@gmail.com

Abstract

The advent of big data analytics has revolutionized the decision-making process across various industries, particularly in the IT sector. This research paper explores the integration of big data analytics into the decision-making within IT organizations. It highlights how the adoption of big data tools and methodologies enhances the efficiency, accuracy, and strategic capabilities of IT decision-makers. This paper is an attempt to conduct a full-scale review on big data researches and its effects on the decision-making affair in an industry. Furthermore, decision makers need to be able to gain valuable insights from such varied and rapidly changing data, ranging from daily transactions to customer interactions and social network data. Such value can be provided using big data analytics, which is the application of advanced analytics techniques on big data. The study adopted a survey instrument and collected data from 230 respondents engaged in big data analytics in the IT sector of India. The research study identified that a positive and significant relationship exists between big data analytics and the decision making in IT sector.

Keywords: Big data analytics, IT sector, Decision making, Technology

Introduction

The modern era of digital technology evolution has changed the way how organizations operate on a daily basis based on the business-driven approach. The extensive amount of data is easily available since the storage type has increased with the data collection. With each second passing by more and more data is being generated from several sources (Nutt, Paul C.et al 2012) Such data is required to have some mechanisms such that it can be stored for analysis to draw the value. Organizations should push for capturing the maximum value out of the huge data repository (Hurwitz, Judith, et al 2013). In addition to that, organizations and corresponding stakeholders hold the technology and devices allowing them to create and store data based on different grouping or buckets. Each user these days can have access to personal devices i.e. laptops, smartphones, and such devices consist of larger data volumes which can be important to the organizations. Such type of data is referred to big data where data varies based on volume, variety, and velocity which becomes difficult to maintain and manage with the existing set of tools (Russom et al 2019).

The rapid proliferation of data in recent years has given rise to the field of big data analytics, which involves the examination of large and varied data sets to uncover hidden patterns, correlations, and insights. In the IT sector, decision-making processes have become increasingly complex due to the dynamic nature of technology and market demands. Big data analytics provides IT leaders with the ability to make data-driven decisions that can lead to improved efficiency, innovation, and competitive advantage.

In the era of digital transformation, organizations realize the value and importance of making the right decisions at the right time, which can only be made through relying on the relevant and timely availability of data and information that are processed as part of the decision-making process (Joseph & Gaba, 2020). At any level of an organization, the decision-making process is supported through information that can be processed in a meaningful manner. The sequence of collecting,

processing, and visualizing big data can help an organization's management function to make informed decisions about the operations and strategy of the organization (Koscielnaik & Puto, 2015). In the constantly changing business environment, organizations across the globe are striving to gain a competitive advantage through utilizing the latest technologies to process data and enhance strategic decision-making. In this context, Mazzei and Noble (2017) have argued that large, diverse, complex, and/or longitudinal data sets are having a direct impact on the formulation of organizational strategy and along with the increased level of data is leading to analytic capabilities and processes for re-definition of innovation, competition, and productivity across industrial sectors.

Review of Literature

In a data-rich environment, firms can improve marketing analytics capability with the adoption of artificial intelligence, which can helps to sense the market, identify market changes and understand customers' expectations, enhances the holistic marketing decision-making, thus improves firms' competitive marketing performance (Rehaman et al 2021)

The important purpose of big data analytics capability is to extract the knowledge that can serve the enterprise product innovation, market demand and gain competitive advantage from the massive and complicated data (Mikalef et al., 2019)

Guo (2009) studies the impact of information investment and sharing on supply chain performance under the condition of information acquisition costs in two constant states.

Compared the investment decision and coordination of supply chain on BDI in the case of information symmetry and asymmetry, and adopted the revenue sharing contract to coordinate supply chain. Considering the rise and rapid growth of Data Company, they discussed the investment decision-making problems in a three-stage supply chain with taking Data Company as a member (Tang & Girotra, 2017)

Skippari et al. (2017) studies the factors of cognitive barriers that supply chain members will face in the process of cooperative innovation, and puts forward that the generation of cooperative innovation will be affected by the different views of the relationship between supply chain members.

Bai and Sarkis (2016) studies different developments of suppliers, and the results show that cooperative and non-cooperative decisions between manufacturers and suppliers have a direct impact on supplier investment. Designed a contract model of supply chain innovation composed of suppliers and manufacturers, and found that the optimal value of supply chain can be obtained when cooperation stimulates supplier innovation

Rajesh et al (2022) The question in our research article is how to employ big data analytics using the integration with the decision-making process? The goal of the research is to construct and test the framework using the integration of big data techniques and tools with the decision-making process.

Philips et al (2019) The V's are the main characteristics of big data i.e. volume, velocity, and variety. The Volume can be considered as data in size, velocity can be considered as a dynamic form of data that changes at a certain rate or based on how it is created over time. Lastly, variety is considered as a different type of data form with formats.

Objectives

1. To study the impact of big data analytics on decision making in IT sector.
2. To identify the impact of big data analytics on new opportunities in IT sector.
3. To analyze the impact of big data analytics on cost reductions in IT sector.

Hypothesis

1. H1: There is a significance relationship between the impact of big data analytics in IT sector and better decision making.
2. H2: There is a significance relationship between the impact of big data analytics in IT sector and new opportunities.
3. H3: There is a significance relationship between the impact of big data analytics in IT sector and cost reduction.

Big data analytics used in Industry 4.0

Manufacturers use big data analytics in the same way as most other commercial entities except with a narrower focus. They collect huge amounts of data from smart sensors through cloud computing and IIoT platforms that allow them to uncover patterns that help them improve the efficiency of supply chain management.

Big data analytics can help them discover hidden variables causing bottlenecks in production that they didn't even know existed. After identifying the source of the problem, manufacturers use targeted data analytics to better understand the underlying cause of bottleneck variables. This helps manufacturers improve output while reducing cost and eliminating waste.

Production efficiency and assets are everything the manufacturing industry. The manufacturers' ability to maintain their means of production and keep schedules tight and on track can mean the difference between a good reputation and a bad one. Big data analytics reduces breakdowns and unscheduled downtime by about 25 percent.

Big data analytics is crucial to real-time performance, supply chain optimization, price optimization, fault prediction, product development, and smart factory design.

Big Data Analytics through Self-Service Systems

Adopting self-service analytics in engineering can help consolidate large bulks of big data from production plants. For example, global chip-maker Intel has smart factory equipment that sends real-time data into a big data analytics system. The self-service system then breaks down the real-time data and finds patterns, detects faults, and creates visualization for key decision makers.

Big Data Analytics and Predictive Maintenance

Engineers use big data analytics output generated from the system to make decisions. With this information, they prioritize changes and actions to be taken to avoid unscheduled downtime or equipment malfunction.

Big data analytics is synonymous with predictive maintenance and in Intel's case, reduces reaction time drastically. Without big data analytics, reaction time is about 4 hours. With it, that number is cut down to 30 seconds. The savings were huge, estimated figures were $100 million in savings.

Automate Production Management with Big Data Analytics

Another way big data analytics is used by manufacturers is to automate production management. This implies reducing the amount of human input and action needed in a manufacturing facility. It works by analyzing historical data of a production process, coupling it with real-time information of that particular production process, and automating physical changes to equipment using actuators and advanced robotics that are connected to control software. The control software takes inferences made from big data analytics and sends out targeted commands to these actuators and robots that will physically alter settings on equipment and machinery without any human intervention whatsoever.

Methodology

The research design chosen for this study was explanatory; the population of the study was organizations working in the information technology sector. An online survey questionnaire was developed to collect data for the measurement of the variables of this empirical research study. An online survey questionnaire was disseminated among 315 project managers and team members in IT sector, out of which 230 responses were collected through an online survey instrument. So it was discarded and the remaining 230 responses were used for further data analyses. For successful accomplishments of all objectives of the study, Bivariate Correlation, multiple regressions was adopted

Findings and Analysis

Table 1: ***Classification of the respondents***

		Frequency	Percent
Age	20-30 Years	106	46.1
	30-40 Years	86	37.4
	40-50 Years	27	11.7
	Above 50 Years	11	4.8
	Total	***230***	***100.0***
Gender	Male	139	60.4
	Female	91	39.6
	Total	***230***	***100.0***
Marital Status	Married	134	58.3
	Unmarried	96	41.7
	Total	***230***	***100.0***
Educational Qualification	Diploma	38	16.5
	Under Graduate	70	30.4
	Post Graduate	122	53.0
	Total	***230***	***100.0***
Experience	Less than 3 years	25	10.86
	3 - 5 Yrs.	122	53.04
	6 - 10 Yrs	75	32.60
	11 - 15 Yrs	8	3.0
	Total	***230***	***100.0***

Table 2. Cronbach's Alpha value for all variables

Reliability Statistics		
Construct	**Cronbach's Alpha**	**No. of Items**
Project efficiency	0.834	4
Decision making	0.881	6
New opportunities	0.810	3
Cost reduction	0.919	6

Based on the table below, the value of Cronbach 's Alpha for Project efficiency 0.834 decision making is 0.881, new opportunities are 0.810 and cost reduction is 0.919. According to all values listed above, it clearly shows that all of the values are more than 0.7 therefore, it proves that data instrument of this study is trustworthy and reliable to be used.

Correlation analysis

Regarding the testing of hypotheses, Pearson's Correlation was used as the bivariate correlation, which explains the strength of the relationship between two variables. The correlation value was computed to find the strength of the relationship between big data analytics and each of the five dimensions of project success. It is evident from the results presented in Table 3 that a significant and positive relationship exists between all five dimensions of Project efficiency, big data analytics, decision making, new opportunities and cost reduction.

Table 3: Summary of correlation analysis among variables

S. No	Variables	Mean	SD	1	2	3	4	5
1	project efficiency	3.018	0.871	1				
2	decision making	4.837	0.707	0.988**	1			
3	new opportunities	3.173	0.781	0.661**	0.390**	1		
4	cost reduction	4.219	0.648	0.449**	0.436**	0.358**	1	
5	big data analytics	3.211	0.739	0.817**	0.311**	0.585**	0.458**	1

**Correlation is significant at the 0.01 level (2-tailed).

Regression analysis

The next step in the data analysis procedure was to understand how much variance existed in the response variables (i.e. the five dimensions of the outcome variable; decision making), which is explained by the predictor variable of big data analytics. Additionally, analyses were carried out to study the strength of the relationship, if any, between these variables. For this purpose, linear regression was executed. The steps followed to run the regression analysis were to first enter the outcome variable and then the predictor variable. The same steps were repeated five times to run the regression for each of the five hypotheses, H1 to H3. The results are presented in Table 4.

Table 4: Summary of research hypotheses results

S. No	Variables	Coefficients				Model Summary			ANOVA	
		B	***β***	***t***	***Sig.***	***R***	***R²***	***Adj R²***	***ΔF***	***Sig.***
1	Project efficiency	0.313	0.461	4.618	0.000	0.212	0.177	0.193	29.040	0.000
2	Decision making	0.712	0.310	3.810	0.000	0.209	0.122	0.146	13.019	0.000
3	New opportunities	0.321	0.671	4.549	0.000	0.301	0.199	0.193	33.051	0.000
4	Cost reduction	0.709	0.761	5.012	0.000	0.455	0.320	0.315	62.649	0.000
5	Big data analytics	0.431	0.431	3.107	0.000	0.322	0.128	0.122	19.594	0.000

The regression test results illustrated that Project efficiency explains 17.7% of the variance in the project efficiency (ΔF=29.04, p<0.001). The standardized beta value was also positive and significant (β=0.461, p<0.001). Next, Decision making explained 12.2% of the variance in impact on the decision making (ΔF=13.019, p<0.001). The standardized beta

value was also positive and significant (β =0.310, p<0.001).

Regression analysis yielded positive results indicating the significance, where New opportunities explains 19.9% of the variance in outcome variable of impact on customer (ΔF=33.051, p<0.001). The standardized beta value was also positive and significant (β=0.761 p<0.001). A substantial outcome was yielded through regression where the regression variable Cost reduction explained 31.5% of the variance in the outcome variable dimension of Cost reduction (ΔF=62.649, p<0.001). The standardized beta value also indicated a positive and significant relationship (β=0.761 p<0.001). Similar steps were repeated for testing big data analytics, with preparing for the future as the last dimension of the outcome variable of project success. The results showed that big data analytics explained 12.8% of the variance in the outcome variable of preparing for the future (ΔF=19.594, p<0.001), and the standardized beta value also indicated a positive and significant relationship (β=0.431 p<0.001). The findings from the research confirmed that there is a positive effect of big data analytics on decision making in IT sector.

In studying the moderating effect of decision-making, the results confirmed that the indirect effect is stronger and it is one of the main drivers of success (Naor et al. 2008). The results further strengthen the claims about utilizing big data analytics in decision-making, which translates into significantly improved decision making (Thirathon et al., 2017). This is because decision-making impacts and strengthens the relationship between big data analytics and overall support for decision making, which is a response variable of this study.

The research study identified that a positive and significant relationship exists between big data analytics and the decision making in IT sector. Therefore, organizations investing in big data analytical solutions can be viewed in terms of maximizing the level of success arising from sector across the broad range of dimensions that have been evaluated in this study (i.e. project efficiency, decision making, new opportunities, cost reduction and decision making). Specifically, the use of big data analytics to support the management of decision making was found to be a strong predictor of success as it explains one-third of the total variance in overall IT sector success.

Conclusion

Big data must be integrated into the organization's architecture, even if the organization has well-established and large businesses. Countries in the world, IT companies, and the relevant departments have started working on big data. Organizations built around big data are Google, eBay, LinkedIn, and Facebook. The exploitation of big data analysis in industrial processes can promote industrial efficiency and agility. The study provides evidence that employing big data analytics in decision making results in improved performance of IT companies thereby leading to enhanced IT sector. Although this study has fulfilled its objectives, there are still many areas for additional studies and empirical research. This study also can be adopted in different setting and environment where the impact of big data analytics in organizational performance can be compared between government and private sector. The study is consistent with the current discussion around big data and its impact on decision making and thereby contributes to the knowledge base in this important area of academic research. Last but not least, further study also can use other data collection instrument rather than questionnaire such as interview and observation. Therefore, based on the result that have been discussed earlier, what can be concluded by the researchers are big data analytics does gives impact towards organizational performance in terms of better decision making, new opportunities and cost reductions.

References

1. Adhikari, B. K., Zuo, W. L., Maharjan, R., & Yadav, R. K. (2018, June). Use of big data analytics in WASH sector. In 2018 second international conference on intelligent computing and control systems (ICICCS) (pp. 1185-1190). IEEE.
2. Ahmad, A. Y. A. B., Kumari, S. S., MahabubBasha, S., Guha, S. K., Gehlot, A., & Pant, B. (2023, January). Blockchain Implementation in Financial Sector and Cyber Security System. In 2023 International Conference on Artificial Intelligence and Smart Communication (AISC) (pp. 586-590). IEEE.

3. Al-Dmour, H., Saad, N., Basheer Amin, E., Al-Dmour, R., & Al-Dmour, A. (2023). The influence of the practices of big data analytics applications on bank performance: filed study. VINE Journal of Information and Knowledge Management Systems, 53(1), 119-141.
4. Al-Sai, Z. A., Husin, M. H., Syed-Mohamad, S. M., Abdin, R. M. D. S., Damer, N., Abualigah, L., & Gandomi, A. H. (2022). Explore big data analytics applications and opportunities: A review. Big Data and Cognitive Computing, 6(4), 157.
5. Almashaqbeh, H. A., Ramachandran, K. K., Guha, S. K., Basha, M., & Nomani, M. Z. M. (2024). The Advancement of Using Internet of Things in Blockchain Applications for Creating Sustainable Environment in the Real Word Scenario. Computer Science Engineering and Emerging Technologies: Proceedings of ICCS 2022, 278.
6. Anna, K., & Nikolay, K. (2015). Survey on big data analytics in public sector of russian federation. Procedia Computer Science, 55, 905-911.
7. Athmaja, S., Hanumanthappa, M., & Kavitha, V. (2017, March). A survey of machine learning algorithms for big data analytics. In 2017 International conference on innovations in information, embedded and communication systems (ICIIECS) (pp. 1-4). IEEE.
8. Banu, A. (2022). Big data analytics–tools and techniques–application in the insurance sector. In Big data: A game changer for insurance industry (pp. 191-212). Emerald Publishing Limited.
9. Banu, A. (2022). Big data analytics–tools and techniques–application in the insurance sector. In Big data: A game changer for insurance industry (pp. 191-212). Emerald Publishing Limited.
10. Basha, M., Reddy, K., Mubeen, S., Raju, K. H. H., & Jalaja, V. (2023). Does the Performance of Banking Sector Promote Economic Growth? A Time Series Analysis. International Journal of Professional Business Review: Int. J. Prof. Bus. Rev., 8(6), 7.
11. Basha, S. M., & Ramaratnam, M. S. (2017). Construction of an Optimal Portfolio Using Sharpe's Single Index Model: A Study on Nifty Midcap 150 Scrips. Indian Journal of Research in Capital Markets, 4(4), 25-41.
12. Behera, R. K., Sahoo, A. K., & Pradhan, C. (2017, December). Big data analytics in real time-technical challenges and its solutions. In 2017 International Conference on Information Technology (ICIT) (pp. 30-35). IEEE.
13. Chekina, V. D., & Kniaziev, S. I. (2019). The big data and analytics effect analysis on the real and public sectors of economy and the problems of their assessment by statistical methods. Economy of industry, (1 (85)), 51-64.
14. Chunarkar-Patil, P., & Bhosale, A. (2018). Big data analytics. Open Access J Sci, 2(5), 326-335.
15. Dawra, A., Ramachandran, K. K., Mohanty, D., Gowrabhathini, J., Goswami, B., Ross, D. S., & Mahabub Basha, S. (2024). 12Enhancing Business Development, Ethics, and Governance with the Adoption of Distributed Systems. Meta Heuristic Algorithms for Advanced Distributed Systems, 193-209.
16. Dollah, R., & Aris, H. (2017, November). A review of sector-specific big data analytics models. In 2017 IEEE Conference on Big Data and Analytics (ICBDA) (pp. 72-80). IEEE.
17. Elgendy, N., & Elragal, A. (2014). Big data analytics: a literature review paper. In Advances in Data Mining. Applications and Theoretical Aspects: 14th Industrial Conference, ICDM 2014, St. Petersburg, Russia, July 16-20, 2014. Proceedings 14 (pp. 214-227). Springer International Publishing.
18. Galetsi, P., Katsaliaki, K., & Kumar, S. (2020). Big data analytics in health sector: Theoretical framework, techniques and prospects. International Journal of Information Management, 50, 206-216.
19. Gamage, P. (2016). New development: Leveraging 'big data'analytics in the public sector. Public Money & Management, 36(5), 385-390.
20. Garg, A., Popli, R., & Sarao, B. S. (2021). Growth of digitization and its impact on big data analytics. In IOP conference series: materials science and engineering (Vol. 1022, No. 1, p. 012083). IOP Publishing.
21. Janani, S., Sivarathinabala, M., Anand, R., Ahamad, S., Usmani, M. A., & Basha, S. M. (2023, February). Machine Learning Analysis on Predicting Credit Card Forgery. In International Conference On Innovative Computing And Communication (pp. 137-148). Singapore: Springer Nature Singapore.
22. Job, M. A. (2018). An efficient way of applying big data analytics in higher education sector for performance evaluation. International Journal of Computer Applications, 180(23), 25-32.

23. Joe, M. P. (2024). Enhancing Employability by Design: Optimizing Retention and Achievement in Indian Higher Education Institution. NATURALISTA CAMPANO, 28(1), 472-481.
24. Kalyan, N. B., Ahmad, K., Rahi, F., Shelke, C., & Basha, S. M. (2023, September). Application of Internet of Things and Machine learning in improving supply chain financial risk management System. In 2023 IEEE 2nd International Conference on Industrial Electronics: Developments & Applications (ICIDeA) (pp. 211-216). IEEE.
25. Kaur, A., Kaur, R., & Jagdev, G. (2021). Analyzing and exploring the impact of big data analytics in sports sector. SN Computer Science, 2(3), 184.
26. Khan, S., Shakil, K. A., & Alam, M. (2016, December). Educational intelligence: applying cloud-based big data analytics to the Indian education sector. In 2016 2nd international conference on contemporary computing and informatics (IC3I) (pp. 29-34). IEEE.
27. Krishna, S. H., Vijayanand, N., Suneetha, A., Basha, S. M., Sekhar, S. C., & Saranya, A. (2022, December). Artificial Intelligence Application for Effective Customer Relationship Management. In 2022 5th International Conference on Contemporary Computing and Informatics (IC3I) (pp. 2019-2023). IEEE.
28. Krishnamoorthy, D. N., & Mahabub Basha, S. (2022). An empirical study on construction portfolio with reference to BSE. Int J Finance Manage Econ, 5(1), 110-114.
29. Kumar, S., & Singh, M. (2018). Big data analytics for healthcare industry: impact, applications, and tools. Big data mining and analytics, 2(1), 48-57.
30. Maheshwari, S., Gautam, P., & Jaggi, C. K. (2021). Role of Big Data Analytics in supply chain management: current trends and future perspectives. International Journal of Production Research, 59(6), 1875-1900.
31. Manikam, S., Sahibudin, S., & Kasinathan, V. (2019). Business intelligence addressing service quality for big data analytics in public sector. Indonesian Journal of Electrical Engineering and Computer Science, 16(1), 491-499.
32. Milenkovic, M. J., Vukmirovic, A., & Milenkovic, D. (2019). Big data analytics in the health sector: challenges and potentials. Management: Journal of Sustainable Business and Management Solutions in Emerging Economies, 24(1), 23-33.
33. Mohammed, B. Z., Kumar, P. M., Thilaga, S., & Basha, M. (2022). An Empirical Study On Customer Experience And Customer Engagement Towards Electric Bikes With Reference To Bangalore City. Journal of Positive School Psychology, 4591-4597.
34. Mohd Selamat, S. A., Prakoonwit, S., Sahandi, R., Khan, W., & Ramachandran, M. (2018). Big data analytics—A review of data-mining models for small and medium enterprises in the transportation sector. Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery, 8(3), e1238.
35. Motau, M., & Kalema, B. M. (2016, August). Big data analytics readiness: a South African public sector perspective. In 2016 IEEE International Conference on Emerging Technologies and Innovative Business Practices for the Transformation of Societies (EmergiTech) (pp. 265-271). IEEE.
36. Muhammad, R. N., Tasmin, R., & Aziati, A. N. (2020, April). Sustainable competitive advantage of big data analytics in higher education sector: An Overview. In Journal of Physics: Conference Series (Vol. 1529, No. 4, p. 042100). IOP Publishing.
37. Müller, O., Fay, M., & Vom Brocke, J. (2018). The effect of big data and analytics on firm performance: An econometric analysis considering industry characteristics. Journal of management information systems, 35(2), 488-509.
38. Niebel, T., Rasel, F., & Viete, S. (2019). BIG data–BIG gains? Understanding the link between big data analytics and innovation. Economics of Innovation and New Technology, 28(3), 296-316.
39. Pejić Bach, M., Krstić, Ž., Seljan, S., & Turulja, L. (2019). Text mining for big data analysis in financial sector: A literature review. Sustainability, 11(5), 1277.
40. Rahul, K., & Banyal, R. K. (2020). Data life cycle management in big data analytics. Procedia Computer Science, 173, 364-371.

41. Ravikumar, R., Kitana, A., Taamneh, A., Aburayya, A., Shwedeh, F., Salloum, S., & Shaalan, K. (2023). The Impact of Big Data Quality Analytics on Knowledge Management in Healthcare Institutions: Lessons Learned from Big Data's Application within The Healthcare Sector. South Eastern European Journal of Public Health.
42. Reddy, K., SN, M. L., Thilaga, S., & Basha, M. M. (2023). Construction Of An Optimal Portfolio Using The Single Index Model: An Empirical Study Of Pre And Post Covid 19. Journal of Pharmaceutical Negative Results, 406-417.
43. Roy, S., Mahar, K., Sekhar, S. C., & Mahabub, B. S. (2023). Indian Banking Industry: Challenges and Opportunities. International Journal of Management and Development Studies, 12(10), 08-15.
44. Shaik, M. (2023). Impact of artificial intelligence on marketing. East Asian Journal of Multidisciplinary Research, 2(3), 993-1004.
45. Sheshadri, T., Shelly, R., Sharma, K., Sharma, T., & Basha, M. (2024). An Empirical Study on Integration of Artificial Intelligence and Marketing Management to Transform Consumer Engagement in Selected PSU Banks (PNB and Canara Banks). NATURALISTA CAMPANO, 28(1), 463-471.
46. Singh, A., Krishna, S. H., Tadamarla, A., Gupta, S., Mane, A., & Basha, M. (2023, December). Design and Implementation of Blockchain Based Technology for Supply Chain Quality Management: Challenges and Opportunities. In 2023 4th International Conference on Computation, Automation and Knowledge Management (ICCAKM) (pp. 01-06). IEEE.
47. Singh, R. K., Agrawal, S., Sahu, A., & Kazancoglu, Y. (2023). Strategic issues of big data analytics applications for managing health-care sector: a systematic literature review and future research agenda. The TQM Journal, 35(1), 262-291.
48. Sodenkamp, M., Kozlovskiy, I., & Staake, T. (2015). Gaining is business value through big data analytics: a case study of the energy sector.
49. Sodenkamp, M., Kozlovskiy, I., & Staake, T. (2015). Gaining is business value through big data analytics: a case study of the energy sector.
50. Srivastava, U., & Gopalkrishnan, S. (2015). Impact of big data analytics on banking sector: Learning for Indian banks. Procedia Computer Science, 50, 643-652.
51. Tarrahi, M., & Shadravan, A. (2016, April). Advanced big data analytics improves HSE management. In SPE Norway Subsurface Conference? (p. D011S008R005). SPE.
52. Tenali, N., & Babu, G. R. M. (2023). A systematic literature review and future perspectives for handling big data analytics in COVID-19 diagnosis. New Generation Computing, 41(2), 243-280.
53. VenkateswaraRao, M., Vellela, S., Reddy, V., Vullam, N., Sk, K. B., & Roja, D. (2023, March). Credit Investigation and Comprehensive Risk Management System based Big Data Analytics in Commercial Banking. In 2023 9th International Conference on Advanced Computing and Communication Systems (ICACCS) (Vol. 1, pp. 2387-2391). IEEE.
54. Weerasinghe, K., Scahill, S. L., Pauleen, D. J., & Taskin, N. (2022). Big data analytics for clinical decision-making: Understanding health sector perceptions of policy and practice. Technological Forecasting and Social Change, 174, 121222.
55. Youssef, M. A. E. A., Eid, R., & Agag, G. (2022). Cross-national differences in big data analytics adoption in the retail industry. Journal of Retailing and Consumer Services, 64, 102827.