Using Machine Learning and Natural Language Processing in Social Media Analytics: A Review of Their Impact on Business Intelligence and Decision Making

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REFERENCES

[1] Mohamed Askar, Amal Elsayed Aboutabl, and Amr Galal, "Utilizing Social Media Data Analytics to Enhance Banking Services," Intelligent Information Management, vol. 14, no. 01, Art. no. 01, Jan. 2022, doi: 10.4236/iim.2022.141001.

[2] Ugochukwu. E. Orji, Modesta. E. Ezema, Jideofor Ujah, Ponsak. S. Bande, and Jonathan C. Agbo, "Using Twitter Sentiment Analysis for Sustainable Improvement of Business Intelligence in Nigerian Small and Medium-Scale Enterprises," 2022 IEEE Nigeria 4th International Conference on Disruptive Technologies for Sustainable Development (NIGERCON), Apr. 2022, doi: 10.1109/nigercon54645.2022.9803087.

[3] Symeon Symeonidis, Georgios Peikos, and Avi Arampatzis, "Unsupervised consumer intention and sentiment mining from microblogging data as a business intelligence tool," Operational Research, May 2022, doi: 10.1007/s12351-022-00714-0.

[4] Petar Kristijan Bogovic, Dino Aljevic, Bozidar Kovacic, and Sanda Martincic-Ipsic, "The NLP Powered BI Toolkit: The Case of MESOC," International Convention on Information and Communication Technology, Electronics and Microelectronics, May 2022, doi: 10.23919/mipro55190.2022.9803434.

[5] David-Florin Ciocodeică, Raluca-Giorgiana (Popa) Chivu, Ionuț-Claudiu Popa, Horia Mihălcescu, Gheorghe Orzan, and Ana-Maria (Dumitrache) Băjan, "The Degree of Adoption of Business Intelligence in Romanian Companies—The Case of Sentiment Analysis as a Marketing Analytical Tool," Sustainability, vol. 14, no. 12, Art. no. 12, Jun. 2022, doi: 10.3390/su14127518.

[6] Jin Li, Ziwei Ye, and C. Zhang, "Study on the interaction between big data and artificial intelligence," Systems research and behavioral science, Jun. 2022, doi: 10.1002/sres.2878.

[7] L. A. Lozano and M. del Pilar Villamil, "Strategy to Develop a Digital Public Health Observatory Integrating Business Intelligence and Visual Analytics," International Conference on Information Technology & Systems, pp. 443–452, Jan. 2018, doi: 10.1007/978-3-319-73450-7_42.

[8] Abdelaziz Darwiesh, Mohammed I. Alghamdi, A. H. El-Baz, A. H. El-Baz, M. Elhoseny, and A. K. Singh, "Social Media Big Data Analysis: Towards Enhancing Competitiveness of Firms in a Post-Pandemic World," Journal of Healthcare Engineering, vol. 2022, pp. 1–14, Mar. 2022, doi: 10.1155/2022/6967158.

[9] A. Hassani and E. Mosconi, "Social media analytics, competitive intelligence, and dynamic capabilities in manufacturing SMEs," Technological Forecasting and Social Change, vol. 175, pp. 121416–121416, Feb. 2022, doi: 10.1016/j.techfore.2021.121416.

[10] Mohammad Hossein Shahidzadeh and S. Shokouhyar, "Shedding light on the reverse logistics' decision-making: a social-media analytics study of the electronics industry in developing vs developed countries," International Journal of Sustainable Engineering, vol. 15, no. 1, Art. no. 1, Jul. 2022, doi: 10.1080/19397038.2022.2101706.

[11] U. Sivarajah, Z. Irani, S. Gupta, and K. Mahroof, "Role of big data and social media analytics for business to business sustainability: A participatory web context," Industrial Marketing Management, vol. 86, pp. 163–179, Apr. 2020, doi: 10.1016/j.indmarman.2019.04.005.

[12] T. S. Chougule, S. Nadkarni, and B. Patel, "Optimization Of Social Media Comments To Improve Customer Journey Using Machine Learning," 2020 IEEE Bombay Section Signature Conference (IBSSC), 2020, doi: 10.1109/ibssc51096.2020.9332188.

[13] L. Ziora, "Natural Language Processing in the Support of Business Organization Management," Intelligent Systems with Applications, pp. 76–83, Sep. 2021, doi: 10.1007/978-3-030-82199-9_6.

[14] Issayas M. Haile and Yanzhen Qu, "Mitigating Risk in Financial Industry by Analyzing Social-Media with Machine Learning Technology," European Journal of Electrical Engineering and Computer Science, vol. 6, no. 2, Art. no. 2, Mar. 2022, doi: 10.24018/ejece.2022.6.2.428.

[15] David Silva and F. Bacao, "MapIntel: Enhancing Competitive Intelligence Acquisition Through Embeddings and Visual Analytics," Lecture Notes in Computer Science, pp. 599–610, Jan. 2022, doi: 10.1007/978-3-031-16474-3_49.

[16] Shahadat Uddin, Stephen Ong, and Haohui Lu, "Machine learning in project analytics: a data-driven framework and case study.," Scientific Reports, vol. 12, no. 1, Art. no. 1, Sep. 2022, doi: 10.1038/s41598-022-19728-x.

[17] A. Hodorog, Ioan Petri, and Yacine Rezgui, "Machine learning and Natural Language Processing of social media data for event detection in smart cities," Sustainable Cities and Society, pp. 104026–104026, Jul. 2022, doi: 10.1016/j.scs.2022.104026.

[18] R. Geethanjali and A. Valarmathi, "Issues and Future Challenges of Sentiment Analysis for Social Networks- A Survey," 2022 International Conference on Automation, Computing and Renewable Systems (ICACRS), 2022, doi: 10.1109/icacrs55517.2022.10029070.

[19] Cuili Shao, Yonggang Yang, S. Juneja, Sapna Juneja, and Tamizharasi GSeetharam, "IoT data visualization for business intelligence in corporate finance," Information Processing and Management, vol. 59, no. 1, Art. no. 1, Jan. 2022, doi: 10.1016/j.ipm.2021.102736.

[20] A. Sato and R. Huang, "From Data to Knowledge: A Cognitive Approach to Retail Business Intelligence," IEEE International Conference on Data Science and Data Intensive Systems, pp. 210–217, Dec. 2015, doi: 10.1109/dsdis.2015.106.

[21] Dipashree Patil, Shivani Patil, Shreya Patil, and Sandhya Arora, "Financial Forecasting of Stock Market Using Sentiment Analysis and Data Analytics," Intelligent Sustainable Systems, pp. 423–430, Dec. 2021, doi: 10.1007/978-981-16-6369-7_38.

[22] A. Darlington-NjokuChidinma, B. Mishra, and William K. P. Sayers, "Fault Log Text Classification Using Natural Language Processing And Machine Learning For Decision Support," International Conference on Software, Knowledge, Information Management and Applications, 2022, doi: 10.1109/skima57145.2022.10029587.

[23] Khin Sandar Kyaw, Praman Tepsongkroh, Chanwut Thongkamkaew, and F. Sasha, "Business Intelligent Framework Using Sentiment Analysis for Smart Digital Marketing in the E-Commerce Era," Asia Social Issues, 2023, doi: 10.48048/asi.2023.252965.

[24] T. Kanan, Ala Mughaid, Riyad Al-Shalabi, Mahmoud Al-Ayyoub, Mohammed Elbes, and Odai Sadaqa, "Business intelligence using deep learning techniques for social media contents," Cluster Computing, Aug. 2022, doi: 10.1007/s10586-022-03626-y.

[25] Honglei Zhang et al., "Big data-assisted social media analytics for business model for business decision making system competitive analysis," Information Processing and Management, vol. 59, no. 1, Art. no. 1, Jan. 2022, doi: 10.1016/j.ipm.2021.102762.

[26] Weifeng Li and Yidong Chai, "Assessing and Enhancing Adversarial Robustness of Predictive Analytics: An Empirically Tested Design Framework," Journal of Management Information Systems, vol. 39, no. 2, Art. no. 2, Apr. 2022, doi: 10.1080/07421222.2022.2063549.

[27] Salman Sigari and Amir. H. Gandomi, "Analyzing the past, improving the future: a multiscale opinion tracking model for optimizing business performance," Humanities & social sciences communications, vol. 9, no. 1, Art. no. 1, Sep. 2022, doi: 10.1057/s41599-022-01325-y.

[28] Liang Yinxing, "Analysis of Large-Scale Marketing and Social Media Data by Using Machine Learning Algorithm," 2019.

[29] Nikolina Ljepava, “AI-Enabled Marketing Solutions in Marketing Decision Making: AI Application in Different Stages of Marketing Process,” TEM Journal, pp. 1308–1315, Aug. 2022, doi: 10.18421/tem113-40.

[30] I. H. Sarker, “AI-Based Modeling: Techniques, Applications and Research Issues Towards Automation, Intelligent and Smart Systems,” SN computer science, vol. 3, no. 2, Art. no. 2, Feb. 2022, doi: 10.1007/s42979-022-01043-x.

[31] Khurram Shahzad, Shakeel Ahmad Khan, S. Ahmad, and A. Iqbal, “A Scoping Review of the Relationship of Big Data Analytics with Context-Based Fake News Detection on Digital Media in Data Age,” Sustainability, vol. 14, no. 21, Art. no. 21, Nov. 2022, doi: 10.3390/su142114365