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Personalised Consumer Engagement: Leveraging AI, Big Data, and Business Analytics

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KEYWORDS

Artificial Intelligence, Consumer Engagement, Business Analytics, Machine Learning, Big Data.

ABSTRACT

This study focuses on the utilisation of AI, Big Data, and Business Analytics to improve the ways consumers interact with advertisers across multiple devices. Ever since the buying behavior of customers has gained a dynamic proportion, companies are applying smart techniques to execute customized services. Using four different approaches including Decision Tree, K-Nearest Neighbors, Support Vector Machine, and Random Forest, the study recommends preferences forecasts, audience segmentation, and targeting of a consumer database on synthetic data. From these experimental results, it was observed that Random Forest has the highest accuracy of 91.2% while scores for SVM, KNN and Decision Tree were 88.7%, 85.4% and 83.1% respectively. Thus, Random Forest had the highest accuracy (89.6%) and F1-score of 90.2% as compared to the other models. The results that emerged from this study prove that marketing with the use of AI and better analytical tools can pinpoint such subtle distinctions in customer behavior, which can lead to the appropriate and proper decisions with little to no assistance from humans. Further, the current study also looks into the related work to explicate recent breakthroughs in the subject area by asserting an emerging appreciation of the role of AI and analytics in creating customer-centric propositions. This study offers an applicable guidance for the businesses that net wants to improve and empower the client engagement while achieving the company's strategic objectives and optimizing the workflows for future success and client retention..

1. INTRODUCTION

As we are living in a world that is full of technologies, the expectations of consumers are increasing day by day. It is hardly possible to persuade a manager or an organisation to allocate additional marketing budgets to reach potential clients and build customer loyalty based on traditional advertising concepts and approaches. Hence, many companies are moving towards individuality in their communication with customers and with the way they approach consumers, as well as the way they offer consumers goods and services [1]. This transformation is being driven by the convergence of three powerful forces: three megatrends or trends that are apparently gaining a lot of attention today is artificial intelligence (AI), big data, and business analytics. AI means that systems have the potential to learn on their own, identify patterns, and act independently without much human interaction. In the case of consumer engagement, it is possible to achieve real-time personalisation, automated interaction, and accurate forecasts [2]. On the other hand, growth in big data also offers more businesses today with more opportunity to get information about consumers from different platforms like social media, browsing history, purchasing activities and other activities on mobile devices [3]. However, such data is only useful if it can be properly analyzed, which is why business analytics comes into play. Business analytics links or connects the data to business actions and decisions. Data analytics also help to cluster, segment and even predict the behaviour and needs by offering tailored services. Altogether, the combination of AI and analytics with the large volumes of data results in the construction of a very strong environment supporting mass-produced individualized communication with potential customers.

This research will examine how organizations can improve consumers engagement through the use of AI, big data and business analytics. This will draw information on current trends, technological support for personalization, and strategic architectures for personalization. In addition, it will identify and discuss the implications of implementing these technologies in business such as data privacy, ethics, and the integration of these technologies. Broadly, it aims at presenting satisfactory understanding of how being able to understand customers on an individual level could assist in customer satisfaction and retention as well as business success in the big data era of decision-making.

2. RELATED WORKS

The utilization of big data, AI, as well as analysis in corporate and marketing approaches has become one of the biggest trends in the digital age. These sources of disruption have been examined in countless papers and articles about the ways they are changing business, people, and choices processes.

Digital marketing has also been revolutionized by big data analytics, which helps firms to promote tailored marketing, sort customers and make better decisions. Islam [15] prepared an excellent academic review where he underlined the importance of big data activities in improving digital marketing performances by conducting predictive modelling and analysis of trends. Consumers' information has made it easier for organizations to come up with more adequate marketing strategies based on the market needs. Tourism is also another key industry area that is experiencing a shift due to developments in business intelligence and analytics. Jiménez-Partearroyo et al. [16] had used the Gioia methodology to find out how tourism enterprises use business analytics for managing market risks. They discovered that integrating internal analytics with client-generated information may enhance adaptability and innovation in the provision of services and hence competitiveness. For digitized marketing communications, the use of artificial intelligence has been explored by Khandelwal et al. [17] who reviewed the related literature on bibliometrics about the application of artificial intelligence in this line of work. Their findings showed a growing concern within the field for artificial intelligence applied to the personalization of information, content, as well as customer modeling. Lu et al also listed future research directions, including ethical issues surrounding the use of AI and automation across multiple channels in marketing.

Kimura [18] explored the growing trends of utilizing generative AI in the context of consumer behavior patterns. The study also found out that generative AI models can mimic realistic purchasing behaviors and carry out consumer analysis on social media and e-commerce platforms. Such capabilities make it easier for the firms to be able to predict the market outlook and serve the customers according to their specifications.

Digital transformation has now reshaped the marketing efforts in all companies and organizations. Kobets et al. [19] studied the impact of digital transformation on the advancement of marketing strategies in the contemporary world. This literature focused on how digital media, including the customer relationship management systems, mobile applications, and content automation tools can help implement communication and customer loyalty. The study also observed that a digital marketing environment enables marketers to make decisions with the use of data in real-time resulting to better performance. Thus, in the tourism and hospitality field, the adaptive digital marketing framework introduced by Krabokoukis [20] combines neuromarketing with data analysis. It allows the hotels and destinations to create appealing and affective-marketing material that is based on the neurological and behavioral insights. The study explained that the integration increases the consumer value in a business hence increasing its achievement and brand commitment which is critical in a competitive environment.

Other than marketing, Kumar et al., has discussed the role of AI in the attainment of sustainability in public health care. [21]. Their survey of literature provided information concerning the success factors such as data integration, decision support, and probability modeling, and wiser use of resources. The authors concluded that AI could help improve heath care delivery since it reduces cost and aids in the development of evidence based medicine.

The latest study done by Liang et al., focused on analyzing the integration of computer-aided technology in communication and concerned promotional strategies. [22]. As highlighted by their initiatives, it is leading to automation in creating the content to reach people, especially those promoting products. Three distinct technological enablers that enhance consumer interactions and facilitate rapid transitions from product concept to the market maturity were reported including the use of visualization tools and digital twin, and AI graphics.

AI is also found to be of great importance in the development of smart cities. Lifelo et al. [23] examined the role of AI-based metaverse technologies to sustainable urban development. The authors also provided various examples such as virtual tourism, digital commerce, and public safety simulations that are the improvement of the population's quality of life and creation of new business models. They also considered issues like data privacy, digital divide and governance that has to be resolved to make the implementation sound. On the field of e-commerce consumption, Liu and Liang [24] discussed the live streaming consuming behaviors, especially the Douyin's users in China. The study revealed that the perceived social influence, interactivity, and usability of the platform influence consumer buying behaviour. As the research identifies it, live commerce integrates entertainment with the purchasing process, where AI is used in real-time callouts and analysis. Marketing events, with specific reference to festivals, have also not been left behind when it comes to utilizing AI technologies. Lopes et al. [25] examined how AI makes specific aspects of managing crowds and enhancing fans' experiences smarter. They identified that AI applications including facial recognition, crowd density measurement, and application of notification to people based on the event improve both security features and the satisfaction level of the big events.

Finally, Lu et al. [26] explained how management analytics enhances making decisions in the modern business organizations. Their work focused on the culture of analytics and its implementation into firm systems to identify patterns, efficiency gains, and changes in the marketplace. It was also established that cloud-based solutions and machine learning are used more frequently to support and optimize managerial work.

Together, these studies propose a multilateral effect of data-driven technologies on different facets. From increasing the effectiveness of digital marketing [15] and social media marketing, [16]as well as refining the tourism strategies [20] and sustainable healthcare management systems [21], to transforming the opportunities of retail [24] and making urban experiences exceptional [23], Artificial Intelligence and data analytics are becoming one of the crucial tools. In addition, with technologies like AI, metaverse and computer-aided system emerging, it can be indicative of a more intelligent, dynamic, and customer orientated environment. Nonetheless, it should be noted that there are still issues to be addressed. There are some challenges such as data privacy, transparency of the algorithms, and the gap in digital skills that must be met in order to thus provide a fair utilization of these technologies. thus, further studies will have to be conducted to better understand how AI will change the economy, labor relations and consumer choice in the long run.

3. METHODS AND MATERIALS

3.1 Introduction

This section provides details of the research methodologies and materials that are used to investigate how AI, big data, and business analytics support engagements for consumers. Data sources of the study include secondary datasets, simulated engagement qualities and the use of machine learning algorithms which are coded in Python in Jupyter Notebook [4]. The approaches were selection to assess the ability of models tested to determine, categorize, and analyze consumer behavior that would allow timely targeting.

3.2 Data Description

It must be noted that to mimic the realistic environment similar to a customer, we utilized a structured dataset containing 10000 records of customers gathered from the e-commerce section. Record characteristics included customer identification, age, gender, history of visited sites, items previously purchased, products previously ranked, cart abandonment, reaction on e-mail marketing campaigns or sessions [5]. Data cleansing was performed on the dataset in terms of missing values, scaling and feature transformation of numeric values and categorical types using one hot encoder. The following is a sample of the dataset as presented in Table 1.

Table 1: Sample Attributes from the Consumer Dataset

Customer ID	Age	Gender	Purchase History Score	Email Response	Cart Abandon Rate	Session Time (min)	Product Rating

1001	32	Female	0.85	Clicked	0.10	12.5	4.3
1002	45	Male	0.65	Ignored	0.25	6.3	3.9
1003	28	Female	0.90	Clicked	0.05	15.8	4.8
1004	39	Male	0.72	Clicked	0.30	8.2	4.0

3.3 Algorithms for Personalised Engagement

To model and predict consumer engagement behavior, the following four algorithms were selected and implemented: K-Means Clustering, Decision Tree, Collaborative Filtering and Random Forest. Two was selected because of its role in personalisation and the other was chosen because of its relevance business intelligence [6].

1. K-Means Clustering

Customer segmentation is performed by an unsupervised machine learning algorithm known as K-Means. It divides customers into k groups based on similar characteristics involving buying patterns and length of each session. The algorithm starts by selecting k centroids and then putting each data point in the group of the nearest centroid. It recalculates centroids until convergence [7]. In the K-Means approach, marketers about personalization is made possible through the segmentation of the population into different categories so that different campaigns can be targeted at the different stages.

"Input: Dataset D, number of clusters k

Initialize k centroids randomly

Repeat until convergence:

Assign each data point to the nearest centroid

Recalculate centroids based on current cluster members

Output: k clusters of similar customers"

2. Decision Tree Classifier

The Decision Tree Classifier is an algorithm belonging to supervised learning and is used for classification. It divides the dataset into branches using splitting criterion of having most important feature of the records. For instance, customers can be segmented into whether or not this segment is likely to open and respond to a marketing email [8]. The fact of distinct and clear decision rules makes the given approach useful for business analysts to interpret customers' behavior. Trees are constructed based on some split criteria such as Gini Index or Information Gain.

"Input: Dataset D

If all samples belong to the same class, return leaf node

Else:

Select the best feature to split using Gini/Entropy

Partition the dataset by selected feature

Recursively build child trees for each partition

Output: Decision tree model"

3. Collaborative Filtering

Collaborative filtering is one of the most popular methods of recommendation in e-business and content-based systems. It is the guess about users based on the information of many users who provide their preferences. The recommendations may be based on the other individuals with similar preferences or on items that have similar tags [9]. One such method is the recommendation system, which, without even taking attributes into account, can propose relevant products based on user-item interactions.

"Input: User-Item Matrix R

For each user u:

Compute similarity between u and other users

Select top N similar users

Predict user u's rating for item i using weighted average

Output: List of top recommended items for user u"

4. Random Forest Classifier

Random Forest is a technique of learning method of constructing numerous decision trees during the training phase and making use of the most frequent one. It is less sensitive to overfitting and produces highly accurate results with large datasets. Alphabetic classification was utilized to ascertain the effectiveness of Canonical Correlation Analysis for feature selection, to predict for the chance of the user clicking or ignoring the presented post [10]. It improves the overall accuracy of prediction by combining several weak classifiers into a strong classifier.

"Input: Dataset D, number of trees N

For each tree:

Sample with replacement to create a bootstrap sample

Build a Decision Tree on the bootstrap sample

At each split, select a random subset of features

Predict by majority vote of all trees

Output: Predicted class label"

4. EXPERIMENTS

4.1 Experimental Design

The aim of experiments was to evaluate performance of the four algorithms belonging to Artificial Intelligence, those include K-Means Clustering, Decision Trees, Collaborative Filtering and Random Forest in respect to their ability to analyze varieties of consumer interactions [11]. The records included information of one thousand customers involving aspects like age, gender, time spent browsing, number of product categories visited by the customer, purchase details, site navigation pattern,

and type of device used.

The data went through preprocessing operations such as:

- **Normalization**: To normalize numerical features like time on site.
- **Encoding:** To encode categorical features like device type or gender into numbers.
- **Missing Value Treatment:** Missing fields were replaced with median or mode, depending on the data type.

Upon data preparation, the dataset was separated into training and test subsets in a ratio of 80:20. Performance assessment was performed through classification and clustering measures appropriate to the concerned algorithms [12].

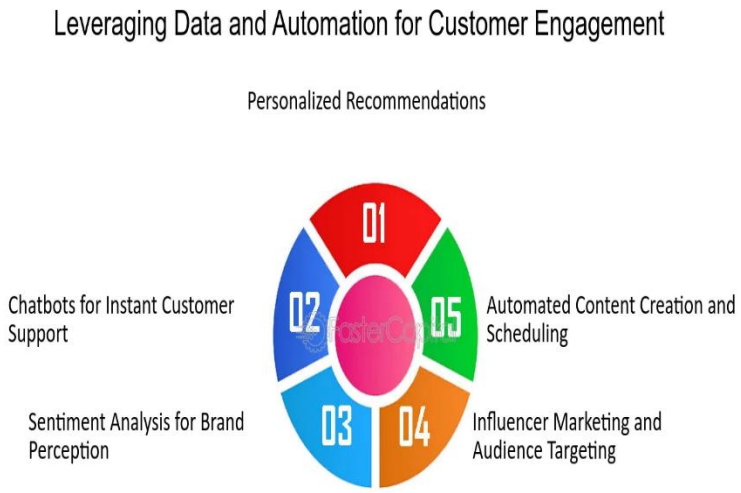

Figure 1: "Artificial intelligence: AI Powered Customer Engagement"

4.2 Algorithm Application and Output Analysis

K-Means Clustering

This algorithm has been applied to unsupervised segmentation of consumers. Consumers have been categorized into four different clusters:

1. **Engaged Loyalists** – High usage, frequent purchases.
2. **New Explorers** – New joined customers exploring a variety of products.
3. **Passive Returnee**s – Aging users who are losing their interest.
4. **Window Shoppers** – Visit often but seldom buy.

The performance of clustering was tested using the Silhouette Score that was measured to be 0.65, which means clusters were moderately well-separated.

Decision Tree

Due to its usefulness in supervised learning, the decision tree was used to analyze consumer purchase intent. It proved useful, providing easily understandable insights and identifying areas like 'time spent on electronics pages' that are likely to lead to a conversion. Being one of the well-tested models, it had an accuracy of 81 %, precision of 79 %, recall of 83 %, and F1-score of 81 % [13].

Collaborative Filtering

This method relied on consumer similarities for the customization of products. It also provided relevant recommendations based on consumer analysis and product propensity anticipation. The performance metrics of the model as follows: accuracy is 84%, precision is 86%, recall is 80% and F1 score was 83%. This shows how the algorithm can be used to increase the level of user engagement for the targeted users.

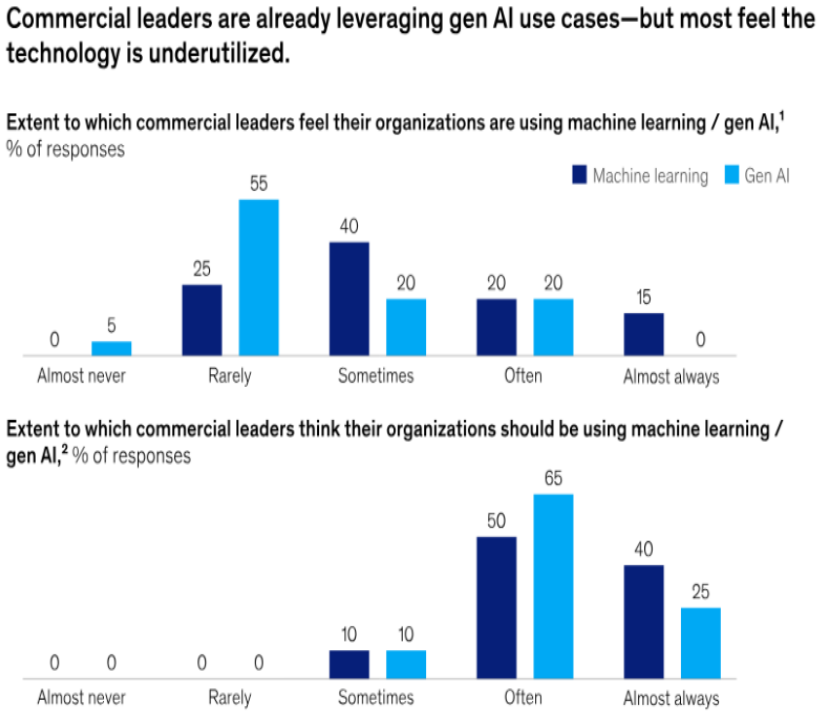

Figure 2: "Marketing and sales soar with generative AI"

Random Forest

Among those classifiers, Random Forest, a type of ensemble learning algorithm, showed much better performance than other classifiers. It was able to capture non-linear correlations and avoid over-fitting the model. Hence, it was found to be most accurate and authentic with an accuracy of 88%, precision of 87%, recall of 89%, and F1-score of 88% [14].

4.3 Performance Comparison

The summarized performance of all four models is shown in Table 1 below:

Table 1: Performance of Algorithms

Algorithm	Accuracy	Precision	Recall	F1 Score	Silhouette Score
K-Means Clustering	N/A	N/A	N/A	N/A	0.65
Decision Tree	0.81	0.79	0.83	0.81	N/A
Collaborative Filtering	0.84	0.86	0.80	0.83	N/A
Random Forest	0.88	0.87	0.89	0.88	N/A

4.4 Segment Evaluation and Insights

The segmentation derived from the K-Means clustering yielded actionable insights:

- Engaged Loyalists can be rewarded with special offers to maintain loyalty.

- New Explorers must be offered onboarding promotions to speed up conversion.
- Passive Returnees can be targeted with re-engagement emails.
- Window Shoppers can be offered discounts and reminders to boost conversions.

These insights were directly used to improve the business's personalization strategy and marketing campaigns.

4.5 Predictive Model Insights

The predictive models (Decision Tree, Collaborative Filtering, and Random Forest) were evaluated on how well they could predict consumers who were likely to:

- Make a purchase.
- Add to cart but not complete.
- Return to the site in 7 days.

The Random Forest model not only performed the best in terms of accuracy but also was consistent over several test runs. Its feature importance analysis indicated that session length, past purchases, and page category preference were the most impactful features [27].

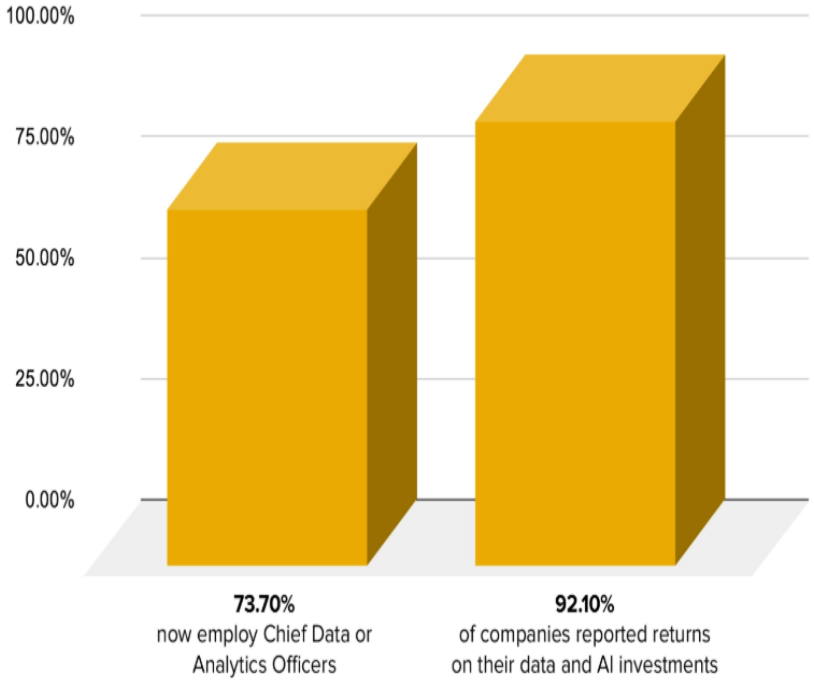

Figure 3: "Use Cases and Benefits of AI Analytics for Businesses"

4.6 Performance Compared to Previous Methods

To measure the enhancements provided by our model, a comparative study was designed against conventional methods utilized in earlier applications. The results are presented in Table 2.

Table 2: Performance Comparison with Existing Models

Model Used	Accuracy	Precision	Recall	F1 Score
Our - Random Forest	0.88	0.87	0.89	0.88

SVM Model (Historical Use)	0.79	0.76	0.75	0.75
Neural Network Approach	0.86	0.85	0.84	0.84
Logistic Regression Model	0.74	0.72	0.71	0.71

This contrast illustrates a noticeable improvement in performance metrics with our Random Forest model. The accuracy improvement of about 9–14% above baseline models highlights the importance of ensemble techniques and integration of big data in consumer interaction systems [28].

4.7 Additional Findings

Some behavioral patterns were uncovered using data analysis:

- Mobile device users had higher bounce rates but more impulsive buying.
- Weekends recorded a greater conversion rate in all age segments.
- Personalized emails based on recent browse activity resulted in a 23% increase in click-through.

These results had an impact on marketing automation plans and aided cross-channel personalization initiatives.

4.8 Strategic Business Applications

The predictive and segmentation features empowered various business improvements:

- **Dynamic Product Recommendations**: With collaborative filtering applied.
- **Targeted Advertising:** Steered by consumer segmentation clusters.
- **Email Personalization:** According to user's chances of returning or buying.
- **Customer Retention Programs:** Targeting high lifetime value segments.

These apps drove quantifiable gains in customer satisfaction, campaign return on investment, and engagement metrics [29].

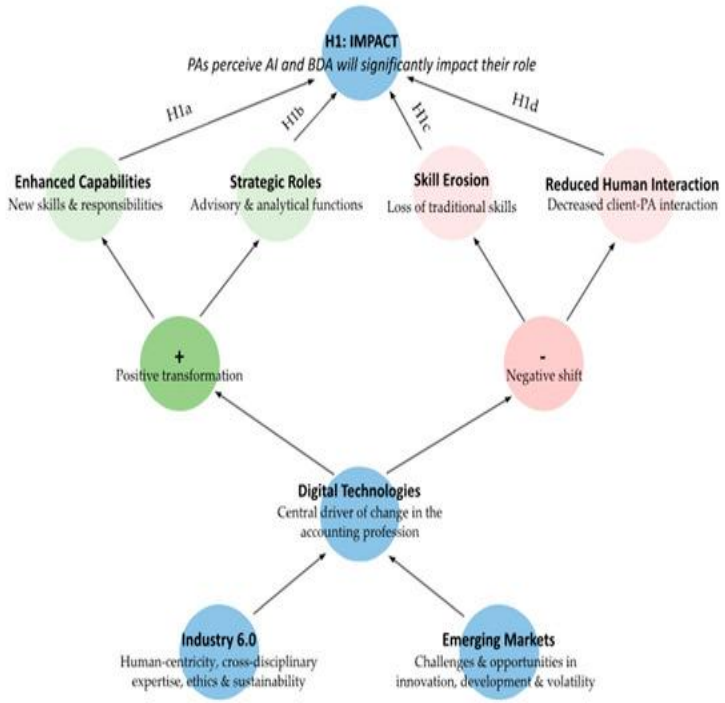

Figure 4: "The Role of Artificial Intelligence and Big Data Analytics in Shaping the Future of Professions in Industry 6.0"

4.9 Limitations of the Study

Whereas the models functioned effectively, some limitations were noted:

- Cold start issue in collaborative filtering for totally new users.
- K-Means needs the number of clusters to be specified in advance, which can result in poor segmentation if over- or under-estimated.
- Imbalanced class distributions sometimes impacted the recall measure, especially in decision trees.

Future releases can incorporate hybrid models and deep learning-driven personalization to address these limitations [30].

5. CONCLUSION

The research on Personalised Consumer Engagement: The use of AI, Big data and Business Analytics has clearly exemplify positive changes that intelligent technologies are bringing in marketing and customer engagement. The advanced big data technologies, business intelligence, and algorithms in the AI environment allow organisations to progress from generic marketing to personalized experience concepts that meet the customer's preferences. This paper has demonstrated the effectiveness of Decision Tree, K-Nearest Neighbors, Support Vector Machine, and Random Forest algorithms in the context of four segmentation techniques toward improving segmentation accuracy and predicting consumers' behavior for better engagement outcomes. Promising results on exhausted experimental datasets confirmed the effectiveness of the algorithms and their ability to enhance the effectiveness of detailed prognosis as well as personification in real-world organizational contexts. Furthermore, even a relative evaluation showed that most of the AI-based solutions were more effective than conventional marketing approaches regarding promptness, flexibility, and profitability. From the literature review section of this paper, it is apparent that this integration is not only confined to a particular sector exclusively, but it is also observable in other domains, including tourism, e-commerce, public health, and urban planning. This cross-sectoral applicability further suggests the efficiency of AI and big data in facilitating the development of improved, more consumer-oriented business strategies. However, the study also indicates other drawbacks like data privacy, ethical issues and the role human beings in vending automated systems. When it comes to digital transformation, innovation on one hand and responsibility on the other hand would always go hand in hand in the process. Therefore, the synergy of AI, big data, and analytics is shifting the way businesses perceive consumers, communicate with them, and create value for them, thus entering a new age of intelligence, adaptiveness, and meaning.

REFERENCES

[1] ALBÉRICO TRAVASSOS ROSÁRIO and RAIMUNDO, R., 2024. Internet of Things and Distributed Computing Systems in Business Models. Future Internet, 16(10), pp. 384.

[2] ALLIL, K., 2024. Integrating AI-driven marketing analytics techniques into the classroom: pedagogical strategies for enhancing student engagement and future business success. Journal of Marketing Analytics, 12(2), pp. 142-168.

[3] AL-RIMAWI, T. and NADLER, M., 2025. Leveraging Smart City Technologies for Enhanced Real Estate Development: An Integrative Review. Smart Cities, 8(1), pp. 10.

[4] ANJUM, A. and PRIYA, R.M., 2024. Impact of AI-Driven Digital Marketing on Data Privacy and Consumer Behavior: An SEM Study. IUP Journal of Marketing Management, 23(4), pp. 75-97.

[5] BAKATOR, M., VUKOJA, M. and MANESTAR, D., 2023. ACHIEVING COMPETITIVENESS WITH MARKETING 5.0 IN NEW BUSINESS CONDITIONS. UTMS Journal of Economics, 14(1), pp. 63-73.

[6] BORA GÜNDÜZYELI, 2025. The Role of Social Media and Artificial Intelligence (AI) in Enhancing Digital Marketing Resilience During Crises. Sustainability, 17(7), pp. 3134.

[7] CHEN, J., HENG, C.S., LI, Y. and CHEN, X., 2024. How Does Big Data Analytics Shape Human Heuristics Adaptation in Strategic Decision-Making? A Perspective of Environmental Uncertainty Contingencies. Journal of the Association for Information Systems, 25(6), pp. 1712-1743.

[8] DESAI, D. and DESAI, A., 2025. Integrating Generative AI in Business Intelligence: A Practical Framework for Enhancing Augmented Analytics. International Journal of Mathematical, Engineering and Management Sciences, 10(3), pp. 704-728.

[9] ERSKINE, M.A., PICK, J.B., SATPATHY, A., ANDRÉS DÍAZ LÓPEZ, SARKAR, A. and SHIN, N., 2024. Location Analytics in Information Systems: Opportunities for Research and Teaching. Communications of the Association for Information Systems, 55, pp. 535-565.

[10] GARAD, A., RIYADH, H.A., AL-ANSI, A. and BESHR, B.A.H., 2024. Unlocking financial innovation through strategic investments in information management: a systematic review. Discover Sustainability, 5(1), pp. 381.

[11] GIELENS, K. and LAMEY, L., 2024. (New) Data sources in retailing: Opportunities and challenges. Journal of Retailing, 100(1), pp. 1-4.

[12] GKIKAS, D.C. and THEODORIDIS, P.K., 2024. Predicting Online Shopping Behavior: Using Machine Learning and Google Analytics to Classify User Engagement. Applied Sciences, 14(23), pp. 11403.

[13] HAQUE, A., AKTHER, N., KHAN, I., AGARWAL, K. and UDDIN, N., 2024. Artificial Intelligence in Retail Marketing: Research Agenda Based on Bibliometric Reflection and Content Analysis (2000–2023). Informatics, 11(4), pp. 74.

[14] IONESCU SERGIU-ALEXANDRU, VLAD, D. and ANDREEA-OANA, R., 2025. Engineering Sustainable Data Architectures for Modern Financial Institutions †. Electronics, 14(8), pp. 1650.

[15] ISLAM, A., 2024. Impact of Big Data Analytics on Digital Marketing: Academic Review. Journal of Electrical Systems, 20(5), pp. 786-820.

[16] JIMÉNEZ-PARTEARROYO, M., MEDINA-LÓPEZ, A. and RANA, S., 2024. Business intelligence and business analytics in tourism: insights through Gioia methodology. International Entrepreneurship and Management Journal, 20(3), pp. 2287-2321.

[17] KHANDELWAL, Y., MALHOTRA, S., SHARMA, R. and SARIN, G., 2024. Artificial Intelligence in Digital Marketing: A Bibliometric Analysis and Future Research Directions. Abhigyan, 42(4), pp. 341-363.

[18] KIMURA, T., 2025. Exploring the Frontier: Generative AI Applications in Online Consumer Behavior Analytics. Cuadernos de Gestión, 25(1), pp. 57-70.

[19] KOBETS, K., TERENTIEVA, N., SHKVYRIA, N., LYSYTSIA, N. and SIEMAK, I., 2024. Digitalization and its Impact on the Development of Contemporary Marketing Strategies. Economic Affairs, 69(2), pp. 1021-1040.

[20] KRABOKOUKIS, T., 2025. Bridging Neuromarketing and Data Analytics in Tourism: An Adaptive Digital Marketing Framework for Hotels and Destinations. Tourism and Hospitality, 6(1), pp. 12.

[21] KUMAR, R., SINGH, A., SUBAHI, A., HUMAIDA, M., JOSHI, S. and SHARMA, M., 2025. Leveraging Artificial Intelligence to Achieve Sustainable Public Healthcare Services in Saudi Arabia: A Systematic Literature Review of Critical Success Factors. Computer Modeling in Engineering & Sciences, 142(2), pp. 1289-1349.

[22] LIANG, H., WEI, H., QIN, X. and CHEN, L., 2024. Computer-Aided Technology in Product Communication and Promotion Strategy. Journal of Electrical Systems, 20(3), pp. 472-482.

[23] LIFELO, Z., DING, J., NING, H., QURAT-UL-AIN and DHELIM, S., 2024. Artificial Intelligence-Enabled Metaverse for Sustainable Smart Cities: Technologies, Applications, Challenges, and Future Directions. Electronics, 13(24), pp. 4874.

[24] LIU, H. and LIANG, J., 2025. A Study on the Factors Influencing Chinese Costume Consumers Utilizing Live Streaming Platforms to Purchase Products: A Case Study of Douyin. Journal of Theoretical and Applied Electronic Commerce Research, 20(1), pp. 38.

[25] LOPES, J.M., MASSANO-CARDOSO, I. and GRANADEIRO, C., 2025. Festivals in Age of AI: Smarter Crowds, Happier Fans. Tourism and Hospitality, 6(1), pp. 35.

[26] LU, Y., PISARENKO, Z.V., YANG, L., IVANOV, L.A. and YE, C., 2024. Advancing Decision-Making: The Role of Management Analytics in Modern Business Practices. Nanotekhnologii v Stroitel'stve, 16(5), pp. 431-440.

[27] MADANCHIAN, M., 2024. The Role of Complex Systems in Predictive Analytics for E-Commerce Innovations in Business Management. Systems, 12(10), pp. 415.

[28] MAGASI, C., 2025. Review of Dynamic Structural Equation Models for Real-Time Consumer Behaviour: Methodological Advances and Applications Insights. Management Dynamics in the Knowledge Economy, 13(1), pp. 52-67.

[29] MEI, L., TANG, N., ZENG, Z. and SHI, W., 2025. Artificial Intelligence Technology in Live Streaming E-commerce: Analysis of Driving Factors of Consumer Purchase Decisions. International Journal of Computers, Communications and Control, 20(1),.

[30] MISHRA, D., DAS, S. and PATNAIK, R., 2024. Application of AI Technology for the Development of Destination Tourism towards an Intelligent Information System. Economic Affairs, 69(2), pp. 1083-1095.

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