Examining McDonald's Operational Strategies: An Integrated Application of Regression and Social Media Sentiment Analysis

Ishita Butaney[1], Ayush Deo[2], Praket Aggarwal[3], Abhishek Kumar Sinha[4]

[1]Department of Information Technology, Mukesh Patel School of Technology, Management, and Engineering, SVKM's Narsee Monjee Institute of Management Studies (NMIMS) Deemed-to-University
[0000-0002-1282-2939],

[2]Department of Information Technology, Mukesh Patel School of Technology, Management, and Engineering, SVKM's Narsee Monjee Institute of Management Studies (NMIMS) Deemed-to-University
[0000-0003-2580-7946],

[3]Department of Information Technology, Mukesh Patel School of Technology, Management, and Engineering, SVKM's Narsee Monjee Institute of Management Studies (NMIMS) Deemed-to-University
[3][0000-0003-0478-989X]

[4]Mukesh Patel School of Technology, Management and Engineering, SVKM's NMIMS University, Mumbai (India)
[0000-0001-6770-3665]

Abstract: *This paper explores the role of McDonald's operational strategies in shaping consumer sentiment and its subsequent impact on market positioning. By integrating traditional business metrics with contemporary sentiment analysis, the study provides nuanced insights and actionable recommendations to enhance McDonald's market position in a sentiment-driven landscape. The research employs a dual-method approach. Quantitative assessments focus on operational metrics such as advertisement spend and revenue streams across various store types. Concurrently, sentiment analysis of consumer interactions gauges prevailing attitudes and perceptions. Results indicate that operational drivers such as service quality and ambiance foster positive consumer sentiments, whereas order inconsistencies and staff interactions contribute to negative perceptions. The findings underscore the critical balance of all operational aspects to maintain overall positive outcomes. The practical implications highlight the importance of customer service, effective marketing, and advertising spend in influencing consumer sentiment and business success. These insights serve as a strategic blueprint for businesses aiming to refine strategies, enhance customer experiences, and strengthen market positions. This study's originality lies in its innovative combination of traditional business metrics and sentiment analysis. It offers a dynamic evaluation strategy, advocating for the alignment of operational strategies with real-time consumer sentiments to drive market success.*

Keywords: Sentiment Analysis, Mcdonald's, Quantitative Analysis, Marketing, Predictive Model, Consumer Perception.

1. Introduction

1.1 Background

McDonald's, a name synonymous with global fast food, has long been a beacon of culinary consistency and brand strength. Its golden arches have been a symbol of comfort food and a meeting point for millions across the globe. However, due to rapid modernisation and globalisation, as the business landscape shifts, the once invincible titan faces unprecedented challenges. The trends exhibit that in the last few years, McDonald's has drastically reduced investing in its advertisements and campaigns (see Figure 1). We notice its debt ratio noticeably increasing, with its profit margins being stagnant, almost at a decline (see Figure 2).
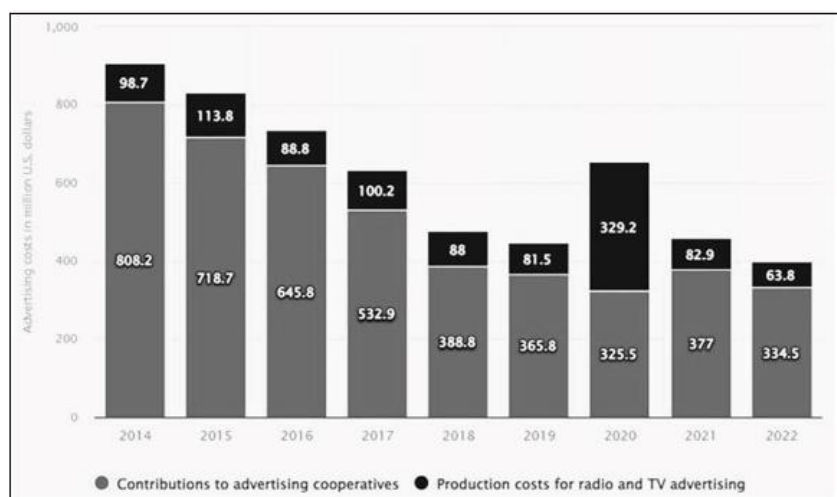

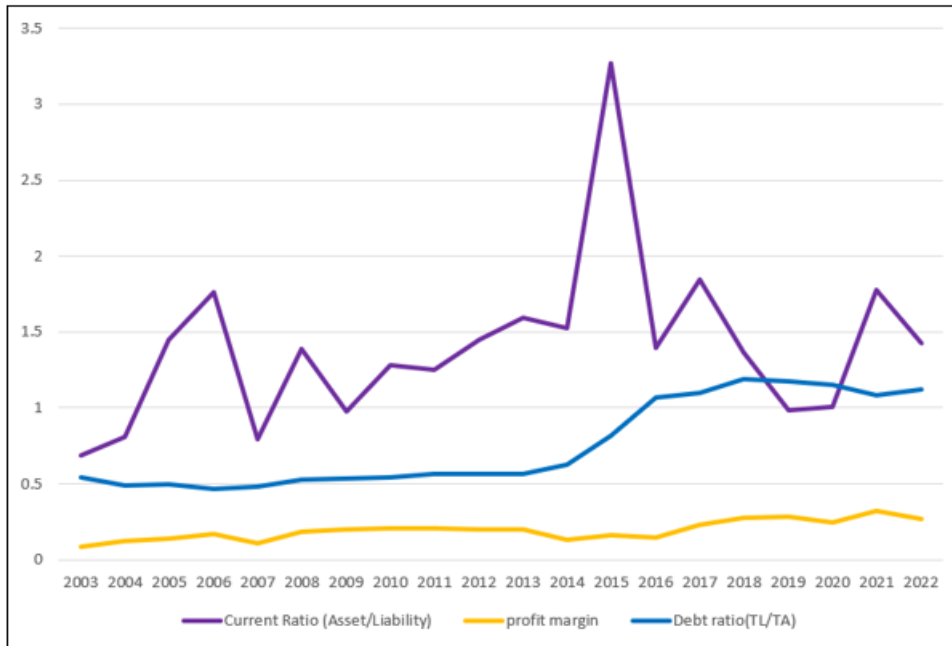**Figure 1:** Year-wise advertising costs [1]

Figure 2: Current Ratio, Profit Margin, & Debt Ratio of McDonald's, from 2003 to 2022 [2]

The advent of technology, coupled with a surge in health-conscious dining options and rising competitors, has dented its once-unassailable market position. The study shows the necessity of understanding the contemporary consumer's evolving psyche, especially in the backdrop of global diversity and local preferences, given that the consumer psyche affects corporate decisions far more in the current market. The declining revenue of McDonald's underscores a notable shift in the company's financial performance (see Figure 3). This decrease in revenue signals a departure from the robust growth that the company has experienced in previous periods. Several factors may have contributed to this downward trajectory.
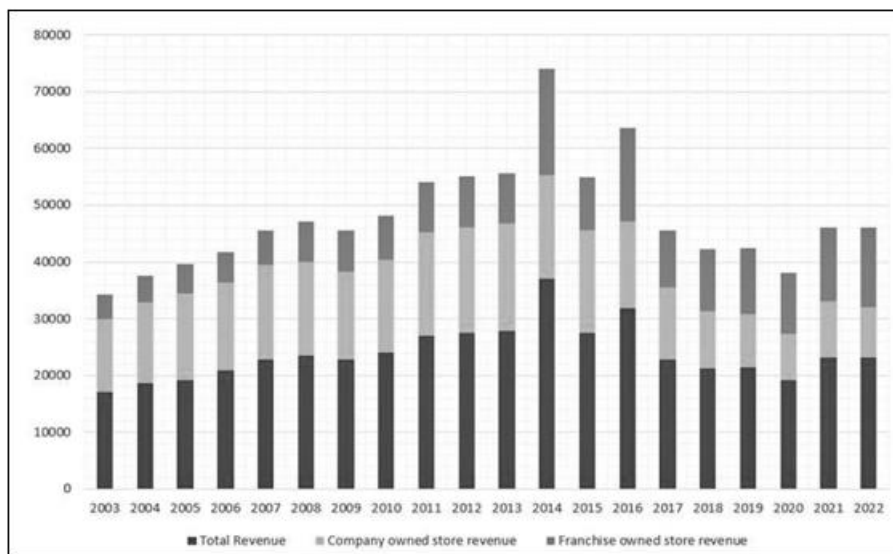

Figure 3: Revenue chart of McDonald's in Millions from 2003-2022 (USD) [2]

Changes in consumer preferences and behaviour, as well as increased competition in the fast-food industry are some of the drivers of McDonald's revenue decline. Evolving dietary preferences and a growing emphasis on healthier food options have challenged traditional fast-food chains. Among the challenges public perception is posing, perhaps the greatest one is of the healthiness of McDonald's meals. In the time between the years 2011 and 2014, young adults of ages 19 to 21 increased their monthly fast-casual restaurant interactions by 2.3%, but their visits to McDonald's decreased by 12.9 percent. Clients aged 22 to 37 increased their fast-food outings by 5.2% over the same period of time, but unfortunately for McDonald's, visits to their stores stayed flat [3]. There is a clear choice made of "fresh and healthy" over "fast and convenient" and "McDonald's is having trouble convincing them it can be both" [4].

Impact
Global economic conditions and unforeseen events, such as the COVID-19 pandemic, can also impact the revenue of large corporations like McDonald's. Temporary closures, restrictions, and shifts in consumer dining habits during such crises can significantly affect the company's bottom line.

The decline in revenue has compelled McDonald's to make the difficult decision of shutting down some of its stores. This

downturn in revenue marks a significant departure from the company's historically rich growth. In response to this pronounced revenue decline, McDonald's has been forced to take a hard look at its operations and implement cost-saving measures, which include the difficult decision to shut down underperforming stores. These strategic moves, while challenging, are critical for redirecting resources toward more financially viable locations.

To address declining revenue, McDonald's may need to adapt its business strategies. This could involve menu innovations, exploring new markets, enhancing digital and delivery services, and even reevaluating its marketing and pricing strategies. Finding a balance between maintaining brand loyalty and adapting to changing market dynamics is essential for McDonald's to reverse the trend of decreasing revenue and regain its financial stability.

McDonald's decision to curtail its advertising expenditure reflects a strategic shift in the company's approach. This reduction in advertising costs signifies a departure from their previous investment-heavy marketing strategies. While the specifics of this cost-saving measure may vary, it suggests that McDonald's is seeking to streamline its advertising efforts.

The rationale behind this move could have many layers. It may be a response to shifting consumer behaviours and preferences, as well as the increasing reliance on digital platforms for marketing. However, it is essential to consider the potential implications of this decision. Reducing advertising expenditures can impact brand visibility, customer engagement, and the ability to reach new markets. If they do not strike the right balance between cost savings and effective advertising, the level of loyalty McDonald's receives will slowly but surely decline. There is a significant correlation between public perception, marketing success and revenue generated. Any drop in successful campaigns can have a directly negative impact on sales.

The challenges faced by McDonald's, such as evolving consumer preferences towards healthier options, increased competition, and the need for effective marketing strategies, are not unique to this brand. These issues are relevant to the entire fast-food industry, which means that other chains could also experience similar declines if they do not adapt. The global impact can include:
1) A shift in market share, benefiting chains that offer healthier or more innovative options.
2) Decline in performance of major chains can affect employment, supplier networks, and local economies dependent on these businesses.
3) A growth in demand for healthier fast-food options, which can drive industry-wide changes in menu offerings.

2. Literature Review

As we delve into the expansive world of sentiment analysis, we must navigate the complex interplay of language, emotion, and technology, seeking to understand not just what is said, but how and why it resonates. Sentiment analysis or even sentiment polarisation has technological applications varying from product review data [5] for making business decisions to even analysing social media to predict election results,

public safety threats, disease outbreaks, etc. Primarily in our case, it can also be used to recognise trends and characteristics of people's food habits as demonstrated by [6, 7, 8]. Some authors [9] showed that traditional approaches to sentiment analysis were outperforming Auto-ML approaches [10]. However, the difference between the accuracies was close enough using larger datasets and hyperparameter tuning may close the gap. Therefore, for our purposes, we have chosen to use the traditional approach.

An understanding of consumer behaviour about the factors that affect their purchasing behaviour would enhance the ability to predict brand preference. Knowing where preferences reside, companies can then better allocate their resources to the relevant attributes. The different underlying factors of brand preference between leading brands and followers can be detected. The determinant of important attributes and unique brand characteristics could be factored into product and brand strategic decisions of fast-food franchises [11, 12]. Research delineates that brand experience can be compamentalised into four distinct dimensions: sensory, affective, intellectual, and behavioural. Each dimension is uniquely elicited by various brands. Furthermore, brand experience exerts a tangible behavioural effect, influencing consumer satisfaction and loyalty both directly and indirectly via brand personality. Consequently, an enhanced brand experience is intrinsically linked to heightened consumer loyalty [13, 14]. Research has also concluded that people are more likely to recall pioneer brands and prefer to purchase goods from these pioneer brands [15]. When considering different brands, however, the perception of a difference gap in self-generalised stereotypes, and brand selection becomes lesser the closer the two brands/products are in features [16]. Thus, there is a common consensus, usually among consumers of a certain group. Herd mentality indeed affects consumer behaviour, which helps solidify that the unpopularity of fast food can and will slowly rise based on trends of health consciousness that are taking off right now. Parents who advocate for healthy eating in a balanced and non-extremist manner tend to deter their children from gravitating towards junk food. Consequently, the dietary habits of parents significantly influence their children's choices. With the millennial generation exhibiting increased health consciousness, there's a notable decline in the frequency with which the younger generation opts for unhealthy food options [17].

When considering these health consciousness trends concerning India, [18] concluded that the common perception of fast food is that it is seen as an indulgence, and while the awareness of the issues with fast food exists among its consumers, they would prefer if complete nutritional value and hygiene conditions were disclosed, which might convert them to frequent customers as providing calorie contents and nutritional information helps in attracting customers by removing misconceptions [19]. As awareness about organic and safe food grows, a clear group of people, not heavily burdened by poverty, choose to put health over initial cost. This group is willing to spend more on healthier options. Furthermore, they are raising their children with the same values [20].

When it comes to the economics of marketing concerning fast food chains, [21] noted that the finding that consumers accurately perceived 74% of the experimental price alterations

underscores their proficiency in monitoring price competition within food markets. When implementing promotional offers or price reductions, it's prudent to ensure that these adjustments exceed the minimum threshold of price perception. This ensures visibility without necessitating drastic reductions. Conversely, when contemplating price increments, adopting a strategy of multiple, nuanced increases that remain just beneath the perceptual threshold can circumvent heightened consumer scrutiny. It's also imperative to recognize that price modifications in associated or related products can influence consumer perceptions and behaviours regarding a specific item. [22, 23, 24] noted that if a campaign or celebrity endorser is part of a scandal, there is a negative reaction, which also results in a drop in sales. If it is well thought out and executed, there is a widely positive reaction. They conclude that customers are more likely to go for the product, even try something new if it is a well-liked and popular celebrity that endorses it. However, [25] have shown that if the celebrity chosen is one that has multiple different brands, the likeability decreases, and a negative response is the majority. From the analysis by [26], it is discerned that while low pricing is pivotal, it is advantageous to present this through mechanisms like coupons and digital discounts. By doing so, prices are not perceived as intrinsically low from the outset; instead, it offers consumers the gratification of achieving cost savings. Given the influence of media on consumer perceptions in the realm of food technology, notable films and discussions such as "Supersize Me" and discourses on obesity have fostered a heightened awareness among consumers. This media-driven consciousness inclines individuals toward seeking healthier alternatives and avoiding overly processed foods. News tends to be around controversy, thus being more toward negative impact or experience and is likely to affect consumer perception [27] also confirmed by Cui, et. al, [28] who observed that the volume of reviews has a significant effect on new product sales in the early period and such effect decreases over time. Moreover, the percentage of negative reviews has a greater effect than that of positive reviews, confirming the negativity bias that the firms need to work on mitigating. Some findings [29, 30] reveal that promotions do increase fast food consumption, mainly by making people buy it more often or in larger quantities during promotions, rather than switching between different places.

This suggests that the fast-food industry's argument that they need aggressive advertising to compete might not be entirely valid. It also supports the idea of regulating fast food advertising, especially to groups at risk of obesity. The study also finds that people tend to habitually eat fast food, which could mean that policies like fast food taxes may be more effective than previously believed.

McDonald's runs entirely on globalisation and internationalisation, its major market being all over the world looking for the consistency in flavour and brand experience that McDonald's provides as a "family place" etc. Its success is owed to the local tastes being adhered to by adding new products/substitute products based on the area and audience [31]. Integration of online branding has been further promoted by specific campaigns that drive customers between channels. Their brand experience and perception should match the brands' online and offline personas. For McDonald's, the online channel is strictly a marketing communications channel with delivery through restaurants. The online channel is therefore enlisted to reinforce brand messages and relationships. Key aspects of the strategic value set, such as engagement with local communities are promoted through Web sites [32]. A strong corporate emphasis on consumer health, quality, and socially responsible initiatives must be incorporated. New advertising campaigns or new product lines alone are not sufficient to communicate changing brand values. If fast-food retailers such as McDonald's wish to maintain and attract new customers, the overall brand value must be re-defined [33].

Speaking to buying patterns, when the cost of less healthful foods escalates, consumer purchasing patterns show only a modest decline, indicating a sustained demand despite the higher prices. Conversely, when these products become more economically accessible, there's a pronounced increase in their consumption. Such asymmetrical responses to price fluctuations can significantly shape dietary choices, with potential repercussions for public health. As a case in point, when establishments like McDonald's introduce price reductions or promotional discounts, they witness a surge in patronage, reinforcing the correlation between affordability and the appeal of less nutritious options [34]. To improve these buying patterns in favour of establishments, firms need to employ resonance marketing, expressing and exhibiting their core values and beliefs as the info they provide to people, to better their profits, experience includes sensory, senses evoked by advertisements, therefore, to tie them to marketing and campaigns leads to consumers seeing them favourably because people gravitate more towards values since the differentiating factors in such kinds of firms are reducing and even the discounts offered are easily available everywhere [35].

There is a shortage of research on incorporating sentiment analysis in marketing, and is a notable gap in the field. Despite the potential of sentiment analysis to offer insights into consumer perception and emotions, there is a lack of comprehensive research in this area. The current research landscape lacks detailed studies and best practices for effectively using sentiment analysis in marketing, including areas like brand management and campaign optimization. Closing this gap requires more in-depth research that explores methodologies, tools, and practical cases to showcase the value of sentiment analysis in enhancing marketing strategies. Addressing this research void can empower businesses to harness consumer insights effectively, enabling them to create more targeted marketing campaigns that drive engagement, sales, and brand loyalty. By addressing this research void, companies can better leverage sentiment analysis to improve the efficiency and success rate of their marketing campaigns, making them more responsive to consumer sentiments and ultimately achieving more targeted and effective results.

Objectives and Hypotheses

In the evolving domain of business research, the interplay between concrete organisational metrics and the more fluid realm of consumer sentiment is gaining significant attention. For global entities like McDonald's, navigating this duality is paramount, particularly when considering the ripple effects of their multifarious marketing campaigns on brand perception. Our study is structured to traverse this multifaceted domain methodically:-

1) Quantitative Assessment: A robust analysis of McDonald's operational metrics spanning a specific timeframe. This assessment aims to delineate prominent trends and pivotal elements characterising McDonald's market presence.
2) Sentiment Exploration: Armed with the quantitative data, our focus shifts to gauging consumer sentiment vis-à-vis McDonald's. This involves parsing public discourse to not only gauge the prevailing brand sentiment but also potentially discern its alignment with our prior quantitative findings.

This paper delves into McDonald's journey, examining the interplay between its localization strategies and its marketing campaigns, all through the prism of sentiment analysis. The purpose is to gauge consumer perceptions, unearth current behavioural trends, and dissect the efficacy of its marketing endeavours and make recommendations on how one can proceed based on these evaluations.

Objectives
We aim to achieve the following objectives by undertaking this study:
1) To understand, examine, analyse, and exhibit the growth of McDonald's over the last few years.
2) To conduct a focused sentiment analysis on consumer reviews and social media interactions related to McDonald's, aiming to uncover prevailing consumer attitudes, preferences, and areas of discontent.
3) To understand prevailing consumer sentiment and analyse its relation to McDonald's current trajectory.
4) To recommend changes based on the study conducted.

Hypotheses
Given the above-mentioned objectives, the study undertaken has proposed the following hypotheses:

Hypothesis 1
1) H_{1a}: The market success of McDonald's has no significant relationship with its Advertisement Spend.
2) H_{1b}: The market success of McDonald's has a significant relationship with its Advertisement Spend.

Hypothesis 2
1) H_{2a}: The market success of McDonald's has no significant relationship with its Company-owned store revenue.
2) H_{2b}: The market success of McDonald's has a significant relationship with its Company-owned store revenue.

Hypothesis 3
1) H_{3a}: The market success of McDonald's has no significant relationship with its franchise-owned store revenue.
2) H_{3b}: The market success of McDonald's has a significant relationship with its franchise-owned store revenue.

3. Method

The Method section describes in detail how the study was conducted, including conceptual and operational definitions of the variables used in the study, Different types of studies will rely on different methodologies; however, a complete description of the methods used enables the reader to evaluate the appropriateness of your methods and the reliability and the validity of your results, It also permits experienced investigators to replicate the study, If your manuscript is an update of an ongoing or earlier study and the method has been published in detail elsewhere, you may refer the reader to that source and simply give a brief synopsis of the method in this section.

Dataset description
1) Source of data: Google Reviews on Google Maps
2) Method of Extraction: Manual Scraping
3) Type of Data: Panel
4) Sample Size: 1150
5) Number of Variables: 2

Experiment Models

2.2.1 Model 1. McDonald's growth analysis
$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + u_i$ (1)
Where:
1) $\beta_0 - \beta_3$ = Coefficients
2) X1 = Advertisement Spend
3) X2 = Company-owned store revenue
4) X3 = Franchise-owned store revenue
5) Y_i = McDonald's market success in terms of Total revenue
6) u_i = Error term

Model 2. Sentiment Analysis of McDonald's Reviews
The study undertaken aims to use review sentiment analysis to gauge consumer perceptions, unearth current behavioural trends in the reviews, and understand how this sentiment may affect future growth for McDonald's. This model provides a comprehensive approach to McDonald's reviews' sentiment analysis, from data preprocessing to model evaluation and visualisation. The structured process ensures that the text data is effectively cleaned and transformed, facilitating the extraction of meaningful insights through machine learning. The visualisations further allow for an intuitive understanding of both the data characteristics and the model's predictive performance, ensuring a thorough evaluation of the sentiment analysis process.

Sentiment analysis, also called opinion mining is a machine learning technique used in Natural Language processing to gauge the sentiment of the text. The study by (Fang & Zhan, 2015) [9] puts forth certain flaws of using this model on data obtained from internet reviews, namely false opinions, and lack of ground truth. This is overcome during training by use of ratings which provide a guaranteed ground truth for every statement. Being a text classification problem based on polarity of sentence sentiment it can be carried out by various classification algorithms.

4. Data Preparation and Preprocessing

The dataset utilised in this study is sourced from two separate CSV files, namely the training dataset which consists of labelled Google Reviews McDonalds data, while the second dataset serves as the test dataset. The test dataset consists of scraped data extracted from Google Reviews via Google Maps.

Loading the Data

The datasets are loaded into pandas' data-frames, facilitating ease of manipulation and analysis.

Data Cleaning and Transformation

The ratings in the training dataset are extracted and converted to integer type. Based on these ratings, a new column, 'sentiment', is created. This column categorises the reviews into 'negative,' 'neutral,' and 'positive' sentiments, based on the rating values.

A crucial step in the methodology is the preprocessing of review texts to ensure that the data fed into the model is clean and devoid of irrelevant information. The following are the text preprocessing methods used:

1) Lowercasing: All texts are converted to lowercase to maintain consistency and avoid duplication based on case differences.
2) Special Character and Number Removal: Any non-alphabetic characters, such as numbers and special symbols, are removed from the review texts.
3) Tokenization and Stop-word Removal: The texts are tokenized, splitting the sentences into individual words or tokens. Subsequently, common stop-words (e. g., 'and', 'the', 'is') are removed to retain only the meaningful words in the reviews.

Feature Extraction

TF-IDF Vectorization: The Term Frequency-Inverse Document Frequency (TF-IDF) vectorizer is employed to convert the processed texts into numerical vectors. This technique considers the importance of terms in the texts, allowing for a more nuanced representation of the review contents.

Model Building and Evaluation

A Random Forest Classifier is chosen as the machine learning model for sentiment analysis. The model is conFig. d with 100 estimators and a fixed random state for reproducibility. Random forest classifier is especially useful in our scenario as it makes use of multiple decision trees to come to a single result. This ensemble classification method is essential in our research as it minimizes overfitting [36],. The added randomness makes it more capable to accommodate the nuances of natural language. All these factors along with the use of unpruned trees allow it offer incredibly high accuracy, precision, and recall Cross-Validation is performed on the training data to assess the model's performance and ensure that it generalises well to new, unseen data.

Model Training and Prediction

This model uses the SciKit library and provides a traditional approach in Machine Learning. This is approach is further supported by a study conducted (Mahima et al., 2021) which elaborates on benefits of using a traditional approach as compared to an AutoML approach.

1) The Random Forest model is trained using the TF-IDF vectors and the sentiment labels from the training dataset.
2) Predictions are made on the test dataset, and the results are saved, appending a new column, 'predictions', to the test data frame.

Visualisation and Analysis

Several visualisations are generated to provide insights into the data and the model's performance.

1) Rating Distribution: A bar chart visualising the distribution of different ratings in the training dataset is created, offering insights into the dataset's balance and the prevalence of various sentiments.
2) Word Clouds: Word clouds are generated for 5-star and 1-star reviews separately, visually representing the most frequently occurring words in each category. This visualisation aids in identifying common themes and terms associated with positive and negative reviews.
3) Sentiment Distribution in Predictions: A bar chart is created to visualise the distribution of predicted sentiments in the test dataset, providing an overview of the model's output distribution.

5. Results

In this section, the study exhibits the results of the two models discussed in the aforementioned methods section.

Results of Model 1. McDonald's Growth Analysis

As our first hypothesis indicates that there is a significant relationship between growth in McDonald's total revenue and their advertisement spending, the same is also indicated/justified by data analysis and hence it is accepted since the P-value is less than 0.05. The strength of the relationship is also supported by data taken for analysis where Goodness of Fit i. e., $R2$ is 0.5 (shows 50% of Goodness of Fit) and therefore standard error is just 0.008 to support the relationship. Thus, growth in Advertisement Spend will have a good positive impact on the growth of the total revenue of McDonald's as indicated by elasticity value i. e., 0.02. This implies that a 1% growth in Advertisement spending will lead to a 0.02% growth in the Total Revenue.

Table 1: Result analysis with R^2, intercept, elasticity, standard error, and p-value [a].

Variables	R square	Intercept	Elasticity	Std. Error	p-value
Total Revenue – Advertisement spend	0.564	- 33.615	0.0252	0.008	0.01965**
Total Revenue-Company owned store revenue	0.304	13231.950	0.740	0.263	0.01163**
Total Revenue – Franchise owned store revenue	0.495	15764.496	0.859	0.204	0.0005***

Notes: [a] Significance of p-value was taken at 0.05. ***p < 0.01, **p < 0.05, *p < 0.1

As our second hypothesis indicates that there is a significant relationship between growth in McDonald's total revenue and their Company-owned store revenue, the same is also indicated/justified by data analysis and hence it is accepted since the P-value is less than 0.05. The strength of the relationship is also supported by data taken for analysis where Goodness of Fit i. e., $R2$ is 0.304 (shows 30% of Goodness of Fit) and therefore standard error is just 0.263 to support the

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relationship. Thus, growth in Company-owned store revenue will have a good positive impact on the growth of the total revenue of McDonald's as indicated by elasticity value i. e., 0.740. This implies that a 1% growth in Company-owned store revenue will lead to a 0.740% growth in the Total Revenue.

As our third hypothesis indicates that there is a significant relationship between growth in McDonald's total revenue and their Franchise-owned store revenue, the same is also indicated/justified by data analysis and hence it is accepted since the P-value is less than 0.05. The strength of the relationship is also supported by data taken for analysis where Goodness of Fit i. e., R^2 is 0.495 (shows 49.5% of Goodness of Fit) and therefore standard error is just 0.204 to support the relationship. Thus, growth in Franchise-owned store revenue will have a good positive impact on the growth of the total revenue of McDonald's as indicated by elasticity value i. e., 0.859. This implies that a 1% growth in franchise-owned store revenue will lead to a 0.859% growth in the Total Revenue.

The conclusion one can draw from these results are that McDonald's should reverse the current trend of reduction in advertisement spend, as increasing it would help improve their revenue growth via the previously mentioned factors such as increasing prevalent brand identity, placement of brand imagery etc. Alongside that, focus must be added to adjusting and improving policies regarding franchise-owned stores and company-owned stores, as by increasing not only the number, but the throughput of these stores would greatly impact their total revenue.

Results of Model 2. Sentiment Analysis of McDonald's Reviews

Analysis of data and the reporting of the results of those analyses are fundamental aspects of the conduct of research. Accurate, unbiased, complete, and insightful reporting of the analytic treatment of data (be it quantitative or qualitative) must be a component of all research reports. Researchers in the field of psychology use numerous approaches to the analysis of data, and no one approach is uniformly preferred as long as the method is appropriate to the research questions being asked and the nature of the data collected. The methods used must support their analytic burdens, including robustness to violations of the assumptions that underlie them, and they must provide clear, unequivocal insights into the data.
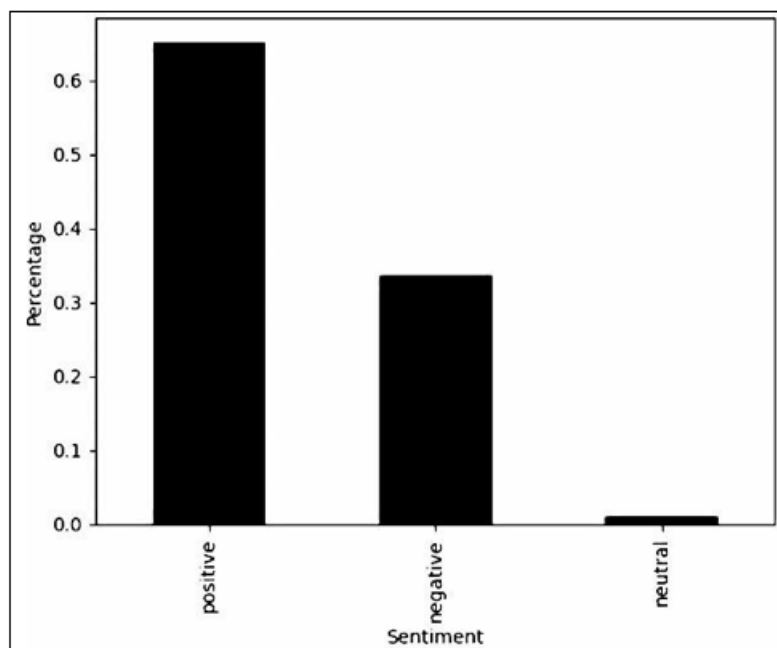

Figure 4: Percentage of Positive and Negative Reviews in the Test Dataset

Figure 5: Frequency of Ratings of Reviews in the Test Dataset

Our sentiment analysis model achieved a mean 10-fold cross-validation accuracy of 0.84 (shows 84% accuracy), which for a model of this complexity is quite accurate. After running the model, we firstly observe that most of the test review data is heavily skewed towards being either highly negative (1 star) or highly positive (4, 5 stars), with nearly similar values for both ends (see Figure 5). The overall sentiment rating given

was nearly 63% of the reviews being positive and 35% of them being negative with the rest being neutral. While this may not be ideally representative of real-life consumer perception due to it being localised data, having nearly 35% of local consumer experiences being negative (see Figure 4) is certainly not a good sign.

Figure 6: Most Mentioned Words in 5-Star Reviews

Figure 7: Most mentioned Words in 1-Star Reviews

The word clouds aid in identifying common themes and terms associated with positive and negative reviews. The reason for isolating words in the reviews is it gives a glimpse into the reasons behind the reviews and what are the key areas of focus

one should build upon. The 3 most recurring words for 5-star reviews are (see Figure 6)-"good", "food", and "service", indicative that consumers view eating at McDonalds positively and the staff interactions to be good. The 3 most recurring

words for 1-star reviews being (see Figure 7)-"food", "staff", and "order", indicative that most of the consumer complaints are with respect to poor food quality/quantity, bad service by the staff and inconsistencies with the orders. A study of quick service restaurants showed that McDonald's ranks second to last in terms of employee "friendliness" [37], and another internal report stated that around 20% of the customer complaints were about "rude" or "unprofessional" staff [38].

6. Findings

Via our expansive analysis, we have extricated a bundle of insights that can potentially chart a transformative course for McDonald's in this actively evolving market, as well as serve as a beacon for all brands and industries that rely on cultivating favourable public perception and sentiment. Our study shows reliable and strong relationships between key variables, and the company's total revenue, pointing towards a path of success that is sustainable. The most striking point of our research; our findings affirm the incredibly central role resource allocation plays in advertising campaigns, highlighting the crucial need for McDonald's to increase the allocation of funds for marketing and advertising; bucking the current trend of decreased advertisement expenditure. The connection between Company-owned and Franchised-owned store revenue serves as another significant growth driver. These revelations underscore the need to optimise company-owned store performance, while empowering franchises to enhance and improve their own operations.

Our sentiment analysis unveils a nuanced panorama of public sentiment regarding McDonald's, comprising both favourable and unfavourable viewpoints. While McDonald's boasts a substantial number of favourable impressions, nearly 35% of these sentiments lean toward the negative spectrum. These insights provide a vivid picture of the polarised nature of consumer sentiments surrounding McDonald's, which, if left unattended, could potentially drive customers away. In a newly emerging perception driven world, where modern trends are already reshaping consumer behaviour, particularly with relation to dietary habits and preferences, these insights take on greater significance. Notably, negative reviews often revolve around concerns related to "food, " "staff, " and "order. " Further analysis uncovers issues pertaining to poor order consistency, quantity, and quality.

7. Implications

The findings of this research have several implications for both academic and practical realms. Academically, it contributes to the existing literature by integrating traditional business metrics with sentiment analysis, offering a nuanced perspective on evaluating business strategies in the fast-food industry. It highlights the significance of aligning business operations and marketing strategies with prevailing consumer sentiments, enriching the understanding of contemporary market dynamics.

7.1 Practical Implications

For practitioners, particularly those in the fast-food industry, this study provides invaluable and actionable insights into optimizing operational and marketing strategies. It emphasizes the paramount importance of customer service excellence, the indispensable relevance of strategic advertisement spending, and the profound impact of consumer sentiments on business outcomes. Businesses can harness these profound insights to recalibrate their strategies, resulting in a substantial enhancement of customer experiences and a substantial improvement in their overall market positioning. The recommendations offered in this study serve as an indispensable strategic roadmap for not only enhancing customer satisfaction and loyalty but also for cultivating a strong and enduring brand image that resonates with consumers, ultimately leading to long-term business success.

7.2 Social Implications

This research also bears social implications. Understanding and addressing consumer sentiments can lead to improved customer experiences and satisfaction, contributing to societal well-being. By encouraging businesses like McDonald's to focus on aspects such as food quality and customer service, the study indirectly promotes the enhancement of service quality standards in the fast-food industry. Furthermore, by highlighting the influence of health consciousness trends, the study could encourage fast-food chains to consider healthier options in their offerings, contributing to public health.

8. Recommendations

In any largely populated country like India, with versatile cultures, service is held to high standards by customers, and subpar customer service can leave a lasting negative impression. Addressing these issues, McDonald's should invest in efficient training programs to ensure seamless onboarding of new staff and to maintain these service standards throughout both franchised and company-owned stores. This would enhance their operational efficiency and the overall customer experience. Tailoring marketing campaigns based on sentiment insights can effectively tackle specific concerns and spotlight strengths. Addressing poor food quality and quantity concerns can involve a campaign similar to Domino's famous approach: "New and improved Domino's Pizzas will have a softer and tastier crust, more and bigger toppings, more cheese, and a new herbier tomato sauce. " By emphasising the characteristics of the food items that customers expect, McDonald's can lead to a more favourable outlook on its offerings. Depicting staff as approachable and treating them kindly within a cohesive and familial environment can help negate or minimise negative sentiments about staff interactions. Positive reviews often underscore the familial atmosphere of McDonald's combined with local design elements, thus McDonald's would do well to accelerate franchising while ensuring that its values align with local values to resonate with consumers. By continuously monitoring consumer sentiment, as revealed through sentiment analysis, brands can better comprehend customer feedback and areas for improvement.

Finally, McDonald's should prioritise maintaining the quality that is frequently mentioned in 5-star reviews, such as "good", "food", and "Service. " Interaction with customers who are satisfied can increase and culminate in a stronger relationship and loyalty, resulting in more positive word-of-mouth. Sentiment analysis results such as ours should be used to guide

marketing campaigns and feature positive aspects, and constant supervision and monitoring of financial and sentiment data is crucial to adapt to changing market conditions and preferences. By implementing these recommendations, McDonald's will thrive, but it won't be the only brand that can benefit. This pointed utilisation of technological resources isn't just restrained within the fast-food industry, but rather for any and all brands that rely on cultivating pleasant and positive public perception and sentiment, paving the way for a brighter and more successful future.

9. Conclusion

In a rapidly transforming world, where digitalisation is leading the charge, brands must capitalise on the variety of intricacies technological wonders can offer us. Consumer behaviour of a people is ever-evolving; almost sentient, and with the changing landscapes of technology and globalisation, companies must account for changing perceptions. Adopting marketing and public relations strategies that are agile is a must; adapted to ensure positive resonance of their brand images and identity with their target demographic. Highlighting the significance of leveraging machine learning, quantitative analysis, and sentiment analysis, this study deems these as game changing and dynamic marketing tools. Channelling the power of data-driven insights, businesses can enhance their strategic decisions with respect to their campaigns. With a particular focus on optimising cost of marketing and advertising, using these tools, they can maximise growth potential and cultivate stronger customer relationships and loyalty, which ultimately result in greater profitability.

Effectiveness and efficiency must be enhanced further. For this, cutting-edge technology such as large language models with powerful Natural Language Processing (NLP) capabilities show much promise, and should be integrated into business processes accordingly. A sentiment-based model that can be customised, and seamlessly integrated with an NLP-driven campaign generator and simulator will revolutionise the designing and execution of marketing campaigns. As a radically innovative approach, it will enable brands to craft highly efficient campaigns that will further their brand image, and are meticulously tailored to reach the broadest possible customer segment with remarkable precision.

Truly unlocking the potential of these technologies, nonetheless, can be slightly more elaborate. The development of a curated machine-learning model is imperative; one that predicts the outcomes of specific campaigns, not only contingent on historical consumer behaviour and data, but real-time feedback based on current public sentiment. It would have an ability to analyse and respond to shifting consumer attitudes and ideologies, hence empowering companies to react with agility and prompt responsiveness in their marketing efforts. Consistently monitoring public sentiment and adapting campaigns in real-time can help businesses secure their marketing strategies in sync with ubiquitous consumer attitudes. A comprehensive study is called for in this regard, as it is essential to fully exploit the power of these emerging technologies for their benefits and profound impact on modern marketing.

Notes
Note 1. Figure 1 is referenced from Statista (2023).

Note 2. Figures 2 and 3 are based on McDonald's Annual Reports (2003-2022).

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