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Electrifying Sentiments: Public Perception of Maserati's Transition to Electric Vehicles Across Age Groups

MSc in Business Analytics

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Abstract:

This study aims to understand public sentiment and age-specific preferences toward Maserati's transition to electric vehicles. Utilizing topic modelling techniques with sentimental analysis, comments are analysed from various social media platforms to gauge public opinion across different age demographics. The findings reveal a nuanced landscape of attitudes, with younger audiences expressing mixed feelings about the brand's electric transition, while older audiences focus on long-term factors like reliability and investment value. The study identifies key areas for Maserati to focus on, including the need for targeted financial schemes, influencer partnerships, and optimized social media engagement. Recommendations are provided to align Maserati's offerings with the expectations of both younger and older audiences, thereby fostering long-term brand loyalty and market success.

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1. Introduction

The emission of carbon dioxide from the combustion of fossil fuels, such as gasoline and diesel, is a significant contributor to greenhouse gases in the atmosphere. This concern is particularly pronounced in the transportation sector (Bebkiewicz et al., 2020). Acknowledging this environmental challenge, the UK government has taken a pivotal step by announcing its intention to prohibit the sale of new petrol and diesel vehicles by the year 2030 (Department for Transport, 2022). This decision reflects a global trend towards reducing carbon emissions through the promotion of electric vehicles (EVs), which generate no tailpipe emissions.

This shift in the automotive landscape is prompted by a combination of growing environmental awareness and rapid technological advancements. Luxury automobile manufacturers, including venerable brands like Maserati, find themselves at a crossroads, needing to adapt to these changing dynamics. “By 2025, Maserati will offer a fully electric version for all its models and from 2030 will only sell electric cars.” (Randall, 2022). As Maserati navigates this transformative period, understanding public sentiment becomes vital. Particularly, the brand is keen to attract a younger audience, notably those in their teens and twenties, a demographic traditionally underrepresented in luxury car ownership.

The primary research question this project aims to address is: 'How does the younger audience, specifically those in their teens and twenties, react on social media to Maserati's transition to electric vehicles?' This analysis is critical for Maserati as it gauges how this shift might resonate with potential younger customers and how the brand can leverage this transition to broaden its market appeal. The focus on capturing perspectives from diverse age demographics sets this study apart, as previous research has not explicitly examined how different age groups respond to Maserati's move towards electrification.

2. Methodology

This study adopts a multi-faceted approach to scrutinise public sentiment regarding Maserati's pivot to electric vehicles. The methodology incorporates various data processing and analytical techniques to offer a comprehensive view of how different age demographics perceive this significant transition. An overview of the methodology pipeline is presented in the following figure:

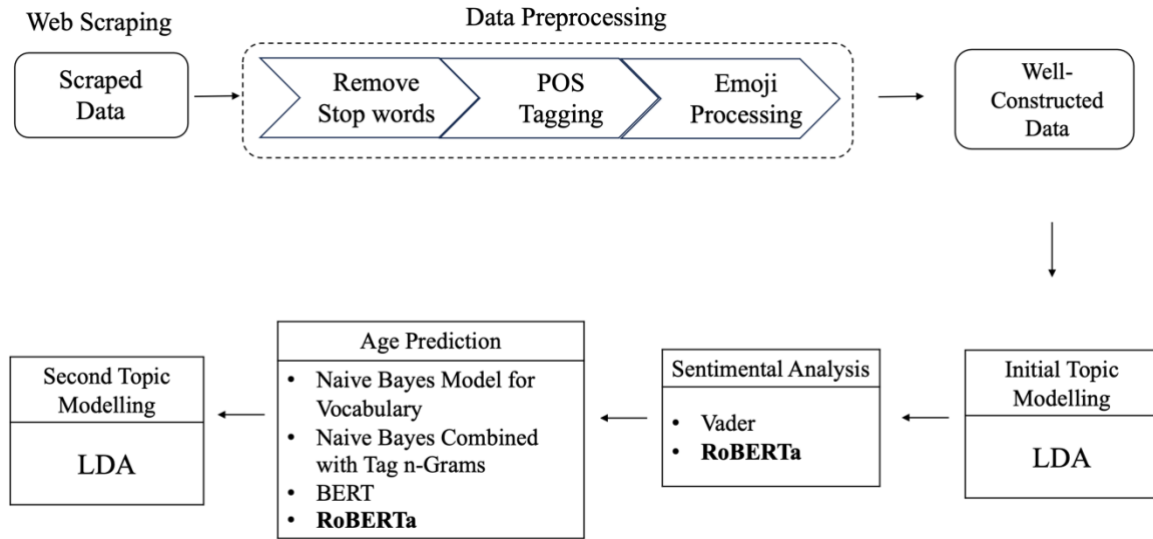


Figure 1: Overall pipeline

For further transparency and to facilitate replication of this study, all code and data have been made publicly accessible. These can be found at [kahyii98/ARP-MaseratiTransitiontoElectrification](https://github.com/kahyii98/ARP-MaseratiTransitiontoElectrification) github.

2.1. Platform Selection

The methodology employed for this study involves a strategic selection of diverse platforms to encompass a wide range of user groups.

- **Social Media Platforms:** Reddit and YouTube were chosen for their reputation for hosting in-depth discussions, while Twitter was selected for their ability to provide rapid reactions and real-time feedback.
- **Specialized Blogs:** Pistonhead, InsideEV, and Car Magazine were incorporated for their relevance to automotive and electric vehicle topics.

These selections ensure the inclusion of expert viewpoints and comprehensive analyses of Maserati's electrification transition.

2.2. Dataset Preparation

To construct the dataset, a combination of web scraping tools and available APIs was leveraged, focusing on extracting comments from the selected platforms over a period of six months. Specifically, comments that explicitly referenced Maserati's transition to electric vehicles or contained related keywords like 'Formula E' were included. This targeted approach ensured that the collected data would be directly relevant to the study's theme, offering insights into public opinion about Maserati's electrification efforts.

2.2.1. Web Scraping

In the context of this research study, I employed the Selenium web scraping tool to extract data from **PistonHead** and **YouTube**.

- **PistonHead**: Three types of information were extracted: the author, the comment, and the date.
- **YouTube**: I navigated the site to search for videos related to Maserati's electrification. Then, I automatically extracted four types of information: the video's title, the username of the commenter, the users' comments, and the dates of the comments.

Finally, the data was organized by creating a data frame, and then it was exported as separate CSV files.

2.2.2. Data Pre-processing

Emojis in Sentiment Analysis

A unique aspect of this study is the consideration of emojis within comments. Emojis serve as a form of emotional expression and can significantly impact the interpretation of text. Rather than removing them during data cleaning, emojis are converted into text to enhance the accuracy of sentiment analysis.

For the conversion of emojis, two techniques were evaluated: 'Concatenate Description' (concat-desc) and 'Direct Encoding' (dir). After reviewing the research by Chen (2023), '**Direct Encoding**' was selected as the optimal method. This decision was influenced by the model's proven efficacy in Short Message Sentiment Analysis (SMSA) tasks, especially its compatibility with emojis. This approach aligns with the use of Twitter RoBERTa for sentiment analysis, which will be further discussed in a later section.

Part-of-Speech Tagging for Age Prediction

In addition to sentiment analysis, the data was also transformed into part-of-speech (POS) tagging format. (Malik, 2019) This transformation serves a specific purpose: it is used in the age prediction model to better understand the linguistic patterns associated with different age groups. POS tagging allows for a more nuanced analysis of language use, which is crucial for accurately predicting the age of the commenters.

2.3. Dataset Analysis Method

This paper will focus on analysing **YouTube** comments to gauge public sentiment towards Maserati's transition to electric vehicles, identify prevalent themes and explore age demographic-specific reactions. YouTube was chosen for its diverse user base and rich automotive discussions.

2.3.1. Topic Modelling

To gain insight into public comments, this study employs **Latent Dirichlet Allocation (LDA)** to reveal prevailing themes and concerns about Maserati's electrification. Configured with a set number of four topics, LDA analyses patterns of word usage across documents to understand both term-topic and document-topic relationships (Blei, Carin and Dunson, 2010). The reliability of the topics generated will be validated through coherence metrics and qualitative assessments.

Gaining an understanding of dominant topics allows for more precise tailoring of Maserati's marketing and communication strategies, aiding in the creation of targeted advertising and public statements. Overall, this data-driven approach provides a solid foundation for strategic decision-making, reflecting the range of voices and opinions in public discourse.

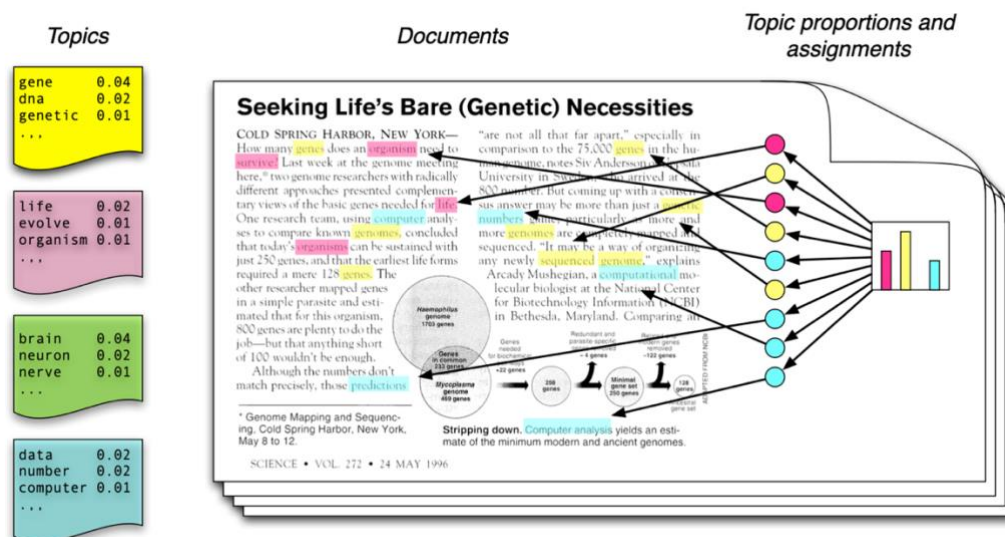


Figure 2: Topic Modelling *Latent Dirichlet Allocation (LDA)*

2.3.2. Sentimental Analysis

Following topic modelling, sentiment analysis serves as a critical next step to deepen our understanding of public opinion. While topic modelling identifies subjects discussed, sentiment analysis measures the emotional tone of each comment. This dual-method approach provides a comprehensive view of public discourse and enables the tailoring of more effective marketing and communication strategies. Understanding the sentiment behind comments allows for addressing specific concerns and capitalizing on positive sentiments, thereby making the analysis more actionable for strategic decision-making.

For Social Media Sentiment Analysis (SMSA), two tools were initially considered, as inspired by Taşdemir (2023):

- **VADER (Valence Aware Dictionary and sEntiment Reasoner):** According to Taşdemir (2023), this tool utilizes a lexicon and set rules to specialize in sentiment analysis for both social media content and other types of textual data.
- **RoBERTa (Robustly Optimized BERT Pre-training):** As described by Taşdemir (2023), this model is a refined version of the BERT architecture and was pre-trained by Facebook AI Research (FAIR) for machine learning tasks.

Both tools utilise a compound score to determine sentiment, categorising scores above 0 as **positive** and those below 0 as **negative**. Ultimately, **RoBERTa** was selected over other options due to its superior performance in sentiment analysis tasks. This superiority was especially noticeable in its ability to effectively interpret emojis, a feature crucial for the scope of our analysis.

2.3.3. Age Prediction

Following sentiment analysis, the study will employ age prediction algorithms to further segment the audience. The inclusion of age demographic data is crucial for understanding the variations in sentiment and topic interests across different age groups.

To address the absence of age labels in the YouTube scraped data, this study will utilize NLP Age Classification datasets, specifically 'all_posts_train.txt' and 'all_posts_text.txt' (Rauh and Long, 2015), to predict age. These datasets provide age classifications into four categories spanning different decades: teens, 20s, 30s, and 40s. By understanding the age

demographics engaged in discussions around Maserati's electrification, the brand can pinpoint age-specific concerns and preferences.

Various models were assessed for their capability in age prediction:

- **Naive Bayes Model for Vocabulary:** Utilizing the Naive Bayes bigram Python code as provided by Rauh and Long (2015), this model attained an accuracy rate of 60.6%.
- **Combined Bag-of-Words for Vocabulary and Tag n-Grams:** Employing the 'combined_test' python code, also from Rauh and Long (2015), this model slightly outperformed the Naive Bayes model with an accuracy rate of 61.6%.
- **BERT:** After tuning hyperparameters, this model reached a 59.4% accuracy rate.
- **RoBERTa:** This model achieved a 60.6% accuracy rate.

The **Combined Bag-of-Words for Vocabulary and Tag n-Grams model** was ultimately chosen for age prediction for several reasons. First, it had the highest accuracy among all models. Second, the Naive Bayes model, particularly when combined with POS tagging, offers a level of interpretability not easily achieved with deep learning models like BERT and RoBERTa. This is crucial for understanding which features are most indicative of different age groups. Lastly, BERT and RoBERTa require large datasets to generalize effectively, making simpler models like Naive Bayes more effective when the dataset is not extremely large.

Once trained, this model was applied to the YouTube data for age prediction, enriching the multi-dimensional analysis of public opinion.

2.3.4. Secondary Topic Modelling

In addition to the initial topic modelling, a second round was conducted to offer a more nuanced understanding of the data. This secondary analysis utilised Latent Dirichlet Allocation (LDA) *Section 2.3.1* to refine the identified themes, incorporating variables such as sentiment and predicted age groups. The aim was to pinpoint topics influenced by different age demographics and emotional tones, thereby enriching the contextual interpretation of public sentiment on Maserati's electrification transition.

2.3.5. Limitations

While this study aims to offer comprehensive insights into public sentiment around Maserati's electrification, it is important to acknowledge its limitations.

1. **Scope:** The study focuses on Maserati's yet-to-be-released Folgore electric car model, resulting in scant discussions and a limited dataset.
2. **Data Collection:** Due to privacy concerns, web scraping tools could not collect user metadata like age, gender, and location, limiting our demographic analysis.
3. **Sentiment Analysis:** RoBERTa may not fully grasp cultural idioms or expressions that could be prevalent in the data, potentially affecting the sentiment analysis.
4. **Age Prediction:** The absence of age-specific data in the YouTube comments led to the use of supplementary datasets from chatroom conversations, a context that might not closely mirror the YouTube environment. Furthermore, the algorithms used for determining age groups come with accuracy limitations, requiring a cautious approach to interpreting these findings.

To overcome these limitations, future research should consider employing a multi-methodological approach. By incorporating targeted surveys that specifically ask respondents for their age, gender, and opinions on Maserati's Folgore model, researchers could generate a labelled dataset ideal for more accurate age prediction algorithms. This would also augment the demographic analysis, filling the gaps left by the limitations of web scraping due to privacy concerns. Such a dataset could then be used in tandem with machine learning tools like RoBERTa for a more nuanced sentiment analysis. Overall, these measures would contribute to a more robust and reliable analysis of public sentiment towards Maserati's electrification efforts.

3. Analysis

3.1. Formula E Analysis

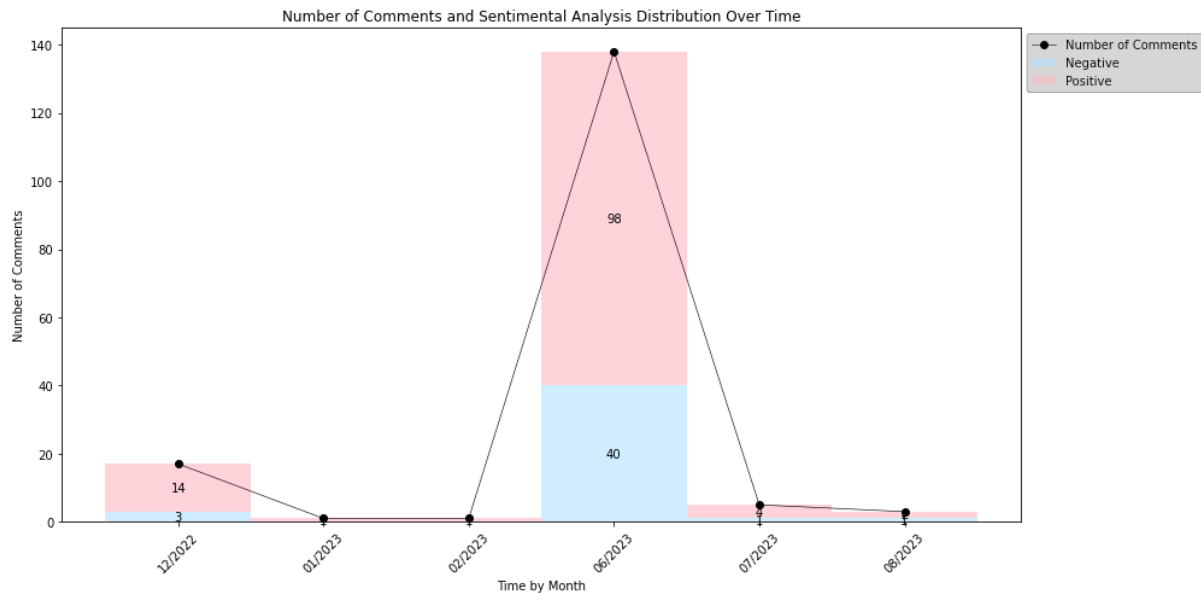


Figure 3: Number of Comments and Sentimental Analysis Over Time

Title	Date	Topic #	Topic Label
Formula E	June 2023	1	Jakarta Formula Event Experience and Improvement
		2	Victorious Racing Moments
		3	Insights into Racing Dynamics
		4	Comparing Performance and Teams
		5	Celebrating Max Gunther and Maserati

Table 1: Topic Labels - Formula E June 2023

Based on the data visualization in *Figure 3***Error! Reference source not found.**, the initial spike in discussions in 2022 likely reflects enthusiasm for Maserati's entry into the ABB FIA Formula E World Championship (Maserati, 2022). Although the sentiment has been mostly positive, the volume of discussions has experienced a downward trend in recent months.

However, there was a significant increase in conversations in June 2023. This uptick could be attributed to Maximilian Günther's dominant win in Indonesia, marking Maserati's first world championship single-seater victory since 1957 (Federation Internationale de l'Automobile, 2023). To explore this in depth, topic modelling was conducted for June 2023, as detailed in *Error! Reference source not found.*. The results revealed that the bulk of the conversations

centred on aspects of the championship race such as the event experience, race outcomes, racing dynamics, team performance, and notable achievements.

The surge in discussions in June 2023 emphasizes the role of significant events, like a championship win, in reigniting public interest. Drawing on these findings, several strategic implications emerge for Maserati. The brand should capitalise on the initial excitement, align marketing initiatives with high-impact events, and sustain community engagement through regular updates and emotionally compelling storytelling.

3.2. Maserati Granturismo Folgore Analysis

3.2.1. Topic Modelling

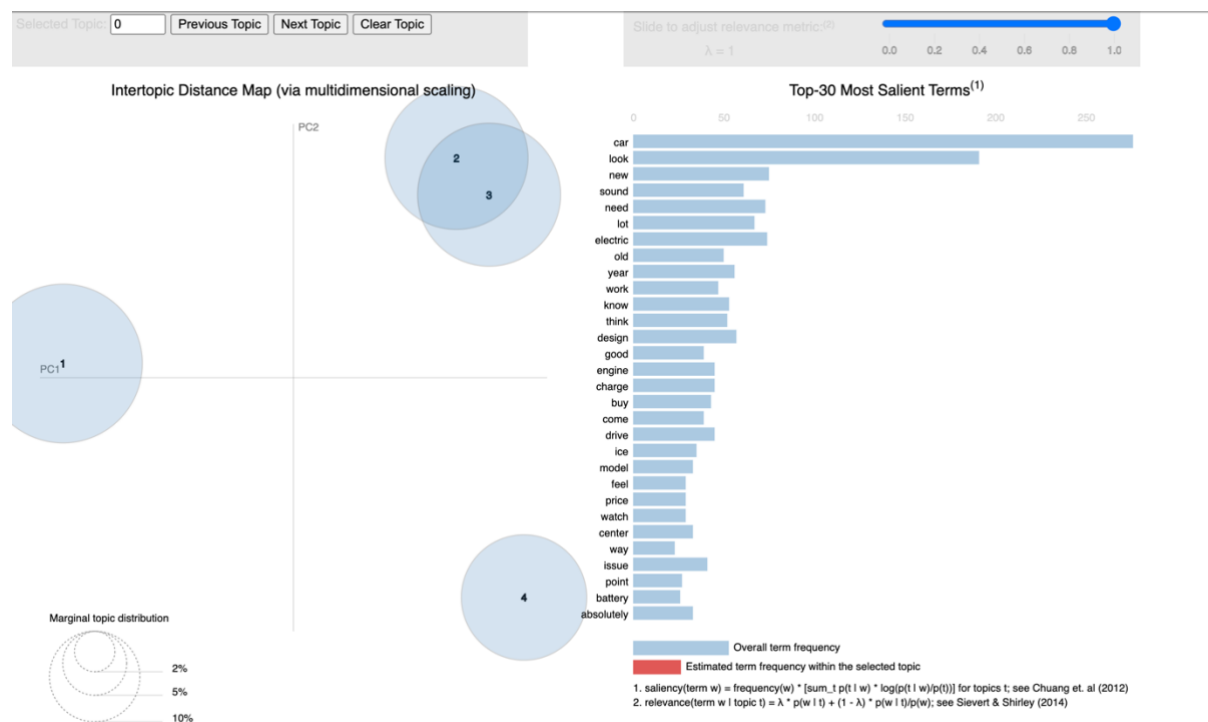


Figure 4: Topic Modelling - Maserati Folgore

Title	Topic #	Topic Label
Folgore	1	Appearance and design of electric cars
	2	Technical aspects
	3	Potential innovations in the industry
	4	Consumer needs or annual trends in the automotive industry

Table 2: Topic Label - Maserati Granturismo Folgore

In *Figure 4's* Intertopic Distance Map for Maserati Granturismo Folgore, four distinct clusters were identified. Topic 1, the most prominent, underscores the importance of the vehicles' appearance and design to Maserati's brand identity. This insight offers a clear path for targeted advertising campaigns that spotlight unique design elements. Topics 2 and 3, which focus on technical features and potential industry innovations, display considerable overlap. This reveals a specific consumer segment keenly interested in both the technological and innovative aspects of electric cars. Topic 4 relates to evolving consumer needs and annual industry trends, serving as a bellwether for emerging market trends such as sustainable driving solutions or integrated smart technology.

Interestingly, terms like "new," "sound," and "old" appear in topics focused on technical features and innovation. These terms indicate that while consumers show excitement for electric vehicles, they also hold a nostalgic attachment to traditional engine sounds. This insight presents Maserati with an opportunity to innovate by introducing an "authentic engine sound" feature in their electric models. In this way, Maserati can appeal to both tech-savvy and traditionalist customers.

Overall, these findings directly inform Maserati's priorities for future product development, suggest targeted marketing strategies, and assist in more effective customer segmentation.

3.2.2. Integrated Analysis of Sentiment and Age Demographic

In this section, a combined analysis of sentiment and age categories was presented to offer a more nuanced understanding of public opinion on Maserati's transition to electric vehicles. Analysing these two dimensions together allows for an exploration of how different age groups perceive this transition and the emotional undertones of these perceptions. This integrated approach aims to yield actionable insights for targeted marketing and

communication strategies. By understanding the relationship between age and sentiment, Maserati can tailor its messaging to resonate with specific demographic groups, thereby maximizing engagement and fostering a more positive brand image.

i. Overall Sentimental Analysis

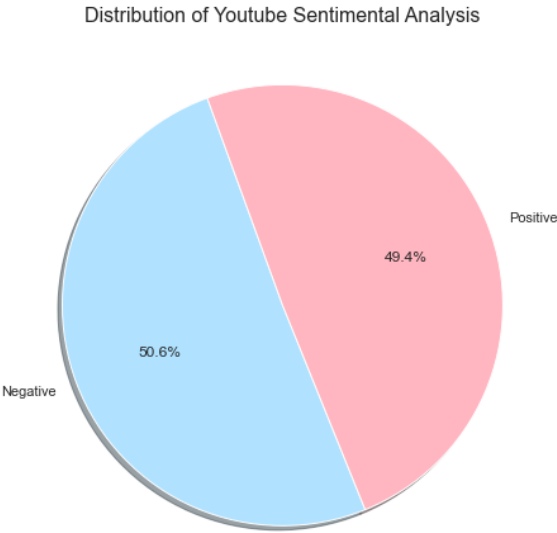


Figure 5: Pie Chart depicting Sentimental Analysis

As shown in *Figure 5's* pie chart, there is a nearly even balance between positive and negative sentiments in YouTube comments about Maserati's transition to electric vehicles — 50.6% negative to 49.4% positive. This balanced sentiment landscape indicates that Maserati is at a critical juncture. A minor shift in strategy could tip public opinion more favorably.

ii. Overall Age Prediction

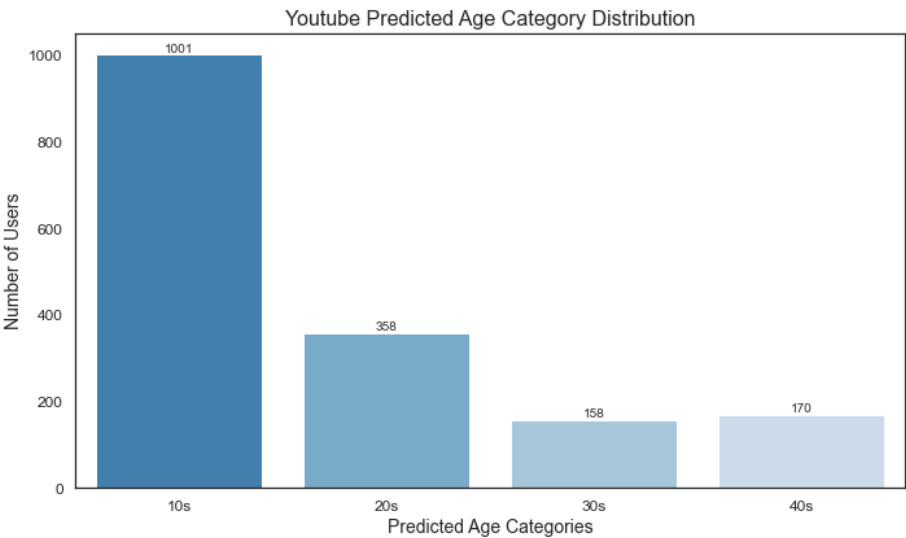


Figure 6: Bar Chart depicting YouTube Predicted Age Distribution

Figure 6 presents a bar chart of predicted age distribution based on YouTube comments about Maserati. The data reveals that the majority of comments are from individuals in their teens, closely followed by those in their twenties. This is in line with Maserati's marketing strategy, which targets these younger demographics as their future customer base. Importantly, engagement from these groups is especially strong concerning the Maserati Folgore model, indicating effective current marketing.

Interestingly, the data highlights another demographic: individuals in their forties. They appear to be more active in discussions than those in their thirties, suggesting a smaller yet noteworthy audience for targeted marketing. In summary, this age-based data serves dual purposes. It confirms the efficacy of Maserati's existing marketing focus while revealing additional demographic groups for future targeted campaigns.

iii. Integrated Analysis

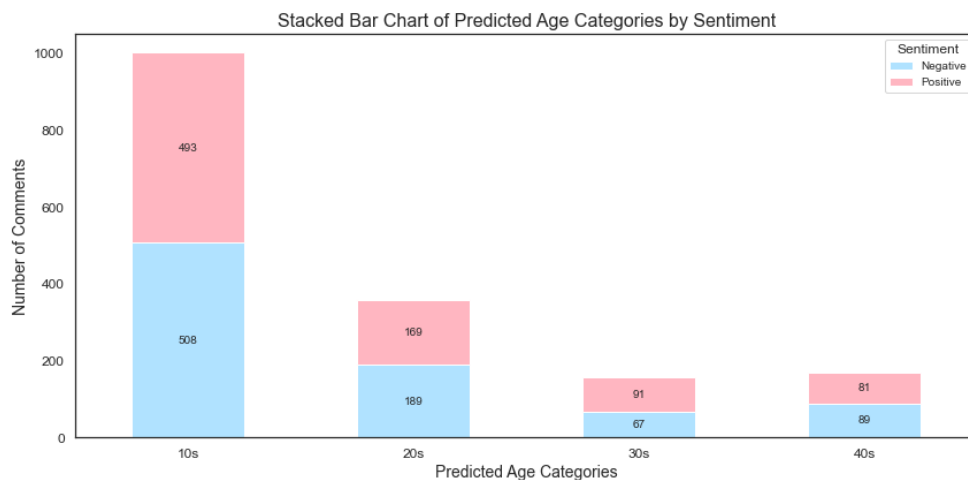


Figure 7: Stacked Bar Chart depicting Predicted Age Categories

The stacked bar chart in *Figure 7* offers a nuanced perspective on sentiment across different age groups. Among teenagers, negative comments slightly outnumber positive ones by 1.49%, indicating a sentiment that leans negative but is fairly balanced. The sentiment skews more negatively among those in their 20s, with a 5.6% higher volume of negative comments. This pattern is similarly observed among individuals in their 40s, where negative comments are 4% more frequent than positive ones.

Intriguingly, the data shows an opposite trend for those in their 30s, with positive comments outnumbering negative ones. One hypothesis could be that individuals in their 30s often find themselves at a stage of greater financial stability compared to younger age groups. This enhanced purchasing power could make the prospect of owning an electric car more attainable. Individuals in their 40s, who may have grown up with traditional combustion engines, have more entrenched views about what a luxury car should offer in terms of performance and experience. This cohort might be more resistant to the idea of electrification. This layered analysis offers intriguing avenues for future targeted market research to validate these hypotheses, fine-tuning Maserati's strategy for different age demographics accordingly.

3.2.3. Second Topic Modelling Analysis of Positive and Negative Sentiments

Based on the topic modelling results, the comments from individuals in their age groups reveal a duality of perspectives, encompassing both positive and negative sentiments. This contrast offers a comprehensive view of four main areas of concern for each sentiment type, providing valuable insights into the complex attitudes of this younger demographic toward Maserati's transition to electric vehicles.

i. Analysis of Comments from Individuals in Their 10s Based on Topic Modeling

Title	Filtered	Topic #	Topic Label
Folgore	10s Negative Comments	1	Long-term Expectations and Opinions
		2	Value and Identity in Electric Transition
		3	General Perceptions of Maserati Cars
		4	Technical and Operational Concerns
	10s Positive Comments	1	Aesthetic Appeal
		2	Electric Future and Requirements
		3	Innovation and Performance
		4	Brand Affinity and Emotional Connection

Table 3: Topic Label - Sentiment Analysis on 10s

Negative Comments:

1. **Long-term Expectations and Opinions:** Teens question Maserati's long-term vision, implying the brand should improve communication strategies targeted at this demographic.
2. **Value and Identity in Electric Transition:** Keywords like "electric" and "overpriced" indicate concerns about value, while "soul" suggests worries about the brand losing its unique identity in the electric transition.
3. **General Perceptions of Maserati Cars:** This topic shows that specific features or offerings of the brand are under scrutiny. This could be a valuable area for Maserati to investigate to understand the nuances of these negative sentiments.
4. **Technical and Operational Concerns:** The focus on "system" and "business" shows that teens are interested not just in the cars but also in Maserati's broader business strategies and technical aspects.

Positive Comments:

1. **Aesthetic Appeal:** The focus on visual design indicates that it is a significant factor influencing positive sentiment among teens.
2. **Electric Future and Requirements:** Here, the electric transition is seen positively, highlighting a division in opinion within the same age group about Maserati's move to electric vehicles.
3. **Innovation and Performance:** Terms like "new" and "engine" point to an appreciation for Maserati's innovative efforts, particularly in the technical realm.
4. **Brand Affinity and Emotional Connection:** An emotional bond with Maserati is evident, possibly influenced by a broader admiration for luxury and performance vehicles, as indicated by the mention of "Ferrari."

ii. **Analysis of Comments from Individuals in Their 20s Based on Topic Modeling**

Title	Filtered	Topic #	Topic Label
Folgore	20s Negative Comments	1	Skepticism on Electric Transition
		2	Personal Preferences and Influencers
		3	Quality and Performance
		4	Cost and Practicality of Electric Cars
	20s Positive Comments	1	Aesthetic and Electric Appeal
		2	Informed Satisfaction
		3	Design Approval
		4	Excitement for Electric Transition

Table 4: Topic Label - Sentiment Analysis on 20s

Negative Comments:

1. **Skepticism on Electric Transition:** Despite the general industry move towards sustainability, the 20s age group appears skeptical about Maserati's transition to electric vehicles. This suggests that Maserati may need to work on communicating the benefits and reliability of their electric range to this demographic more effectively.
2. **Personal Preferences and Influencers:** The prominence of a likely influencer, named 'Chris,' underscores the substantial impact that third-party opinions have on individuals in their 20s. This suggests that this age group places considerable value on the views of popular figures or experts when forming their opinions about a brand. This insight implies that Maserati could bolster its brand credibility and better connect with this demographic by strategically partnering with reputable influencers.
3. **Quality and Performance:** There's a nuanced discussion about the brand's performance and quality. While these aspects are generally seen as 'good,' they may not meet the high expectations of this critical audience.
4. **Cost and Practicality of Electric Cars:** Practical concerns, such as the cost and charging infrastructure, seem to be another obstacle in fully embracing Maserati's electric vehicles.

Positive Comments:

1. **Aesthetic and Electric Appeal:** Contrary to the skepticism shown in the negative comments, there's also a considerable appreciation for the aesthetics and design of Maserati's electric vehicles among the positive comments.
2. **Informed Satisfaction:** The 20s age group appears to be well-informed and generally satisfied with the brand, hinting at the success of Maserati's current communication strategies.
3. **Design Approval:** The design elements of Maserati are highly valued, indicating a successful alignment with the taste of this demographic.
4. **Excitement for Electric Transition:** A segment of this age group is not just accepting but excited about the electric transition, possibly aligning with their eco-friendly values.

iii. Analysis of Comments from Individuals in Their 30s Based on Topic Modeling

Title	Filtered	Topic #	Topic Label
Folgore	30s Negative Comments	1	Unfavourable Comparisons
		2	Ownership Concerns
		3	Aesthetic Critiques
		4	Mixed Feelings on Appearance and Sound
	30s Positive Comments	1	Aesthetic Appreciation
		2	Reliability and Improvement
		3	Brand Adoration
		4	Overall Satisfaction

Table 5: Topic Label - Sentiment Analysis on 30s

Negative Comments:

1. **Unfavourable Comparisons:** The comparison to other brands, notably Ford, suggests that there may be features of the Maserati cars that this age group finds lacking or unimpressive. The brand may need to reevaluate those aspects to avoid negative comparisons.
2. **Ownership Concerns:** The discussion around the feasibility of owning a Maserati suggests that this age group may have concerns about the long-term value, maintenance, or practicality of owning such a vehicle.

3. **Aesthetic Critiques:** The strong language used to describe the interior suggests that this is an area ripe for improvement. The term "horrible" is a clear indicator that the interior design is not meeting expectations.
4. **Mixed Feelings on Appearance and Sound:** While the exterior design may be appreciated, there seems to be dissatisfaction with how the car sounds, which could impact the overall driving experience.

Positive Comments:

1. **Aesthetic Appreciation:** There's a general consensus that the cars look "beautiful," suggesting that the exterior design elements are resonating well with this age group.
2. **Reliability and Improvement:** The focus on reliability implies that Maserati is making strides in areas that are traditionally important for more mature buyers, like long-term value and maintenance.
3. **Brand Adoration:** The mention of specific models like the GranTurismo, coupled with the word "god," suggests an almost reverential level of brand loyalty.
4. **Overall Satisfaction:** The positive comparison to Ford and the use of the word "fantastic" indicate a general level of satisfaction with Maserati cars.

iv. **Analysis of Comments from Individuals in Their 40s Based on Topic Modeling**

Title	Filtered	Topic #	Topic Label
Folgore	40s Negative Comments	1	Ambivalence Towards the Brand
		2	Brand Comparisons in Electric Transition
		3	Aesthetic Stagnation
		4	Long-Term Viability Concerns
	40s Positive Comments	1	Improvement and Satisfaction
		2	General Aesthetic Approval
		3	Excitement for New Designs
		4	General Satisfaction

Table 6: Topic Label - Sentiment Analysis on 40s

Negative Comments:

1. **Ambivalence Towards the Brand:** The presence of terms like "like" and "matter" hint at a lukewarm reception towards Maserati. It suggests that the brand may not be making a significant impact on this age group, warranting a need for more distinctive features or messaging.
2. **Brand Comparisons in Electric Transition:** The focus on how Maserati stacks up against other brands in the electric vehicle market suggests that this age group may not find Maserati's offerings compelling enough, especially when compared to competitors.
3. **Aesthetic Stagnation:** The sentiment that Maserati's design hasn't evolved significantly over the years is a clear call for innovation in design elements.
4. **Long-Term Viability Concerns:** The discussion around the long-term viability of owning a Maserati indicates that this age group is weighing the pros and cons seriously, possibly questioning the brand's value as a long-term investment.

Positive Comments:

1. **Improvement and Satisfaction:** The words "better" and "nice" imply that this demographic sees Maserati as improving, possibly in areas that had previously been points of contention.
2. **General Aesthetic Approval:** The appreciation for Maserati's aesthetics is clear, suggesting that design elements are generally hitting the mark with this older demographic.
3. **Excitement for New Designs:** The positive reception towards newer models suggests that any recent design innovations are resonating well with people in their 40s.
4. **General Satisfaction:** The overall tone of satisfaction suggests that despite some reservations, there is a level of contentment with the brand's current direction.

Based on the topic modeling results, the comments from individuals in their age groups reveal a duality of perspectives, encompassing both positive and negative sentiments. This contrast offers a comprehensive view of four main areas of concern for each sentiment type, providing valuable insights into the complex attitudes of this younger demographic toward Maserati's transition to electric vehicles.

The topic modeling of comments across various age groups reveals interesting insights into how Maserati is perceived, both positively and negatively. Younger audiences (10s and 20s) are particularly vocal about their opinions, with a mixed reception to Maserati's transition to electric vehicles. While the younger demographic generally approves of the aesthetic and design elements, they express concerns about value, identity, and the influence of third-party endorsements.

People in their 30s and 40s, on the other hand, appear more concerned with long-term factors like reliability and investment value. Interestingly, there is also a greater emphasis on aesthetics and design in these age groups, suggesting that Maserati's visual appeal is universally acknowledged.

Overall, the analysis underscores a few key areas for Maserati to focus on:

1. Addressing the concerns and curiosities around the transition to electric vehicles, especially among younger audiences.
2. Leveraging its strong aesthetic appeal across all age groups.
3. Considering strategic partnerships with influencers to enhance brand credibility, particularly among those in their 20s.

By focusing on these areas, Maserati can potentially bridge the gap between its offerings and the varied expectations of different age groups, thereby fine-tuning its marketing and product development strategies.

4. Recommendations

Drawing on the in-depth analysis of public sentiment and age demographics, this section outlines targeted strategies designed to align Maserati's offerings with the distinct expectations and preferences of both younger audiences—specifically those in their 10s and 20s—and older audiences.

For Younger Audiences (10s and 20s):

Financial Accessibility

1. **Early-Bird Incentives:** To address cost concerns related to electric vehicles, Maserati should offer time-limited discounts for pre-orders or reservations of new electric models, incentivizing early commitment from younger buyers.
2. **Customized Financing Plans:** Introduce financing options specifically tailored to the budget constraints of younger buyers, such as lower initial down payments or extended payment terms.

Influencer Partnerships

1. **Collaborate with Relevant Influencers:** Given the significant influence of third-party opinions on this age group, partnerships with influencers specializing in automotive or sustainability topics can enhance Maserati's brand credibility.
2. **Sponsored In-Depth Reviews:** Encourage these influencers to produce comprehensive reviews that focus on the unique features and benefits of Maserati's electric vehicles.

Social Media Engagement

1. **Interactive TikTok Challenges:** Launch TikTok challenges with a hashtag like #MaseratiDesignChallenge to engage users in showcasing the brand's design and features.
2. **Engaging Instagram Features:** Utilize Instagram's interactive features, such as polls and "Ask Me Anything" (AMA) sessions, to deepen brand engagement and gather consumer insights.

For Older Audiences (30s and 40s):

1. **Extended Warranties:** Offer extended warranty packages to emphasize the brand's commitment to long-term quality and reliability.
2. **Trade-In Programs:** Develop trade-in options that make it easier for people to upgrade their Maserati vehicles, reinforcing the brand as a lasting investment.

Since aesthetic design is universally appreciated across all age groups, Maserati should continue to leverage this strength in their branding and advertising efforts. According to a study by Miller et al. (2022), over 60% of all types of buyers, including those interested in Electric Vehicles (EVs), prefer to have a test drive. This underscores the enduring importance of physical experience in the car-buying journey. Despite advances in digital retail technologies like Virtual Reality (VR) or Augmented Reality (AR), the tactile and sensory

aspects of driving a car remain vital factors in influencing purchase decisions. Therefore, a hybrid approach—combining digital convenience with physical experience—will likely be the most successful strategy for both dealerships and Original Equipment Manufacturers (OEMs) going forward.

By implementing these targeted strategies, Maserati can establish a strong relationship with audiences of varying ages, setting the stage for long-term brand loyalty and market success.

5. Conclusions

Maserati's transition to electric vehicles is a significant milestone, attracting varied public sentiment. This study employed multiple analytical methods, including topic modelling, sentiment analysis, and age prediction, to gauge public opinion. The findings revealed an almost evenly balanced sentiment, differing distinctly across age demographics. Younger audiences expressed a blend of enthusiasm and skepticism, while older groups were notably concerned with long-term reliability and investment value. Aesthetic design emerged as a universally appreciated aspect.

The study's results hold important strategic implications for Maserati. Tailored marketing and financial incentives could resonate well with younger audiences, while older groups might value assurances related to quality and long-term value. Across all age groups, the aesthetic appeal of Maserati's vehicles was a common point of interest.

Despite its insights, the study has some limitations such as its focus on the upcoming Folgore model and the use of web-scraped data. Future research could adopt a broader methodological approach, perhaps incorporating surveys for more nuanced demographic information.

In conclusion, as Maserati moves toward an electrified future, a nuanced understanding of the diverse public sentiment is essential. The brand should be attuned to the varied expectations and concerns of different age groups as it charts its course in this new era of automotive technology.

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