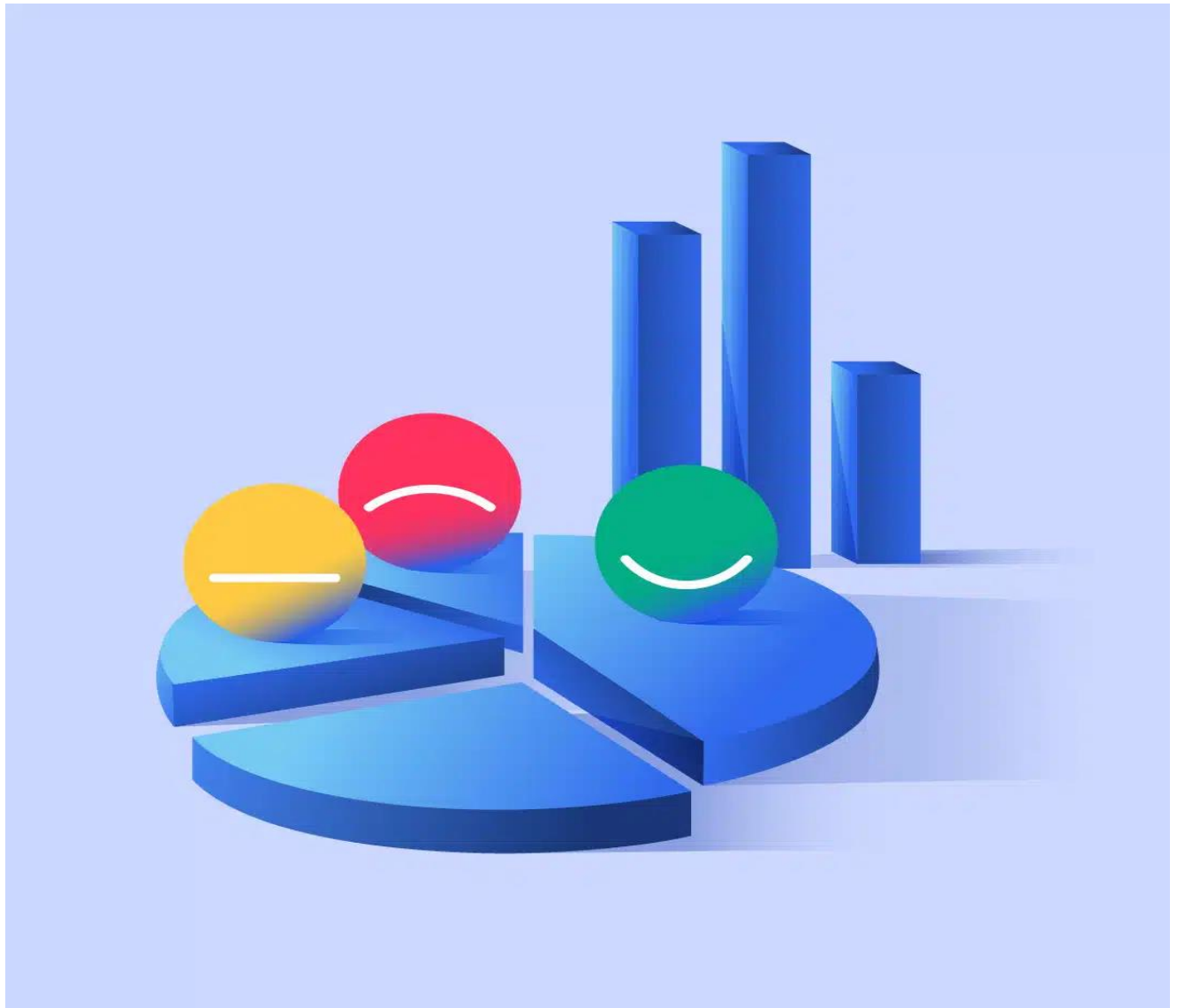


# SENTIMENT ANALYSIS FOR MARKETING

## PHASE 3 SUBMISSION DOCUMENT

**Project Title :** Sentiment analysis for marketing

**Phase 3 :** Development Part II



## **Abstract**

Sentiment analysis has emerged as a pivotal tool in the field of marketing, enabling businesses to gain valuable insights into customer emotions, opinions, and preferences. In today's highly competitive and data-driven marketplace, understanding the sentiments expressed by customers has become essential for crafting effective marketing strategies. This abstract provides an overview of the importance, methods, and benefits of sentiment analysis in marketing.

In the realm of marketing, sentiment analysis involves the systematic evaluation of text data from various sources, such as social media, customer reviews, and surveys, to gauge the emotional tone of the content. The primary objective is to determine whether the sentiments expressed are positive, negative, or neutral, and to what degree. This data-driven approach enables marketers to understand customer reactions and sentiments towards their products, services, and brand, thereby helping them make informed decisions.

Sentiment analysis techniques range from rule-based methods and lexicon-based approaches to more advanced machine learning and natural language processing (NLP) models. Machine learning algorithms, such as neural networks, have significantly improved the accuracy and granularity of sentiment analysis. NLP models can detect not only positive or negative sentiment but also subtler emotions and opinions, making them valuable tools for marketing professionals.

## **Introduction**

The opinions of others have a significant influence in our daily decision-making process. These decisions range from buying a product such as a smart phone to making investments to choosing a school—all decisions that affect various aspects of our daily life. Before the Internet, people would seek opinions on products and services from sources such as friends, relatives, or consumer reports. However, in the Internet era, it is much easier to collect diverse opinions from different people around the world. People look to review sites (e.g., CNET, Epinions.com), e-commerce sites (e.g., Amazon, eBay), online opinion sites (e.g., TripAdvisor, Rotten Tomatoes, Yelp) and social media (e.g., Facebook, Twitter) to get feedback on how a particular product or service may be perceived in the market. Similarly, organizations use surveys, opinion polls, and social media as a mechanism to obtain feedback on their products and services. sentiment analysis or opinion mining is the computational study of opinions, sentiments, and emotions expressed in text. The use of sentiment analysis is becoming more widely leveraged because the information it yields can result in the monetization of products and services. For example, by obtaining consumer feedback on a marketing campaign, an organization can measure the campaign's success or learn how to adjust it for greater success. Product feedback is also helpful in building better products, which can have a direct impact on revenue, as well as comparing competitor offerings. This white paper will describe the various types of sentiment classification, explore how to convert unstructured text into structured opinions, and address the current challenges in the field.

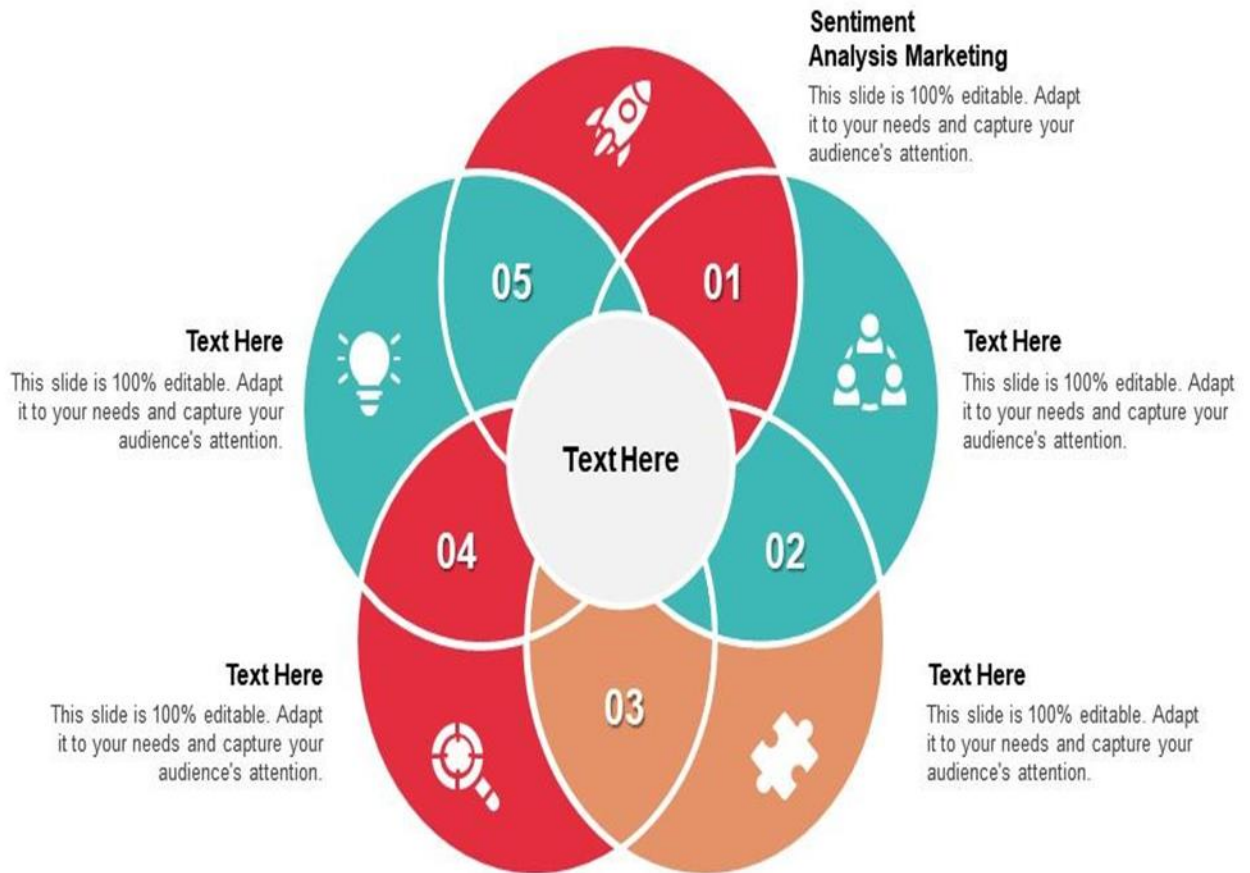
## **Sentiment Analysis Marketing**

Parsing online feedback can be a challenging task for any business with a strong social presence. In marketing, sentiment analysis can be useful for teams that want to examine commentary about their brands from a qualitative angle.

By looking at the tone and content of social sentiments, you can develop enhanced metrics that may offer more valuable insight.

# Sentiment Analysis Marketing

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## **What is sentiment analysis in marketing?**

Sentiment analysis is a marketing tool that helps you examine the way people interact with a brand online. This method is more comprehensive than traditional online marketing tracking, which measures the number of online interactions that customers have with a brand, like comments and shares.

Using sentiment analysis, you can label individual interactions as positive, negative or neutral. Once you've figured out how to determine and track these labels, you can use this new data set for a variety of marketing purposes, including your online strategy.

Sentimental analysis is an extremely useful tool to have since higher numbers of interactions don't always equate to better results.

For example, if you were to receive 10 replies on a social post and all of them were positive, your post likely had a more compelling effect on your audience than if you receive 100 replies with only 10 of them being positive.

The primary purpose of sentiment analysis is to respond to commentary more constructively.

### 3 types of sentiment analysis

To perform sentiment analysis, a marketing team might use a software platform that creates an algorithm to monitor customer engagement online. There are three fundamental ways to develop an algorithm for distinguishing social sentiment:

#### 1. **Manual analysis:**

This type uses manually created rules based on neurolinguistic principles, such as stemming and tokenization. It takes a long time to set up, but it's easy to change and customize.

#### 2. **Automatic analysis:**

This type uses machine learning techniques that use neural networks and statistical models to classify language. It can be challenging to change, but it's easy to set up and manage.

#### 3. **Hybrid analysis:**

This type uses both rules-based and machine-learning analyses. It's a balanced approach that most social listening applications employ.

### What are the benefits of sentiment analysis?

Most online platforms implement their own algorithms to display content, so sentimental analysis allows you to track relevant commentary in a way that's most useful for your purposes. Conversations about a brand y can begin and end quickly, so using a standardized method to track them can give you valuable insights into customer browsing habits. Here are some of the benefits of sentiment analysis:

### **Improving customer service support and managing PR issues**

Many businesses use social media channels for customer service support because it lets them resolve issues in a personalized yet immediate way. Responding to negative comments can help de-escalate situations before they grow into something less

manageable. For example, if a customer were to tag your brand in a post in which they're upset about a defective product, you can respond publicly to apologize. You can then follow up by messaging them privately to reinforce your commitment to quality. Handling negative sentiments effectively and publicly can also show other customers that the company has excellent service policies.

## **Adjusting messaging and product development**

Sentiment analysis is an inexpensive way to improve messaging and product development. Knowing what customers value about a product or service can tell you what to emphasize in your promotional material. For example, if there's been a sudden and unexplained spike in sales of a certain product, you can check your positive mentions to see what customers are saying. You may find one of your products has suddenly become popular when someone posted about a feature that isn't in your other products.

## **Monitoring competitors**

Both negative and positive mentions can sometimes include valuable information about your brand's competitors. Seeing how customers view your product and services compared to others can help you create promotional strategies that emphasize your brand's advantages. For example, customers on social media might mention that they prefer the coupons or discount codes that a competing brand offers. This information can help the marketing team revise promotional material with more competitive sales offers.

## **Identifying influencers**

Using a sentiment analysis system can help marketers identify micro-influencers, who are social media figures with a relatively small number of highly engaged followers. Typically, micro-influencers are the ones who are the most helpful to your brand, as they have more direct interaction with their followers. For example, you might discover that one of your customers listens to a podcast with about 10,000 subscribers and the

audience overlaps with your own. You may then want to reach out to the creator to see if they're interested in a sponsorship.

## **Tips for including sentiment analysis in your marketing**

Marketing professionals can use sentiment analysis in many ways, so it's important to know how to use it to the fullest extent possible. Here are some tips for how to use sentiment analysis in marketing:

### **Create specific goals and benchmarks for reaching them**

Before you choose an analysis method and start identifying positive, neutral and negative sentiments, set specific goals for improving customer sentiment. The behavior you want to see depends on your aims and goals. Some companies may value positive mentions over amount, while others want to reduce neutral social sentiment.

Understanding your goals can help you to design an algorithm that produces reports with consistent indicators for success.

### **Measure data before and after campaigns**

It's important to track data prior to implementing a campaign based on sentiment analysis, so you can have something to compare. Comparing prior data with the results of a social media sentiment campaign can tell a marketer whether their methods are effective. The data you're gathering is unique to your company's brand and consumer base, so you might conduct customer research to evaluate current sentiment about the company or brand..



## **Consider using a sentiment analysis program**

Shifts in social sentiment can happen fast, so the ability to react immediately is vital. Using a software program specifically built to monitor sentiment in real time can allow marketers to respond quickly to negative or positive comments. These tools often come with pre-programmed algorithms, which make them ideal for marketing teams without an in-house programmer. They might display sentiment reports on interactive dashboards or send users notifications if they detect an interaction with a strong sentiment.

## **Understand the limitations of sentiment analysis tools**

Algorithms can be sophisticated enough to recognize sarcasm, but there are still limitations to how much sentiment analysis tools can do. It's a good idea to spot-check some of the data yourself to ensure the accuracy of how it's being interpreted by these tools. Certain language elements are especially difficult for neural networks to decipher, such as slang, irony and figurative language. You might distribute feedback surveys or collect testimonials from customers to supplement the information you get from an analysis tool. These resources can help you interpret the results of a sentiment analysis.

## ***Features for Sentiment Analysis for Marketing***

Sentiment analysis for marketing involves analyzing text data to determine the sentiment or emotional tone expressed by consumers or the public about a product, brand, or marketing campaign. To perform effective sentiment analysis for marketing, you need to consider a range of features and techniques. Here are some key features and considerations:

## 1. Text Preprocessing:

- Tokenization: Break text into individual words or phrases.
- Lowercasing: Convert all text to lowercase to ensure case insensitivity.
- Stopword Removal: Eliminate common words (e.g., "and," "the") that may not carry sentiment information.
- Removing Punctuation: Strip out punctuation marks.

## 2. N-grams:

- Unigrams: Single words as features.
- Bigrams, Trigrams, etc.: Pairs or groups of adjacent words as features, capturing context.

## 3. TF-IDF (Term Frequency-Inverse Document Frequency):

- Calculate TF-IDF scores to weigh the importance of words in a document relative to a corpus of documents.

## 4. Word Embeddings:

- Word2Vec, GloVe, or FastText: Pre-trained word embeddings can be used to represent words as dense vectors, which capture semantic relationships.

## 5. Sentiment Lexicons:

- Utilize sentiment lexicons like SentiWordNet, AFINN, or the NRC Emotion Lexicon to assign sentiment scores to words.

## 6. Part-of-Speech (POS) Tagging:

- Extracting the part of speech of each word can help identify sentiment-carrying words (e.g., adjectives and verbs).

## 7. Named Entity Recognition (NER):

- Recognize and categorize named entities, like product names or brands, to assess sentiment towards specific entities.

## 8. Emoticons and Emoji Analysis:

- Recognize and analyze emoticons and emojis to capture emotional context in text.

### **9. Aspect-Based Sentiment Analysis:**

- Identify specific aspects or features of a product or service and assess sentiment towards each aspect individually.

### **10.Sentiment Score Aggregation:**

- Calculate sentiment scores for individual features (e.g., sentences or paragraphs) and aggregate them to obtain an overall sentiment for a document.

### **11.Machine Learning Models:**

- Train supervised machine learning models (e.g., Naive Bayes, Support Vector Machines, or deep learning models) to classify text into sentiment categories (positive, negative, neutral).

### **12.Sentiment Analysis APIs:**

- Leverage sentiment analysis APIs like those provided by popular cloud providers, which offer pre-trained models for sentiment analysis.

### **13.Social Media-Specific Features:**

- For social media sentiment analysis, consider features like user mentions, hashtags, and retweet counts.

### **14.Time-Series Analysis:**

- Analyze sentiment changes over time to identify trends and monitor the impact of marketing campaigns.

### **15.User Reviews and Ratings:**

- Consider incorporating user ratings and reviews as features for sentiment analysis, especially for e-commerce and product marketing.

### **16.Data Augmentation:**

- Augment your dataset with additional relevant data sources, such as news articles or social media posts.

### **17. Custom Lexicons:**

- Create custom sentiment lexicons tailored to your industry or domain to enhance accuracy.

### **18. Content Analysis:**

- Analyze images or videos associated with text data to capture sentiment from visual content.

The specific features you choose to use will depend on your data and the goals of your sentiment analysis. Building a robust sentiment analysis system often involves a combination of these features and techniques to achieve accurate results for marketing purposes.

## **Conclusion**

By understanding the sentiment around their campaigns or product launches, brands can tailor their messaging to better resonate with their target audience. Overall, social media sentiment analysis is a powerful tool that enables brands to gain a deeper understanding of how they are perceived by their audience.

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