DATA USE CASES

Empowering Analysis with Online Public Sentiment Data

Five use cases demonstrating the power of web scraped data for online public sentiment monitoring.

www.scrapinghub.com

INTRODUCTION

The manual method of discovery for gauging online public sentiment towards a product, company, or industry is cursory at best, and at worst, may actually harm your business by providing incorrect or misleading insights. It is estimated that as much as 80% of the world's data is not organized. As a result, it is not possible for any human being to even touch the surface of this data.

Thankfully, web scraping is a powerful solution providing businesses of every size a useful tool for monitoring online public sentiment. Simply put, this data can only be properly aggregated to any useful extent if generated in quantities too large for manual input, and web scraping such data has thusly become best practice across the world's many public-facing industries.

At Scrapinghub, ten years of experience scraping billions of sites has made one thing absolutely clear to us: public sentiment data is a goldmine for actionable insights, irrespective of industry and product. How consumers feel is central to every aspect of their purchasing decisions, and the capacity for this type of data to drive growth within companies is enormous.

Sentiment analysis (SA) capabilities open doors to many analytical and useful insights for any modern company. Product development, product managers, sales, and finance teams can all turn to SA data for information that was previously just assumptions.

Is a political campaign evoking the desired response? How did a customer like a new product feature? What do consumer wants to see next?

These are only a handful of the questions people at the helm of companies ask themselves constantly in the race to stay ahead of competition and stay relevant. Sentiment analysis can transform the subjective emotions of the public into quantitative insight that a company or leader can actually use to drive change.

In this white paper, we're excited to explore the the following use cases for public sentiment data:

• Investment Decision Making

• Product Monitoring

• Brand and Company Monitoring

• Product Development

• Politics and Campaigns

1. INVESTMENT DECISION MAKING

The market moves quickly, and being even half a step ahead of the competition can be incredibly valuable. If many firms are receiving the same traditional data, investors can differentiate their strategy (and bolster their earnings) by incorporating sentiment data into their decision making.

By coupling this data with natural language processors and AI, account managers are able to react quickly to negative news or scandals and ensure shareholder satisfaction. This is increasingly important as markets tend to overreact to bad news.

Research in the financial industry has shown that news articles and social media opinions can directly influence the stock market. Both the informational and subjective aspects of online articles can impact volatility, stock price, trading volume, and market activity.

The efficient market hypothesis suggests that investors who are able to gain access to market sentiment are able to make better trades and better maximize their returns.

Web scraping data that tracks sentiment signals is efficacious in stock selection process, and some studies have found it as or more effective than price momentum in real time.

Powering profitable selection

Traditional reliance on sell-side analysis may only produce limited results when compared to the potential that lies in large scale automated sentiment extraction from news stories.

Here are a few ways sentiment data informs the investment process:

Predictive of future firm fundamentals

- Sentiment analysis has been shown to be predictive of net income, cash flows, and dividends.

- The emotion lexicon allows machine learning technology to categorize large amounts of data as positive or negative and track changes in the sentiment a company generates in aggregate.

Predicting Stock Returns

- By web scraping public sentiment data, complex sentiment analysis can be performed to make accurate predictions of not only stock returns but also a firm's cash flows and dividends.

- "Opinion mining," or using natural language processors to calculate the perspective or sentiment of an author or piece of data, is used with web scraped data to fuel algorithmic trading in today's markets.

Event Based Sentiment Analysis

- Many types of external events affect the market, from wars to elections to one time events. Sentiment towards these events may precede sentiment towards affected industries, so savvy investors can make moves based on event based sentiment.

DIJA correlation with sentiment

- Dow Jones Industrial Average values are correlated with "calm" and "happy" sentiment states, alone demonstrating the predictive power in SA for buy and sell decisions.

2. PRODUCT MONITORING

Any business intelligence strategy is incomplete without an understanding of public sentiment. The way a company's product or service is portrayed in news articles and reviews directly impacts its bottom line.

By scraping qualitative public sentiment data about your product from the web, businesses can integrate this information directly into AI-driven business solutions to produce actionable insights into which products are performing - or underperforming - and why.

Textual Sentiment Analysis of Reviews

Machine learning capabilities empower businesses to transform the vast amount of textual data on review websites, forums, articles, and news sites into actionable insights.

Companies may want to extract specific information about their products' reception, like commonly used sentiment keywords, or desirable product descriptors.

Consumer reviews are becoming increasingly relevant as large online marketplaces take higher and higher market share. As companies increasingly feel the pressure to understand how their customers feel about their products, along with their competitors', the demand for this type of data is steadily increasing.

The uses for sentiment data across the product monitoring are diverse. Here are a few examples:

Polarity Analysis

- SA can give a high level view of product or company perception by tracking polarity and whether overall reviews are "good" or "bad".

- Real time polarity analysis can help businesses project how a product is trending and potentially inform supply chain processes.

Aspect based sentiment analysis

- Product feedback can be categorized on text-based tags associated with a specific topic or aspect of the company/product.

- This machine learning technique can break down text into aspects and yield insight into how customers feel about specific attributes of a product. This analysis can reveal patterns of specific sentiment frequency as they relate to a specific product feature.

Sentiment analysis variance across different websites

- This can help companies see where their product is being best received, whether that's specific stores, locations, or customer cohorts. This approach can aid companies in deciding on forming contractual obligations, targeting similar stores, and addressing problems that customers may be experiencing as a byproduct of where they are using the product.

Social Media Product Monitoring

- Whatever the product, the impact of social media is undeniable - in both positive and negative directions. Get the right social media influencers talking about your product and sales can grow quickly. On the same note, consumers that don't like the person endorsing your product may shy away and align with a competitor. It's a delicate balance, and one that may seem juvenile, but is directly relevant to company sales and net growth.

3. BRAND & COMPANY MONITORING

The old adage that any press is good press may be losing its veracity in an era when press and reviews are at our fingertips 24/7. What steps can a company take to protect its reputation in this socially accelerating world?

First and foremost, understanding how your audience responds to your brand is crucial. There are limits to the economic assumption of a rational consumer: buying behavior is known to be shaped, rationally and irrationally, by how consumers feel about a brand.

Powering brand popularity

By scraping sentiment data, business intelligence (BI) teams can both capitalize on positive publicity and work to mitigate negative sentiments. A comprehensive BI strategy acknowledges the multipronged nature of online sentiment by scraping data from many sources and analyzing many of the factors that comprise sentiment.

Monitoring sentiment in customers can be of immense value after launching a new marketing campaign, new product, acquisitions, etc. Any visible move a company makes will stir a response. The important thing is not just evoking any reaction, but rather the reaction you want customers to have.

Protecting reputation and promoting growth

Brand managers readily consume sentiment data for the treasure trove of insights it grants into how they can best tighten and inform their strategies. The following examples are real-world examples of the power of this data:

Correlation between sentiment about a marketing campaign and net sales growth

- Actions speak louder than words. If people are buying your product, a marketing campaign may have worked. But does what people are saying about a campaign line up with their buying behavior? This analysis can help determine what sentiments align most with increased buying and guide future marketing decisions.

Tracking what social media influencers in the industry are saying

- Brand managers can receive real time updates with regards to brand mentions, empowering a lightning-fast turnaround to capitalize on these rare and impactful opportunities.

Analyze blogs, forums, articles to see sentiment over time from specific audiences

- While short-term instantaneous data is often of immediate interest, tracking sentiment over time from specific audiences can enable companies to change their business strategy. If a company is becoming increasingly popular among a subset of the population that it wasn't previously popular with, the company may want to capitalize on that by targeting stores, websites, etc associated with that subset.

Identify potential PR disasters and mitigate before they develop

- PR disasters can ruin a company, but identifying them before the become fully fledged can stop them in their tracks. Sentiment analysis aids this process by tagging certain emotions with urgency and giving the company the opportunity to avert a crisis before it happens.

4. PRODUCT DEVELOPMENT

Take a minute to think about the sheer number of reviews, forums, customer service tickets, and social media endorsements that circulate at all times. A negative review can cost a company many sales, but without the technology to use data comprehensively, companies often proceed with limited actionable insights about how to change their products - let alone develop new ones.

Sentiment analysis based on web scraped data equips product development teams with data driven insights into the changes customers want to see and the quality of a product's performance. In this way, sentiment analysis is not just retrospective but a vital tool in the product creation, planning, and design process.

Insights for every step of development

Popularity of new product features

Rolling out a new feature can be risky and is often either met with dissatisfaction or excitement. Using machine learning to specifically analyze how consumers are feeling about a particular new feature can help product teams finely tune the feature.

Polarity in customer support tickets

Products inevitably come with some hitches that customer and IT support constantly address. From a product development perspective, the value of what is expressed in these calls and chats is immense. Tracking sentiment associated with different user-based aspects of a product, the most frequent sentiments on the calls, and the segment of the consumer base struggling the most provides key data for product changes and ways for the company to educate its users.

Relative importance of product features

Sentiment analysis can be used with aspect-based algorithms to determine what product features, usually nouns, are associated with positive adjectives and which customers would rather see removed. This can aid in the prototyping of new product models and challenge product designers to refine, add, or eliminate features altogether.

What products are lacking

A product may address 4 of 5 benefits a consumer wants, but lacking that 5th can make the difference between a sale or a dead-end lead. To find out how customers feel about the shortcomings of a product, reviews that are assigned a negative polarity score and have the tell tale signs of a missing feature can be used to identify what consumers want added to a product.

Real time product feedback

The product feedback cycle can be arduous if development teams have to wait for the product to be introduced, sold, and then get sales numbers and reviews generated by distant stores. The complexity of online public sentiment data previously made it difficult to generate concise insights for product design and development teams, but with web scraping and advancements in natural language processing, it's never been easier to generate such insights for the people in charge.

New product creation

Monitoring how consumers feel about various product features and also competitor's products gives product development teams better knowledge of what new products would do well.
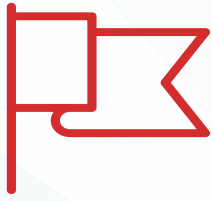
5. POLITICS AND CAMPAIGNS

Political opinions are often some of the most emotionally endowed views that people hold. Therefore, sentiment analysis meshes with politics quite well as voting behavior, campaign success, and partisan changes are rarely completely rational. It is evident in past elections that calculated expectations do not always become reality. One must pay sufficient attention to the sentiments expressed about campaigns, candidates, legislative bills, and presidential job approval.

All of these subjects are constantly discussed on forums, social media, and article comments, so scraping them is an ideal - if not the only - method for extracting such data.

Connect with your constituents

Government relations officers, nonprofits, and politicians take full advantage of the tremendous utility of web scraped public sentiment data, using it to enhance their communication programs and constituent relations.

By incorporating such data into the workflows of nearly every team in a campaign, new insights into their audience's opinions clearly emerge, allowing better representation, outreach, and engagement at every level.

Right thoughts, right words

Here are a few examples of the ways in which this data can be utilized across politics and campaigns:

Sentiment analysis predictive of electoral outcomes

- Sometimes the loudest voices on television or in the press make a certain electoral outcome seem certain. But if we remember that the voters are the ones dictating this outcome, there is even more value in seeing how the public feels about candidates. Sentiment analysis of tweets can score the polarity of millions of posts about each candidate. Those candidates with more positive mentions and a higher number of mentions may be tracking to win the election.

Sentiment analysis of debates, speeches, and public performances

- By feeding web scraped data about a figure's speeches, dispatches, and communications, their underlying intent and interests can be revealed, along with their tendency towards evoking any particular subconscious feeling. This is tremendously valuable in performing oppo research.

Public sentiment towards a party

- Parties are increasingly availing themselves of public sentiment data to fine tune and calibrate their branding and communication strategies.

- These insights are increasingly critical during general elections as it helps top-down party management articulate best practices across diverse regions and sentiment groups.

Geographic sentiment distribution

- Sentiment data can be broken down to understand how different regions are feeling about an election, to fine tune the targeting of key audiences and sway swing voters.

CONCLUSION

We hope some of these exciting use cases for sentiment data have inspired you to implement such data into your own workflows and to innovate in your industry.

Investors, government officials and businesses alike can avail of the broad insights brought by this data to realize their fullest potential and endow their operations with the most effective, world-class solutions currently available.

As the internet continues to grow, the amount of data it generates grows with it, opening new opportunities for all types of organizations to improve their processes and make more informed decisions. Therefore, we firmly believe that now is the best time to act, and that by incorporating such data streams into your organizational processes you can ensure your organization is disruption-proofed and fully prepared for the world of tomorrow.

ScrapingHub is proud to offer the most robust web scraping solutions on the market, so if these use cases inspired you or you're curious about how web scraped news and article data can benefit your operation, request a free consultation with our solution architecture team today.

ABOUT SCRAPINGHUB

Scrapinghub turns websites into data with industry leading technology and services.

Our solutions include:
- **Data on Demand** for any size scraping project with accurate, reliable data feeds at speed
- **Custom Data Extraction** with a team of the best web scraping engineers
- **Crawlera** for IP proxy management to crawl quickly and reliably
- **Scrapinghub Platform** to deploy and run your web crawlers

We have a strong reputation and deep domain expertise. Whatever data you need, and however you need it, we're the best team to deliver it!