

Intention Analysis - Business Use Cases

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Abstract

The team of AI researchers at Aiaioo Labs works on advanced forms of text analytics such as intent analysis. We launched our first products for intent analysis in 2011, and have studied the business impact that these tools have had. In this article, we describe the benefits to businesses of using intention analysis, and we share some numbers for purchase intention analysis (courtesy of the team at www.wisdomtap.com).

Intent(ion) Analysis

Intention Analysis is the identification of intentions from text, be it the intention to *purchase* or the intention to *sell* or to *complain*, *accuse*, *inquire*, *opine*, *advocate* or to *quit*, in incoming customer messages or in call center transcripts.

The intention analytics product offered by Aiaioo Labs can detect more than 16 intentions. Some of these intentions are listed in Table 1.

Below, we describe a number of **business case studies** related to various types of intent.

Online Marketing

One of the most valuable intentions to detect is the intent to purchase. Purchase intention has applications in lead generation, social-media advertisement, and social customer relationship management.

A study performed by our partners and clients WisdomTap (www.wisdomtap.com) through 2011 and 2012 revealed that click-through rates on advertisements targeted at social media users who had revealed an intention to purchase a product was a consistent 7%.

Typical click through rates for online advertisements tend to be in the range of 0.01%. So, the improvement obtained through the use of purchase

Category	Parent	Interest
Purchase		Sales
Sell		Procurement
Inquire		Sales
Direct		Operations
Compare		Analytics
Suggest		Analytics
Praise	Opine	Analytics
Criticise	Opine	Analytics
Complain		Operations
Accuse		Operations
Quit		Operations
Thank	Express	Training
Apologize	Express	Training
Empathise	Express	Training
Wish		Sales
Meet		User
Advocate		Analytics

Table 1: List of Intention Types.

intention detection was of the order of 700 times or 70,000%.

Furthermore, the team at WisdomTap performed experiments where they targeted search advertisements at customers who had revealed an intent to purchase a product.

With search advertisements, they recorded click-through rates of around 1% which again represents a 100 times or 10,000% improvement.

These numbers are consistent with experiments reported by IBM¹. They found that when the Japanese fashion retailer Start Today used customized email messages tailored to each of their 3.8 million customers, the conversion rate went up by nearly 1000%, and the annual sales on their Zo-zotown website increased by 54.2%.

¹<http://www-07.ibm.com/innovation/in/leadership/personalize/>

Customer Churn Models

One of the problems facing telecom service providers is high rates of customer churn (reportedly in some cases 30 – 35% year on year).

Three intentions that might be useful in detecting churn are: *complain intent* (reporting a problem), *accuse intent* (blaming the firm), *quit intent* (leaving the firm).

The detection of these three intentions in customer communications might help a firm reduce its customer churn rate.

Product Launches

With modern text analytics tools, it is possible to analyze product launches.

We tracked the Google+ launch as a competitor to Facebook between 30th June 2011 and 10th July 2011.

There was a lot of speculation regarding whether it could kill Facebook. So, we turned to text analytics to see if it would tell us one way or the other.

The number of tweets expressing intent to quit rose rapidly from 30th June to 4th July. On the 4th of July, Google+ became open to all users (anyone could join it henceforth without invitation).

The next day, the number of tweets expressing an intention to quit dropped sharply. Once users had been able to try out Google+, they had realized that they couldn't bring all their friends along from Facebook to Google+ and that Google+ wasn't going to be fun without them.

So, we could tell that Google+ wasn't going to be a Facebook killer like many tweets before July 4th had suggested, or atleast not yet. And we could tell that in just 4 days.

Testing the Waters

When Netflix tweaked its product pricing in 2011, since the new pricing was perceived as unfair by their customers, a large number of customers quit within days. Had Netflix been able to track the quit intentions in the conversations about its offerings, and been aware of the alternatives available to its customers, it might have reacted way faster.

Sentiment Analysis

One of the intentions that can be recognized is the intent to *opine*. The intention to opine can further be subdivided into the intention to *praise* and the

intention to *criticize*. So, intention can be used in conjunction with sentiment.

Brand Metrics

The only metric that could be computed using sentiment was customer satisfaction (*CSAT*).

The metric was typically computed as follows:

$$CSAT = \frac{positive\ sentiment}{positive\ sentiment + negative\ sentiment}$$

With a richer set of intentions, there are many more metrics that can be computed. Some are:

$$CLOY(loyalty) = 1 - \frac{quit\ intention}{complain\ intention}$$

When customer loyalty (*CLOY*) was measured, it was found that the *CLOY* for Starbucks was 41.8% whereas for laptops, it was 51.9%.

This seems to match what we would intuitively expect. The ease of substitution of starbucks with a competitor is higher than the ease of substituting a high-ticket item like a laptop.

Another metric that can be measured is the amount of thought that goes into purchasing an item.

$$CHES(hesitation) = \frac{compare\ intention}{purchase\ intention}$$

It would be intuitively expected that high-ticket items like laptops would have a higher *CHES* than low-ticket items like coffee.

In a study on Starbucks and on laptops, it was found that *CHES* for Starbucks was 37.9% while for laptops, it was 59.5% as we expected.

Still another metric that would be interesting to compute is market commoditization. This can be computed as follows:

$$commoditization = \frac{brand\ name\ mentions}{generic\ mentions}$$

All the metrics proposed in this section are measurement proxies. They need to be tested and validated by correlation with real-world figures.

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