



An Exploration of a Comprehensive Framework for Social Media Effectiveness



DATAWISE
Intelligence. Insights. Infinity.



Datawise
Hyderabad, India



info@mydatawise.com



+91 40 40204837

Growing social media usage has resulted in a realization of the potential business impact and, therefore, its relevance in business planning. Unlike in traditional marketing media, where correlation of outcomes to input is difficult, time consuming and not easily measurable, social media has the ability to better capture the impact. With the possibility of being able to document evidence of perceptions, trend, behavior and sentiments shared publicly via large number of users, social media has the potential to evolve as a viable alternative to ensure superior reach and coverage far more effectively. However, multiple indicators available to measure and understand social media usage patterns cannot provide the required insights for decision making unless there is a comprehensive and robust model for measurement of this effectiveness. While many different models exist for reporting outcomes, no single measure has been established that can provide an indication of the effectiveness of the social media campaign of a company. This Paper explores the development of a comprehensive model that can both measure and benchmark social media impact of the marketing activities for a company. This Paper reviews, classifies, and critiques prevailing theories and measures of social presence and proposes a robust framework to quantify latent constructs. The Paper further proposes methodologies to extract and analyze pertinent eWOM from different social media sites to frame different indicator variables.

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Introduction

The use of Information Technology has improved significantly over the years. One of the most significant evolutions in the use of Information Technology is the social media. Exponential growth in Internet and Web 2.0 usage has elevated the relevance of social media insights for business decisions. The importance of the internet as a marketing and communications tool has significantly increased.

Companies are investing tremendously to tap (Analyse Trend, Brand Knowledge, Relationship, Awareness, Satisfaction, Image, Product/Service Satisfaction, Overall Customer Satisfaction etc.) and influence eWOM. Based on these insights businesses take measures to further refine their market positioning and increase market share.

This Paper explores the measurement of social media effectiveness while reviewing, classifying, and critiquing prevailing theories and measures of social presence. The Paper further tries to encapsulate

¹ This Paper is a summarized version of the Paper presented by Datawise at IIM Ranchi by Arpit Tripathi and xxxx.

relevant findings and suggest a robust framework to extract, manipulate and gain business relevant acumen from eWOM.

Past Research

Exploratory research covers synthesis and analysis of over 200 published research Papers. Since the topic covers a broad spectrum, we have identified and analyzed relevant work in psychological, behavioral, physiological, technical and analytical parameters related to social media. Social media practices, marketing strategy, branding, consumer behavior, word of mouth, electronic word of mouth, factors affecting perception, methodologies for trend identification, text mining, network mining, structure mining, impact of websites on eWOM, impact of customer reach, identification of potential customers etc. were primary focus of the literature review.

Brand

A brand is defined as 'a name, term, sign symbol or a combination of these that identifies the maker or seller of the product' (In Principles of Marketing, by Philip Kotler and Gary Armstrong). Companies have always tried to establish itself as most promising, recognizable and trusted brand.

Elements of communication

To understand and extract relevant data from eWOM we need to understand the elements of communication. Traditional word-of-mouth (WOM), originally defined as an oral form of interpersonal non-commercial communication among acquaintances (Arndt, 1967), has evolved over time. Word of mouth (WOM) communication is a type of social influence that affects consumers' belief, attitude, and purchase intention (Arndt, 1967; Hanna and Wozniak, 2001). There are four major elements in social communication, including the communicator (sender), the stimulus (message), the receiver, and the response (Hovland, 1948). Communicator is the person who transmits the communication. Stimulus refers to the message transmitted by the communicator. Receiver is the individual who responds to the communication. Response is made to the communication by the receiver.

Communicator.

Traditional WOM is mostly initiated by a sender (source), here the credibility of the communicator and the message is known to receiver. In contrast, eWOM is not restricted to strong social tie groups (e.g., family and friends). The challenge of eWOM is to identify source credibility and the credibility of the media on which message is conveyed

Stimulus.

The valence (positive, negative, or neutral), volume (the quantity of the information), and rating of WOM communication, is quite important as stimulus. Stimulus can be analyzed to derive insights about current and prospective customer sentiments.

Response.

In eWOM communication study, factors related to a receiver's psychological state, such as purchase intention, attitude, information adoption, and trust, are the most commonly investigated outcomes (responses). Awareness is the consciousness that a product exists (Davis & Khazanch 2008). Attitude is receiver's overall evaluation of person, objects and issues (Pretty & Cacioppo 1984; 1983). Information adoption is a process in which people purposefully engage in using information (Cheung et al, 2008). Loyalty is the tendency of customers to stay with a certain business, store, brand, product over another when seeking to meet particular needs.

Receiver.

The actual impact of the information received may vary person to person. Receiver may either contradict or accepts the proposed stimulus which may lead to behavioral change.

Social media

The research of Mangold and Faulds (2009) supports this; it shows that the use of social media has two interrelated promotional roles in the marketplace. Social media enables companies to talk to their customers. Social media enables customers to talk to one another.

The first role makes it possible for companies to talk directly to their customers. On SNSs (Social Network Sites) companies can directly react and interact with their customers. The second role is a form of WOM communication. Consumers can choose the level at which they want to get involved; from no interaction with the brand to a level of high interaction with the brand. “Content, designed to entertain, inform, educate or provide insight, can be designed to connect with consumers, communicate relevantly with those that show interest and convert them to win sales and even advocacy” (Woodcock et al., p. 53, 2011). This application of social media has given rise to a growing industry of “listening platforms” that monitor online conversations and measure the sentiment expressed through online social media (Hofer-Shall 2010).

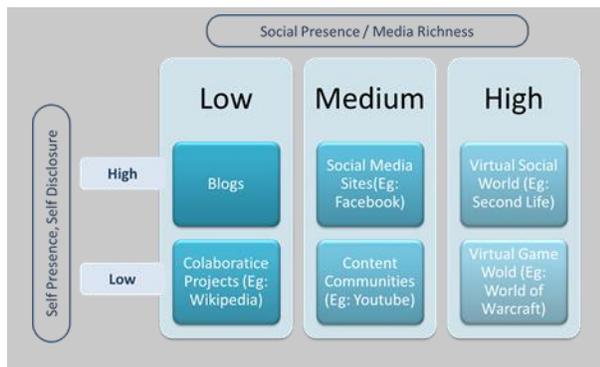
eWOM

Writers or readers are motivated to post or seek eWOM mostly due to social ties. Tie strength refers to “the level of intensity of the social relationships between consumers or the degree of overlap of two individuals” (Steffes and Burgee, 2009, p. 45). Moreover, readers (current or prospective customers) seek eWOM because they need information due, for example, to the uncertainty of buying, costs, and risks associated with their purchase choice. The internet has the ability to influence the consumer information search process across many levels, including the amount and type of information sought, as well as the relative importance of the information acquired (Bakos and Brynjolfsson, 2000; Kulviwat et al., 2004; Steffes and Burgee, 2009). As buyers and sellers on the internet generally have no personal relationship or ongoing interaction, trust and credibility play crucial roles (Zhou et al., 2009). Moe and Schweidel (2011) propose that the posting decision consists of two component decisions, an incidence decision (whether to post) and an evaluation decision (what to post).

“Media differ in the degree of richness they possess – that is, the amount of information they allow to be transmitted in a given time interval – and therefore some media are more effective than others in resolving ambiguity and the reduction of uncertainty”

Website weight

Figure 1: Impact of Social Media (Source: Kaplan and Haenlein, p. 61, 2010)



Every website is different in terms of users, content, theme, etc. so, a message conveyed over different sites cannot be treated as same. Kaplan and Haenlein (2010) split social media in two elements: a media-related component (social presence/media richness) and a social processes component (self-presentation/self-disclosure). Intimacy and the immediacy of the medium affect the social media usage and hence its impact. “Media differ in the degree of richness they possess – that is, the amount of information they allow to be transmitted in a given time interval – and therefore some media are more

effective than others in resolving ambiguity and the reduction of uncertainty” (Kaplan and Haenlein, p. 61, 2010).

Output

If online reviews are logical and persuasive, with sufficient reasons based on specific facts about the product, they are likely to have a positive impact on consumers’ purchase intention. Also, the quantity of online reviews has a positive relationship with customers’ intention to purchase. As eWOM communication has become an important source of information for many consumers, marketers believe that a web site must provide enough content to build brand loyalty. These marketers look for marketing implications (Gelb and Sundaram, 2002; Chen and Xie, 2008) from eWOM and they are now faced with the challenge of measuring eWOM effectiveness and impact.

Sentiment measure

All posted comments pertaining to a target brand, product or company are relevant and hence the need to code these sentiments expressed as negative, neutral or positive is also important. Posted sentiment can be modelled as an ordered probate process and separate brand sentiment (a construct similar to the general brand impressions measure proposed by Dillon et al, 2001) from product- and attribute-specific evaluations.

Existing models

As a part of this Paper, we have done a comprehensive review of existing social media measurement models. Below are the findings.

Google Analytics

Google Analytics provides its subscribers with standard reports which measure and understand engagement on site. It provides facility of customized reports, details on visitor segments, and identifies important data. It gives fresh insights into how visitors use your site and how they arrived on site.

Content Analytics provide details on top content of the site, visitor’s navigation details, site performance information like loading speed, visitor’s event tracking etc.

Mobile Analytics enables measurement of mobile sites, apps and visits from web-enabled mobile devices, including both high-end and basic phones and tablets.

Conversion suites help measure digital marketing effectiveness by measuring sales, downloads, video plays, and other actions that are of value.

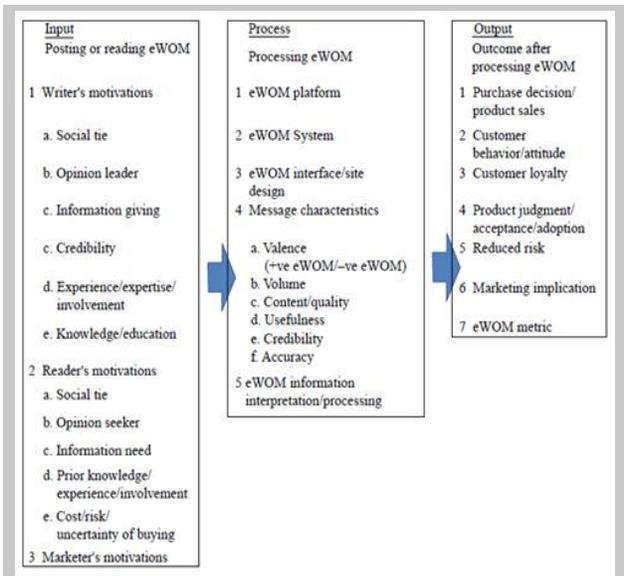
Google Analytics provides information on effectiveness of controlled site. Some of the limitations of Google analytics are.

- a) It does not provide sentiment measure and opinion mining.
- b) It only provides trend details which are restricted to likes, shares, visits etc.
- c) It is more useful for controlled websites than otherwise
- d) It gives details on what is happening but does not guide on how to benchmark the current level of engagement against other sources,
- e) No weightage is assigned to use of different social media formats. In essence, Google Analytics is more of an information tool rather than a measurement tool.

Klout and Crowdbooster

Launched in 2008, Klout uses social media analytics to rank its users (corporates and individuals) according to online social influence via the "Klout Score", which is a numerical value between 1 and 100.

Figure 2: Conceptual model of eWOM (Source: MIP 29, 5, conceptualising electronic word of mouth activity. An input-process-output perspective by Yolanda Y.Y. Chan and E.W.T. Ngai.)



In determining the user score, Klout measures the size of a user's social media network and reviews/mines the content created to measure how other users interact with that content. It measures and optimizes social media marketing by providing analytics and recommendations on Twitter and Facebook. Crowd booster is also limited to measures of reach, audience growth, details on viral posts and identified fans.

Limitations of Klout and Crowd booster are: a) No opinion mining. b) Uses limited set of websites. c) No insights on how to improve social media presence for better returns. c) Subjective in nature. d) Not detailed insights on customer behaviour, perception and trend.

Simply Measured

This offers social media analytics reports on sites including Facebook, Twitter, Instagram, YouTube and Google+. This provides features such as

Competitive Analysis and Benchmarking, Influencer and Trend Analysis, Brand, Keyword & Hashtag Monitoring and sentiment analysis. Different sections of measurement ranges from measurement of Audience Metrics (growth and engagement), social listening and monitoring (sentiment analysis, presence etc.), Engagement metrics, content performance, competitive analysis, Return on social investment etc.

Challenges and limitations of existing models

While a number of social media analytical tools are available in the market, promising to provide pertinent and right information to the client, most of them follow methods that appear not to be comprehensive.

Inappropriateness of measures

Most existing measures tend to identify Return on Investment (ROI) as the most appropriate measure of social media effectiveness. While ROI is a well understood concept and therefore easy to explain, unfortunately, this measure does not provide details on monetary benefit resulting due to social media campaign or actual converts due to social media presence. Suggested ROIs may provide details on the increase in brand reach, awareness but not actual ROI in terms of money. Besides there is no base meter defined for measure increase in awareness, brand reach per unit of investment. Hence, this ROI does not provide the details on whether investments were utilized efficiently and results generated are optimum.

Extent of social media analyzed

Most of the demographic information, related to users' age, sex, and location etc., shared over social media is either not public or incorrect. Hence, measures involving these parameters might be misleading. Several social media analytics tool use these parameters to provide insights about users' profile, preferred group of audience etc. which can be ambiguous.

Integration and scaling issue

There are several tools available in the market which perform analytics only on certain social media sites mainly because of issues associated with scaling the integration. Each website has its own nomenclature for parameters and different structure. Hence, to extract and compile data from these sites needs data mining techniques, and parameter recognition techniques to be in place so that similar data can be grouped in. This is not provided for by existing measurement frameworks.

Challenge of Natural Language Processing and big data

Social media is data intensive, messy, and unstructured; continuous rather than episodic; and characterized by increasing numbers of new behaviors that must be captured, measured, and interpreted over time. Hundreds of tools and services, both established and new, take varied and conflicting approaches to social media monitoring, engagement, measurement, and analysis. Cleaning and finding relevant data is challenging since the information available is unstructured and most of the time sarcastic, metaphorical, pun, etc. which is difficult to correctly interpret.

Identification and utilization of influencing target

Identification of influencing targets (customer/consumer with high list of followers/friends) is difficult. Engaging and influencing customers over online media, besides being time and effort intensive, is also complex technically.

Missing factors

In most of the cases, no weights are allocated to various parameters associated with the source of communication (communicator influence), and all comments are treated as equal weights. This should not be the case, as reach of communicator influences the reach and impact of content on the receivers. Factors to normalize website also impact the measure

Other open questions

One of the key considerations is whether the factors used to measure social media effectiveness are mutually exclusive and collectively exhaustive (MECE). Also, what are significance levels of the measured factors? Do the tools measure all the relevant parameters?

Social media measurement in itself is pretty challenging, some of the concerns are.

- Are the outputs measurable?
- What is the right way to measure performance over social media?
- Can we have a comprehensive measurement model irrespective of the industry type, firm size, nature of business (B2B, B2C)?
- Can we provide for human factors involved in posting over social media?
- Can we provide for different mode/channels of social media (social network, blogs, content community, etc.)?

Suggested framework

This section attempts to provide for a design of a robust, flexible and holistic model to provide a single comprehensive measure for social media effectiveness.

Some of the key objectives of the proposed framework include developing a model that is simple, efficient and implementable. Some of the key considerations therefore are: a) Ability to comprehensively collect online social media data. b) Relevance of the data collected. c) Ability to set effective measures of the data. d) Ability to create a baseline against which a measure can be set. e) Ability to link a measure to an actionable insight, i.e., ensuring that the measure is directed.

Identify measurable parameters

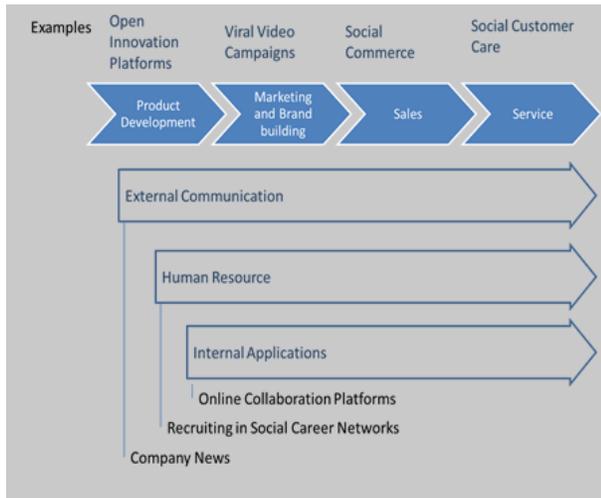
Amount of metrics in social media is tremendous. Determining the relevant ones will not only provide necessary insights but also will reduce cost. As Blanchard states, "If the golden rule of business measurement is, 'measure what matters,' the golden rule of social media measurement is 'just because you can measure it does not mean that it matters.' Parameters to measure depend solely on the objectives for the program. Following performance factors are included in the framework: Online Brand Awareness, Sentiment Measure, Public Engagement, and Relative Online Presence.

Online brand awareness

Awareness is the consciousness that a product exists (Davis & Khazanch 2008). Consumers view a brand as an important part of a product and branding can add value to a product (Kotler, Armstrong, Saunders and Wong, p. 469, 2002). *Brand awareness, Brand reach, and Average content reach* over social media are used to measure Online Brand Awareness.

a) *Brand awareness* refers to the extent till which social media users are aware of your brand existence. This can be total number of internet users talking of the brand or in any way attached to the brand.

Figure 3: Usage/Objectives of social media (Source: McKinsey)



b) *Brand reach* is the measure of number of people the brand interacts with the help of social media. It is simply the maximum number of people brand can reach through social network. It is the number of people to whom brand content will reach for sure.

c) *Average content reach* - Every piece of content can also be shared by fans and followers. When they do so, even more people see the content. So content reach is either at least equal to brand reach (in case if no one shared the content) or more than the brand reach depending on the number of people sharing the content. Average content illustrates on an average to how many people the content has reached.

Sentiment measure

Sentiment analysis, also called opinion mining, is the field of study that analyses people’s opinions, sentiments, evaluations, appraisals, attitudes, and emotions towards entities such as products, services, organizations, individuals, issues, events, topics, and their attributes.

The proposed framework suggests the use of three different parameters to measure sentiment. They are as follows: Public Sentiments, Customer Satisfaction, and Complaint Meter.

- a) *Public sentiment*. It provides for the sentiments of all; customers and non-customers. It shows what social groups think and talk about a brand in the social media space.
- b) *Customer satisfaction*. It shows the satisfaction level of the customers that are active and conversing of a brand over social media. It is the measure of contentment or discontentment among the customers.
- c) *Complaint meter*. It is the percentage of customers complaining of a brand over social media. So, the prerequisite for the complaint meter is identification of customer.

Public engagement.

Public engagement is the measure of the efforts that the brand is putting in the social media so as to enhance its presence. To measure public engagement, we have identified and included following factors:

- a) *Average content engagement*. Number of people on an average who respond to a post.
- b) *Call containment*. Number of Complaints in social channel which the company tried to contain.
- c) *Super fans*. Brand advocates who consistently speaks in favor of a brand and frequently pass along positive electronic word of mouth.

Relative online presence

This measure the effectiveness/extent of online presence of a brand over different online social media. The primary types of social media are as follows:

- a) *Controlled Social Media*: Content that is owned and controlled by the company.
- b) *Sponsored Social Media*: This is sponsored content outside company’s domain like a company Facebook or Twitter page, YouTube channel, or a LinkedIn group. Marketers control the messages in this segment of social media.

c) *Viral Social Media*: This is non-sponsored content outside company/brand's domain: It is the comments of blog posts, and discussions.

Relative online presence measures the relative strength of a company's presence over Social media sites, Micro blogging sites, Content Community, Blogging page.

a) *Social media presence*. It is the measure of the extent to which a company is able to reach out to customers and common public using different social media.

b) *Micro blogging sites presence*. It is the measure of the extent till which company is able to reach out to customers and common public using different micro blogging sites.

c) *Content community presence*. It is the measure of the extent till which company is able to reach out to customers and common public using different Content community.

d) *Blogging page presence*. It is the measure of the extent till which company is able to reach out to customers and common public using different blogging sites.

In the next section, we have identified the key performance indicators (KPIs). This section will cover details parameters that will provide details to measure these KPIs.

Connecting objectives to measurement (How to measure?)

Common social media variables that can be used are: Friends, Followers, Members, Fan, Pins, Connections, Reply, Post, Comment, Status Message, Updates, Blog, Share, Retweet, Repost, Like, Repins, Location, Picture Upload, Picture like, Picture Share, Data and Time of the post, User Id, Video upload, Video Share, Video Like, Comments on Videos, Following.

Above list is not exhaustive and can be updated based on the structure of websites used for analysis. These metrics are captured and used to derive different measurable parameters.

Developing the right measurement tool

To measure each parameter and come up with the relevant insights we need to make sure that all the modules like website identification, data extraction, data manipulation, calculations, result generation, result interpretation and final reporting are integrated properly. Effectiveness of the whole (tool) is dependent on the effectiveness of parts (modules). Processes involved.

- i) *Website Identification/Universe Formation*: Create a universe that will be used for the extraction of data. This selection of the websites should take care that relevant sites are included and ignore irrelevant sites (like Virtual media, Virtual reality).
- ii) *Data Collection*: Existing researchers use crawlers customized for different social media to extract public information. Collection Structure shall be, but not restricted to, a universal data collection table which can store all the parameters, irrespective of the social media sites. (Fehmi Ben Abdesslem, Iain Parris, and Tristan Henderson).
- iii) *Data Manipulation*: Insights from the data collected can be mined using, advanced natural language processing techniques and analytics to provide insights.
- iv) *Calculations, Result Interpretation and Reporting*: Model should be able to calculate logical values and give details on what can be interpreted from them. Result generation and its interpretation is the critical part.

Establishing a baseline. “What will I compare my results to?”

The proposed framework measures 13 different parameters under four distinct factors, namely, Online Brand Awareness, Online Presence, Sentiment Measure, and Public Engagement.

For measurement of performance/effectiveness of company/brand over social online media, a simple scale such as a Likert scale (of say, five parameters, such as Excellent, Good, Satisfactory, Improvement Needed, Un-Satisfactory) can be used.

1. Brand Awareness

To understand what value of awareness is good we need to find out the total social media users in region of company operation. Online awareness of a brand depends on persons who are in any way using social media.

2. Brand Reach

Base for Brand Reach is Awareness. Awareness at any point represents number of people who had in any way associated with the company/brand. While the brand reach represents the number of people brand can reach by its social media.

3. Public Sentiment

Base used for public sentiment is sum total of the absolute weight of each comment. Percentage of the positive comment weight that contribute to the Talk represent the sentiment of the public, and based on the percentage of positive talks different rating is assigned to them.

4. Customer Satisfaction

Customer satisfaction represents the percentage of customers that are satisfied with the product/service of company. Base used for this is the total of the absolute weight of each comment from the customer. To identify the customer the degree of evidence/experience shared by the communicator is proposed to be used as an indicator.

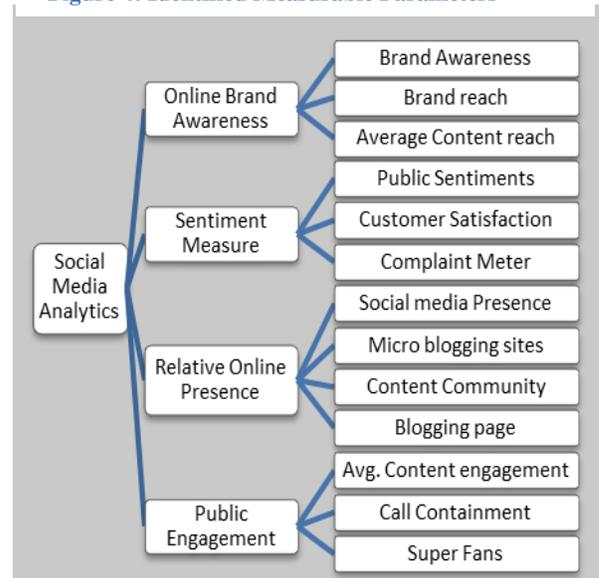
5. Complaint Meter

This denotes the percentage of the customers who are complaining of product/service or firm. Complaint includes two aspects. A statement that a situation is unsatisfactory or unacceptable. A reason for dissatisfaction Any form of negative eWOM from the customer represents a complaint.

6. Average Content Reach

Base used for Content Reach is Brand Reach. Content reach will be always equal to or greater than the Brand Reach. The percentage of content reach above Brand Reach represents the extent of the content being liked or shared by the followers, fans, and friends. So, the base for this measurement used is the Brand Reach.

Figure 4: Identified Measurable Parameters



7. Relative Online Presence

Base used for this measurement is Awareness. As it is the relative measure of online presence over different online media (social networking site, content community, micro blogging and blogging sites), we use the percentage contribution of media content reach to awareness.

8. Average Content engagement

The basis proposed to measure this is Average Content Reach. Content engagement comes in only after a person receives content, which is the content reach, and if he responds to the content then it is called content engagement. It shows the attractiveness of the content. An average of the percent of people viewing the content and getting engaged to it represent the average content reach.

9. Call Containment

Base used for the call containment is Number of Complaints i.e. negative comments.

10. Advocate/"Super Fan"

The basis proposed to measuring this is the Brand Reach. Super fans are those people who frequently spread company's posts and consistently spread positive eWOM (evangelists). This could be measured in terms of people to whom the brand can reach.

Data collection and storage

Section covers details data extraction and manipulation.

Social media universe

A universe of social media requires to be defined that is required for the selection of data. This selection of the websites should take care that it includes most popular online media and ignore only those which are irrelevant for the model (like Virtual media, Virtual reality).

Site structure

In the procedure to come up with universal data structure or any other structure we need to understand the structure of each website we are going to see to extract data. Websites to extract data will be pre-determined and so will be the structure to extract necessary figures from them.

Comment weight

Each comment must be appropriately weighted, depending on different factors. Impact of eWOM messages depends on following factors:

Valence

The valence of eWOM message and whether it is positive or negative. (Liu 2006). So each comment can be weighted based on the favorability of idea it carries related to the the client's communication objective classified as Positive: Comments/stimulus that carry positive idea about the client, Negative: Comment/stimulus that carries negative eWOM related to the client, and Neutral: Comments/stimulus that either carry no biases, or has an equal mix of positive and negative sentiments.

As per the experimental report from Park and Lee (2009), Valence (Positive vs. Negative) effect of eWOM is greater for negative eWOM than for positive eWOM. The measurement model must therefore normalize this effect, so that the weight assigned to the negative comment can be slightly more than that

assigned to positive comments. On the other hand any comment, though neutral serve the purpose of spreading awareness, so it cannot be ignored and should be assigned a small yet positive value.

Length of review

Total number of typed characters in a piece of review (Chevalier & Mayzlin 2006; Sen 2008) represents, to some extent, the degree of involvement of the communicator and add some validity to the comment. As a result, the more the length of the comment, more is the impact. However, beyond a point impact of length of comment increases only marginally.

Time (temporal relevance)

More recent the stimulus more is its impact on receiver. Say a comment/stimulus generated recently will have more relevance than one generated months or year back. (Webtrends® white Paper. © 2013 Webtrends, Inc.)

Variation in topic

The extent to which the current eWOM is consistent in representing an idea. More the variation in the topic less is the strength of idea, hence less is the impact.

Argument strength

The extent to which the message receiver views the argument as convincing or valid in supporting its position. Natural Language Processing (NLP) techniques can provide details on the strength and degree of words used in the stimulus

Backed by evidences

More the evidence of experience shared as stimulus more is the impact as stimulus appears to be more genuine. Also, it can used to identify customer or non-customer. Say if the evidence shared is an article or a link to some website then he may not be the customer but if evidence shared is an experience then there is high probability that the communicator has experienced it and is a customer.

There is a dire need for a comprehensive framework that can generate one measure of the effectiveness of social media. The proposed framework is aimed at providing more reliable and robust processes to extract and analyze pertinent eWOM from different social media sites and to frame different indicator variables namely brand awareness, brand reach, content reach, public sentiments, customer satisfaction, complaint meter; social media presence, content engagement, call containment and super fans, as described in the Paper. This will help to better interpret and understand the documented perception and trend of the existing or potential customer.



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www.mydatawise.com

mail at info@mydatawise.com