Social Media Analytics

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Outline

- Social Media Overview
- Social Media for Communication and Collaboration
- Social Media Analytics
  - Application areas
  - Challenges
- Social Media for Engagement
Social Media Analytics

Social Media

Socialnomics video:

“We don’t have a choice on whether we **DO** social media, the question is how well we **DO** it.”

— Erik Qualman

The Social Ecosystem

Collaboration

Analytics

Engagement

Source: Forrester Research
SOCIAL MEDIA FOR COMMUNICATION AND COLLABORATION

Communication and Collaboration: Social Media Usage

Source: McKinsey Quarterly 2012
Communication and Collaboration: Benefits for Internal Use

Reducing time to market: 22%
Increasing revenue: 18%
Increasing number of successful innovations: 24%
Increasing speed to access knowledge: 70%

Increasing speed to access internal experts: 49%
Reducing operational costs: 30%
Reducing communication costs: 55%
Reducing travel costs: 38%

Increasing employee satisfaction: 38%

Source: McKinsey Quarterly 2012

Communication and Collaboration: Alternative to Email?

- French company Atos to ban internal email usage.
- Statistics:
  - 200 emails per employee, per day
  - 10% are useful
  - 18% are spam
- Exploring other tools, including social media

Source: ABC News, 2011
Communication and Collaboration: Challenges

- Social media management policies
  - Security

- Usage
  - 75% of employees use social media to stay in touch with friends

- Technology portfolio management
  - On average, 6 social media tools
    - Some using 25+ tools!
  - Unified communication (UC)

SOCIAL MEDIA ANALYTICS
Social Media Analytics Definition

- Technology used to monitor, measure, and analyze activity by users of the Web 2.0 framework to provide information to make business decisions.

- According to a 2011 Bloomberg Businessweek Survey:

Social Media Analytics 21% 34%
Social Media Analytics

Text Information Categories

- Multi-class problem
  - Keyword-driven
- Topics
- Identification Complexity
  - Low
  - High

Complexities
- Linguistic features
- Literary devices (sarcasm, satire, rhetoric, irony, etc.)
- Spam
- Context

Social Media Analytics: Opinion Mining

Source: Chan 2010
Social Media Analytics: Opinion Mining

Source: Chen 2010

ONLINE SENTIMENTS AND FINANCIAL PERFORMANCE
Sentiment Indicators and Indexes

- Consumer sentiment as an indicator?
  - Consumer Confidence Index (CCI),
  - Consumer Sentiment Index (CSI), etc.

- Web 2.0: Social Media Sentiment?

Online Customer Satisfaction

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<td>4/2009</td>
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<td>Now, free unlimited storage space</td>
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Increased satisfaction score between 2009 and 2011 also resulted in increased stock price.

The strong relationship between stock price and sentiment polarity/intensity (sents) for Apple over a 24-hour period.

Source: Das 2010
Using Blogs to Predict Movie Sales

- Key finding: frequency of positive sentiments is better indicator than volume of posts alone.
- Relationship between movie income per theater (solid line) for new releases, and frequency of positive blog posts (dashed line).

Using Twitter to Predict DJIA Movements

86.7% accuracy in predicting closing up and down of DJIA using Twitter tweets

Source: Bollen et al. 2010
Twitter and the Facebook IPO

Social Media Analytics: Twitter

- Twitter
  - 100M+ active users per month
  - 50% log on every day
  - 55% on mobile
  - 1B Tweets every 3 days
    - 10 billion/month in Oct. 2012
    - 6 billion/month in Sept. 2011
    - 4 billion/month in Mar. 2011
    - 3 billion/month in Jan. 2011
    - 2 billion/month in Apr. 2010
    - 1 billion/month in Jan. 2010
Social Media Analytics: Twitter

Source: http://www.mediabistro.com/alltwitter/api-billionaires-club_b11424

USING SOCIAL MEDIA FOR DECISION-MAKING
Social Media and Product Design: The Case Of The Red Dell

Source: Radian 6, 2010

Social Media and New Logos: Mind the Gap?

- 2,000+ critical comments on Facebook
- 5,000+ new critical followers on Twitter
- 14,000+ parodies of the new logo
- Gap reverted back to the old logo within days

Source: The Guardian 2010
Social Media for M&A Analytics

Source: Lau et al. 2012

Social Media for Early Warnings: ADRs
Social Media Analytics

Social Media for Early Warnings: ADRs

- **Current warning mechanisms**

- Some problems:
  - Might not be enough reported incidents
  - Can take time
  - Differences in time of warning for various drugs of the same class

- Social Media may provide early warning…
Social Media for Early Warnings: ADRs

http://www.drugs.com/forum/featured-drugs/niaspan-23053.html

I just started taking Niaspan today. I was worried about a reaction, but I have had no experience that I can recall. I am noticing flushing.

When you take it, it dilates your blood vessels just under the skin. For me the one time it occurred was the upper arms and face. This gave me a very warm feeling and puffy feeling (labeled flush). My doctor gave me some suggestions to help avoid this happening.

Pattern Template: <subj>SideEffect/Pronoun</subj> <adj>SideEffect</adj>

Pattern Instance: it dilates your blood vessels just under the skin

Polarity/Intensity: mild

Niaspan

Simvastatin
Social Media Analytics: Tiger Case

- Why did Nike maintain its relationship with Tiger Woods?
- Why did Accenture part with Tiger Woods?
- **Answer: Social Media Analytics**

Sentiment for Tiger Woods before and after scandal
- Combined from Twitter, blogs, forums, social networking sites, etc.

Source: Xenophon Strategies, 2010
Social Media Analytics: Tiger Case

- Discussion keywords in Tiger conversations post scandal
  - 4% - 7% of the postings mention a sponsor

Source: Xenophon Strategies, 2010

Social Media Analytics: Tiger Case

- Far greater reference to Tiger in Accenture conversations than Nike

Source: Xenophon Strategies, 2010
Social Media Analytics: Tiger Case

- Sentiment for Accenture within Tiger Woods conversations

Source: Xenophon Strategies, 2010

Social Media Analytics: Tiger Case

- Sentiment for Accenture within Tiger Woods conversations after cutting ties with Tiger

Source: Xenophon Strategies, 2010
Social Media Analytics: Tiger Case

- Sentiment for Nike within Tiger Woods conversations

Source: Xenophon Strategies, 2010

Social Media Analytics: Tiger Case

- 2010 CMU study on Economic Impact of Nike sticking with Tiger:
  - $1.6 million higher revenue in golf ball sales alone (in 2010) due to sustained relationship
  - “Tiger’s continued endorsement profitable for Nike, but perhaps not for non-golf related products”
SOcial Media Analytics:
Challenges

Challenges: Spam

- **Webpages** (web spam) – 20%
  - Our research: 70%-80% of the top 100 Google search results for “online pharmacy” in 2009-2011 were spam.

- **Blog spam** (splogs) – 12%
  - User-generated comments to blogs > 50%
    - Some studies report rates as high as 90%!

- **Twitter** – between 5% and 10%
  - Our research: varies, depending on topic

Sources: Akismet 2012; Websense 2010; Choi et al. 2011
Social Media Analytics

Challenges: Spam – Websites and Blogs

Source: Abbasi et al. 2012

Challenges: Spam - Reviews

Sources: Ott et al. 2012
Challenges: Spam - Detection

- **Spam Cues:**
  - Lengthier
  - Higher average word length
  - More descriptive and vivid

*Sources: Ntoulas et al. 2006; Ott et al. 2011*

Challenges: Sentiment Accuracy

- Analyzed performance of several SaaS opinion mining options:
  - Found that many of the tools had overall accuracies as low as:
    - 42% for sentiment polarity classification
    - 75% for within-one accuracy

- In comparison, baseline ML methods:
  - 73% for sentiment polarity classification
  - 98% for within-one accuracy
Challenges: Context…the “why”

- According to the 2011 Gartner Hype Cycle:
  - Existing text and social media analytics tools tend to focus on the semantic dimension of language: what people are saying.
  - While using such tools organizations have difficulty understanding discussion context and participants’ actions and underlying intentions.

Sources: Gartner 2011
Manufacturers can develop new products. Outsource the excess productivity. We can create our brand though donation. Making some promotional activities. New products with health care function. The research and development cannot be finished in one or two days. Next iteration face more.

Packaging milk tea seems impossible. Currently, milk tea is popular. We can produce more milk tea.

The research and development cannot be finished in one or two days. More iteration face more.

To older man, slimming tea to young woman, and packaging milk tea. Traditionally, milk tea is popular. We can produce more milk tea.

Try to develop new products. I think milk tea can be poured repeatedly. It hasn’t any practical implication. For sales, jumping to big sale can be effective. Spokesperson with positive image and effect is very important. So, they can play good publicity effect.

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Social Media Sources and Control

A 2010 study of 99 franchisors' web presence revealed:

Source: Foresee 2010

Online Social Media Usage

Source: One Up Web 2010
Online Social Media Usage

Source: One Up Web 2010

The Conversion Funnel: e-Tailer
The Conversion Funnel: Social Media


SMR Study: How to get Retweeted

- 25% follow a brand
- 67% purchase from the brand they follow

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<thead>
<tr>
<th>What Doesn’t Work</th>
<th>What Works</th>
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<tbody>
<tr>
<td>Asking questions</td>
<td>Leaving room</td>
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<tr>
<td>Hashtags</td>
<td>Making it relevant/timely</td>
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<tr>
<td>Embedding links</td>
<td>Providing practical information</td>
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<tr>
<td>Contests</td>
<td>Offering deals</td>
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</table>

Source: Malhotra et al. 2012