Risk Mitigation by Modeling Behavior Leading to Past Adverse Events and Predicting Potential Future Events

Quimby Kaizer
Partner, Federal Team
IBM Analytics
linkedin.com/in/quimbykaizer
There is a need for improved risk management in public governing.

- Public events/risks are not uncommon – public distrust in law enforcement, healthcare reform outcries, tax scandals, financial fraud scandals, disease outbreaks, etc.
  - False, negative or potentially harmful conversations are taking place
  - Controversy can quickly ignite in an instant; organizations must not only prepare for the worst, but also take corrective action to address known deficiencies

- The speed and impact of the social media initially overwhelmed authorities causing government agencies to focus more intently on using social media/advance analytics to answer key risk management questions:
  - What can go wrong?
  - What is the likelihood and impact of something going wrong?
  - Who is causing harm?
  - What can we do about it?
Risk management can be broadly divided into three phases:

1) **Preparedness**
2) **Response**
3) **Recovery**

Social media analysis extracts a 360 degree view of relevant entities and events from all available data to identify and analyze potential risks.

Across these three stages, social media tools can be used for:

- **Information dissemination**: More effective means to provide reliable information quickly to the public.
- **Disaster planning and training**: Better for personnel training, scenario planning and collaboration between various public/private sectors, and civil society organizations.
- **Collaborative problem solving and decision making**: Crowd-sourcing using social media facilitates collaborative problem solving and decision making.
- **Information gathering**: Fuse data from multiple internal and external data sources to derive contextual intelligence about entities and events.
Five characteristics differentiate social media from other forms of traditional media which supports better risk management.

- **Collectivity**: The collective nature of social media serves to connect people across geographical boundaries and time zones via common platforms.

- **Connectivity**: Unlike other forms of media or communications, social media is able to connect users to other resources through the sharing of web links.

- **Completeness**: Social media is able to capture contributions and keep them in a persistent state for others to view and share.

- **Clarity**: Content on social media websites is usually highly visible, with participating people aware of each other’s activities and content posted.

- **Collaboration**: People are encouraged to share and contribute in areas they are interested in, by gathering information and providing feedback.
There are four paradigm shifts that are enabling a new way to think about data.

**Look At All The Data**

- TRADITIONAL APPROACH: Analyze small subsets of information
- BIG DATA APPROACH: Analyze all information

**Look At Even Dirty Data**

- TRADITIONAL APPROACH: Carefully cleanse information before any analysis
- BIG DATA APPROACH: Analyze information as is, cleanse as needed

**Let Data Lead the Way**

- TRADITIONAL APPROACH: Start with hypothesis and test against selected data
- BIG DATA APPROACH: Explore all data and identify correlations

**Leverage Data as it is Captured**

- TRADITIONAL APPROACH: Analyze data after it's been processed and landed in a warehouse or mart
- BIG DATA APPROACH: Analyze data in motion as it's generated, in real-time
Social data analytics is used to segment, relate, discover, and assess citizen and constituent behavior to understand past adverse events and predict future events.

**Assess**
- What impact are we having?
- Are we making the right investments?
  - Share of Voice
  - Reach
  - Sentiment

**Segment**
- Are we listening?
- Are we reaching the intended audience?
  - Geographics, Demographics
  - Influencers
  - Recommenders, Detractors
  - Users, Prospective Users

**Discover**
- What new ideas can we discover?
- What risks should we be aware of?
  - Topics
  - Participants
  - Sentiment

**Relate**
- What is driving behavior and sentiment?
  - Affinity
  - Association
  - Cause
Social data analytics can be categorized into six general areas of insight which will be illustrated in two case study examples.

1. **Behavioral insights**: Classify the behavior of specific social media participants by placing them in the categories (personality, values, and needs)

2. **Segmentation**: Categorize your audience by geography, gender, marital status, parental status, and influencer scores to help you determine precisely who is commenting on your key topics.

3. **Share of voice**: Understand the prevalence and intensity of social media conversations regarding your brand, products, services, reputation or any other topic you would like to explore.
Social data analytics can be categorized into six general areas of insight (cont’d):

4. **Affinity relationships**: Analyze the relationship between any two dimensions or any two attributes within a dimension by measuring the degree of affinity between them. Learn if one characteristic significantly affects the perception of other characteristics.

5. **Sentiment**: Measure the tone and intent of large volumes of conversations across multiple social media channels. Sentiment analysis indicates whether a particular consumer comment is positive, negative, neutral or ambivalent toward the topics of interest.
Social data analytics can be categorized into six general areas of insight (cont’d):

6. **Evolving topics**: Use clustering analysis to group related keywords that appear frequently within snippets of conversations to provide a logical summary of the discussions in the data
   - IBM Social Media Analytics determines which snippets share the same terms and then derives topics from these terms
   - Evolving topic analysis allows you to follow trends and common discussion topics across time periods and in reference to related keywords
Use Case – Department of Veterans Affairs
We conducted an analysis for the Department of Veterans Affairs to help understand Claims Backlog sentiment.

- Analysis time period: Jun 1 2012 – Oct 18 2012
- Total documents identified – 41405
- Total snippets extracted – 16954

- News sources occupy more than 60% of the total Buzz
- Micro blog discussions are very limited – could be due to demographic nature of community
The most discussed VA topics were benefits and services related, notably disability compensation.

- **Benefits and Services** received more than double the amount of coverage than Healthcare related buzz.
- **Disability compensation and Employment benefits** are the most talked about topics among all the benefits and services offered by VA.
- **Mental Health** is the most talked about topic among VA Healthcare initiatives.
A significant spike in negative chatter can be traced to a single article.

- Negative buzz was at its peak on July 24 because of this news article.
- It appeared in almost 60+ websites.
‘Hot words’ provide more insight into the subject being discussed. Claims and awareness are mostly associated with Benefits & Services programs whereas Quality and Helpline are mostly associated with Healthcare programs.

- Claims received most of the negative sentiments. We found that it was mainly due to the huge backlog in processing of various benefit related claims.
Who are the advocates and skeptics of VA?

- Most of the news sites are authoring positive sentiments
- vets.yuku.com, Facebook contribute significant negative sentiments
- Individual.com is a aggregator site – users configure it based on the news they wish to view
Analysis Approach

1. **QUERIES**: Used specific keywords like ‘Veterans (Affairs | Administration)’ to retrieve social media content we are interested in. The query will exclude keywords like ‘Australia’, ‘Canada’ so that we get relevant VA content. The query result will give us the base list of documents to work with.

2. **TYPES**: Classified VA programs into two broad categories also known as Types
   - Benefits and Services
   - Healthcare

3. **CONCEPTS**: Further grouped them with subcategories, referred to as ‘concepts’

<table>
<thead>
<tr>
<th>Benefits &amp; Services</th>
<th>Healthcare</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Dependent’s assistance</td>
<td>• HealthVet</td>
</tr>
<tr>
<td>• Employment benefits</td>
<td>• Mental Health</td>
</tr>
<tr>
<td>• GI bill</td>
<td>• PTSD</td>
</tr>
<tr>
<td>• Disability compensation</td>
<td>• Suicide &amp; Crisis</td>
</tr>
<tr>
<td>• Home loans</td>
<td>• Traumatic Brain Injury</td>
</tr>
<tr>
<td>• Insurance</td>
<td></td>
</tr>
<tr>
<td>• Pension</td>
<td></td>
</tr>
</tbody>
</table>

Concepts will use ‘include’ words (synonyms), context terms, and exclude terms to make sure only the content of interest for this particular analysis is extracted as a ‘snippet’ from the documents.
Analysis Approach (cont’d)

4. **HOTWORDS**: Defined some specific attributes that are common across these programs i.e. hotwords
   - Awareness (outreach)
   - Claims
   - Quality
   - Helpline (crisis line, help line, customer service)

   Hotwords help create a subset of high value snippets which will have the occurrence of both ‘concepts’ and ‘hotwords’

5. **SENTIMENT TERMS**: Both positive and negative sentiment terms were customized to get accurate results e.g.: Trauma, disorder, suicide are generally considered as negative sentiment terms.

   In the context of VA programs they are merely keywords that refer to health conditions. So, those were disabled.

6. **RESULTS**: Sentiment Analysis was performed and reviewed.

7. **ITERATE**: Queries, types, concepts, hotwords, and sentiment terms were refined in an iterative manner till we achieve accurate analysis reports.
Use Case – IBM Investor Relations
IBM Investor Relations – Stock/Earnings Social Media Analysis

To listen, understand and evaluate discussions around “IBM Stock” and measure the potential buzz and themes organically taking place around the pre- & post-Q2 2012 earnings announcement

<table>
<thead>
<tr>
<th>Objective</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>To unearth sentiment, themes, venue, and influencers during the Q2 pre- and post-earnings release.</td>
<td>Source Used:</td>
</tr>
<tr>
<td>The project provided understanding into the following:</td>
<td>• Conversation Monitor (Social Media Tool)</td>
</tr>
<tr>
<td>• What drives pre-earnings conversation volume?</td>
<td>Date Range:</td>
</tr>
<tr>
<td>• Do negative conversations lead to a drop in the stock price?</td>
<td>• Pre-earnings analysis: 7/4 – 7/17</td>
</tr>
<tr>
<td>• Who influences the negative discussions during an earnings release period?</td>
<td>• Post-earnings analysis: 7/18 – 7/30</td>
</tr>
<tr>
<td>• Is there a correlation between net sentiment index, IBM stock price, and the S&amp;P 500 Index?</td>
<td>Geography:</td>
</tr>
<tr>
<td></td>
<td>• Global</td>
</tr>
</tbody>
</table>
Social media analytics was utilized to support the Investor Relations decision-making process concerning the 2Q Earnings Announcement event.

**Initial Analysis:**
- Organically derived topics of discussion in both the pre- and post-earnings periods with sample qualitative quotes for each topic
- Explored whether there was a statistical correlation between IBM’s stock price (both in the pre- and post-earnings release) and net sentiment index
- Identified “Who is talking” in the pre- and post-earnings release period
- Provided a Media Influencer and Stock Analyst social media profile analysis
- Enhanced the data visualization of our presentation slides to maximize communication

**Supplemental Analysis:**
- Implemented the inclusion of quarterly analyses for competitors
- Incorporated semi-annual media influencer and stock analysts social media profile analyses
- Provided deep-dive analytics to facilitate assessing the brand perception of NYSE and Nasdaq
- Monitored and analyzed events hosted by the Investor Relations team such as the February 28th, 2013 Investor Briefing
Methodology in Arriving at the Relevant Universe – Pre Earnings Call

Search Strings used:
• String 1: JNJ or J&J or Johnson & Johnson or Johnson@Johnson AND (stocks OR stock OR NYSE OR “wall street” OR ACA OR Affordable Care Act OR approval OR beat OR buy OR buyback OR conservative OR consolidate OR consolidation OR currency OR divestiture OR earnings OR “emerging markets” OR EPS OR earnings per share OR equal weight OR estimates OR expect OR filing OR focus OR FX OR foreign exchange OR GAAP OR generally accepted accounting principles OR growth OR guidance OR headwinds OR hold OR income OR innovation OR invest OR M&A OR mergers and acquisitions OR margin OR market weight OR miss OR neutral OR Obabmacare OR OTC OR over the counter OR outlook OR performance OR pipeline OR “price target” OR pricing OR procedure OR profit OR repurchase OR results OR revenue OR revised OR revision OR sales OR sell OR share OR shares OR “special item” OR stock price OR tailwinds OR target OR tax OR underweight OR utilization OR volume
• String 2: Analysts and media influencers shared by the Investor Relations team (listed on next slide)

- Date Range: Jun 30 – Jul 10, 2014
- Geography: Global
- Language: English

Data Universe
• Data was aggregated through a conversation monitoring tool and corresponding search strings

Data Relevance
• Irrelevant conversations were filtered out so that a relevant universe could be reached

Discussion/Posts Analyzed
• Manual analysis of the relevant universe of conversations and segregated by themes, voice, etc.
Methodology in Arriving at the Relevant Universe – Post Earnings

Search Strings used:

• String 1: String from prior slide

• String 2: Harlan R. Sonderling, Walter Colsman, G. Mark Bussard, Rhett Brown, Eric Boland, Scott Braunstein, Paul N. Eckley, Cameron Burns, Kelsey Chen, Marshall I. Gordon, Martin B. Bukoll, Jean M Hynes, Kirk Mayer, Dr. Prashanth Jayaram, John Walcott, Alison O’Neill, James Terrile, Alex Winogradoff, Scott Wilkin, Craig W Bijou, Josh Kolins, John Longobardi, Jim Byrne, David Toung, Richard J Purkiss, Stephan Gasteyger, Bob Hopkins, Travis Steed, Kevin Strange, Mark Purcell, Derrick Sung, Matt Dodds, Christopher Hamblett, Josh Jennings, Vamai Divan, Matthew Keeler, Jacob Lundberg, Kristen Stewart, Rob Wisniewski, Jami Rubin, Jay Olson, Ariel Herman, Christopher Benassi, Stephen A. O’Neil, Tim Rexing, Jeff Holford, Swayampakula Ramakanth, Ian Hilliker, Terence McManus, Michael Weinstein, Ross Comeaux, Christopher Pasquale, Kimberly Gailun, Danielle Antalfy, Robert Marcus, David R Lewis, James Francescone, Damien Conover, Alex Morozov, Matt Miksic, Young Li, Jayson Bedford, Michael Rich, Glenn Novarro, Brandon Henry, Julia Kufman, Rick Wise, Mathew Blackman, Larry Biegelsen, Lei Huang

• String 3: Invokana, Olysio, Remicade, Stelara, Xarelto, Zytiga

Data Universe

• Data was aggregated through a conversation monitoring tool and corresponding search strings

Data Relevance

• Irrelevant conversations were filtered out so that a relevant universe could be reached

Discussion/Posts Analyzed

• Manual analysis of the relevant universe of conversations and segregated by themes, voice, etc.
Earnings announcement was followed by a significant increase in conversation volume, largely driven by a positive tonality, while negative conversations dominated the pre earnings phase.

Post Earnings positive sentiment went up, correspondingly “IBM stock price” went up and remained steady.
IBM Stock price rose post the earnings announcement and was reflected in the Net Sentiment Index.

Pre earnings was driven by negative tonality and correspondingly “IBM stock price” saw a dip.

Post Earnings positive sentiment went up, correspondingly “IBM stock price” went up and remained steady.

Note: Net sentiment index = Positive posts – Negative posts
IBM Market Development & Insights

Negative sentiment dominated pre earnings release, while more than 75% of discussions were positive after the earnings release

---

- Is Wall Street Ignoring Risk at IBM? Herb Greenberg - CNBC Senior Stocks Commentator thinks so.....
- Tech stocks not safe any more: Warning from Reuters analyst not to go with any big techs such as Intel, IBM, and Microsoft as they are not "safe" anymore
- IBM shares fall with Dow on weak jobs report
- IBM has been reiterated by TheStreet Ratings as a buy with a ratings score of A
- IBM caught some tepid commentary from analysts at UBS (Steve Milunovich). The firm initiated coverage on IBM with a “Neutral” rating and $205 price target...

---

- IBM raises earnings outlook despite weak tech spending and weak economy
- Beats analyst’s estimate for earnings despite revenue decline
- IBM gives Dow a lift - nudged the stock market higher Thursday July 19 but a trio of weak economic reports kept the gains in check
- Solid quarterly profit; shift into software cited
- Technology earnings boost Wall Street...IBM
- Cutbacks fuel IBM earnings gain, analysts worry
- IBM revenue down could unnerve investors
Top four topics during pre earnings were negative and accounted for half of the overall discussions, while negative discussions rarely featured post the earnings.

**Pre-earnings Discussion Topics – Key Themes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Positive</th>
<th>Negative</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Street ignoring risk at IBM</td>
<td>17%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reuters: Tech companies - Intel, IBM, Microsoft not “safe” anymore</td>
<td></td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>IBM shares fell with Dow on weak job report</td>
<td></td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>BMO Capital’s Keith Bachman: reduced IBM’s full year revenue estimate</td>
<td></td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>IBM Stock buy recommended by TheStreet with rating score of A</td>
<td></td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>UBS (Steve Milunovich) starts IBM as a “Neutral”, $205 price target</td>
<td></td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>IBM to outscore the Zacks consensus estimate</td>
<td></td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Major tech’s to release earnings next week (neutral)</td>
<td></td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Tech stocks make strong gains with Microsoft; IBM (MarketWatch, 13 July)</td>
<td></td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Major tech ignoring Pre-earnings warnings - INTC, IBM, MSFT</td>
<td></td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>IBM - Undervalued tech stock with meaningful dividend yields</td>
<td></td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Wall St. Earnings expect: Profit of $3.42 per share</td>
<td></td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>IBM stock four-star rating (out of five) at Motley Fool CAPS</td>
<td></td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Top ranked dividend stock IBM is oversold</td>
<td></td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>IBM price target lowered by Stifel Nicolas to $221.00.</td>
<td></td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>

**Post-earnings Discussion Topics – Key Themes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Positive</th>
<th>Negative</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM raises earnings outlook despite weak tech spending and weak economy</td>
<td></td>
<td></td>
<td>27%</td>
</tr>
<tr>
<td>Beats analyst’s estimate for earnings despite revenue decline</td>
<td></td>
<td></td>
<td>21%</td>
</tr>
<tr>
<td>IBM gives Dow a lift but a trio of weak economic reports kept the gains in check</td>
<td></td>
<td></td>
<td>6%</td>
</tr>
<tr>
<td>US stocks creep up; IBM, other tech stocks rise</td>
<td></td>
<td></td>
<td>6%</td>
</tr>
<tr>
<td>I.B.M. Delivers Solid Quarterly Profit: The earnings flowed from a strategy of focusing</td>
<td></td>
<td></td>
<td>6%</td>
</tr>
<tr>
<td>Solid quarterly profit, shift into software cited</td>
<td></td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>IBM to trim jobs, wants to sustain earnings street</td>
<td></td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Technology earnings boost Wall Street</td>
<td></td>
<td></td>
<td>4%</td>
</tr>
<tr>
<td>Outbacks fuel IBM earnings gain, analysts worry</td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>IBM estimates and target raised at BMO to $205.00</td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>IBM Reports Mixed 2Q, Outlook Up</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>IBM revenue down could unnerv investors</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Zacks reissued their neutral rating on shares of IBM</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>IBM has been reiterated by TheStreet Ratings as a buy with a rating score of A-</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Others (Passing mentions of IBM Stock)</td>
<td></td>
<td></td>
<td>12%</td>
</tr>
</tbody>
</table>

N=807                                                                 N=3917
Sharing/re-tweeting of comments covered by Financial media/analysts on IBM stock accounted for more than half of the overall discussions

Pre earnings release – People/Blogs whose message was shared/re-tweeted

Financial Media/Analysts:
- Warning from Reuters analyst not to go with any big techs such as Intel, IBM, and Microsoft as they are not “safe” anymore (Reuters correspondent, Jim Finkle’s article) was widely shared via twitter
- IBM Stock buy recommended by TheStreet with rating score of A

Research Firm:
- BMO Capital’s Keith Bachman, cut full year estimate for IBM was shared in twitter on July 5
- UBS (Steve Milunovich) starts IBM as a “Neutral”, $205 price target
- IBM to outscore the Zacks consensus estimate

Stock Commentator:
- Is Wall Street Ignoring Risk at IBM? Herb Greenberg - CNBC Senior Stocks Commentator

N = 807

Post earnings release – People/Blogs whose message was shared/re-tweeted

Financial Media/Analysts:
- IBM raises earnings outlook despite weak tech spending…article by Reuters correspondent Nicola Leske and Jim Finkle (Reuters Analysts) was widely shared in twitter
- Beats analyst’s estimate for earnings despite revenue decline shared by Yahoo Financials
- IBM gives Dow a lift but a trio of weak economic reports kept the gains in check shared by FOXBusiness

Journalists/Correspondents:
- I.B.M. Delivers Solid Quarterly Profit…(Steve Iohr New York times)
- Cutbacks fuel IBM earnings gain, analysts worry, written by Craig Wolf an USA Today Journalist – July 19

Research Firm:
- IBM estimates and target raised at BMO to $205.00

N = 3917
Twitter was the dominant channel; Links of financial media blogs/news were majorly shared in Twitter
Herb Greenberg’s comments on “Wall Street ignoring risk at IBM” was widely shared in twitter

HERB GREENBERG
CNBC Senior Stocks Commentator

Activity on Twitter

<table>
<thead>
<tr>
<th>Popularity</th>
<th>33,041 Followers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Generation</td>
<td>31 tweets on IBM</td>
</tr>
</tbody>
</table>

Sentiment towards IBM

- **Negative**
- Neutral
- **Positive**

About the Author

- Herb Greenberg is senior stocks commentator for the network appearing on CNBC’s Business Day programming and on CNBC.com
- Greenberg has been a financial journalist for more than 30 years
- He is also a former weekend investor columnist for The Wall Street Journal and a former senior columnist for MarketWatch
- Prior to joining MarketWatch, Greenberg was senior columnist for TheStreet.com
- E-mail ID: HerbOnTheStreet@cnbc.com

Sample Snippets:

- Is Wall Street ignoring risk at $IBM? My column ... http://www.cnbc.com/id/48141461/
- investors ignoring risk at $IBM? My latest... http://www.cnbc.com/id/48141461
Shaw Wu’s comment on “IBM to show gains in software and server revenue for the first quarter of 2012” was picked up in various blogs and shared in Twitter

About the Author

- Shaw Wu joined Sterne Agee in 2011 as a senior technology analyst covering PCs, mobile devices, enterprise hardware, and the IT supply chain
- He has nearly 15 years of experience in the technology industry as an equity research analyst, software developer and network administrator at firms which include Broadpoint AmTech, Bear Stearns, Morgan Stanley, and General Electric
- Mr. Wu's work has been recognized in several research polls including Institutional Investor, Greenwich Associates, The Wall Street Journal, Forbes/Zacks, and StarMine, where he was recently ranked No. 2 for stock picking and No. 3 for earnings accuracy
- E-mail ID: swu@sterneagee.com

Presence in Digital Media

<table>
<thead>
<tr>
<th>Digital Media</th>
<th>Blog Site/ID</th>
<th>IBM Related Topics in Analysts Own Blog/Twitter/Facebook (Yes/No)</th>
<th>Pick-ups/Shared Comments</th>
<th>Sample Snippets</th>
<th>Activity during Q2 Pre-Earnings (July 4-17, 2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twitter</td>
<td>No</td>
<td>No</td>
<td>His comment shared in Twitter by others, like: <a href="http://twitter.com/worldtradenews">http://twitter.com/worldtradenews</a></td>
<td>Sterne Agee Analyst Shaw Wu says he expects IBM to show gains in software and server revenue for the first quarter of 2012. IBM reports its Q1 2012 earnings on April 17, (Apr 16, 2012, <a href="http://twitter.com/worldtradenews">http://twitter.com/worldtradenews</a>)</td>
<td>No</td>
</tr>
<tr>
<td>Blog</td>
<td><a href="http://en.wordpress.com/tag/shaw-wu/">http://en.wordpress.com/tag/shaw-wu/</a></td>
<td>No</td>
<td>His comment picked up in blogs like: <a href="http://siliconxy.com">Silicon XY</a>, etc.</td>
<td>Wu of Sterne Agee says IBM continues to be among the best players (Jul 18, 2012; <a href="http://siliconxy.com">Silicon</a>) Shaw Wu this afternoon started coverage of International Business Machines (IBM) with a Buy rating(Jul 31, 2012; <a href="http://siliconxy.com">XY</a>)</td>
<td>No</td>
</tr>
<tr>
<td>Facebook</td>
<td><a href="http://www.facebook.com/fivelittlebottles">http://www.facebook.com/fivelittlebottles</a></td>
<td>No</td>
<td>Article picked up by others, like: <a href="http://myoo.com">Myoo</a>, etc.</td>
<td>Sterne Agee Analyst Shaw Wu says he expects IBM to show gains in software and server revenue for the first quarter of 2012. IBM reports its Q1 2012 earnings on April 17(Apr 16, 2012; <a href="http://myoo.com">Myoo</a>)</td>
<td>No</td>
</tr>
</tbody>
</table>
There is tremendous potential to utilize social data to understand adverse events to maximize risk event “preparedness”.
We have learned that a deliberate, incremental and iterative approach is best for embarking on the social data analytics journey.

These experiences reveal a great irony -- that while the impact of Big Data will be transformational, the path to effectively harnessing it is not. The journey is evolutionary versus revolutionary, incremental and iterative

– Demystifying Big Data, TechAmerica Report, October 2012

1. Understand the “Art of the Possible”
2. Start with a clear mission or business requirement, and fully define a discrete set of use cases
3. Take inventory and understand your data assets
4. Assess your current set of capabilities and technical architecture against what is required to support your initial use cases
5. Move incrementally to gain quick value, building competence, and gain momentum
6. Focus on developing skills and talent
Appendix
Social data analytics assists with segmenting, relating, discovering, and assessing constituent and customer behavior.

- **Assess**
  - What impact are we having?
  - Are we making the right investments?
  - Share of Voice
  - Reach
  - Sentiment

- **Segment**
  - Are we listening?
  - Are we reaching the intended audience?
  - Geographics, Demographics
  - Influencers
  - Recommenders, Detractors
  - Users, Prospective Users

- **Discover**
  - What new ideas can we discover?
  - What risks should we be aware of?
  - Topics
  - Participants
  - Sentiment

- **Relate**
  - What is driving behavior and sentiment?
  - Affinity
  - Association
  - Cause
Segment: Are we listening? Are we hitting target audience?

- Situation:
  - Understand citizen attitudes and behaviors
  - Improve outreach effectiveness
  - Improve talent recruitment
  - Identify supply chain disruptions
- Measures:
  - Context demographics
  - Influencer impact
  - Author behavior patterns
  - Geographic differences
- Actions:
  - Understand influence sources
  - Analyze identities, communication channels and social content
  - Improve targeted programs
  - Change outreach tactics
  - Plan new recruitment strategies
Relate: What is driving behavior and sentiment?

- Situation:
  - Improve public affairs
  - Improve outreach programs
  - Improve employee satisfaction
  - Identify new vendors

- Measures:
  - Product Feature Affinity
  - Employee Sentiment Affinity
  - Vendor Reputation Affinity
  - Competitive analysis

- Actions:
  - Better target messaging
  - More personalized messaging
  - Change outreach / marketing mix
  - Introduce new features
  - Deepen relationships with citizens
Discover: What don’t we know? What can we learn?

- **Situation:**
  - Understand the “voice of the citizen”
  - Identify reputation risks
  - Learn what we don’t know

- **Measures:**
  - Share of voice
  - Sentiment
  - Reach
  - Geography

- **Actions:**
  - Improve outreach awareness and positioning
  - Change marketing mix
  - Update external communications and management model
  - Identify new ideas and introduce new features
Assess: Are we successful? Where can we do better?

- **Situation:**
  - Improve reputation with customers, constituents, employees, partners
  - Assess investment in outreach campaigns, employee programs
  - Understand impact of product or service features

- **Measures:**
  - Relative volume share of voice
  - Distribution across sources (reach)
  - Influencer analysis
  - Distribution by sentiment
  - Geographical differences

- **Actions:**
  - Improve message to the public
  - Change marketing mix
  - Improve transparency
  - Improve service design and execution
Example – Nationwide Commercial During the Super Bowl
Nationwide Twitter Analysis Objectives and Specifications

- The primary objective of this analysis was to understand the twitter buzz about the latest ad campaign launched by Nationwide during the SuperBowl XLIX event on 1st Feb 2015.

- The analysis is based on historical twitter data with full coverage, for the time period January 17 – February 2, 2015.

- All the numbers and percentages mentioned in this presentation are indicative and directional in nature only.

<table>
<thead>
<tr>
<th>Elements</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td>Nationwide</td>
</tr>
<tr>
<td>Source</td>
<td>Twitter</td>
</tr>
<tr>
<td>Languages</td>
<td>English</td>
</tr>
<tr>
<td>Geography</td>
<td>Global</td>
</tr>
<tr>
<td>Time period</td>
<td>Jan 17 – Feb 02, 2015</td>
</tr>
</tbody>
</table>
There was a huge spike in ‘buzz’ the day when Nationwide launched its ad on child accidents that caused death.

- Out of the total 239571 tweets 2/1 – 2/2, 111759 are unique ones and the rest are re-tweets
- The eruption in Twitter about the Nationwide commercial is primarily due to the sensitive content it carried
- Tweets clearly showcase the outrage amongst the public against the ad
- Users expressing shock over the commercial – terming it as a Downer, Dark & Depressing , Worst SuperBowl Commercial
- Very few tweets supporting the Ad and the awareness about Child Accidents

- The Nationwide Commercial on ‘Make Safe Happen’ was aired on 1st February during the SuperBowl event
- The twitter buzz during the period Feb 1st – 2nd corresponds to ~97% of the overall buzz from Jan 17th – Feb 2nd
The Sentiment trends suggests a major tilt towards ‘NEGATIVE’ tweets, AFTER the Ad was aired on February 1.

- 7% of the Tweets during Jan 17th – 31st are negative while 15% of them are positive
- The number of tweets are very less compared to Feb 1st and 2nd
- 32% of the Tweets during Feb 1st – 2nd are negative while 12% of them are positive
I support the #nationwidecommercial .....makes people think!! Good job #Nationwide. #SB49 #commercials #nationwide

Thanks Nationwide for keeping it real. I support this commercial@YahooSport

I'm in the minority when I say I support @Nationwide's dead boy commercial. You hate it because it reminds you of a truth you ignore

I fully support #MakeSafeHappen & I'm glad Someone is standing up about it. Thank you, @Nationwide

@Nationwide I support the commercial 100% Thank you for raising issues that the public is afraid of and avoids on purpose

@Nationwide I'm taking a lot of heat for supporting the ad, but I appreciate the message and the need to bring awareness to keep kids safe

That #nationwide commercial I feel was out of place for the Super Bowl I support the thought but the commercial was just poor taste

@Nationwide delivered a huge message last night, that I found disturbing. Sometimes that's what we need to raise awareness #makesafehappen
Sample Tweets - Negative

That Nationwide commercial was terrible. Way too far.

That Nationwide commercial was kinda messed up... Definitely not what I was expecting.

RT @jtomase: From my wife: "Thanks, Nationwide. You just completely freaked out my kids with the little boy saying, 'because I DIED"

Shoutout to Nationwide for the most depressing commercial of all time.

RT @ColeGonet: What the hell kind of commercial was that nationwide

@Nationwide way to kill the party! #buzzkill

That @Nationwide commercial was not cool... #nationwide #becauseidied

That was a serious downer @Nationwide I'm all depressed and my kids are confused. #SuperBowl
Sample Snippets - Negative

Snippet : I'm sure there is a Nationwide commercial joke here somewhere
Source : http://www.spokesman.com

Snippet : This Super Bowl post is going nice and smooth…and…then…BOOM! “I died.” Thanks, Nationwide. Welp.
Source : http://www.porchdrinking.com

Snippet : That Nationwide commercial was a buzzkill. What was the purpose?
Source : http://www.qvc.com

Snippet : Backlash to the strangely dark commercial has been widespread and brutal. Nationwide Insurance felt an online backlash following its Super Bowl commercial in the first half of Sunday’s game.
Source : http://www.youtube.com/

Snippet : Everything else either was so depressing that it didn’t belong in the super bowl or just sucked. When I see a nationwide commercial, I wan’t it to make me go "Chicken parm you taste so good" not.. "gee, that little child died in a horrible accident".
Source : http://www.tigerdroppings.com

Snippet : This is a football game. The worst commercial is the Nationwide commercial with child saying he missed out on life because he died. It is much more disturbing then I can convey
Source : http://virtualsellers.proboards.com
Sample Snippets - Positive

Snippet: Nationwide Insurance got it right with their controversial Super Bowl ad. Although it may not be popular opinion, Ian Mendes defends Nationwide's decision to air their powerful ad during the Super Bowl.
Source: www.todaysparent.com

Snippet: We want to build awareness of an issue that is near and dear to all of us — the safety and well-being of our children. … While some did not care for the ad, we hope it served to begin a dialogue to make safe happen for children everywhere." Another traveler, Tiffany Hall, who was headed to the Washington, D.C., area with her husband and two young daughters, agreed with Nationwide. "It was very moving.
Source: http://www.newsleader.com

Snippet: Everyone has their opinions, while some of your choices make sense, I have to respectfully disagree with quite a few of them. I thought the nationwide commercial was a gutsy choice but a wakeup call that many people need.
Source: http://www.youtube.com/

Snippet: I actually liked the Nationwide commercial. Is it what people want to see during a happy event?
Source: http://goodbyecb.proboards.com
While the Nationwide Ad has been termed as a buzz kill, spoiling the mood of the Super Bowl event, there are few tweets in support of the message.

- Tweets are mostly aimed at – ‘How Nationwide Ad spoiled an other wise happy occasion like Super Bowl’
- The outrage clearly shows how people could not handle the content of a child being showcased as dead
- Tweets show public expectations of a funny and upbeat commercial – rather ended up viewing a scary, disturbing and traumatizing one
- Jokes and sarcastic tweets about Nationwide’s Ad have a huge number of Re-tweets
- Darkest & Depressing Ad, What the Hell Nationwide, Because I Died, Nationwide Kills, Nationwide commercial, Nationwide A Movie were some of the key trending topics across Twitter

- Very few tweets in support of the Ad
- Some tweets do showcase the support for the awareness of ‘child accidents’ and appreciate the message
- Tweets questioning the critics of the Ad for not accepting the truth - Bring more awareness to keep kids safe
News sources dominate the chatter about Nationwide, followed by blogs and boards. Youtube tops the list of websites, due to the user reviews and comments about the commercial.