The Social Newsroom

Visual Analytics for Social Business Intelligence - Tool Prototype Demo

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Introduction

Today, social media is widely adopted across personal and professional spheres. Increasingly businesses are utilizing social media as part of their strategy for communicating with and understanding the behaviors of their clients. The widespread public use of social media is a relatively new phenomenon that presents an ongoing, ever-changing challenge to companies and creates a unique set of risks as well as advantages to decision-makers. At the same time expansion into the online social space offers tremendous potential strategic advantages including demographic targeting from a new, pervasive reflection of consumers and brand advocates. Social media thus takes on a new relevance in forging relationships of brand co-creation. This research project, in its entirety, seeks to derive business value from social data by designing and developing a series of dashboards for those who struggle to interpret and keep up with the social data created around a brand and marketing campaign. This tool prototype demo first outlines the foundation of the tool development with focus on the main perspectives guiding the research. A presentation of the actual tool development is subsequently put forward highlighting the main components of the tool. Challenges are discussed therein before a brief conclusion of the prototype development thus far.

Foundations for development

The project involves extending an existing model for social data analytics, creating a dashboard for decision makers, and generating marketing feedback for content creation and targeting. This entails analyzing company social graphs to form insights from interaction using data-driven methods with the ability to translate findings to decision makers. From the social sciences perspective, this project explores issues of identity on social media for both the consumer and the company since several sociotechnical parameters are changing relationship between a business and its customers.

Guiding perspectives

Social media analytics can be undertaken in two main ways: "Social Graph Analytics" and "Social Text Analytics" (Vatrapu 2013). Social graph analytics is concerned with the structure of the relationships emerging from social media use. It focuses on identifying the actors involved, the actions and activities they undertake, and the artifacts they create and interact with. Social text analytics is more concerned with the substantive nature of the interactions. It focuses on the topics discussed and how they are discussed. What keywords appear? What pronouns are used? How far are negative or positive sentiments expressed? The research project is building on currently available social media analytics methods and tools, to identify new approaches that contribute to both the academic and business sides of **'Social Business Intelligence'**. (Dinter and Lorenz 2012) The developmental objective of this project involves going beyond the standard metrics and visualizations used in social media reporting to explore in greater depth the nature of a company's

online advocates and in so doing to gain a clearer, more complete picture of what the company's brand looks like in the eyes of its consumers.

Tool development

The practical challenge for social media marketers has been the need real-time data to support decision-making in the creation and curation of real-time content and community management. Creating a discourse through planned communication and strategic use of language is a way of attempting to lead followers and affect organizational culture (Alvesson et al 2011). Motivating consumer engagement through content creation must be undertaken with more uncertainty since language is socially constructed and context specific, and hence will change more online from one person to the other, than it would in physical and organizational network contexts, (Kelly, 2008), (Li, 2011). The design of a social media dashboard to that end has led to several outcomes in the form of dedicated interface designs. Three primary functions have emerged to position this tool's value within companies who seek to utilize social business intelligence. The first establishes coverage, with **cross-platform competency.** The tool is designed to perform interchangeably between a suite of commonly used social channels (Facebook, Twitter, Instagram, YouTube, and blogs) as well as leverage independent abilities of each such as text mining from twitter, or PR monitoring from Blogs and News. The second positioning is that of **dual end-user design and dual end-user functionality:** designed as both an everyday monitoring dashboard for practitioners (different versions for social media manager and executives) and a learning tool for reporting for the social media analysts generating insights and reports for longer-term strategy by executives. The final value positioning seeks to offer the tool as a vehicle for the company by **increasing the social media conversation flow and buy-in.** When chosen by a company's social media manager or analyst, the tool ought to serve them as conversation enhancement between he/she and executive strategy makers (c-suite). This would help to increase the communication flow in both directions with a CIO, for example.

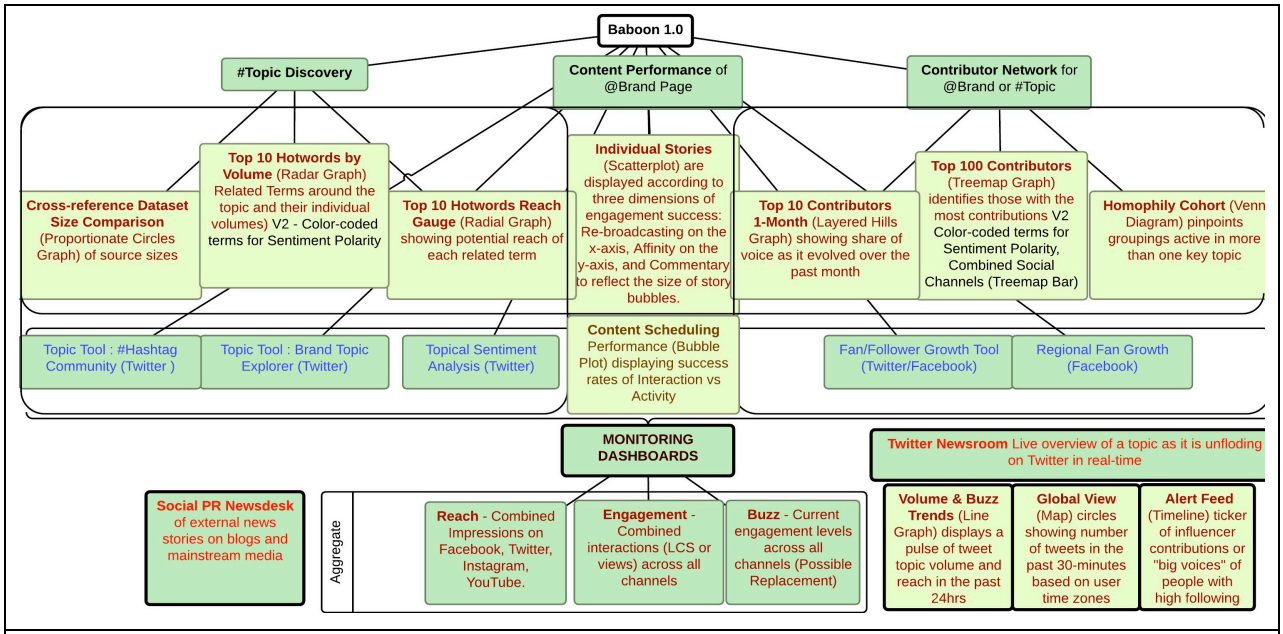


Figure 1 - Wireframe for Tool Version 1.0

The current development of the platform (code-named: Project Baboon) within a social media marketing agency has thus far consisted of six individual interfaces that serve specific social business

purposes for marketing practitioners. The interfaces are each designed with a primary visualization, prominently placed at the top of the design space. Each interface is also supported by several supplemental visualizations and gauges to provide additional contextual background. The wireframe above (Figure 1) illustrates how a social text pillar such as *Topic Discovery* on the left, or a social graph pillar such as the *Contributor Network* at right, have a primary visualization with two supporting contextual graphs, flanking to either side. The six interfaces that have currently been built can be separated into three "pillars" for insights (top) and three "dashboards" for monitoring (bottom). A tool review audit of over 170 social media tools has shown that most give the *wrong design affordances* (graph selection, meaningless color, light effect shading, 3D-charts) or even provide *negative affordances* from distorted scaling and inappropriate intervals that can hinder the ability to see and understand social data accurately.The following tool demo of these interfaces (Table 1 below) subsequently details each individual dashboard design and purpose. These can be sharply contrasted with common examples from tools in the tool audit, such as word clouds for topic discovery, line graphs or pie charts for story performance, and bar graphs or simple tables for ranking important people.

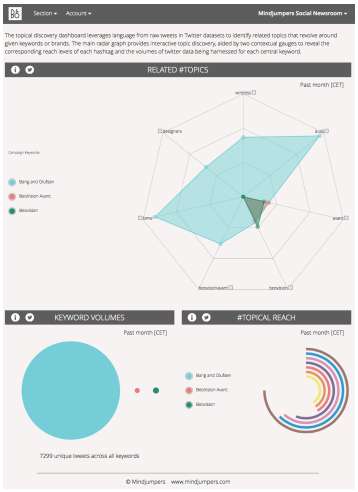
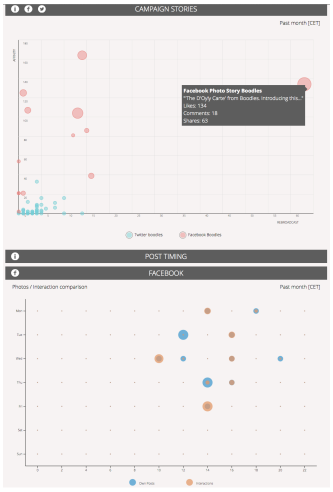
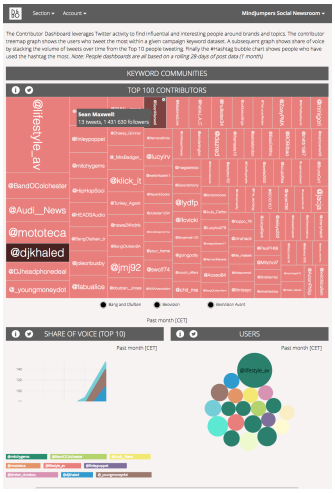
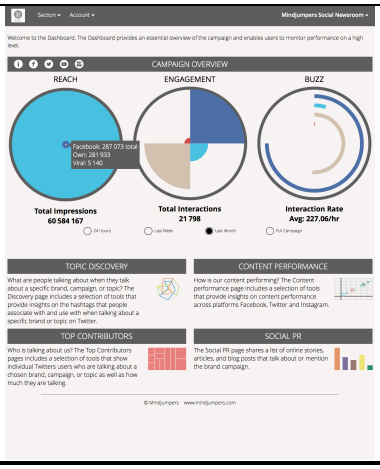
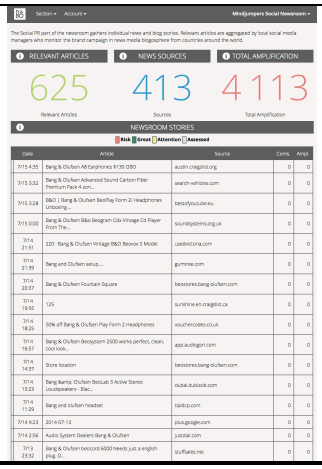
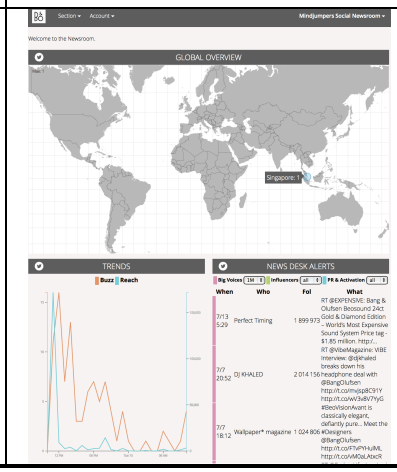
Insights Pillars		
Relevant Topics	**Story Performance**	**Key Contributor Network**
		
Monitoring Dashboards		
Social Media Cockpit	**PR Newsdesk**	**Campaign Overview**
		

Table 1 – Six Interfaces Designed for The Social Newsroom / Project Baboon (Beta)

Insights Pillars

The three pillars for insights are intended to inform the practitioner with insights about story performance, important people, and relevant topics respectively, allowing the user to take this information scent, or insight, and then have the possibility of leveraging it in to inform other investigations into the subsequent pillars. The user has a hypothetical opportunity to then shift content strategy in posting and re-assess performance gauges, in a cyclical usage pattern of the dashboard. This path of information foraging will be thoroughly tested after deployment.

Performance Insights Pillar I (Story Performance) - Measuring the success of one's own content

In order to continuously improve and create more engaging and relevant content for a given community, the case company needs to measure how the content is performing and to analyze the reasons why content is (or is not) performing. The *Story Performance* pillar is a self-reflective view of the campaign's own posting performance on Facebook, Twitter and Instagram, using multi-dimensional visual representations. Currently this dashboard shows how well individual stories, themes, and timings are being received by social media communities along four dimensions, including *Action-Reaction Ratios, Affinity, Amplification,* and *Commentary* magnitude. First a bubble graph portrays amplification and affinity metrics of stories on either access while bubble size reflects the amplitude of story commentary. The ultimate success of how each piece of content is received by the community is immediately visible. What's more, clustering effects can shed light on patterns of content type, topic, and language by overlapping such data and using differentiating color. Finally, a heatmap of the weekly calendar offers a secondary dashboard element for each of the three channels. Visually this offers immediate glancability of when content is posted and when it is succeeding; contrasting proportions between action by content publishers and reaction by content consumers can clearly be gauged.

Social Text Insights Pillar II (Topic Discovery) - Detecting related and relevant "trending topics"

In order to be able to produce relevant, real-time content for the brands it supports, a company monitors relevant trending topics and uncovers new trends from the community to both shift the conversation. This information may also potentially shift the deployment of campaigns, services or products design themselves. To understand how stakeholders define and view the brand one must take a folksonomic viewpoint from the perspective of the digital stakeholder. The socially-constructed folksonomies of a brand offer an unbiased definition by the digital community of what relates to the brand, as evidenced by the language analysis. The *Topic Discovery* pillar includes a selection of tools that provide insights on the hashtags that people associate with and use with when talking about a specific brand or topic on Twitter. This dashboard was designed intuitively to act as a radar for common words that exist around several brands or topics of interest. The radar graph leverages language from raw tweets in Twitter datasets to identify related topics that revolve around given keywords or brands. Seven test subjects have been implemented including a brand, keyword topics and a celebrity (actor). All of the tweets on twitter were mined and archived to then allow this tool to identify words with the greatest frequency. When several topics are selected the keywords on the radar are harmonized to reflect both interest areas. The design then portrays color-coded language footprints that overlap on the radar based on individual volumes for each topic of interest. Each can be drilled-down and the radar can also be adjusted to filter out any irrelevant terms that may surface. The design also includes several contextual graphs, for example showing the size of the archive for each key topic area (number of tweets archived). Each topic repository of mined tweets are represented in a venn diagram revealing actual volumes and overlaps embedded in the conversation.

Social Graph Insights Pillar III (Key Contributors) – Detecting relevant people in the network

In order to create relevant content it is also necessary to know the given community in depth meaning demographics, interests etc. Social network analysis and social cohort analysis can inform

community dynamics and identify clustering in the social networks of brands. By isolating community clusters, interventions can alter the course of a conversation as positive/negative sentiment is disseminated through the network graph of the brand page. A parallel academic investigation can take place when observing how companies in different industry sectors engage with social media channels. New metrics and means for reporting will be investigated to detect Key Contributors, Key Influencers, Brand Advocates and ov*erlaps in community audiences*. The People Pillar (Key Contributors) includes a selection of tools that show individual Twitter users who are talking about a chosen brand, campaign, or topic as well as how much they are talking. It currently leverages Twitter activity to find influential and interesting people around brands and topics. The contributor treemap graph shows the users who tweet the most within a given campaign keyword dataset. By further drilling into the graph, the user navigates the combination of chatter volume and followership. The design allows the size and shading allow quick identification of the most important people based on their degree of involvement and following. Additional graphs show the share of voice of a shortlist of top contributors as well as a volumes of campaign hashtag usage by individual users. Development is now centered around incorporating network centrality, amplification rates and sentiment polarization into a design showing these evolutions through a network graph.

Monitoring Dashboards

A second set dashboards provide monitoring functionality to serve real-time needs of a campaign newsroom that constantly needs to understand the status of exposure on social channels.

The 'Cockpit' – Dashboard I

The campaign cockpit design currently enables the manager or business leader to take the temperature of the current brand situation on four channels in the same dashboard (Facebook, Twitter, YouTube and Instagram) to monitor performance on a high level. Channels are color coded with he gauges to contrast standard performance metrics as it is happening within three combinable, cross-channel dimensions: Reach, Engagement and Buzz. An updated design will attempt to add visualizations that effectively portray the evolution of performance metrics over time. This will include clickable new performance breakouts as well as comparisons between earned and owned, viral and organic, paid and unpaid campaign stories. Design implications will also need to be considered with a perspective from the C-suite user (CIO, CMO, etc.), possibly with a second version of a dashboard to scale down to on-the-go mobile devices.

The Social PR Newsdesk – Dashboard II

Two subsequent interfaces for the social newsroom have been added in response to feedback from the first campaign, as well as design needs to monitor the launch of a new product. The first was a simple newsdesk of mentions on news sites outside of social media. A repository was built using pre-directed RSS feeds from Google Alerts. This piping offered an automatic population of relevant news stories to practitioners who could then manually use the newsdesk to mark-up the article with context, such as levels of sentiment and number of social shares, and flag content for taking action by community managers. Users can also manually add news stories, allowing a total list of reach outside of social channels that is populated in the most comprehensive means possible.

The Campaign Overview – Dashboard III

In further listening to these end-users, a final Social Newsroom interface was established that combines a three-part overview of campaign exposure. The top displays a *map* of volume as mentions of the campaign are currently emanating in the world that can be toggled from historical windows to real-time. This is combined with *line graph* of the total volume of posts (and potential reach of posts) for overall context of mentions and reach potential. The third component in the campaign monitoring tool displays a timeline of alerts for posts from influential people (with high

follower levels) as well as pre-loaded key influencers such as journalists and bloggers that have been included in press materials and PR outreach. The combined effect provides a contextual interface where a user in a control room setting can notice a spike in volume, refer to the map for its origination, and also see that any major actors (celebrities, etc) in the alert feed who mentioned campaign or brand topics. Such a scenario can play out in any order that will be tested in a controlled environment. It is important to note that the alert feed also included an alert sound as a means of 'push information' in a busy control room. This audio cue grabs the user's attention (who is often multitasking across screens and reports) to take immediate notice of important involvement and take direct action.

Discussion and concluding remarks

The tool demo summary illustrates that the design of the Social Newsroom Dashboard is not simply product development, but an IT artifact that seeks to be theoretically informed, methodologically built and empirically tested. Several trial licenses to real-world companies have been granted and will lead to empirically testing within a real world context; that is to say by the actions of real-world users are currently generating real-world usage data, which is soon to be verified in lab study simulations, and validated again by further real-world practitioner cases.

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