Social Media Analytics
How It Can Help Shape Government Performance

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Abstract

In social media forums, it is important for citizen perception that an agency is well informed and able to provide services that truly meet their needs and interests. Social media activity by citizens is growing exponentially and there is some evidence that certain government agencies are embracing these engagement, and communication tools, albeit at a far slower pace than other societal sectors. The on-going challenge is that the government generally lags behind when it comes to adoption of technology tools. Social media tools and social media analytics are no exception. While this paper focuses on civilian government agencies, it's fair to say all federal agencies are playing catch up with commonly employed social media communication platforms. The government is even further behind in the area of social media analytics, the aggregation of data from online communication tools and the interpretation of this data to form actionable and relevant information. As government institutions mature in their usage of social media tools, agency engagement strategies would benefit greatly from incorporating analysis of the public online dialog. Social media analytics helps identify meaningful topics, demographic information, and other relevant knowledge that is important to the general public. Solutions to the challenge of this knowledge discovery from the magnitude of social media data must be automated and sophisticated enough to detect sentiment, trends, influencers, and real time issues as they arise. The basis of any social media analytics solution will be the power of its search and discovery knowledge engine.

Introduction

Despite the buzz in the market place regarding what social media is, or how it should, impact government operations, the use of information technology to change the way government works and engages with citizens is not new. President Bill Clinton, with the assistance of Vice President Al Gore, initiated what was then called The National Performance Review, which has evolved over time into The National Partnership for Reinventing Government (United States Office of Personnel Management, 1998). That effort focused on generating greater operational efficiencies, as well as identifying how government could leverage technology to work more effectively. The overall goal was to cut government costs. During President George W. Bush’s tenure, the Office of E-government and Information Technology was created under the Office of Management and Budget. Its mandate is to “develop and provide direction in the use of Internet-based technologies to make it easier for citizens and businesses to interact with the Federal Government, save taxpayer dollars, and streamline citizen participation” (The White House, 2011). Unfortunately, despite these and other government initiatives such as the Paper Work Reduction Action (PRA), programs tend to remain large scale, slow moving, and too often result in policies, regulations, and processes that generate delays. This undermines efforts to increase efficiency, effectiveness, and responsiveness.

The proliferation of social media throughout American society has put the spotlight on a long standing troubling perception of government – that it is often slow to react and hesitant to move to new solutions and technologies that the general public has already adopted, vetted, and use in a ubiquitous manner. This slow adaptation is often a result of regulatory issues, investigation of potential risks and security concerns, and/or compatibility analysis. Many argue this scrutiny and delay is overbearing and slows the services government agencies provide to the public; others argue it is simply a result of years of entrenched bureaucracy and regulations that lead to slow adaptation to a changing world and dynamic operating environment. There are, of course, those who argue that this late-adopter role is one that is necessary to mitigate the risks to the mission of any given agency. In any case, it is clear that while a majority of society has made social media a permanent and integral aspect of their communication strategy, the government, with only a few exceptions, has not yet fully embraced social media and analytics, and integrated them into how the government conducts its business. What is even less clear is just how government can leverage the myriad of social media tools and channels in order to provide superior service to a better informed and more engaged citizenry.

Scope

The proliferation and pervasive nature of social media is undeniable. According to Mashable, a noted online news website and internet news blog, Twitter sees 50 million tweets per day. On average, 13 hours of video are uploaded to YouTube each minute (Parr, 2010). Another social media site, The Blogger Showcase, indicates there are 69,000 blogs posted every 24 hours (Blogger Showcase,
The proportion (%) of all adults who agree/disagree that having a way to follow and communicate online with government using tools such as blogs, social networking sites, services like Twitter, or text messaging...

American’s attitudes towards government engagement using social media

The magnitude of readily available data is staggering, and while it may have been initially generated by younger members of the population, closer examination of this activity indicates that much of the current United States population is employing social media today. The Pew Research Center’s Internet and American Life Project now indicates that 65% of all adult (age 18 and older) internet users are now using social networking sites (Madden & Zickuhr, 2011). More importantly, this usage is generally seen as positive by the users, and is significantly over the 8% usage rate in 2005. To put this information in a different context, this subset represents roughly 50% of the entire adult population of the United States (Madden & Zickuhr, 2011). Additionally, a greater number of people are moving beyond being mere content readers and are actively engaging as content contributors. What does this mean for government? Citizens are now increasingly engaging online in an effort to help shape the public debate regarding government policies, regulations, efficiency, and effectiveness.

Research results from Pew Internet, a division of Pew Research have shown that over 75% of American adults would Agree or Strongly Agree that social media tools would be useful in following the government (Smith, 2010), displayed in Figure 1.

Without question, citizens are accessing information and services through government websites in increasingly large numbers as well. Statistics for how the public interacts with the government online underscore that the Internet, and specifically social media tools, are the engagement vehicles of choice for interacting with government agencies (Smith, 2010):

- Almost half (48%) of Internet users have searched for information regarding public policy or issues online with local, state, federal governments
- 46% have searched for what services are offered by various government agencies
- Some 41% have downloaded needed government forms
- Over one-third of internet users (35%) have researched official government documents/statistics
- One-third (33%) have renewed their driver’s license or vehicle registration
- One-quarter (25%) have received advice/information from government agencies regarding a health or safety issue
- 23% have received/applied for their government benefits
- Some 19% have sought information about applying for a government position
- 15% have paid a fine (e.g., parking ticket, etc.)

In addition to seeking information, citizens are increasingly checking on government performance through technology. Some 40% of...
the public using the Internet has gone online to look for data regarding the business of government (Smith, 2010). Research shows:

- Almost a quarter (23%) of online adults examined how much money from the Obama Administration’s stimulus package was being spent
- Some 22% of the online public downloaded or read text associated with legislation
- 16% went to a website that offered access to government data (e.g., data.gov, recovery.gov, usaspending.gov, etc.)
- 14% searched for information regarding who contributed to the election campaigns of elected officials

As online communities, conversations, citizen-created content in blogs, discussion forums, and various social media sites become increasingly influential, it is correspondingly important for government agencies to track and analyze the impact of the data within this new communication channel. Agencies may engage with the public via these channels and mechanisms, but are they listening to the responses? Do agencies understand if what is being said is being understood, and if so, by whom, and in what geographic locations? Although there may not be a universal definition of social media analytics since the field continues to evolve, it is generally viewed as an area focused on understanding the impact of what is being communicated via these new technologies and the interpretation of data resulting from these communications. For government agencies, this information should be leveraged for improved citizen engagement, responsiveness, and support. But, as with other technologies the government continues to be late adopters.

**Social Media Communication Ladder**

Social Media Today, an independent, online community for the marketing and public relations industry, notes that, “There are seven stages to social media engagement [ranging] from shallow monitoring to deep peer to peer economies” (Papworth, 2011). Figure 2 illustrates the evolutionary nature of social engagement, from monitoring or “lurking” at the lower levels, to total investment and immersion at Level 7.

**Level 1: Internal/Enterprise** – No engagement; does not embrace or understand the usefulness of social media.

**Level 2: Monitoring** – Very minimal engagement; begins monitoring social media channels, minimal monitoring is done and there is no intention to address any of the issues being discussed.

**Level 3: Broadcast** – Minimal engagement; begins interacting on one or two social media channels and broadcasting marketing messages through their channels, pays no attention to back end analytics.

**Level 4: Viral** – Engages with limitations; begins investing in their social media channels, community is able to engage with the content only by distribution, individual engagement is limited by setting.
Level 5: Campaign – Engages inefficiently; decides to begin engaging with the community, may run contests and sweepstakes with no back end analytics, ROI goals, or true direction; begins allowing for more public engagement on their social media channels

Level 6: Collaborative – Engages efficiently; still manages and manipulates the media but engages and provides feedback. Embraces the online community and begins listening, analyzing, and interacting

Level 7: People Powered – Top level engagement; embraces and invests in social media to actively locate and address any problems, monitor conversations around their profiles, as well as use their channels to market messages more efficiently.

Generally, participation starts low and then moves along the continuum until ultimately reaching Level 7, where both the citizens and agencies benefit from the advantages these communication channels offer, including building relationships, targeting specific demographics and issues, and educating citizens quickly and more efficiently.

Government Examples of Social Media Engagement

President Obama has continued the efforts initiated in previous administrations to foster the adoption of new technologies. His “Transparency and Open Government” initiative is attempting to increase transparency, participation, and collaboration in what is essentially an effort to better link government performance with citizen needs (Obama, 2009). There are several clear examples of where the government has adopted strategies that incorporate social media, including the Veterans Administration and their participation on Facebook, Twitter, YouTube, and Flickr; the National Oceanic and Atmospheric Administration’s participation on YouTube with the Ocean Explorer program; the General Services Administration and their howto.gov site as well as through USA.gov site on Facebook to inform the public on how to access government services. Even the CIA, believe it or not, now has a Facebook page.

Another example of a government site that has a solid social media engagement platform is the Center for Disease Control’s “Social Media at CDC” site. It offers multiple tools for the public to listen to the agency and ways to receive CDC communication on a variety of health related topics. In addition, there is a link to their “Social Media Toolkit for Health Communicators” for assisting other health providers in their effort to offer health information to the general public (CDC, 2011). The information contained on the site is an excellent source for providing instruction on outward communication and engagement. But, as is often the problem with government sites, it does little to instruct how to analyze and make sense of the vast amount of social media communication data available. There is certainly a need for the CDC to communicate specific messages to the general public on existing health and safety concerns. But, there is little on the use of social media for listening to the public regarding the information they need, possible misinterpretations of government messages, health myths that could be dangerous, or even what health topics are being discussed in demographic groups and social media communities.

These initial forays into social media are commendable, but as with the introduction of many other new technologies, there is an overall lag in government adoption. Adding analysis of social media communication to determine topics, sentiment, positioning, trends, and even geo-location of topics is something that could significantly improve citizen engagement, responsiveness, and support. Few agencies have achieved the level of maturity that the CDC has with regard to social media engagement with citizens; even fewer have incorporated an analysis strategy to help form and inform their communication and service delivery. The question is how to solve these issues with actions based on relevant information. For a large institutional entity serving the general public to make many of these decisions, assembling data from social media sources in a way that provides relevant information and actionable knowledge is essential.

Social Media Issues Addressed

The compelling challenge for government agencies is how to engage and address citizens appropriately, constructively, and in a beneficial and timely manner with information from various social media analysis tools. Clearly, data can be extracted from the abundance of social media sources, but assembling it in a way that provides information that is relevant, and actionable, is indispensable. Identifying criticalities and answers to functional questions must be accomplished to ensure the messages of an agency are relevant to citizens and online communities’ interests and concerns. In formulating strategies for any public facing operation, large or small,
the challenges that influence these decisions will be very similar. Identified below is a brief list of considerations that should shape an agency’s engagement strategy:

1. It is critical that there be no delay, or lack of alert to potential issues which may impact service delivery to citizens relying on certain entities for safety, emergency response, and security. Any delay or omission can adversely impact strategies, direction, and devising effective solutions.

2. It is difficult to immediately identify how often key messages and messaging from government agencies are received and how they are resonating with the general public.

3. Identification of related issues and online content that may influence decisions or strategies should be available with minimal effort.

4. It is imperative that agencies obtain real-time snapshots of sentiment related to service, reaction to messaging at different locations, for different demographics, from different media outlets, and in a meaningful format.

5. Agencies must determine trends in a way that provides accurate predictions that can be incorporated into strategies for delivery and proactive messaging.

6. Identification of virtual community clusters, geographic location of dialogs, demographic groups, and influencers for given topical criteria, is essential for devising effective response strategies but extremely resource intensive, difficult, and time consuming.

7. It is important to determine what time and resources are involved in generating daily/weekly/monthly analytic reports as well as assess whether more timely reports could be used for quicker strategy changes and better delivery of service.

8. Creating targeted engagements via outlets such as radio, television, and traditional press is very expensive, especially when compared to various social media tools such as online communities, blogs, mixed media video, online news outlets and others tools, which are far less expensive.

9. Providing timely responses to individuals who raise issues, ask questions and share views is critical for engaging citizens in need.

10. Regulations continue to evolve with regard to just what are appropriate or best methods to use to communicate effectively to mitigate issues, concerns, etc., that a citizen or online community identifies of interest to them.

While this list is not exhaustive, and each agency may have different priorities depending on mission, stakeholders, etc., developing a coherent and comprehensive approach to social media analysis can set the stage for an effective engagement strategy and enhanced organizational effectiveness.

The Solution

The overwhelming profusion of user-generated content, such as that generated on blogs, tweets, and many online communities, demands an automated solution. The solution must effectively manage social media data in all its forms, be it structured, unstructured and/or semi-structured, including both video and audio content. This should be done without a requirement for manual tagging and be able to overcome linguistic and language issues presented through an increasingly interconnected world. For example, people often use different words (different semantics and syntax) to express the same idea. This problem becomes especially pronounced in a social media environment where the language is more conversational, replete with familiar expressions, slang, and varying emotional undertones (e.g., sarcasm, excitement, disappointment, etc.), and stated so briefly that context is difficult to discern. This is often the case with the popular social networking site Twitter, where only 140 characters are allowed per individual message and symbols are frequently used. The issue can be especially challenging in multi-lingual countries such as Canada where online data can be in English and/or French, as well as a number of other languages.

An automated, comprehensive social media analytics solution must be flexible enough to adapt to ever-changing topics, issues, themes, and trends, and include many of the following functionalities:

- Parses through online articles, blogs, forums, and other media and websites for relevant citizen generated content
• Determines whether subject matter is specifically related to the agency, a specific messaging effort, a specific geo-location, etc.
• Detects the sentiment of each comment and breaks it down into distinct sections, clustering them according to the precise tone
• Generates a comprehensive report which specifies that a particular blog, for example, includes negative sentiment on support, negative sentiment on ads, and a positive response on other messaging
• Identify trends in which many of the citizens that commented positively on a new message, or on delays with government service, or getting unemployment benefits, etc.
• Provide information which identifies a grouping of like people who may have similar interests/concerns/needs

Timely insight into how citizens perceive government services is important to an agency’s strategy for delivery of services, communication with those receiving the services, and compliance with various regulations and initiatives. Social media analysis tools should provide results that are understandable and actionable. That is, they must convey timely and accurate information so corrections to misconceptions, myths, complaints, or simply responses to requests for information can be provided quickly. For example, the tools should provide immediate contact with citizens who raise concerns, and permit engaging them via the same social media tool with which they commented or engaged the agency. Likewise, citizens who offered incorrect or negative comments can be contacted and engaged in a dialogue on the issues, including identifying cluster areas where a popular belief may be incorrect or there may be a proliferation of misinformation.

Benefits Derived from a Comprehensive Social Media Analytics Strategy

It is essential for government agencies to communicate with the general populous, and increasingly this communication will have to be through social media applications since this method is being used by an increasing number of citizens. Obtaining prompt feedback on service delivery and sentiment will provide agencies information for greater operational efficiencies, as well as indicate how to work more effectively to support the people. Another useful by-product of an integrated strategy to engagement is the opportunity to explore ideas regarding how to cut costs.

The benefits of adopting these methods are far reaching:
• Increased citizen satisfaction as the agency is perceived as well informed, well aware of needs/interest, responsive, and engaged
• Quickly identify issues and respond to identifiable trends that could adversely impact agency operations to a broader audience and in a very timely fashion
• Mitigate risk by being well informed on issues and sentiment
• Optimize and adjust strategies on messages and/or services delivered
• Identify key voices and social media sources influencing opinions
• Lower operational costs by making better use of resources
• Obtain early insight alerts regarding changes in interests, sentiment, etc.
• Retain/engender citizen confidence

The Solution – A Social Media Engine (SME)

Effective social media solutions leverage meaning-based technology, semantic understanding, and analytical engines to provide a flexible framework for the best outcomes from social media engagement, the web, and rich media environments. A social media analytic solution understands the meaning of the content and allows users to proactively interact with citizens or stakeholders utilizing a number of social media applications. It is able to “listen” and understand what is being said through a set of connectors to social networking sites such as Facebook, Twitter, YouTube, Flickr, Yelp, and others; and, it responds to emerging trends and sentiment with the appropriate response aligned with an agency or organization’s strategy. The right solution will be powered by several complementary technologies, including leveraging advanced mathematical modeling to form a conceptual and contextual understanding of information in any format and language. This unique capability will enable the automation of many key functions that are vital to handling knowl-
edge and social media content. It also must be a readily scalable approach that can address the ballooning amount of user generated content. A powerful, flexible and integrated meaning based knowledge solution leverages several powerful state of the art knowledge engines to ensure users are listening, engaged, and responsive.

The most effective Social Media Engines analyze online conversations and interactions through intelligent, pattern-matching techniques and probabilistic modeling, treating words as abstract symbols of meaning rather than being limited by a rigid definition of the language and grammar. Knowledge engines that can understand slang, context-specific words, and variants in spelling that are so prevalent in the social web, and adapt to the dynamic nature of language automatically, have a decided advantage over the inherent limitations of key word-based search solutions.

Any Social Media Engine must operate across the spectrum of blogs, forums, message boards, social networks, and online communities to help agencies make strategic decisions. Automatic, in-depth analysis can form the basis of a proactive response, ensuring that an agency does not bypass an emerging trend, movement, or topic. Positive comments can be automatically posted or alerted, clustering analysis can be leveraged to determine where trends are forming so that agency staff can deliver targeted messages and automatically respond to specific communications around messaging. Furthermore, if an agency wants to measure the success of a particular approach, citizen campaign or strategy, the better Social Media Engines can be used to monitor what has been said over a protracted period of time. This monitoring helps not only to protect ones brand and reputation, but actually influences further strategic approaches and reduces costs. A sophisticated Social Media Engine can also help avoid the damage of negative conversations by quickly reacting to dissatisfaction.

**MicroTech Social Media Solution and Form Factors**

Given the wide array of needs and requirements across government agencies, MicroTech has found it helpful to offer social media solutions in several different form factors that employ a number of different HW/SW configurations. Likewise, it is critical that solutions be “tailorable” and configurable either to handle monitoring analysis internally or provide access to expert analysts and an advanced suite of social tools that plug into a user’s business processes. The various form factors include:

- **MicroSMEdia Social Media Mobile** - A basic-level social media solution that is mobile and offers essential social media capabilities such as intelligent search, media monitoring, concept analysis, sentiment analysis, reputation analysis, and geo-location information. This Mobile solution includes software and hardware on a portable, easily transferable cart for rapid deployment and virtually instant social media mining capability.

- **MicroSMEdia Social Media MicroPodd** - This solution builds on the Social Media Mobile discussed above by providing an accompanying MicroPodd component that affords greater storage, more capability and additional power. Additional social media services include grouping/clustering of results, audio/video analysis, hyperlinking, profiling (e.g., If you like this, you may be interested in this), Wiki/blog capability, monitoring and alerting as well as the ability to identify trends and their associated implications for people, products, and companies.

- **Social Media MicroCenter** - This offering is a permanent solution custom built, on-site, around the basic Social Media Solution with additional accessories. In addition to the base line capability, this version of a fully integrated social media solution offers in-depth search and discovery, concept analysis, targeted analytics, system alerting, and detailed reporting focused on specific topics, areas, and issues of interest to the client. This solution can provide detailed electronic narrative reporting on a daily, weekly, monthly basis, highlighting topics, issues, or areas of interest to the client. The ability of this solution to go well beyond the limitations of key word search, relate disparate concepts that enable users to in fact come to know what they don't know, as well as “push” information to clients as compared to standard “pull” solutions resident in the market place, affords a decided competitive advantage to those leveraging the capabilities of the Social Media MicroCenter.

- **Social Media as a Service (SMaaS)** - This hosted solution includes searches on a number of social media networks, social media, and mixed media video sites, and provides the foundational technology to listen/respond to social channels with an analytics capability aimed at measuring the influence of an individual user or a group of users and then using that information to target
segments of highly desirable individuals who influence broader segments or the focused user group. This solution includes the entire capabilities resident in the Social Media Center solution, including reporting capabilities, if desired.

Summary

The government continues to do what it can to streamline operations in an effort to improve service to the public. While clearly social media is evolving to become part of that effort, it is not being integrated into the business of government at a rate matching the massive increase in this activity by the citizens they serve. It is clear that social media adoption can dramatically accomplish a variety of goals designated as important by the last several Administrations occupying the Whitehouse, including increasing transparency, building relationships, achieving significant cost savings, targeting specific demographics and issues, and educating citizens quickly and more efficiently.

Employing a comprehensive Social Media Engine is a critical step for government agencies committed to connecting, informing, and engaging those they serve. Our research has shown the current operating environment for government agencies is demanding social media solutions that offer real-time relevant, discrete information from social networks, social media platforms, and mixed media video sites in conjunction with specific brands, products, competitors, news items, and keywords/concepts of interest. With aggregation into a dashboard-type view and measurements regarding sentiment, trending, and relative status, effective solutions must aid Agencies in responding to data being monitored, also in real time. Going forward, the most effective and efficient government agencies will be those that listen to what is going on with those they serve and proactively engage them using the same wide array of social media tools as the public at large.

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References


