A SOCIAL MEDIA ANALYTICS CAPABILITY FRAMEWORK FOR FIRM’S COMPETITIVE ADVANTAGE

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Abstract

Social media analytics (SMA) can provide an organization with insights that would generate greater customer value and subsequently lead to better organizational performance and, thus enable the organization to have a competitive advantage over its rivals. In this paper, we develop a conceptual SMA capability framework which identifies SMA capabilities that an organization should have in order to take full advantage of social media data. We analyzed the business analytics (BA) and SMA literature in order to present a case for the need of a SMA capability framework. Using a thematic analysis of SMA and BA literature, we identified the most relevant SMA capabilities leading to a conceptual SMA framework.

Keywords: Social Media Analytics, Business Analytics, Social Media Analytics Capability Framework, Firm’s competitive advantage.
1. Introduction

Social media is a web and mobile-based Internet application that allows the creation, access and exchange of user-generated content that is ubiquitously accessible (Kaplan and Haenlein 2010). In recent years, the numbers of social media users have increased significantly. For example, as of December 31, 2015 there were more than one and a half billion monthly active Facebook users (Facebook 2015), while Twitter has now more than 300 million active monthly users (Twitter 2016). To make sense of all the data generated by social media users, social media analytics (SMA) is gaining popularity. SMA is an emerging interdisciplinary research field that aims to combine, extend, and adapt methods for large scale social media data analysis (Stieglitz, Dan-Xuan, Bruns, and Neuberger 2014). SMA is concerned with using advanced informatics tools and analytics techniques to collect, monitor, and analyze social media data to extract useful patterns and intelligence (He, Wu, Yan, Akula, and Shen 2014).

While several business analytics (BA) capability frameworks are available in the literature (such as, Davenport and Harris 2001; Watson et al. 2001; Eckerson 2009; Yeoh and Koronios 2010, Raber et al. 2012, and Cosic et al. 2015), a sound SMA capability framework is lacking. This is because SMA is a relatively new, but an emerging field of research. The core notions of both BA and SMA are to produce actionable business insights but the scope, nature and, type of data mined is significantly varied (Khan 2015). The capabilities needed to leverage social media data are significantly different than the conventional business analytics capabilities that leverage mostly the internally business generated and owned data. Therefore, this research is focused on developing a social media analytics capability framework (SMACF) that the companies or/and organizations can utilize to create greater value from social media data.

The SMACF is developed by a thorough analysis of BA and SMA literature. Using thematic literature analysis approach, we analyzed the BA and SMA literature in order to present a case for the need of a SMA capability framework. As a result of thematic analysis, we identified 26 core SMA capabilities grouped into five capabilities areas: technical, governance, cultural, environmental, and people related SMA capabilities.

The rest of the article is organized as follows; we will briefly discuss the current BA capabilities frameworks and discuss the need for a SMACF followed by an introduction to our SMACF capability framework. Next, we will discuss the methodology employed in this study followed by a detail explanation of the social media capabilities. We conclude with a brief discussion and conclusion.

2. Literature Review

As alluded in the introduction section, BA and SMA capabilities are inherently different, but complementary capabilities. In order to strengthen this argument further, we analyzed the current BA frameworks and SMA literature to present a case for the SMA framework. First, we will look at the business analytics framework available in the literature.

Current BA Capability frameworks

From the BA literature, it is clear that the information systems (IS) capabilities are more likely to yield competitive advantage. The extant IS literature provides considerable support for the link between IS capabilities, organizational value and, competitive advantage (Bhatt, et al., 2005; Johnston and Carrico 1998; Saraf et al., 2007). This is particularly important because BA capabilities are also IS capabilities. Thus, BA capabilities can potentially provide value and lead to a better organizational performance (Cosic et al., 2015). BA systems include the people, processes, and technologies that are involved in the collection, inspection, and transformation of data used to support organizational decision-making (Negash, 2004). BA systems enable improvements to business processes, firm performance and creating competitive advantage. Thus, it provides benefits to the organizations (Davenport and Harris, 2007).
Several BA and business intelligence (BI) capability frameworks are available in the literature (such as, Davenport and Harris, 2001; Watson et al., 2001; Eckerson, 2009; Yeoh and Koronios, 2010 and Raber et al., 2012) that could be applied to enhance the organizational performance. Davenport and Jeanne (2001) present arguments about how the frontier for using data to make decisions has shifted very drastically. There are specific high-performing companies that are now building their competitive strategies around data-driven insights which in turn generate impressive business results. Eckerson (2009) introduced Service Oriented Business Intelligence Maturity Model (SOBIMM) which uses service orientation checklist as a pool of services evaluation that can be used to assess the technical rather than the tactical issues in the organization’s IT overall progress. Yeoh and Koronios (2010) developed a CSFs (Critical Success Factors) framework crucial for BI systems implementation. According to the framework, CSFs which include organization, process, and technology are necessary for implementation success of a BI system because the absence of the CSFs would lead to failure of the system. Raber et al. (2012) have proposed a BI maturity model that is based on an explicit BI maturity concept and used empirical data to explore the strengths and weaknesses of BI initiatives. The business analytics capability framework (BACF) presented by Cosic et al., (2015) offers 16 BA capabilities grouped within the four BA capability areas (Governance, Cultural, Technological, and People) that comprise the overall BA capability. The higher quality BA capabilities will lead to improved value and competitive advantage (Cosic, et al., 2015).

Social Media Analytics Capabilities  
In the case of social media data, however, most of the aforementioned business analytics frameworks cannot be applied because social media capabilities are different from business analytics. While the premise of both social media and traditional business analytics are to produce actionable insights they do, however, slightly differ. The difference between the two come from the scope, nature, and type of data mined. Unlike the traditional business analytics of structured and historical data, social media analytics involves the collection, analysis, and the interpretation of semi-structured and unstructured social media data to gain insights into the contemporary issues while supporting effective decision making (Khan, 2015).

Furthermore, social media data is highly diverse in nature, high in volume, based on real-time and, it is stored in the third party data bases in semi structured and unstructured formats. While structured business data is mostly stored in databases and spreadsheets in machine-readable formats (for example, rows and columns), thus it can be easily searched, accessed, computed, and mined. Unstructured and semi-structured data is not machine-readable and can take variety of forms such as, the contents of a book, Facebook comments, emails, tweets, hyperlinks, PowerPoint, presentations, images, emotions, and videos. Thus, unstructured data is not analytics friendly and needs a lot of cleaning and transformation. Another visible difference between structured and unstructured data comes from the way information (i.e. texts, photos, audios, videos) is created and consumed (Khan, 2013). Hence, a new capability framework should be developed.

3. Methodology  
The capabilities that made the initial SMA capability framework in this research were acquired from thematic analysis of SMA and BA literature. At the first phase of the research, a search was performed on the Web of Science (WoS) database to retrieve the social media analytics related studies. To retrieve the data, the following research query was entered into the WoS search engine:

Searched for topic: (“Social Media Analytics” OR Social Media Capabilities”) Time span: 2000-2015; Coverage: all databases.

Since social media analytics is a relatively new area, we restricted our search to the 2000-2015 time window. The research retrieved 11 articles as shown in table 1. Considering that the SMA is a relatively new area, it is not surprising that there is very little literature available. All these articles were thoroughly scanned to identify SMA capabilities. We also analyzed the BA literature to make a
case for SMA capability framework and to identify the BA capabilities that are relevant to SMA as well. Specifically, we analyzed 5 existing BA frameworks including Davenport and Jeanne 2007, Raber et al., 2012, Cosic et al. 2015, Eckerson 2009, Yeoh and Koronios 2010 as detailed in table 1. We, then, looked at the jobs description of what employees look for in the candidates in job-seeking platforms (such as, www.seeks.com.au). Thus, we were able identify several social media analytics capabilities that were not reported in the academic literature.

Table 1: Existing BA frameworks and SMA literature analyzed for the research

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Date</th>
<th>Title</th>
<th>Outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BA Capability Frameworks Reviewed</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raber et al.</td>
<td>2012</td>
<td>Using Quantitative Analyses to Construct a Capability Maturity Model for Business Intelligence</td>
<td>Proceedings of the 45th Hawaii International Conference on System Science (HICSS)</td>
</tr>
<tr>
<td>Cosic et al.</td>
<td>2015</td>
<td>A business analytics capability framework</td>
<td>Australasian Journal of Information Systems</td>
</tr>
<tr>
<td>Eckerson</td>
<td>2009</td>
<td>TDWI’s Business Intelligence Maturity Model</td>
<td></td>
</tr>
<tr>
<td>Yeoh and Koronios</td>
<td>2010</td>
<td>Critical Success Factors for Business Intelligence Systems</td>
<td>Journal of Computer Information Systems</td>
</tr>
<tr>
<td><strong>SMA Literature Analyzed</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>He et al.</td>
<td>2015</td>
<td>A novel social media competitive analytics framework with sentiment benchmarks</td>
<td>Information and Management</td>
</tr>
<tr>
<td>Go and You</td>
<td>2015</td>
<td>But not all social media are the same: Analyzing organizations’ social media usage patterns</td>
<td>Telematics and Informatics</td>
</tr>
<tr>
<td>Risius and Beck</td>
<td>2015</td>
<td>Effectiveness of corporate social media activities in increasing relational outcomes</td>
<td>Information and Management</td>
</tr>
<tr>
<td>Ribarsky et al.</td>
<td>2013</td>
<td>Social media analytics for competitive advantage</td>
<td>Computer and Graphics</td>
</tr>
<tr>
<td>Batrinca and Treleaven</td>
<td>2014</td>
<td>Social media analytics: a survey of techniques, tools and platforms</td>
<td></td>
</tr>
<tr>
<td>Stieglitz et al.</td>
<td>2014</td>
<td>Social Media Analytics; An Interdisciplinary Approach and Its Implications for Information Systems</td>
<td></td>
</tr>
<tr>
<td>Kaplan and Haenlein</td>
<td>2009</td>
<td>Users of the world, unite! The challenges and opportunities of Social Media</td>
<td>Kelly School of Business, Indiana University</td>
</tr>
<tr>
<td>Zaki and Meira Jr.</td>
<td>2014</td>
<td>Data mining and analysis</td>
<td>Cambridge University Press</td>
</tr>
<tr>
<td>Martin</td>
<td>2015</td>
<td>Ethical Issues in Big Data Industry</td>
<td>MIS Quaterly Executive</td>
</tr>
<tr>
<td>Khan</td>
<td>2015</td>
<td>Seven layers of social media analytics: Mining business insights from social media text, actions, networks, hyperlinks, apps, search engine, and location data</td>
<td>Createspace Independent Publishing Platform</td>
</tr>
<tr>
<td>Khan</td>
<td>2013</td>
<td>Social Media-Based system: An emerging area of information system research &amp; practice</td>
<td>Scientometrics (SSCI)</td>
</tr>
</tbody>
</table>
3.1 Findings

Based on the methodology employed and taking into account the relevant existing BA analytics capabilities reported in the literature, we propose the SMACF shown in the figure 1. Overall, we identified 5 higher level social media capabilities which are further grouped into 26 sub-capabilities as detailed in the Table 2.

While reviewing the literature on BA and SMA capabilities, we realized that the nature of BA and SMA data is different in very fundamental ways both having a different internal and external environment. Therefore, unlike the majority BA/BI frameworks (For example, Cosic, Shanks, and Maynard 2015, Davenport and Harris 2001; Watson et al. 2001; Eckerson 2009; Yeoh and Koronios 2010 and Raber et al. 2012), the SMACF includes an environmental capability area because the environment of social media data differs significantly from business analytics. Social media data is shared across the internet and knows no boundaries. While business analytics related data is bound within business intranet and is only shared within organization. No business controls the social media data, but business data is tightly controlled by the businesses (Khan, 2013). The environmental capability area includes two sub-capabilities i.e., laws and regulations and privacy which are discussed later in detail.

In addition to this, there is also an update component which is indicated by an arrow as shown in the figure 1. Due to the turbulent nature of social media’s technical and social environment, the skills and capabilities that businesses need to harness social media should consistently be updated and adjusted as the usage of social media patterns and the requirements of the organizations change over time. An absolute framework is not desirable in case of social media because the usage and nature of social media evolves constantly. As new social media analytics related technologies come into existence and the environment changes, organizations should update the social media analytics capabilities to order to create a greater value for customer and maintain the competitive advantage.
Table 2: Social Media Analytics Capabilities

<table>
<thead>
<tr>
<th>Capabilities</th>
<th>Definition</th>
<th>Sub-capabilities</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Media Technical Capabilities</strong></td>
<td>The overall technical capabilities and infrastructure needed to extract, mind, and interpret social media data.</td>
<td><strong>Text mining</strong></td>
<td>Text mining aims to extract meaningful information from unstructured textual social media data, such as, tweets, posts.</td>
<td>Abrahams et al. (2014)</td>
</tr>
<tr>
<td><strong>Data mining</strong></td>
<td>Data mining is used to discover business insights from large-scale data.</td>
<td><strong>Networks analytics</strong></td>
<td>Social media network analytics extract, analyze, and interpret personal and professional social media networks.</td>
<td>Zaki and Meira (2014)</td>
</tr>
<tr>
<td><strong>Sentiment analysis</strong></td>
<td>Sentiment analysis is the computational detection and study of opinions, sentiments, emotions, and subjectivities in text.</td>
<td><strong>Website analytics</strong></td>
<td>Website analytics with analyzing website visitors.</td>
<td>Khan (2015)</td>
</tr>
<tr>
<td><strong>Multimedia analytics</strong></td>
<td>Multimedia analytics deals with analyzing social media multimedia contents</td>
<td><strong>Data cleansing</strong></td>
<td>It refers to the cleaning of unstructured textual data, for example, normalizing text.</td>
<td>Batrinca and Trealeven (2014)</td>
</tr>
<tr>
<td><strong>Apps analytics</strong></td>
<td>Apps analytics deals with analyzing mobile applications.</td>
<td><strong>Location analytics</strong></td>
<td>Location analytics deals with mining locations of social media users, contents, and data.</td>
<td>Khan (2015)</td>
</tr>
<tr>
<td><strong>Data Visualization</strong></td>
<td>It refers to the visual representation of data with the goal of communicating it clearly</td>
<td><strong>Search Engine analytics</strong></td>
<td>Search engines analytics focuses on analyzing historical search data</td>
<td>Khan (2015)</td>
</tr>
<tr>
<td><strong>Hyperlink analytics</strong></td>
<td>Hyperlink analytics is used to extract, analyze, and interpret social media hyperlinks</td>
<td><strong>News analytics</strong></td>
<td>It is the measurement of the various</td>
<td>Batrinca and Trealeven (2014)</td>
</tr>
</tbody>
</table>
qualitative and quantitative attributes of textual (unstructured data) news stories.  

<table>
<thead>
<tr>
<th>Social Media Environmental Capabilities</th>
<th>The overall organizational understanding and awareness related to social media data mining laws, regulations, security, and privacy issues.</th>
<th>Laws and Regulations</th>
<th>Organizations have to follow region specific laws in order to access data on social media</th>
<th>Martin (2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Privacy issues</td>
<td>The questionable use of social media data is the access by organizations without the users’ consent</td>
<td>Martin (2015)</td>
</tr>
<tr>
<td>Social Media Cultural Capabilities</td>
<td>The cultural capability is the overall tacit and explicit organizational norms, values and behavioral readiness for social media data-based decision making.</td>
<td>Executive support and leadership</td>
<td>Support from the top management and effective leadership</td>
<td>Cosic et al. (2015)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Innovativeness</td>
<td>Innovativeness refers to the organization’s values that emphasize challenge and risk taking</td>
<td>Wallach (1983)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Solidarity</td>
<td>The degree to which an organization’s members pursue shared objectives quickly and effectively regardless of personal ties.</td>
<td>Goffee and Jones (2000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organizational Supportiveness</td>
<td>The degree to which organization has concerns for its employees.</td>
<td>Wallach (1983)</td>
</tr>
<tr>
<td>Social Media Governance Capabilities</td>
<td>The overall organizational adoptability, innovativeness, and alignment of social media with business objectives.</td>
<td>Decision making</td>
<td>Determining those responsible for making each kind of decision to ensure the right person makes the right decision at the right time</td>
<td>Weill and Ross (2004)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adaptability and Flexibility</td>
<td>The capacity for internal change in response to external conditions.</td>
<td>Denison and Mishra, (1995)</td>
</tr>
<tr>
<td>Social Media People related capabilities</td>
<td>Strategic Alignment</td>
<td>Change management</td>
<td></td>
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<tr>
<td>----------------------------------------</td>
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</tr>
<tr>
<td>The capability area that is relevant to the human capital of the organization</td>
<td>The ability to align social media analytics goals and objective with business objectives.</td>
<td>To manage resistance from, and provide training to, people impacted by business analytics (in this case SMA) initiatives.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociability and communication</td>
<td>The tendency toward sincere friendliness among members of a community is sociability.</td>
<td>Khan (2015)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training and empowerment</td>
<td>Personnel should be trained in the field of SMA and empowered to make decisions.</td>
<td>Anderson-Lehman et al. (2004)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business skills and knowledge</td>
<td>People in business analytics management areas execute the role of translating and communicating insights from data to the top management. That is why they need to understand (through business skills and knowledge) the value and the utilization of such data.</td>
<td>Goffee and Jones (2000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cosic et al. (2015); Pfeffer and Sutton (2006); Shanks et al. (2012)</td>
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</table>
4. Social Media Analytics Capabilities
In this section, we briefly discuss the capabilities of our conceptual framework.

4.1 Technical Capability Area
Technical capabilities are needed to extract and mine social media data. Social media data has at least seven layers: text, actions, networks, hyperlinks, search engine data, apps, and location data (Khan, 2015). Data mining, text analysis, and sentiment analysis techniques are frequently adopted to conduct social media analytics (He, Wu, Yan, Akula, and Shen, 2014). Below, we briefly discuss each of the capability sub-area.

- **Data mining**: Data mining is concerned with discovering insightful from large-scale data. Data mining comprises the core algorithms that enable one to gain fundamental insights and knowledge from massive data. It is an interdisciplinary field merging concepts from various areas like database systems, statistics, and pattern recognition. Actually it is part of a larger knowledge discovery process (Zaki and Meira, 2014).

- **Text mining**: As an emerging area, text mining aims to extract meaningful information from unstructured textual social media data. As users continue to post textual information (e.g., tweets and comments) on various social media sites, there is a growing interest in using text mining, sentiment analysis and social network analysis approaches to process large amounts of user-generated data and extract meaningful knowledge and insights. (He, Wu, Yan, Akula, and Shen, 2014). Today, numerous customers and users share their experiences using various social media sites such as Twitter, Facebook and blogs. It has become a big challenge for organizations to monitor and understand what people post on the social media sites. Traditional content analysis methods are no longer able to meet organizations’ needs to analyze the large amount of new content on a daily basis. To glean useful information from a large number social media text quickly, it has become imperative to use automated computer techniques. Different from traditional content analysis, the main purpose of text mining is to automatically extract knowledge, insights, useful patterns or trends from a given set of textual documents. Some major applications of text mining include: cluster analysis, categorization, information extraction (text summarization), and link analysis (Abrahams, Fan, Wang, Zhang, and Jiao, 2014).

- **Sentiment Analysis**: Sentiment analysis is the computational detection and study of opinions, sentiments, emotions, and subjectivities in social media texts. As a special application of text mining, sentiment analysis is concerned with the automatic extraction of positive or negative opinions from texts. Given that texts often contain a mix of positive and negative sentiments, it is often useful to identify the polarity of sentiment in texts (positive, negative, or neutral) and even the strength of the sentiments expressed (Pang and Lee, 2004). There is a growing interest in using sentiment analysis methods to mine user-generated social media data. Sentiment analysis has been used to determine the attitude of customers and online users on some specific topics, such as consumer product (e.g., books, movies, electronics) reviews, hotel service reviews, public relations statements, and financial blogs (He, Wu, Yan, Akula, and Shen, 2014).

- **Networks analytics**: Social media network analytics extract, analyze, and interpret personal and professional social media networks, for example, Facebook, Friendship Network, and Twitter. The main business objective of network analytics is to identify influential nodes (e.g., people and organizations) and their position in the network.

- **Hyperlinks analytics**: Hyperlink analytics is used to extract, analyze, and interpret social media hyperlinks (e.g., in-links and out-links). Hyperlink analysis is helpful in understanding Internet traffic patterns and sources of incoming or outgoing traffic to and from a corporate website.
Search engine analytics: Search engines analytics focuses on analyzing historical search data for gaining a valuable insight into a range of areas, including trends analysis, keyword monitoring, search result and advertisement history, and advertisement spending statistics (Khan, 2015).

Apps analytics: Apps analytics deals with measuring and optimizing user engagement with mobile applications (or apps for short), such as, analyzing and understanding in-app purchases, customer engagement, and mobile user demographics (Khan, 2015).

Location analytics: Location analytics, also known as geospatial analytics, is concerned with mining and mapping the locations of social media users, contents, and data.

Data Visualization: As the amount of data is gaining magnitude, the importance of visualization is also increasing exponentially. The goal of data visualization is to clearly communicate the information that has been extracted in schematic form (Batrinca and Trealeven, 2014).

Multimedia analytics: Multimedia analytics deals with analyzing social media multimedia contents, such as, audio, video, and photos.

Data cleansing: This refers to the cleaning of unstructured textual data. The high-frequency streamed real-time data is very difficult to handle and could still present numerous problems and research challenges which is why it is necessary to normalize it.

Website analytics: Website analytics is mostly focused on characteristics, actions, and behaviors of corporate website visitors. One of the analytics that is increasingly gaining popularity is Google Analytics. By monitoring job searching portal like seeks.com.au, we observed that companies now want the potential employees to have skills in Google analytics.

News analytics: News analytics refers to the measurement of the various qualitative and quantitative attributes of textual news stories. Some examples of these attributes include sentiment, relevance and novelty (Batrinca and Trealeven, 2014).

4.2 Environmental Capability Area
The environmental capabilities relates to the overall organizational understanding and awareness related to social media data mining laws, regulations, security, and privacy issues. As mentioned before, social media data is a public good stored in the third-party databases (Khan, 2015). The environment in which the social media data is analyzed and interpreted is different than BA data. The following are general capabilities that organizations need to play safe while extracting meaning full business insights from the social media data.

Laws and Regulations: Companies should be aware of the local government laws regarding the accessibility of public information while practicing social media analytics. In some countries, the political environment is controlled by the government and therefore the access to information on social media is restricted which makes it challenging to gather social media data. In other countries, obtaining users’ social media data is illegal that can have serious implications for the organization. Therefore, understanding and adhering to laws and regulations related to social media data mining is crucial. It is very important for the ethical implications of the big data industry, that the firms supplying the data should be assessed on how it respects privacy in the collection of information. Each country has different set of rules and regulations about the collection of social media data/big data. For example, the use of big data in Europe faces a distinct set of regulatory constraints governed by the EU’s Data...
Protection Directive (95/46/EC) and for example the United Kingdom’s Data Protection Act 1998 (Martin, 2015).

- **Privacy issues:** As social media is growing rapidly, one important concern for the users is the privacy. Marketers need access to personal information on social media in order to make effective decisions, but users have a right to restrict the access of personal information to third the parties. The social media privacy issue got much momentum due to the large-scale “Facebook Experiment” carried out in 2012. Facebook deliberately manipulated the news feeds feature of thousands of people to see if emotion contagion occurs without face-to-face interaction (and absence of nonverbal cues) between people in social networks (Kramer, Guillory et al., 2014). Such experiments and social media data extraction practices for analytic purposes raise serious concerns regarding obtaining informed consent from participants and allowing them to opt out.

### 4.3 Cultural Capability Area

The cultural capability is the overall tacit and explicit organizational norms, values, and behavioral readiness for social media data-based decision making. The organizational culture of a business should be taken into consideration regarding the collection and analysis of social media data. The culture capability area includes the tacit and explicit organizational norms, values, and behavioral patterns that form over time and lead to systematic ways of gathering, analyzing, and disseminating data (Leidner and Kayworth, 2006). The four core cultural capabilities are;

- **Executive support and leadership:** The support of top management is very important for the motivation and empowerment of employees in collecting, analyzing, and application of SMA data.

- **Solidarity:** Solidarity refers to the degree to which an organization’s members pursue shared objectives quickly and effectively regardless of personal ties (Goffee and Jones, 2000). In an organization’s cultural context, it is very important that the members of that organization have sense of solidarity for social media data-based decision making, because such behavior could speed up the gathering, analyzing, and use of related SMA data.

- **Innovativeness:** Innovativeness refers to the organization’s values that emphasize challenge and risk taking (Wallach, 1983). SMA data is not just analytic and therefore needs the mindset of innovation. The organizations have to be open to take risks and explore new opportunities by employing SMA capabilities.

- **Organizational Supportiveness:** It refers to the degree to which organization has concerns for its employees (Wallach 1983). The support of the organization is very important to motivate the employees. Organizational support enables employees to work as a team which in turn lead to greater performance in the collection, analyzing, and use of SMA data.

### 4.4 Governance Capability Area

The organization itself should have the ability to adapt to the ever changing social media environment.

- **Decision making:** Decisions about the management of SMA data is crucial for organizational effectiveness. That is why it is important to identify and select those responsible for making each kind of decision to ensure the right person makes the right decision at the right time (Weill and Ross 2004).

- **Strategic Alignment:** This refers to the ability to align social media analytics goals and objective with business objectives (Khan 2015). An organization should have the vision and strategic plans to bring together the SMA goals that are consistent with the mission of the organization.

- **Adaptability and Flexibility:** Adaptability of an organization is defined as its capacity for internal change in response to external conditions (Denison and Mishra, 1995). The usage of social media requires that organizations have the ability to adapt to that change in order to take full advantage from SMA.
- **Change Management**: This refers to the management of resistance from, and providing training to, all the people in the organization affected by business analytics initiatives (Anderson-Lehman et al. 2004). In social media analytics, the management of such resistance from the people will be required. People will also have to be trained accordingly.

### 4.5 People Capability Area

- **Sociability and communication skills**: It refers to the tendency toward sincere friendliness among members of a community or organization (Wallach, 1983). Sociability increases the overall loyalty to the organization when the members are sincere to each others. The nature of social media data is very personal; therefore, employees need to have strong sociability and communication skills in order to get meaningful insights from the social media data. For example, firms with employees who have strong communication and sociability skills may benefit much from social media use than the one with no such skills.
- **Training and empowerment**: The data of social media analytics is highly unstructured which is why personnel need to be trained and supported by the organization in order to make useful information out of the data.
- **Business skills and knowledge**: People in business analytics management areas execute the role of translating and communicating insights from BA data to the top management (Ranko et al. 2015). That is why executive managers and people who work in SMA-related, they need to have the skills and knowledge to understand the value of SMA and how to utilize it.

### 5. Discussion and Conclusion

In this research, we developed a social media analytics conceptual framework which could potentially be utilized to exploit the social media data in order to create greater customers value, competitive advantage, and enhance the overall organizational performance. Overall, we identified 5 higher level social media capabilities (namely, technical, governance, cultural, environmental, and people related SMA capabilities) which are further grouped into 26 sub-capabilities.

The contributions of this paper are pertinent to researchers as well as practitioners. Researchers can benefit from the thorough and clearly defined set of SMA capabilities provided in the SMACF. For practitioners, it will provide an orderly source of understanding the range of SMA capabilities. For businesses to achieve and maintain a competitive advantage, it is very important to listen to and understand what customers are saying about competitors’ products and services over the social media. Companies or/and organizations can utilize the SMACF developed in this to create greater value for the customers, gain a competitive advantage, and thus increase the overall organizational performance. Social media analytics is gradually gaining popularity because social media is on top of the agenda for many business executives today. Decision makers, as well as consultants are constantly trying to identify ways in which firms can make profitable use of social media applications such as YouTube, Facebook, and Twitter (Kaplan and Haenlein 2009). Not only that, social media has become ubiquitous in our lives, and increasingly plays a very critical role in today’s business environments. A number of companies use social media tools such as Facebook and Twitter to provide a variety of services and to interact with customers. There has been strong interest in the power of social media analytics to create new value, to support decision making and to enhance competitive advantage (He, Wu, Yan, Akula, and Shen 2014).

The study also has some limitations that need to be mentioned. The SMACF framework has not been verified and evaluated by experts in the field of SMA. In the future studies, a Delphi study is needed to verify and evaluate these SMA capabilities from experts in the field of social media analytics. The evaluation of experts would strengthen the scope of the framework and further improvement will be applied to it. Similarly, the sample size of the articles analyzed is not huge because of the fact that the SMA is relatively a new, but emerging area. A future study may refine the model by analyzing a larger sample of published SMA related articles.
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