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## Understanding the Role of Social Media Monitoring in Generating External Intelligence

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### Abstract

*Social media data are becoming increasingly critical for businesses to capture, analyse, and utilise in a timely manner. However, the unstructured and distributed nature and volume of this information makes the task of extracting useful and practical information challenging. Given the dynamic evolution of social media and social media monitoring, our current understanding of how social media monitoring can help organisations to create business value is inadequate. As a result, there is a need to study how organisations can (a) extract and analyse social media data related to their business (Sensing), and (b) utilise external intelligence gained from social media monitoring for specific business initiatives (Seizing). This study uses a qualitative approach with a multiple embedded case study design to understand the phenomenon of social media monitoring and its outcome for organisations. Anticipated contributions are presented.*

### Keywords

Social media, social media monitoring, external intelligence, information utilisation

### INTRODUCTION

With the emergence of social media in recent years, people have been given the opportunity to share their ideas, feedback, opinions and interests more than ever before. These exchanges of ideas and opinions not only help other people to make pre-purchase decisions, but also create a unique opportunity for businesses to understand what their customers, competitors and key opinion leaders are talking about (Huang and Croft 2009; Paris and Wan 2011). As a result, social media has turned out to be a new source of information for businesses in recent years (Agichtein et al. 2008; Patino et al. 2012).

Several factors may explain why social media data can be of value to businesses. First, a large volume of information associated with customers, competitors, industries and technology can be gathered from social media (Chen et al. 2012). Second, the pace of data generation is substantially higher than other traditional sources. Third, the fast growing number of social media users all over the World enables organisations to easily gain access to a wide range of thoughts, consumers feedback and behaviour in a timely fashion (Chen et al. 2012; Murray et al. 2010; Qiu et al. 2010). Scholars argue that social media has changed the way information is being produced, transferred and consumed (Bindra et al. 2012; Leskovec 2011).

However, despite these benefits of social media as a source of information, the unstructured nature and volume of that information, which is distributed in a variety of social media sites, makes the task of extracting useful and practical information challenging (Dai et al. 2011; Oelke et al. 2009). Therefore, the issue of information quality has been raised (Agichtein et al. 2008). Agarwal et al. (2010) argue that different issues affect the quality of

social media data. First, social media data include spam, which are non-sensible or gibberish text. Second, social media data are context-specific, which makes them more difficult to capture. Third, there are some intentional misspellings used to show commenter's sentiment, such as "This is so coooooool!" Fourth, the exponential growth of social media data creates the problem of information overload and finally, the use of slang, which is sometimes intensified within the cultural context, is another challenge to extracting meaningful information (Dengand Luo 2007; Töllinen et al. 2012). To sum up, social media data is unstructured, distributed and of uncertain credibility and this requires special handling in order for it to become meaningful and ready for business use.

Given the fact that all competing organisations have equal chances of accessing the same information from their external environment, the firm's ability to exploit intelligence seems to be of greater importance than finding and collecting it (Rollins et al. 2011). MIT Sloan Management Review and SAS conducted a survey on how companies are using data analytics and interviewed some global business leaders (Ferguson 2012). Their study reveals that many companies are still struggling with transferring data to frontline where timely insights really matter. While 65 percent of survey respondents considered themselves effective at capturing data, only 46 percent were effective at disseminating information and insights. This indicates that when it comes to consuming and utilising social media data, there is lack of experience and knowledge and therefore, little success has been achieved so far.

Our exploratory discussions, with a number of Australian organisations, indicate that using social media as a source of information is still at an early stage for Australian firms. At present, and given the state of the social media phenomenon, there is limited literature available on social media monitoring and how social media data, if utilised, could benefit businesses. Given the emergence of social media as a source of information, this study aims to investigate how organisations perform social media monitoring and how they benefit from utilising external intelligence obtained from social media monitoring.

As such, this study addresses the following two related research questions:

- i. *How do organisations perform social media monitoring to capture and analyse social media data?*
- ii. *How do organisations utilise external intelligence obtained from social media monitoring, for specific business initiatives such as new product development, improving service quality, innovation and decision making?*

This research-in-progress paper is structured as follows. We first define the terminology that underpins the study, including a review of the current literature in this field. We then describe the conceptual framework for the study, which focuses on the key activities in social media monitoring whereby organisations capture, analyse and act upon intelligence gathered from social media. We also investigate the role of social media monitoring tools and organisational enablers in this regard. We outline our research approach and summarise the anticipated outcomes of the research.

### **Key Definitions**

Kaplan et al. (2010) define social media as "a group of Internet based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user generated content." To further elaborate on this definition, "Web 2.0" is an enabler technology, whereas "User Generated Content" refers to "various forms of content that are publicly available and created by end-users". Categories of social media sites range from social networking sites, discussion forums, blogs, micro-blogging services, media sharing sites, virtual worlds, commerce communities and social bookmarking services.

Social media continues to grow in terms of scope, audience and influence (Bindra et al. 2012). The value of the wide range of information in social media has made social media monitoring an imperative activity for firms (KPMG 2011). To date, social media monitoring, which is used interchangeably by social media listening, has been defined by few practitioners and academics. However, there is not yet a comprehensive definition. Crawford (2009) defines social media listening simply as "paying attention online." Based on Sponder (2011), Töllinen et al. (2012) refer to social media monitoring as "a means of organising conversations on the internet in a structure that allows a user to slice and dice, drill down, and see how conversations interconnect in one holistic view." Given the fact that capturing social media data *per se* might not have any value for businesses, we suggest a new definition which improves upon previous definitions by addressing the potential benefits of social media data for business purposes:

*Social media monitoring is the process of scanning social media to identify and analyse information about a firm's external environment, in order to assimilate and utilise the acquired external intelligence for business purposes.*

Within this definition, external intelligence refers to intelligence which is generated from analysing information about the external business environment. According to McGee et al. (2003), 'external environment' refers to the relevant social and physical factors outside the typical boundaries of an organisation which affect managerial decision-making. However prior studies describe the same concept with different labels such as competitive intelligence (Bose 2008) and market intelligence (Maltzand Kohli 1996). This study, focusing on the external business environment, defines external intelligence as:

*Collective insights resulting from the systematic and purposeful analysis of interrelated data on factors of the external business environment such as customers, competitors, markets, technology trends, suppliers, partners, and other relevant external factors.*

This definition of external intelligence is close to that of Calof et al. (1998) definition of competitive intelligence: "Competitive Intelligence is actionable recommendations arising from a systematic process involving planning, gathering, analysing and disseminating information on the external environment for opportunities, or developments that have the potential to affect a company's or country's competitive situation." External intelligence is not a process nor a capability, but a final outcome (product) of a systematic process of social media monitoring. There is no doubt that whenever possible, the integration of external intelligence with internal intelligence would give more benefit to firms.

## LITERATURE REVIEW: DEVELOPING CONCEPTUAL FRAMEWORK

### The Resource-Based Theory and Dynamic Capabilities of the Firm

The resource-based theory and dynamic capabilities (RBT and DC hereafter) have broadly guided academic literature in strategic management so far. Early RBT (previously known as resourced-based view (Teece 1982)) mainly discussed the organisation's resources rather than its capabilities. It emphasizes that the competitive advantage of the firm is based on its resources, which are valuable, rare, inimitable and non-substitutable. All these attributes make the resources non-transferable and thus the property of the firm.

Dynamic capabilities of the firms are determined by how well a firm is prepared to react to its external environment particularly in a turbulent business environment. Dynamic capabilities are essential for achieving competitive advantage (Houghand White 2004). According to Barney et al. (2011), RBT includes the notion of dynamic capabilities. Teece (2007) argues that dynamic capabilities involves:

- i. *Sensing opportunities: Analytical systems (and individual capacities) to learn and to sense, filter, shape, and calibrate opportunities*
- ii. *Seizing opportunities: Enterprise structures, procedures, designs and incentives for seizing opportunities*
- iii. *Managing threats/ Transforming: Continuous alignment and realignment of specific tangible and intangible assets*

The theory of dynamic capabilities is fundamental to this study. This is because in order to respond to and seize opportunities in a turbulent business environment, which has been sensed by social media monitoring of the competitive environment firms need to develop new capabilities. Further firms need to reconfigure their resources in order to adjust dynamic capabilities. As a result, firms adjust their products and services in response to changes in the external environment (e.g., new market needs). Given that this study has been written in the "early days" of social media, we are not going to address the transformational aspect of dynamic capabilities at this stage of the research.

### Capture: Monitoring Social Media (i.e., "Sensing" (Teece 2007))

Organisations risk losing competitive advantage if they do not remain current with trends in the external environment (Albright 2004). Organisations' efforts to generate and utilise external intelligence begin with scanning the competitive environment. Therefore, there is a need for organisations to constantly perform environmental scanning to monitor what is happening around them. Zhang et al. (2011) assert that in the current volatile business environment, environmental scanning detects important signals from the environment which helps organisations to overcome uncertainties and formulate appropriate strategies based on the real situation.

The practice of environmental scanning is not a new phenomenon. Firms have been practicing it for long time using different methods and sources of information. The earliest definition of environmental scanning is from Aguilar (1967), who defines it as acquiring information about events and relationships in a company's external environment, the knowledge of which would assist top management in its task of charting the company's future course of action. This study contributes to the environmental scanning literature by investigating the potential role of social media as one source of information about the external environment which provides new types of

information. Users' activities in social media and their conversations produce large amounts of data for those companies willing to listen to their customers' voice (Kietzmann et al. 2011).

It is argued that social media monitoring changes the market research technique from asking to listening (Patino et al. 2012). Therefore, compare to market research, social media provides less biased information since it is not solicited (Ostrowski 2010). Töllinen et al. (2012) confirm this idea and argue that automated monitoring of social media, because of its natural setting, is a more objective tool for the measurement and analysis of word of mouth than surveys and interviews.

#### **Analyse: Generating External Intelligence (i.e., "Sensing" (Teece 2007))**

Generally, users' activities in social media generate two types of information: structured and unstructured. Structured information is easier to extract but the method and interpretation depends on each social media platform. For example, in Facebook, users may show their interest in a company, brand or product by becoming a 'Fan' of the related groups (or Facebook pages) (Jin et al. 2011). Users may also show their interest in a post, photo or video by 'sharing' it with their network (Ostrowski 2010). As said above, these types of information, which are measurable, help firms to understand people's sentiment on different issues. However, some other factors might need to be considered when measuring customers' sentiment based on these activities, such as time of posting, the post's title or even its format. There are some other techniques for sentiment analysis such as using keywords.

Users also generate content in the form of reviews and comments in conversations, forums, or blogs. This content in social media is not easily understandable and has to be interpreted in some ways. The majority of existing studies focus on sentiment analysis, which is defined as the analysis of customers' shared feelings about the use of a product or service (Ostrowski 2010). Although it is very important, sentiment analysis only provides limited external intelligence. Henschen (2012) argue that sentiment analysis only helps to gauge the mood on social networks and the web, however, getting insights needs new skills and tactics.

To utilise and make sense of information retrieved from social media sites, firms need to analyse and transform it into actionable insights, i.e., external intelligence (Adidam et al. 2012; Dishmanand Calof 2008). Adidam et al. (2012) note that the analysis of information to convert it into the right kind of intelligence is one of the most challenging and critical tasks in this process. Dai et al. (2011) emphasize that in order to gain competitive power, effective and prompt analysis of social media content is highly important.

Menon et al. (1992) classify the major determinants of market knowledge utilisation within the firms into two categories: supply-side (information) related factors and organisational (user) related factors. They note that the extent of market knowledge utilisation by the firms depends on the value of the information provided (i.e. quality and relevancy of information provided to information users). They suggest that the more practical and useful market knowledge is, the more likely it is to be utilised by organisations. They emphasize the importance of the product-driven market research approach, which is the production of market intelligence for a purpose given by information users. Studies on supply side factors also focus on the characteristics of the market intelligence creation process (i.e. social media monitoring in this research).

#### **Employing Social Media Monitoring Tools**

There is no doubt that due to its unstructured (or semi-structured) nature, and the overwhelming volume that is generated, the information available in social media needs special handling to produce intelligence. Due to the massive volume of data in social media, monitoring is a human-intensive task. Lange et al. (2011) argue that it is very time-consuming for humans to find, read, evaluate, summarize and organise all social media data. Koh et al. (2009) also refer to firms' failure to manage information overload concerning their external environment.

Therefore firms may need to use social media monitoring tools in order to extract and interpret the data. Scholars suggest advanced automated methods for precise and efficient social media data retrieval and analysis (Huangand Croft 2009; Langeand Sethi 2011). However, some others note that generating external intelligence from social media is highly specialized and difficult to automate (Dey et al. 2011). To respond to the substantial need to understand the techniques of social media data analysis, a number of emerging studies address different algorithms used to generate higher quality intelligence (Lariscy et al. 2009; Oelke et al. 2009; Zhang et al. 2010).

Töllinen et al.'s (2012) study of the opportunities and challenges of social media monitoring, which is one the few in-depth empirical studies on social media monitoring practices, find that tools cannot replace a human researcher. They find that traditional person-controlled research is required to create a deep understanding of social media data. They also argue that practices for utilising social media monitoring software are disorganised and knowledge is fragmented among the people involved. They state that companies are in the initial stages of using social media and therefore the full potential of social media monitoring tools is still unknown.

There are more than two hundred free and commercial social media monitoring tools available on the market (Dai et al. 2011). These tools differ in their coverage of social media platforms, support for different languages, ability to interpret meaning of social media data and their technical capabilities. Some of them are only able to monitor a single function or a single medium, while others can combine social media data from different platforms.

As such, to understand how firms can leverage social media as one source of external intelligence, this study first investigates how firms identify relevant, credible and practical information in social media, and how they analyse those data to produce external intelligence. To achieve this goal, firms' existing methods, tools, techniques and processes will be examined. Dimensions of efficiency in each phase also will be studied. These first two steps, which encompass capturing and analysing information, are part of sensing activities of the firms according to the underlying theory of this study. Teece (2007) notes that sensing opportunities involve analytical systems (and individual capacities) to learn and to sense, filter, shape, and calibrate opportunities. As such, we propose the following propositions.

*Proposition 1: More sophisticated social media monitoring leads to the generation of higher quality external intelligence.*

*Proposition 1a: Social media monitoring tools moderate social media monitoring to generate higher quality of external intelligence.*

#### **Act: Utilising External Intelligence within Firms (i.e., "Seizing" (Teece 2007))**

It is not only the possession of information that helps organisations to better perform. In order to seize the opportunities, firms need to act upon the information collected (Adams et al. 2010; Koh et al. 2009). Maltz et al. (1996) conceptualize market intelligence use as "the extent to which the receiver uses the intelligence disseminated by the sender to understand his or her work environment and make and implement decisions". Effective collection, dissemination and response to market intelligence has been referred to as a source of competitive advantage that allows the firm to create offerings (products and services) superior to those of competitors (Adams et al. 2010; Rollins et al. 2011).

The external intelligence acquired from social media has the potential to be used in a variety of business initiatives (Parisand Wan 2011). For example, Teo et al. (2001) emphasise that business intelligence enables firms to have effective business planning. The marketing literature also stresses the impact of competitive intelligence on strategic decisions marketing (Jaworski et al. 2002). Dai et al. (2011) argue that consumer-generated content can be used in business decision-making. Kärkkäinen et al. (2011) also discussed the role of social media data on innovation. Table 1 summarises some past studies on the types of intelligence utilisation impact on firms.

Table 1: Summary of studies in intelligence use

Study	Type of study	Intelligence utilisation impact
Nemutanzhela et al. (2011)	Empirical/Case study	Products and services innovation
Popovič et al. (2010)	Conceptual	In business processes which leads to higher business performance
Carbonell et al. (2010)	Empirical/Survey	Innovation speed and new product performance
Paris et al. (2011)	Empirical/Case study	Improving government service
Dishman et al. (2008)	Empirical/Survey	Marketing strategy formulation

#### Organisational Enablers:

According to dynamic capabilities, the underlying theory of this study, enterprise structures, procedures and designs need to be harmonised in order to seize opportunities (Teece 2007). The right competitive culture and information gathering should be in everyone's mind. Different organisations do not utilise social media data in the same way. They differ in their absorptive capacity which is the ability to understand, assimilate and apply new external knowledge (Cohenand Levinthal 1990). Culnan et al. (2010) refer to absorptive capacity as one of the essentials when developing social media implementation strategies. Firms must have the capacity to absorb inputs in order to generate outputs (Tsai 2001). KPMG (2011) reports that companies are interested in doing more with social media, but they are not sure about strategy.

It is discussed that the stronger pro-information and pro-innovation culture lead to the more utilisation of information (Menonand Varadarajan 1992). Having data-aligned culture has been mentioned to be more

important than overcoming technology barriers where insights need to influence organisational action (Ferguson 2012). Moreover, it is suggested that organisations establish an intelligence unit (hub) with defined job functions and formal responsibilities for social media monitoring (Culnan et al. 2010; De Pelsmacker et al. 2005). Moreover, Menon et al. (1992) note that researchers-managers interactions and the level of formality for planning are also important organisational factors in this regard. Vuori et al. (2011) also argue that there is a need for efficient procedures to perform social media monitoring practices.

Menon et al. (1992) also discuss some other organisational factors affecting the degree of market knowledge utilisation within firms. Organisational structure, researchers-managers interactions, type of knowledge usage, information and innovation culture, and the level of formality for planning, and utilising market knowledge are identified as having a significant influence on this. The organisational factors also impact on the receivers' perceived credibility of the information as well as their level of usage.

As such, to understand how external intelligence gained from social media can be used for specific business initiatives, this study also will investigate the moderating role of organisational enablers such as organisation structure, culture (information and innovation culture) and procedures for utilising external intelligence.

*Proposition 2: The higher the quality of the generated external intelligence is, the more likely it will be utilised within firms.*

*Proposition 2a: Organisational enablers such as organisation structure, organisation procedures and organisation culture moderate the utilisation of external intelligence generated.*

### The Proposed Conceptual Framework

Based on the previous discussion, the conceptual model of social media monitoring and its impact on the firm is proposed and presented in Figure 1. The first step is monitoring social media (i.e. scanning social media to identify and capture relevant information about firm's external environment) followed by generating external intelligence (i.e. making sense of social media data by analysing the information gained through social media monitoring) and its utilisation (i.e. utilisation of external intelligence in specific business initiatives such as improving service quality, new product development, decision making, strategy formulation and etc.).

The conceptual model is based on the theory of dynamic capabilities. The first two steps, which encompass capturing and analysing information, are part of sensing activities. The third step is utilising external intelligence and is part of seizing activities. Based on this literature review, we propose that social media monitoring tools facilitate the social media monitoring for generating external intelligence. Therefore, another appealing area to investigate is the moderating effect of social media monitoring tools in the relationship between social media monitoring and generating external intelligence. In addition, organisational enablers also influence the extent of external intelligence utilisation within firms.

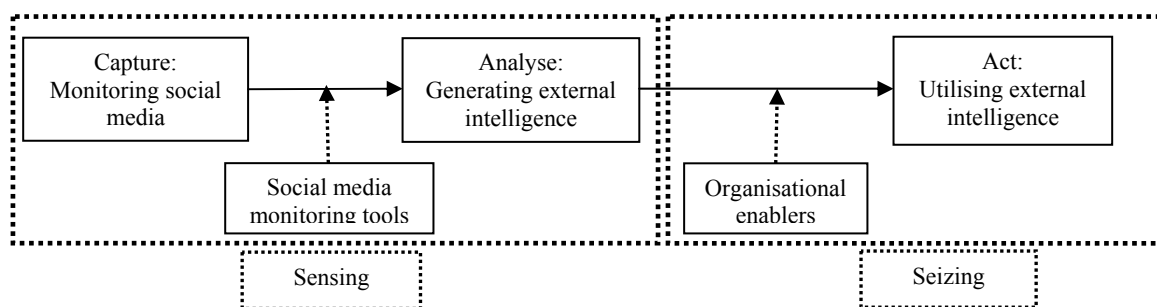


Figure 1: The proposed conceptual framework  
 .....► Presumed moderating influence  
 → Presumed causal influence

### OUR RESEARCH APPROACH

While there are many studies about information gathering and intelligence generation process within the firms, few studies have paid attention to social media as a source of information. Social media data utilisation also has not been adequately studied. Therefore the current understanding of how information is captured from social media and the major determinants of and impediments to social media intelligence utilisation is inadequate.

As discussed, using social media is still at an early stage for most Australian firms. Therefore, this study follows multiple case study approach to investigate the issues in-depth (Yin 2009). Relevant data will be collected in a

natural setting sensitive. Eventually, data will be analysed to establish patterns or themes (Cresswell 2007). This study follows an inductive theory building approach (Eisenhardt and Graebner 2007). The exploratory case study approach would assist researchers to understand how a firm can leverage social media as one source of external intelligence, and how external intelligence gained from social media monitoring can be utilised towards specific business initiatives (new product development, improving service quality, innovation) within the firm.

As a result, in one single organisation, we will study multiple business initiatives as the embedded unit of analysis (Yin 2009). Multiple case studies enable researchers to examine and compare the effects of different informational (supply-side factors) and organisational factors (enablers) on the utilisation of external intelligence in different and similar organisational contexts. Multiple case studies are considered more comprehensive and they produce more robust studies (Yin 2009). Shanks et al. (2003) argue that literal and theoretical replication in multiple case study research supports generalizability of the research findings. In terms of the number of cases, According to Yin (2009), a few cases (two or three) would be literal replications. This study will select three companies, and two to three business initiatives will be studied within each company.

### **Data Collection Sources**

Data will be collected from multiple sources such as formal interviews, observations, informal meetings, and inspections of social media monitoring tools and other information systems (Yin 2009). Secondary data also will be collected from publicly available information from the web as well as relevant company documents. Formal interviews will be semi-structured. Interviews will be recorded and transcribed to be analysed. To ensure the validity of data, the transcribed data will be provided to interviewees to confirm the content of interview. Follow up interviews also might be conducted if needed.

Interviews will be conducted with the following three organisational roles; those people responsible for social media monitoring (IT managers), those people responsible for analysing social media data and generating external intelligence (i.e. business analysts) and those people who utilise external intelligence (business users). To find additional relevant participants who might be involved in social media monitoring activities, a snowballing technique will be used. Each participant will indicate other people who are aware of/or involve in firms' social media monitoring activities (within our study scope).

### **Analysing Case Study Evidences**

Yin (2009) defines data analysis as "examining, categorizing, tabulating, testing, or otherwise recombining evidence, to draw empirically based conclusions." To manage large amount of data from multiple sources, the research model of the study helps us to be focused in some way and direct the data collection and analyse process (Gray 2009). Qualitative data analysis tools are required to analyse the evidence from case studies. We will utilise the qualitative data analysis software NVivo for data analysis.

### **Pilot Study**

We are currently involved with conducting pilot case studies in three companies in telecommunication, insurance and education industry in Australia. The pilot case studies are to test and refine the data collection instrument and questions. They help us to find out if these instruments are capturing the kinds of feedback needed. So, the relevant issues can be identified and addressed before the actual studies. The scope of the pilot case may be broader than the actual cases and they must represent the actual cases in some way. The pilot case studies also help us to choose more appropriate samples for the actual case studies (Yin 2009).

## **SUMMARY**

In summary, due to the lack of knowledge regarding social media monitoring practices and social media data utilisation, this study takes a qualitative case study approach with a multiple embedded case study design. The outcomes of this study would appear to be useful to both academics and practitioners who are considering utilisation of social media as an additional source of information. Social media would provide synergies with existing sources of information and in some cases substitute for less appropriate traditional research methods. It is anticipated that the following contributions will be achieved by this study:

- i. A rich descriptive analysis of how organisations (a) perform social media monitoring to capture and analyse social media data, (b) utilise external intelligence gained from social media toward implementing specific business initiatives
- ii. A maturity model of social media monitoring sophistication within firms
- iii. Characteristics of social media monitoring best practice
- iv. Targeted propositions (To be refined during study)



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