Organizational experience of social media: impacts on competitive intelligence

Diogo Carvalho and Winnie Picoto
ISEG – Lisbon School of Economics and Management, Universidade de Lisboa, Lisbon, Portugal, and
Peter Busch
Department of Computing, Macquarie University, Sydney, Australia

Received 27 May 2019
Revised 13 August 2019
9 September 2019
Accepted 17 September 2019

Abstract

Purpose – The paper aims to clarify the potential impact of data gathered from social media (SM) in the competitive intelligence (CI) process of organizations. As use of SM expands, analysis of this data becomes a critical business need providing essential support for decision makers. This paper seeks to examine how SM be used to enhance CI in an organizational context.

Design/methodology/approach – This paper adopted an exploratory mixed-method approach followed by a sequential and equal status design, with qualitative semi-structured interviews, accounting for the qualitative study and serving as precursor to a quantitative structured survey. Interviewees included a university professor and CI consultant, an SM analyst and a subject in a management position – all in the field of CI. A survey was sent to Fortune 1000 companies. Some 227 companies replied.

Findings – The findings were that the majority of respondents produce CI reports at least monthly, and that information transmitted mainly by presentation within organizations. Over 70% of companies outsource CI activities to specialized firms, while 80.9% of organizations felt CI improved their relationship with their customers. Not surprisingly, as the number of people dedicated to CI activities increased, the likelihood of an organization hiring outside companies specializing in CI diminished.

Research limitations/implications – All organizations sampled were large US companies; thus, small- and medium-sized enterprises were excluded, as were non-US viewpoints. As survey respondents were anonymous, the source of data at the level of the individual is missing. Finally, only three interviewees provided the qualitative data.

Practical implications – This investigation determined organizations should have an established and well-structured CI department. Furthermore, such a department should have between five and ten employees to maximize the potential. Outsourcing depends on the company's specific needs. Nevertheless, regardless of whether it outsources CI activities or not, each firm should monitor SM to enhance the CI process.

Originality/value – Much SM-based CI is either non-existent or in "embryotic" stages in most companies, and therefore still a work in progress. Furthermore, as SM is a relatively new phenomenon, studies supporting its implementation are scarce. Companies stand to gain significant improvements to CI if SM is effectively used.

Keywords Portugal, Social media, Competitive intelligence, Fortune 1000

Paper type Research paper

Introduction

Social media (SM) arrived into our lives with the appearance of Web 2.0 and revolutionized the way we communicate and interact online (Berthon *et al.*, 2012). Whether it is through a

VINE Journal of Information and Knowledge Management Systems
Vol. 52 No. 2, 2022
pp. 161-185

2059-5891
DOI 10.1108/VJIKMS-05-2019-0067

network of friends on Facebook, or a Twitter feed with our favorite sources of information, it has become as much a part of daily activities as watching TV or listening to music. There is no doubt of SM's impact on a social level, but what about in terms of business impact? Can favored applications for discussing movies, food, clothes, books and cities and so forth be used by businesses in their intelligence process? Since the end of the US–Soviet altercation known as the Cold War, competitive intelligence (hereafter CI) has crossed borders from the military scenario and infiltrated the business world (Deng and Luo, 2007). *Competitive strategy: many regard Techniques for Analyzing Industries and Competitors, written by Michael Porter and published in 1980,* as the founding study for what is today is CI in organizations. At times mistaken for and compared to corporate espionage (Hemphill, 2002), which is illegal, CI is seen as a moral and ethical practice involving the gathering of information from a company's internal and external environment. It involves organizing and standardizing processes of information gathering, analysis and conversion to aid and facilitate business decision-making (Dey *et al.*, 2011; Gilani *et al.*, 2019).

One could define organizational intelligence and CI as the ability as a whole to gather information, analyze it, convert it into usable knowledge and finally, make strategic decisions based upon that knowledge (McMaster, 1996). An efficient and effective intelligence process does not focus on collecting all the information related to a certain subject or issue, instead the process channels its efforts and gathers and treats that is considered more important to management (Aguilar, 1967; Montgomery and Weinberg, 1979; Porter, 1980; Herring, 1998). Choo (2003) considers the identification of what is important alongside of what is needed as the most crucial step in the intelligence process and which should arise from the lack of knowledge needed to solve organizational problems related to operations and management. The ultimate goal of CI is to use efficiently information potentially turned into intelligence. For this process to be successful, it requires inputs from the internal and external environment. The inputs come in the form of information or knowledge (Vuori, 2011). However, in recent years, businesses have noticed existing information systems are rather restraining and lack elements enabling informal knowledge exchange (Vuori and Okkonen, 2012), particularly with regard to the role of tacit knowledge to their knowledge management processes (Sanzogni *et al.*, 2017; Jalonen, 2014; Busch, 2008). Furthermore, technological development has broken down barriers to establishing connections, and this, coupled with globalization, has significantly increased the amount of information and knowledge available (Coakes *et al.*, 2008). Moreover, the kind of information and knowledge that can be acquired has also evolved, affecting the ability for an organization's comprehension of its external environment (Badr *et al.*, 2006; Fleisher and Bensoussan, 2007).

SM is a very vast, decentralized and openly distributed data platform, which has revolutionized and completely altered the competitive scenario in which modern organizations participate (Dai *et al.*, 2011). SM is used by several organizations seeking new ideas and new points of view, which may lead to product and service innovations, brand awareness and product testing, among others (Ram and Liu, 2018). However, SM's greatest contribution comes from the customers' viewpoint, and the vast amount of user-generated content they produce that can be analyzed by an organization (Ram and Liu, 2018). Traditionally, CI professionals based their results on numbers, charts and surveys that often came from reports compiled by specialized firms (Calof, 2008). However, given the amount of readily accessible information available through SM, it has become necessary to develop new tools and methods, which can contribute to the CI process (Dey *et al.*, 2011). As the use of SM continues to expand and become a part of the daily activities of a large percentage of the population, analysis of this data has become a critical business need providing essential

support for decision makers. This process will lead to a better understanding of how an organization's products or services are viewed by the public, how competitors' products or services are viewed, as well as provide better understanding of the market in which it competes (He *et al.*, 2013). Even though the data extracted from SM comes in a digital format, it is necessary to have a dedicated team to be able to extract, interpret and transform the information into usable knowledge and intelligence (Dey *et al.*, 2011). Unfortunately, SM-based CI is either non-existent or in "embryotic" stages in most companies, and therefore still a work in progress (Zhao and Jin, 2011). Furthermore, as SM is a relatively new phenomenon, the academic literature and studies to support its implementation are very limited and scarce (Vuori and Väisänen, 2009).

The objective here resides in understanding the SM impact on the organizational CI process. It does so by answering the research question: *How could SM be used to enhance CI in an organizational context?* This paper is structured as follows: the next section presents the literature review to situate concepts and the status of CI and SM. Section 3 discusses and presents the methodology implemented for this research. Section 4 presents the results of the interviews conducted as well as the structured survey. Section 5 provides an analysis of the data gathered from interviews and the surveys. Section 6 concludes by providing some of the limitations with further recommendations.

Theoretical background

Competitive intelligence

Business intelligence is often defined as a data-centric approach aiming to support better business decisions, and a set of "techniques, technologies, systems, practices, methodologies, and applications to analyses critical business data to help an enterprise better understand its business and market and make timely business decisions" (Chen *et al.*, 2012 p. 1166). Business intelligence has gained the attention of practitioners and academics over the past few years, especially now with the emergence of big data and artificial intelligence. The concept of CI is linked to one of business intelligence, but they are distinct, as CI is mainly interested in gaining intelligence and knowledge about the competitive landscape. According to Dey *et al.* (2011), CI is the art of defining, gathering and analyzing intelligence about a competitor's products, promotions, sales, etc.

When defining CI, one must first ask what is intelligence? Intelligence can be defined as high-level, processed, exploitable information (Prior, 2008), whose quality and access are two crucial elements in any companýs success. In the current perspective of high competition among enterprises, information is the main resource for acquiring competitive advantage (Vuori, 2011). Nevertheless, the value of the information collected diminishes as time passes; therefore, intelligence must be acquired and processed as fast as possible (Fleisher, 2001). In organizations where it is fully established, CI is an information processing routine forward-looking – preparing the organization for competing in changing environments (Santos and Correia, 2010). For this reason, some firms have established a department to process information, and their task is often referred to as CI. Adequate and rapid information is necessary for CI, which transforms the acquisition of the information – in itself a very important task (Deng and Luo, 2007). The premise behind CI borrows heavily from knowledge-based theory, which concludes an organization's competitiveness is a direct result of the information and knowledge resources of that organization, which can vary from a personal human network, traditional media and new means provided by the internet and applications associated with it (Vuori, 2011). This theory also considers knowledge as a way of arriving at a sustainable competitive advantage, as it is difficult to imitate and is restricted to the context from where it was obtained and by whom (Sanzogni *et al.*, 2017;

Busch, 2008; Grant, 1996). There are many definitions of CI, yet all of them appear to agree that gathering and analyzing information are key elements of the process.

Zhao and Jin (2009) believe it is obvious enterprises can receive many benefits and even enhance their competitive power through obtaining intelligence from competitors. Kahaner (1997) goes a step further viewing CI as the process of gathering, analyzing and delivering information about the environment as well as about capabilities and intentions of competitors, then transforming them into intelligence. In this definition, it is clear that in addition to direct competition, it is necessary to be aware of the external environment, which has influence on and can influence the business. It is widely accepted that CI provides management with valuable sets of information improving the quality of decisions, in turn having a positive effect on a company's competitiveness (Santos and Correia, 2010). However, intelligence is more than just asking questions about competitors, as it involves other aspects of the environment, including activities such as competitor profiling, product line comparisons, war-gaming and competitive move predictions (Dishman and Calof, 2008). A firm should perform continuous scanning of potential threats and opportunities arising from this external environment (Vuori, 2011). Taking this step further, Vuori (2011) believes this continuous scanning of potential threats and opportunities arising from the external environment, understanding their meaning to the company and acting upon that knowledge is a major factor defining a company's success.

CI arises from a systematic process involving disseminating information for opportunities or developments that have the potential to affect a company's competitive situation (Mayeh *et al.*, 2012). In a definition, the focus is placed on the availability of the information acquired, and that it must spread throughout the organization to anyone who may need to use it. Santos and Correia (2010) define effective CI as a continuous process involving the legal and ethical collection of information and analysis that does not avoid unwelcome conclusions as well as the controlled dissemination of actionable intelligence to decision makers. While Oliveira *et al.* (2004) define CI as a business activity whose goal is to provide strategic information about markets for management activities, they continue by stating organizations can use CI to analyze how saturated a market is, or the kind of players present and if there is space for a niche offer.

Companies use information in generating their products and services. In addition to expertise, they need to understand to whom, at what price, where, when and how products and services should be sold to generate best possible profits (Vuori and Väisänen, 2009). In this context, CI can also be categorized as a process that gathers actionable information and that is then applied to the planning and decision-making procedures of an organization (Dai *et al.*, 2011). Vuori (2011) adds that CI is a support function aiming to provide actionable competitive knowledge to back up decisions that further the company's business goals. For the benefits of collecting data to be converted into an advantage or for monitoring to be useful, information gathered needs to be assimilated into the internal procedures or planning phases. Having high-quality data or knowing a competitor's action, no matter how secretive or hard to obtain, can be useless if an organization does not know how to use it properly. Efficient sharing and using of knowledge is a source for achieving and maintaining a sustainable competitive advantage (Riege, 2005). Thus, information management processes such as CI, usually follow a structure with a cycle of consecutive phases (Vuori and Okkonen, 2012). The ability to develop adequate organizational mechanisms for information acquisition, dissemination and effective use may be precursors to identifying and effectively adapting to major market shifts (Dishman and Calof, 2008). Dishman and Calof (2008) also state that intelligence requires appropriate policies, procedures and a formal infrastructure, so employees may contribute effectively to the intelligence system as well as gain benefits

from the intelligence process. However, gathering such data is a highly specialized activity, making it difficult to be completely automated (Dey *et al.*, 2011), given that much of the data is likely to be tacit.

A very large and oft misunderstood or misused source of CI is the internet and more specifically SM (Mayeh *et al.*, 2012). News, blogs and SM can furnish information about competitor firms and their consumers' perceptions about their products and sources (Dey *et al.*, 2011). According to some surveys conducted, over 90% of the top 500 organizations in the world have CI systems, yet most still rely on traditional non-Web-based sources (Deng and Luo, 2007). However, in a different survey, Lamar (2007) reveals that circa 85–90% of CI data comes from online sources, including SM. Theater study contradicts the previous survey and demonstrates organizations should adapt to this new source of information. Nevertheless, the major problem facing CI acquired from SM is that most companies are reluctant to approach this method, as they are still unfamiliar with it (Dai *et al.*, 2011). What then is the role of SM?

Social media

SM is a Web 2.0 tool – an online representation of social networks, which are networks or links of personal relationships (Zhao and Jin, 2011). Kaplan and Haenlein (2010) define SM as a group of internet-based applications using foundations created by Web 2.0 creating the possibility for user-generated content publication and sharing. By using internet functions, these applications also allow the establishment of relationships at any time from any place. Besides representing social networks, SM can include activities of human interaction and information publishing (Vuori and Väisänen, 2009) while facilitating sharing of information through easily accessible Web-linked platforms. SM has also revolutionized interaction and communication between individuals, communities and companies (Kietzmann, *et al.*, 2011); therefore, monitoring and analyzing have the potential for extracting patterns advantageous for companies, users and customers (Oritogun *et al.*, 2018; Gundecha and Liu, 2012).

SM uses mobile- and Web-based innovations to generate highly interactive platforms whereby communities and individual users may share, co-create, discuss and change user-generated content (Kietzmann *et al.*, 2011). SM is comprised of different types of traditional media platforms such as television, radio, newspaper and social applications such as Twitter and Facebook, which have registered impressive numbers of active users. Facebook recorded more than 2.2 billion active monthly users as of the first quarter of 2017[1]. Additionally, there is high user engagement as global users spend on average 135 min per day on social networks sites[2]. Not as large but also impressive is the network of blogs containing over 100 million blogs[3], reflecting public opinion or sentiment toward a product or brand. These numbers aid in establishing the premise that the amount of information available and published daily is enormous.

SM has altered the intelligence scenario by granting online users free authorship and publishing rights, allowing anyone to share information through various platforms (Bonsón and Flores, 2011). According to Vuori and Väisänen (2009), CI professionals are keen to find ways to use Twitter, LinkedIn, Facebook, blogs and other SM applications for information purposes and incorporation into the organizations' CI process. These applications are sources of vast amounts of knowledge, with new information arising daily – and as a result of this phenomenon, have been transformed recently into sources of information businesses' should monitor closely (Patino *et al.*, 2012). A benefit of SM analysis can be associated with the social capital theory, which is based on the idea that some forms of capital not associated with money, will grant access to resources, influence and power (Portes, 1998). This theory states that employees of a company and their knowledge can be just as important as access

to financial resources and will produce or provide certain resources, monetary means are unable to achieve. The information sharing approach views SM as a means to share information and knowledge while acting as an enabler of collaborative analysis in the company (Rothwell, 2009). In other words, it provides opportunity for the CI process to be implemented as an engaging set of actions encouraging employees to participate and contribute to the process (Vuori, 2011). This process looks at CI as a joint effort undertaken by the whole organization, with SM empowering employees and incentivizing them to participate as information sources, analyzers and users (Rothwell, 2009). Even if the company was able to acquire the same knowledge from other sources, the one gained through employees is of greater value because of employees acting as "information filters," placing original data in context and giving it increased meaning from the company's point of view (Vuori, 2011).

Using SM applications as collaborative tools also enriches information, as it may contain elements not present in common business information systems (Vuori and Okkonen, 2012), thus providing intelligence not found elsewhere. Personal updates and news of accomplishments on an individual's profile may be linked to press releases or announcements not divulged outside the company by alternate means (Fawley, 2013). Monitoring the profile of an organization and its employees can furnish corporate details not found elsewhere. CI experts can identify employees through various applications and platforms to create links with them (Skeels and Grudin, 2009). By analyzing information collected from SM platforms such as LinkedIn, information professionals can compose a better or bigger profile of an employee or organization (Fawley, 2013).

Another theory associated with is the social learning theory (Dabbagh and Kitsantas, 2012).The main idea is that an individual's behavior is not only influenced by cognitive and internal psychological factors, but also by the social environment (Davis and Luthans, 1980). Most users feel when using SM applications, they are surrounded by their peers and equals creating a tendency to feel more comfortable and open in expressing sentiment or sharing information. Mainly personal and informal sources are used, suggesting the importance of the impact on the intelligence process SM may have (Santos and Correia, 2010). Monitoring and analyzing SM can have a positive effect on the CI of an organization. To assess the competitive environment of a business, firms must monitor and analyze not only their own SM sites, but also information available on competitor sites (He *et al.*, 2013). Competing firms may use SM outlets to publish events such as new product announcements, strategic partnerships, entrances to new markets, etc. (Dai, *et al.*, 2011). Therefore, the key resides in knowing where to look and how to discover hidden knowledge potentially transformed into a competitive edge (Antikainen *et al.*, 2010).

Increasingly, organizations interact with customers through SM applications such as Facebook and Twitter (Mangold and Faulds, 2009), creating an opportunity to monitor and analyze competitors' interactions with their clients, both from the end-clients' perspective and competitor firms. If the objective is to achieve a more direct analysis, SM teams must limit their monitoring to interactions involving a particular firm, product, person or brand image (He *et al.*, 2013). By studying competitors' moves and their interactions with SM users, it is possible to anticipate some of the actions and develop a preemptive strategy providing an advantage (McCarthy *et al.*, 2010). A company can also compare its SM data to their competitors to gain perspective in terms of performance (He *et al.*, 2013).

In the CI arena, concept analysis allows for player identification within a market, products and services, their characteristics, benefits and events of the real world, vendors' strategies and opinions of people and media companies (de Oliveira *et al.*, 2004). Such segmentation helps compare strategies and look for common themes or differences, such as

saturated markets, market niches, most popular products and new services (de Oliveira *et al.*, 2004). These features influence information gathering and increase the available sources, not to mention SM applications offering technologies to automate aspects of information gathering and processing (Vuori, 2011), making it easier to incorporate into the decision-making process. In conclusion, SM monitoring and analysis will be a crucial factor as companies strive to maintain or develop sustainable competitive advantages (Kaplan and Haenlein, 2010).

Research methods

A mixed-method research approach incorporating semi-structured interviews (qualitative) with a structured survey (quantitative) was adopted (Johnson and Onwuegbuzie, 2004). Both approaches have their strengths, and recent studies examining the role of SM or CI in knowledge management have used one or both of these approaches (Crammond *et al.*, 2018; Köseoglu *et al.*, 2018; Naeem, 2019; Markovich *et al.*, 2019) The combination of both approaches shares the common goal of analyzing and comprehending the how SM contributes toward the enhancement of the competitive advantage process. Additionally, "considering the strength of mixed methods research with respect to understanding and explaining complex organizational and social phenomena, there is clearly a need for information systems (IS) researchers to conduct and publish research that employs mixed methods" (Venkatesh *et al.*, 2013 p. 2). Uniting qualitative and quantitative findings creates the possibility of obtaining findings and insights a singular approach is incapable of producing (Bryman, 2007). The use of mixed methods allows for triangulation of results obtained, i.e. combining the data from quantitative and qualitative research provides greater validity (Bryman, 2006). With the triangulation of findings, if converged and corroborated, we achieve stronger evidence for a conclusion as well as augment the generalizability of results (Johnson and Onwuegbuzie, 2004).

We applied a mixed-method approach following a sequential and equal status design, with semi-structured interviews, accounting for the qualitative study and serving as a precursor to the structured survey (the quantitative study). "Sequential data analysis, follows a process in which data is analyzed in a particular sequence with the purpose of informing rather than being integrated with the use of or findings from, the other method" (Onwuegbuzie and Teddlie, 2002, p. 364). The in-depth interviews enabled a conceptual understanding of the phenomenon of SM influence on CI, as both processes were not evident in existing literature. Additionally, the interviews supported the development of the SM-related construct items. Therefore, results from the qualitative phase of this research informed the quantitative phase in terms of questionnaire development.

Data collection and analysis

First, this study developed a qualitative research based on in-depth interviews. The main objective of those interviews was to gain deeper insights and information on the context, going beyond superficial exploration, discovering new areas or ideas submerged at the beginning of the investigation linking SM to CI (Britten, 1995). In fact, "a qualitative data collection approach can bring breadth to a study by helping researchers gather data about different aspects of a phenomenon from many participants" (Venkatesh *et al.*, 2013, p. 5).The open-ended in-depth interviews served a two-fold purpose. First, they allowed for a diversified viewpoint exploring the link between SM and CI, as respondents had different profiles and experiences to share. Secondly, the interviews served as a foundation for the creation and adaptation of the survey by providing pertinent topics for organizations to address, not previously identified in the literature review. Based on the literature review,

interview questions were developed (Appendix 1). Questions were constructed based on two primary phenomena under investigation – CI and SM; they were designed to begin with a broad understanding or definition of the phenomenon and then transitioning to more concrete applications, such as how they relate to organizations. Interview questions concluded with very specific matters relating to improvements, potential limitations and benefits, to construct selected survey questions for the organizations. Questions were presented during the interviews in a neutral manner, attempting to avoid leaning toward a certain answer, for interviewees to respond through their own words and meaning.

Experience in the fields of CI and SM determined the interviewee selection criteria. It was also necessary for each subject to have a different role to allow for assessing divergent points of view. By choosing participants with dissimilar backgrounds, the investigation avoided minimal variation arising from matching profiles. For these reasons, the three subjects chosen were a university professor and CI consultant, an SM analyst and a subject in a management position, all in the field of CI. All interviewees were experts in CI, with a good understanding about SM and thus considered suitable to inform the qualitative phase of this research. The professor is responsible for the CI class in an IS management master's degree. Besides teaching, he is a consultant for various companies on matters of CI. The social market analyst works for a SM hub established in Lisbon specializing in SM monitoring, analysis and reporting. The third interviewees a founder of a startup company bought out by one of the top five Portuguese IT companies and is currently one of the managers responsible for the CI department. The last interviewee has over 15 years of experience in CI and in customizing and adapting services for specific customer needs. The interviews lasted between 20 and 55 min. The first interview was conducted on Skype, the remainder in person.

The interview questions were divided by two topics. First, questions pertaining to the CI process sought to gain understanding of the current situation and how it may be improved. The following questions related to SM – specifically how organizations perceived this phenomenon and whether it could be an additional component of the CI process. All interviews were recorded and transcribed, for which Bogdan and Biklen (1997) suggest labeling by coding criteria. For this process, NVIVO10 [4] software was used to discover word frequency similarities in meaning. Besides expected words such as CI and SM, the most commonly used were "customized," "outsource," "perception," "monitoring" and "analysis." The most common relationships were the association regarding outsourcing of the CI process or activities to the improvement or enhancement of the same, and the superior capability of the human component in the content analysis phase.

Development of a structured survey then took place based on the results from the qualitative phase. The questions and issues addressed in the latter research instrument were adapted from an existing survey (Vuori, 2011), taking into account the findings from the literature review and the in-depth interviews. The literature review allowed for an expansion and adaptation of CI questions in Vuori's (2011) survey, while the interviews unearthed concepts not present, such as outsourcing activities or the use of SM-based information. Additionally Venkatesh *et al.* (2013) suggest in certain sequential designs "IS researchers conduct a qualitative study first to inductively develop a theoretical perspective followed by a quantitative study to validate this theory" (p. 18).

Information obtained from structured surveys is considered to be "hard" data or numerical products enhancing credibility, but easy to interpret (Rapley, 2001). The survey in Google Forms was distributed electronically, because of the technical abilities but also the location of the chosen subjects. The Web-based survey addressed two important variables – response rate and expense (Greenlaw and Brown-Welty, 2009). The survey was sent by e-

mail to Fortune 1000 companies of the USA[5], with responses gathered through that application. Selection of participating organizations was based on their size and resource capability, making it more likely they would have the means to have a well-established CI process (Alliance, 2005; Tarraf and Molz, 2006). The focus of the survey was to understand how organizations implement CI and their view on SM with regard to inclusion in the CI process.

The survey provided means to collect empirical data regarding the way organizations use and implement the CI process and how they view SM-based information. The full structure of the survey is available in Appendix 2. The response rate for the survey administered here was 22.7%. That is to say, out of 1,000 organizations e-mailed, some 227 replied. Of those 227 surveys, 60 were considered unusable, making the final number of acceptable responses 167 or 16.7% of organizations initially contacted. Although this number may appear to be rather low, these organizations share many traits, which makes for what is considered to be an adequate representation of the sample population. Survey responses were analyzed using IBM's SPSS analytics software for establishing descriptive statistics regarding each variable: the lowest response, the highest response, the average response and the standard deviation. Additionally, latent variables scores were calculated based on the mean of their assigned items. Bivariate Pearson's correlation coefficient r was calculated for main variables to understand the implication on CI and SM activities.

Data analysis and results

To answer the research question, an initial study of a qualitative nature was undertaken. The results of that study informed the development of a questionnaire used as the data collection instrument for the quantitative study. In this section, we present the results from both studies.

Qualitative study

According to one of the interviewees "competitive intelligence is seen as an auxiliary tool which can aid in the strategic decision making process." While some interviewees believe such intelligence be tailored and customized to specific organizational needs, others consider it a standard template to applicable to any company in any industry. Unanimously, all interviewees viewed outsourcing CI as a viable and recommended approach. In fact, one interviewee considered this "a *natural* choice since most companies lack either the resources or the knowledge to implement this process successfully." While another added that "outsourcing these services allows them to focus on their core business while acquiring the intelligence needed at a less costly price than that of implementing a CI department."

In terms of SM, an interviewee acknowledged a "vast source of information and knowledge [. . .] can be acquired at a relatively low cost and allows for management to understand how the customers perceive their organization, brands, products, marketing campaigns, etc. [. . .]." The possibility for sentiment analysis is considered one of the "greatest contributions of SM to the CI process." However, not everything related to SM is seen as facilitating the CI process, as there can be drawbacks. For one interviewee, "there is a great resistance in organizations to adopt SM due to their lack of knowledge regarding this recent phenomenon." Although not all interviewees agreed on the benefits or disadvantages of incorporating SM in the CI process, they did agree the benefits outweighed the disadvantages. All participants stated this process could not be fully automated – one source stating, "The analytical functions associated with the process must be performed by skilled workers fully dedicated to this task." Clearly then, there is a certain tacit component to the knowledge which cannot be fully articulated (Busch, 2008). Based on the results of

those interviews, the questionnaire items were adapted from Vuori (2011) adding questions about the use of SM for CI purposes, namely, the construct "Benefits" for using SM, the latter construct also noted recently by Naeem (2019).

Quantitative study

The quantitative study aimed to provide additional confirmatory evidence regarding the relationship between CI and SM. We first provide some descriptive statistics about the survey results. Then, we present a correlation test to evaluate quantitatively how SM influences CI processes in organizations. Tables 1–4 show the descriptive statistics of the data collected relating to the use of CI and SM. Interestingly, the majority of respondents produce CI reports at least monthly, with the information transmitted within the organization mainly by presentation. At this level, the survey responses expand upon, and in most cases, agree with data gathered in the interviews. Furthermore, these responses allowed for establishment of preliminary relationships. The first interesting finding relates to the higher percentage of organizations claiming to monitor SM with regard to implementing CI (or at least naming it that). This demonstrates companies are aware of the importance of SM and the need to monitor contents produced – even if they do not consider this part of a CI process. Also noteworthy is that over 70% of companies outsource these activities to specialized firms; this demonstrates either lack of capability, knowledge and/or resources. Some firms, however, prefer to focus on their core activity and would rather purchase CI. The relationship between the benefits of CI and SM is also very interesting. Some 80.9% of organizations felt CI improved their relationship with their customers, while 76.8% felt the sources of SM provided the greatest benefit. If one considers customers of these organizations create content in SM, it is possible to establish a link between analyzing such content and thus creating a benefit in terms of strengthening customer relationships. By monitoring and analyzing such content, firms could "listen" to their customers and create enhanced linkages while discovering ways of improving customer care and social interaction (Table 1).

Finally, 78% of firms stated there needed to be improvements on the measurement of benefits from CI. This rather high percentage led to the assumption that most companies were not sure of the impact CI could have, even though they implement such a process. This once again points to the issue of outsourcing, as most organizations do not fully understand the effect CI can have, as they appear unable to quantify or draw concrete conclusions from

Table 1.
CI activities

Item	Type	Frequency	(%)
How often does your company produce CI reports?	Bi-monthly	42	25.1
	Daily	2	1.2
	Monthly	76	45.5
	Never	1	0.6
	Once per trimester	16	9.6
	Weekly	30	18.0
How is the information developed and transmitted within the company?	E-mail	52	31.1
	Internal application	17	10.2
	Intranet	39	23.4
	Meeting	8	4.8
	PP	1	0.6
	Presentation	48	28.7
	Reports	1	0.6

such activities. Nevertheless, a more in-depth analysis un-earthed correlations or patterns between certain variables and groups of others, potentially linked to a certain category (Tables 2 and 3).

Table 4 displays the importance of different types of information to CI activities. Certainly, customers' information, competitors' information and market information represent the main categories relevant for CI activities – these may be related to the fact SM potentially comprises an interesting source of information (Tables 4 and 5).

To understand the relationship of CI and SM, we performed correlation analysis. Table 6 shows the Pearson's' correlation between the main variables of interest for this study. According to the results presented in Table 6, CI information importance has a strong positive correlation with CI use based on hierarchy, coupled with the fact that SM is considered a reliable source of information. Additionally, the benefits of using CI is highly correlated with CI use based on hierarchy and on CI information importance. The benefits of using SM presents a stronger correlation with the fact that SM is considered a reliable source of information, and that the company monitors the SM. Interestingly, this variable also shows a positive correlation with the importance of CI information.

Discussion

The objective behind this investigation was to understand the SM impact on the organizational CI process through the question: *How could SM be used to enhance CI in an organizational context?* The literature review provided an academic viewpoint on CI

Table 2. CI-related survey results

Category	Sub-category	Results (%)
Implement CI?	–	62.9
Of these how many outsource activities?	–	75.24
Area of CI that most requires improvement?	Measurement of benefits (4 or 5)	78
Greatest benefit of CI?	Improved customer relationship (4 or 5)	80.9

Table 3. SM-related survey results

Category	Sub-category	Results (%)
Monitor SM	–	83.9
Consider SM info reliable	–	83.9
SM platforms monitored	Facebook/Twitter	97.2
Greatest benefit of SM	Sources of information (4 or 5)	76.8

Table 4. Importance of CI information

How important are the following topics when acquiring information for CI?	Average	SD
Customer information	4.81	0.490
Competitor information	4.65	0.745
Market information	4.55	0.708
Industry information	4.32	0.933
Other industries information	2.04	0.914
Technological information	3.39	1.303

concepts and implementation. Interviews and survey responses provided empirical evidence and insights into the everyday use of CI in organizations and the potential use of SM in CI processes.

One of the most notable findings was that even though all companies claimed to monitor their external environment and possessed some type of CI process or activities, the vast majority outsource these services to other organizations. As mentioned in the interviews, outsourcing these services allows them to focus on their core business while acquiring much needed intelligence. Demonstrating either a clear lack of capabilities, knowledge and/or resources, required them to implement and manage their own CI departments and process where they had not previously done so. Alternatively, through a strategic decision on the part of management, to outsource such services if they felt other firms were likely to be more competent with regard to managing CI. Considering the importance and impact such information can have, one would imagine firms would be reluctant to allow outside sources to access a company's CI. The survey results also demonstrated even though outsourcing seems the preferred choice, there are mixed results as to which approach is beneficial for specific organizational needs. However, this tendency to outsource means there is great potential for firms specializing in such expertise (Vagadia, 2011). Another factor to consider was the cost of acquiring information if these specialized firms could manage to offer attractive and competitive prices – they could certainly increase their demand within the marketplace. Additionally, according to results of our study, the outsourcing of CI activities only has a positive and significant correlation with CI information importance. For there appears to be a negative relationship (although not statistically significant) between outsourcing and other CI-related variables. For instance, in the case of CI, companies that resort to outsourcing show greater perception of benefits regarding the decision-making process and quality of information obtained. Similarly, in topics pertaining to SM, those companies not outsourcing activities seem to perceive greater benefits arising from the quantity, availability and cost of acquiring information.

In terms of how information produced is handled, over half of firms distribute and use data among everyone, ranging from top-tier management to operational employees. This aspect was especially evident in those organizations having a structured CI department, denoting a highly positive and effective knowledge sharing culture within those companies. Most companies realize the benefits of information dissemination outweigh restricting information to a select few, especially when taking into account the relatively high number of organizations stating a need for improvement in the knowledge sharing process, in line with much knowledge management research (Jalonen, 2014; Busch, 2008). The departments, which appear to benefit most from this approach, are those of customer service and business

Table 5.
Variables descriptive statistics

Item	Average	Standard deviation
CI usage based on hierarchy	3.86	0.894
CI information importance	4.43	0.810
Benefits of using CI	3.39	1.038
Benefits of using SM	3.68	1.183
There is a person responsible for CI	0.80	0.399
There is a CI department	0.25	0.435
Number of people dedicated to CI	2.71	0.779
The company monitors SM	0.84	0.364
Outsourcing of its CI activities	0.71	0.454
Consider information from SM reliable	0.84	0.369

	CI usage based on hierarchy	CI information importance	Benefits of using CI	Benefits of using SM	There is a responsible for CI	There is a CI department	N. of people dedicated to CI	Outsourcing of CI activities	Reliable information from SM	Company monitors SM
CI usage based on hierarchy	1			0.2*	0.291**	0.171*	0.160*	–0.036	0.157*	0.125
CI information importance	0.510**	1			0.172*	–0.156*	0.039	0.224**	0.265**	0.219**
Benefits of using CI	0.638**	0.501**	1		0.243**	0.197*	0.130	–0.115	0.140	0.104
Benefits of using SM	0.182*	0.241**	0.216**	1	0.173*	0.086	0.180*	0.020	0.737**	0.627**

Notes: **Significative at 0.01 (two-tailed); *significative at 0.05 (two-tailed)

Table 6.
Pearson correlations

planning and development, showing a particularly direct relationship between information needs and consumer needs. Thus, it should come as no surprise the information considered most desirable relates to consumers as well as competitor firms. Organizations must not limit their information needs to customer desire, but also have an understanding of how their competition operates so that they may adjust or develop preemptive measures to achieve or annul an advantage obtained by a competing firm.

The second part of this investigation revolved around analyzing the potential of SM in the CI context and its implementation. Interviews allowed for a broader approach on the advantages of incorporating SM, as well as how organizations view this recent phenomenon. The survey provided knowledge and an understanding of information needs, thus directing which SM data be incorporated into their CI process and activities. Most organizations not only admitted to monitoring activities and conversations undertaken in SM applications, but also deemed information obtained as reliable. Those companies stating they included SM information within their CI process demonstrated a higher recognition of the benefits CI could provide. The results show a positive and significant correlation between monitoring SM and considering SM information as reliable within organizations, the importance of CI information and the overall perceived benefits of using CI and SM. In terms of information and knowledge sharing, SM appears to encourage a higher rate of knowledge dissemination throughout the organization at all levels. These findings are also supported by a recent study where SM was noted to new knowledge while increasing the skills of employees, and at the same time, encouraging a knowledge sharing culture through more effective communication by increasing employee involvement in the research activities of a company (Naeem, 2019). One surprising aspect was the difference in impact when it came top-tier management. The inclusion of SM in the CI process also created the perception of a greater benefit in all areas discussed in the survey, especially with regard to product manufacturing, which is very interesting. These results show a distinct correlation between use of SM data and enhancement of benefits, which CI can grant an organization. It should come as no surprise companies not monitoring SM found fewer potential benefits in its adoption. The two factors apparently contributing most to this reality were the cost of acquiring information and the quality of the same. Clearly, knowledge is power, and the greater and more timely the quality of the product, the more powerful it is for the firm's bottom line.

As SM is a vast source of information, this allowed firms an opportunity to gather large amounts of useful data. Considering the large number of users on Facebook and Twitter, such applications have the potential to become endless streams of actionable intelligence; this potential is also noted in recent studies (Crammond *et al.*, 2018; Köseoglu *et al.*, 2018; Naeem, 2019). Such actionable intelligence can be likened to articulable tacit knowledge (Busch, 2008; Sanzogni *et al.*, 2017), that is to say, a source of codify-able "street smarts" with potential to give firms competitive advantage over their rivals. Furthermore, availability of this information is only limited by the time and tools of the inquirer, as these sources are accessible any time of the day. One of the most important aspects of SM information are the knowledge sources comprising customers and clients of firms or competitors, making the direct statements; this not only allows for a comprehension of how an action or product is perceived, but also for the possibility of interaction. Interaction, thus, becomes a powerful tool for reactive, preemptive or proactive strategies in customer relationship management (CRM). One key means for mapping such interaction is through social network analysis (SNA) (Busch, 2008), whereby management can visualize flows of communication between individuals as well as the richness of knowledge transferred (Krackhardt and Hanson, 1993; Hansen, 1999). Indeed, Facebook provides a practical example of SNA, in turn providing an example of SM. As SM is still a rather recent phenomenon, certain organizations are still

hesitant to acknowledge the use and benefits potentially attained, even though companies already willingly incorporate SM into CI, perceiving this as a tool that can enhance and contribute.

Concluding remarks

This investigation demonstrated SM could be incorporated into the CI process of organizations while acknowledging the very positive impact generated by producing vast amounts of intelligence not easily acquired elsewhere. While some 70% of the firms sampled were found to lack the resources necessary to implement CI effectively in-house, they nonetheless acknowledged outsourcing such services could bring with it another set of problems, as the knowledge contained in CI naturally provides an organization with its competitive advantage. In turn, we found only few firms possess a CI department and monitor SM activities, so both processes do not seem to be formally structured in most organizations. However, CI information is considered as important as the benefits of SM monitoring. Among examples of SM was Facebook, which was also noted in other recent studies (Crammond *et al.*, 2018; Köseoglu *et al.*, 2018; Naeem, 2019) to provide a positive experience of information sharing within a firm. Clearly, those firms acknowledging the importance of CI noted the improved relationships with their customers, typically through various CRM systems. The importance of CRM systems is evidenced through customer information, competitor and market information comprising the main categories of CI-related activity. Not surprisingly then, those departments in the company most benefiting from SM use for CI were customer service and business planning and development. In addition, while we noted 78% of firms acknowledged there needed to be improved measurement of the benefits arising from CI, we nonetheless found higher levels of SM monitoring related to higher levels of CI implementation. In fact, firms were aware of the importance of SM and the need to monitor contents produced in that channel to enhance the information used in a CI process, as a leverage for achieving competitive advantage. Furthermore, companies monitoring SM were those attributing a higher importance to CI information, and at the same time, firms resorting to outsourcing of CI activities, acknowledged the greater importance CI made to internal decision-making processes and the quality of information this intelligence could bring. On the other hand, firms hosting a CI section in-house were found even more likely to engage in an effective knowledge sharing culture whereby data was distributed and used by everyone from top-tier management to operational employees.

To our knowledge, this is the first study relating the concepts of CI and SM. The findings here contribute to both academe and practice. For academia, this exploratory study illustrates that SM may play a role in the CI processes, the type of information and insights SM tools provide about competitors as well as being an important source of competitive knowledge. This study also empirically tests an instrument for accessing CI and SM links in organizations. For practitioners working on the CI field, it shows that, although some companies are still reluctant to embrace SM, they should re-evaluate their position and consider the impact embracing these platforms can have on their intelligence capabilities. Those not able to incorporate such methods independently can resort to outsourcing these activities as other companies have done before them; this allows firms to maintain a focus on their core functions while obtaining information from specialized providers. Furthermore, outsourcing these activities is noted to be considerably cheaper than implementing the process in-house (Vagadia, 2011). Today's corporations, for the most part, have access to the same resources as their competitors. As such, gaining a competitive advantage is becoming an increasingly difficult task. The future of the advantage resides in information and knowledge (Choo, 2003). SM will not only contribute but also enhance capabilities of firms in acquiring and maintaining an advantage (Culnan *et al.*, 2010). Finally, we note the measurement of the benefits CI brings to a firm is under-researched. We, thus, encourage both academe and organizations to

consider using greater resources here to ascertain the extent to which CI truly makes a difference to a company's bottom line.

There were certain limitations to this research. First, all organizations asked to participate were large companies; this excluded small- and medium-sized enterprises (SMEs), which may have led to a variation in the findings. Additionally, as the survey did not require respondents to identify themselves, it is not possible to know the source of the response; therefore, anyone from an entry-level employee to a senior manager could have provided answers. Finally, all organizations were North America-based, limiting the scope of responses to that part of the globe, although a recent study (Gilani *et al.*, 2019) notes the USA, Australia and the UK have been the most productive countries to date making use of SM for decision-making. Limitations also relate to the interviewees and their answers. Although it would be extremely unrealistic to expect to capture every possible interpretation regarding the phenomenon under investigation, we recognize our results are influenced by the experiences of the respondents themselves. Finally, there is the question of the small sample of interviewees limiting possible answers and interpretations.

Regarding future investigation, one may choose to study a different type of organization or section of the globe. An investigation could be undertaken focusing on SMEs to determine if company size influences the results obtained. Developing a framework for incorporating SM into the CI process represents another opportunity. Alternatively, a case study could be performed of companies implementing or adapting a certain framework for using SM in CI. Another possibility is to develop a case study based on companies using SM intelligence and how such intelligence affects their intelligence department specifically, or the firm's overall performance more generally. Finally, an alternative approach would be to disprove the findings presented here and to demonstrate how the CI process differs from that described. Alternatively, that SM is unable to contribute as much to intelligence activities as stated here.

Notes

1. www.statista.com/topics/1164/social-networks/
2. www.statista.com/topics/1164/social-networks/
3. www.statista.com/statistics/278527/number-of-blogs-worldwide/
4. www.qsrinternational.com/products_nvivo.aspx
5. www.geolounge.com/fortune-1000-companies-2014-list/

References

Aguilar, F.J. (1967), *Scanning the Business Environment*, Macmillan, New York, NY.

Alliance, G.I. (2005), "Competitive intelligence in large companies–global study", *GIA White Paper, 4*, 2005.

Antikainen, M., Mäkipää, M. and Ahonen, M. (2010), "Motivating and supporting collaboration in open innovation", *European Journal of Innovation Management*, Vol. 13 No. 1, pp. 100-119.

Badr, A., Madden, E. and Wright, S. (2006), "The impact of competitive intelligence on the development and implementation of strategy in the pharmaceutical industry", *Journal of Competitive Intelligence and Management*, Vol. 3 No. 4, pp. 15-35.

Berthon, P.R., Pitt, L.F., Plangger, K. and Shapiro, D. (2012), "Marketing meets web 2.0, social media, and creative consumers: implications for international marketing strategy", *Business Horizons*, Vol. 55 No. 3, pp. 261-271.

Bogdan, R. and Biklen, S.K. (1997), *Qualitative Research for Education*, Allyn and Bacon.

Bonsón, E. and Flores, F. (2011), "Social media and corporate dialogue: the response of global financial institutions", *Online Information Review*, Vol. 35 No. 1, pp. 34-49.

Britten, N. (1995), "Qualitative research: qualitative interviews in medical research", *BMJ*, Vol. 311 No. 6999, pp. 251-253.

Bryman, A. (2006), "Integrating quantitative and qualitative research: how is it done? ", *Qualitative Research*, Vol. 6 No. 1, pp. 97-113.

Bryman, A. (2007), "Barriers to integrating quantitative and qualitative research", *Journal of Mixed Methods Research*, Vol. 1 No. 1, pp. 8-22.

Busch, P. (2008), *Tacit Knowledge in Organizational Learning*, IGI-Global Hershey USA.

Calof, J.L. (2008), "Selling competitive intelligence", *Competitive Intelligence Magazine*, Vol. 11 No. 1, pp. 39-42.

Chen, H., Chiang, R.H. and Storey, V.C. (2012), "Business intelligence and analytics: from big data to big impact", *MIS Quarterly*, Vol. 36 No. 4, pp. 1165-1188.

Choo, C.W. (2003), *A Organização Do Conhecimento: como as Organizações Usam a Informação Para Criar Significado, Construir Conhecimento e Tomar Decisões*, Senac, São Paulo.

Coakes, E.W., Coakes, J.M. and Rosenberg, D. (2008), "Co-operative work practices and knowledge sharing issues: a comparison of viewpoints", *International Journal of Information Management*, Vol. 28 No. 1, pp. 12-25.

Crammond, R., Omeihe, K., Murray, A. and Ledger, K. (2018), "Managing knowledge through social media modelling an entrepreneurial approach for Scottish SMEs and beyond ", *Baltic Journal of Management*, Vol. 13 No. 3, pp. 303-328.

Culnan, M.J., McHugh, P.J. and Zubillaga, J.I. (2010), "How large US companies can use twitter and other social media to gain business value", *MIS Quarterly Executive*, Vol. 9 No. 4, pp. 243-259.

Dabbagh, N. and Kitsantas, A. (2012), "Personal learning environments, social media, and self-regulated learning: a natural formula for connecting formal and informal learning", *The Internet and Higher Education*, Vol. 15 No. 1, pp. 3-8.

Dai, Y., Kakkonen, T. and Sutinen, E. (2011), "SoMEST: a model for detecting competitive intelligence from social media", *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, September, *ACM*, pp. 241-248.

Davis, T.R. and Luthans, F. (1980), "A social learning approach to organizational behavior", *Academy of Management Review*, Vol. 5 No. 2, pp. 281-290.

Deng, Z. and Luo, L. (2007), "An exploratory discuss of new ways for competitive intelligence on WEB2. 0", *Integration and Innovation Orient to E-Society Volume 2*, Springer, pp. 597-604.

Dey, L., Haque, S.M., Khurdiya, A. and Shroff, G. (2011), "Acquiring competitive intelligence from social media", *Proceedings of the 2011 Joint Workshop on Multilingual OCR and Analytics for Noisy Unstructured Text Data*, September, ACM, p. 3.

Dishman, P.L. and Calof, J.L. (2008), "Competitive intelligence: a multiphasic precedent to marketing strategy", *European Journal of Marketing*, Vol. 42 Nos 7/8, pp. 766-785.

Fawley, N.E. (2013), "LinkedIn as an information source for human resources, competitive intelligence", *Online Searcher*, Vol. 31

Fleisher, C.S. (2001), "An introduction to the management and practice of competitive intelligence (CI)", *Managing Frontiers in Competitive Intelligence*, pp. 3-18.

Fleisher, C.S. and Bensoussan, B.E. (2007), *Business and Competitive Analysis: effective Application of New and Classic Methods*, FT Press.

Gilani, E., Salimi, D., Jouyandeh, M., Tavasoli, K. and Wong, W. (2019), "A trend study on the impact of social media in decision making ", *International Journal of Data and Network Science*, Vol. 3, pp. 201-222.

Grant, R.M. (1996), "Toward a knowledge-based theory of the firm", *Strategic Management Journal*, Vol. 17 No. S2, pp. 109-122.

Greenlaw, C. and Brown-Welty, S. (2009), "A comparison of web-based and paper-based survey methods testing assumptions of survey mode and response cost", *Evaluation Review*, Vol. 33 No. 5, pp. 464-480.

Gundecha, P. and Liu, H. (2012), "Mining social media: a brief introduction", *Tutorials in Operations Research*, Vol. 1 No. 4.

Hansen, M. (1999), "The search-transfer problem: the role of weak ties in sharing knowledge across organizational subunits ", *Administrative Science Quarterly*, Vol. 44 No. 1, pp. 82-111.

He, W., Zha, S. and Li, L. (2013), "Social media competitive analysis and text mining: a case study in the pizza industry", *International Journal of Information Management*, Vol. 33 No. 3, pp. 464-472.

Hemphill, T.A. (2002), "Oracle vs Microsoft: corporate espionage or competitive intelligence? ", *Business and Society Review*, Vol. 107 No. 4, pp. 501-511.

Herring, J. (1998), "What is intelligence analysis?", *Competitive Intelligence Magazine*, Vol. 1 No. 2, pp. 13-16.

Jalonen, H. (2014), "A framework for dealing with fundamental knowledge problems through social media", *VINE*, Vol. 44 No. 4, pp. 558-578.

Johnson, R.B. and Onwuegbuzie, A.J. (2004), "Mixed methods research: a research paradigm whose time has come", *Educational Researcher*, Vol. 33 No. 7, pp. 14-26.

Kahaner, L. (1997), *Competitive Intelligence: how to Gather Analyze and Use Information to Move Your Business to the Top*, Simon and Schuster.

Kaplan, A.M. and Haenlein, M. (2010), "Users of the world, unite! the challenges and opportunities of social media", *Business Horizons*, Vol. 53 No. 1, pp. 59-68.

Kietzmann, J.H., Hermkens, K., McCarthy, I.P. and Silvestre, B.S. (2011), "Social media? Get serious! Understanding the functional building blocks of social media", *Business Horizons*, Vol. 54 No. 3, pp. 241-251.

Köseoglu, M., Chan, E., Okumus, F. and Altin, M. (2018), "How do hotels operationalize their competitive intelligence efforts into their management processes? Proposing a holistic model ", *International Journal of Hospitality Management*, Vol. 83, pp. 1-10.

Krackhardt, D. and Hanson, J. (1993), "Informal networks: the company behind the chart", *Harvard Business Review* July-August, pp. 104-111.

LaMar, J. (2007), Competitive intelligence survey report. [2010-10-01], available at: http://joshlamar, corn/documents/CITSurveyReport.pdf

McCarthy, I.P., Lawrence, T.B., Wixted, B. and Gordon, B.R. (2010), "A multidimensional conceptualization of environmental velocity", *Academy of Management Review*, Vol. 35 No. 4, pp. 604-626.

McMaster, M. (1996), *The Intelligence Advantage (Organizing for Complexity)*, Boston.

Mangold, W.G. and Faulds, D.J. (2009), "Social media: the new hybrid element of the promotion mix", *Business Horizons*, Vol. 52 No. 4, pp. 357-365.

Markovich, A., Efrat, K., Raban, D. and Souchon, A. (2019), "Competitive intelligence embeddedness: drivers and performance consequences", *European Management Journal*, Vol. 37 No. 6, pp. 1-11.

Mayeh, M., Scheepers, R. and Valos, M. (2012), "Understanding the role of social media monitoring in generating external intelligence", *ACIS 2012: Location, location, location: Proceedings of the 23rd Australasian Conference on Information Systems 2012*, January, *ACIS*, pp. 1-10.

Montgomery, D.B. and Weinberg, C.B. (1979), "Toward strategic intelligence systems", *Journal of Marketing*, Vol. 43 No. 4, pp. 41-52.

Naeem, M. (2019), "Uncovering the role of social media and cross-platform applications as tools for knowledge sharing", *VINE Journal of Information and Knowledge Management Systems*, Vol. 49 No. 3, pp. 2059-5891.

Number of blogs world from 2006 to 2011 | Statistic (2021), available at: www.statista.com/statistics/278527/number-of-blogs-worldwide/ (accessed 2 February 2015).

Oliveira, J.P.M., Loh, S., Wives, L.K., Scarinci, R.G., Musa, D., Silva, L. and Zambenedetti, C. (2004), "Applying text mining on electronic messages for competitive intelligence", *E-Commerce and Web Technologies*, Springer, Berlin Heidelberg, pp. 277-286.

Onwuegbuzie, A.J. and Teddlie, C. (2002), "A framework for analyzing data in mixed methods research", in Tashakkori, A.and Teddlie, C. (Eds), *Handbook of Mixed Methods in Social and Behavioral Research*, Sage, Thousand Oaks, CA, pp. 351-383.

Oritogun, K., Busch, P. and Picoto, W. (2018), "Effectiveness of social media for KM tools in SMEs", *32nd International Business Information Management Association (IBIMA) conference* Seville Spain November 15-16th 12 pages.

Patino, A., Pitta, D.A. and Quinones, R. (2012), "Social media's emerging importance in market research", *Journal of Consumer Marketing*, Vol. 29 No. 3, pp. 233-237.

Porter, M.E. (1980), *Competitive Strategy: Techniques of Analyzing Industries and Competitors*, The Free Press, New York, NY.

Portes, A. (1998), "SOCIAL capital: its origins and applications in modern sociology", *Annual Review of Sociology*, Vol. 24 No. 1, pp. 1-24.

Prior, V. (2008), "Glossary of terms used in competitive intelligence and knowledge management"

Ram, J. and Liu, S. (2018), "Social commerce and innovative business engagements: an empirical investigation", *The Electronic Journal Information Systems Evaluation*, Vol. 21 No. 2, pp. 94-108.

Rapley, T.J. (2001), "The art (fullness) of open-ended interviewing: some considerations on analysing interviews", *Qualitative Research*, Vol. 1 No. 3, pp. 303-323.

Riege, A. (2005), "Three-dozen knowledge-sharing barriers managers must consider", *Journal of Knowledge Management*, Vol. 9 No. 3, pp. 18-35.

Rothwell, K.E. (2009), "Web 2.0", *Competitive Intelligence Magazine*, Vol. 12 No. 2, pp. 34-37.

Santos, M. and Correia, A.M.R. (2010), "Competitive intelligence as a source of competitive advantage: an exploratory study of Portuguese biotechnology industry".

Sanzogni, L., Guzman, G. and Busch, P. (2017), "Artificial intelligence and knowledge management: questioning the tacit dimension ", *Prometheus*, Vol. 35 No. 1, pp. 37-56.

Skeels, M.M. and Grudin, J. (2009), "When social networks cross boundaries: a case study of workplace use of Facebook and LinkedIn", *Proceedings of the ACM 2009 international conference on Supporting group work*, May, ACM, pp. 95-104.

Tarraf, P. and Molz, R. (2006), "Competitive intelligence at small enterprises", *SAM Advanced Management Journal*, Vol. 71 No. 4, p. 24.

Twitter: Number of monthly active users 2014 | Statistic (2021), available at: www.statista.com/statistics/282087/number-of-monthly-active-twitter-users/ (accessed 2 February 2015).

Vagadia, B. (2011), *Strategic Outsourcing: The Alchemy to Business Transformation in a Globally Converged World*, Springer Science and Business Media.

Venkatesh, V., Brown, S.A. and Bala, H. (2013), "Bridging the qualitative-quantitative divide: guidelines for conducting mixed methods research in information systems", *MIS Quarterly*, Vol. 37 No. 1, pp. 21-54.

Vuori, V. (2011), *Social Media Changing the Competitive Intelligence Process: Elicitation of Employees' Competitive Knowledge*, Tampereen teknillinen yliopisto. Julkaisu-Tampere University of Technology. Publication, p. 1001.

Vuori, V. and Okkonen, J. (2012), "Refining information and knowledge by social media applications: adding value by insight", *VINE*, Vol. 42 No. 1, pp. 117-128.

Vuori, V. and Väisänen, J. (2009), "The use of social media in gathering and sharing competitive intelligence", *9th International Conference on Electronic Business*.

Zhao, J. and Jin, P. (2009), *Towards the Extraction of Intelligence about Competitor from the Web*, Springer, Berlin Heidelberg, pp. 118-127.

Zhao, J. and Jin, P. (2011), "Extraction and credibility evaluation of web-based competitive intelligence", *Journal of Software*, Vol. 6 No. 8, pp. 1513-1520.

Further reading

Aaker, D.A. (1983), "Organizing a strategic information scanning system", *California Management Review*, Vol. 25 No. 2.

Abowitz, D.A. and Toole, T.M. (2009), "Mixed method research: fundamental issues of design, validity, and reliability in construction research", *Journal of Construction Engineering and Management*, Vol. 136 No. 1.

Albagli, A., Dawson, P. and Hasnain, S. (1996), "Competitive science and technology intelligence", *International Journal of Technology Management*, Vol. 12 No. 3, pp. 320-328.

Amabile, T.M., Patterson, C., Mueller, J., Wojcik, T., Odomirok, P.W., Marsh, M. and Kramer, S.J. (2001), "Academic-practitioner collaboration in management research: a case of cross-profession collaboration", *Academy of Management Journal*, Vol. 44 No. 2, pp. 418-431.

Baruch, Y. and Holtom, B.C. (2008), "Survey response rate levels and trends in organizational research", *Human Relations*, Vol. 61 No. 8, pp. 1139-1160.

Baxter, P. and Jack, S. (2008), "Qualitative case study methodology: study design and implementation for novice researchers", *The Qualitative Report*, Vol. 13 No. 4, pp. 544-559.

Benjamin, W.A. (1979), "Management of business information", *Industrial Marketing Management*, Vol. 8 No. 1, pp. 51-56.

Brockhoff, K. (1991), "Competitor technology intelligence in German companies", *Industrial Marketing Management*, Vol. 20 No. 2, pp. 91-98.

Chonko, L.B., Tanner, J.F., Jr,. and Smith, E.R. (1991), "Selling and sales management in action: the sales force's role in international marketing research and marketing information systems", *Journal of Personal Selling and Sales Management*, Vol. 11 No. 1, pp. 69-80.

Chou, W.Y.S., Hunt, Y.M., Beckjord, E.B., Moser, R.P. and Hesse, B.W. (2009), "Social media use in the United States: implications for health communication", *Journal of Medical Internet Research*, Vol. 11 No. 4.

Cleland, D.I. and King, W.R. (1975), "Competitive business intelligence systems", *Business Horizons*, Vol. 18 No. 6, pp. 19-28.

Creswell, J.W. (2013), *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Sage publications.

Dey, E.L. (1997), "Working with low survey response rates: the efficacy of weighting adjustments", *Research in Higher Education*, Vol. 38 No. 2, pp. 215-227.

Facebook: Figures of monthly active users 2014 | Statistic (2021), available at: www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/ (accessed 2 February 2015)

Fahey, L. and King, W.R. (1977), "Environmental scanning for corporate planning", *Business Horizons*, Vol. 20 No. 4, pp. 61-71.

Fahey, L., King, W.R. and Narayanan, V.K. (1982), "Environmental scanning and forecasting in strategic planning – the state of the art", *Long Range Planning*, Vol. 14 No. 1, pp. 32-39.

Ghoshal, S. and Westney, D.E. (1991), "Organizing competitor analysis systems", *Strategic Management Journal*, Vol. 12 No. 1, pp. 17-31.

Gibbert, M., Ruigrok, W. and Wicki, B. (2008), "What passes as a rigorous case study? ", *Strategic Management Journal*, Vol. 29 No. 13, pp. 1465-1474.

Greene, J.C., Caracelli, V.J. and Graham, W.F. (1989), "Toward a conceptual framework for mixed-method evaluation designs", *Educational Evaluation and Policy Analysis*, Vol. 11 No. 3, pp. 255-274.

Järvinen, P. (2008), "On developing and evaluating of the literature review", *The 31st Information Systems Research Seminar in Scandinavia (Workshop 3)*, August.

Johansson, R. (2003), "Case study methodology", *the International Conference on Methodologies in Housing Research*, September, *Stockholm*.

Juhari, A.S. and Stephens, D.P. (2006), "Tracing the origins of competitive intelligence throughout history", *Journal of Competitive Intelligence and Management*, Vol. 3 No. 4, pp. 61-82.

King, G., Keohane, R.O. and Verba, S. (1994), *Designing Social Inquiry: Scientific Inference in Qualitative Research*, Princeton University Press.

Kotrlik, J.W.K.J.W. and Higgins, C.C.H.C.C. (2001), "Organizational research: determining appropriate sample size in survey research appropriate sample size in survey research", *Information Technology, Learning, and Performance Journal*, Vol. 19 No. 1, p. 43.

Maltz, E. and Kohli, A.K. (1996), "Market intelligence dissemination across functional boundaries", *Journal of Marketing Research*, Vol. 33 No. 1, pp. 47-61.

Myers, M.D. and Newman, M. (2007), "The qualitative interview in is research: examining the craft", *Information and Organization*, Vol. 17 No. 1, pp. 2-26.

Noor, K.B. (2008), "Case study: a strategic research methodology", *American Journal of Applied Sciences*, Vol. 5 No. 11, pp. 1602-1604.

Östlund, U., Kidd, L., Wengström, Y. and Rowa-Dewar, N. (2011), "Combining qualitative and quantitative research within mixed method research designs: a methodological review", *International Journal of Nursing Studies*, Vol. 48 No. 3, pp. 369-383.

Pinsonneault, A. and Kraemer, K.L. (1993), "Survey research methodology in management information systems: an assessment", *Journal of Management Information Systems*, Vol. 10 No. 2, pp. 75-105.

Sale, J.E., Lohfeld, L.H. and Brazil, K. (2002), "Revisiting the quantitative-qualitative debate: Implications for mixed-methods research", *Quality and Quantity*, Vol. 36 No. 1, pp. 43-53.

Schonlau, M., Ronald, D., Jr and Elliott, M.N. (2002), *Conducting Research Surveys via e-Mail and the Web*, Rand Corporation.

Simsek, Z. and Veiga, J.F. (2001), "A primer on internet organizational surveys", *Organizational Research Methods*, Vol. 4 No. 3, pp. 218-235.

Stake, R.E. and Savolainen, R. (1995), *The Art of Case Study Research*, Vol. 95004979, Sage publications, Thousand Oaks, CA.

Yin, R.K. (2013), *Case Study Research: Design and Methods*, Sage publications, Thousand Oaks, CA.

Corresponding author
Peter Busch can be contacted at: peter.busch@mq.edu.au

Appendix 1. Semi-structured interview questions

- Could you please define CI?
- How do companies currently implement the CI process?
- How do you believe companies could improve the CI process?
- What is your understanding of SM?
- What is necessary for organizations to adopt SM?
- How do organizations currently use SM?
- Could SM be used in the CI process? How?
- What are some of the potential and realized benefits of using SM?
- What are some of the challenges and limitations of using SM?

Code	Latent variable	Item description	Scale	Reference
VAR1		Does your company gather and analyze information about the external environment?	Yes/No	Adapted from Vuori (2011)
VAR2		If yes, what name is given to these activities?	Business intelligence/ CI/other (specify)	
VAR3		Does your company have a person responsible for CI?	Yes/No	
VAR4		Does your company have a CI department?	Yes/No	
VAR5		How many people are dedicated to CI?	Interval	
VAR6		Is there a specific budget for CI?	Yes/No	
VAR7	CI usage based on hierarchy	Who are the people who use CI in your company? [top management]	Never/rarely/ sometimes/often/ everyday	Adapted from Vuori (2011)
VAR8		Who are the people who use CI in your company? [middle management]		
VAR9		Who are the people who use CI in your company? [experts]		
VAR10		Who are the people who use CI in your company? [other employees]		
VAR11		Which areas of your company use the information produced by CI? [HR]	(1∼5) Likert scale (1 – never use; 5 – use very frequently)	Adapted from Vuori (2011)
VAR12		Which areas of your company use the information produced by CI? [marketing]		
VAR13		Which areas of your company use the information produced by CI? [finance]		
VAR14		Which areas of your company use the information produced by CI? [R&D]		
VAR15		Which areas of your company use the information produced by CI? [customer service]		
VAR16		Which areas of your company use the information produced by CI? [business planning and development]		
VAR17	Information importance for CI	How important are the following topics when acquiring information for CI? [customer information]	(1∼5) Likert scale (1 – not important; 5 – very important)	Adapted from Vuori (2011)
VAR18		How important are the following topics when acquiring information for CI? [competitor information]		
VAR19		How important are the following topics when acquiring information for CI? [Market Information]		

(*continued*)

Table A1.
Survey variables

Table A1.

Code	Latent variable	Item description	Scale	Reference
VAR20		How important are the following topics when acquiring information for CI[industry information]		
VAR21		How important are the following topics when acquiring information for CI? [other industries information]		
VAR22		How important are the following topics when acquiring information for CI? [technological information]		
VAR23		How often does your company produce CI reports?	Never/daily/(bi-weekly/weekly/bi-monthly/monthly/ once per trimester/ once per semester/ once per year	Adapted from Vuori (2011)
VAR24		How is the information developed transmitted within the company?	Presentation/intranet/ internal application/e-mail/other (specify)	Adapted from Vuori (2011)
VAR25	Benefits of using CI	How would you evaluate the benefits of CI to your company? [recognition of opportunities or threats]	(1∼5) Likert scale (1 – no benefit; 5 – extremely beneficial)	Adapted from Vuori (2011)
VAR26		How would you evaluate the benefits of CI to your company? [increased sales]		
VAR27		How would you evaluate the benefits of CI to your company? [increased market share]		
VAR28		How would you evaluate the benefits of CI to your company? [improved the products manufactured]		
VAR29		How would you evaluate the benefits of CI to your company? [improved customer relationship]		
VAR30		How would you evaluate the benefits of CI to your company? [improved decision-making process]		
VAR31		How would you evaluate the benefits of CI to your company? [improved the quality of information]		
VAR32		How would you evaluate the benefits of CI to your company? [achieved cost savings]		
VAR33			Yes/No/Not sure	

(*continued*)

Table A1.

Code	Latent variable	Item description	Scale	Reference
		Which areas of CI do you feel require improvement? [being on schedule]		Adapted from Vuori (2011)
VAR34		Which areas of CI do you feel require improvement? [identifying information needs]		
VAR35		Which areas of CI do you feel require improvement? [measurement of the benefits]		
VAR36		Which areas of CI do you feel require improvement? [management commitment]		
VAR37		Which areas of CI do you feel require improvement? [number of staff]		
VAR38		Which areas of CI do you feel require improvement? [technological resources]		
VAR39		Which areas of CI do you feel require improvement? [efficiency of information gathering]		
VAR40		Which areas of CI do you feel require improvement? [more effective knowledge sharing]		
VAR41		Does your company monitor SM?	Yes/No	Interviews
VAR42		If yes, which platforms?	Facebook/Twitter/ LinkedIn/YouTube/ Pinterest/Myspace/ other (specify)	
VAR43		Does your company outsource its CI activities?	Yes/No	
VAR44		Do you consider the information obtained from SM reliable?	Yes/No	
VAR45	Benefits of using SM	How would you evaluate the benefits of monitoring SM? [cost of acquiring information]	(1 – no benefit; 5 – extremely beneficial)	
VAR46		How would you evaluate the benefits of monitoring SM? [quantity of information]		
VAR47		How would you evaluate the benefits of monitoring SM? [sources of information]		
VAR48		How would you evaluate the benefits of monitoring SM? [quality of information]		
VAR49		How would you evaluate the benefits of monitoring SM? [availability of information]		