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Exploring social media use in B2B supply chain operations

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Abstract This research examines current applications and potential capabilities of a wide array of social media applications such as Facebook, Twitter, LinkedIn, and others within the context of B2B supply chain operations. Specifically, we use social media affordances (SMA) as a framework to explore how social media is used in B2B supply chain settings. We report findings based on a survey of 209 professionals in supply chain areas. These findings include the extent to which social media and different social media tools are used in B2B supply chain operations, the impact of company size on social media use, the areas in which social media is used, the perceptions of social media, and other relevant issues such as social media policy and security. Based on these findings, this study provides a discussion regarding the current and future use of social media in B2B supply chain operations.

1. Social media for enterprises

The social media revolution has touched nearly all areas of business and, in many instances, has changed fundamental interactions between companies and their customers (Kaplan & Haenlein, 2010). Outside the business realm, individuals have rapidly embraced and adopted social media. According to the Pew Research Center (2018), between February 2005 and February 2018, the percentage of American adults using social networking sites jumped from 5% to 69%. Specific platforms added users at unprecedented rates, with Facebook hitting 50 million users just 1 year after its commercial introduction (Statista, 2015a) and Twitter doing the same in under 9 months (Statista, 2015b). Recognition of social media value is present in most business settings; however, many industry insiders believe much remains to be done. This is particularly true in the area of supply chain. While there is little doubt that social media is starting to have a big impact on supply chain activities (O'Leary, 2011), researchers point out the shortcomings. As one McKinsey & Company report stated: "[Companies] have adopted [social]

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technologies but have generated only a small fraction of the potential value they can create" (Bughin, Chui, & Manyika, 2012). The same study stated that "social platforms can unlock $900 billion to $1.3 trillion in value in those sectors alone" and "[t]wo-thirds of this value creation opportunity lies in improving communication and collaboration within and across enterprises" (Bughin et al., 2012). It is the across enterprises portion of that statement that motivates our current study.

Supply chains are large, amorphous, loosely coupled organizations that may contain a wide range of vendors, buyers, suppliers, manufacturing facilities, distribution and consolidation centers, and logistics partners. It stands to reason that embedding social media into various aspects of a supply chain will change communication patterns, permit additional information to be gathered and analyzed to better understand newly evolving trends, and ultimately enhance decision making. One of the primary problems within a supply chain has been information dispersion and sharing. According to Chen (2003, p. 341): "The performance of a supply chain depends critically on how its members coordinate their decisions. And it is hard to imagine coordination without some form of information sharing." Information yields advantages and, with social media, new information can be gathered from sources that were previously outside of existing communication infrastructures.

Researchers and industry thought leaders have suggested a variety of ways in which social media can benefit the supply chain and enable information collection. Most of these ideas have been B2C-related functions and include:

- Enhancement of communication with customers, particularly regarding shipping, service, and feedback issues;
- Use of social media to generate demand for goods and services;
- Increased market intelligence and a better understanding of performance via data analytic operations (Lee, 2018; O'Leary, 2011; Singh, Shukla, & Mishra, 2017); and
- A newly developed sense of connection with the company (Ramanathan, Subramanian, & Parrott, 2017).

With the vast number of people using social media, it becomes nearly as important for an organization to have a social media presence as it has been to have a web presence. If companies do not use social media, they can quickly lose competitive advantage and be left out of a world inhabited by their customers, suppliers, partners, and competitors (Cui, Gallino, Moreno, & Zhang, 2018; Paniagua & Sapena, 2014). In addition to enhancing connections, social media channels help organizations generate ideas for improving the supply chain process and detect/solve problems through an awareness of supply chain partners' collective insights.

In 2004, Gunasekaran and Ngai (2004, p. 289) stated: "[A] dense networking infrastructure to support digital communications is the obvious backbone of any information society. New broadband and wireless technologies are being funded and developed so that eventually all citizens and businesses will be connected." Although social media had yet to take off, this statement was predictive of the changes beginning to occur. As the network infrastructure did become available, social media found its way into the fabric of business and is unlikely to disappear.

Many of the advantages that quickly appeared were focused on B2C improvements provided by organizations tapping into social media venues (O'Leary, 2011), and they included items related to forging deeper connections with data provided by consumers, mining customer comments for insight, and enhancing customer service. Most of these changes appeared because data were provided via consumer initiatives in locations such as retail sites, discussion forums, blogs, and threaded discussions. It was not until later that B2C social media practices started to become institutionalized (e.g., using delivery notifications, collecting comments on services).

B2C social media interactions have evolved since that time (Chae, 2015). Supply chain companies use social media data to better understand customer behavior and to innovate products and services (Chan, Lacka, Yee, & Lim, 2017; Lee, 2018). Also, there are several areas in supply chain management in which social media can be utilized to increase environmental scanning, customer satisfaction, sales, communication, and engagement (see Table 1).

The lessons learned from B2C social media applications can be used to inform applications in the B2B space. In essence, these applications are about creating social interactions and deriving business value. The technologies involved and the overarching goals are similar in B2B areas. These include increasing communication, information sharing, and market sensing through interactive web-based technologies. The success of social

Table 1. B2C social media supply chain examples

Area	Application	Examples
Logistics & delivery	• Shipment departure, status, and arrival notifications • Shipment performance messages to let customers know about delivery timeliness	• Shipment notifications by Four Soft, Conway, and other companies (O'Leary, 2011)
Sales & demand shaping	• Streaming new product and service information • Sending out promotional materials (e.g., coupons, discounts) to customers • Sales through social media	• Like2Buy (Lindsey-Mullikin & Borin, 2017) • PEEL's use of Facebook video ads for sales • Wayfair's use of Instagram for sales
Supply demand synchronization	• Detecting and evaluating customer sentiments on products and services • Estimating future customer demands	• Use of Facebook posts and comments to predict sales in the fashion industry (Cui et al., 2018)
New product development	• Asking for customer feedback on existing products and services • Asking for customer ideas for new products and services	• Starbucks' submit your idea • Twitter Tees by Threadless (Conley, 2017)
Communication & stakeholder engagement	• Promoting success stories and releasing reports on corporate social responsibility (CSR) • Providing user tutorials, hints, and instructions	• Use of Twitter and Facebook by *Fortune* 500 companies for communicating CSR reports (Reilly & Hynan, 2014)

technology-enabled business platforms (e.g., Alibaba, Salesforce) provides an example of how concepts derived from B2C that combine social technology with business transactions can be successful. Some of the key concepts include: connecting users across systems, lower barriers to communication, and fostering the development of communities. Social technologies breed trust between businesses and their partners, which will ultimately improve business practices in B2B operations.

Several differences also exist for B2C and B2B in this area. In B2C, much emphasis is on social media as an enabler for engaging with customers to improve sales and operational performances and on supporting a company's downstream supply chain. In contrast, social media in B2B is for interacting with partners in one's upstream supply chain to increase operational efficiency. While social media in B2C is often used to increase information diffusion (e.g., promotion), B2B social media is about sharing proprietary information with partners more efficiently than with traditional channels. Thus, security can be an important consideration in adopting and using social media in a B2B supply chain.

Another difference between B2C and B2B is technology related. Many B2B systems rely on rigid technologic infrastructures that tie the internal processes of an organization—via formal protocols—to its supplier and vendor partners. In other circumstances, no connection between B2B entities exists, making personal-level communication difficult if not impossible. To fill this gap, new cloud-based software products and services emerged to leverage social media capabilities between partner entities (Demirkan, Cheng, & Bandyopadhyay, 2010; Jhang-Li & Chang, 2017).

The purpose of our research was to understand the current use of social media technologies in B2B supply chains and to provide managerial implications with respect to social media deployment in B2B settings. We introduce a framework based on social media affordances (SMA; Treem & Leonardi, 2012) to organize areas in which the B2B supply chain can be influenced. We conducted a survey of 209 professionals in supply chain areas and present findings useful to academics and professionals in utilizing social media to improve supply chain-related operations.

2. The growth of social media

Social media refers primarily to technologies that allow generation of user-created information and support user interaction. Social media can facilitate one-to-one relationships between users but its strength resides in its capability to easily enable many-to-many interactions (Reiter, McHaney, & Connell, 2017). Social media allows the development of virtual relationships that enable people to connect on many levels. Most social media applications utilize cloud technologies and are considered Web 2.0 (McHaney & Sachs, 2016; O'Reilly, 2007). The era of social computing emerged largely due to social media applications and has led to levels of replacement in prior modes of communication such as telephone, mail, email, radio, and television (Parameswaran & Whinston, 2007).

In less than 10 years, social media technologies have infiltrated and revolutionized the way businesses interact with stakeholders (Reiter et al., 2017). As a result, social media applications have dramatically altered how people connect, interact, share, communicate, and even think (McHaney, 2011). The speed with which social media permeated social and business practices was relatively unforeseen by many futurists (Aburdene, 2005). Measures of social media use indicate continued growth. According to the Nielsen Company: "Social media is one of the biggest opportunities that companies across industries have to connect directly to consumers" (Casey, 2017). For example, in 2016, adults spent 36% more time on social media than they did in 2015; more recently, it was found that adults spend an average of 5.5 hours per week on social media (Casey, 2017).

Organizations have reacted to social media and sought ways to integrate its advantages into their business practices. In spite of the fact that many social media tools were developed to target individual-level communications, many businesses now use tools provided by Facebook, LinkedIn, Pinterest, Instagram, Twitter, and others to interact with customers, potential customers, and other stakeholders. Social media is the most popular online activity, accessed by more than 66% of all internet users. *Fortune* 500 companies were using social media tools as early as 2009 at relatively high levels, including Facebook, Twitter, blogs, and YouTube: 64% of them for internal use, 56% for B2C, and 40% for B2B (Culnan, McHugh, & Zubillaga, 2010).

In general, social media permits the development of meaningful relationships with current and future customers (Rapp, Beitelspacher, Grewal, & Hughes, 2013). It enables the discovery of new customers, continued relationships with existing customers, and the collection of valuable and

relevant information (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011). In B2C, social media has become a resource in business activities such as sales (Bocconcelli, Cioppi, & Pagano, 2017). New venues for business interaction are also available (e.g., creating a fan base). Businesses can mine unstructured social media data as a means to acquire and fine-tune business intelligence (Lee, 2018). Since much of social media data is public, information about competitors and competing products is readily available (Reiter et al., 2017).

3. SMA for B2B supply chain operations

We believe social media can be integrated into supply chain transaction processing systems to provide new data that benefits business partners on both sides of the relationship. Social media can provide context and add details to supply chain events. Sharing this information with interested partners is consistent with social media concepts, although information-sharing may not be in a firm's best interests (Chen, 2003). We believe relationships are constructed between extended supply chain partners. A corporate strategy could encourage employees and representatives of partner firms to use social media to develop closer relationships. In addition, social media in a B2B setting will necessarily seek to change the fundamental nature of communication from a one-way message to a more interactive and lively exchange. This gives the B2B relationship a human element. We also believe social media information is related to business value in B2B supply chains. Social media data is contextually rich and considered big data (Chae, 2015; Chan et al., 2017). Gathering information and transforming it into knowledge with data analytics ultimately enhances organizational reputations, improves processes, or provides access to more cost-effective transactions (Tan, Ji, Lim, & Tseng, 2017). Finally, social media can be a digital platform for companies to collaborate with upstream and downstream firms not normally accessible through traditional, integrated information systems. For example, supply chain risk assessment, product development, demand and supply planning, and coordinated responses to potential supply chain disruptions can be implemented with digital platforms such as Twitter.

We introduce *social media affordance* as a conceptual framework to investigate the potential utility of social media in B2B supply chain operations. The term affordance, originally coined by James Gibson (1966), focuses on "not what an object is, but rather what kinds of uses it affords" (Treem & Leonardi, 2012, p. 145). The term has been adopted in communication studies and information systems literature to study the role and use of social media in organizations for internal communications (Treem & Leonardi, 2012). In organizational communication contexts, Treem and Leonardi (2012) identified four social media affordance types:

- Visibility of knowledge, behaviors, and connections;
- Content editability;
- Persistence of communication; and
- Association.

These social media affordances, identified in intraorganizational contexts, are adapted in this study to discuss potential interorganizational usage of social media for B2B supply chains.

First, social media affords association (Treem & Leonardi, 2012). The key aspect of social media is its social nature, supporting social connections between organizations and their members. This differentiates social media from extant interorganizational information systems or technologies. While traditional interorganizational information systems are focused primarily on transmitting proprietary information (Johnston & Vitale, 1988) between suppliers and customers, social media adds a social interaction element. Social media enables different types of associations (e.g., LinkedIn connections, Twitter followers, members of a Facebook group) among employees of the companies in a B2B supply chain. Even social media algorithms are advanced enough to recommend new people for potential association based on various commonalities (e.g., job position).

In addition, social media can support associations between people and material objects, including documents, posts, datasets, charts/graphs, videos, pictures, and hyperlinks. Because of this type of association, the data/information shared through social media becomes identifiable by the contributor. Content gets individual ownership, which comes with responsibility and rewards and, further, is editable. Therefore, information quality can improve over time (Treem & Leonardi, 2012). This also differentiates social media from traditional interorganizational information systems, in which such data are often

aggregated, and person-to-content ties are not obvious or may even be removed.

Second, social media affords communication among people inside—and even outside—the associations. Communication, especially in the form of information sharing among partners, has been highly regarded as a key enabling factor for successful B2B supply chains and is not entirely new in the context of interorganizational information systems. Historically, B2B supply chain communication has been periodic, asynchronous, and time-bound, involving only a few individuals from vendor and customer organizations. Communication between organizations can also be troubling for an organization, particularly if knowledge and information assets leak out through informal channels (Ahmad, Bosua, & Scheepers, 2014). Social media is considered richer than traditional communication technologies used in B2B supply chains—including emails and faxes—in the sense that social networking sites and wikis (Majchrzak, Wagner, & Yates, 2013), for example, afford sharing and editing of diverse forms of content (Treem & Leonardi, 2012) through diverse modes of communication (e.g., videos) with few restrictions on time or location.

Thus, social media potentially changes the landscape of communication in the B2B supply chain. Social media allows more organizations and their members to participate in communication and information sharing. Also, the contents they share are not only editable but also traceable and easy to follow at a later date. Thus, communication is continuous and contents can be revisited and reused for future communication. Social media enables real-time communication among large stakeholders. The shared contents are not only limited to traditional supply chain data (e.g., performance metrics, shipments, inventory level) but also include diverse external and contextual data. For example, Intel used social media to capture data to proactively monitor supply chain compliance, social responsibility, and sustainability (Siegfried, 2014).

Third, social media affords accessibility to big data that can be used for supply chain network optimization. Social media users are real-time sensors or reporters (Sakaki, Okazaki, & Matsuo, 2010). As social media becomes increasingly popular, user-generated and machine data are exploding and available in real time. Thus, social media can be the source of large amounts of contextual data. In B2B supply chain settings, companies can pull relevant data from social media and gain intelligence from big data for many supply chain activities (e.g., risk management, supply planning) while, in a B2C supply chain, manufacturers and service providers take advantage of social media largely to push marketing and deliver information to potential customers.

Unlike traditional structured and numerical supply chain data in corporate databases (Olson, Chae, & Sheu, 2013), the data generated, stored, and/or processed in social media are largely

Table 2. B2B social media supply chain examples

Supply Chain Affordances	Description
Association	• Association of people • Association between people and contents • Association between people and information/knowledge • Improvement of information quality
Communication	• Continuous communication • Real-time information sharing
Big Data & intelligence	• Collection of large amounts of contextual data • Extraction of business intelligence • Data-driven supply chain optimization
Collaboration	• Real-time, large-scale coordinated efforts in response to supply chain disruptions • Coordinated efforts in demand and supply planning • Coordinated product development

unstructured and highly enriched (Chae, 2015). They often not only carry users' opinions or sentiments about products, services, and brands but also reveal demographic information. The amount of data (e.g., news) about markets, economy, sociopolitical environments, upstream suppliers, and competitors accessible through social media and web services is also increasing. With the help of analytical techniques, these new types of data can be used to extract business intelligence and enable data-driven supply chain optimization.

Finally, social media can help supply chain partners to improve coordination. Supply chain coordination or integration involves collaborative planning and joint decision making in supply chain activities, including logistics, inventory management, demand forecasting, and risk management. Historically, there have been different coordination mechanisms (e.g., contracts, EDI, VMI, CPFR) typically used by key business partners in B2B supply chain settings (Arshinder, Kanda, & Deshmukh, 2008). As complexity, uncertainty, and disruptions in business environments increase, social media can enable supply chain coordination with large stakeholders, at lower costs, and in real time.

There are many areas in the B2B supply chain in which coordination is critical (Flynn, Huo, & Zhao, 2010). Social media can coordinate efforts among field personnel who used to play a small role in supply chain decisions. These people include delivery truck drivers, warehouse workers, emergency responders, onsite maintenance technicians, and others. Many have access to social media technologies and can feed lively and important news into decision making. Social media can support real-time, large-scale coordinated efforts (e.g., risk management) involving these people in response to unpredictable supply chain disruptions (e.g., road accidents, factory fires, natural disasters). Table 2 provides examples of social media affordances for B2B supply chain operations.

4. Social media usage in B2B supply chain

We conducted a survey to determine the level of social media usage in B2B supply chain settings. While the survey consisted primarily of questions about the use of social media for B2B supply chain operations, it included additional questions about perceptions of social media.[1] Social media offers openness that does not exist in traditional B2B supply chain systems but could raise security concerns. Therefore, we also included questions about organizational policies and information security regarding social media use. We collected 209 screened and valid responses from 119 males and 90 females involved in their companies' supply chain operations. The respondents' average age was 40 years and, on average, they had 9.5 years of working experience. About 60% of the respondents reported they currently work at medium-sized or large companies, while 40% reported working at small companies of fewer than 50 employees.

In spite of the fact that social media was conceived of as a way for individuals to communicate and interact online, organizations have discovered how to move these familiar and widely popular tools into daily business operations (Kaplan & Haenlein, 2010). These tools already widely impact B2C relationships (Hanna, Rohm, & Crittenden, 2011) and our study shows that organizations are starting to recognize the value afforded by social media tools at the B2B level. Regarding whether the individuals contacted believed their organizations used social media in the B2B supply chain, 60% of the respondents answered "definitely does" and 23% answered "probably does." Only 2% responded "definitely not." Further, people involved with B2B supply chain operations report that social media can help with supply chain performance, effectiveness, productivity, and problem-solving, and can improve relationships with supply chain partners. They suggest the technological challenges are not too great and that cost, while a consideration, is not prohibitive.

Looking at the affordances provided by social media, we see four primary areas:

1. Association between people, contents, and information;
2. Enhancement of communication channels;
3. Collection, extraction, and data-based optimization due to big data and business intelligence; and
4. Coordination and collaboration between entities to improve supply/demand planning and minimize disruption, in the short term, and to enhance long-term planning.

The survey showed that these affordances are aligned with particular tool sets. For instance,

[1] The survey items regarding the perceptions of social media are borrowed from Siamagka, Christodoulides, and Michaelidou (2015).

LinkedIn had the highest correlation with the association dimension. Facebook and Twitter were also highly popular for association. These tools are useful in creating relationships between individuals, as well as providing connections to content and knowledge. Both Facebook and Twitter provide tools to create groups, which can then be used for sending out specific messages, maintaining status updates, and quickly contacting people in the event of problems. Social media provides mechanisms for connecting the right people at the right time.

Considering the affordance of communication, Google Docs and LinkedIn had the highest correlation with the information-sharing dimension. Facebook did not appear to be a popular medium for communication/information sharing, which could be due to its perception as a family and friends venue (Stutzman & Kramer-Duffield, 2010). Google Docs is configured to permit access in very specific ways that can enhance knowledge sharing (Gaál, Szabó, Obermayer-Kovács, & Csepregi, 2015) and LinkedIn is a business social media network by intention (Skeels & Grudin, 2009). Again, the ability of social media to enhance communication between individuals within the broader backdrop of B2B operations becomes apparent. In a description of supply chain disruptions, Stecke and Kumar (2009, p. 208) suggested: "Reliable and robust communication links can help control and coordinate operations of a dispersed supply chain. With decentralized and global supply chains, the need and benefits of communication links are significant." The users of social media appear to recognize the value of the decentralized communication capability provided by social media tools for mitigating supply chain disruptions.

In terms of the affordance of data and business intelligence, users of social media in B2B supply chain settings appear to value Twitter, LinkedIn, and blogs as sources of data for analytics, while Facebook was not popular for this use. Again, Twitter's capacity as a data source is well-documented (Chae, 2015) and Twitter can offer quick insight into developing issues. In the same way, Twitter and LinkedIn were popular for the collaboration affordance. Twitter can offer a rapid interaction in situations that require coordination, as can messages sent through LinkedIn.

In many settings, firm size is an important feature (Wu, Yeniyurt, Kim, & Cavusgil, 2006). However, with social media, firm size did not impact the perception of social media's value in B2B supply chain applications. This makes sense from several vantage points. First, most individuals surveyed did not believe the cost of social media or the difficulty of its deployment were prohibitive issues. Second, social media is an equalizer and provides small and medium businesses advantages similar to those of large businesses (Schaupp & Bélanger, 2013).

The survey findings also highlighted a lack of awareness that social media can result in security threats and problems. Only 50% of the respondents felt social media could pose security risks. This indicates a need for management to educate and train people on how easily vital organizational knowledge can inadvertently be released via social media. Likewise, only 60% of the organizations represented by this study had a social media use policy, again indicating that the potential for harm was not being as widely considered as it should be.

5. Managerial implications

This study provides a number of managerial implications for those working in the B2B supply chain area. These implications for managers can be summarized in a three-step process: (1) learn the capabilities of social media for B2B operations, (2) begin to use social media tools, and (3) be proactive to new challenges.

5.1. Learn the capabilities of social media for B2B operations

Social media can be a valuable tool with its capability to enhance operations in a variety of ways. Although customer-centric business operations have embraced social media, B2B operations have lagged. While many survey respondents reported that they see the value of social media for B2B operations, organizational knowledge and experience with social media for B2B supply chains are not readily available for managers compared to those for B2C. We would advise managers of B2B operations to learn the capabilities of social media platforms and recognize the value these could introduce. With respect to this, the importance of knowledge acquisition and strategic management in using enterprise social media cannot be overemphasized. Our findings support prior work in this area that described these aspects of enterprise social media use. Archer-Brown and Kietzmann (2018, p. 1300) pointed out that "the collaborative, 'social' creation of knowledge generates a range of internal benefits, such as improved teamworking, opportunities for serendipitous discovery and enhanced working relationships."

Social media creates new communication channels that offer the potential to enhance teamwork, identify best practices, analyze and improve connectedness, and build tacit organizational knowledge with both operational and strategic value. Managers should focus on the value social media can bring to B2B operations. The findings of this study indicate that social media provides insight into networks along the supply chain, which extend both inside and outside of an organization. This enhances the capabilities of managers to identify unexpected opportunities for improvement, form strategic partnerships, and enhance best practices for work and communication. B2B social media provides an entirely new element for organizational knowledge acquisition (Von Krogh, 2012). Over time, this can become a competitive advantage and offer an organization the ability to recognize and understand improvement opportunities in new, innovative ways.

5.2. Begin to use social media tools

Although social media tools may grow and change over time, their value remains in an organization's enhanced capability to provide association, communication, data collection/analysis, and collaboration. Next, we recommend that an organization begins using these tools for its B2B supply chain. The good news is that those surveyed perceived social media as easier to deploy than other technologies and beneficial for businesses regardless of their size. Also, it will be easier to move to a new tool after having acquired expertise and knowledge by using what is available currently. For an effective rollout of social media tools, we advise organizations to deploy a business unit or task force consisting of technology specialists (e.g., web technology) and domain experts (e.g., logistics, supply chain planning). Each supply chain operates in a unique environment. This unit should oversee the identification of best business practices for social media and B2B supply chain, education of supply chain personnel, and even development of organizational policies for social media use (see Section 5.3.).

Specifically, managers and business units should find the SMA framework useful for strategic social media rollout. This study showed that various social media tools align best with particular affordances. This should influence managerial decisions about the tools to enhance their B2B social media use. For example, managers wishing for greater levels of association with business partners should focus on tools such as LinkedIn, Twitter, and Facebook. If strategic improvement of communication is desired, specifically in the information-sharing dimension, organizations from the current study indicated LinkedIn and Google Docs provided meaningful support in this area. For managers wishing to engage more with the affordance of data and business intelligence, Twitter, LinkedIn, and blogs all appear to be viable tools.

As a word of caution, we know many employees are familiar with social media as a platform for building associations and communicating with other individuals. Because of this, we expect that association and communication affordances will be easier to roll out than big data intelligence and collaboration affordances. Since new tools are emerging and the capabilities of existing tools are changing, managers and their business units can provide employees with a survey of social media technologies in B2B supply chain contexts and a set of guidelines about how best to take advantage of these technologies for association, information sharing, big data intelligence, and collaborative planning.

5.3. Be proactive to new challenges

Although B2B social media offers many new advantages and its use is probably inevitable, there are also dark sides to social media, and several cautions need to be mentioned (Baccarella, Wagner, Kietzmann, & McCarthy, 2018; O'Leary, 2011; Richey, Morgan, Lindsey-Hall, & Adams, 2016). First, B2B social media is often outside the control of an organization. Many forms of social media, either intentionally or unintentionally, become public. This brings many forms of worry to management: statements could come from an uncontrolled company source; sensitive business knowledge could be leaked to competitors or to those wishing to sabotage an operation; inaccurate information could be sent to valued partners; or inaccurate, unofficial information could be received, leaving an organization unsure of whether or not to take action. The informal nature of social media has many disadvantages that could harm an organization. Along this line, the survey findings indicate a lack of awareness about the dangers of social media use.

This suggests that managers need to work with the social media business unit or task force to help supply chain personnel understand security issues. For this, they need to identify potential security challenges specifically related to social media in a B2B supply chain and develop necessary measures and procedures to keep B2B communication and information sharing from creating security threats

and potential harms. This effort can go beyond organizational boundaries and managers, with partner organizations collaboratively working on developing security measures for their supply chain networks. It is important that such measures and policies be communicated clearly with employees and easily accessible by them (O'Connor, Schmidt, & Drouin, 2016).

Further, organizations need to implement social media strategically and carefully in order to avoid mistakes of the past. Keinänen and Kuivalainen (2015) suggested that managers in B2B settings using private social media are more likely to use it in a business context. This implies that without careful training and organizational management, the problematic intermingling of personal and business social media use could occur (Guesalaga, 2016). Aggarwal, Gopal, and Sankaranarayanan (2012) cautioned that failure to develop policies to regulate personal versus business social media use could result in unintended consequences. Chung, Andreev, Benyoucef, Duane, and O'Reilly (2017) described these consequences as embarrassment and damage to organizational reputation. We believe these cautions should be heeded in the area of B2B social media implementation.

6. Summary and future research

Many organizations are using social media in B2B supply chain operations and this trend appears to be increasing. Managers need to be aware of social media's value in B2B areas. Although originally intended for individual collaboration and interaction, these social media can offer benefits to organizations. We proposed the affordance concept as a potential framework to understand social media use in B2B supply chain operations and reported the findings from a survey on social media use. The survey results highlight the general extent of social media use and different social media tools within B2B supply chain operations. The research provided managerial implications for rolling out social media in a supply chain.

Future research could employ causality analysis to understand the impact of social media use on B2B supply chain performance. Case research of social media use in B2B supply chain operations can be another venue for future research. Case studies of companies with innovative applications of social media tools would enhance understanding of the strategic roles of social media in B2B supply chains.

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