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Brand Innovation and Social Media:
Knowledge Acquisition From Social Media, Market Orientation, and the
Moderating Role of Social Media Strategic Capability

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Research Highlights:

The present study focuses on the knowledge acquired from social media channels leading to brand innovation.

Brand innovation is affected by *both* knowledge acquisition from social media and market orientation (pro- and reactive).

Social media strategic capability acts as a moderator between knowledge acquisition, market orientation, and brand innovation.

On social media, a customer's needs can be identified more comprehensively than that of the traditional setting.

The context of social media provides a different set of rules for competition and strategic behavior.

Abstract

The study examines the relationships between knowledge acquisition from social media, two forms of market orientation (proactive and reactive), social media strategic capability, and brand innovation strategy in the context of China's online technology industry.

Analysis of 357 online technology ventures, created during the past 6 years, suggests that brand innovation is affected by *both* knowledge acquisition from social media and market orientation. Social media strategic capability positively affects brand innovation and acts as a moderator between knowledge acquisition, market orientation, and brand innovation. It further enhances both types of market orientations in achieving brand innovation, suggesting that on social media, a customer's needs, both expressed and latent (or unexpressed), can be identified more comprehensively than that of the traditional setting. Hence, the context of social media provides a different set of rules for competition and strategic behavior, which online technology ventures should note. Implications are useful to improve the current understanding of social media brand innovation strategy, here in China's dynamic social media scene.

Keywords – *Emerging market; Knowledge acquisition from social media; Market orientation; Social media strategic capability; Social media brand innovation.*

1. Introduction

According to The China Internet Network Information Center, social media channels in China continue to grow in popularity. Similar to Western economies, social media in China have become important channels through which businesses and customers communicate. This adoption of social media for business communication is driven by the fact that the Chinese population is rapidly adopting mobile Internet use, with 464 million citizens accessing the Internet via smartphones or other wireless devices (Yum 2013). Despite the censoring of social networks such as Facebook and Twitter, Sina Weibo (China's equivalent to Twitter) and WeChat (a mobile messaging application) have become popular due to their enabling of immediate user experience and interaction (Heggstuen 2013). For businesses, the ability to obtain information from and disseminate information to a wider audience and the ability to integrate different channels as part of their marketing programs are critical in developing successful social media branding strategies (Kim & Ko 2012; Rapp, Beitelspacher, Grewal, & Hughes 2013).

Scholars argue that the success of online technology ventures is due to their alertness to market opportunities and an understanding of their customers (Oliveira & von Hippel 2011; von Hippel *et al.* 2011), suggesting that such market knowledge provides a source of competitive advantage (Alegre *et al.* 2013). Jantunen (2005) states that incorporating market knowledge into an organization's strategy acts as an asset that helps the firm maintain its competitive ability. Cadwallader *et al.* (2010) note that knowledge is a critical advantage that leads to a firm's innovation activities. In the present study, we focus on the knowledge acquired from social media channels, which is widespread and growing and

encompasses all types of information about customers, suppliers, market volatility, law, and anything beyond the information found on discussion forums, social networks, rating sites, blogs, and crowdfunding sites, among other online sources.

Despite the importance of social media market knowledge and subsequent innovation activities, we note a research gap in the literature on knowledge acquisition garnered from social media and market orientation in relation to brand innovation, particularly in the social media context (Kim & Ko 2012). Researchers consider the acquisition of knowledge and the way in which a company orients itself in the market as important firm-level activities and the ultimate drivers of economic development (e.g., Augusto & Coelho 2009; Li *et al.* 2010). Exploring the processes pertaining to the knowledge acquired from social media and how it is used inside the organization improves our understanding of the way in which such knowledge may prompt a firm to be more alert to market opportunities (Atuahene-Gima & Ko 2001) and to become more market oriented, namely, toward its customers and competitors from an outside in perspective (Cai *et al.* 2015).

Additionally, the literature suggests that most firms adopt at least one of the two forms of market orientation toward discovering market opportunities: proactive or responsive market orientation (e.g., Marvel & Lumpkin 2007). ‘Responsive market orientation’ (Narver *et al.* 2004) refers to a firm’s focus on understanding customer preferences and satisfying customer needs in an existing market structure (Samuelsson 2001), and ‘proactive market orientation’ (Narver *et al.* 2004) refers to a firm’s focus on addressing the latent needs of customers, that is, their largely unexpressed (consciously unaware)

needs. However, previous studies show different effects of each orientation on innovation (Narver *et al.* 2004). Moreover, few researchers are studying the aforementioned topics in a transitional economy, and even fewer are studying them in the context of social media (Quinton 2013). Thus, to fill this gap in the research, we investigate the relationships between the social media knowledge acquisition, market orientation, and brand innovation of new online ventures in China's dynamic social media environment.

Finally, because research suggests that an organization's strategic capability has greater influence on the above relationships (Tan 2001), we also test for a direct effect and moderating role of the firm's *social media strategic capability*. China, which is currently experiencing a transitional economy and a complex social media market environment, provides an excellent context for the study of social media brand innovation in an under-researched environment. Thus, we frame our research question as follows: How does the social media knowledge acquisition and market orientation of new online technology ventures influence their brand innovation strategies? We use in our study social capital theory (e.g., Burt 1997), which highlights a variety of specific benefits that arise from the information flow and reciprocal cooperation associated with social networks as the theoretical framework of our research model. Accordingly, this study emphasizes the social media strategic capabilities of firms, that is, the ability of firms to integrate their knowledge garnered from social media, resources, and skills with their strategic directions (Bierly & Chakrsbarti 1996; Teece 2007; Teece, Pisano, & Shuen 1997). To the best of our knowledge, this study is the first to examine the effects of social media strategic capability in the context of brand innovation on social media. Determining how knowledge acquired

from social media relates to brand innovation (Rapp *et al.* 2013) and how well it is managed inside the organization (Gold *et al.* 2001) is important. Failure to appreciate the role of knowledge garnered from social media will have stark implications for industrial marketing, resulting in lower market and customer awareness and, consequently, eroding both a vital source of brand innovation and innovation in general.

The paper is structured as follows: In the next section, we review the theoretical background and describe our research framework. We then develop hypotheses to test the relationships in our framework. Following this, we present our research methodology and subsequent results. Finally, we discuss the implications of our findings and their theoretical contributions and discuss the study's limitations and directions for future research.

2. Theoretical Background and Hypothesis Development

2.1 Social Media Brand Innovation

A classic debate among researchers of innovation strategy is whether innovations are driven mostly by market demand or by technological advances (e.g., Salavou & Lioukas 2003, Stock, Six, & Zacharias 2013). It is likely that both elements are important in the success of any innovation (Cai *et al.* 2015). Scholars suggest that the innovation field lacks a common notion of the conceptual meaning and definition of innovation (e.g., Morgan & Berthon 2008). Most studies suggest that innovations have the power to transform existing markets, create new markets, and shift or introduce entirely new technological and performance trajectories (Abetti 2000; Zahra & Bogner 1999). Researchers note that such *radical* innovations are rare (Garcia & Calantone 2002) and that only 10% of new

innovations fall into the category of being truly full-blown radical innovations (Griffin 1997; Wind & Mahajan 1988). It is often difficult to evaluate the definition of a radical innovation (Dahlin & Behrens 2005; Gatignon *et al.* 2002) due to the complexities and issues of relativity; that is, what may be perceived as radical in one situation is not radical in another situation. To solve this methodological problem, the concept of ‘radicalness’ has been developed to identify radical innovation from technology content (Aiman-Smith & Green 2002; Marvel & Lumpkin 2007). *Radicalness* refers to the extent to which innovation is based on a substantially new technology or new practice relative to what already exists in the industry (Govindarajan & Kopalle 2006). It is often used to classify innovations according to how radical they are compared to existing products or services (Freeman & Soete 1997; Meyers & Tucker 1989; Yu *et al.* 2014).

We focus in this study on social media brand innovation, which we define as innovation arising from social media branding that results in fundamental changes to existing practices and markets or in their replacement. We adapt and utilize the notion of radical innovation as the definitive outcome of any branding strategy, which aims to transform markets and gain a superior competitive advantage (Hage 1980). Our definition is further based on Schumpeter’s concept of ‘gales of creative destruction’, which refers to the idea that more advantageous technologies or practices sweep aside established practices, that is, perceptions that one practice embodies a potential to become more advantageous, disrupt the status quo and create uncertainties. For example, by using social media branding, firms must continuously innovate to overcome competition and survive in a fast-changing environment (Madden, Fehle, & Fournier 2006). For the firm that is able to wipe away the

old while creating new opportunities, a source of sustainable competitive advantage may be achieved. A branding strategy on social media that transforms existing markets, creates new practices, and shifts or introduces entirely new technological and performance trajectories is thus what we refer to as social media brand innovation (Martin, Stewart, & Matta 2005). An example includes Coca-Cola's 'Share a Coke' campaign. Price (2014) suggests that this campaign has taken social media branding to a different level because it builds on knowledge gleaned from social media and, to a large extent, incorporates that knowledge into the organization with the mass customization (and production) of bottle labels (Melewar & Nguyen, 2014). Another example is the gifting of 'red envelopes', a Chinese New Year tradition of gifting money, on the WeChat (or Weixin) app. The Weixin team conceived of the idea of taking this tradition into the digital era so that rather than (or, perhaps, in addition to) giving red envelopes with money to family, friends, employees or business partners, Weixin users can tap into digital payments and send monetary gifts of up to CNY100 (around \$16.50) per gift to others on the chat app (Hong 2014).

2.2 Knowledge Acquisition from Social Media

For a firm in a turbulent environment, innovation depends on developing, acquiring, and using new knowledge (Grant 1996; Teece 2007). The knowledge-based view (KBV), which builds and extends on the resource-based view (RBV), emphasizes the optimization of knowledge and organizational learning to efficiently develop innovation (Duan & Xu 2012). KBV advocates the implementation of best practices and continuous improvement (Marsh & Stock 2006), suggesting that the management of knowledge provides the most strategically important resource at a firm's disposal (Berchicci 2013; Grant 1996) for

enhancing team creativity (e.g., Sung & Choi 2012) and firm innovation performance (e.g., Alegre *et al.* 2013). Knowledge acquisition contributes to improved performance in several business processes, including operational problem solving, functional integration, and new product development (Ettlie & Pavlou 2006; Palacios & Garrigos 2006). In this study, we define knowledge acquisition from social media as the ability to accumulate adequate and critical knowledge arising from social media necessary to a firm's brand innovation activities¹ (Gold, Malhotra, & Segars 2001). Knowledge acquisition from social media can be regarded as experience accumulation, which influences firms' capability to identify opportunities, errors, and threats (Zhang *et al.* 2003). Knowledge acquisition from social media thus facilitates optimal and optimized learning behavior. For new technology firms that suffer from liability newness and lack of adequate resources (Watson & Hewett 2006), learning provides an essential ability to grow in a dynamic environment.

Experiential learning theory highlights the critical role that experience plays in affecting learning and change (Kolb 1984). The theory suggests that learning involves integrating experience and linking observations to actions. Although the effect of knowledge

¹ We suggest that the construct of knowledge acquisition from social media is a separate construct from the original market orientation scale (see Kohli & Jaworski 1990; Narver & Slater 1990). Although market orientation measures activities pertaining to intelligence generation from other sources (buyers, suppliers, competitors, the broader environment, government) and is based on the market-based view (MBV), we note that the construct of knowledge acquisition from social media is based on the knowledge management literature and the knowledge-based view (KBV), which in turn draws from the resource-based view (RBV) and which is considered a theoretically different strategic perspective (some would even contrast the MBV and RBV). Thus, by separating knowledge acquisition from social media and market orientation, we adhere to both existing strategic perspectives and jointly combine the two streams of strategy literature. In other words, while market orientation is both an organization culture and market-oriented strategy (Narver & Slater 1990), knowledge acquisition is purely the act of acquiring knowledge from the market as part of a resource-based strategy stemming from social media. Additionally, scholars suggest that market orientation can create a value co-creation ecosystem that includes both internal and external actors, and that knowledge acquisition can be used to make the focal firm more competitive. Therefore, the two concepts differ. Finally, we argue that while social media may be seen as another platform (or channel), the implications of social media in marketing are more deep-rooted and require the inclusion of both market orientation and knowledge acquisition from social media to detail the specific peculiarities. This is because social media affects not only the communication, but also the resources, knowledge management activities, relationships, organizational culture, marketing, and strategy, and so forth of a company. For additional details, see Quinton (2013). We thank an anonymous reviewer for raising this important point.

management and performance is well researched (e.g., Qi *et al.* 2006), prior research on KBV from an experiential learning perspective is lacking (Yu *et al.* 2014). In the present study, we adapt experiential learning theory as the underlying theoretical framework for the development of the construct of knowledge acquisition from social media. We adopt knowledge management based on the notion of a continuous learning process, advocated by experiential learning theory. This process promotes important aspects of learning, including acquiring new knowledge, changing existing ideas and perspectives, relearning, integrating acquired knowledge, and applying knowledge (Kolb 1984). The emphasis on a continuous and dynamic cycle of learning is crucial to identifying opportunities in the social media environment and, subsequently, to developing brand innovations. In the next section, we explore the study constructs and relationships in more detail.

2.3 Knowledge Acquisition from Social Media and Brand Innovation

Knowledge gleaned from social media refers to information, which has the potential to create value for an organization (Tomas & Hult 2003). Many attempts have been made to classify knowledge within different fields, focusing on different dimensions, which have resulted in the existence of numerous classifications and distinctions (e.g., Botha *et al.* 2008; Gourlay 2006). Within KBV, scholars usually define two types of knowledge: explicit knowledge and tacit knowledge. *Explicit knowledge* refers to codified knowledge, such as that found in documents, and *implicit knowledge* refers to non-codified and often personal/experience-based knowledge (Nonaka 1994). In the knowledge management and organizational learning theories, these two types of knowledge remain theoretical cornerstones. Botha *et al.* (2008) highlight that explicit and tacit knowledge should be seen

as a spectrum rather than as definitive points, suggesting that all knowledge is a mixture of tacit and explicit elements. The present study builds on both the RBV (Barney 1991; Penrose 1959) and KBV (Conner & Prahalad 1996; Grant 1996; Kogut & Zander 1992) by focusing on two relevant types of knowledge: *technology knowledge*, which refers to the business-relevant knowledge that the new venture possesses regarding its products, technologies, and processes (Burgers *et al.*, 2008), and *market knowledge*, which describes its business-relevant knowledge regarding its potential customers and distribution channels, and how the market functions (Burgers *et al.*, 2008). Both knowledge types are critical resources for firms' performance and subsequent competitive advantage (Conner & Prahalad, 1996). A lack of technology and market knowledge is shown to be fatal, diminishing firms' performance levels (Li *et al.* 2010). The ability to acquire knowledge from social media may prevent such negative outcomes (e.g., Melewar & Nguyen 2014).

Acquiring knowledge from social media is a method for accumulating experiences, searching for knowledge, obtaining knowledge through talent, guiding learning, and transferring knowledge (Gupta *et al.* 2010). The firms' performance depends on the extent to which it can mobilize all of the knowledge resources at its disposal and turn it into value-creating activities (Alavi & Leidner 2001). Yu *et al.* (2014) emphasize the important role that knowledge acquisition plays in new technology ventures. Due to these firms' resource constraints and dynamic environments (Rasmussen *et al.* 2011), the success of their brand innovation relies on the knowledge acquired about the external environment, such as from social media. Agarwal *et al.* (2004) suggest that knowledge acquisition has critical implications for achieving both favorable performance and innovation performance.

Marvel and Lumpkin (2007) note that knowledge acquisition enhances the breadth and depth of valuable information and thus increases the potential for acquiring innovative processes or products to serve the markets (Grant 1991). Zahra *et al.* (2000) demonstrate that the knowledge acquired from an external relationship is critical to the development of technology for two reasons. First, the knowledge enhances the depth and width of the organization's knowledge, and second, it helps the organization develop technology that is distinct from that of its competitors. In response to dynamic social media environments, we posit that new technology firms require continuous acquisition of technology and market knowledge to develop innovative new products and improve the quality of their existing products (Danneels 2002).

Knowledge is often acquired via interactions with external stakeholders. Such knowledge acquisition gives firms the ability to accurately evaluate new information, opportunities, and added value (De Dreu & West 2001). With a greater depth of knowledge, firms improve their capabilities in both strategic orientation and product differentiation. When diverse resources and processes are available, knowledge acquisition offers greater opportunities to recombine existing information and ideas, thus generating novel solutions for encountered problems (Paulus 2000; Tiwana & McLean 2005). The presence of a substantial reservoir of task-related knowledge may be a necessary condition for teams to develop innovative solutions and to achieve their goals (Taylor & Greve 2006). For example, firms acquire new technology knowledge to change their production processes, making way for new raw materials that allow for the creation and development of new innovative products (Shane & Eckhardt 2003). With market knowledge, critical

information is provided about customers' preferences, effective distribution channels, and manufacturing procedures (Danneels 2002). Such knowledge allows firms to use their expertise in novel and effective ways (Atuahene-Gima & Ko 2001) and to develop or improve products based on emerging market demands (Li & Calantone 1998). Thus, knowledge permits the firm to predict the nature and commercial potential (of changes in the environment) by using strategic and tactical actions more accurately (Cohen & Levinthal 1990). We posit that online technology ventures that have acquired more knowledge from social media than other such ventures enhance their brand innovation performance. Thus, we hypothesize that:

Hypothesis 1: Knowledge acquisition from social media is positively associated with brand innovation.

2.4 Proactive and Reactive Market Orientations and Brand Innovation

While some research on market orientation and innovation exists, consensus on the issue does not exist (Christensen 2000). For example, Hurley and Hult (1998) find a positive effect of market orientation on two types of product innovations (i.e., radical and incremental). Other researchers argue that adopting certain perspectives leads to different results and note that interpretations demonstrate different effects on innovation (Berchicci & Tucci 2006). According to Kohli and Jaworski (1990), market orientation is a *cultural* foundation for the way an organization acquires and utilizes market information (Narver & Slater 1990, 1998). Narver and Slater (1990) suggest that three main dimensions of effective market orientation exist: customer orientation, competitor orientation, and inter-functional coordination. From a behavioral perspective, Kohli and Jaworski (1990) describe

the market orientation concept as a process using market intelligence generation, dissemination, and a company's response to information. Scholars recognize that market orientation not only focuses on learning actions related to market information but also concerns market information types (Slater & Narver 1995). As noted above, Narver *et al.* (2000; 2004) develop two market orientation types: responsive and proactive market orientation. Responsive market orientation refers to a learning process to understand and satisfy customers' expressed needs. Expressed needs are defined as the needs and solutions of which a customer is aware and which can be articulated by the customer. This market orientation is seen as "customer-led" (Narver & Slater 1998) or "customer compelled" (Day 1999). Proactive market orientation refers to the behaviors of discovering, understanding, and satisfying customers' latent needs proactively. Latent needs are defined as needs and solutions of which the customer is unaware. These needs are not less "real" than expressed needs, but they are not within the consciousness of the customer (Cai *et al.* 2015). Compared to responsive market orientation, proactive market orientation has a long-term focus and is more likely to be associated with a generative learning process (Narver & Slater 1998). Proactive market orientation is often hypothesized to be more associated with radical innovation rather than responsive market orientation (Atuahene-Gima *et al.* 2005). To investigate this matter further, when examining the effects on brand innovativeness, we take into account the different types of market orientation.

Proactive market-oriented businesses discover and understand the unexpressed needs of their customers. These latent market needs, in turn, lead to new technological capabilities arising from both internal and external sources, such as lead users or customer needs

(Deshpande *et al.* 1993; Hurley *et al.* 1998). Many scholars recognize the difficulty in obtaining good information on latent customer needs (e.g., Leonard-Barton & Wilson 1994). This is particularly true for innovative products in potential markets because customer preferences may not be known by the customers themselves (von Hippel 1988).

Researchers suggest that a proactive market orientation and addressing customers' latent needs lead to more novel ideas, products and services (Narver *et al.* 2004). Atuahene-Gima *et al.* (2005) note that proactive market orientation, as an "outside-in" process, places greater emphasis on discovering customer needs. Thus, a proactive market orientation and utilizing customer knowledge stimulate the development and implementation of novel ideas (Levinthal & March 1993; March 1991) such as brand innovation on social media.

We specifically posit that a proactive market orientation is associated with social media brand innovation. In the traditional offline context, Deshpande *et al.* (1993) finds a positive effect of market orientation on radical product innovation. In our current social media context, we note that this channel is likely to exhibit the same effect. We base our reasoning on the notion that a focus on long-term market developments, a key trait of proactive market orientation, benefits organizational radical product innovation due to a focus on learning actions related to market information (Chandy & Tellis 1998; Wei & Lau 2008). These learning actions require continuously being aware of customers' latent needs, which in turn may allow for discovering, understanding, and satisfying customers in innovative ways (Atuahene-Gima *et al.* 2005).

For example, in an attempt to predict future trends and satisfy customers' latent needs, Alibaba developed the 'yu'e bao' app, which aims to reshape the finances of Chinese business owners through an easier mobile payment system. Yu'e Bao, which means 'savings balance treasure,' is a money market fund that is proving to be a disintermediator to the entire financial market (Cheng 2014). Cheng states that Yu'e Bao's meteoric rise demonstrates the potential for new entrants to break up existing relationships and seize market share in a shifting landscape and that Internet finance is a powerful tool that can break legacy barriers. Another example demonstrating proactiveness and brand innovation can be observed on the crowdfunding website and community Kickstarter. This online community has been an important source for understanding and fulfilling the market's latent needs, which, in only a few years, has led to many radical product innovations that customers did not even know they wanted (Kickstarter History 2014). This process of learning from social media is changing the market dramatically. Therefore, based on the above discussion and example, we expect to find a positive effect of proactive market orientation on social media brand innovation. We hypothesize that:

Hypothesis 2a: Proactive market orientation is positively associated with brand innovation.

Responsive market orientation, or customer-led market orientation (Narver & Slater 1998), refers to understanding and satisfying customers' expressed needs. Users are highly expressive on social media of their opinions and their use of products and services, which can be observed in various interactions, rating websites, and blogs. Some researchers argue that responsive market orientation can only drive an incremental product or service

improvement rather than a radical change (Baker & Sinkula 2007; Christensen & Bower 1996; March 1991). Conversely, other studies find that customer orientation has a positive impact on the degree of innovation (Lado & Maydeu-Olivares 2001; Salomo *et al.* 2003). Li *et al.* (2006) did not find this negative relationship between market orientation and the degree of innovation in China. This may be explained by Narver *et al.* (2004:334), who notes that “expressed needs may have either expressed or latent solutions.” There are many expressed customer needs without expressed solutions in China’s emerging market (Zhou *et al.* 2005). For example, Cai *et al.* (2015), investigating the role of market orientation on radical innovation among entrepreneurs in high technology industries, suggest that the typesetting of Chinese characters by hand appeared for some time to be a problem for the Chinese press industry because people could not find an easy way to solve the problem until the ‘laser typesetting system of Chinese characters’ was developed. This laser typesetting was considered a radical innovation that eventually promoted the efficiency of typesetting of Chinese characters. This example shows that when customers’ needs are expressed without existing solutions, understanding these needs can help drive more radical innovation.

Additionally, researchers argue that when markets are complicated, such as China’s emerging market (Zhou *et al.* 2008), the expressed need of lead users or lead customers provides useful information for the development of R&D projects (e.g., Lettl *et al.* 2006), increasing the introduction of new-to-the-world products (Augusto & Coelho 2009; Lukas & Ferrell 2000). For example, in our review, we find that CooTek, a developer of a soft keyboard for smartphones, demonstrates our proposition well. The founder, Michael Wang,

identified a business opportunity in soft keyboard development when he noticed that many of China's iPhone users complained about the inconvenience of the keyboard, which was originally designed for Western users in various online communities. To exploit this opportunity, Wang started a venture patenting an app named TouchPal to overcome this issue. In 2014, CooTek was listed in the 'Top 10 Most Innovative Companies in China' list by Fast Company (2014). Similar cases in other fields, such as the development of cancer vaccines, are also considered a responsive market-oriented strategy that disrupts existing markets. Therefore, we hypothesize that understanding lead customers' expressed needs in the markets benefits new ventures, particularly in the case of China's transitional economy, leading to brand innovation on social media. This is achieved by identifying new market segments and developing more radical innovations. Accordingly, we posit that:

Hypothesis 2b: Reactive market orientation is positively associated with brand innovation.

2.5 Direct Effect of Social Media Strategic Capability on Brand Innovation

Drawing from the literature on strategic capability, we develop the construct of social media strategic capability. Strategic capability refers to a firm's ability to integrate firm resources and skills to align with its strategic directions (Bierly & Chakraborti 1996; Teece 2007; Teece *et al.* 1997). For online technology firms, it is critical to identify environmental changes and respond to these changes rapidly so that they can commit resources and behaviors to new innovations (Shimizu & Hitt 2004). Social media strategic capability implies that firms make strategic decisions more efficiently; namely, by using social media, these firms can recognize new business opportunities and threat possibilities,

and maintain competitiveness. Yu *et al.* (2014) emphasize in their definition and application of strategic capability the *flexibility* that orients a firm toward making strategic choices more efficiently. The researchers show that strategic capability is an essential component in achieving organizational ambidexterity, that is, achieving short- and long-term goals (also referred to as exploitative and exploratory innovation strategies) simultaneously. Consistent with the strategy literature (Banker *et al.* 2006; Bierly & Chakrsbarti 1996; Teece 2007), we define social media strategic capability as the ability to acquire, integrate, and apply knowledge from social media to organizational resources in alignment with an organization's strategic directions and choices, thus enabling the capabilities to be swift and flexible. On social media, rapid and flexible decision making are vital in allowing firms to commit resources and behaviors to new innovations (e.g., Shimizu & Hitt 2004).

In today's online technology industry, firms must be sensitive and continuously monitor feedback from the dynamic markets. A distinctive characteristic of a successful firm is its ability to be flexible in its strategic directions by responding to rapid environmental changes that include widespread market information, technological uncertainties, and competitor activities (Banker, Kalvenes, & Patterson 2006; Li 2012; Shimizu & Hitt 2004; Yiu *et al.* 2007). These firms use both intangible (knowledge) and tangible (assets) resources to transfer acquired resources to firm-specific advantages (Bierly & Chakrsbarti 1996), thus enhancing their strategic advantage (Dannels 2002). Improving capabilities in terms of strategic directions include decisions to focus on exploring new opportunities (Gedajlovic *et al.* 2012) or exploiting existing products and the pursuit of opportunities in

areas in which the firm currently operates (Andriopoulos & Lewis 2009). Sanchez (1995) demonstrates that strategic capability depends on available resources. Chamberlain (1968) notes that an organization's strategic capability is confined to the resources it owns and controls. According to resource-based theory in referring to any resources that create inimitable competitive advantage and facilitates a value-creating strategy (Peteraf 1993), social media strategic capability may be considered an inimitable resource or, as termed by Makadok (2003, p. 389), a 'special type of resource' due to the dynamic capabilities that enable the improvement of resource management - a defining aspect of such a capability (Yu *et al.* 2014). Such resource management capability provides essential information for the resource acquisition and integration of firms (Conner & Prahalad 1996), which in turn enhances innovation (Cai *et al.* 2013). Additionally, drawing from social capital theory (Burt 1997), an organization's social media strategic capabilities can be enhanced and brand innovation can be achieved as a consequence of the value generated from social media networks. The central premise of social capital theory suggests that social networks have value such that the collective value of all "social networks" in which the organization engages (social media) give rise to norms of reciprocity (Smith *et al.* 2009). Such reciprocity arises from information exchange, cooperation, and trust (Blyler & Coff 2003). The rapid growth of social media networking sites suggests that individuals and businesses are creating a virtual network consisting of bonding, thus increasing social capital. Social media emphasizes interactive relationships and information flows, which depend on social capital norms of reciprocity. Thus, to identify and shape innovative opportunities, firms must use social media networks to constantly develop relationships from which they can scan, search, explore, and collect information about technologies and markets from both

inside and outside to increase their social capital (March & Simon 1958; Nelson & Winter 1982). Social media strategic capability emphasizes the rapid commitment of new resources to innovative activities in response to changes. A number of key observations can be made regarding social media strategic capability: (1) It broadens a firm's vision about acquired external resources and industrial developments (Cohen & Levinthal 1990). (2) It promotes a firm's willingness to forgo existing investment in exchange for future long-term development (Sanchez 1995). (3) It enhances the breadth of knowledge, information, and resources to help firms identify market opportunities, often beyond what would be apparent to them given their limited pre-existing organizational stock (Gedajlovic *et al.* 2012).

We posit that firms with better social media strategic capability enjoy better access and use of critical technology and market information. These firms may benefit from such capabilities in a number of areas, including supplies to unique information, technology, and support, thus further enhancing their social media strategic capability to proactively respond to environmental changes (Leiponen 2006). However, the process of building such a capability is a trial and error process, particularly for those firms that lack established affiliations or rich resources (Tidd 1995). Such trial-and-error process may be costly, but once resolved, the knowledge arising from the process can promote a firm's ability to proactively identify and evaluate useful information needed for innovations. In a turbulent environment, such information supports the reallocation of resources at hand for further innovative activities (Wei & Lau 2008). Therefore, based on the above discussion of resource management, social capital stemming from networks and, in particular, social media knowledge, social media strategic capability provides essential information

processing capabilities for the market-oriented firm and its resource acquisition and integration, which in turn enhances innovation (Cai *et al.* 2013). Thus, we hypothesize that in the online technology:

Hypothesis 3: Social media strategic capability is positively associated with brand innovation.

2.6 Moderating Role of Social Media Strategic Capability

The above arguments lay the foundation for our final hypotheses, in which we posit that the effect of social media strategic capability not only is evident in its direct effect on brand innovation but is also shown indirectly, as a moderation variable, through its more complex influence on knowledge acquisition and the two forms of market orientation.

Teece *et al.* (1997) suggest that a firm's sustainable competitive advantages arise from the resources the firm owns and how the firm integrates and transforms those resources through appropriate firm-specific capabilities. These researchers further note that intangible external resources only matter when they can be transferred to a firm's internal capital. As Zander and Kogut (1995) mention, while strategic capability serves as an organizing principle for structuring and coordinating various resources and functional units, it may not affect a firm's innovation output on its own without the adequate resources needed.

Because strategic capability is responsible for maintaining competitiveness, it plays a particularly important role in a firm's strategic decision making, including innovation decision making (Bierly & Chakrsbarti 1996). Better social media strategic capability provides firms with governing mechanisms to support and promote firm-specific

capabilities. Combined with knowledge acquisition from social media, firms gain not only valuable sources of information and other resources needed for innovations but also – and more importantly – an improved use of such knowledge in alignment with their strategic goals. As firms embrace social media to conduct business and interact among their employees, they gain a valuable source of knowledge that can permeate an organization more efficiently (Yu *et al.* 2014). Thus, we expect that knowledge acquisition from social media leading to increased brand innovation requires greater social media strategic capability. These social media strategic capabilities, in turn, are based on a firm's resources and ability to transfer knowledge to firm-specific advantages, thus enhancing the firm's ability to make strategic choice efficiently and accurately (Dannels 2002).

We also suggest that a high level of social media strategic capability in resource allocations and product designs allows firms to adopt brand innovation strategies. This adoption is possible through the absorption and application of new external resources, which ultimately foster the stimulation of capability-building ideas (Cohen & Levinthal 1990) and experimentation with different product variations (Worren, Moore, & Cardona 2002). Consequently, we reason that firms' social media strategic capability, consisting of a breadth of information acquired from social media combined with improved integration and application of external resources (such as technology resources), increases the likelihood of an alignment toward experimentation and the discovery of novel brand innovation opportunities on social media. Combined with our earlier statements, we posit that the effects of knowledge acquisition on brand innovation are stronger under conditions of social media strategic capability. Accordingly, we hypothesize that:

Hypothesis 4a: Social media strategic capability positively moderates the relationship between knowledge acquisition from social media and brand innovation.

As competition intensifies, firms search for more and more information about technologies and markets. Because of limited relationships, increasing costs, and uncertainty (Peng & Luo 2000), firms may choose to excavate and utilize external resources and capabilities rather than engage in radical internal organizational efforts. Thus, to improve communication channels and reduce the search costs for external resources, market orientation may become more relevant and important.

Researchers examining internal technology capabilities (Milliken 1978) and the uncertainty of market needs (Moriarty & Kosnik 1989) explore the linkage between market need and innovation as an “outside-in” process. Research in this area suggests that both are factors for innovation (Mu *et al.* 2009). More radical innovation requires strong technology capabilities and high resource investments (Lettl *et al.* 2006). These commitments influence the firms’ survival and development in competitive markets. They also require greater strategic capabilities. Excessive proactive market orientation carries high risks and costs because there is a degree of inefficiency associated with a focus on unfamiliar information and knowledge in their search of customers’ latent needs (Levinthal & March 1993; March 1991). However, with the ability to associate market proactiveness and brand innovation with social media strategic capability, the outcome may be enhanced significantly due to improved alignment and focus in directional choice. Thus, we expect

that in China's dynamic and turbulent social media market, a proactive market orientation leading to increased brand innovation requires superior social media strategic capability (Tan & Litsschert 1994; Yu *et al.* 2014). Therefore, we argue that the relationship between proactive market orientation and brand innovation is stronger under conditions of social media strategic capability. Accordingly, we hypothesize that:

Hypothesis 4b: Social media strategic capability positively moderates the relationship between proactive market orientation and brand innovation.

Finally, we posit that firms with a high level of social media strategic capability are more likely to develop a consummate understanding of what resources they have at hand and of how they should allocate and integrate those resources, which, once implemented in alignment, leads to greater brand innovation via reactive market orientation. However, while social media strategic capability seems to enhance both reactive and proactive, the present study acknowledges that there may be differences in how social media strategic capability moderates the relationship of proactive/reactive market orientation and brand innovation. By definition, we recognize that social media strategic capability may moderate reactive market orientation and innovation to a greater extent, due to the short-term focus, which fits well with the swift decision making of social media strategic capability. However, due to the rapidly changing context, we further posit that social media strategic capability moderates *both* proactive and reactive market orientations. Indeed, in spite of the long-term focus on satisfying customers' latent needs, having social media strategic capability still enhances such firms' proactive market orientation because it increases the opportunity to recognize latent market needs (Atuahene-Gima *et al.* 2005), as discussed

above. Part of proactive market orientation, according to Covin and Slevan (1989), involves pursuing ‘high return projects.’ On the one hand, this is best achieved, particularly in a social media context, by exploring latent needs that are open for opportunistic firms to explore. On the other hand, by implementing a strong reactive market orientation that is enhanced with social media strategic capability, integrating expressed knowledge also improves overall brand innovation efforts. That is, firms’ social media strategic capability aids in improving existing products or services by utilizing existing (expressed) customer knowledge, resources, information, and knowledge because the swift and flexible focus and choice for allocating resources to one project over another improve the firm’s performance. Firms consequently achieve the full potential of their market knowledge when social media strategic capability and a reactive market orientation are used in combination (Barney 1991). Zhou and Wu (2010) indicate that strategic capability can help firms utilize acquired resources appropriately and efficiently. They demonstrate that by reconfiguring existing processes, firms may promote upgraded products and services to serve existing markets to attain their short-term performance objectives. Based on the above discussion about the effects of reactive market orientation on brand innovation under conditions of greater social media strategic capability, we therefore hypothesize that:

Hypothesis 4c: Social media strategic capability positively moderates the relationship between reactive market orientation and brand innovation.

< **Insert Figure 1 About Here** >

Figure 1 shows the conceptual model of our study. In the following sections, we present the research that tested our hypotheses.

3. Methodology

3.1 Data and Sample

To test the hypotheses in our study, we collected data from new online technology firms in China, utilizing an online questionnaire-survey approach. Based on firm age, the technology commercialization practices of firms, and social networks, we included our primary sampling frame as follows: 200 respondents from LinkedIn China, 200 from Weibo China, 450 from WeChat China, and 150 from other social networks, including Facebook, RenRen, Ozone, and company websites.

We approached the principal founder or senior managers of each firm to collect accurate data (Dess & Robinson 1984). Scholars suggest that such key informants are accurate sources of data and should be approached where possible (Brush & Vanderwerf 1992). Previous studies support the use of single respondents to evaluate strategic concerns (Shortell & Zajac 1990; Snow & Hrebiniak 1980). We recognize that using a single respondent is particularly appropriate in the Chinese context due to the hierarchical nature and decision-making process in typical Chinese firms. For small to medium-sized firms, the firm's principal founder is responsible for all key decisions and is thus appropriate in our study context.

During the survey implementation, we approached the local municipal government and requested help in acquiring the addresses and phone numbers of new ventures in their region. We used this information to target specific online technology ventures via social media networks. In China, information about high-tech new venture firms is difficult to

obtain, but despite this hurdle, we obtained our sampling frame, enabling us to further investigate our survey population. To reduce the possibility of social desirability bias in our survey, we agreed not to reveal the names of the executive directors and asked for the questionnaire to be returned directly to the research team (Podsakoff *et al.* 2003).

For each sample, we looked for small to medium-sized technology firms, ensuring that they were engaged in social media, as evidenced via our recruitment procedures. The sample covered the main industrial regions, all types of privatized firms, and different industrial sectors. The majority of the firms in the sample were in technology, communication, computer service, software, and online retail, which are considered part of the high-tech industry in China. We concentrated on firms that had been created less than 6 years ago, fulfilling the new venture proposition, as advocated by previous studies (Tiessen 1997; Yu *et al.* 2014).

We limited our sample frame to small to medium-sized firms for specific reasons: (1) In China, information about new high-tech venture firms is difficult to obtain. Thus, once we obtained the sampling frame, we were able to survey this unique population. (2) Small to medium-sized firms adopt the social media marketing innovation strategy concepts appropriate to our study. Scholars note that small businesses become successful when they provide customer value and develop strong ties (Payne & Frow 2005), leading to customer retention and, ultimately, profits (Nguyen & Mutum 2012). Such strategy often involves both social media branding and innovation (Kim & Ko 2012). (3) Researchers further note that although small to medium-sized firms are often associated with the liabilities of smallness and newness, they are exceptionally market-oriented and able to compete

effectively with large, established organizations (Baumol 1993; Raju, Lonial, & Crum 2011). (4) Few studies mention the adoption by new ventures of the knowledge acquisition and market orientation that lead to competitive advantage. As such, our study is unique in gaining a better understanding of small to medium-sized firms' attitudes toward market orientation in the transitional environment (Davies & Walters 2004).

We present the sample firms' characteristics in Table 1. Of the managers we surveyed, 97% were between 22 and 50 years of age. Their education levels were often slightly higher than the national average, with 43% holding a bachelor's degree and 30% holding postgraduate certificates and doctoral degrees. The number of employees in 69.4% of the firms was below 50. Thus, these firms were all small and medium-sized firms (Salavou & Lioukas 2003).

< Insert Table 1 About Here >

Given the importance of synchronicity, we conducted simultaneous surveys in each of the social networks over a period of two months ending in January 2014. We proceeded as follows. First, we developed the questionnaire utilizing items and concepts from several existing previous studies (Larraneta, Zahra, & Gonzalez 2012; Narver *et al.* 2004; Song & Montoya-Weiss 1998) (more details below). We then consulted the managers of various firms for translation accuracy, sequence, and the appropriateness of items to ensure that the survey corresponded to the actual conditions that firms face in China. To do this, we conducted a pilot study with five firms (which were excluded from the final survey

sample). We revised the initial questionnaire based on the feedback from the pilot study, thus ensuring face and content validity.

We launched our data collection in two phases: First, prior to the investigation, we communicated with the firms by telephone or email to inform them of the survey details. Next, we requested that the firms complete the questionnaires online. In total, we approached 1000 enterprises, with 357 firms providing all of the necessary data. Thus, the effective response rate was 35.7 percent, exceeding that of previous studies. We consider our response rate to be acceptable based on previous survey studies in which scholars note that low response rates tend to be a feature of Southeast Asian countries (Cai *et al.* 2015). The reasons for non-participation are as follows: (1) some firms were afraid of firm information leaking as a result of completing the survey, (2) some firms were busy with important affairs at the end of the year and did not answer our questionnaire, and (3) some firms appeared to answer only certain questions of interest to them.

Following the data collection, we checked for non-response bias by looking at descriptive variables such as firm age, size, and industry affiliation (Armstrong & Overton 1977). Because we found that the final responding sample did not differ significantly from the referent population, we concluded that non-response bias was not an issue for our study. Finally, we compared the respondents' demographic profiles with the statistics of small to medium-sized Chinese firms obtained from the National Bureau of Statistics of China's website (<http://www.stats.gov.cn/english/>). We found that the characteristics were similar,

and we concluded that the sample collected was representative of the population. The descriptive analysis and correlations are shown in Table 2.

< **Insert Table 2 About Here** >

3.2 Measures

We describe the used constructs and their underlying items next. We utilized a seven-point Likert scale to measure all of the items in the survey instrument.

Social Media Brand Innovation. Drawing from the knowledge-based view and Schumpeter's work, we define social media brand innovation as a major improvement in practices that sweep aside established ways of doing things. Gatignon *et al.* (2002) originally developed the measures of radical innovation. Recently, Cheng and Shiu (2008) tested these item measures in a Chinese context. In our study, we adapted and revised the scales to fit the current context. The scale was composed of four items that asked the following: At our firm, (1) brand innovation using social media is a major improvement over previous technology and established practices, (2) brand innovation using social media is a breakthrough innovation practice, (3) brand innovation using social media led to products that are difficult to substitute with older technology, or (4) brand innovation using social media represents a major advance in our technological subsystem.

Proactive Market Orientation. Based on the research of Narver *et al.* (2004), we measured proactive market orientation using four items: (1) we help customers anticipate developments in the markets using social media, (2) we continuously try to discover

additional needs of our customers of which they are unaware using social media, (3) we innovate using social media even at the risk of rendering our own products obsolete, and (4) we search for opportunities using social media in areas where customers have difficulty expressing their needs.

Responsive Market Orientation. Based on the definition and measurements by *Narver et al.* (2004), we measured the responsive market orientation using three items: (1) We constantly monitor our level of commitment and orientation to serving customer need using social media; (2) Our strategy for competitive advantage is based on our understanding of customer needs using social media; (3) We measure customer satisfaction systematically and frequently using social media.

Knowledge Acquisition From Social Media. We measured knowledge acquisition from social media using five items based on previous studies of knowledge acquisition (Larraneta, Zahra, & Gonzalez 2012; Tsang 2002; Zhou & Li 2012): (1) Our company has a process for continuously collecting information from customers using social media; (2) Our company has a process for continuously collecting information about competitor activities using social media; (3) Our company has a process for continuously collecting information from suppliers using social media; (4) Our company has a process for continuously collecting information from intermediaries using social media; (5) Our company has a process for continuously collecting information from governments using social media.

Social Media Strategic Capability. We measured strategic capability with four items according to the method of Croteau and Raymond (2004). The respondents indicated the degree to which they agreed or disagreed with the following statements: (1) My organization owns future competitive flexibility in social media; (2) My organization has the ability to use social media to quickly become aware of new opportunities or threat possibilities; (3) In my organization, leaders have entrepreneurship characteristics on social media; (4) My organization has the ability to cohesively garner employee knowledge through social media.

Control Variables. We controlled for firm size (number of full-time employees), firm age (log number of years in business), and industry environment (Lu *et al.* 2010). These variables may influence the firm's radical innovation (Bogner & Thomas 1996). We controlled for the firm's size because large firms may put more resources in R&D activities and introduce more new products than small firms (Ettlie & Rubenstein 1987). Firm age is controlled because some researchers suggest that younger firms may pursue more radical innovations than older firms (Rosen 1991). Finally, we considered the industry environment because some high technology industries may implement more radical innovations than others (Lu *et al.* 2010). We asked the respondents to indicate the extent to which the following statements are true: (1) The technology in our industry is changing quite rapidly; (2) Technological changes provided big opportunities in our industry; (3) Many new product ideas have been made possible through technological breakthroughs in our industry.

4. Analysis and Results

4.1 Reliability and Validity

We estimated composite reliability using Cronbach's alpha. Alpha coefficients of 0.70 or higher are considered adequate for the purposes of construct validation (Cronbach 1951). As we adopted the measures used from existing scales, we note that the measures are previously validated and are strongly grounded in the literature. We adapted, translated, and tested our measures in the Chinese language context. As shown in Table 5, the internal validity of the constructs remains strong in the present context. The Cronbach's alpha values of all factors are above 0.90. The results suggest that the theoretical constructs exhibit excellent psychometric properties within our study.

Construct validity is the extent to which the items in a scale measure the intended theoretical construct (Chandler & Sweller 1991). Scholars suggest that a loading value of 0.60 is the suggested minimum level for item loadings on given scales (Churchill 1979). Table 3 shows that the loadings are all above the 0.60 level, indicating that the construct validity of scales is supported.

< Insert Table 3 About Here >

Next, we conducted CFA using AMOS 19.0. First, we evaluated the model fits using the DELTA2 index, the goodness of fit index (GFI), and the comparative fit index (CFI), as suggested by Gerbing and Anderson (1988). This was followed by the Tucker-Lewis index (TLI) and the root mean square error of approximation index (RMSEA), which we evaluated following the suggestions of Hu and Bentler (1999) and Slater, Olson, and Hult

(2006). Using these series of fit indices, the CFA resulted in GFI=0.924, DELTA2=0.980, CFI=0.980, TLI=0.979, and RMSEA=0.037 ($\chi^2=165.145$, d.f.=120, $p=0.001$). Our results thus confirm the unidimensionality of each construct in our model.

To assess the measures' reliability, we calculated two indicators: (1) coefficient alpha reliability and (2) the composite reliability indices, which we calculated across all dimensions. First, we found that all coefficient alpha reliabilities exceeded the accepted 0.7 threshold (Cronbach 1951). Zumbo, Gaderman, and Zeisser (2007) suggest that the Cronbach's alpha coefficient underestimates or overestimates the scale reliability. To complement the results, we calculated composite reliability using Fornell and Larcker's (1981) procedures. The results showed that the composite reliabilities of the five scales ranged from 0.8805 to 0.957, which are higher than the minimum threshold of 0.7 (Hair *et al.* 2010).

To assess convergent validity, we used two methods. First, within the CFA setting, we calculated average variances extracted (AVE) using the Fornell and Larcker (1981) procedures. As shown in Appendix A, the AVE for all scales are greater than the minimum threshold of 0.5 recommended by Fornell and Larcker (1981). Second, we observed that convergent validity was evident because the coefficients from the latent constructs to their corresponding manifest indicators were statistically significant (i.e., $t > 2.0$) (Gerbing & Anderson 1988). All items loaded significantly on their corresponding latent construct, with the lowest t-value at 9.148, thus providing evidence of convergent validity.

To assess discriminant validity, we estimated the shared variance between pairs of constructs and verified that they were lower than the AVE value for the individual constructs (Fornell & Larcker 1981). In all cases, the AVE values were higher than the associated shared variance, thus supporting the discriminant validity of the constructs. Together, these results indicate that the measurement model fits the data adequately and possesses both convergent and discriminant validity (Campbell & Fiske 1959). We provide evidence that all constructs display adequate discriminant validity ($p < 0.01$). The purified scales exhibit good model fits, significant coefficients, and satisfactory reliability and validity.

Due to the use of self-report measurements, the potential for common method bias exists. We therefore utilized several approaches to minimize the effect of this bias, including (a) clarifying the item statements and reducing item ambiguity by pre-testing the survey on top managers and entrepreneurs, (b) ensuring items relating to the dependent variables were not located near the independent variables on the questionnaire, and (c) collecting the same data from different respondents when possible. Additionally, we conducted Harman's one-factor test (Podsakoff *et al.* 2003). We entered all survey items related to the dependent, independent and control variables into a single principal component analysis to check whether the variance of all items was explained by one component. We found no evidence of common method bias.

4.2 Hierarchical Linear Regression

To capture the theoretical interdependencies between knowledge acquisition from social media, market orientations, and brand innovation under the moderating contexts of social media strategic capability, we analyzed the data using hierarchical regression modeling (SPSS/PASW statistical package). The results are shown in Table 4. We first tested the effects of control variables on brand innovation in step 1. We then added the knowledge acquisition from social media, proactive market orientation, and reactive market orientation variables into the initial model in step 2. This is consistent with previous studies (see, for example, Cai *et al.* 2015). We found that knowledge acquisition from social media has a significant and positive influence on brand innovation ($\beta=0.419$, $p \leq 0.001$). Thus, hypothesis 1 is supported. We further found that a proactive market orientation has a significant and positive influence on brand innovation ($\beta=0.371$, $p \leq 0.001$). Thus, hypothesis 2a is supported. Additionally, we found that a reactive market orientation is positively related to brand innovation ($\beta=0.408$, $p \leq 0.001$). Thus, hypothesis 2b is supported.

To test the moderating role of social media strategic capability, we first tested its direct effect in step 3 of the hierarchical regression model. The results imply that there is a significant positive relationship between social media strategic capability and brand innovation ($\beta=0.238$, $p \leq 0.01$). Thus, hypothesis 3 is supported. We then tested the interaction items in step 4. The results show that the interaction item “knowledge acquisition X SMSC” (SMSC = social media strategic capability) is positively related with brand innovation ($\beta=0.212$, $p \leq 0.05$). This implies that a higher level of social media

strategic capability positively moderates the relationship between knowledge acquisition from social media and brand innovation. Therefore, hypothesis 4a is supported. Using the same procedure, we find that the relationship between the interaction item “proactive market orientation X SMSC” and brand innovation is positively related. Therefore, hypothesis 4b is supported, implying that social media strategic capability positively moderates the relationship between proactive market orientation and brand innovation. Finally, we find that the relationship between the interaction item “reactive market orientation X SMSC” is positively related to brand innovation. Therefore, hypothesis 4c is supported and implies that social media strategic capability positively moderates the relationship between reactive market orientation and brand innovation.

< Insert Table 4 About Here >

5. Discussion

This study proposes and empirically tests a model of brand innovation and social media in the context of China’s dynamic social media scene, focusing on knowledge acquisition from social media, market orientation, social media strategic capability, and brand innovation. It is proposed that a learning focus on social media networks (i.e., knowledge acquisition and market orientation) affects brand innovation and that the effect is enhanced by social media strategic capability. We explore the major research findings in detail next, followed by a discussion of the contributions and implications.

The results indicate that brand innovation is influenced by a variety of learning-focused factors, displaying some interesting findings. Judging by the path coefficients, the construct

of knowledge acquisition from social media appears to have the strongest effect on brand innovation ($\beta = 0.419$, $p \leq 0.001$), followed by reactive market orientation ($\beta = 0.408$, $p \leq 0.001$), and proactive market orientation ($\beta = 0.371$, $p \leq 0.001$). Researchers suggest that a market orientation strategy creates a value co-creation ecosystem with both the internal and external actors, and knowledge acquisition is used to make the focal firm more competitive. In this case, the nuanced finding reveals that firms should first and foremost emphasize knowledge acquisition from social media. This finding makes sense. Because social media changes rapidly, the ability to gain a short-term competitive advantage depends on the collection of information first, followed by perhaps a longer-term focused market orientation strategy to develop an eco-system that includes relationships with internal and external stakeholders. This finding has important implications for the new online technology firm, which has only limited resources and may need to allocate these limited resources appropriately.

Additionally, the findings show that both responsive and proactive market orientations play positive roles in brand innovation radicalness on social media. These results reinforce the relationship between proactive market orientation and innovation, consistent with extant studies in the traditional offline context (e.g., Baker & Sinkula 2007; Slater & Narver 1995). Social media ventures can use this model to develop their own highly innovative products and services to build competitive advantage. Cai *et al.* (2015) suggest that in the context of transitional economies, the customers' needs may not be well expressed, implying that a reactive market orientation may or may not play an important role in a radical innovation strategy. In contrast, this study finds that a responsive market orientation

strategy does indeed have an effect on brand innovation. The conclusion is clear that on social media, the customers' needs, both expressed and latent (or unexpressed), can be searched and identified more comprehensively than in the traditional context. Thus, the social media context provides a new set of rules for competition and strategic behavior that online technology firms should note.

Indeed, the findings show that responsive market orientation plays a positive role in a radical innovation strategy for Chinese online technology firms. The results conflict with most of the existing theory developed in the Western context (e.g., Marvel & Lumpkin 2007) but may be partly explained by the fact that transitional economies are more dynamic and turbulent (Tan 1996) and, in this case, exacerbated by social media. When comparing mature markets with developing economies, Narver *et al.* (2004) suggest that customers' expressed needs in transitional economies are not yet satisfied. Cai *et al.* (2015) thus propose that new ventures must focus on satisfying *existing* customers' needs because unsatisfied expressed needs in the emerging market are abundant. Findings from the present study corroborate this view in that during this transitional economic phase that China is in, a short-term focus on expressed needs may help firms sustain rapid and stable growth. Over time, a focus on radical innovation can be combined and extended to fulfilling customers' unexpressed needs, thus driving a higher level of radical innovation. Thus, we conclude that both the social media context and the transitional country effect exhibit distinctive effects on brand innovation strategies.

5.1 Theoretical contributions

Our study makes three important contributions to the literature on branding and innovation on social media.

First, we show that the market orientation concepts of responsive and proactive market orientation are also valid research constructs in the social media context. We extend the existing literature and test key assumptions about market orientation and brand innovation strategy, adding new knowledge to the literature (Atuahene-Gima *et al.* 2005; Wren *et al.* 2000). Whereas some researchers suggest that firms with a higher proactive market orientation tend to engage in radical innovation (Jaworski *et al.* 2000; Slater & Narver 1999), other researchers find that responsive market orientation prompts firms to implement an incremental innovation strategy (Christensen & Bower 1996; Lukas & Ferrell 2000). Unique to our study, we suggest that there is a relationship between both market orientation types and brand innovation and that social media strategic capability is the key link in achieving more radical brand innovation. Previous studies show that one type of orientation often precludes the other due to constraints on resources (Zhang & Duan 2010). However, in this study, we show that it is possible to achieve organizational *ambidexterity* via the moderating role of social media strategic capability.

Second, this study extends the current understanding of social capital theory (e.g., Adler & Seok-Woo, 2002) by providing empirical support for the mediating role of social media strategic capability as a special type of value-creating resource (Makadok 2001) in the relationship between knowledge acquisition and brand innovation. Because innovation is a

high-risk and resource-consuming activity, improved knowledge acquisition from social media networks helps firms reduce the adverse effects of inadequate organizational infrastructures (Xin & Pearce 1996). These firms gain increased knowledge from their reciprocal relationships, generating new opportunities and ideas. Thus, a firm's brand innovation strategies are enhanced as the risk and resource constraints are alleviated (Li *et al.* 2012; Tsang 1998). In the context of online technology firms, this study highlights that social media strategic capability helps transform certain types of information and resources, improving firms' internal competitive advantages. This in turn gives firms the ability to utilize their dynamic resource management capabilities to realize and gain full potential of their knowledge arising from social networks and enhance social capital, which subsequently facilitates the firms' brand innovation strategies.

Finally, the primary contribution lies in the creation of the links between knowledge acquisition from social media, proactive and reactive market orientations, and social media strategic capability as a new set of antecedents for brand innovation on social media. The social media strategic capability is a new construct and adds to the literature on the mechanism underlying strategic capability (Bierly & Chakrsbarti 1996; Teece 2007; Teece, Pisano, & Shuen 1997). These results indicate that knowledge acquisition from social media has a significant positive effect on brand innovation, consistent with previous research (e.g., Agarwal *et al.* 2004; Marvel & Lumpkin 2007), although previous studies examined the offline context. We extend the literature by demonstrating that the positive effect of knowledge acquisition from social media on brand innovation is moderated by social media strategic capability. In doing so, the study extends the literature on marketing

and brand innovation to a setting that has both theoretical and practical importance. Firms should be interested in identifying the capabilities that influence increased performance and brand innovation more systematically.

5.2 Managerial implications

Based on our results, we suggest that improving brand innovation will necessitate new online technology ventures to emphasize the benefits of social media strategic capability. Researchers note that innovation is a process of learning (e.g., Dougherty 1992; Moorman 1995). Thus, our proposition of utilizing knowledge from social media to make adjustment and transformation is coherent within the realm of innovation management (McGrath 1999) and marketing (Kim & Ko 2012). Social media strategic capability may enhance a firm's ability to identify opportunities in the brand innovation process and help firms make adjustment accordingly. We demonstrate that this adjustment is only possible in combination with continuous knowledge acquisition from social media and a market orientation. Once adjustments are made, firms may apply a more feasible brand innovation procedure, adopt new technology or target a new market to achieve their goals (Shane & Eckhardt 2003). Using social media, firms may thus enhance their capability to disrupt markets and sweep away existing practices to make way for the new. Being at the forefront on social media is of particular importance, and marketers may use the framework and guidelines from our study to achieve greater brand innovation.

To the best of our knowledge, this study is the first to develop a conceptual model examining the relationships between knowledge acquisition from social media, market

orientation (proactive and reactive), social media strategic capability, and brand innovation strategy on social media in a single study. Our research is conducted on China's online technology industry, which extends current knowledge to new contexts. Our conceptual model on brand innovation strategy linkage may be applied to other service technology industries in other transition economies, where social media strategic capabilities play a significant role in firms' strategic decision making (Peng & Heath 1996; Zhou & Wu 2010). Although most previous research has focused on new firms in developed economies, our findings have implications for managerial ties and firm brands in transition economies, thus extending the literature into a different context (Bruton & Lau 2008; Yiu *et al.* 2007). Table 5 shows a summary of our hypotheses and outcomes.

< Insert Table 5 About Here >

5.3 Limitations and Future Directions for Research

This paper provides important implications for academics and practitioners studying branding, innovation, and social media. We combine these streams of literature within our model, adding new relationships to the existing knowledge. We analyze our propositions using evidence from China, the largest transitional economy in the world. We acknowledge some limitations. (1) First, we tested our theoretical framework in a specific online context. Thus, our results may not be generalizable to other settings. We encourage researchers to test our theory in other economic settings, both transitional and developed, and to cross-validate it for greater generalization. (2) Second, the research design used in this study is cross-sectional, representing static relationships between the variables. Because cross-sectional data capture the variables' relationships at a single point in time, there may be

idiosyncrasies, which could be detected if the data were collected during other periods. (3) Third, due to time and financial constraints, we collected the data for the study using a sample from a single location. Thus, we encourage further studies to replicate and test our measurement items using various methodologies, such as follow-up interviews. Such an approach would triangulate our results. Further, extending our results to Western economies may add more insight into our approach. Indeed, we offer interesting avenues for future research in this direction. It would be valuable to use a panel database in future studies to examine the temporal dynamics of the phenomenon. For example, as the economy develops, it may be interesting to investigate whether these relationships from an emerging economy may be applicable to Western-based predictions, which opposes the traditional research model. Finally, this study focused on innovation radicalness to depict brand innovation. Future research should examine the effects of these variables and corresponding relationships using other innovation types, such as incremental innovation. Finally, we encourage future studies to (1) investigate how the knowledge acquisition process relates to the concepts of resource integration and value co-creation of the service-dominant logic and (2) examine how knowledge acquisition differs across cultures, people's perceptions of the importance of knowledge in brand innovation, people's use of social media, and how the use of different social media differs across countries.

REFERENCES

- Abetti, P. A. (2000). Critical success factors for radical innovation. *Creativity and Innovation Management*, 9 (4), 208-221.
- Adler, P., & Seok-Woo, K. (2002). Social capital: prospects for a new concept. *Academy of Management Review*, 27 (1), 17-40.
- Aiman-Smith, L., & Green, S. G. (2002). Implementing new manufacturing technology: The related effects of technology characteristics and user learning activities. *Academy of Management Journal*, 45 (2), 421-430.
- Alavi, M., & Leidner, D.E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, 25, 107-136.
- Alegre, J., Sengupta, K., & Lapidra, R. (2013). Knowledge management and innovation performance in a high-tech SMEs industry. *International Small Business Journal*, 31 (4), 454-470.
- Agarwal, R., Echambadi, R., & Franco, A.M. (2004). Knowledge transfer through inheritance: Spin-out generation, development, and survival. *Academy of Management Journal*, 47 (4), 501-522.
- Armstrong, S.J., & Overton, T.S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14, 396-402.
- Atuahene-Gima, K., Slater, S.F., & Olson, E.M. (2005). The contingent value of responsive and proactive market orientations for new product program performance. *Journal of Product Innovation Management*, 22 (6), 464-482.
- Atuahene-Gima, K. (1995). An exploratory analysis of the impact of market orientation on new product performance. *Journal of Product Innovation Management*, 12 (4), 275-293.
- Atuahene-Gima, K., & Ko, A. (2001). An empirical investigation of the effect of market orientation and entrepreneurship orientation alignment on product innovation. *Organization Science*, 12 (1), 54-74.
- Augusto, M., & Coelho, F. (2009). Market orientation and new-to-the-world products: Exploring the moderating effects of innovativeness, competitive strength, and environmental forces. *Industrial Marketing Management*, 38 (1), 94-108.
- Baker, W.E., & Sinkula, J.M. (2007). Does market orientation facilitate balanced innovation programs? An organizational learning perspective. *Journal of Product Innovation Management*, 24 (4), 316-334.
- Banker, R.D., Kalvenes, J., & Patterson, R.A. (2006). Information technology, contract completeness and buyer-supplier relationships. *Information Systems Research*, 17 (2), 180-193.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17 (1), 99-120.
- Baumol, W.J. (1993). Formal entrepreneurship theory in economics: Existence and bounds. *Journal of Business Venturing*, 8 (3), 197-210.
- Berchicci, L. (2013). Towards an open R&D system: Internal R&D investment, external knowledge acquisition and innovative performance. *Research Policy*, 42 (1), 117-127.
- Berchicci, L., & Tucci, C.L. (2006). Entrepreneurship, technology and Schumpeterian innovation: Entrants and incumbents. In Mark Casson, Bernard Yeung, Anuradha Basu

- & Nigel Wadson (Eds). *The Oxford Handbook of Entrepreneurship*. Oxford University Press.
- Bierly, P.E., & Chakrabarti, A.K. (1996). Technological learning, strategic flexibility, and new product development in the Pharmaceutical Industry. *IEEE Transactions on Engineering Management*, 43 (4), 368-380.
- Blyler, M., & Coff, R.W. (2003). Dynamic capabilities, social capital, and rent appropriation: ties that split pies. *Strategic Management Journal*, 24 (7), 677-686.
- Bogner, W.C., & Thomas, H. (1996). From skill to competencies: The “play-out” of resource bundles across firms. In R. Sanchez, A. Heene, & H. Thomas, eds. *Dynamics of Competence-Based Competition*. Chichester: John Wiley and Sons, Ltd. 111-114.
- Botha, A., Kourie, D., & Snyman, R. (2008). *Coping with Continuous Change in the Business Environment, Knowledge Management and Knowledge Management Technology*. Chandice Publishing Ltd.
- Brush, C.G., & Vanderwerf, P.A. (1992). A comparison of methods and sources for obtaining estimates of new venture performance. *Journal of Business Venturing*, 7 (2), 157-170.
- Bruton, G.D., & Lau, C.M. (2008). Asian management research: status today and future outlook. *Journal of Management Studies*, 45 (3), 636-659.
- Burgers, J.H., Van Den Bosch, F.A.J., & Volberda, H.W. (2008). Why new business development projects fail: Coping with the differences of technological versus market knowledge. *Long Range Planning*, 41 (1), 55-73.
- Burt, R.S. (1997). The contingent value of social capital. *Administrative Science Quarterly*, 42 (2), 339-365.
- Cadwallader, S., Jarvis, C.B., Bitner, M.J., & Ostrom, A.L. (2010). Frontline employee motivation to participate in service innovation implementation. *Journal of the Academy of Marketing Science*, 38 (2), 251.
- Cai, L., Hughes, M., & Yin, M. (2013). The relationship between resource acquisition methods and firm performance in Chinese new ventures: the intermediate effect of learning capability. *Journal of Business Management* doi: 10.1111/jsbm.12039
- Cai, L., Yu, X., Liu, Q., & Nguyen, B. (2015). Radical Innovation, Market Orientation, and Risk-Taking in Chinese New Ventures: An Exploratory Study. *International Journal of Technology Management*, 67 (1), 47-76.
- Campbell, D.T., & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56 (2), 81-105.
- Chamberlain, N.W. (1968). *Enterprise and environment: the firm in time and place*. McGraw-Hill.
- Chandler, P., & Sweller, J. (1991). Cognitive load theory and the format of instruction, *Cognition and Instruction*, 8 (4), 293-332.
- Chandy, R.K., & Tellis, G.J. (1998). Organizing for radical product innovation: The overlooked role of willingness to cannibalize. *Journal of Marketing Research*, 35 (4), 474-487.
- Cheng, A. T. (2014) Yu'e Bao Wow! How Alibaba is Reshaping Chinese Finance, Investors, May 29 2014.
<http://www.institutionalinvestor.com/article/3346365/investors-sovereign-wealth-funds/yue-bao-wow-how-alibaba-is-reshaping-chinese-finance.html?ArticleId=3346365&p=1#.U-yDrhbnKap> [Accessed August 14 2014].

- Cheng, C.J., & Shiu, E.C.C. (2008). Re-innovation: The construct, measurement, and validation. *Technovation*, 28 (10), 658-666.
- Christensen, C.M. (2000). *The innovator's dilemma: When new technologies cause great firms to fail*. New York: Harper Business.
- Christensen, C.M., & Bower, J.L. (1996). Customer power, strategic investments, and the failure of leading firms. *Strategic Management Journal*, 17 (3), 197-218.
- Churchill Jr, G.A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16 (1), 64-73.
- Cohen, W.M., & Levinthal, D.A. (1990). Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly* 35 (1), 128-152.
- Conner, K.R., & Prahalad, C.K. (1996). A resources-based theory of the firm: knowledge versus opportunism. *Organization Science*, 7 (5), 477-501.
- Covin, J.G., & Slevin, D.P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10 (1), 57-75.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.
- Croteau, A., & Raymond, L. (2004). Performance outcomes of strategic and IT competencies alignment. *Journal of Information Technology*, 19 (3), 178-190.
- Dahlin, K.B., & Behrens, D.M. (2005). When is an invention really radical? Defining and measuring technological radicalness. *Research Policy*, 34(5), 717-737.
- Dannels, E. (2002). The dynamics of product innovation and firm competence. *Strategic Management Journal*, 23 (12), 1095-1121.
- Davies, H., & Walters, P. (2004). Emergent patterns of strategy, environment and performance in a transition economy. *Strategic Management Journal*, 25 (4), 347-364.
- Day, G. (1999). Misconceptions about market orientation. *Journal of Market-Focused Management*, 4 (1), 5-16.
- De Dreu, C.K.W., & West, M.A. (2001). Minority dissent and team innovation: The importance of participation in decision-making. *Journal of Applied Psychology*, 86 (6), 1191-1201.
- Deshpande, R., Farley, J.U., & Webster, F.E. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms - A quadrad analysis. *Journal of Marketing*, 57 (1), 23-37.
- Dess G.G., & Robinson, R.B. (1984). Measuring organizational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business unit. *Strategic Management Journal*, 5 (3), 265-273.
- Dougherty, D. (1992). Interpretive barriers to successful product innovation in large firms. *Organization Science*, 3 (2), 179-202.
- Duan, L., & Xu, L. (2012). Business intelligence for enterprise systems: A survey. *IEEE Transactions on Industrial Informatics*, 8 (3), 679-687.
- Ettlie, J.E., & Pavlou, P.A. (2006). Technology-based new product development partnerships. *Decision Sciences*, 37 (2), 117-147.
- Ettlie, J.E., & Rubenstein, A.H. (1987). Firm size and product innovation. *Journal of Product Innovation Management*, 4 (2), 89-108.
- Feng, S., Min, J., Tang, C., & Xu, L. (2003). A programmable agent for knowledge discovery on the web. *Expert Systems*, 20 (2), 79-85.

- Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18 (1), 39-50.
- Freeman, C., & Soete, L. (1997). *The Economics of Industrial Innovation*. Cambridge: The MIT Press.
- Garcia, R., & Calantone, R. (2002). A critical look at technological innovation typology and innovativeness terminology: A literature review. *Journal of Product Innovation Management*, 19 (2), 110-132.
- Gatignon, H., Tushman, M.L., Smith, W., & Anderson, P. (2002). A structural approach to assessing innovation: Construct development of innovation locus, type, and characteristics. *Management Science*, 48 (9), 1103-1122.
- Gedajlovic, E., Cao, Q., & Zhang, H. (2012). Corporate shareholdings and organizational ambidexterity in high-tech SMEs: Evidence from a transitional economy. *Journal of Business Venturing*, 27 (6), 652-665.
- Gerbing, D.W., & Anderson, J.C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research*, 25, 186-192.
- Gold, A.H., Malhotra, A., & Segars, A.H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems* 18 (1), 185-214.
- Gourlay, S. (2006). Conceptualizing knowledge creation: a critique of Nonaka's theory. *Journal of Management Studies*, 43 (7), 1415-1436.
- Govindarajan, V., & Kopalle, P.K. (2006). The usefulness of measuring disruptiveness of innovations ex post in making ex ante predictions. *Journal of Product Innovation Management*, 23 (1), 12-18.
- Griffin, A. (1997). PDMA research on new product development practices: updating trends, and benchmarking best practices. *Journal of Product Innovation Management*, 14 (6), 429-458.
- Grant, R.M. (1991). The resources-based theory of competitive advantage: implications for strategy formulation. *California Management Review*, 33 (3), 114-135.
- Grant, R.M. (1996). Prospering in dynamically-competitive environments: Organizational capability as knowledge integration. *Organization Science*, 7 (4), 375-387.
- Gupta, S., Melewar, T. C., & Bourlakis, M. (2010). Transfer of brand knowledge in business-to-business markets: a qualitative study. *Journal of Business & Industrial Marketing*, 25 (5), 395-403.
- Hage, J. (1980). *Theories of organizations*. Wiley, New York.
- Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate data analysis*. 6th ed. New Jersey: Prentice Hall.
- Heggestuen, J. (2013). Confused by China's social networks? Here is a simple infographic showing their US-based equivalents. *Business Insider*, [Accessed November 5 2013] <http://www.businessinsider.com/a-quick-guide-to-chinas-social-networks-2013-10>
- Hong, K. (2014). Messaging app WeChat brings Chinese New Year traditions into the mobile era. *The Next Web*, <http://thenextweb.com/asia/2014/02/05/messaging-app-wechat-brings-chinese-new-year-traditions-into-the-mobile-era/> [Accessed August 14th 2014].

- Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6 (1), 1-55.
- Hurley, R.F., Hult, G., & Tomas, M. (1998). Innovation, market orientation, and organizational learning: An integration and empirical examination. *Journal of Marketing*, 62 (3), 42-54.
- Jantunen, A. (2005). Knowledge-processing capabilities and innovative performance: An empirical study. *European Journal of Innovation Management*, 8 (3), 336-349.
- Jaworski, B., Kohli, A.K., & Sahay, A. (2000). Market-driven versus driving markets. *Journal of the Academy of Marketing Science*, 24, 45-54.
- Kickstarter (2014). <https://www.kickstarter.com/blog/the-history-of-1-updated>
- Kim, A.J., & Ko, E. (2012). Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business Research*, 65 (10), 1480-1486.
- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3 (3), 383-397.
- Kohli, A.K., & Jaworski, B.J. (1990). Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing*, 54 (2), 1-18.
- Kolb, D.A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Lado, N., & Maydeu-Olivares, A. (2001). Exploring the link between market orientation and innovation in the European and US insurance markets. *International Marketing Review*, 18 (2), 130-145.
- Larraneta, B., & Zahra, S.A., & Gonzalez, J.L.G. (2012). Enriching strategic variety in new ventures through external knowledge. *Journal of Business Venturing*, 27 (4), 401-413.
- Leiponen, A. (2006). Managing knowledge for innovation: the case of business-to-business services. *Journal of Product Innovation Management*, 23 (3), 238-258.
- Leonard-Barton, D., & Wilson, E. (1994). Commercializing technology: Imaginative understanding of user needs. Cambridge: Harvard Business School.
- Lettl, C., Herstatt, C., & Gemuenden, H.G. (2006). Users' contributions to radical innovation: Evidence from four cases in the field of medical equipment technology. *R&D Management*, 36 (3), 251-272.
- Levinthal, D.A., & March, J.G. (1993). The myopia of learning. *Strategic Management Journal*, 14 (2), 95-112.
- Li, L. (2012). Effects of enterprise technology on supply chain collaborations: analysis of China-linked supply chain. *Enterprise Information Systems*, 6 (1), 55-77.
- Li, T., & Calantone, R.J. (1998). The impact of market knowledge competence on new product advantage: Conceptualization and empirical examination. *Journal of Marketing*, 13-29.
- Li, Y., Liu, Y., & Zhao, Y. (2006). The role of market and entrepreneurship orientation and internal control in the new product development activities of Chinese firms. *Industrial Marketing Management*, 35 (3), 336-347.
- Li, Y., Zhao, Y., Tan, J., & Liu, Y. (2008). Moderating effects of entrepreneurial orientation on market orientation-performance linkage: Evidence from Chinese firms. *Journal of Small Business Management*, 46 (1), 113-133.

- Li, Y., Wei, Z., & Liu, Y. (2010). Strategic orientations, knowledge acquisition, and firm performance: The perspective of the vendor in cross-border outsourcing. *Journal of Management Studies*, 47 (8), 1457-1482.
- Li, Y., Hou, M., Liu, H., & Liu, Y. (2012). Towards a theoretical framework of strategic decision, supporting capability and information sharing under the context of Internet of Things. *Information Technology and Management*, 13 (4), 205-216.
- Lu, Y., Zhou, L., Bruton, G., & Li, W.W. (2010). Capabilities as a mediator linking resources and the international performance of entrepreneurial firms in an emerging economy. *Journal of International Business Studies*, 41 (3), 419-436.
- Lukas, B.A., & Ferrell, O.C. (2000). The effect of market orientation on product innovation. *Journal of the Academy of Marketing Science*, 28 (2), 239-247.
- Madden, T.J., Fehle, F., & Fournier, S. (2006). Brands matter: An empirical demonstration of the creation of shareholder value through branding. *Journal of the Academy of Marketing Science*, 34 (2), 224-235.
- Makadok, R. (2001). Toward a synthesis of the resource-based view and dynamic-capability views of rent creation. *Strategic Management Journal*, 22 (5), 387-401.
- March, J. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2 (1), 71-87.
- March, J.G., & Simon, H.A. (1958). *Organizations*. Wiley: New York.
- Marsh, S.J., & Stock, G.N. (2006). Creating dynamic capability: The role of intertemporal integration, knowledge retention, and interpretation. *Journal of Product Innovation Management*, 23 (5), 422-436.
- Martin, I.M., Stewart, D.W., & Matta, S. (2005). Branding strategies, marketing communication, and perceived brand meaning: The transfer of purposive, goal-oriented brand meaning to brand extensions. *Journal of the Academy of Marketing Science*, 33 (3), 275-294.
- Marvel, M.R., & Lumpkin, G.T. (2007). Technology entrepreneurs' human capital and its effects on innovation radicalness. *Entrepreneurship Theory and Practice*, 31 (6), 807-828.
- McGrath, R.G. (1999). Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24 (1), 13-30.
- Melewar, T.C., & Nguyen, B. (2014). Five areas to advance branding theory and practice. *Journal of Brand Management*, 21, 758-769.
- Meyers, P.W., & Tucker, F.G. (1989). Defining roles for logistics during routine and radical technological innovation. *Journal of the Academy of Marketing Science*, 17, 73-82.
- Milliken, F.J. (1978). Three types of perceived uncertainty about the environment: State, effect, and response uncertainty. *Academy of Management Review*, 12 (1), 133-143.
- Moorman, C. (1995). Organizational market information processes: Cultural antecedents and new product outcomes. *Journal of Marketing Research*, 32, 318-335.
- Moriarty, R.T., & Kosnik, T.J. (1989). High-tech marketing: concepts, continuity, and change. *Sloan Management Review*, 30 (4), 7-17.
- Morgan, R.E., & Berthon, P. (2008). Market orientation, generative learning, strategy and business performance inter-relationships in bioscience firms. *Journal of Management Studies*, 45 (8), 1329-1353.

- Mu, J., Peng, G., & MacLachlan, D.L. (2009). Effect of risk management strategy on NPD performance, *Technovation*, 29 (3), 170-180.
- Narver, J.C., Slater, S.F., & MacLachlan, D. (2000). Total market orientation, business performance, and innovation. *Marketing Science Institute Working Paper Series*, 1-116.
- Narver, J.C., Slater, S.F., & MacLachlan, D.L. (2004). Responsive and proactive market orientation and new-product success. *Journal of Product Innovation Management*, 21 (5), 334-347.
- Narver, J.C., & Slater, S.F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing*, 54 (4), 20-35.
- Narver, J.C., & Slater, S.F. (1998). Customer-led and market-oriented: Let's not confuse the two. *Strategic Management Journal*, 19 (10), 1001-1006.
- Nelson, R.R., & Winter, S.G. (1982). *An evolutionary theory of economic change*. Harvard University Press: Cambridge, MA.
- Nguyen, B., & Mutum, D.S. (2012). A review of customer relationship management: successes, advances, pitfalls and futures. *Business Process Management*, 18 (3), 400-419.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5 (1), 14.
- Oliveira, P., & von Hippel, E. (2011). Users as service innovators: the case of banking services. *Research Policy*, 40 (6), 806-818.
- Palacios, D., Gil, I., & Garrigos, F. (2009). The impact of knowledge management on innovation and entrepreneurship in the biotechnology and telecommunications industries. *Small Business Economics*, 32 (3), 291-301.
- Paulus, P. (2000). Groups, teams, and creativity: The creative potential of idea generating groups. *Applied Psychology*, 49 (2), 237-262.
- Payne, A., & Frow, P. (2005). A strategic framework for customer relationship management. *Journal of Marketing*, 69 (4), 167-76.
- Peng, M.W., & Heath, P.S. (1996). The growth of the firm in planned economies in transition: institutions, organizations, and strategic choice. *Academy of Management Review*, 21 (20), 492-528.
- Peng, M.W., & Luo, Y. (2000). Managerial ties and firm performance in a transition economy: the nature of a micro-macro link. *Academy of Management Journal*, 43 (3), 486-501.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88 (5), 879-903.
- Price, A. (2014). What Coke learned from social media, *Pulse*, <http://www.bandt.com.au/marketing/coke-learned-social-media> [Accessed August 13th 2014]
- Qi, J., Xu, L., Shu, H., & Li, H. (2006). Knowledge management in OSS – an enterprise information system for the telecommunications industry. *Systems Research and Behavioral Science*, 23 (2), 177-190.
- Quinton, S. (2013). The digital era requires new knowledge to develop relevant CRM strategy: a cry for adopting social media research methods to elicit this new knowledge. *Journal of Strategic Marketing*, 21 (5), 402-412.

- Raju, P.S., Lonial, S.C., & Crum, M.D. (2011). Marketing Orientation in SMEs: A Conceptual Framework. *Journal of Business Research*, 64 (12), 1320-1326.
- Rapp, A., Beitelspacher, L.S., Grewal, D., & Hughes, D.E. (2013). Understanding social media effects across seller, retailer, and consumer interactions. *Journal of the Academy of Marketing Science*, 41 (5), 547-566.
- Rasmussen, E., Mosey, S., & Wright, M. (2011). The evolution of entrepreneurial competencies: a longitudinal study of university spin-off venture emergence. *Journal of Management Studies*, doi: 10.1111/j.1467-6486.2010.00995.x.
- Rosen, R. (1991). Research and development with asymmetric company sizes. *Rand Journal of Economics*, 22(3), 411-429.
- Salavou, H., & Lioukas, S. (2003). Radical product innovations in SMEs: The dominance of entrepreneurial orientation. *Creativity and Innovation Management*, 12 (2), 94-108.
- Salomo, S., Steinhoff, F., & Trommsdorff, V. (2003). Customer orientation in innovation projects and new product development success – the moderating effect of product innovativeness. *International Journal of Technology Management*, 26 (5), 442-463.
- Sanchez, R. (1995). Strategic flexibility in product competition. *Strategic Management Journal*, 16 (1), 135-159.
- Shane, S., & Eckhardt, J. (2003). The individual-opportunity nexus. In Z.J. Acs & D. Audretsch. *Handbook of Entrepreneurship Research*. Boston, Kluwer, 161-194.
- Shimizu, K., & Hitt, M.A. (2004). Strategic flexibility: organizational preparedness to reverse ineffective strategic decisions. *Academy of Management Executive*, 18 (4), 44-59.
- Shortell, S.M., & Zajac, E.J. (1990). Perceptual and archival measures of miles and snow's strategic types: A comprehensive assessment of reliability and validity. *The Academy of Management Journal*, 33 (4), 817-832.
- Slater, S., Olson, E.M., & Hult, G.T.M. (2006). The moderating influence of strategic orientation on the strategy formation capability-performance relationship. *Strategic Management Journal*, 27 (1), 1221-1231.
- Slater, S.F., & Narver, J.C. (1995). Market orientation and the learning organization. *Journal of Marketing*, 59 (3), 63-74.
- Slater, S.F., & Narver, J.C. (1999). Market-oriented is more than being customer-led. *Strategic Management Journal*, 20 (2), 1165-1168.
- Smith, M., Giraud-Carrier, C., & Purser, N. (2009). Implicit affinity networks and social capital. *Information Technology and Management*, 10 (2-3), 123-134.
- Snow, C.C., & Hrebiniak, L.G. (1980). Strategy, distinctive competence, and organizational performance. *Administrative Science Quarterly*, 25 (2), 317-336.
- Song, X.M., & Montoya-Weiss, M.M. (1998). Critical development activities for really new versus incremental products. *Journal of Product Innovation Management*, 15 (2), 124-135.
- Stock, R.M., Six, B., Zacharias, N.A. (2013). Linking multiple layers of innovation-oriented corporate culture, product program innovativeness, and business performance: a contingency approach. *Journal of the Academy of Marketing Science*, 41 (3), 283-299.
- Sung, S.Y., & Choi, J.N. (2012). Effects of team knowledge management on the creativity and financial performance of organizational teams. *Organizational Behavior and Human Decision Processes*, 118 (1), 4-13.

- Tan, J. J. (2001). Innovation and risk-taking in a transitional economy: A comparative study of Chinese managers and entrepreneurs. *Journal of Business Venturing*, 16 (4), 359-376.
- Tan, J.J., & Litsschert, R.J. (1994). Environment-strategy relationship and its performance implications: An empirical study of the Chinese electronics industry. *Strategic Management Journal*, 15 (1), 1-20.
- Taylor, A, & Greve, H.R. (2006). Superman or the fantastic four? Knowledge combination and experience in innovative teams. *Academy of Management Journal*, 49 (4), 723-740.
- Teece, D.J. (2007). Explicating dynamic capabilities: the nature of microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28 (13), 1319-1350.
- Teece, D.J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18 (7), 537-556.
- Tidd, J. (1995). Development of novel product through intraorganizational and interorganizational networks. *Journal of Product Innovation Management*, 12 (4), 307-22.
- Tiessen, J.H. (1997). Individualism, collectivism, and entrepreneurship: A framework for international comparative research. *Journal of Business Venturing*, 12 (5), 367-384.
- Tiwana, A., & Mclean, E.R. (2003). Expertise integration and creativity in information systems development. *Journal of Management Information Systems*, 22 (1), 13-43.
- Tomas, G., & Hult, M. (2003). An integration of thoughts on knowledge management. *Decision Sciences*, 34 (2), 189-195.
- Tsang, E.W.K. (1998). Can guanxi be a source of sustained competitive advantage for doing business in China? *Academy of Management Executive*, 12 (2), 64-73.
- Tsang, E.W. (2002). Acquiring knowledge by foreign partners from international joint ventures in a transition economy: Learning-by-doing and learning myopia. *Strategic Management Journal*, 23 (9), 835-854.
- Von Hippel, E. (1988). *The Sources of Innovation*. New York: Oxford Univ Press.
- Von Hippel, E., Ogawa, S., & de Jong, J.P.J. (2011). The age of the consumer-innovator. *MIT Sloan Management Review*, 53 (1), 27-35.
- Watson, S., & Hewett, K. (2006). A multi-theoretical model of knowledge transfer in organizations: Determinants of knowledge contribution and knowledge reuse. *Journal of Management Studies*, 43 (2), 141-173.
- Wei, L., & Lau, C. (2008). The impact of market orientation and strategic HRM on firm performance: The case of Chinese enterprises. *Journal of International Business Studies*, 39 (6), 980-995.
- Wind, Y., & Mahajan, V. (1988). New product development process: A perspective for reexamination. *Journal of Product Innovation Management*, 5 (4), 304-310.
- Worren, N., Moore, K., & Cardona, P. (2002). Modularity, strategic flexibility, and firm performance: a study of the home appliance industry. *Strategic Management Journal*, 23 (12), 1123-1140.
- Wren, B.M., Souder, W.E. & Berkowitz, D. (2000). Market orientation and new product development in global industrial firms. *Industrial Marketing Management*, 29 (6), 601-611.
- Xin, K.R., & Pearce, J.L. (1996). *Guanxi*: connections as substitutes for formal institutional support. *Academy of Management Journal*, 39 (6), 1641-1658.

- Yiu, D.W., Lau, C.M., & Bruton, G.D. (2007). International venturing by emerging economy firms: the effects of firm capabilities, home country networks, and corporate entrepreneurship. *Journal of International Business Studies*, 38 (4), 519-540.
- Yli-Renko, H., Autio, E., & Sapienza, H.J. (2001). Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal*, 22 (6-7), 587-613.
- Yu, X., Chen, Y., Nguyen, B., & Zhang, W. (2014). Ties with Government, Strategic Capability, and Organizational Ambidexterity: Evidence from China's Information Communication Technology Industry. *Information Technology & Management*, 15 (2), 81-98.
- Yum, M. (2013). Social media in China: growing integration across marketing channels. *Guardian* 12/11/2013 <http://www.theguardian.com/media-network/media-network-blog/2013/nov/12/social-media-china-marketing-channels> [Accessed August 13 2014]
- Zahra, S.A., Ireland, R.D., Gutierrez, I., & Hitt, M.A. (2000). Introduction to special topic forum privatization and entrepreneurial transformation: emerging issues and a future research agenda. *Academy of Management Review*, 25 (3), 509-524.
- Zahra, S.A., & Bogner, W.C. (1999). Technology strategy and software new ventures' performance: Exploring the moderating effect of the competitive environment. *Journal of Business Venturing*, 15 (2), 135-173.
- Zhang, J. & Duan, Y. (2010). The impact of different types of market orientation on product innovation performance: Evidence from Chinese manufacturers. *Management Decision*, 48 (6), 849-867.
- Zhou, Z., Xiao, Z., Liu, Q., & Ai, Q. (2013). An analytical approach to customer requirement information processing. *Enterprise Information Systems*, 7 (4), 543-557.
- Zhou, K.Z., & Wu, F. (2010). Technological capability, strategic flexibility, and product innovation. *Strategic Management Journal*, 31 (5), 547-561.
- Zhou, K.Z., Yim, C.K., & Tse, D.K. (2005). The effects of strategic orientations on technology- and market-based breakthrough innovations. *Journal of Marketing*, 69 (2), 42-60.
- Zhou, K.Z., & Li, C.B. (2012). How knowledge affects radical innovation: Knowledge base, market knowledge acquisition, and internal knowledge sharing. *Strategic Management Journal*, 33 (9), 1090-1102.
- Zhou, K.Z., Li, J.J., Zhou, N., & Su, C. (2008). Market orientation, job satisfaction, product quality, and firm performance: Evidence from China. *Strategic Management Journal*, 29 (9), 985-1000.
- Zumbo, B.D., Gadermann, A.M., & Zeisser, C. (2007). Ordinal versions of coefficients alpha and theta for Likert rating scales. *Journal of Modern Applied Statistical Methods*, 6 (1), 21-29.

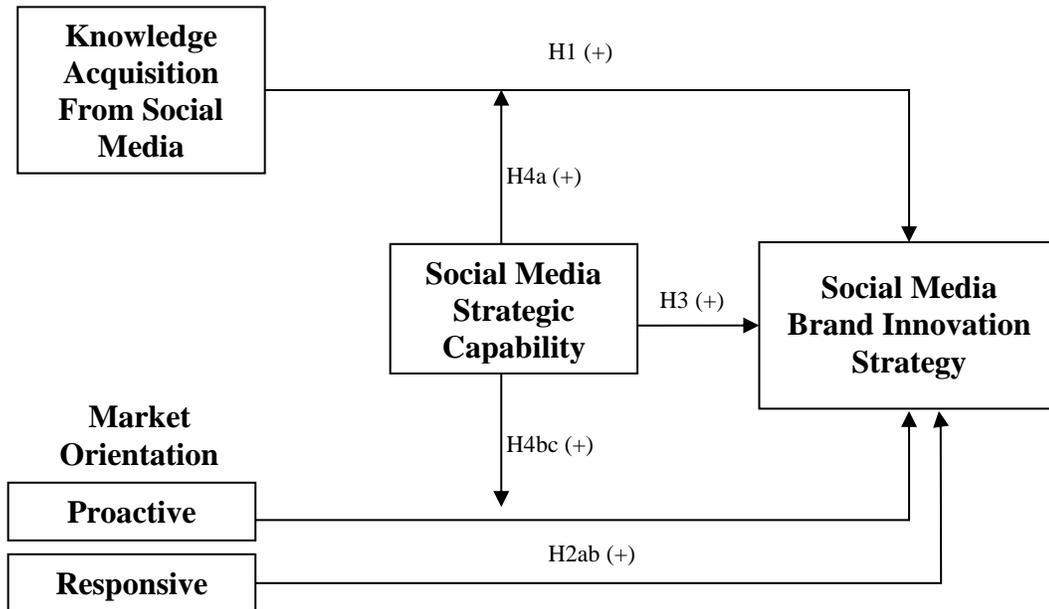


Figure 1: Conceptual Model

Table 1: Profiles of Responding Organizations and Respondents

Characteristics of Sample	Total
Age of Respondent	
(1) < 25	27
(2) 25-30	119
(3) 31-40	138
(4) 41-50	62
(5) >50	11
Education Level	
(1) High School	22
(2) Senior High School	75
(3) Bachelor	153
(4) Master	83
(5) Doctorate	24
Firm Ages	
(1) <3 year	102
(2) 4-5 year	123
(3) 6 years	132
Employment ^a	
(1) 1-20	39.4
(2) 21-50	30.0
(3) 51-200	26.2
(4) 201-500	5.2
(5) 500-1000	8.4
Social Media	
(1) Technology	90
(2) Communications	94
(3) Computer Service & Software	72
(4) Online Retail	81
(5) Other ^b	20

^a According to China's small and medium firm standardization, a firm with less than 1000 employees can be certified as a small and medium firm.

^b Other included manufacturing and food industries.

Table 2: Descriptive Statistics and Correlations Matrix

	Mean	S.D.	1	2	3	4	5	6	7	8
1. Firm age	3.821	1.201	1							
2. Firm size	2.726	1.142	.192**	1						
3. Industry environment	1.380	1.051	-.051	.273**	1					
4. Knowledge acquisition	.583	.501	.126*	-.193**	-.303**	1				
5. Responsive MO	.281	.428	.192**	.162**	-.281**	-.110*	1			
6. Proactive MO	3.282	1.126	.038	-.061	.007	-.043	.061	1		
7. SMSC	3.522	1.107	.012	-.090	-.051	-.018	-.162*	.273**	1	
8. Brand innovation	4.291	1.092	.021	-.082	-.039	.041	-.043	.202**	.120**	1

Notes:

- 1) MO is the abbreviation of “market orientation”; SMSC is the abbreviation of “social media strategic capability”.
- 2) **: Correlation is significant at the 0.01 level (1-tailed); *: Correlation is significant at the 0.05 level (1-tailed).

Table 3: Factor Analysis and Reliability

	Component					Cronbach's α
	1	2	3	4	5	
Knowledge acquisition 1	.294	.073	.790	.102	.110	
Knowledge acquisition 2	.180	.231	.780	.174	.165	
Knowledge acquisition 3	.130	.233	.834	.002	.153	
Knowledge acquisition 4	.177	.132	.820	.172	.126	
Knowledge acquisition 5	.088	.136	.779	.129	.091	.927
Proactive market orientation 1	.072	.778	.292	.176	.137	
Proactive market orientation 2	.191	.770	.305	.007	.182	
Proactive market orientation 3	.244	.647	-.022	.282	.132	
Proactive market orientation 4	.404	.676	.127	.190	.071	.937
Reactive market orientation 1	.814	.085	.103	.162	.190	
Reactive market orientation 2	.742	.119	.110	.179	.163	
Reactive market orientation 3	.781	.173	.128	.133	.165	.949
Brand Innovation 1	.211	.357	.127	.807	.102	
Brand Innovation 2	.133	.326	.213	.810	.092	
Brand Innovation 3	.187	.085	.092	.819	.144	
Brand Innovation 4	.196	.127	.143	.809	.126	.962
Social media SC 1	.129	.102	-.016	.058	.782	
Social Media SC 2	.248	.135	.151	.092	.801	
Social Media SC 3	.066	.200	.139	.147	.813	
Social Media SC 4	.173	.190	.163	.256	.811	.973

Notes: *SC is strategic capability*

- 1) Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 5 iterations.

Table 4: Results of Hierarchical Linear Regression

Variables	Brand Innovation Strategy (n=357)			
	Step 1	Step 2	Step 3	Step 4
Controls				
Firm age	.028	-.037	-.049	-.058
Firm size	.035	.131†	.112*	.129*
Industry environment	-.038	-.041	-.042	-.034
Independent				
Knowledge acquisition (H1)		.419***	.409***	.347***
Proactive market orientation (H2a)		.371***	.380***	.328***
Reactive market orientation (H2b)		.408***	.392***	.342***
Moderating				
SMSC (H3)			.238**	.202*
Knowledge acquisition × SMSC (H4a)				.212*
Proactive MO × SMSC (H4b)				.177*
Reactive MO × SMSC (H4c)				.153*
R ²	.702	.724	.634	.647
Adj R ²	.713	.704	.619	.641
ΔR ²	—	.423	.029	.019
F-change	.469	70.521***	7.026**	2.749†

Notes:

- 1) MO is the abbreviation of “market orientation”; SMSC is the abbreviation of “social media strategic capability”.
- 2) ***, $p \leq 0.001$; **, $p \leq 0.01$; *, $p \leq 0.05$; †, $p \leq 0.1$
- 3) All VIF less than 1.54

Table 5: Results of the Hypothesis Testing

Hypotheses	Equation	Result
H1: Knowledge acquisition from social media is positively associated with brand innovation	H1	Supported
H2a: Proactive market orientation is positively associated with brand innovation	H2a	Supported
H2b: Reactive market orientation is positively associated with brand innovation	H2b	Supported
H3: Social media strategic capability is positively associated with brand innovation	H3	Supported
H4a: Social media strategic capability positively moderates the relationship between knowledge acquisition from social media and brand innovation	H4a	Supported
H4b: Social media strategic capability positively moderates the relationship between proactive market orientation and brand innovation	H4b	Supported
H4c: Social media strategic capability positively moderates the relationship between reactive market orientation and brand innovation	H4c	Supported

Appendix A - Measurement Items and Validity Assessment

Items description summary	Standardized loading	t-value
<i>Knowledge Acquisition From Social Media (CA=.927; CR=.924; AVE= .848)</i>		
1. Our company has a process for continuously collecting information from customers using social media.	.922	20.261
2. Our company has a process for continuously collecting information about competitor activities using social media.	.937	19.172
3. Our company has a process for continuously collecting information from suppliers using social media.	.891	23.218
4. Our company has a process for continuously collecting information from intermediaries using social media.	.907	16.093
5. Our company has a process for continuously collecting information from governments using social media.	1.000 ^a	22.201
<i>Proactive Social Media Market Orientation (CA=.937; CR=.929; AVE=.791)</i>		
1. We help customers anticipate developments in the markets using social media.	.876	13.827
2. We continuously try to discover additional needs of our customers of which they are unaware using social media.	.891	10.768
3. We innovate using social media even at the risk of rendering our own products obsolete.	.905	9.274
4. We search for opportunities using social media in areas where customers have difficulty expressing their needs.	1.000 ^a	14.228
<i>Reactive Social Media Market Orientation (CA=.949; CR=.941; AVE=.806)</i>		
1. We constantly monitor our level of commitment and orientation to serving customer needs using social media.	.962	18.054
2. Our strategy for competitive advantage is based on our understanding of customer needs using social media.	.883	18.374
3. We measure customer satisfaction systematically and frequently using social media.	. 1.000 ^a	19.654
<i>Social Media Strategic Capability (CA=.973; CR=.964; AVE=.835)</i>		
1. My organization owns future competitive flexibility in social media.	.887	19.811
2. My organization has the ability to use social media to quickly become aware of new business opportunities or threat possibilities.	.961	20.872
3. In my organization, leaders have entrepreneurship characteristics on social media.	.983	21.801
4. My organization has the ability to cohesively garner employee knowledge through social media.	1.000 ^a	17.719
<i>Social Media Brand Innovation (CA=.962; CR=.923; AVE=.792)</i>		
1. Brand innovation using social media is a major improvement over previous technology and established practices.	.910	20.010
2. Brand innovation using social media is a breakthrough innovation practice.	.944	19.117
3. Brand innovation using social media led to products that are difficult to substitute with older technology.	.870	22.196
4. Brand innovation using social media represents a major advance in our technological subsystem.	1.000 ^a	20.548
<i>Industry Environment (CA=.942; CR=.936; AVE=.829)</i>		
1. The technology in our industry is changing rapidly.	.920	24.281
2. Technological changes provided big opportunities in our industry.	.948	20.191
3. Many new product ideas have been made possible through technological breakthroughs in our industry.	1.000 ^a	22.663
Model fit: $\chi(120) = 165.145$, $p = 0.001$; DELTA2 = 0.980; CFI = 0.980; TLI = 0.979; RMSEA=.037		

^aFixed factor loading. Notes: CA = Cronbach's alpha, CR = Composite Reliability, AVE = Average Variance Extracted.