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RESEARCH PAPER

Generating and exploiting customer insights from social media data

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Abstract Previous research has emphasized the virtues of customer insights as a key source of competitive advantage. The rise of customers' social media use allows firms to collect customer data in an ever-increasing volume and variety. However, to date, little is known about the capabilities required of firms to turn social media data into valuable customer insights and exploit these insights to create added value for customers. Based on the dynamic capabilities perspective, in particular the concept of absorptive capacity (ACAP), the authors conducted multiple case studies of seven mid-sized and large B2C firms in Switzerland and Germany. The results provide an in-depth analysis of the underlying processes of ACAP as well as contingent factors – that is, physical, human and organizational resources that underpin the firms' ACAP.

Keywords Customer insights · Customer data · Social media · Absorptive capacity · Capabilities

JEL Classification M150 IT Management

Introduction

The proliferation of social media has radically changed the way people communicate and interact with each other. Today's "social customers" have a powerful voice in the marketplace and expect a similar level of interaction from the firms they choose to buy from (Greenberg 2010). The empowered customers' demands make it critical for businesses to manage their customers in an interactive, collaborative, and personalized way in order to survive (Greenberg 2010; Setia et al. 2013; Woodcock et al. 2011). For example, Barclays Bank has integrated various social media applications such as blogs and wikis to collaborate with customers and respond to their needs in an interactive way, in order to improve its overall business performance (Setia et al. 2013).

At the same time, firms have recognized the potential of social media as an external source of knowledge to learn about their customers' opinions, attitudes, and "emotional temperature" (Canhoto et al. 2013; Choudhury and Harrigan 2014; Woodcock et al. 2011). In today's dynamic marketplace, management scholars have emphasized the virtues of knowledge as a key source of competitive advantage (Jansen et al. 2005). To remain competitive, firms need to recognize and make sense of new valuable knowledge located outside of the firm's boundaries and incorporate it into their value creation processes (Jansen et al. 2005). Knowledge about customers has been cited as an especially precious competitive tool for two main reasons. First, a profound understanding of customer characteristics and preferences allows firms to offer products and services that provide superior value to the customer (García-Murillo and Annabi 2002). Second, knowledge about customers is invisible and thus difficult for competitors to imitate (Salojärvi and Sainio 2006). Social media constitutes a particularly rich source for obtaining customer knowledge. The rise of customers' social media usage allows firms to acquire customer data in an ever-increasing volume and variety (Choudhury and Harrigan 2014). Information from social media profiles (e.g., interests, preferences, life events) and online conversations (e.g., sentiment regarding a product or brand) can enrich master and transactional data (e.g.,

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purchase history, visits to websites, response to marketing campaigns) (Greenberg 2010; Newell and Marabelli 2014). For example, Burberry combines enterprise data with social media data to accelerate the identification of emerging customer trends in order to make timely adjustments throughout its supply chain (Palmer et al. 2013). Cost-effective storage and advanced business intelligence and analytics technologies (e.g., text and big data analytics) enable firms to gather and analyze these huge sets of customer data (Chen et al. 2012; Dinter and Lorenz 2012).

Firms that have the capability not only to acquire but also to make sense of social media data in their business context can turn this data into valuable customer insights, that is, in-depth and actionable knowledge of customer needs and underlying motivations. These insights can be exploited to create added value to customers by tailoring offerings to their needs and serving "what they want, the way they want it, and when they want it" (Setia et al. 2013, 566). For example, Walmart analyzes a wide variety of social media data, including user updates, comments, transactions, images, and check-ins, and uses the derived customer insights to predict product demand and launch new products (Palmer et al. 2013). Thus, customer insights are becoming more and more valuable for improving business performance and gaining competitive advantage in target markets (Choudhury and Harrigan 2014; Greenberg 2010; Woodcock et al. 2011).

Despite the relevance of customer insights as a source of competitive advantage, there is a lack of research on how to capitalize on them (García-Murillo and Annabi 2002). Particularly little is known about the capabilities through which firms can utilize social media data to generate and exploit customer insights. Previous research in the field of information systems (IS) investigating how businesses use social media data to generate customer insights has primarily focused on technological aspects, that is, methodologies for gathering and analyzing customer data (e.g., Chau and Xu 2012; Lewis et al. 2013; Li et al. 2014), technical requirements for data analytics (e.g., Gallinucci et al. 2015; Rosemann et al. 2012), and application possibilities for social media analytics (e.g., He et al. 2013; Kalampokis et al. 2013; Rao and Kumar 2011). Only a small number of marketing studies examined specific organizational aspects, such as governance structures for the firm-wide communication of customer insights (Barwise and Meehan 2011; Stone and Woodcock 2014), challenges regarding their effective application (Greenberg 2010; Woodcock et al. 2011) and the impact of social media technology use on firms' customer relationship performance (Choudhury and Harrigan 2014; Trainor et al. 2014).

A strong focus on technology also prevails in practice. Firms heavily invest in technologies like social media gathering and analytics tools (e.g., social media monitoring) to make use of social media data (Choudhury and Harrigan 2014; Kleindienst et al. 2015). However, valuable customer insights cannot be achieved by relying on technology alone. While information technology (IT) is effective for gathering and processing social media data, the generation of customer insights also requires transforming the data into meaningful knowledge that is subsequently disseminated throughout the firm and acted upon (Smith et al. 2006). This implies, for example, that firms require human skills to interpret and understand the data, as well as organizational structures and processes to share and use the generated insights within the organization. A holistic understanding of the required capabilities and resources would enable firms to derive business value from social media data by developing and refining their knowledge-related mechanisms. This paper aims to close the existing research gap and poses the following research question:

How can firms generate and exploit customer insights from social media data?

We address this question by applying the theoretical lens of the dynamic capabilities perspective, especially the concept of absorptive capacity (ACAP). ACAP explains how firms can absorb externally generated knowledge and deploy it internally (Zahra and George 2002). Applying the four dimensions of ACAP, that is, acquisition, assimilation, transformation, and exploitation, allows us to investigate in detail the required capabilities through which firms can generate and exploit customer insights from social media data. Moreover, we study contingent factors that influence firms' ACAP, with a particular emphasis on internal factors. Methodologically, our study is based on multiple case studies of seven mid-sized and large B2C firms in Switzerland and Germany. With this approach, we follow Ambrosini and Bowman's (2009) call for more empirical research, in particular case studies, to shed light on the detailed micro-foundations of how firms deploy dynamic capabilities. Our research contribution is threefold. First, we contribute to the theoretical understanding of ACAP by shedding light on the fundamental building blocks of ACAP. Based on empirical findings, we show how firms deploy the underlying processes in the context of social media. Second, we identify and specify new contingent factors of ACAP in the context of social media, namely physical, human and organizational resources. By investigating technological and non-technological resources in combination we contribute to prior research in the IS field and strategic management. Third, our research highlights the unique characteristics of social media data and how they affect the required capabilities and contingent factors. Moreover, we discuss the limitations of social media data for customer insights generation and exploitation. From a practitioner's perspective, we provide a comprehensive overview of the organizational prerequisites necessary to turn social media data into actionable customer insights. By underlining the need to complement technological

with non-technological resources and better integrate the two, we challenge the widespread practice of heavily investing in IT only. A better understanding of the capabilities and resources should be of great interest to practitioners eager to leverage social media data. It will allow managers to assess their current capabilities and resource setup, to identify gaps, and to allocate financial and personnel efforts accordingly.

This paper proceeds as follows. The next section introduces the concept of customer insights as well as the dynamic capabilities perspective, with a particular focus on the ACAP concept. Next, we describe the methodical approach of multiple case studies, followed by a presentation of our results regarding the underlying processes of ACAP and relevant contingent factors. We then turn to a discussion of the results and present implications for research and practice. The paper concludes with reflections on its limitations and suggestions for further research.

Theoretical background

This section presents the paper's theoretical background. We begin with a definition of customer insights and discuss the unique characteristics of social media data. Next, we present the dynamic capabilities perspective with specific emphasis on the ACAP concept. This section then discusses the factors influencing ACAP, which are further validated and specified in the multiple case studies conducted.

Customer insights generated from social media

Firms depend more and more on social media to interact with their customers (Choudhury and Harrigan 2014). Social media is defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" (Kaplan and Haenlein 2010, 61). Social media include, among others, social networks (e.g., Facebook or hosted online communities), microblogging services (e.g., Twitter), video sharing (e.g., YouTube), and blogs. In this paper, we focus on social media aimed at existing and new customers as opposed to internal social media aimed at employees. About 80 % of executives have recognized the importance of social media for customer interaction and consider it a highly relevant aspect of business success (Hennig-Thurau et al. 2010). Research also highlights the usability of social media to achieve significant performance gains. First, social media increases the effectiveness of customer acquisition activities (Reinhold and Alt 2012). Second, social media offers new digital service channels (e.g., online brand communities) for co-creation activities and better customer service (Lehmkuhl and Jung 2013). Third, social media yields new strategies to generate customer insights (Greenberg 2010; Woodcock et al. 2011).

Customer insights are defined as the firm's "understanding of current customer needs, the reasons behind these needs, and how these change over time" (Hillebrand et al. 2011, 595), which can be exploited in the firm's value creation process. A firm with customer insights has profound knowledge about customer characteristics and preferences; it not only knows very well who its customers are, where they shop, and what they buy, but also has a deep understanding of the underlying motivations that trigger customers' attitudes and actions. Valuable customer insights are actionable, that is, they support decision-making and inform concrete business actions (e.g., personalization of marketing campaigns, creation of new products and services). Users' social media profiles, activities, and conversations constitute a promising source of customer data encompassing, among other things, sociodemographic characteristics, interests, life events, and opinions. These interactions lead to richer data compared to structured data from transactions, and they can help explain the drivers behind customer decisions and actions (García-Murillo and Annabi 2002). Yet, to generate customer insights from social media data, firms must be effective not only in collecting and analyzing this data but also in connecting it with existing customer records and synthesizing it in the context of the firm's objectives (Smith et al. 2006).

However, social media data has unique characteristics, which set it apart from other data sources and need to be considered when using this promising data source to generate customer insights. Social media data can be described as "big data" characterized by high volume, variety, and velocity (Holsapple et al. 2014). When tapping into social media, firms gain a vast number of heterogeneous data sets that usually originate from multiple sources, that is, social media platforms such as Facebook, Twitter, LinkedIn, Pinterest, internet forums, or microblogs (Dinter and Lorenz 2012). Each of these platforms provides data in different formats (Holsapple et al. 2014). Furthermore, processing the vast quantity of social media posts floods firms with unstructured data (Kurniawati et al. 2013). Unlike structured data (e.g., master or transactional customer data), unstructured data from social media platforms can be textual, based on human natural language, or non-textual, such as pictures, audio, or videos (Kurniawati et al. 2013). Comments on a firm's Facebook page, for example, are written in free form. They include abbreviations, special symbols, or different slangs. The creation of unstructured data distinguishes social media from other sources generating big data, for example, sensors in smartphones and wearables. In addition, many pieces of information published in these posts (e.g., holiday location, opinion, relationship status) have a high velocity and do not represent long-lasting states in customers' lives. This places particularly high demands on data quality management, as acquired social media data needs

to be validated and updated at frequent intervals to ensure that data is current and consistent (Dinter and Lorenz 2012; Fan and Gordon 2014).

In sum, generating customer insights from social media data poses new challenges for firms' capabilities to explore and exploit this external knowledge source. Yet, firms that are able to analyze this data faster and feed valuable insights into their business units more frequently can potentially realize a competitive advantage and improve business performance (Choudhury and Harrigan 2014; Hillebrand et al. 2011).

Dynamic capabilities perspective and absorptive capacity

The dynamic capabilities perspective is an influential theoretical framework in strategic management literature for understanding how firms generate and sustain a competitive advantage (Teece et al. 1997). The dynamic capabilities perspective extends the resource-based view (RBV), which explains a firm's superior economic performance through its resource endowment. If a firm possesses resources that are simultaneously *valuable* (i.e., can be used to guide decisions), *rare* (i.e., not commonly held by competitors), *inimitable* (i.e., difficult and costly for others to replicate), and *non-substitutable* by other resources (Barney 1991), it enjoys a competitive advantage (Barney 1991). These four properties are commonly referred to as the VRIN criteria. Resources are broadly defined as "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm" (Barney 1991, 101). In essence, resources encompass both tangible and intangible assets, as well as processes (Helfat and Peteraf 2003; Winter 2003).

However, the possession of VRIN resources at one point in time does not suffice to sustain a competitive advantage amid changing market conditions. As the RBV does not explain how valuable resources can be created or how the extant resource base can be altered over time, Teece et al. (1997) introduced the dynamic capabilities perspective as an extension of the RBV. Dynamic capabilities are a set of learned processes and activities that allow firms to change by enabling them to "integrate, build, and reconfigure internal and external competences" (Teece et al. 1997, 516). Adapting Teece et al.'s definition, many authors have formulated their own definitions of dynamic capabilities (Ambrosini and Bowman 2009). Eisenhardt and Martin (2000) define them as "the firm's processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die" (1107). Despite multiple definitions, there is consensus that dynamic capabilities are intentional, persistent, and repeatable organizational processes that alter the firm's extant resource base with the aim of creating a new set of valuable resources (Ambrosini and Bowman 2009). In contrast, dynamic capabilities do not encompass ad hoc problem solving (Winter 2003), spontaneous interventions, or disjointed reactions to market changes (Ambrosini and Bowman 2009).

Eisenhardt and Martin (2000) suggest four types of dynamic capabilities: those that integrate resources (e.g., product development routines), reconfigure resources (e.g., organizational restructuring), gain resources (e.g., knowledge creation routines, acquisition), and release resources (e.g., exit routines). Knowledge creation routines focus on gaining new knowledge to build new thinking and capabilities within the firm. This concept is particularly important to the present study, as the process of generating customer insights from social media data can be regarded as a knowledge creation routine.

A key knowledge-based dynamic capability is ACAP, which helps firms understand how to absorb externally generated knowledge and deploy it internally. Cohen and Levinthal (1990) define it as "the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to a commercial end" (128). Absorbing knowledge from the outside is of vital importance to firms' innovation orientation, since they cannot develop all relevant knowledge within the organization. Moreover, knowledge needs to be updated regularly to avoid obsolescence (Cohen and Levinthal 1990; Zahra and George 2002). Zahra and George (2002) state that ACAP is "a dynamic capability that influences the firm's ability to create and deploy the knowledge necessary to build other organizational capabilities" (188). They explain that ACAP allows firms to create new knowledge from sources outside the firm's boundaries and deploy it to build other organizational capabilities (e.g., innovation or improvements in marketing, distribution, production). This enhances the firm's ability to adapt to changing market conditions and sustain competitive advantage.

To understand the concept of ACAP, it is important to differentiate between dynamic and organizational capabilities. ACAP, a dynamic capability, consists of a set of organizational capabilities to manage knowledge, in other words, "a set of organizational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organizational capability" (Zahra and George 2002, 186). Organizational capabilities, also called operational or ordinary capabilities, refer to a firm's ability to deploy resources, usually in combination. They are rooted in processes and routines that produce outputs by combining different resources (Helfat and Peteraf 2003). In essence, they are basic, functional processes that turn inputs into outputs and permit the firm to earn revenue and profit in the present (Winter 2003). While organizational capabilities support the firm's current operations, dynamic capabilities are change-oriented processes that impact and modify extant organizational capabilities.

Zahra and George (2002) propose that four organizational capabilities compose a firm's ACAP: (1) knowledge

acquisition, (2) assimilation, (3) transformation, and (4) exploitation. Conceptualizing ACAP as a multidimensional construct is in line with Eisenhardt and Martin (2000), who argue that while often described vaguely, dynamic capabilities "actually consist of identifiable and specific routines" (1107) that show "commonalities in key features" (1110) across firms. The four organizational capabilities are distinct, but they need to build upon each other to create ACAP – a dynamic capability. This implies that firms must "accurately *sense* changes in their competitive environment, including potential shifts in technology, competition, customers, and regulation" (Harreld et al. 2007, 24, emphasis in the original) as well as "act on these opportunities and threats; to be able to *seize* them by reconfiguring both tangible and intangible assets to meet new challenges" (Harreld et al. 2007, 25, emphasis in the original). The extent to which a firm can perform each organizational capability depends on the implementation of structural, systematic, and procedural mechanisms within the firm. In the following we describe the four dimensions of ACAP in more detail.

(1) *Acquisition* describes a "firm's capability to identify and acquire externally generated knowledge that is critical to its operations" (Zahra and George 2002, 189). In this study, acquisition refers to the firm's ability to identify and acquire customer data through social media platforms and import it into the organization.

(2) *Assimilation* refers to "the firm's routines and processes that allow it to analyze, process, interpret, and understand the information obtained from external sources" (Zahra and George 2002, 189). In this study, assimilation entails adequate internal routines to make sense of the social media data and turn it into customer knowledge.

Processes (1) and (2) represent a firm's potential ACAP (Zahra and George 2002), that is, the extent to which a firm can acquire and process external social media data.

(3) *Transformation* denotes "a firm's capability to develop and refine the routines that facilitate combining existing knowledge and the newly acquired and assimilated knowledge" (Zahra and George 2002, 190). In this study, transformation refers to the internal routines that relate the new customer knowledge to the existing knowledge base of the firm by updating, deleting, or interpreting existing customer knowledge in a different manner or adding new knowledge. The alignment of new and existing knowledge creates customer insights, that is, actionable customer knowledge.

(4) *Exploitation* is defined as the firm's capability "to refine, extend, and leverage existing competencies or to create new ones by incorporating acquired and transformed knowledge into its operations" (Zahra and George 2002, 190). In this study, exploitation represents a firm's ability to recognize new value-creating opportunities to better serve their customers and incorporate customer insights into concrete applications (e.g., new or improved products and services, new business models, or processes).

Processes (3) and (4) represent a firm's realized ACAP (Zahra and George 2002), in other words, the extent to which a firm can utilize the externally acquired customer insights.

Only a few studies have applied the ACAP concept to the context of social media. Ooms et al. (2015) examined how the use of social media in innovation processes affects socialization and coordination capabilities for ACAP. Hu and Schlagwein (2013) aimed to identify which use types of external and internal social media increase firms' ACAP and create business benefits. Other authors investigating social media in the organizational context have based their research on the dynamic capabilities perspective and the RBV. In a quantitative study, Choudhury and Harrigan (2014) and Trainor et al. (2014) used this theoretical framework to explain how firms use social media technology (e.g., Twitter or firm blogs), organizational resources (e.g., customer engagement initiatives), and internal capabilities (e.g., relational information processing) to achieve performance gains (e.g., customer relationship performance). However, to the best of our knowledge, no research has provided an in-depth investigation of the micro-foundations of ACAP's deployment by firms to generate customer insights from social media data.

Contingent factors

As explained above, organizational capabilities refer to processes that use and combine different resources (Eisenhardt and Martin 2000; Helfat and Peteraf 2003; Verona and Ravasi 2003). In other words, resources form the basis of a firm's capabilities, which deploy these resources to attain a desired goal (Wang and Ahmed 2007). However, to date, little is known about which resources a firm actually needs in order to develop and nurture the underlying capabilities of ACAP. Therefore, we aim to investigate the resources required in generating and exploiting customer insights from social media data and examine how these resources affect the capabilities of ACAP. In their conceptualization of ACAP, Zahra and George (2002) emphasized the need to examine the contingent conditions under which ACAP creates value. Of particular interest in this study are internal resources and their effects on ACAP. While previous research has provided initial insights into how organizational parameters affect ACAP, most studies have largely ignored this aspect (Jansen et al. 2005).

In their theoretical ACAP model, Zahra and George (2002) included the contingent factor of social integration mechanisms, which influences the components of ACAP, in particular assimilation and transformation. Social integration refers to informal and formal mechanisms that facilitate the sharing and eventual exploitation of knowledge. Meanwhile, Jansen et al. (2005) empirically investigated the effects of different organizational factors on the potential and realized ACAP of a business unit. The findings indicate that organizational mechanisms associated with coordination capabilities (i.e., cross-functional interfaces, participation in decision making, and job rotation) positively affect a unit's potential ACAP, while mechanisms associated with socialization capabilities (i.e., connectedness and socialization tactics) increase a unit's realized ACAP. Van den Bosch et al. (1999) showed the impact of different organizational forms (functional, divisional, and matrix organizational structure) and combinative capabilities (systems capabilities, coordination capabilities, and socialization capabilities) on a firm's ACAP. While these studies provide evidence on the influence of organizational determinants on ACAP, they do not give profound insight into which factors firms can actively manipulate in order to increase their ACAP. In line with the dynamic capabilities perspective, which serves as the theoretical foundation of our study, we argue that it is crucial to identify and examine the specific resources that form the basis of the ACAP capabilities. Studying the effects of organizational resources on the dimensions of ACAP would clarify how this dynamic capability can be developed and would help explain why some firms are better than others at managing the underlying processes of ACAP.

In this study, we adopt the widely used classification by Barney (1991), which groups resources into three categories: (1) physical, (2) human, and (3) organizational resources. We suggest that these are linked, in different ways, to the capabilities forming ACAP. This is in line with the definition of capabilities as processes that leverage specific resources (Eisenhardt and Martin 2000; Verona and Ravasi 2003). In the following, we discuss the three types of resources in more detail.

Physical resources refer to the physical infrastructure and technology used in a firm, such as plants, equipment, and finances (Barney 1991), as well as the IT infrastructure comprising computer and communication technologies, technical platforms, and databases (Bharadwaj 2000; Ross et al. 1996). In this study, we are concerned with the role of physical resources, in particular IS, as a factor influencing ACAP. IS has great potential to enhance a firm's ability to acquire, store, process, and analyze large amounts of data and deliver and distribute meaningful insights throughout the organization. Previous research suggests that IS impact on ACAP (Roberts et al. 2012) and that ACAP benefits from the judicious deployment of IT-based resources, for example, business intelligence tools (Yeoh et al. 2013).

Human resources relate to the firm's workforce, that is, non-management employees as well as managers. This factor takes into account their knowledge and skills coupled with their experience, judgment, intelligence, and relationships (Barney 1991). In this study we are interested in the role of the firm's workforce vis-à-vis ACAP. Past studies have shown the relevance of human resources for ACAP. Verona and Ravasi (2003) found that employees' special skills and expertise as well as their motivation positively affected knowledge creation and absorption, integration, and reconfiguration. Lane et al. (2006) pointed out that prior research neglected the role of individuals in developing, deploying, and maintaining ACAP. They underlined the high relevance of individuals for knowledge processing and argued that "what creates competitive advantage out of knowledge is the unique and valuable ways in which it is combined and applied. This uniqueness arises from the personal knowledge and mental models of the individuals within the firm, who scan the knowledge environment, bring the knowledge into the firm, and exploit the knowledge in products, processes, and services" (Lane et al. 2006, 854). Consequently, they called for further research on the role of individuals for ACAP.

Organizational resources relate to configuration of an organization's various parts. This resource category encompasses corporate governance mechanisms such as formal reporting lines as well as planning, controlling, and coordination systems. Moreover, it includes informal inter-departmental relationships and external networks (e.g., relationships with other firms or customers) (Barney 1991). In this research, we are interested how organizational resources impact a firm's ACAP. Zahra and George (2002) proposed social integration mechanisms as an important contingent factor that lowers the barriers between assimilation and transformation, thus increasing ACAP. Verona and Ravasi (2003) noted that structures and systems (roles, incentives, etc.) as well as the organizational culture (values, norms) constitute the organizational context that guides people's behavior and affects knowledge flows within the firm.

Research method

In this study, we aim to examine the underlying processes of ACAP and relevant contingent factors that allow firms to generate and exploit customer insights from social media data. We chose a case study approach, following the recommendations of Eisenhardt (1989), Paré (2004), and Yin (2009). According to Easterby-Smith et al. (2008), qualitative approaches are better suited than quantitative methods to capture the nature of ACAP and its underlying processes. The case study is undertaken within the positivist research paradigm, because our aim is to generate generalizable results (Eisenhardt 1989; Paré 2004). In the following four sub-sections, we describe the identification of preliminary constructs, the case study design, the data collection, and the data analysis procedure to ensure a rigorous and transparent research process.

Identification of preliminary constructs

When following the positivist research paradigm, the researcher should draw on preliminary constructs (Eisenhardt 1989; Paré 2004). Preliminary constructs, also called "seed categories," can be described as "potentially important variables, with some reference to extant literature" (Eisenhardt 1989, 536). They should guide the researcher during the research process when handling the vast amount of collected field data (Yin 2009). Furthermore, preliminary constructs help avoid results that are biased because "investigators reach premature and even false conclusions" (Eisenhardt 1989, 540). To enhance the generalizability of the case study results, the core constructs should be derived from existing literature; if they prove important, the researchers have a firmer empirical grounding for their findings (Eisenhardt 1989).

Since the dimensions of the ACAP concept and the contingent factors are rather general, we aimed to specify them by conducting a literature review in accordance with previous research (e.g., Eisenhardt and Bourgeois 1988; Keil 1995; Mehta and Hirschheim 2007; Olsson et al. 2008). Appendix A describes the methodology used to identify relevant publications.

A systematic and comprehensive literature search resulted in a coding set of 29 articles. When analyzing these articles, we extracted quotations on required capabilities and contingent factors. In a first round, we clustered them into 11 candidate preliminary constructs: data gathering, data analysis, data integration, transformation into actionable insights, definition of action possibilities, technology as an enabler, analytical knowledge, interpretative knowledge, customer insight governance, cross-functional communication, customer value creation. To avoid duplicates or constructs with a low degree of selectivity, the list was refined continuously by renaming or summarizing the candidate preliminary constructs. For example, "technology as an enabler" became "information and communication technology" (ICT), while "data gathering," "data analysis," "data integration," "transformation into actionable insights," and "definition of action possibilities" were consolidated into "absorptive capacity." During the entire analysis of the identified articles, the authors jointly read the papers and extracted relevant quotations. Conflicts were discussed with a senior researcher, which limited the risk of bias in data collection and inconsistency of the obtained data. Table 1 presents the six preliminary constructs identified from the literature. Further details on the coding process and the preliminary constructs are provided in Appendix B.

As shown in Table 1, none of the identified articles covers all six of the preliminary constructs. Moreover, the small number of identified studies indicates that previous research has paid relatively little attention to the topic under investigation. In fact, most of the authors mentioned the potentially relevant constructs only in passing and did not provide detailed descriptions. Following Paré (2004), we considered the identified preliminary constructs to be tentative and did not restrict ourselves to these constructs during the case studies.

Case study design

Perceived as more robust than single case studies, we conducted multiple case studies to ensure the generalizability of the constructs identified (Eisenhardt 1989; Paré 2004). Multiple case studies allow us to identify the commonalities of the processes that underlie ACAP across firms. With this approach, we concur with Eisenhardt and Martin (2000), who argue that dynamic capabilities show identifiable commonalities across firms and do not have to be firm-specific. The authors explain that "while dynamic capabilities are certainly idiosyncratic in their details, the equally striking observation is that specific dynamic capabilities also exhibit common features that are associated with effective processes across firms" (Eisenhardt and Martin 2000, 1108). They conclude that "the functionality of dynamic capabilities can be duplicated across firms" (1106) and that many firms share similar dynamic capabilities.

The unit of analysis focuses on the management of customer insights in the context of social media at the firm's level. Applying literal replication logic, we selected cases with intrinsic similarities that were expected to yield similar results (Paré 2004). The cases included in this study were chosen based on the selection criteria of firm size, sales model, country, strategy, and level of maturity with regard to leveraging social media. As the generation of a comprehensive and coherent picture of the customer involves substantial efforts (Choudhury and Harrigan 2014; Wills and Williams 2004), only mid-sized and large B2C firms were considered in the sampling process. To rule out cultural differences, the cases were drawn from Switzerland and Germany as countries with significant cultural closeness. Moreover, all selected firms shared comparable

Table 1 Results of the literature review

Identified articles	Absorptive capacity	Information and communication technology	Analytical skills	Understanding of the business context	Customer insight governance	Customer-oriented culture
Bailey et al. (2009)			x	x	x	
Baird and Gonzales-Wertz (2011)	x					x
Barwise and Meehan (2011)	x				x	x
Berman and Korsten (2014)	x	x	x		x	x
Bijmolt et al. (2010)	x	x			x	x
Bingham (2005)	x				x	x
Brown et al. (2008)	x	x			x	x
Canhoto et al. (2013)	x	x	x		x	
Choudhury and Harrigan (2014)	x	x	x		x	x
Clauser (2001)	x					x
Dinter and Lorenz (2012)	x	x	x	x	x	
Greenberg (2010)	x	x			x	x
Hauser (2007)	x	x	x	x		
Hillebrand et al. (2011)	x		x			x
Hirschowitz (2001)	x	x			x	
Hubbell and Redding (2003)	x	x	x		x	x
Jayachandran et al. (2005)	x	x			x	x
Langford and Schulz (2006)	x					x
Lemke et al. (2011)	x					x
Malthouse et al. (2013)	x				x	x
Peltier et al. (2013)	x	x			x	x
Reinhold and Alt (2012)	x	x			x	
Saarijärvi et al. (2013)	x				x	
Saraf et al. (2013)	x		x		x	x
Smith et al. (2006)	x					x
Stone and Woodcock (2014)		x	x	x	x	
Verhoef et al. (2010)	x	x				x
Wills and Williams (2004)	x	x			x	x
Woodcock et al. (2011)	x				x	x
Sum	27	16	10	4	21	21

strategies and levels of maturity with regard to leveraging social media as a data source for generating customer insights. The firms aimed to improve their customer relationship management by enhancing their customer orientation. Due to competitive pressure, they had recognized the necessity to respond to their customers' needs in a more personalized way and to increase customer satisfaction and loyalty. Addressing these market requirements, the case organizations had enhanced their capability to absorb external customer knowledge and use it internally. To this end, they had utilized social media channels and implemented technologies to improve customer data management and analytics. All firms had already run successful pilot projects endorsed by the management board, in which they extracted social media data to generate customer insights. Case variance was attained based on industry sector in order to verify that the prerequisites were not industry- or firm-specific, enhancing the generalizability of the results (Paré 2004). We stopped gathering cases when we recognized that we had reached theoretical saturation (Eisenhardt 1989). In sum, seven firms from Switzerland and Germany from different industry sectors took part in this study (see Table 2).

Data collection

As the primary data source, we used semi-structured interviews, "a highly efficient way to gather rich, empirical data, especially when the phenomenon of interest is highly episodic and infrequent" (Eisenhardt and Graebner 2007, 28). For each case,

Table 2 Case description

Case name	Country	Industry sector	Total number of employees	Revenue in 2015 (in billion EUR)
A	Switzerland	Telecommunication	~20.000	~11
B	Switzerland	Health insurance	~3.000	~5
C	Switzerland	Insurance	~4.000	~10
D	Germany	Aviation	~100.000	~30
E	Germany	Railway	~300.000	~30
F	Germany	E-commerce	~1.000	~0.1
G	Germany	Automotive	~70.000	~50

we acquired two to four participants. The interviewees were selected based on the heuristic of purposeful sampling (Paré 2004). Since generating customer insights involved different business units in each firm, we deliberately chose experts from the respective functional areas and hierarchical levels. All of the participants were key informants with direct involvement in the management of customer insights or related processes and could provide a strategic perspective on the application of social media and data management in the respective firm. This resulted in 19 interviews, which were conducted over a period of three months from January to March 2015 (see Table 3). The rather small number of interviews per case is still sufficient to generate robust case study results, as the primary goal of our study is to identify generalizable constructs across all cases rather than conduct in-depth cross-industry or cross-firm comparisons (Paré 2004). Interviewing experts from different functional areas and hierarchical levels across all cases allowed us to capture the relevant required processes and resources from multiple perspectives, which enhances the reliability of the case study results (Paré 2004).

Table 3 Interview partners

Case name	Interview number	Interviewee's position
A	1	Business owner social media customer experience
	2	Team leader social media marketing
B	3	Community manager
	4	CIO
C	5	Senior social media manager
	6	Head of market research
	7	IT project manager
	8	Head of CRM
D	9	Project lead web analytics
	10	Head of marketing communication
	11	Senior manager dialogue marketing
E	12	Social media manager
	13	Social media manager
	14	Head of CRM
F	15	Head of digital analytics
	16	Head of CRM
	17	Senior expert social media
G	18	Project lead data analytics
	19	Head of online communication

We conducted interviews with open-ended questions, which allowed us to follow up on interesting and unexpected responses, while the interviewees were free to elaborate their perceptions, experiences, and reflections (Paré 2004). The participants were first asked about their understanding of customer insights before a definition of customer insights was provided to ensure a common understanding. Then, questions were asked about how the firms generate and exploit customer insights, the role of social media, and the firm's pursued goals. Following this, the interviewees were asked to state prerequisites for generating customer insights through social media and using them in the firm. The subsequent questions addressed the required capabilities and the required physical, human, and organizational resources. However, since we did not want to impose our theoretical framework on the interviewees' interpretations, we deliberately refrained from including the identified preliminary constructs in the interview guide. This way, we ensured unbiased data collection instead of simply confirming the preliminary constructs. The interview concluded with questions about challenges and potentially relevant trends (for the interview questions, see Appendix C). The interviews lasted between 45 and 60 min and were recorded and transcribed verbatim to analyze the data in a rigorous and transparent manner.

In addition, we used data triangulation because the development of converging lines of data collection leads to greater confidence in the findings (Yin 2009). Thus, as a further source of data, we collected relevant documentation about the management of customer insights for each case (Paré 2004; Yin 2009), including internal presentations, project schedules, external press releases, and business reports. These documents primarily served the purpose of providing valuable background information to clarify the information gathered during the interviews (Paré 2004).

Data analysis

Cross-case analysis was used as the study's data analysis strategy. First, the technique treats each case as a separate study

(Eisenhardt 1989; Paré 2004; Yin 2009). In this way, the investigator is able to focus on the collected case data separately in order to become familiar with each case. In a second step, the findings of the "within-case analyses" are aggregated to investigate whether they make sense beyond each individual case and to reach generalizability (Eisenhardt 1989; Paré 2004).

We used the coding technique as the analysis technique, leading to data reduction and generalization. To examine our data, we followed a three-stage process of open, axial, and selective coding (Bhattacherjee 2012). Each step of the coding process was conducted independently by the different authors, accompanied by regular discussions to avoid subjective interpretation and enhance validity. First, we openly coded the interview transcripts and the documents, line by line, and identified initial constructs (e.g., "customer orientation," and "cultural change"). Second, these initial constructs were assigned to dynamic capabilities or the respective contingent factor (e.g., the initial constructs "customer orientation," and "cultural change" were assigned to "organizational resources"). Third, we aggregated the initial constructs into meaningful core categories. To ensure that we did not "reach premature and even false conclusions" (Eisenhardt 1989, 540) during the coding process, we used the preliminary constructs previously identified in our literature review as an orientation framework (Paré 2004). When we found similarities between the field data and the preliminary constructs, we used the latter as the final core category (e.g., "customer orientation," and "cultural change" were aggregated to "customer-oriented culture"). Where the field data deviated from the preliminary constructs, we created a new core construct (e.g., "iterative customer insight generation"). This way we remained open to the field data; none of the preliminary constructs were guaranteed to be part of the research outcome and could be modified or supplemented with new constructs if necessary. As a result, one additional dimension was identified through the case study approach, namely iterative customer insight generation. Table 4 provides an overview of our results and presents a short description of each required capability and the relevant contingent factors.

Results

The following sections present our findings on the required capabilities and resources that allow firms to generate and exploit customer insights from social media data. Based on our case study interviews, we identify a total of seven dimensions – processes underlying the firms' ACAP and resources that they rely on – required of firms to carry this out effectively. However, before explaining each dimension in detail, it is helpful to elaborate on what the case organizations identified as unique characteristics of social media data. We use this as a starting point, referring to specific characteristics if they are relevant for the required capabilities and resources.

Unique characteristics of social media data

Our case organizations highlighted the great potential of social media data to generate customer insights. In particular, they underlined the possibility of gathering psychographic data in order to understand and predict customer behavior. The team leader of social media marketing in Case A described the new opportunities best: "Social media is where the party is happening. We have the opportunity to observe them [the customers] in their private lives and gather data about the customers' everyday lives, for example, their hobbies and interests" (Interview 2). However, the case organizations confirmed the challenge of managing social media data because of its unique characteristics. Compared to other data sources, the volume, variety, and velocity of social media data is particularly pronounced. The firms collect data on multiple platforms in order to gain information on different facets of people's lives, gathering large and heterogeneous data sets. In addition, the volume and variety of social media data is high due to the fact that one unique user activity on a social media platform (e.g., publishing a post) generates several types of data. For example, one post can include pictures, comments, location-based information, and cross-links to other users. With regard to velocity, the case organizations mentioned the high change frequency of social media data: "We have found that social media data can only be described as current within an average period of six months. That means we have to update the data base as often as possible" (Interview 2). Another characteristic of social media is its controversial validity. Almost all case organizations stated that much social media data is useless because the demographic data provided by the users is often wrong or outdated: "Many of our customers state false information about themselves. They use wrong names or enter the wrong place of residence. That's why it is really complicated to identify our customers on social media platforms and make use of the gathered data" (Interview 19). Considering the unique characteristics of social media data, the firms recognized the specific challenges regarding the capabilities required to generate and exploit customer insights. The head of market research in Case C specifically emphasized this point: "The generation of insights from social media data poses great challenges because of the unique

Table 4 Description of required capabilities and contingent factors

Required capabilities and contingent factors		Description
Dynamic capabilities	Absorptive capacity	Firm's ability to acquire, assimilate, and transform social media data into actionable customer insights and exploit these insights to build other organizational capabilities.
	Iterative customer insight generation	Iterative process of improving the ability to acquire, assimilate, and transform social media data into actionable customer insights and exploit these insights based on learning-by-doing.
Physical resources	Information and communication technology	IT landscape, including applications and database systems that support a firm in gathering and analyzing unstructured social media data in combination with structured internal data, as well as communicating the insights throughout the organization.
Human resources	Analytical skills	Employees' knowledge of analytical methods and ability to handle advanced data analytics tools.
	Understanding of the business context	Employees' understanding of the firm's business context, the relevant business problems, and the ability to leverage the available customer data in a way that provides actionable customer insights, which enable the business to make decisions.
Organizational resources	Customer insight governance	Organizational and operational structures that enable cross-departmental cooperation and communication of the right insights to the right place, at the right time. Internal rules based on legal regulations and ethical norms for the responsible use of private customer data.
	Customer-oriented culture	Mindset of employees in considering customer needs in their daily work. This implies the consideration of customers' added value when defining application purposes grounded in customer insights.

characteristics of social media data. In order to tackle the challenge, we need to change several aspects regarding the collection, analysis, interpretation, and use of the data sources" (Interview 6). In the following section, the required capabilities and relevant contingent factors are explained in detail.

Dynamic capabilities perspective

Absorptive capacity

The participant organizations value social media as an important source of customer knowledge located outside of the firm's boundaries. In order to generate customer insights from social media data and incorporate them into value creation processes, they draw on capabilities for acquiring, assimilating, transforming, and exploiting social media data.

For *data acquisition* from social media, the case organizations utilize multiple social media platforms, in particular social networks (e.g., Facebook or hosted online communities) and microblogging services (e.g., Twitter). They reported that the high volume, velocity, and variety of social media data make it critical to gather the relevant data in a fast and targeted manner. It is not efficient to gather all available social media data; this would overstrain the firms, requiring too much effort to handle the vast amount of heterogeneous data and prepare the raw data for analysis. Due to the high velocity of social media data, the firms would risk letting the data become outdated before they could make use of it: "It is not efficient to gather all available data on all available platforms. We are not able to handle such a vast amount of data. Before we are ready to analyze these data sets, the data is already outdated. Therefore, we must act in a targeted manner and collect only data that is valuable for the insight generation" (Interview 19). Consequently, the case organizations screen different platforms regularly and assess which of them provide valuable data for insight generation. Furthermore, the firms underlined the importance of IT to enhance their acquisition capability. They cited specific IT tools that can automatically filter out non-valuable and non-critical data. The head of marketing communication in Case D emphasized: "One social media platform alone already provides way too much data. Additionally, many data sets are useless because of the controversial validity. Therefore it is important that only the valid and valuable data sets are automatically collected" (Interview 10).

Assimilation capability was described by the case organizations as the ability to process and analyze social media data. The data, they emphasized, should be analyzed in a way that generates valuable knowledge for all internal stakeholders. Due to the high volume and variety of social media data, the

analysis can provide many opportunities for knowledge creation. However, to support evidence-based decision-making, it must be based on relevant business needs. In order to ensure the value of generated knowledge for internal stakeholders, the case organizations first define relevant questions and hypotheses about customer behavior. Several interview partners cited the example of cross- and upselling opportunities for a specific customer segment. As described by the Head of CRM in Case F, these questions and hypotheses were discussed regularly in meetings between the analysts and the relevant stakeholders. Analysts thereby gained an in-depth understanding of the stakeholders' knowledge requirements to improve their decision-making. "For the customer insight department, it is important to have a concrete question to answer. Only then it is possible to say what you want to know and to precede in a purposeful analysis" (Interview 1). In order to generate a profound database for data analysis, the participant organizations combine the data absorbed from different social media platforms and create a holistic picture of customers' behavior. Afterwards, the data is analyzed with regard to the predefined questions. The assimilation capability relies on employees with advanced analytical skills.

Transformation capability was described by the case organizations as the ability to communicate newly generated knowledge to the relevant stakeholders and connect it with existing knowledge. Due to the velocity of social media data, the case organizations establish lean and unbureaucratic communication routines to ensure that the newly generated knowledge be communicated to the right stakeholder in a timely and direct manner. "Of course it's already a success if we have generated relevant insights. But in the end, it is vital to communicate the insights to the department that needs them for the improvement of their business processes" (Interview 5). Transformation capability is underpinned in the firms by specific technological applications that visualize the knowledge and increase its understandability. However, to follow through on transformation capability, the employees must be willing to combine the newly generated knowledge with their existing knowledge and to update their perceptions about their firm and its market environment. To increase acceptance of social media data and thus the firm's transformation capability, the case organizations stressed that employees require special training on how to select and interpret the relevant information in order to avoid information overload (e.g., Interview 12). Moreover, the firms educate their employees on how to make use of the new knowledge, for example, through customer-oriented campaigns and offers.

The participant organizations described *exploitation capability* as the ability to identify relevant applications for customer insights. The firms stated that insights from social media regarding customer preferences and behavior as well as market trends and patterns could be applied to several fields, including strategic management, business model innovation, product and service development, process improvement, and individualization of customer interactions. For example, the participating health insurance firm (Case B) reported analyzing customer complaints on its Facebook page, with the goal of identifying failures in its customer service chain and reacting as soon as possible. The challenge lies in identifying applications for the generated customer insights that provide the most value to the firm: "To generate actionable insights in an effective and efficient manner, we need to ask ourselves: What are the insights for? We need to analyze the whole value chain as well as the customer journey to find relevant touch points that can be improved by customer insights" (Interview 7).

Iterative customer insight generation

By using social media as external source, firms enter a new, unknown field (e.g., Interview 10). For this reason, the case organizations mentioned that generating and exploiting customer insights should be treated as an iterative process (e.g., Interview 9). In other words, the acquisition, assimilation, transformation, and exploitation capabilities should be developed and optimized through feedback loops. First, with regard to data acquisition, the firms find it important to predefine criteria in order to collect only relevant social media data. At the same time, they have to screen the available social media platforms and the data provided with open minds: "Subsequent to an interaction with the customer, we should analyze whether the gained data offers new possibilities and ideas for insight generation" (Interview 9). To make things more complex, technological innovation constantly produces new social media platforms and thus new data to be identified and assessed with regard to opportunities for customer insight generation. Second, with regard to assimilation, the case organizations explained that their employees redefine the underlying questions and hypotheses for data analysis at frequent intervals based on their experiences, which helps them to communicate their knowledge needs to the analysts more precisely. This feedback loop enables analysts to adapt their activities to changing objectives and requirements and to improve the effectiveness of the data analysis process. Third, the case organizations regularly scrutinize the application fields for customer insights. They reported that altering or extending the application fields can result from either changes in a firm's strategy because of changes in the market environment or technological advancements that provide new opportunities to exploit customer insights. In sum, the firms need to scrutinize their processes and routines regularly in order to constantly develop new ideas for customer insight generation and exploitation and adapt to changes in the environment (e.g., Interview 13). Ideally, a firm's ACAP can be enhanced over time through learning-by-doing.

Physical resources

Information and communication technology

The case organizations stated that ICT plays an important role in underpinning various ACAP processes. To be useful in the context of social media data, a firm's ICT has to be adapted to the specific characteristics of this data source. The project lead for data analytics in Case G summarized: "In sum, I would say that we require an IT architecture that enables us to exploit the potential of big data gathered from a vast amount of different sources" (Interview 18). In order to acquire data from the variety of social media platforms, the case organizations use several application programming interfaces (APIs), or web crawlers. The IT project manager in Case C highlighted the importance of rule-based engines in facilitating the acquisition capability and avoiding the collection of useless data sets. Rule-based engines help firms to automatically classify social media data in terms of relevance. To enhance assimilation capability, some case organizations use data aggregation tools, which enable them to transform the unstructured text-based data sets into data formats useful for data analysis. "Overall, specific tools help us to overcome the challenges of semantic computing" (Interview 4). In particular, several firms cited a need for text analysis tools, that is, natural-language processing engines. These tools identify salient entities (e.g., names of products or names of customers) or facts (e.g., low quality or dissatisfaction) in large amounts of unstructured textual data. This allows firms to interpret the vast amount of user-generated content and determine customers' opinions and sentiment. Moreover, interview partners stressed the importance of connecting data sets gathered from different social media platforms with internal data and storing everything in a central database: "One of the most important aspects from a technological perspective is the integration of social media and internal data to build a central database" (Interview 18). The majority of case organizations referred to "Hadoop" database technology, which facilitates the storage and rapid analysis of huge amounts of heterogeneous, unstructured data. The team leader of social media marketing in Case A highlighted the importance of Hadoop: "Because of the high velocity of customer data, the data must be processed as soon as possible. If it takes too long, the data is no longer current and its impact is low" (Interview 2). Interview partners also described ICT as a facilitator of transformation capability by making the right social media data readily available to the right employees. In particular, visual analytics tools enable business users to query the data and produce visualizations such as maps of social networks or key performance indicators of social media campaigns in real time. These visualized reports help stakeholders to understand and interpret the knowledge, combine it with existing knowledge, and generate actionable customer insights.

Human resources

Analytical skills

The case organizations noted the importance of specialized analysts familiar with advanced analytical methods to make sense of the social media data and turn it into customer knowledge. Having such analysts available, interview partners argued, positively affects a firm's assimilation capability. According to the senior social media manager in Case C: "It is essential that the employees who are responsible for data analysis have a certain level of statistical knowledge" (Interview 5). The case organizations highlighted the need for analysts to be familiar with building complex data models; in particular, they should have the skills to perform sentiment analysis and opinion mining to identify current trends and new behavioral patterns. In order to understand the concrete meaning of the analyzed posts, they have to define particular characteristics without technological support (e.g., a post's importance, whether it was meant ironically). Therefore, compared to other data sources (e.g., sensor data generated by digital devices), social media data analysis requires additional empathy. In addition, the firms stressed that their analysts should be aware of techniques related to topic modelling, social network analysis, and influencer analysis in order to expose relationships between social media users and to identify valuable influencers.

Understanding of the business context

Despite the high relevance of analytical skills, data analysts are ultimately much more than "number crunchers" (Interview 19). In order to generate valuable knowledge, the case organizations explained, data analysts need to understand the firm's business context: "Our data scientists should be aware of the purpose of analyzing the data. They need to understand the questions that are posed by the front-office employees and the expected value from answering those questions. This way we can be ensured that the data analysis does not miss the target" (Interview 1). The participant organizations mentioned strategic management, business model innovation, product and service development, process improvement, and individualization of customer interactions as relevant business areas that can benefit from customer insights generated from social media data. For example, to support strategic decision-making, social media data can be transformed into competitive intelligence. Analyzing the social media presence and posts of competitors (e.g., social media page performance, promoted products) as well as comments about competitors (e.g., sentiment about brands and offers) helps firms to know where they stand and what needs to be improved. Consequently, to generate this valuable knowledge, the analysts should be aware of relevant competitors and

benchmarks. They should be aware of the firms' marketing strategy to support the marketing department with relevant analyses. For example, to evaluate the performance of a social media campaign, the analysts need to understand the overall campaign objectives and be familiar with relevant key performance indicators, such as engagement rate (Interview 2). Thus, employees must be capable of deciding which data from social media platforms fulfills which specific purpose and answers which specific question. In sum, to exploit the potential of social media data, analysts require both analytical skills and the ability to anticipate the relevance of social media data and the derived customer insights.

Organizational resources

Customer insight governance

Customer insight governance, including organizational structures and operational processes as well as legal and ethical frameworks, is an important factor influencing a firm's ACAP. The case organizations referred to cross-departmental cooperation as an effective organizational structure: "The management of customer insights is a joint effort by different departments like marketing, sales, or service. Our department alone is not capable of interpreting all data. Technical and statistical aspects need to be merged with the customer perspective that other employees have" (Interview 18). Some case organizations took the argument one step further, proposing a centralized customer insight department that pools all expertise relevant to generating customer insights (e.g., Interview 13). To ensure that the customer insight department gets sufficient financial resources as well as an adequate hierarchical position to improve the impact of customer insights within the firm, it is necessary for the management board to confirm its commitment (e.g., Interview 3).

Customer insight governance also relates to legal and ethical frameworks. Using social media to gather customer data increases the risk of violating customers' privacy (e.g., Interview 4). To ensure that the social media monitoring initiatives and the integration of social media into existing databases neither libel the customers nor violate laws, the case organizations argued for a better development of legal and ethical frameworks that define the proper handling of customer insights. "First, we have to convince the customer that we are a reliable and trustworthy partner. When this is achieved, the customers will share more data" (Interview 5). In contrast to internal customer data, in most instances, firms need the customer's permission to use her personal social media data (e.g., Interview 13). To increase a customer's willingness to give permission to use her personal social media data, the case organizations proposed a "code of conduct" across firms that defines "ethical rules" for the use of customer data and insight generation (e.g., Interview 1). For example, by communicating the why, how, and when of data collection in a transparent and reassuring manner, firms send a strong message to the customer (e.g., Interview 19).

Customer-oriented culture

In this study, culture refers to the mindset, values, and beliefs of a firm and how these affect its ACAP. Participant organizations emphasized that in order to foster ACAP, a willingness to generate and apply customer insights must be inherent in the firm's culture. Employees in all departments should be aware of the importance of actively seeking out new knowledge as well as updating their data and maintaining data consistency (e.g., Interview 7). It is especially crucial for customer-facing units to base all of their actions on customer insights to individualize the customer interaction (e.g., Interview 14). To this end, according to the case organizations, employees must be willing to "listen to the crowd." Customer-oriented culture also takes into account the degree to which employees consider customer needs in their daily work. Due to the sensitivity of social media data, the case organizations highlighted that customers expect an added value from giving their personal data to the firm (e.g., Interview 15). "We started to form personas that describe our target groups and then we define relevant use cases based on customer insights that generate benefits for each of them" (Interview 14). Establishing a customer-oriented culture lived by the entire staff can support the acquisition of social media data by giving the employees the right mindset to create the necessary added value to the customer (e.g. Interview 5).

To summarize, Table 5 provides an overview of all required processes and resources.

As shown in Table 5, all seven required processes and resources were mentioned in at least five of the seven case organizations from different industries. Although the primary goal of this study was to identify generalizable constructs across all cases rather than conduct case comparisons, it is interesting to point out a few minor differences. When analyzing the quantitative results in Table 5, slight differences emerge among the cases regarding their mentions of dynamic capabilities and contingent factors. ACAP, as well as the contingent factors ICT and customer insight governance, were explicitly mentioned as important dimensions in all seven cases and by nearly all interviewees. Understanding of the business context, customer-oriented culture, and iterative customer insight generation were mentioned in six of the seven cases, while only five cases cited the need for analytical skills. While these differences should not be overstated, they may indicate varying importance of the prerequisites across industries. Interestingly, interview partners from the telecommunications and railway cases did not explicitly state analytical skills as a required human resource for the successful generation of customer insights. It is possible that the experts in these

Table 5 Required processes and resources mentioned in case studies

Case / Interview	Interviewee's position	Absorptive capacity	Iterative customer insight generation	Information and communication technology	Analytical skills	Understanding of the business context	Customer insight governance	Customer-oriented culture
A	Telecommunication	x	x	x		x	x	x
1	Business owner, social media customer experience	x	x			x	x	x
2	Team leader, social media marketing	x	x	x		x	x	x
B	Health Insurance	x	x	x	x	x	x	
3	Community manager	x		x	x	x	x	
4	CIO	x	x	x	x	x	x	
C	Insurance	x	x	x	x	x	x	x
5	Senior social media manager	x	x	x	x	x	x	x
6	Head of market research				x	x	x	
7	IT project manager	x	x	x	x		x	x
8	Head of CRM	x		x		x	x	x
D	Aviation	x	x	x	x	x	x	x
9	Project lead, web analytics	x	x	x	x	x	x	x
10	Head of marketing communication	x	x	x	x	x	x	x
11	Senior manager, dialogue marketing	x		x	x	x	x	
E	Railway	x	x	x		x	x	x
12	Social media manager	x	x	x		x	x	
13	Social media manager	x	x				x	x
14	Head of CRM	x		x			x	x
F	E-commerce	x	x	x	x		x	x
15	Head of digital analytics	x		x	x		x	x
16	Head of CRM	x		x				
17	Senior expert, social media	x	x				x	x
G	Automotive	x		x	x	x	x	x
18	Project lead, data analytics	x		x	x	x	x	x
19	Head of online communication	x		x	x	x	x	x
Number of mentions in interviews		18	10	15	11	13	18	13
Number of mentions in cases		7	6	7	5	6	7	6

two cases did not attribute particular relevance to analytical skills for different reasons. While data analytics departments were introduced a long time ago in the telecommunications industry and may be taken for granted, railway companies, as stated by the interviewees, do not yet possess large amounts of customer data, including social media data, whose analysis requires advanced analytical skills (Interview 14).

Understanding of the business context may not have been mentioned in the e-commerce case because, according to the experts from this firm, close coordination between marketers and data scientists is an established routine. The fact that customer-oriented culture was not addressed in the health insurance case may reflect the heavy data privacy regulation in this industry, which does not allow insurance firms to be as transparent and open in their customer interaction, especially via social media, as other industries (Belbey 2015). Additionally, from a customer perspective, the sensitivity of personal health data and the low interaction of many customers with their insurance companies decreases customer engagement on social media and their willingness to give permission for the use of their personal social media data (Levine 2015; Osakwe 2015). The interviewees in the automotive case specified the necessary steps for customer insight generation and exploitation, but did not explicitly highlight the need for an iterative process.

Despite these slight differences, the overall results show that there is broad consensus across the cases regarding the required capabilities and relevant contingent factors for the

effective generation and exploitation of customer insights from social media data.

Discussion and implications

The aim of this study was to improve our understanding of how firms can generate and exploit customer insights from social media data. We addressed this question by applying the theoretical lens of the dynamic capabilities perspective, especially the ACAP construct. ACAP describes the firm's ability to create and deploy new external knowledge necessary to build other organizational capabilities (Zahra and George 2002). In today's dynamic marketplace, developing ACAP is relevant for firms as it positively affects innovativeness, firm performance, and competitive advantage (e.g., Jansen et al. 2005; Zahra and George 2002). Based on multiple case studies of seven mid-sized and large B2C firms in Switzerland and Germany, we shed light on the detailed micro-foundations of how firms deploy ACAP in the context of social media. As stipulated by Zahra and George (2002) we confirmed the relevance of all four dimensions of ACAP, that is, acquisition, assimilation, transformation and exploitation capabilities. Prior empirical research has mainly focused on the outcome of ACAP and thereby overemphasized the dimensions transformation and exploitation (Zahra and George 2002). Furthermore, we presented contingent factors, that is, physical, human and organizational resources, which are required by the firm to develop and nurture the underlying capabilities of ACAP. Having conducted multiple case studies allows us to generate generalizable results that can be applied across different industries.

In summary, we found evidence how firms can generate valuable insights about customer preferences and needs as well as market trends and patterns based on social media data. Our analysis and interpretation of the case interviews underlines that firms need to develop acquisition, assimilation, transformation and exploitation capabilities to harness the potential of social media as an external knowledge source. Firms require processes that facilitate acquiring social media data, understanding this data and sharing the generated customer insights internally. Ultimately, firms need to be skilled at applying the customer insights to develop products and services, create new business models, improve internal processes, and maneuver strategically. This way, firms can act more customer-oriented and potentially increase firm performance and competitive advantage. However, the unique characteristics of social media data, in particular its high volume, variety, velocity and controversial validity, pose new challenges for firms' processes to explore and exploit this external knowledge source. Furthermore, the processes need to be underpinned by specific physical, human and organizational resources that allow the firm to handle social media data internally.

In the following, we discuss the main findings of our empirical study with regard to the underlying capabilities of ACAP. On the one hand, we discuss how the unique characteristics of social media influence the required processes of a firm's ACAP. On the other hand, we relate specific aspects of the resources to the different processes. Furthermore, we highlight the limitations of social media data for customer insights generation and exploitation.

First, we discuss the acquisition and assimilation capabilities, which represent the firm's potential ACAP (Zahra and George 2002). In particular, these processes include the collection, analysis and interpretation of social media data. Our findings show that screening user-generated content on multiple social media platforms allows a fast and comprehensive absorption of real-time marketplace information. However, we found that the variety and constantly changing nature of social media platforms, the volume of generated data, and the multiplicity of opportunities for data analysis increase the complexity of acquisition and assimilation processes. This high complexity overwhelms firms and jeopardizes the successful generation of customer insights. In order to reduce the complexity, firms establish filter mechanisms, which reduce the amount of information influx and thus counteract the risk of information overload. Simplification and focus is achieved, for example, through screening the available social media platforms regularly and evaluating, which of them constitute a useful data source. Additionally, firms define criteria to assess the data in terms of relevance, validity and quality. With regard to data analysis, firms prefer a targeted approach and first define relevant questions and hypotheses about customer behavior in order to guarantee that the generated knowledge meets the business needs.

We found that specific resources underpin the acquisition and assimilation capabilities. In particular, technological applications are relevant facilitators. Data collection on several social media platforms is enabled by APIs and web crawlers, while rule-based engines support the automatic classification of data in terms of relevance and thereby serve as a filter. Natural-language processing engines enhance the firm's assimilation capability by transforming unstructured text-based data sets into data formats useful for analysis. Moreover, technology facilitates the storage and rapid analysis of huge amounts of heterogeneous and unstructured data, such as Hadoop database technologies. Beyond technology, human skills are required to interpret and understand the acquired data. One the one hand, experts with specific statistical skills and a profound understanding of the firm's business context can derive valuable and applicable knowledge. One

the other hand, domain experts do not suffice to handle and interpret all the incoming data. In addition, it requires intense cross-departmental communication and cooperation or a centralized customer insight department to bring together all expertise relevant to make sense of the data. This finding is in line with Zahra and George (2002) who suggested the importance of social integration mechanisms, which link assimilation and transformation. Jansen et al. (2005) empirically confirmed that cross-functional interfaces such as liaison personnel, task forces, and teams to enable knowledge exchange positively affect a business unit's potential ACAP.

Second, we turn to the transformation and exploitation capabilities. Transformation refers to the internal routines that communicate and relate the new customer knowledge to the existing knowledge base of the firm in order to allow for the creation of customer insights, that is, actionable customer knowledge (Zahra and George 2002). The aim of exploitation is to apply the customer insights to create new commercial outputs (Lane et al. 2006). Our results suggest that the effort spent on the acquisition and assimilation of social media data is worthless, when the generated knowledge is not communicated across the organization and transmuted in a timely manner. The velocity of social media data bears the risk that the knowledge is already outdated when it is applied and thus, the outcome falls short of the firm's expectations. To ensure knowledge is recent and relevant, lean and unbureaucratic communication processes need to be established across the whole organization. They need to ensure that the right knowledge is communicated to the right places, at the right time. Technological resources can support the transformation capability as shown by our analysis. In particular, visual analytic tools provide access to and increase the understandability of the generated knowledge. Thereby, they reduce the "time to value" (LaValle et al. 2011, 24). With regard to exploitation, we found that firms can capitalize on the customer insights generated from social media data by deploying them in strategic management, business model innovation, product and service development, process improvement, and individualization of customer interactions. Acting on customer insights allows firms to connect better with the marketplace by developing and commercializing new offerings faster and tailoring them to customer needs.

Furthermore, our results indicate that all four dimensions of ACAP are enhanced by a corporate culture, which recognizes the value of data and cultivates data generation and exploitation. Employees need to be willing and able to seek out data and apply customer insights, for example, to support decision-making regarding strategies and the fine-tuning of daily activities. However, traditional, non-tech firms often find that their employees lack the knowhow and confidence to make data-based decisions (Chen et al. 2012). Moreover, given the velocity and controversial validity of social media data, there is skepticism and distrust limiting employees' reliance on this data. As also suggested by Dinter and Lorenz (2012) employees require special training on how to explore and exploit social media data in order to increase acceptance. According to our results, another important aspect of corporate culture is the appreciation of the customer as the key provider for user-generated content. In order to increase the customers' willingness to share personal social media data, firms need to respect privacy regulations, earn the customers' trust and provide added value (Smith et al. 2011).

Third, we highlight the relevance of developing ACAP through an iterative approach. Firms that aim to generate customer insights from social media data are faced with an external data source that is not stable and constantly changes its nature. Technological innovation constantly brings about new social media platforms targeting new customer segments and supporting new use purposes. This continuously increases the amount of potential data for insights generation. Furthermore, over time, customers change their use behavior as well as their attitude towards sharing personal data on social media platforms. These changes must be identified and assessed with regard to opportunities and threats for customer insights generation. Firms must regularly screen the available social media platforms and the data provided for data acquisition. Regarding assimilation, the underlying questions and hypotheses for data analysis need to be redefined at frequent intervals based on experiences. Last but not least, in the light of technological advancements and changes in the marketplace firms need to regularly scrutinize possible application areas for customer insights. Thus, we argue that the ACAP concept proposed by Zahra and George (2002) should be extended by feedback loops.

Fourth, we discuss the limitations of social media data for customer insights generation and exploitation. Besides the new opportunities, our results indicate that social media data has constraints regarding the generation and exploitation of customer insights. As firms often rely on platforms offered by third parties, such as Facebook, firms have only limited access to customer data and there is a threat that access is restricted even further (Ghoshal 2015). Additionally, the handling of social media data is regulated by complex legal frameworks (Dinter and Lorenz 2012). Our findings highlight that there are specific legal restrictions to gathering and processing data from third-party platforms. In contrary

to platforms offered by the firms (e.g., own online community), additional permissions of the customer are required. Both issues decrease the value of social media as an external data source. Furthermore, our results indicate that the controversial validity of social media data poses a challenge to firms and increases skepticism. On the one hand, the demographic data provided by the users is often wrong (e.g., false name or place of residence). This restricts opportunities to match internal data with social media data. Therefore, for example, a post on Facebook cannot be assigned to one specific customer. On the other hand, the fact that most user-generated content consists of natural human language increases the probability of error when analyzing and interpreting the data (e.g., irony does not become clear). These constrains bear the risk of making wrong assumptions about individual customers' needs. Acting on these wrong customer insights, can lead to mistakes, which upset the customer and impair the customer relationship. Based on these findings, we call attention to the limitations of social media data and question the opinion often stated in practice and research that social media data provides great potential for "segment-of-one marketing" and individualized customer interaction (e.g., Greenberg 2010). Instead, we concur with Newell and Marabelli (2014) who see the value of social media in providing big data allowing aggregated analyses to identify general customer needs and new customer trends.

Implications for research

From a research perspective, the contribution of our study is threefold. First, we contribute to the theoretical understanding of ACAP by shedding light on the detailed micro-foundations of how firms deploy this dynamic capability. Based on empirical findings, we show how firms deploy the underlying processes in the context of social media. This way, we contribute to prior quantitative research on firms' use of social media technology (Choudhury and Harrigan 2014; Trainor et al. 2014). Furthermore, we suggest that the ACAP concept should be extended by feedback loops that allow the iterative improvement of firms' ACAP. This is in line with research in the field of big data analytics (e.g., Lavalle et al. 2011), which claims that firms are well advised to continuously refine their information processing routines.

Second, this research contributes to the ACAP concept by identifying and specifying new contingent factors in the context of social media, namely physical, human and organizational resources. Unlike previous conceptualizations of ACAP found in strategic management literature (e.g., Cohen and Levinthal 1990; Lane et al. 2006; Zahra and George 2002), we underline the need to include technology in the theoretical framework. In line with previous IS research, we demonstrated that technology is necessary to generate customer insights from social media. However, it needs to be combined with human skills and organizational resources. By investigating technological and non-technological resources in combination we contribute to prior research in the IS field, which has examined technological aspects of social media data use in isolation (e.g., Chau and Xu 2012; Lewis et al. 2013; Li et al. 2014). Additionally, we expand studies from marketing that have focused only on specific organizational aspects such as governance structures (e.g., Barwise and Meehan 2011). In contrast to prior quantitative (e.g., Choudhury and Harrigan 2014; Trainor et al. 2014) or conceptual studies (e.g., Greenberg 2010; Woodcock et al. 2011) related to the use of social media data in IS and marketing research, the case study approach enabled us to gain an in-depth understanding of each contingent factor.

Third, our research highlights the unique characteristics of social media data and how they affect the required capabilities and contingent factors. Moreover, we discuss the limitations of social media data for customer insights generation and exploitation. In particular, we point out how the reliance on third party platforms, complex legal frameworks and controversial validity limits the value of social media data for firms. Thereby, we challenge previous research that highlighted the potential of social media data for individualized customer interaction (e.g., Greenberg 2010). In line with Newell and Marabelli (2014) we argue that social media data is mainly suited for aggregated analyses to identify general customer needs and new customer trends.

Implications for practice

For practitioners, our results allow firms with the capability to harness the vast and increasing amount of social media data to gain a deeper understanding of their customers' needs and make more informed customer-oriented decisions, such as providing personalized products and services. This, in turn, holds a potential to achieve competitive advantage.

Our study provides a comprehensive overview of the processes and resources necessary to turn social media data into actionable customer insights. By underlining the need to complement technological resources with non-technological resources and integrate the two, we challenge the widespread practice of heavily investing in IT only. While technology is indeed an important prerequisite for capturing customer data, maximum benefits can only be achieved if human and organizational resources are developed equally. Based on the seven dimensions – processes underlying the firms' ACAP and resources that they rely on – required of firms, managers can evaluate their firm's maturity in these areas and initiate suitable measures and investments in IT, HR development, organizational restructuring, and extensive change management. However, instead of developing and optimizing each resource

in isolation, firms should place particular focus on the efficient interplay among the resources. However, it must be noted that ACAP, a dynamic capability, cannot be acquired overnight. Instead, it is the result of a long-term learning process that involves an iterative process of continuously improving the ability to acquire, assimilate, and transform social media data into actionable customer insights and exploit these insights based on learning-by-doing.

In sum, our research argues for expanding the common saying, "data is the new gold", to "the skillful use of data is the new gold." According to LaValle et al. (2011), this will determine the future winners in competitive markets. Firms that tackle the generation and use of customer insights through a comprehensive organizational approach have a realistic chance to be the future market leader. In contrast, firms that primarily focus on gathering data from all available sources and heavily investing only in technology in order to make quick performance gains, as promised by the software vendors, may remain in the race but will not realize the full potential of social media data.

Limitations and further research

Despite the careful design of our research approach, the findings are subject to some limitations that should be addressed by further research. First, the empirical data from the case studies enabled us to identify a set of seven capabilities and contingent factors that should be in place in order to generate and exploit customer insights from social media data. Regarding the significance of the contingent factors for customer insight generation and exploitation, further research should quantify the effect of each contingent factor on the ACAP. This will allow researchers to determine whether some contingent factors are more important than others. Furthermore, in order to fully understand the cumulative effect of the contingent factors, future studies should investigate potential relationships among them. This will help explore whether changes to specific contingent factors influence other factors and thereby have a positive or negative effect on the firm's ACAP. Our results also indicate that the importance of specific contingent factors may vary across industries. Further research should investigate this issue in more detail.

Second, only firms from Switzerland and Germany were included in the case study design. Therefore, we could not observe if and how the capabilities and contingent factors vary across cultural contexts. However, we do not expect the set of identified capabilities and contingent factors – *what* is required – to differ significantly between firms from different cultural backgrounds. Nevertheless, the specific implementation of the processes and resources – *how* they are arranged – might vary. For example, legal regulations related to the processing of social media data, such as the combination with other data sources, differ between countries and are likely to affect customer insight governance. Additionally, customers from different cultural backgrounds differ in their attitudes toward data privacy and their willingness to share personal data (Bellman et al. 2004; Dwyer et al. 2007). Future research efforts should examine the implementation of the capabilities and contingent factors in other cultural contexts.

Third, firms can only derive customer insights from social media if customers are willing to share their private data on social media platforms and if firms are able to access this data. Since firms often rely on platforms offered by third parties, such as Facebook, there is a threat that access to the customer data will be restricted (Ghoshal 2015). Additionally, there are indications of an emerging social media fatigue corresponding to decreasing customer willingness to share private data on social media (Maier et al. 2015). Against this backdrop, further research should investigate the potential of additional data sources (e.g., mobile apps, sensor data) run directly by the firms. In order to motivate customers to disclose their data to the firm voluntarily, further research should provide scientific evidence on the drivers behind customers' trust and derive measures to offer customers added value.

Conclusion

The aim of our research was the investigation how firms can generate and exploit customer insights from social media data. For this purpose, we conducted multiple case studies using the theoretical lens of the dynamic capabilities perspective, in particular the ACAP construct. We identified required capabilities as well as contingent factors, namely physical, human and organizational resources. From a research perspective, the findings from the case study approach shed light on the fundamental building blocks of ACAP in the context of social media. From a practical perspective, we provide guidance for managers by presenting a comprehensive overview of the processes and resources necessary to turn social media data into actionable customer insights.

Appendix A

Methodology used to identify research publications

Following the approach proposed by vom Brocke et al. (2009), our methodology for identifying publications that provided valuable information about preliminary constructs proceeded in four stages. First, we performed a search spanning multidisciplinary databases with access to academic journals and conference proceedings. The databases were queried on the basis of a keyword search in December 2014. Use

of the search term "customer insights" (including the singular form "customer insight") in the search fields title, keywords, and abstract identified a total of 228 candidate articles from various disciplines. Second, we excluded duplicates and articles not published in peer-reviewed outlets. Additionally, we examined the title, abstract, and introduction to evaluate whether the paper appeared to be concerned with the management of customer insights in the context of social media or at least in the context of customer relationship management (e.g., sales, marketing, and service). After the first evaluation round, the list included 86 articles. Third, the remaining articles were read thoroughly to extract those that provided valuable information on the dimensions of the ACAP concept and the contingent factors. As a result, our pool comprised 21 relevant articles. Fourth, conducting a forward and backward search (Levy and Ellis 2006), we identified 8 additional articles.

This systematic and comprehensive literature search resulted in a coding set of 29 articles. Table 6 shows the number of identified papers after each step.

Table 6 Results of literature search

Database	Step 1	Step 2	Step 3	Step 4	
				Forward search	Backward search
EBSCOhost	69	35	6	0	–
Emerald	8	7	4	0	
ProQuest	121	36	8	0	
Science Direct	8	4	2	0	
Web of Knowledge	9	4	1	0	
AISel	4	0	0	0	
ACM DL	9	0	0	0	
Google Scholar	–	–	–	6	
Sum	228	86	21	6	2
Total Net Hits	29				

Appendix B

Identification of preliminary constructs: Examples of the coding process

Table 7 Examples of the coding process

Preliminary constructs	Candidate preliminary constructs	Examples of relevant quotations
Absorptive capacity	Data gathering	• "This poses a challenge for marketers to gathering such a vast amount of data" (Choudhury and Harrigan 2014, 155). • "We don't automatically correlate data gathered on social media with segment data on the CRM system" (Canhoto et al. 2013, 420).
	Data analysis	• "Analysis must take place in all phases of the customer involvement process" (Hauser 2007, 40). • "Customer insight leaders – companies that optimize data analysis" (Baird and Gonzales-Wertz 2011, 16).
	Data integration	• "Given the diversity of data sources, data integration is a key challenge for the retailer" (Verhoef et al. 2010, 123). • "Companies … were seeing significant benefits by using a big data approach involving data integration and sophisticated analytics to generate customer insight" (Stone and Woodcock 2014, 8).
	Transformation into actionable insights	• "Closing the CRM loop involves deploying customer insight into the operational CRM environment" (Hirschowitz 2001, 168). • "In practice, this means the capability of translating data about customers into customer preference and hence shareholder value" (Smith et al. 2006, 135).
	Definition of action possibilities	• Determining the value of customer "relies on defining what insight is needed and when and how it can be applied" (Baird and Gonzales-Wertz 2011, 22).

Table 7 (continued)

Preliminary constructs	Candidate preliminary constructs	Examples of relevant quotations
		• "It is imperative to know the when, why and how of data collection and whether the data can accurately be used to meet the marketer needs/understanding the unique business context" (Hauser 2007, 41).
Information and communication technology	Technology as an enabler	• "Technological advances are making it feasible to understand customers – based on actual, real-time behavior – and engage them as individuals" (Berman and Korsten 2014, 41).
Analytical skills	Analytical knowledge	• "They will need stronger analytics capabilities to uncover patterns and answer questions they never thought to ask" (Hirschowitz 2001, 37).
Understanding of the business context	Interpretative knowledge	• "Marketing analytics not only demands good data, but also it mandates a good understanding of it" (Hauser 2007, 42). • "Rather they should adopt it based on an in-depth understanding of the value and goals of CRM" (Hillebrand et al. 2011, 603).
Customer insight governance	Customer insight governance	• "This data-driven orientation requires a cross-functional integration of processes, people, operations, and marketing capabilities that is enabled through information, technology, and applications" (Peltier et al. 2013, 2). • "Improved planning and governance is needed to cope with a powerful, self-servicing CI community" (Stone and Woodcock 2014, 11).
	Cross-functional communication	• "The goal is to communicate it widely and to get it into the heads of all those who should be using it" (Wills and Williams 2004, 401). • "Building strong brands based on actionable customer insights flowing freely through the business and ultimately leading to consistently great customer experience" (Barwise and Meehan 2011, 342).
Customer-oriented culture	Customer value creation	• "It will come by being the best at understanding the many and varied needs and characteristics of customer, and developing products and services that truly meet those needs" (Wills and Williams 2004. 396). • "First, as a framework, CRM should better address the possible uses of customer data for the benefit of the customer, as suggested in the emerging data sharing wave" (Saarijärvi et al. 2013, 595).

Appendix C

Interview questions

Introductory questions about customer insights

At first, I would like to ask you a couple of questions about your personal understanding of customer insights:

- How would you describe customer insights in your own words?

General questions on firms' generation and use of customer insights

To ensure a common understanding of customer insights, I would like to suggest the following definition: Customer insights describe the firm's understanding of their customers, their needs, the reasons behind these needs, and how these change over time.

- To what extent does your firm generate customer insights? And how are these insights used?
- What role do social media play?
- Which goals does your firm pursue with the generation and use of customer insights in general and through social media in particular?

Organizational prerequisites

In the following, I would like to learn more about your opinion concerning the prerequisites that should exist in your firm to effectively generate customer insights through social media and use them in your firm.

- In your opinion, which prerequisites should exist in your firm to generate and exploit customer insights?

  – What processes are required to gather and process the data from social media? What does it take to turn the data into valuable customer insights?
  – Are there specific prerequisites regarding the technical infrastructure?
  – Are there specific prerequisites regarding the skills and knowledge of the employees?
  – Are there specific prerequisites regarding the corporate setup, e.g., governance mechanisms?

Challenges and outlook

- What problems and challenges do you face when generating and using customer insights based on social media?
- Which trends regarding customer insights do you expect to be relevant in the future?

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