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How Beneficial Is Social Media for Business Process Management? A Systematic Literature Review

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ABSTRACT Even though the implementation of different technological tools is already a trend, there are still aspects that should be refined so that companies' business processes can be improved. This is where social media comes to the foreground. Consequently, the objective of this paper is to study the evolution of research on social media implementation in the field of business process management. A systematic literature review was carried out following a search for and selection of articles that met our objective. To classify the sampled papers, we followed validated frameworks regarding social media management and business process management. Additionally, a detailed look at the sampled case studies was done to highlight companies' experiences in the field. Our final sample comprised 47 papers that simultaneously encompassed social media and business process management. The papers were classified according to their publishing frequency, the article type, both the topics and sectors to which they belonged, their methodological approaches, and the importance for business process management capability areas as well as capability subareas. Finally, word frequency queries were used to better understand diverse social media applications in business processes and to derive practical recommendations. The necessity for a multidisciplinary approach toward business processes was detected; therefore, topics, such as psychology, business economics, or information systems, were included, emphasizing innovation strategies, including gamification, big data, or crowdsourcing. Our most important recommendation concerns the evolution of business process management through different social media tools as a means to achieve a transition toward the recommended omnichannel management approach.

INDEX TERMS Business process management (BPM), social media, omnichannel, CRM, m-commerce, gamification, crowdsourcing.

I. INTRODUCTION

During the last two decades of technological development, many brick-and-mortar companies benefited from the Internet to create an online business model along with their traditional one [1]. One aspect where this differentiation between online and offline business environments is prominent relates to social media. Due to the implementation of new technologies in everyday life, especially owing to smartphone integration in our daily routine, social media has become a crucial tool for the interaction between customers and companies. More specifically, social media was initially conceived to be used for communication, sharing content and shrinking the

physical distance between peers [2]. Currently, social media is one of the most important instruments to enhance contact among individuals (C2C), between customers and companies (B2C), and among businesses (B2B), namely, by improving information flows and relationships. Focusing on such social media contributions to external and internal business objectives, a well-defined social media strategy can affect employees, internal communication, product/service innovation, growth related to people's capabilities, systems and organizational procedures, as well as the optimization and management of business processes (BP) or the internal way of working in companies [3]. As such, social media management and business process management (BPM) are closely related disciplines, helping companies in their attempts to achieve customer satisfaction, loyalty, engagement and

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increased sales [4]. Moreover, this synergy between social media and BPM undoubtedly results in an omnichannel management strategy, as stated by Di Francescomarino et al. [5].

Although the literature abounds regarding research on social media benefits for the general public, scarce evidence exists on the importance for business processes and BPM. Hence, this study aims at observing the literature regarding social media use by companies and the complementarity of BPM with social media, broadening our previous research on the subject [6]. Therefore, we conducted a Systematic Literature Review (SLR) on the subject. An SLR is a relatively recent approach, but it has proven to be very useful for detecting research gaps, for establishing the basis for further research, and for covering the issues that may have been left behind. In the field of BPM, several SLR examples have revealed the benefits of SLR for research projects, specifically in regard to technological requirements for the enhancement of BPM [7, 8]. We decided to proceed with the idea that an SLR would assist academics not only in more thorough research on the subject but also in identifying directions for managers surrounding how to improve companies' BPM through social media tools.

We proceed with the theoretical background (Section 2) giving foundation to the definition of the research questions, proposed right before the methodology is explained step-by-step (Section 3). We present the research results (Section 4) after which we discuss the findings (Section 5). In the end, we close with the conclusions (Section 6) summarizing the implications of this study.

II. THEORETICAL FOUNDATION

A. BACKGROUND ON COMPANIES' USE OF SOCIAL MEDIA

Social media has triggered substantial research interest, given the convenience that it affords customers and companies. Social media is perceived by customers as different media that is used for information and communication as well as to participate in, create and share content [9], and it has the possibility to be connected non-stop and ubiquitously, unrestricted by location [10]. Companies, however, increasingly recognize that social media can be an effective generator of improved communication with customers and a valuable tool for achieving competitive advantages and overall business performance [11, 12].

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" [13, p. 61]. They are considered social channels, which use the web and mobile technologies for establishing communication [14]. Although this communication was primarily intended to be among individuals, the use of social media has quickly extended to B2C and B2B, and this to a range that almost 40% of today's organizations are implementing social media as a vital part of their strategies (especially marketing-related) [15].

Social media can be divided into several categories, such as digital libraries, electronic commerce (e-commerce), entertainment, forum, geolocation, social bookmark, social review, social game and social network [14]. More precisely, social media includes blogs, content communities, social networking sites, virtual game worlds, virtual social worlds, forums, rating and review sites, micro-blogging sites, podcasts and videocasts, multimedia sharing sites and collaborative projects [13], [16], [17]. However, this distinction is not obvious since new social media platforms and apps appear and expand quickly. Moreover, as Safko and Brake [18] stated, companies are not required to use all available social media tools. Instead, it is more enriching to focus only on those social media elements that are found to be the most appropriate for the specific corporate objectives and strategies (e.g., text publishing or microblogging) [3].

B. SOCIAL MEDIA CLASSIFICATION

Various attempts exist in the literature to explain the structure and purposes of social media. Most social media classifications are, however, customer-oriented [18], [19]. According to the 4C's classification model [19], the four key functions that explain the use and adoption of social software in a business context are based on the sociability that social media offers to its users: (1) connection, (2) collaboration, (3) communication, and (4) cooperation. The *connection* function is provided by social media centered on social networking platforms that enable their users to inform and communicate. *Collaboration*-based social media platforms allow their users to collaborate with each other and develop and improve ideas. *Communication* refers to the possibility for users to interact with each other and share different types of media files (text, images, audio or video). *Cooperation* is the function that enables users to work together on the achievement of a mutual goal. Adapting companies' strategies according to those social media functions will allow them to improve communication with their customers and create mutual value.

In a similar approach, four pillars of social media have been proposed [18], indicating that social media can be implemented for (1) communication, (2) collaboration, (3) education and (4) entertainment. When used for *communication*, social media represents a tool to communicate the product/service characteristics and performance to customers. In this way, companies can concurrently measure customers' perceptions of the offer and the campaign's effectiveness [3]. The *collaboration* pillar (although closely related to communication) implies interactive contact with customers, where they are encouraged to participate in different events, and companies turn those events into opportunities to capture new customers. The third pillar, *education*, is useful to inform customers about important issues related to the product/service and to increase awareness about the brand, its image and value. Finally, *entertainment* (as one of the vital tools of marketing communication) is found to be important in regard to social media usage. This approach provides a way to catch customers' attention through entertaining and exciting

content, with the objective of stimulating further involvement with the company. This interpretation of social media is, however, mainly focused on the company's external users.

Alternatively, there are other classifications that consider more social media aspects that are important for the company implementing them. One of the most complete frameworks for describing social media is the honeycomb model by Kietzmann et al. [20], which focuses on social media's functional characteristics and the business implications driven by their performance. There are seven blocks identified in the honeycomb: (1) identity, (2) conversations, (3) sharing, (4) presence, (5) relationships, (6) reputation and (7) groups.

First, the (1) "*identity*" block refers to the extent to which users reveal personal information (e.g., name, age, gender, profession, location) and subjective information (e.g., feelings, preferences or opinions), which is why companies have to pay attention to controlling data privacy and security. The functional block related to (2) "*conversations*" is explained by the communication between social media users, for instance by using a blog or Twitter. This communication is seen as beneficial for companies because they can follow conversations on a certain topic. It is important to keep in mind the frequency and content of messages to better assess the importance of an issue. Then, the (3) "*sharing*" block represents users who exchange content or are connected by a shared object (e.g., discount vouchers). Once that object obtains the target majority's interest, it gets more value. This block also calls for proper content management systems and building social graphs for business intelligence reasons. The (4) "*presence*" functional block in the honeycomb refers to the extent to which users know about other users (e.g., their location, availability, or information revealed through statuses such as "*available*", "*busy*", "*offline*"). Fifth, the (5) "*relationships*" function of social media denotes which users are related to each other and how. Although this knowledge is usually obtained through the information users share, the most valued aspect in social media is a user's identity in relation to a person or a subject (i.e., the structure and flow properties in a network), which does not require a formal relationship. The (6) "*reputation*" functional block offers users the possibility to identify their and others' reputation based on user-generated information that determines trustworthiness, such as the number of followers, shares, retweets or likes. Additionally, sentiment analysis is implied in this functional block. Finally, the (7) "*groups*" block of the honeycomb refers to users' ability to form open, closed or secret communities as part of social media. This ability can, for instance, be achieved through the management of membership rules and protocols based on interests, preferences or associations with other users.

Other social media classifications are based on Kietzmann et al. [20]. Some of these classifications have also exposed critical issues that should be improved. For instance, reference [17] criticized the honeycomb by stating that it fails to explain content-related and time-related dimensions of social media, although [20] did include this consideration

in their framework, specifically in the "conversations" block. Consequently, [17] defined seven slightly different social media characteristics: (1) audience focus, (2) identity, (3) groups, (4) user exchanges, (5) media richness, and added the (6) frequency of communication and the (7) longevity of communication. These authors propose that all blocks of this new honeycomb have different levels of advancement, depending on the importance that the organization allocates to a concrete aspect. Hence, *audience focus* is an indicator of the size and diversity of the stated audience of a social medium; *identity* is an indicator of the number of details users can make public on their personal profiles; *groups* are represented by the extent to which the medium allows for the formation of groups and sub-communities; *user exchanges* (i.e., a combination of Kietzmann et al.'s conversations and sharing [20]) explain the extent to which communication and sharing of content between users are encouraged; *media richness* (i.e., a combination of Kietzmann et al.'s media richness and social presence [20]) represents the variety of content and media types that a particular medium allows to be shared and communicated; *frequency of communication* is the amount of communication taking place according to the level of tolerance for repetition among the users of a social media; and *longevity of communication* indicates approximately how long the message will be available [17, p. 20].

All these approaches have tried to explain the importance of social media usage among employees so that they can perform or communicate better with their current and potential customers. Nevertheless, [20] still seems to have provided the foundation for a precise and detailed characterization of social media, which is appropriate for implementation in both customer and company environments.

In the literature, we found studies recognizing the practicality of social media for business communication [21], customer communication [22] and managing business processes or the internal way of working [23]. However, the research on social media's impact on a company as a whole is limited. We are not aware of any study that deeply examined the benefits of social media usage for a company's business process orientation, with all its capability areas, nor providing guidance for the social media implementation in these different areas.

C. BACKGROUND OF BPM

BPM is defined as "the art and science of overseeing how work is performed in an organization to ensure consistent outcomes and to take advantage of improvement opportunities. (...) It is about managing entire chains of events, activities and decisions that ultimately add value to the organization and its customers" [24, p. 1]. When we use the notion of "business processes", we refer to what is mentioned in the definition as value chains with events (e.g., receiving a customer request), activities (e.g., investigating a request) and decisions (e.g., granting or refusing a request) that companies perform when doing business in an attempt to achieve their

business objectives and strategies. Additionally, [25] gives ten principles of good BPM.

Various attempts exist in the literature to characterize and explain the lifecycle through which each BP typically evolves. Although BPM lifecycles may differ in the naming and number of phases, they closely relate to the established Plan-Do-Check-Act (PDCA) cycle [24], [26]. This close relation means that each BP should first be identified and modeled or designed (“PLAN”) before it can be deployed or executed (“DO”) and then monitored and analyzed (“CHECK”) to be improved or optimized (“ACT”). Process optimizations can be incremental or radical improvements and innovations, which may affect the “PLAN” phase for the lifecycle to start a new iteration. Only a few BPM lifecycles [26] include an overall “MANAGEMENT” phase to properly manage the PDCA cycle per BP.

BPM lifecycles are, however, increasingly criticized for being technology-oriented and neglecting organizational success factors [25], [27]. Consequently, a more holistic view of BPM which considers the organizational culture and structure is called “Business Process Orientation” (BPO) [28], [29]. This holistic approach is already considered in BPM/BPO maturity models, which suggest roadmaps with step-by-step improvements to gradually evolve towards a more advanced state of BPM/BPO. For instance, reference [30] developed a maturity model including six capability areas (or critical success factors): (1) methods, (2) IT, (3) governance, (4) strategic alignment, (5) people, and (6) culture. Other holistic BPM scholars focused on one particular area, e.g., process-oriented values in the “culture” area [27]. Moreover, a comprehensive overview of BPM capability areas is provided by Van Looy et al. [31] based on theoretical validation in the literature and existing theories and an empirical validation based on 69 BPM/BPO maturity models. This BPM framework consists of six main capability areas with 17 sub capabilities: (A) process modeling, (B) process deployment, (C) process optimization, (D) process management, (E) a process-oriented culture, and (F) a process-oriented structure. The first three main capability areas are related to the typical PDCA cycle, while the fourth considers the managerial aspects required per BP. The final two areas cover organizational success factors (instead of focusing on a specific BP) and transform BPM to BPO.

The presented capability areas and, more generally, the BPM/BPO maturity models should not be considered one-size-fits-all approaches. Instead, these models should be adopted, considering their contingency with a company’s business context to reach an optimal level [25], [32]. Other researchers cover dynamic capabilities, such as “sensing”, “seizing” and “transformation”, to achieve process changes [33]. Transformation co-exists with the BPM capability areas since process changes are achieved by changing one or more (operational) capability areas. Since the focus of our research is on critical success factors for the state of BPM rather than on the change procedure itself, this study focuses on operational capability areas for BPM, which are most

TABLE 1. The SLR protocol applied in this research.

Protocol elements	Translation to this study
Research question	What is the state of research on social media in the BPM discipline?
Searched sources	Emerald, IEEE Explore, Science Direct, Scopus, Web of Science, AIS Electronic Library and ACM Digital Library.
Search terms	Social media, BP, (business) process management, (management) information systems.
Search strategy	Peer-reviewed journals and conference papers; theoretical and empirical research; no publication date limit, no sector limit, no topic limit; search terms contained in articles’ title, abstract and keywords.
Inclusion criteria	BP or BPM and social media implementation.
Exclusion criteria	a) Articles using the words “processing” or “to process” with a different meaning than the one understood in BP and BPM b) Articles without full access
Quality criteria	a) Only peer-reviewed articles in the academic databases chosen b) Investigating the social media implementation in BPM, following a validated and comprehensive BPM framework [31]

comprehensively described by the validated framework by Van Looy et al. [31] that synthesizes 69 BPM/BPO maturity models.

To the best of our knowledge, no study focuses on the benefits of social media for BPM or a company’s process orientation with all its capability areas and subareas. We will close this gap by combining the social media description by Kietzmann et al. [20] and the framework by Van Looy et al. [31].

III. RESEARCH METHODOLOGY

SLR is defined as “a form of secondary study that uses a well-defined methodology to identify, analyze and interpret all available evidence related to a specific research question in a way that is unbiased and (to a degree) repeatable” [34, p. 7]. SLRs are relatively recent and have been found to be highly suitable for studying literature improvements in a certain area. SLRs have also been found useful for discarding irrelevant issues and emphasizing the needs for further research. Although this methodology was primarily used in medicine [35], it is now increasingly used in social and business areas, such as information systems [36], software engineering [34] and management [37]. An SLR typically follows an SLR protocol [38], which requires starting with the definition of the research objective and continuing with the determination of the sources of information and the identification of the criteria for the articles selection. Table 1 presents the SLR protocol used for this research, which is subsequently explained in more detail.

A. RESEARCH QUESTIONS DEFINITION

This study intends to explore the application and use of social media in BPM to dig deeper into the utility of social

media from the perspective of business processes (BP) or the internal way of working for a company. For the purpose of this study, we decided to explore the application of social media in the BPM field, trying to understand the identification of the most frequent phases for implementation and social media utility. For this reason, we combined the social media classification [20] and the validated framework for BPM [31] as a research base, where BP is expanded with BPM and BPO. In this way, we will be able to detect how social media can impact on companies' BPM approach and in which part of their business processes. To this end, we had to analyze the bibliometrics of a sample of papers and then observe their content. As indicated in the SLR protocol, we first determined the main RQ of this study:

- **RQ:** What is the state of the research on social media use in the BPM discipline?

Then, to obtain more specific knowledge on the subject, three detailed SLR-RQs were derived according to their relevancy for the literature and practitioners [36]; this was followed by a search of scientific papers that focus their attention on the subject of our interest. The SLR-RQs vary from more general to more specific. The more general ones are defined on bibliometrics and general descriptions, while the more precise ones are grounded on the previously established classifications or frameworks from the literature.

- **SLR-RQ1:** To what extent is the research on social media use in BPM evolving, and why?
- **SLR-RQ2:** In which particular BPM matters (i.e., conventional areas and subareas of BPM) is social media use most frequently investigated?
- **SLR-RQ3:** Considering SLR-RQ2, what are the research avenues and business implications of social media use in BPM, as mentioned in the literature?

Once the main articles were identified, they were selected based on predefined inclusion and exclusion criteria to choose only the most applicable papers for our objective. The analyses were facilitated by using the programs MS Excel and NVivo. In particular, SLR-RQ1 and SLR-RQ2 were answered by the quantitative results from MS Excel, while SLR-RQ3 was answered by the qualitative outcomes from NVivo. We likewise analyzed the articles' content in search of practical recommendations regarding social media in BPM, especially looking in more detail at the sampled case studies.

B. ARTICLE SEARCH AND SELECTION

To search for and select the articles that would form the researched sample, we started by considering all articles related to social media use in BPM (step 1). However, of all the research found, we selected only the most relevant articles by following precise inclusion/exclusion criteria in their title, abstract (step 2) and full text (step 3). In Fig. 1, our step-by-step procedure can be observed to gradually discard the papers that would not be useful for the research and assemble the final sample, objective of this study.

Before starting with the specific steps to obtain the sample of articles considered for the SLR, we browsed peer-reviewed

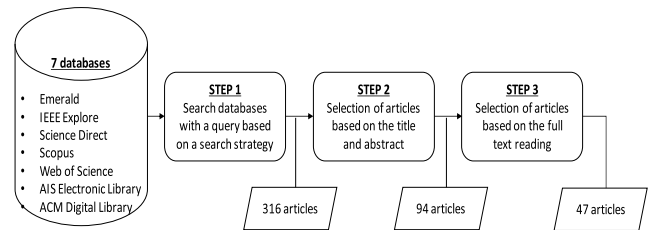


FIGURE 1. Search and selection of articles considered for this study.

research papers in seven electronic databases (1-Emerald, 2-IEEE Explore, 3-Science Direct, 4-Scopus, 5-Web of Science, 6-AIS Electronic Library, and 7-ACM Digital Library). These collections were chosen because we searched articles from two different areas (social sciences and information systems), and they gather a variety of research subjects and do not focus on only one field of study. We decided not to restrict the search to a specific time limit, because social media is rather new, as is as all the research involved. Moreover, we would be able to observe a possible evolution of the research. Therefore, all results until mid-2016 were considered, which is when our research started.

As part of *Step 1*, we searched for articles containing a combination of the following terms in their title, abstract and keywords: “social media” AND “business process*”; “social media” AND “business process* management”; “social media” AND “process* management”; “social media” AND “information system*”; and “social media” AND “management information system*”. After excluding the results mistakenly classified as peer-review articles (e.g., books) and the multiple duplicates since different databases were consulted, we proceeded to determine the articles' relevancy for and connection to our objective. In this stage, we found 316 papers.

Step 2 is where the inclusion and exclusion criteria were applied, with the aim of identifying those articles that were relevant to our objective [34]. In addition to inclusion/exclusion criteria concerning language, setting, sample, publication date, research design, etc. [34], we omitted all papers that used the terms “processing” or “to process” with a different meaning than the one understood in the context of BP and BPM, such as abstracts referring to a “diffusion process”, “research process”, “word processing”, “sense-making process” or “learning process”. By adopting the inclusion criterion, we incorporated papers that reflected BP or BPM and social media into the sample. Articles without full access (6 papers) were likewise discarded. At the end of this phase, we obtained 94 articles.

For *Step 3*, we handled a reduced number of research articles, which we explored in more depth. Based on the full-text reading, the previous criteria were applied to determine the actual research subject in the selected articles. We thus fully scrutinized the remaining papers to verify their relationship with social media implementation in BPM. Among these studies, we can find both theoretical and empirical types

of research, using different methodologies and focuses in various areas. When we could confirm that an article was connected to at least one of the BPM categories that we observed using the BPM framework [31], the paper was selected as revealing significance for the objective of this study. We finally sampled 47 scientific articles to be included for further analysis (Appendix 1).

C. ARTICLE CLASSIFICATION

For classification reasons, we followed two validated frameworks as groundwork from the literature on social media [20] and of BPM [31]. Furthermore, in order to be able to define the main RQ and the specific SLR-RQs, we relied on the literature exploring social media applications in organizational environments [17]–[20]. For BPM, the adopted framework provides us with a general overview of BPM because it distinguishes itself by thoroughly describing different layers of capability areas, main areas and subareas [31]. In this way, the selected BPM framework offers a differentiation between the narrower view of the traditional BPM lifecycle and the more holistic view of BPO. The capability areas of the BPM framework have been theoretically and empirically validated in previous research, so we mapped the sampled articles to the conventional BPM capability subareas according to the following explanation.

As part of the main capability area (A) “*process modeling*”, we distinguished articles that explored the following:

(1) “*Business process design*”: papers specifying the relationship among events, activities and decisions in a value chain, as well as the actors involved and the related chains.

(2) “*Business process analysis*”: papers referring to the validation, simulation and verification of the designed BP models.

The main capability area (B) “*process deployment*” included studies dedicated to the following:

(3) “*Business process implementation and enactment*”: papers including operational models, implemented procedures and software systems.

(4) “*Business process measurement and control*”: papers referring to data collection and monitoring of running process instances for correcting deviations and providing status updates.

The main capability area (C) “*process optimization*” embraced articles that examined the following:

(5) “*Business process evaluation*”: papers that intend to quantify the performance of finished process instances and the operational environment.

(6) “*Business process improvement*”: papers that make BP conform to their process models and optimizing or innovating the models through a redesign.

The main capability area (D) “*process management*” contained studies that focused on the following:

(7) “*Strategy and key performance indicators*”: papers aligning BP to strategic objectives and customer needs.

(8) “*External relationships and service level agreements*”: papers actively involving external parties, such as partnering with suppliers and customers.

(9) “*Roles and responsibilities*”: papers discussing the process manager and his/her team responsible for the performance and improvements of a specific BP.

(10) “*Skills and training*”: papers elaborating on the acquisition of skills for the actors involved in a specific BP.

(11) “*Daily management*”: papers dealing with specific management domains to be executed by the process manager.

The main capability area (E) “*process-oriented culture*” was represented by articles that focused on the following organizational characteristics instead of a specific BP:

(12) “*Process-oriented values*”: papers presenting values which facilitate the realization of the previous capability areas (e.g., customer focus, empowerment, innovation, multidisciplinary collaboration and trust).

(13) “*Process-oriented attitudes and behaviors*”: papers discussing attitudes and behaviors that facilitate BPM across BP and so concretize the defined values, such as BPM awareness, knowledge sharing and acceptance of change.

(14) “*Process-oriented appraisals and rewards*”: papers related to HR implications (e.g., combining team incentives with individual benchmarks related to process performance).

(15) “*Top management commitment*”: papers in which top managers also support BPM and create a process-related C-level leadership role with responsibilities.

The main capability area (F) “*process-oriented structure*” is likewise comprised of articles focusing on the following organizational characteristics of a company but with more structural interests:

(16) “*Process-oriented organization chart*”: papers determining changes in the organization structure to emphasize cross-departmental BP and new roles.

(17) “*Process-oriented bodies*”: papers creating additional governance bodies across BP, such as a BPM program management council and a BPM competence center.

IV. RESULTS

A. SLR-RQ1 RESULTS

To respond to SLR-RQ1, we first classified the sampled articles according to publication dates, publication outlets, geography, methodology, sectors and disciplines or topics to which the papers belong.

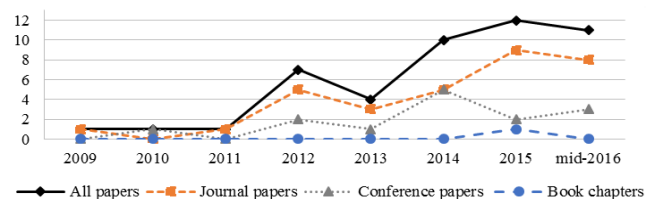


FIGURE 2. Publishing frequency regarding article type (N = 47).

As shown in Fig. 2, the research on social media implementation for BPM has been expanding over the years.

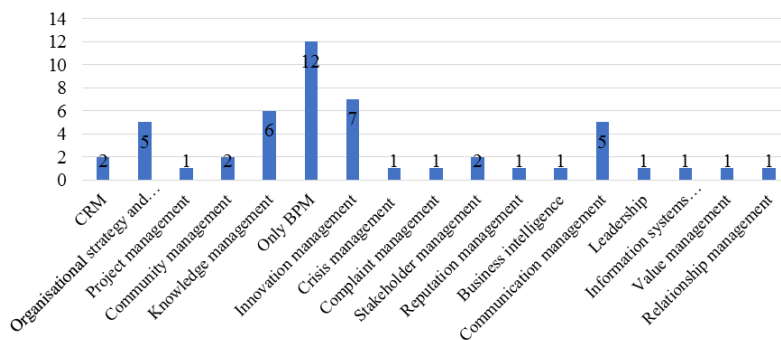


FIGURE 3. Topics to which the selected articles belong (N = 47). Note: the results are not cumulative, because articles can be classified in more than one option.

However, most of the sampled articles (12 papers) were published in 2015; 11 articles were published by mid-2016, which led us to expect that this number would increase by the end of that year. Findings regarding the chronological distribution of the sampled papers are in line with our expectations, taking into consideration the interest that companies express in social media implementation for BP objectives. However, keeping in mind the social media application trend, it can be expected that research on its implementation in BPM would only increase in the coming years.

Furthermore, regarding the publication outlets, we sampled 32 journal papers, 14 conference papers and 1 book chapter. The large number of peer-reviewed journal papers is recognized by high-quality standards of research implications.

Furthermore, the vast majority of sampled papers had a first author located at a Western university, precisely 29 in Europe and 11 in North America. There were only five Asian and two Australian papers in the sample. The growing research of this subject in Western countries might exist due to the level of technological development in the reflected societies.

Although our main focus was on articles referring to BP and social media, we realized that there were also papers related to other topics (particularly 17 different foci) besides BPM, as a secondary interest (Fig. 3). The topic with the highest number of sampled papers (12 papers) was exclusively BPM, followed by innovation management (7 papers), which was anticipated since our central interest was in social media as an ICT tool implemented in BPM. Other topics to which articles were related were found to be knowledge management (6 papers), communication management (5 papers), and organizational strategy and growth (5 papers). This illustrates the need for broader research on social media implementation in BPM related to leadership, value or relationship management. This could be one direction for future exploration of the subject.

Regarding the sectors in which research was performed (Fig. 4), 31 out of 47 sampled papers concretized their sector of exploration; 20 of them were situated in socially oriented services (e.g., healthcare, education, finances, tourism or

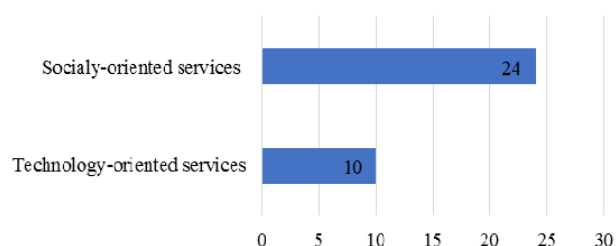


FIGURE 4. Sectors to which the sampled articles belong (N = 31). Note: the results are not cumulative, because articles can be classified in more than one option.

entertainment), 10 of them focused on technology-oriented services (e.g., telecommunication, software, information systems or web-based services), and 4 papers focused on manufacturing sectors (e.g., automotive or retail industries). Only a few studies (4 papers) mentioned more than one sector. Having in mind that most of the studies were concentrated in the social domain, another track for future research could be assigned to the social media implementation in BPM within industrial and technological sectors. For example, exploring the challenges of the “identity” functionality of social media could give indications towards addressing system and data privacy and security, and proposing practical solutions to assure companies’ interactions with different parties involved. Accordingly, the “identity” functionality could be likewise useful in a more hedonic environment, such as, for example, travel, tourism and hospitality services. Given their emotion-related nature, the use of social media could encourage the share of subjective information, like feelings and preferences. Generally, there is a need for a more holistic observation of social media implementation, in a greater variety of sectors, and not limiting on those that are more technology-related.

Fig. 5 reflects the methodological approaches that the sampled papers applied in their research. A total of 21 out of 47 papers did not present empirical research, whereas only 7 presented a structured literature study (e.g., SLR). Furthermore, 29 articles were based on an empirical study, including

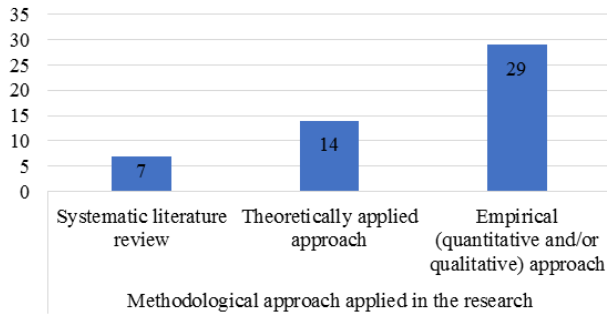


FIGURE 5. Methodological approaches applied by sampled articles (N = 47). Note: the results are not cumulative, because articles can be classified in more than one option.

qualitative and/or quantitative analyses. Only 2 papers combined theoretical and empirical methods.

The top 3 journals publishing articles on the advancement of BPM through social media usage are *Business Horizons*, *Public Relations Review* and the *Journal of Technology Management in China*. The choice for specific journals can thus be both management-related and information systems-related. Conferences that most commonly publish evidence of this research seem to be related to information systems, namely, the *International Conference on Business Informatics* and the *International Conference on Business Process Management*.

B. SLR-RQ2 RESULTS

For SLR-RQ2, we looked at the extent to which conventional BPM areas and subareas were applied in our sample. In general, Fig. 6 shows that most BPM capability areas in the framework by Van Looy et al. [31] were covered by the sampled papers, except for the “process-oriented structure” area.

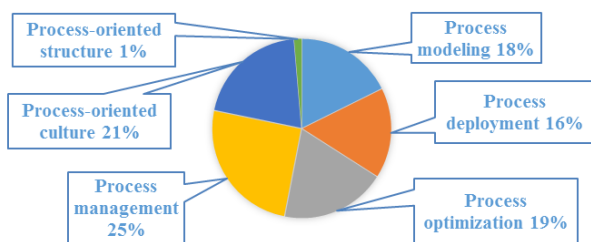


FIGURE 6. Relative importance of the articles classified per BPM capability area (N = 47).

More specifically, it seems that the attention of current studies is most frequently attained by the utility of social media implementation in the “process management” and “process-oriented culture” areas of BPM (covered by 37 and 30 sampled papers, respectively), followed by the areas related to the traditional BPM lifecycle (28 papers for “process optimization,” 26 for “process modeling” and 24 for “process deployment”). We call for a wider exploration of social media implementation as a way for managing process-oriented organizations. For instance, paying more attention to the reputation and group functions of social media

implications would enable acquiring better knowledge about how social media could help share rules and protocols in a company. Therefore, it seems worthwhile to explore the application of wikis for organization coordination or the use of some social networks (such as LinkedIn, given its more formal communication nature) to communicate BPM procedures, changes or even new roles.

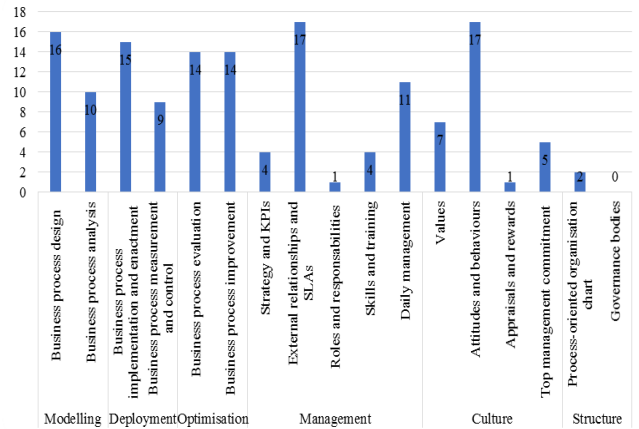


FIGURE 7. The articles classified per BPM capability area and per BPM capability subarea (N = 47).

Considering the BPM subareas (Fig. 7), it can be observed that the “external relationships and service level agreements” and “process-oriented attitudes and behaviors” were the most frequently captured practices in the reviewed literature (i.e., both with 17 papers). These areas were closely followed by the subareas of “business process design” (i.e., 16 papers), “business process implementation and enactment” (i.e., 15 papers), “business process evaluation” (i.e., 14 papers) and “business process improvement” (i.e., 14 papers) in the traditional BPM lifecycle.

As can be observed, Fig. 7 refines Fig. 6 by illustrating some important differences among the BPM subareas.

Given these results, it can be concluded that a need exists to intensify the research of how social media can be applied in a way that it motivates employees, and so leading to an improved BP performance. For instance, one could try to use online social games or virtual reality rooms to engage employees in certain business processes and incite them to enhance the team and organization’s performance.

A qualitative analysis of the sampled papers, carried out by Nvivo, allowed us to obtain an overview of the most frequently used terms related to social media implementation in business contexts. Given the fact that only a slight difference in wording was observed for the capability areas related to the BPM lifecycle, we summarized them as PDCA. Table 2 provides the reader with the word frequency queries that distinguish typical terms and gain more insights per BPM capability area.

TABLE 2. Word frequency query results per BPM capability area (N = 47).

BPM capability area	Frequently used terms typifying each area (word count)
PDCA	“Processing” (1781); “Models” (1197); “Customizing” (785); “Innovator” (668); “Network” (560); “Openness” (411); “Supports” (399); “Consuming” (392); “Platform” (331)
Process management	“Managing” (1487); “Busy” (1366); “Customizing” (1177); “Community” (1073); “Informing” (977)
Process-oriented culture	“Managing” (1422); “Community” (1271); “Knowledgeable” (1119); “Study” (816); “Sharing” (588); “Leadership” (507); “Values” (338); “Learning” (271)
Process-oriented structure	“Units” (238); “Markets” (187); “Managing” (180); “Organization” (167); “Alignments” (159); “New” (120); “Director” (85); “Integrative” (54)

C. SLR-RQ3 RESULTS

Initially, our study revealed more frequent exploration in the areas of “PDCA” and “process management”, which would confirm the tendency of social media usage in more individual BP, a fact that was considered in Kietzmann et al.’s [20] honeycomb and was expected due to our previous knowledge of the BPM literature. Nevertheless, a lack of research regarding social media in the area of “process-oriented structure” was recognized. This gap should be investigated empirically to verify whether managers do not recognize a necessity for social media in this BPM area or whether another reason prevails. Particularly, [20] states that a significant number of executives tend to ignore social media because they do not truly understand the related benefits and implications. If the latter is true for this particular BPM area, managerial awareness about social media opportunities should be increased through informative workshops, seminars, etc. Furthermore, instead of focusing on one or a few BPM areas, relationships inside and outside a company can be improved by combining social media tools through different BPM areas. As a matter of fact, Kietzmann et al. [20] state that social media do not center on one function only, but that they cover multiple implications at a time.

Moreover, adopting mobile devices for organizational, e-commerce and m-commerce purposes would help achieve a decrease in costs and would support omnichannel BP [39]. This is specifically true for mobile social media as an addition to online applications, where companies can offer various incentives for customers to participate in advertising activities. The latter can be an adequate way of improving interaction between organizations and their present or potential clients [15]. Such an omnichannel management strategy could provide seamless communication and control of BP, anytime, from anyplace, with real-time visibility of systems, processes and people.

Table 3 presents the recommendations for using social media. It can be deduced that most of the sampled studies in this research focused their research on social media contributions in the first four BPM capability areas, namely,

TABLE 3. Recommendations for using social media per BPM capability area.

BPM capability area	Examples of social media opportunities	Number of papers with this recommendation
1/ Process modelling	<ul style="list-style-type: none"> • Collaborative process modelling with partners • Online requirements gathering with customers and stakeholders • Co-creation and crowdsourcing for Research & Development 	<ul style="list-style-type: none"> • 13 • 10 • 10
2/ Process deployment	<ul style="list-style-type: none"> • E-commerce by mobile or tablet applications • Streamlining information flows among employees and partners • Online monitoring of product/service feedback • Online complaint handling 	<ul style="list-style-type: none"> • 5 • 13 • 15 • 5
3/ Process optimization	<ul style="list-style-type: none"> • Creating an added value from online customer feedback and complaints • Collecting (improvement or innovation) ideas based on gamification techniques among employees (e.g., the number of bottom-up ideas, likes, badges, progress bars, microblogging, forums, virtual social worlds) 	<ul style="list-style-type: none"> • 16 • 10
4/ Process management	<ul style="list-style-type: none"> • Incorporating social media into BP strategies • Internal training on how social media and BPM can be combined • Collaborative process management and social media management • Social CRM and customer process management 	<ul style="list-style-type: none"> • 27 • 12 • 19 • 17
5/ Process-oriented culture	<ul style="list-style-type: none"> • Using wikis or the Intranet to share knowledge and best practices 	<ul style="list-style-type: none"> • 23
6/ Process-oriented structure	<ul style="list-style-type: none"> • Creating a competence centre (or Center of Excellence) with expertise on the synergies between BPM, social media and business intelligence/big data • Formal coordination among BP (e.g., by wikis) 	<ul style="list-style-type: none"> • 9 • 11

the phases of process modeling, deployment, optimization and management. Fewer studies addressed the advantages of social media use for the process-oriented culture and structure capability areas. This finding, however, does not mean that these studies measured the actual social media implementation and the results of their business (process) performance. In some cases, recommendations were based on previous literature or even proposed as future research lines. However, all sampled studies agreed on the point that social media can enhance BPM in each and every business process of the company.

For example, digital libraries (i.e., as a form of social media where parties have access to all kinds of relevant information) could be a solution to improve collaborative process modeling among various stakeholders. In this way, the functionality of “sharing”, as established by

Kietzmann et al. [20], would be enhanced. Furthermore, transferring the social network activities to mobile channels, enabling the ubiquitous contact and commerce, and supporting social reviews, will contribute to a better company's reputation, conversations and relationships. These examples also address "presence" and can be relatively easily accomplished by companies to implement entertaining solutions (e.g., blogs and microblogs, geolocation apps, social games) for motivating customer participation in engendering added value. Additionally, sharing and conversations can be enriched at the moments of incorporating social media in BP strategies and CRM (Customer Relationship Management), and this by digital libraries, forums or social reviews, among others.

Finally, it can be assumed that research should focus on trying to reveal more best practices or examples of actual social media practices in organizations, especially when it comes to issues related to human resource values and behaviors and the structural interests of governance bodies and roles across BP. Possible examples can focus on the use of wikis, blogs or even forums for the purpose of sharing knowledge among employees and coordinating the BP, so that the "identity" and "groups" functionality can be addressed.

V. DISCUSSION

A. SLR-RQ1 DISCUSSION

Our results confirm a relatively slow adoption of social media opportunities within the BPM discipline. It can be concluded that this evolution is used not only to improve communication but also to enable collaboration inside (e.g., between employees) and outside the company (e.g., with stakeholders and customers). Especially in a globalized and competitive market situation with highly demanding customers, researchers encourage managers to acknowledge the diverse benefits of social media and to implement them in as many BP areas as possible to achieve higher performance goals and profits.

Our sample includes mainly researchers in the fields of innovation, knowledge and communication management, who take BPM as a foundation to find a strategy that enables growth and progress in a company's processes through the implementation and use of social media. As Helms et al. [17] affirm, companies can opt for different adoption levels and advancements in social media, depending on the importance that the company allocates to certain aspects.

The fact that the socially oriented sectors are more involved in investigating social media contributions to BP may be explained because these services require more social communication than those related to technology or manufacturing. Thus, the adoption of social media can improve the inner processes and would likewise make a difference in achieving constant two-way relationships with actual and potential customers. Especially in the services sectors where the hedonic element has a relevant role in the decision-making, social media could enhance interaction and activity among parties, while in the same time getting to better identify customers' functional preferences. Moreover, the current tendency to

empirically explore this input provides suggestions for future enhancement of the BPM discipline based on actual knowledge and practices.

B. SLR-RQ2 DISCUSSION

With respect to specific BPM areas, our study shows most recurrent attention for social media use in the "process management" and "process-oriented culture" areas. One explanation for this finding is that social media can improve communication, which is fundamental for the external relationships of a company (e.g., involving contact with partners and customers) and for process-oriented attitudes and behaviors (e.g., focusing on knowledge sharing and acceptance of change). Nonetheless, communication is likewise a necessity for process modeling, deployment and optimization. Some BPM areas encompass activities and decisions regarding the procedures and systems implemented in a BP, as well as the evaluation and optimization of the models' performance which also require updated information and continuous communication. Consequently, our distribution of studies per BPM area provides evidence for the suppositions about social media contributions to BPM.

Regarding the honeycomb model by Kietzmann et al. [20], the capability areas of an individual BP (i.e., "PDCA" and "process management" in Table 2) mainly relate to the functional blocks of customer "conversations", "sharing", "presence", "relationships" and "reputation." Such BPM areas include activities for information sharing, creating, monitoring, controlling and managing the value chains and the related communication flows of external relationships, especially. The more organizational areas of "process-oriented culture" and "process-oriented structure" are closely linked to the honeycomb blocks of (internal) "identity" and "groups." These BPM areas typically affect the entire company by enabling internal communication and knowledge distribution, as well as enhanced contact between organizational groups and communities. Nevertheless, this assignation of different social media functionalities to the organizational processes is not just as severe, since the same social media tool can be used interchangeably to improve several business processes at once and to manage diverse contributions for all of them. This distribution will primarily depend on the precise aim to be achieved and on the company's focus.

SLR-RQ2 looked at any differences in focus when applying social media in a BP context. In the traditional process lifecycle, social media platforms and networks appear to be mainly used to create openness for modeling, deploying and optimizing BP. For instance, openness may refer to better service for the customer and possibly includes the customization or tailoring of products and services. Furthermore, openness is also linked to opportunities for innovation. In the "management" area, social media is presented as a way to facilitate an informed community of process participants and to support customization. The sampled articles dealing with a "process-oriented culture" applied social media to

better share knowledge or best practices across the company. Finally, the few papers on “process-oriented structure” mentioned the use of social media to align business units and markets and to facilitate the coordination of process-related activities across all value chains throughout the company by a central director.

Current academic research seems centered on more general or management-related aspects that are less specific to BPM. Examples include culture-related attitudes and behaviors, and external relationships with customers, suppliers and other stakeholders. The more technical aspects of BP in the BPM lifecycle are considered to a somewhat lesser extent, but they also appear to be attractive to researchers so far. Some of these aspects are collaborative process modeling or execution and optimization with partners. Nonetheless, a general need is recognized to improve companies’ relationships with their customers, suppliers, stakeholders and employees. As [5] stated, due to the increasing complexity of tasks (especially those involving technological innovations), companies require highly qualified employees who actively participate in solution design and implementation. Therefore, employees get to represent important stakeholders through the use of social media, with structural empowerment for new proposals, discussions and negotiations. Consequently, the latter can more easily and effectively be done through social media by recognizing all the implications presented in Kietzmann’s honeycomb [20]. Such implications may be used individually or combined, and their profound importance is that a functional use of social media can help companies recognize and better understand their audience and their engagement needs.

C. SLR-RQ3 DISCUSSION

Contemplating the recommendations that we derived from our study with the aim to guide future research, we proceed to give some suggestions on how to achieve this synergy between social media and BPM.

Thus, in addition to applying social media for easing collaboration with different parties and exploiting the benefits of crowdsourcing and co-creation (*process modeling*) or using online apps to guarantee the information flow inside the company and relevant feedback from outside (*process deployment*), social media actions are supposed to align with improved communication with customers and employees to create value (*process optimization*), and foster a relationship with customers with the final aim of incorporating social media as an essential part of BPM strategies (*process management*). Although ideas for relating social media with the last two BPM capability areas are limited, the studies agree on the possibility of using wikis and intranet apps so that expertise can be widely shared within and across different company departments, and the inclusion of social media as a crucial element in process coordination (*process-oriented culture and process-oriented structure*).

Considering the social media recommendations in more detail, several aspects require more attention. Bearing in

mind the information technologies revolution of the past two decades, it is of indispensable importance to reinforce BPM with the numerous electronic (online and mobile) apps and tools. Hence, the use of smartphones and tablets would enable an uninterrupted interaction between all parties in the company, creating an atmosphere where employees can contribute to the improvement of different business processes, customers will be attended to, and partners and other stakeholders can keep a close eye on the business. Thus, considering that the fulfilment of these apps and tools (such as blogs, forums, virtual worlds, mobile stores or entire internal social networks) is still to be studied in the relevant literature, we call for more awareness regarding the enrichment that these elements could bring to BPM.

Furthermore, we were interested in contemplating the actual implications that the sampled case studies emphasized on the basis of their more practical research. Thus, we decided to organize the conclusions that they came up with, pointing them out as social media opportunities for companies, according to each BPM capability area. The importance of this classification lies in the fact that these suggestions come from the real experience of companies applying social media at some stage of their BPM experience. Appendix 2 presents illustrative examples regarding how social media could improve BPM.

Therefore, the *first open issue for research and practice* can be to address culture- and structure-related aspects for business processes (i.e., as the environment for social media implementation), and so widening the scope to a variety of services, and to become able to contemplate possible differences for business processes across sectors. Namely, regarding the implications taken from the actual social media implementations for BPM purposes, it is important to emphasize that most of the references come from the technology industry, including case studies that examined software, telecommunications and web-based services. Compared to the recommendations in Table 3, it is relevant to stress that in the reported case studies, the capability areas that received major attention were, again, the first four, i.e., process modeling, deployment, optimization and management. Contributions in the last two capability areas (process-oriented culture and process-oriented structure) are very scarce and limited to only two case studies that providing few remarks.

A *second potential issue for research and practice* can be indicated as the translation of social media to the mobile channel in order to achieve omnipresence. Especially studying crowdsourcing apps for achieving the needed collaboration between parties seems worthwhile. More specifically, in the case of the *process modeling* capability area, the general opinion is the same as the one suggested by the previous recommendations, namely, stimulating the use of social media for co-creation and collaboration with different parties. Moreover, while tangible experience states that the development of a coherent network for modeling knowledge can boost this phase, no evidence was found for the results of crowdsourcing. Although it is not a new concept, crowdsourcing has

taken a large step forward since the digital era, which adds to the importance of using and studying it as a tool for BPM enhancement.

Observing the implications relative to the *process deployment* capability area, the case studies confirm the prominence of social media for supporting online monitoring and simplifying the information flow for strategy formulation and implementation. Nonetheless, while the real application of mobile commerce in BPM still has insufficient recognition, there are some other propositions that go even further than merely process deployment. Accordingly, through the power of virtual infrastructures and collective social features, the company gets to improve relationships and quality and seize crucial moments in the market.

The *third perspective for research and practice* can be oriented towards exploring the implications of employee participation in business processes and the company's 'socialization' with customers, especially exploring the growing potential of virtual reality. Accordingly, implications of the case studies related to *process optimization* suggest the identification, assessment and control of customers' feedback through a variety of social media and web tools, ensuring value creation. Nevertheless, the value of gamification tools and techniques is still not precisely deliberated in the BPM literature. Theoretically, it is expected that the results would be enriching. However, for some reason, studies do not provide substantiation that companies have an interest in this step. Therefore, given the diversity of the organizational contexts, this phase is most frequently counted in the sampled case studies (in 6 out of 12). Some of them are very suitable for pursuing process optimization by, for example, virtual social worlds. There should be a greater effort put into the measurement of the results and gamification marks in the BPM field, in order to detect not only the utilitarian opinions, but also the emotional responses due to social media application.

Since social CRM is essential to social media implementation in BPM, it is likely that one would see practical experiences that confirm the usefulness of integrating social media into BPM strategies. Consequently, as part of the *process management* capability area implications, a range of possibilities are mentioned on how companies could widen their social media coverage to retain users and enhance consumer engagement. The only aspect that lacks consideration is the need for training. Keeping in mind that it is practically compulsory for people to have technology literacy currently, and especially in information technology sectors where digitally native employees constitute the majority, it is sometimes hard to imagine how vital it is for people to first understand how social media works so they can then implement it in their everyday BPM tasks.

The *fourth subject of research and practice* that should be addressed concerns the implications of virtual spaces (such as wikis or Intranet) for the diffusion of ideas and delegation of functions. Although the social media implications for *process-oriented culture* and *process-oriented structure* are not extensive, they attest that the virtual environment

(enabling access to company's ideas and knowledge) is a powerful tool for adding value to the internal business processes of a company. Besides assisting in the development and identification of roles, social media can empower adequate resource allocation and guarantee process coordination and synergy.

To conclude, for both the more theoretically oriented recommendations and the more practical implications, the sampled studies primarily focused on handling an already defined model or a process that was previously established. Thus, major exploration and importance have been given regarding how to deploy, optimize and manage business processes. Thus, *as a fifth possible issue for research and practice*, we call for a more thorough study of how social media can enrich the modeling of these business processes and their value for organizational culture and structure.

VI. CONCLUSION

This article focused on gaps in the literature and their practical implications, taking into account the limitations inherent to our SLR protocol. Although the current literature covers different sectors and topics to which BPM is related, many opportunities still exist to further scrutinize the implications of BPM in more detail.

First, the literature on social media for BPM is increasing, but it is still relatively limited. In particular, while our sample consisted of merely 47 papers, the thorough search and selection procedure that characterizes the SLR research method intends to identify all relevant studies across several academic databases. *Secondly*, this SLR study also uncovered the need for more theoretically underpinned studies. Given the multidisciplinary approach that is inherent to our research subject, possible theories might belong to different research disciplines, such as communication science, psychology, management and business economics (e.g., marketing, innovation), and information systems. We give particular consideration to relationship management, innovation strategies, gamification theories, or social network techniques using big data. *Thirdly*, social media may provide more diverse opportunities to companies, such as crowdsourcing and gamification, differentiating from the ones mostly covered in the investigated body of knowledge. Hence, future research should likewise consider social software as an alternative to the currently investigated social media keyword. *Fourthly*, as stated in the literature, transparency regarding solution designs is needed for all stakeholders so that conflicts can be resolved as early as possible. These actions, situated from top to bottom, should be reinforced by active communication including social media, among other methods [5].

Next, we call for more research on omnichannel management strategies to let BPM evolve by social media in a more comprehensive manner, namely, by investigating how diverse business contexts may profit from new technologies and digital innovation across the different BPM capability areas to create synergies. More precisely, incorporating m-commerce into the current BPM (i.e., not only for process

TABLE 4. Case studies' implications from social media implementation, per BPM capability area.

BPM capability area	Examples of practical social media opportunities	Sectors covered in our sample
1/ Process modelling	<ul style="list-style-type: none"> • Develop suitable business (process) models for organizational operations in various domains, in order to reflect their management perspectives and needs. • Find appropriate business models and execution processes, create value for stakeholders, assure value assessment and control for sustaining desired outcomes. • Establish co-creation platforms on social media, by developing an attractive community for value co-creation, facilitating in this way effective interactions in the virtual community. • The complexity of the global corporation with cross-organizational and corporation-wide business processes becomes manageable, through the collective development of a coherent network of knowledge containing models and other artefacts. 	IT-software, services
2/ Process deployment	<ul style="list-style-type: none"> • Free access to social media integrates individuals with institutions and their systems, information and research. • Virtual infrastructures where institutions mediate social media offer commissions of market dynamics. • Social media networks add value to stakeholders, patients, relatives, practitioners and administrators in the sense of: <ul style="list-style-type: none"> ○ Encompassing knowledge management practices ○ Helping to improve information flow in processes. ○ Facilitating the end-users for timely information sharing ○ Providing synchronized information for improved decision making regarding quality service delivery according to the end-users needs and demands. • Facilitate strategy formulation, action plan implementation, performance measurement and value management of projects in single or multiple project management levels. • Allow the gathering and documenting of knowledge of all groups that contribute content towards a project in a very short time. • Accelerated teamwork, positive atmosphere and knowledge transfer, during project implementation. • Support monitoring of interactions from which rich information is built up over the lifecycle of a business process, which can be used for analytics and automated reporting. • Leverage common social features (tag, follow, like, refer, rank, rate) creating a richer social structure for the business process allowing to develop a new quality of relationships between different parties (e.g. selling and buying). 	IT-software, healthcare, web-based services
3/ Process optimization	<ul style="list-style-type: none"> • Social media enable: <ul style="list-style-type: none"> ○ Customers to post their process-related feedback, offering insights for process participants to gain new ideas for process improvement ○ Measurement of the process improvement effectiveness ○ Better information sharing across organizational silos ○ Studying new methods for people-centric improvement. • Using social media to detect problems from postings (even unrelated) would greatly benefit quality management in terms of productivity. • Besides the use of sentiment analysis to identify consumer complaints on the web, web crawlers in conjunction with a word-sense disambiguation tool and word list to scan multiple discussion boards and social media forums, and linguistic analysis and text mining to control quality and help product management, should be employed. • Deal with tasks of the entire value management process that covers value identification, proposition, creation, assessment, and control. • Encourage the understanding of product-related content through videos and pictures and ensure active consumer participation in virtual co-creation. • By applying social media so that users could express their opinions, a potential for continuous dialogue between the enterprise and consumers and among the consumers takes place, exploiting this asset to create value. • Improve the basic social networking functionalities as well as introduce different social media applications that cater to the varying needs of the users. • Develop and analyse good competitive accounting techniques for matching development needs of different organization life cycles and then to design appropriate business strategies matched with management accounting. • Implement social media to focus more on service, communication issues from a holistic point of view and user experience, than on the product itself. • Actively involve users in the projections about the future, made by organizational managers. • Assess the extent to which the products/services/processes meet the expectations of their end users and beneficiaries, helping to anticipate the success or failure of innovation, permitting to identify distorting elements and also to introduce improvements. 	IT-software, services, telecommunications, financial services, health and tourism, automotive industry
4/ Process management	<ul style="list-style-type: none"> • Provide stakeholders with an opportunity to engage in joint brand-related discourse, which otherwise could be isolated in an offline environment. • Enable all actors to take part in the brand-related discussion. • Management could use social media to engage in a discursive process with multiple stakeholders and respond to the interaction of multiple influences from the entire stakeholder network. • Offer touchpoints for leaders and organizations to engage in meaningful discourse and real-time sense-making, to be present, to listen and to engage everywhere stakeholders are talking about the organization. • Social media is a helpful tactic for crisis management, leadership, and the reclamation of power. • Reveal the strategic and performance gaps, put the designed action plans, KPIs and goals of the newly developed business model as reflected learning. • Activities on social media must engage with consumers' daily lives and such initiatives should differ from the official website. • Retain users and enhance consumer engagement, providing useful content and emphasizing the firm's connection and interaction with consumers on social media. • Enhance the quantity and quality of consumer proposals, enabling the company to quickly acquire consumer responses to changes and innovations in a product/service. • Extend to wireless platforms to further enhance social media coverage and usage. 	IT-software, in-flight catering, services, telecommunications, education
5/ Process-oriented culture	<ul style="list-style-type: none"> • Generate collective power in the virtual environment, by diffusing ideas through the community, would, in turn, directs to enterprise's actions and ultimately results in value creation. 	Services
6/ Process-oriented structure	<ul style="list-style-type: none"> • Manage access to spaces by invitation, revocation, participation and expiration, allowing managed access to spaces cross-enterprise, such that people from all sides (buying, selling, partnering) can participate. • Identify roles and their function early in the process, using placeholders, to enable the delegation of functions, before actual people are assigned. • Fragmentation and isolation of IT support systems can be addressed in a novel way by using social media as simplified and unified information surfaces. 	Web-based services

deployment objectives but also as a wider aim in the company) provides valuable benefits for both businesses and consumers, concluding in expanded conversion rates. The ease

of use for smartphones and tablets would offer customers a unique omnichannel experience, while, for companies, this would mean increased and efficient transactions enabled by

the possibilities of mobile devices [39]. As established in the existing investigation, synergies are a good strategy for saving costs, achieving economies of scale, increasing productivity, accomplishing a distinguishable strategic advantage, and, finally, generating an improved organizational performance [40]. Therefore, synergies between BPM, social media and even business intelligence (big data) would result in new offerings for advertising, cross-channel marketing capabilities, access to new customer data and, indeed, resource sharing as a contribution of an omnichannel business [1]. Finally, although the transition to an omnichannel strategy would be challenging (given the required investment in improved digital infrastructure, new organizational practices and alterations in operations management), the benefits of its implementation have been shown to potentially lead to strong competitive advantages while simultaneously anticipating customer needs [41], [42]. A trend that would be helpful in this transition is the figure of a “chief omnichannel officer”, a person who assists in a company’s endeavour towards integration of channels and interaction between channels and brands [43], [44].

In sum, we present a more general agenda that companies from any sector could follow for implementing social media to improve BPM, by reflecting on eight steps.

1. Get to know the current extent of social media implementation in each business process.

2. Assure that the social media application is in accordance with the organization’s objectives.

3. Identify the strongest and the weakest social media contributions to the business process.

4. Focus on those social media opportunities that are most important for the business process at the moment of observation (e.g., crowdsourcing, training, m-commerce, knowledge sharing, best practices, social CRM, or coordination), and this by relying on employee involvement and participation to produce useful social media content and relationships.

5. Find/approve the most suitable social media tool to assist in the enhancement of the business process (e.g., forums and wikis, social reviews, social networks and Intranet, or geolocation, entertainment and virtual games), for the organization to establish its trustworthiness among stakeholders.

6. Follow and analyze social media for BPM interactions and confirm the achievement of the social media functional implications relative to the process objectives (e.g., presence, relationships, reputation, sharing, conversations, identity or groups).

7. In case of necessary adaptations, repeat steps 4 to 6, in order for the company to position its competitive advantage.

8. Include the social media solutions in the marketing and management strategies of the company.

Finally, keeping in mind that we detected several BPM-related gaps in the observed case studies, the next step should be a qualitative analysis to detect the practical ways for extending BPM by social media with the goal of

refining companies’ business performance. Thus, one could identify the real obstacles that companies have experienced and explain the challenges that they face in the battle towards the ultimate omnichannel management transition projected in the literature. Finally, differentiating social media applications for BPM in large, medium-sized and smaller companies would also be enriching.

APPENDIX 1 SAMPLED ARTICLES

A. S. Abrahams, J. Jiao, G. A. Wang, and W. Fan, “Vehicle defect discovery from social media,” *Decis. Support Syst.*, vol. 54, no. 1, pp. 87–97, 2012.

C. Agostinho, F. Lampathaki, R. Jardim-Goncalves, and O. Lazaro, “Accelerating Web-entrepreneurship in local incubation environments,” in *Proc. Int. Conf. Adv. Inf. Syst. Eng.* Springer, 2015, pp. 183–194.

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APPENDIX 2 CASE STUDIES' IMPLICATIONS FROM SOCIAL MEDIA IMPLEMENTATION, PER BPM CAPABILITY AREA

See Table 4.

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our investigation in order to provide some precise steps for companies in the challenge to accomplish a synergy between social media and BPM. To provide more practical implications from this study, we likewise observed the sampled case studies and their actual experiences from the social media implementation in BPM. In this way, we tend to specify social media opportunities according to each BPM capability area and applicable actions for BPM enhancement.

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