Challenges of Social Business Process Management

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Abstract

Social BPM is the practice of actively involving all relevant stakeholders into a BPM endeavor through the use of social software and its underlying principles. This allows enhancing the correctness, completeness, acceptance, and usefulness of process models by leveraging the domain as well as method knowledge of an extensive community of actors. However, the large number and variety of contributors and contributions also gives rise to a number of challenges, which are examined in this paper.

1. Introduction

To remain profitable in the light of global competition, cost reduction, and other challenges, companies need to constantly revisit and improve their business practices [1, 2]. This can, to a large extent, be achieved through business process management (BPM), which aims to ensure high cost and resource efficiency, accuracy, and flexibility of business operations [3]. BPM typically consists of a series of activities for the ongoing improvement of business processes that are carried out within an iterative life cycle [2]. Traditionally, BPM efforts are performed by method experts and IT developers according to requirements specified by domain experts and end-users who eventually enact processes with the support of information technology [4]. This is a top-down approach where processes are not defined by the same individuals responsible for their execution, which works well for well-structured, highly repetitive processes subject to little change over time [5]. However, for unstructured, ad-hoc, evolutionary processes, traditional BPM often suffers from a considerable divergence between process models and execution reality and the failure to leverage ideas for improvement and innovation held by process end-users [6, 7].

To solve these problems, BPM must be re-envisioned as a task that relies on the active participation of different stakeholders. Besides the BPM experts within an organization, it is necessary to also involve internal process end-users, and possibly further individuals belonging to external entities, including customers and suppliers [8]. Social BPM aims to achieve this goal by establishing an “architecture of participation” for BPM [5]. From a managerial perspective, this requires the adoption of certain organizational principles often associated with the concept of an “Enterprise 2.0” [9]. Thereby, process end-users are promoted from just being consumers of information to the role of independent content producers. By working together in large numbers, the business community can leverage its “wisdom of the crowd” [10] to create better process solutions than a single expert can achieve alone. In consequence, it becomes possible to increase the performance of business processes and the correctness, completeness, and ultimately usefulness their respective definitions [8]. From a technological perspective, social BPM is also characterized by information technology that enables and supports the aforementioned principles. This can be achieved through the integration of social software into already-existing systems [11].

This paper examines challenges that must be overcome for such an approach to be successful, studies how this can be achieved, and outlines open problems that need to be addressed. To that extent, it is first necessary to understand the scope of BPM, its key components, and how they are influenced by a social approach. According to a study by Rosemann and vom Brocke on essential factors of BPM maturity, six core elements are responsible for the success of BPM and together provide a holistic view on the discipline: strategic alignment, governance, methods, information technology, people, and culture [12]. By integrating a large variety of different stakeholders, the effects of social BPM are most significant for the fifth core element, people. A possible challenge in this area lies in initiating and ensuring the ongoing participation of relevant actors. Solving this problem might not be straightforward and can affect other areas, thereby yielding new challenges. For instance, the individuals that can make the most valuable contributions are not necessarily those with the
most profound knowledge of BPM and thus need to be supported through appropriate methods and technology. To gain a holistic understanding of the potentially far-reaching consequences of social BPM, the investigation of challenges performed in this paper is framed under the aforementioned six core elements.

The remainder of this paper is organized as follows: In Section 2, the theoretical background is established. Section 3 outlines the drivers of social BPM, provides a definition, and describes its underlying principles. Section 4 examines the challenges that result from an application of social BPM; an outlook on possible further research is provided in Section 5. Finally, Section 6 presents a brief summary.

2. Background

Social software has been defined as “software that gets better the more people use it” [13]. From a technical perspective, it represents a class of Web-based applications that support the management and exchange of information, identity- and network management, as well as interaction and communication [9]. While such tools are often used with the intention of reaching a specific goal, this does not always have to be the case [14]. SCHMIDT and NURCAN determine the purpose of social software as supporting the generation of digital goods that combine the contributions of multiple individuals who may not know each other and who are not initially organized in a hierarchical structure [6]. Social software is thus commonly seen as part of the “Web 2.0” [13]. These ideas have first found widespread use in personal contexts, but are nowadays increasingly employed by companies as part of the so-called “Enterprise 2.0” paradigm [9]. Popular types of social software include Wikis, social tagging, blogs, microblogs, social networks and instant messaging [9], social recommendations, and reputation systems [6].

Business process management is an approach for maintaining business performance through the management of business processes [3]. The concept of a business process itself can be defined as “a set of activities that are performed in coordination in an organizational and technical environment” [2] which serves the realization of a business goal. BPM “includes concepts, methods and techniques to support their design, administration, configuration, enactment, and analysis […]” [2] and is enabled through software called business process management systems [2]. When performed successfully, BPM allows companies to “create high-performance processes, which operate with much lower costs, faster speeds, greater accuracy, reduced assets, and enhanced flexibility” [3]. Its purpose is therefore the “continuous improvement of corporate strategies” [15] through incremental or radical change of business processes [16]. Activities related to business process management are typically arranged as an iterative life cycle. Most BPM life cycles are very similar and implement a basic Plan-Do-Check-Act approach with steps such as design, engineering, enactment, monitoring, and re-engineering [8, 2].


As mentioned in the Introduction, traditional BPM suffers from several shortcomings that motivate the need for a social approach. Firstly, current BPM methodologies often follow a top-down decomposition approach from the strategy and business goals of an enterprise down to the level of individual business processes [4]. As a result, process improvement is in itself a long-running process that requires time-intensive negotiations and compromises, and restricts opportunities for implementing change to certain points in the BPM life cycle [7]. However, to ensure that business processes “reflect current needs and [are] optimized for efficiency and effectiveness” [17], changes to a process model should be possible at any time and quickly be reflected in practice. This is of special importance for loosely-structured processes, that evolve quickly and cannot be fully specified prior to execution. Secondly, many aspects of process management have been conceptualized as activities carried out by a small number of BPM experts. As knowledge about current practices and improvement potentials is distributed across a potentially large number of different stakeholders, this is not suitable for corporate reality [18]. If these issues are not addressed, the following problems arise [6, 5]:

Model-reality divide. This term describes a state of divergence between “planned” and “real” processes, i.e., between idealized models and the way in which processes are actually executed. This phenomenon occurs when end-users do not accept the created models because they do not reflect their day-to-day work.

Lost innovation. In organizations that employ a top-down BPM approach, employees may refrain from sharing ideas for process improvement and innovation, because the guidelines for change management are seen as too intransparent and restrictive, and success is considered unlikely. Therefore, this knowledge is lost entirely, or only applied for individual process instances.

These problems can potentially be solved by social BPM. Today, there is no common understanding of what the term exactly entails [19]. From a technological point of view, social BPM can be seen as providing new tools for BPM activities by adding social software features to
conventional BPM systems [11, 19]. However, while social software as enabling technology is of course an important aspect of social BPM, practitioners have recognized that exploiting the ideas of social software in the BPM context often requires organizational change [19]. Therefore, for this article social BPM is defined as the involvement of all relevant stakeholders in a BPM life cycle by applying social software and its underlying principles. These principles are (cf. [6, 20, 11]):

**Self-organization.** A system is self-organizing if it can ensure and refine its functionality through the cooperative behavior of its components without external influences. In this vein, social BPM is not regulated, and planning and control are performed by the business community in a democratic bottom-up fashion rather than top-down [20]. This is accomplished by mechanisms such as the logging and versioning of activities, social feedback by means of discussions and ratings, and the banning of malicious actors [14].

**Egalitarianism.** All users are equal and possess equal rights [11]. This entails the transparency and open modification of contributions, i.e., all work results cannot only be viewed, but also edited by all other actors within the limits of reason [14]. Consequently, no distinction is made between the roles of method and domain experts. No individuals may be excluded from participation, be it explicitly due to not being part of a specific organizational unit, or implicitly due to not having the necessary method knowledge and training [7]. Thus, the usability of BPM software for BPM novices also plays an important role. To ensure the desired level of quality, social BPM does not rely on access control, but on trust, reputation, and collaboration [21, 11].

**Collective intelligence.** Social BPM is based on the idea that the collective wisdom of a crowd can create better process solutions than individual experts alone [10, 6]. This requires users to establish and maintain relationships with one another rather than working in isolation [9]. Sporadic connections of low emotional or temporal intensity, also called *weak ties*, are of special importance in this context as they make the “long tail” of knowledge and innovation accessible that would not be captured without them [6]. The collective intelligence of a business community can only be leveraged if all relevant participants are actually included and their needs considered. Therefore, it is necessary to create an organizational environment that enables and fosters continuous contributions by many stakeholders [14].

**Social production.** By using social software, individuals create *content* such as text and diagrams, and *context* information in the form of annotations, reputation and social links, which are both considered valuable [6, 5]. These artifacts are developed by all participants interactively and all actors who consider themselves competent to contribute are enabled to do so [14]. New information is continuously assessed and fused with the existing body of knowledge to perform a selection of the best available ideas. Additionally, changes become effective and visible immediately, thereby enabling an agile cycle of process improvement without unnecessary delays between the detection of a desirable change and its transfer to practice [11, 5, 17].

By respecting these principles, BPM can be reenvisioned as a task that respects the viewpoints, experiences and ideas of the individuals for whom business processes represent their daily work [8]. This is one of the biggest opportunities of social BPM, as it allows organizations to address the two aforementioned shortcomings of traditional process management. Firstly, the active, egalitarian participation of end-users in the design and improvement of processes gives them the opportunity to ensure that they conform with “their” execution reality on the level of process models or instances. Furthermore, the continuous integration and immediate effectiveness of new contributions makes BPM more agile, and thus provides it with the ability to react to internal and external events more quickly [6, 7]. In consequence, this leads to a higher acceptance of process models and allows diminishing the model-reality divide quickly and continuously. Secondly, respecting the principles of social software reduces the barriers for participation and thus makes it easier to contribute innovative ideas. Specifically, no predefined change management guidelines have to be adhered to. Instead, the business community itself evaluates new ideas and determines if, when, and how they are incorporated into the global body of knowledge. Due to the increased transparency of such a democratic decision, it becomes more attractive for participants to contribute their knowledge, thereby avoiding lost innovation and ensuring that promising ideas are no longer merely applied on the level of individual process instances.

4. Challenges

Compared to conventional approaches to process modeling and management, social BPM engages a larger and more heterogeneous set of actors and aims to achieve a higher quantity, quality, variety, and timeliness of contributions. Clearly, this is not a trivial task, and thus its successful realization requires addressing a number of different challenges. Each of the following subsections will examine potential challenges that the socialization of BPM may impose upon a specific BPM core element. While some of these issues should be addressed before social BPM is even initiated, other
challenges become more important with an increasing number and variety of contributors and contributions.

The following list of challenges, which is summarized in Table 1, was derived from an extensive review of literature on social BPM, the core of which is formed by the proceedings of the “Workshop on Business Process Management and Social Software” held in conjunction with the International Conference on BPM since 2008, and papers that have resulted from the former. Further keyword-based searches in relevant academic databases were performed to obtain additional publications discussing social BPM. To establish a more complete picture, literature on fields related to social BPM has been considered as well, including works on general challenges and issues of BPM, Enterprise 2.0, collaborative BPM, and crowdsourcing. The challenges have been manually extracted and assigned to their respective core element during the review, with a focus on those issues with a high perceived importance and specificity for social BPM. For some core elements, no active discussion could be identified in the examined literature. In these cases, a general discussion of the issues that the application of social BPM may impose upon the respective factor has been performed.

This list is not necessarily complete. However, the scope of the literature review has allowed capturing several important current challenges. Due to the subjective nature of the selection process, the list of challenges may be subject to extension and modification. Furthermore, it is not exclusive to social BPM, but may apply to top-down collaborative BPM approaches and other aspects of the Enterprise 2.0 as well.

People (P): In the context of BPM, people are defined as “the individuals and groups who continually enhance and apply their process and process management skills and knowledge in order to improve business performance” [12]. When employing social BPM, this is a potentially very large set of actors from different organizations and with varying levels of BPM proficiency and domain knowledge.

P1: Ensuring participation. Social BPM can only be successful if all actors who can make meaningful contributions are motivated to invest their time and effort continuously and lastingly. Broadly speaking, the preconditions for socializing BPM are reaching a critical mass of users, and motivating ongoing participation [9]. The first is necessary due to the fact that simply providing the infrastructure and environment for social production does not necessarily lead to its adoption without meaningful initial content. Therefore, organizations must carefully select key users who can provide the first digital artifacts and promote social BPM to others. Until this ramp-up phase has been completed the usefulness of social BPM may not reach its highest possible level [5]. The second consists of ensuring that users do not only contribute once, but continuously provide their newest knowledge and innovative ideas to the business community. This is difficult to accomplish, as the use of social software can be very time consuming, yet should be voluntary rather than being prescribed top-down [5].

P2: Educating and training participants. Due to the scope of social BPM, potential contributors not only include actors with a sound knowledge of BPM methods and technology, but also inexperienced users with very limited skills. To close the model-reality divide and capture ideas for process innovation, it is necessary that the latter are enabled to make meaningful initial content. Therefore, organizations must carefully select key users who can provide the first digital artifacts and promote social BPM to others. Until this ramp-up phase has been completed the usefulness of social BPM may not reach its highest possible level [5]. The second consists of ensuring that users do not only contribute once, but continuously provide their newest knowledge and innovative ideas to the business community. This is difficult to accomplish, as the use of social software can be very time consuming, yet should be voluntary rather than being prescribed top-down [5].

P3: Integrating semantics. A significant challenge for social BPM lies in ensuring that all participants have a common understanding of the concepts that are relevant in the domain of process models, and that identical terminology is used to refer to these concepts. If this is not the case, process design becomes more prone to errors, might take more time, and ultimately results in process models of inferior quality [5, 7]. Three types of problems can otherwise occur [23]: semantic ambiguity, a language gap, and due to the dynamic nature of a vocabulary, new terms can arise over time, and the meaning of other concepts change.

Information Technology (IT): In the context of BPM, information technology refers to “the software, hardware, and information systems that enable and sup-

### Table 1. Overview of social BPM challenges.

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Social BPM, the availability of software that allows realizing the underlying principles of social software is of special importance.

**IT1: Planning the use of social software.** There are many types of social software, leading to the question which of them should be employed for which purpose. A large variety of different application scenarios have been discussed in social BPM literature, and can broadly be subdivided into two categories [6]. Firstly, social software can be used at the level of individual process instances to support the execution of certain activities. Secondly, it may also be applied at the model-level to transform entire process definitions and create further artifacts. Examples for both cases include the use of microblogging to broadcast status changes of an executed process instance [24], or employing a Wiki for process modeling and documentation [4], respectively. Typically, individual types of social software are not used in isolation, but mixed together.

**IT2: Providing software for novices.** The participation of inexperienced users in social BPM can be facilitated by designing software supporting BPM so that it can compensate for a lack in training and education. This can be accomplished in different ways. Firstly, BPM software has to provide overall usability, which benefits not only novices, but expert users as well. Note that social software is typically designed to be highly user-friendly, and thus already satisfies this requirement [9]. Secondly, BPM software can also be extended with features that facilitate or (partly) automate the execution of certain tasks. For instance, user interface agents can prevent common mistakes by guiding users through specific tasks. Features for quality assurance can help with the automatic detection, prevention, and recovery of syntactic errors during modeling [25], and implement pragmatic guidelines that help novices with creating understandable models [26]. Lastly, BPM software can also be enhanced through social features, such as social recommendations that provide users who are uncertain about how to modify a process model with appropriate suggestions based on the behavior of others [5].

**Methods (M):** In the context of BPM, methods are defined as “the set of tools and techniques that support and enable activities along the process lifecycle” [12]. This is important for social BPM, as it can potentially affect all phases of the life cycle, and thus requires compatible methods.

**M1: Enriching the BPM life cycle.** Independently of the IT that is employed, social BPM is realized by involving all relevant stakeholders in the BPM life cycle. For this to be successful, it must be understood how the underlying principles of social software affect the various life cycle activities [27]. For instance, socializing process design may on the one hand result in more complete and innovative models, but conversely require overcoming various challenges, such as ensuring that the modeled processes are compatible with organizational priorities, integrating diverse and possibly conflicting contributions, and being responsive to more frequent changes of process definitions.

**M2: Making the BPM life cycle more agile.** A BPM life cycle is called agile if it can react to internal and external events quickly [7]. Agility is desirable, as it enables companies to deal with constantly changing customer requirements and an evolving environment [28]. The traditional BPM life cycle is too rigid for that purpose as it does not allow for any deviations or reordering of its steps [7]. Social BPM can deliver more agility by involving all actors who can specify new needs for processes in their management, and using social software to constantly fuse and integrate these new requirements with existing process specifications. However, this requires an increased responsiveness so that changes are quickly reflected in the execution of the corresponding processes [7]. Achieving agility and responsiveness not only requires appropriate methods and technology, but must also be supported through the organizational BPM culture (see Challenge C).

**M3: Providing social modeling languages.** Two application scenarios of socialization within the BPM life cycle most strongly discussed in relevant literature are social business process engineering and social business process execution [8]. For both, specific considerations regarding the employed modeling languages must be made. Social engineering includes the design and improvement of processes and requires modeling languages that can also be used by users with little modeling experience. In contrast, social execution makes the enactment of processes more social by allowing people not previously specified at design-time to participate [29]. This requires modeling languages that allow for the representation of complex social interactions.

**Governance (G):** In the context of BPM, governance “establishes appropriate and transparent accountability in terms of roles and responsibilities” and “[designs] decision-making and reward processes to guide process-related actions” [12]. Its purpose across the BPM life cycle lies in ensuring that social BPM does not result in uncontrolled, chaotic activities. Furthermore, governance is of special importance in scenarios involving different parties where one does not have formal hierarchical authority over the others [30].

**G: Examining the relationship to BPM governance.** As social BPM is based on self-organization and egalitarianism, it imposes special constraints on BPM governance. Specifically, while a purely bottom-up approach
without formal governance might result in a certain degree of chaos and undesirable outcomes throughout the BPM life cycle [4], too much governance contradicts the principles of social software. In consequence, this may create an environment which negatively impacts end-user empowerment and the ability of social BPM to close the model-reality divide and avoid lost innovation. Therefore, it may be necessary to find a middle-ground, e.g., by performing social BPM in the context of a guiding BPM method that predefines, among other things, roles, responsibilities, and work steps. As a precondition for the definition of appropriate measures, an understanding of the interrelationships between social BPM and governance must be gained first.

**Culture (C):** In the context of BPM, culture is defined as “the collective values and beliefs that shape process-related attitudes and behavior” [12], and its absence can lead to cultural resistance to change, and thus ultimately the failure of any kind of BPM initiative [31]. This is of special importance for social BPM, as the variety of stakeholders from different organizations makes it difficult to foster such a shared understanding.

**C: Examining the relationship to BPM culture.** Generally speaking, BPM culture provides an environment that benefits the application of (social) BPM [12]. [32] has determined four cultural values that together create such an environment, namely customer orientation, excellence, responsibility, and teamwork. For the success of social BPM, it is necessary to understand how each value can benefit social BPM, and in turn, which values are essential for the former.

**Strategic Alignment (SA):** In the context of BPM, strategic alignment is defined as “the tight linkage of organizational priorities and enterprise processes enabling continual and effective action to improve business performance” [12]. It is important for social BPM, as the improvement and innovation processes it triggers should not contradict the overall business strategy.

**SA1: Examining the relationship to strategic alignment.** Aligning business processes and BPM with the strategy of an enterprise first requires a well-founded understanding of what the corporate strategy actually is and how it relates to individual processes. On this basis, **ROSEMAANN** and **VOM BROCKE** have determined different capability areas that are relevant for successful strategic alignment, whose relationship to social BPM should be examined in detail [12].

**SA2: Choosing stakeholders.** As part of the strategic alignment, organizations need to identify their stakeholders, investigate the extent to which their needs are considered in business processes, and decide upon their desired influence in process design [12]. In a social BPM scenario, this corresponds to a choice of potential partners for active participation. Two possibilities for the scope of inclusion can be distinguished, namely intra-organizational (limitation to actors within a specific entity) and inter-organizational (integration of external actors) collaboration [33], the latter of which enables the definition of business processes beyond the scope of a single enterprise. Potential benefits of the latter include more integrated and closer partnerships with customers and suppliers by blurring inter-organizational boundaries and closing the model-reality divide as well as avoiding lost innovation on a broader scale.

## 5. Future Research

After presenting the current challenges of social BPM in Section 4, this section will provide initial information on how they can be overcome. For this purpose, approaches that discuss these issues and allow addressing them are extracted from the literature outlined in the previous section. On this basis, current research gaps and open questions that should be addressed by future research on social BPM are identified.

**P1: Ensuring participation.** The active participation of process end-users is one of the central pillars of social BPM. Consequently, research in this area should focus on finding and evaluating measures that allow reinforcing the motivation of potential contributors. Incentives can be provided by making users interested in the work itself and its results (intrinsic motivation), or through monetary remuneration in dependence of some indicator of performance (extrinsic motivation). It has been noted that the latter can actually have a negative effect on participation, and thus the former should be preferred [9]. Measures for intrinsic motivation often discussed in social BPM literature are centered around reputation and gamification mechanisms such as “honor points” [34, 14]. However, a systematic overview is currently missing. In this context, it may be reasonable to also examine schemes for user recruitment and retention discussed for crowdsourcing systems [35], as there exists a considerable overlap with solutions proposed by social BPM literature.

**P2: Educating and training participants.** This challenge has been recognized as an important topic in various publications, but is mostly addressed by practitioners rather than academics [36, 37]. One possible method to overcome it is to apply measures of BPM training that provide all actors with the required skills. For instance, the organization of real-time collaborative process modeling workshops presents a good opportunity for training employees, as it enforces an exchange of information about the modeled domain and method expertise between the participants [18]. A concrete ex-

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ample that implements this approach are social BPM labs [38]. These workshops familiarize BPM stakeholders with the skills required for social BPM by letting them collaboratively model and document the processes of an enterprise over the span of a few days using social software, groupware, and conventional modeling tools.

To ensure that the learning objectives of the lab can be met, bottom-up self-organization is combined with top-down guidance provided by, e.g., moderators, quality managers, and method experts [38]. Clearly, this research area is very important for social BPM, and thus researchers should examine which skills are required for which types of participation, and how to teach these skills most appropriately, quickly, and efficiently.

P3: Integrating semantics. Social BPM literature has offered different proposals on how semantic integration can be achieved through a bottom-up approach. For instance, social tagging can be used to create a BPM folksonomy [23] (i.e., a flat, user-generated classification of terms [13]), which may then be enriched with additional meaning through the use of semantic Wikis [7]. A problem with these approaches is that they do not clarify how the use of these terminologies can be enforced throughout the whole BPM life cycle without imposing too much additional work on the user. Therefore, future research should aim to provide clear implementation guidelines and application scenarios.

M1: Enriching the BPM life cycle. Current approaches towards social BPM are typically based on trial and error, and may thus not yield the expected benefits [27]. Therefore, to increase the chance of success and allow organizations to define their overall social BPM strategy, it is necessary to understand the full extent of possible effects of socialization on the BPM life cycle. From a very high-level point of view, such an examination has been done in [6]. However, the authors only give very general ideas and do not aim towards a systematic examination. A more thorough examination has been performed in [27], wherein the authors observe the positive effects of eight Web 2.0 design patterns (which can be derived from the principles of social software) across a BPM life cycle consisting of seven distinct phases. Future research can build upon this work by increasing the level of detail of observation, relating it to different types of social software, and by validating it through case studies.

M2: Making the BPM life cycle more agile. In practice, the responsiveness required for agility can be provided throughout the BPM life cycle in three ways [28]: flexibility (partial specification of process model and completion at runtime according to instance requirements), adaption (definition and handling of expected and unexpected exceptions), and evolution (updating process models and enactment according to new requirements). The latter consists of at least two phases, namely updating the process model and then changing its technical implementation to enable IT-supported execution [20]. To ensure the ability of the BPM life cycle to quickly react to internal and external events, future work should examine the role of flexibility, adaption, and evolution for social BPM (i.e., which the main use-cases are), and how these mechanisms can be supported by social software and its underlying principles. Special attention should be directed towards process evolution, as the high rate of contributions enabled by social BPM makes it necessary to bridge the gap between the two aforementioned phases of updating model and implementation [20]. Research in this direction should build on the work on BPM agility already performed in [7].

M3: Providing social modeling languages. As previously shown, social BPM requires modeling notations that enable social process modeling together with novice users, as well as notations that allow modeling processes for social execution. Very often, modeling languages consist of a large repertoire of notational elements of which only a small portion is used in practice [39]. This wealth may be too overwhelming for inexperienced modelers, and thus it can be reasonable to provide them with modeling languages of smaller expressiveness, i.e., with fewer elements to choose from, such as Petri nets [8]. For instance, [14] suggests limiting the use of control flow, which could, e.g., be accomplished by removing the concept of “OR” routing elements [26]. For the definition of processes with com-
plex social interactions, Brambilla, Fraternali, and Vaca propose an extension of BPMN that introduces new notational elements for that purpose [29]. By employing it, the underlying principles of social software can also be respected on the level of individual business processes, e.g., by designing the collaborative execution of a task to be performed bottom-up while leveraging the collective intelligence of a crowd. Building upon this work, further research should address the specific requirements for social modeling languages, and examine if and how current notations can be adapted to meet these needs.

G. Examining the relationship to BPM governance. The relationship between social BPM and BPM governance has yet to be studied in detail. This is a significant problem, as governance is most important in scenarios where a conflict cannot be resolved through hierarchical authority [30]. Due to the adoption of egalitarianism and in the light of inter-organizational collaborations, in social BPM this is always the case. Consequently, there is a high need to address this issue in further research. Without relying on organizational hierarchy, decision-making, coordination, and control must be carried out at a lower hierarchical level, i.e., via lateral relations. This can either be formal or informal [30]. Formal lateral governance requires the definition of specific roles that assume some kind of responsibility for BPM. In the context of social BPM, it is important that these roles emerge naturally and in a self-organized fashion. An example that illustrates how this can work is Wikipedia [4]. In contrast, informal lateral governance consists of ad hoc interactions that are spontaneous, such as emails or phone calls. While this may be the most fitting type of governance in the context of social BPM, Markus and Jacobson argue that informal measures are more suited for conflicts arising during process execution, while governing design and re-engineering requires formal methods [30]. Consequently, future research should examine different mechanisms for both types of lateral governance, their appropriateness for social BPM, and how they can be enabled and supported through social software and groupware. In this context, it must also be questioned how bottom-up social BPM can really be, and whether it can be independent of organizational hierarchies. Future work on social BPM governance must also consider the topics digital identity, trust, and reputation [21], and additional mechanisms that may serve as valuable tool, such as the signing and logging of work activities, discussions for conflict resolution, and banning malicious actors [14]. Similarly to challenge P1, further insight into how these issues can be addressed may be gained from literature discussing crowdsourcing systems, which face similar concerns [35].

C. Examining the relationship to BPM culture. The relationship between social BPM and BPM culture has yet to be studied in detail. Possibilities for future research include an examination of the interdependencies between the principles of social BPM and the four cultural values, and how (if any) of the latter can and should be fostered to ensure the success of the former. While this question has yet to be studied in depth, a few interdependencies are fairly obvious. Customer orientation requires a “proactive and responsive attitude towards the needs of process output recipients” [32]. Social BPM enables customer orientation by design and provides the necessary technology for involving customers in the form of social software. Excellence describes an “orientation towards continuous [process] improvement and innovation” [32]. Social BPM profits from this value, as it based on the idea that all stakeholders who can provide ideas to that extent are enabled and motivated to do so continuously. Responsibility is a “commitment to process objectives and the accountability for process decisions” [32]. Social BPM demands this value from every participant, as it shifts BPM governance from organizational hierarchy to lateral relations. Lastly, teamwork requires a “positive attitude towards cross-functional collaboration” [32]. Clearly, teamwork is essential for social BPM, which may require the collaboration of individuals from different organizational units and external stakeholders on a potentially very large scale. These four values are complementary, yet compete with each other so that it may not be possible to optimize them all. Focusing on excellence and teamwork yields a so-called “collaborate culture” [32], which may be most fitting for social BPM.

SA1: Examining the relationship to strategic alignment. Analogously to BPM culture, the relationship between social BPM and strategic alignment has yet to be studied in detail. Therefore, this area first has to be examined at a higher level, before more specific challenges can be determined. For instance, strategic alignment requires the creation of a process improvement plan. This document must be derived from organizational strategy and describes how process improvement helps with achieving strategic goals [12]. Employing social BPM complicates the creation of such a plan, as it introduces a large degree of self-organization into process improvement, thereby making it more difficult to control and steer. Another exemplary aspect of strategic alignment is the capability to measure the outputs of processes, typically in terms of key performance indicators. This serves the purpose of evaluating whether business processes are in accordance with strategic objectives [12]. In this context, applying social software and its underlying principles empowers individuals and
fosters their creativity, thereby enabling unexpected reactions and contributions that can be opposed to managerial intentions [40]. For instance, while an innovative idea provided by an end-user might improve the cost-efficiency of a business process, it may simultaneously result in a process model that is not compliant with certain legal (or other) regulations anymore.

SA2: Choosing stakeholders. There is a broad consensus that a higher acceptance and success rate for BPM initiatives can be attained by involving an appropriate number of stakeholders with varying backgrounds [7, 33]. However, external stakeholders typically have their own interests and motivation for participating in inter-organizational social BPM, and thus selecting the right actors at the right time for the right type of contribution is difficult. Future research should therefore find rules for good inter-organizational involvement, i.e., how, when, and which external actors should be involved. This includes the question whether there is an optimal number of contributors to involve. While an ideal application of social BPM would be capable of integrating the opinions of all stakeholders, including all suppliers, customers, creditors, investors, etc., this may not be feasible, reasonable, or even desirable in practice. Otherwise, the impact of some challenges, such as decision-making and semantic integration, may become so large that they outweigh the benefits of social BPM.

Lastly, certain barriers may prevent the realization of inter-organizational collaboration, such as the fear of knowledge loss, a missing understanding about potential benefits, and the fear of such approaches being very costly due to the time and large number of transactions they require [33]. Therefore, it should be examined how these barriers can be overcome.

6. Conclusions

By employing a social approach to BPM, companies can establish an “architecture of participation” that enables and encourages all process stakeholders to participate in a given process management task. This allows them to contribute their own domain and method knowledge, thereby providing the necessary requirements for closing the model-reality divide and preventing lost innovation. However, social BPM presents its own challenges and problems that first need to be overcome. This paper has provided insights into the factors that influence the success of social BPM by analyzing its challenges concerning the six core elements of BPM. Furthermore, an outlook on how subsequent research could start to address these challenges has been given. By overcoming the issues that this paper has raised, future applications of social BPM can build on a solid foundation rather than being based on trial and error.

References


