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SOCIAL BUSINESS PROCESS MODELING: OPPORTUNITES AND CHALLENGES

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Synopsis:

Social BPM is a relatively novel approach to improving organizational processes through collaboration of various actors. At the heart of such approach is a combination of Business Process Management Systems and social networking technologies to create an IS-enabled architecture for participation and information exchange. This paper reviews the major opportunities and common challenges in modeling and implementing such systems.

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ABSTRACT

Modern organizations are constantly searching for new technologies that would help in decision making under uncertain environments. One of such technologies is Social Business Process Management system which is a combination of Business Process Management Systems and social networking technologies to create an IS-enabled architecture for participation and information exchange. Such systems are believed to be a better fit for the changing environments than the traditional business process management systems. An example of such system modeling is provided here. The benefits of the systems are discussed. The paper also describes the fundamental challenges that the developers face when integrating social software with business process management systems.

1. INTRODUCTION

Modern organizations have to constantly analyze and improve their practices in order to remain competitive in the increasingly competitive and globalized world. Business Process Management (BPM) is a holistic systematic approach to enhance organizational performance by managing core organizational elements such as people, technology, culture, design, and governance (Rosemann & vom Brocke, 2014). BPM is based on the principle of constant operational improvement of business processes to make them more accurate, faster, efficient, and flexible (Hammer, 2014). BPMs are typically supported with technology to create BPM systems (BPMS) – software suits that help organize and implement PBM solutions.

Traditional BPM systems offered by such vendors as FileNet, Intalio, and TIBCO were workflow-oriented: they orchestrated business process tasks sequentially using Business Process Modeling Notation (BPMN) – language created specifically for this purpose and enacted by the engine which is a part of the system. Such BPM systems turned out well-suited for supporting the needs of well defined processes and standardized type of work but fell short when it came to non-repetitive processes that were not well known in advance (Alexopolou et al., 2013; Pflanzl & Vossen, 2013). Such processes, however, are very common in unpredictable, changing environments in which organizations operate. Such environments depend less on coordination of activities and more on fast communication and tacit knowledge sharing. In other words, they require management of collaboration, flexibility, and knowledge-intensive processes for success (Franca et al., 2012; Mundbrod et al., 2012; Scheithauer & Hellman, 2013). Traditional BPM systems cannot manage these tasks effectively. Another issue with such systems is their top-down approach whereby business strategy is decomposed and assigned to individual processes (Pflanzl & Vossen, 2013).

Improvements in such system take long time especially if they need to implemented to a specific point of the BPM life cycle (Bruno et al., 2011; Witschel et al., 2010). Finally, traditional BPM systems do not offer much empowerment for end-users who are usually unable to directly apply their knowledge and expertise into the systems and process design (Silva & Roseman, 2012).

The aforementioned issues can lead to lost innovation, inability to externalize tacit employee knowledge, limitations in collaborative processes, and, ultimately, high degree of model-reality divide where planned processes diverge greatly with their actual execution (Alexopolou et al., 2013; Pflanzl & Vossen, 2013; Schimdt & Nurcan, 2010). Social BPM (SBPM), in theory, allow to resolve these issues by through its inclusive, participatory architecture by combining BPMS with Web 2.0 and related social software. However, such integration is not an easy, straightforward task, and several important issues should be addressed in order to make the process effective.

2. SBPM MODELING

SBPM can be defined as a system that integrates BPM and social software (wikis, blogs, forums, or social networks) to achieve collaborative solution to organizational issues encompassing all relevant stakeholders (Hammer, 2014). A simplified approach to modeling SBPM is presented below in Figure 1. The process includes three stages.

At the *process specification* stage, a model of organizational processes is developed with the relevant activities, and workflow descriptions. The model can be encoded in BPMN (as most of BPMS are) or in some other language. In any case, it is important that the language supports the social interaction specifications. Besides social interaction, the corresponding enactment application can implement user abilities to start, continue, and terminate processes, create and amend interaction artifacts (text, charts, video etc.), and impersonate user roles and actions according to specifications.

At the *social application design* stage, the Social BPMN model input is used to produce an application model to enact it. Model transformation rules are defined to determine how BPMN construct (conventional or social) is turned into a social application model construct. The output models can be encoded in IFML, WebML, UWE, or similar UI language. Typically, it would include social components and models such as support for wall posts, registration via social network profile etc.

Finally, at the *social process deployment* stage, the actual version of application enacting the social process is produced and implemented. Based on the model-to-code rules linking the model application constructs each model construct is mapped into the corresponding platform deployment artifact. Different suites can be used for this. For example, WebML and IFML projects are usually mapped to JEE platform. In SBPM, code generation normally calls to the application programming interface of the social networking platform (Facebook, LinkedIn etc.) to enable social connectivity.

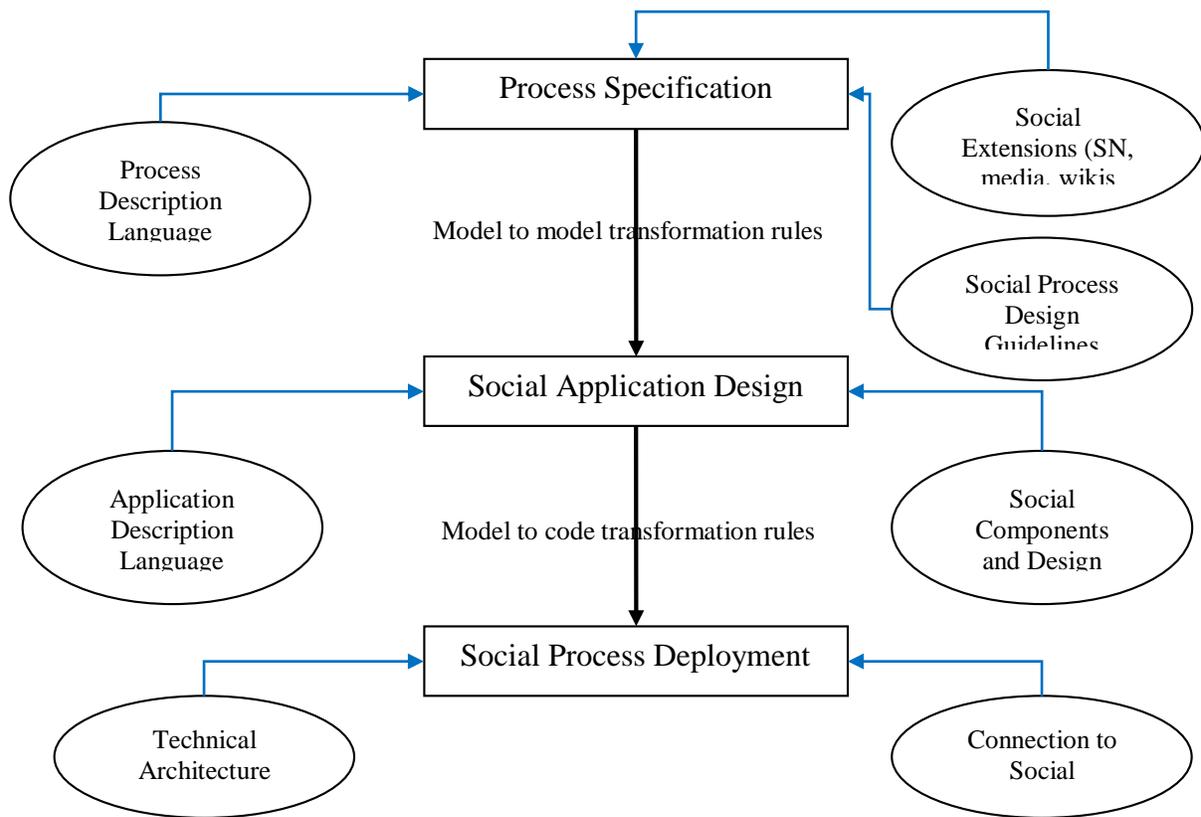


Figure 1. SBPM Development Model (adapted from Fraternali et al., 2010)

3. OPPORTUNITIES OFFERED BY SBPM

The most obvious advantage of such systems is their utilization of the collective wisdom, something that the traditional BPM systems developed and supported by a handful of experts cannot achieve. In other words, BPM can be carried out by the entire community of stakeholders. Because specific knowledge of processes and practices as well as improvement and innovation potentials lies within the domains in which stakeholders operate, such knowledge is disseminated and not centralized. Making it centralized and in an explicit (written or digital) form can offer much more agility and accuracy in the organizational decision making process (Bruno et al., 2011; Schmidt & Nurcan, 2010). In addition, the immediacy of knowledge contribution process offers more agility and quicker responsiveness to organization related events of internal and external character (Pflanzl & Vossen, 2013). BPMS automates these processes. More specifically, besides the collective wisdom described above, SBPM offers the following benefits (Alexopoulou et al., 2013; Dengler et al., 2012; Pflanzl & Vossen, 2013; Schmidt & Nurcan, 2010):

- *Effective communication and collaboration*: social software functionalities match well with the principles of knowledge sharing and collaboration. The participants are able to acquire the needed resources and information by connecting with the right people;
- *Externalization and share of tacit knowledge*: through discussions, posts, and submitted materials the participants put their tacit knowledge in accessible form;
- *Self-organization*: the system operates without external influences. Because planning and control are managed by the entire stakeholder community, it resembles a bottom-up approach to BPM;
- *Egalitarianism and transparency*: because all parties within a system possess equal rights, the process of collaboration is transparent and based on principles of trust and reputation;
- *Social production*: the system allows to create both content (in form of digital materials) and context (in form of social links and reputation rankings) for valuable organizational solutions. Content is important from the perspective of knowledge while context is important from the perspective of competence and expertise. As such, the best available ideas emerge.

The benefits mentioned above allow for fast, unhindered exchange of information for fast reliable solutions. In this regard, the three disadvantages of the traditional BPMS become resolved. To see how this applies in practice, consider the following simplified hypothetical example involving one business process – content publishing. The internal stakeholders involved are senior managers, country managers, and employees in the marketing departments. The marketing employees produce content which is assessed by the country managers and published in the corresponding market. If the country manager decides that the content is suitable for other locales, she creates a master proposal and sends it to the senior management. The senior manager makes a decision and either approves for global publication or retains the proposal for local use only. The management wants to enhance the process of quality content selection for global publications. It launches a SPBM that allows to achieve this. Figure 2 exemplifies some basic BPMN extensions of the system that enables publication of the content proposal to the organizational community.

In essence, we are looking at an internal organization-specific social network where employees are connected and interact. Note that the system enables country managers and marketing employees to provide feedback on the proposals. Whenever a content proposal of interest is posted, the system makes it visible within the network and sends requests for feedback. Timeline can be established to receive faster response. The senior manager is able to track the social activity around each proposal based on thread popularity and reputation of the respondents. She can examine the most popular proposals and assess suggested modifications. Based on this, some proposals can be advanced to master status and used globally. If a proposal is promoted to master status, a notification of its new state is sent out. The process is bottom-up because the flow of content suggestions is from employees to country managers to senior managers. Quality of proposals is likely to increase due to collective knowledge used in the process. A positive side effect of the

system for senior managers is visibility of employee proactiveness, quality of thoughts, and inter-country communication paths which can be used for promotion and rotation purposes.

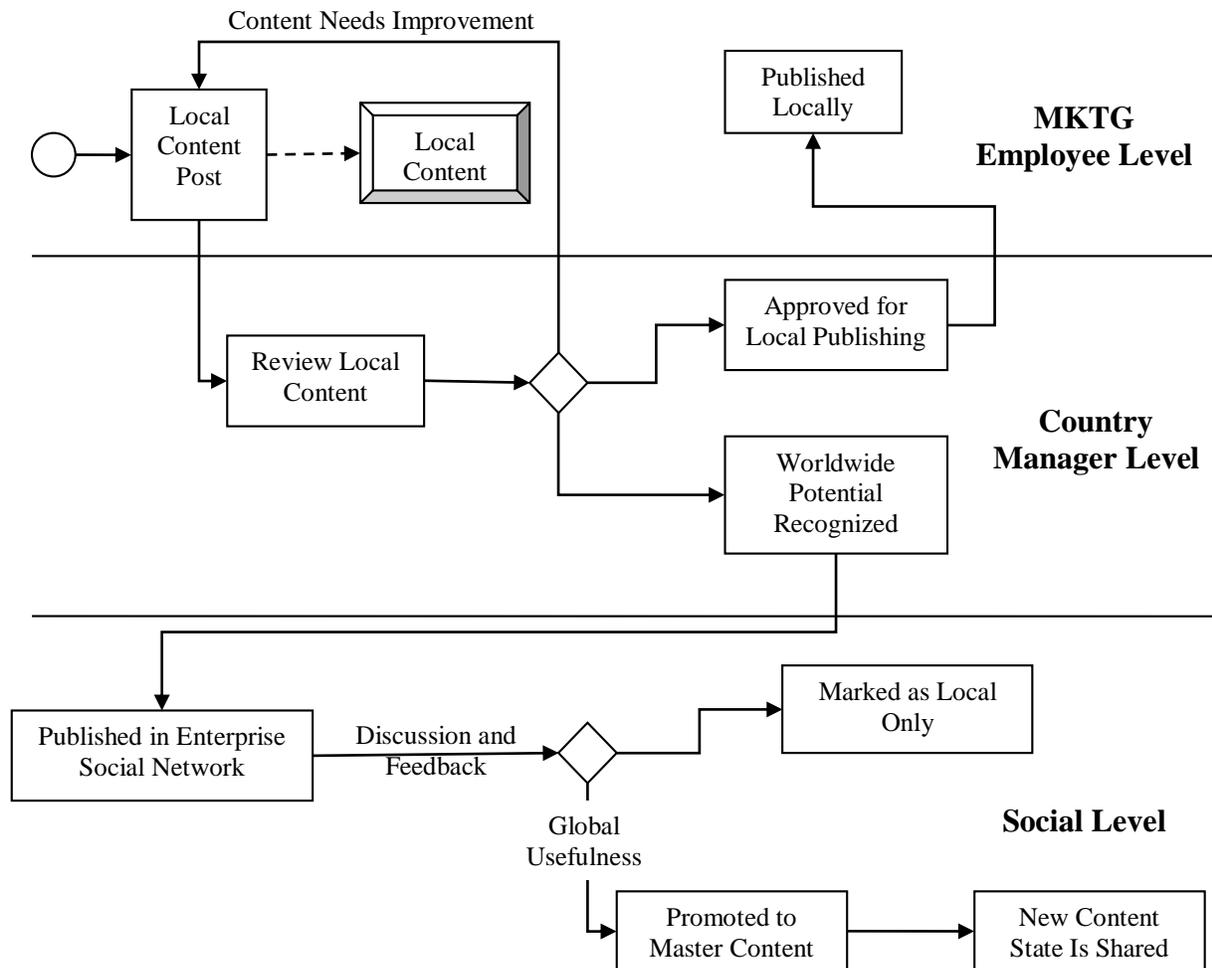


Figure 2. SBPM in Action: Global Content Management Process (adapted from Fraternali et al., 2010)

4. MODELING CHALLENGES

While integration of social software promises great advancements to BPMS, this is far from an easy task. The reason for this lies primarily in the fact that the two have a different orientation and different features which make effective integration hard (Alexopoulou et al., 2013). The emerging issues can be divided into four large categories: functional, behavioral, organizational, and informational.

Functional issues revolve around activities, tasks and hierarchical relationships. BPM activities are wide in scope and tailored to business processes. They involve narrow descriptions of inputs and outputs as well as participants responsible for their execution and their roles. Social software

activities are narrower in scope and involve such tasks as networking, profile management, communication and others. While these activities may help improve the execution of knowledge processes within BPMS, the exact way and conditions to implement this remain uncertain (Dais et al., 2012). Further, it remains uncertain how task-related posts created by social users can be used by others for automatic detection of resources necessary for specific task execution (Alexopoulou et al., 2013). The issue becomes even more complicated when tasks are combined by a group of users for specific purposes.

Behavioral issues revolve around the balance between user freedom and goal achievement. While social software involves communication between independent individuals in a free, unrestricted environment, typical BPMS manage interactions within strict process models, task orders, and the roles of participants. In other words, the former places value on creativity and freedom while the latter – on reaching specific goals in a specified manner. It then becomes uncertain what the ideal combination of freedom and restraint in SBPM should be so that the participants contributed but also contributed in a manner that is beneficial from a business process perspective. While the modeling features of SBPM can be changed with time, it is almost impossible to implement an ideally balanced system from the behavioral perspective in the first place.

Organizational issues revolve around the ties between the system's actors. In social networks, weak ties are established as a result of information exchange between individuals with the same rights and privileges (Bruno et al., 2011). In BPM environments, strong ties dominate whereby specific relationship and structure are established. Information access and participation are limited by the actor's predetermined roles and responsibilities. Social networks may enable better transformation of tacit knowledge into explicit form; however, making this knowledge useful is possible only if it is aligned with the organizational goals and issues. This can be established only through effective policies and structures and assigning roles, something that BPMS does well. The issue then is to determine the balance between freedoms that facilitate eager collaboration and sharing of tacit knowledge and assignment or roles and policies to make the acquired knowledge useful for organizational processes.

Finally, *informational issues* revolve around the created metadata. In social networks, tags, annotations, and evaluations associate various forms of data (charts, text, photos, diagrams) with metadata. The content is created by users and defines information context. In BPMS, however, metadata are depicted through particular business process objects (receipts, invoices etc.) directly related to organizational activities as inputs and outputs. Currently available SBPMs do not support modeling of user data onto organizational process data (Alexopoulou et al., 2013).

5. SUMMARY

Effective integration of BPMS and social software into SBPM represents a very promising area in IT solutions for business processes. Specifically, such systems promise to be more flexible and provide faster, more accurate responses to environmental changes. In theory, they are able to

resolve the major drawback of the traditional BPMS which are ineffective knowledge sharing, lost innovation, and model-reality divide. By involving all relevant actors in the decision making process, SBPM allows to capitalize on collective wisdom. However, effective integration of two platforms remains challenging mostly because they are based on different organizational and modeling principles. A fine balance between these principles has to be found across four key areas: function, behavior, organization, and information. Only in this case it will be possible to speak of SBPM as a well-defined IT approach to managing business processes.

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