A New Approach for SBPM based on Competencies Management

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Abstract: In such continuous changing business work environment, traditional BPM has two principal issues: firstly the model-reality-divide, the typical separation between process's design and execution. Secondly, the loss of innovation associated to the lack of internal performers' implication. To overcome these issues and to stress continuous adaptation and rapid innovation, BPM has to be agile. Otherwise, an agile enterprise is basically an enterprise of knowledge and skills. Human dimension the key element of an agile enterprise was and stills not taken into consideration within BPM. One of the recent solutions to support BPM agility is the integration of Social Software (SS) principles within BPM leading to the emergence of Social BPM (SBPM). Although the importance and the innovative ideas of the proposed approaches, they are not able to address all the identified issues of traditional BPM and to support all the phases of its lifecycle. Thus, in our approach, we integrate competency management to answer how stakeholders can find the right performers at the right time for the right type of contribution. It is mainly based on three phases: 1) identification of the required competencies to fulfil a specific need. Based on a semantic analysis, the system will be able to identify the required competencies and automatically extract the possible candidates. 2) Then the identified candidates will be evaluated against our defined criteria (related to time dimension, human dimension, cost dimension, etc.) to select the relevant ones. 3) Finally, after selecting the relevant performers, the process model will be adjusted based on the identified competencies. In this paper, we will typically present the first phase.

1 INTRODUCTION

With the advancement of technology over the past decade and the increase of competition in the industry, the need for effective management of organization's business processes has become more important than ever before (Ryan., 2009). Priority of every organization or company is to increase operational efficiency, reduce costs, improve quality of their products or services and better manage operational knowledge. Many organizations are using business process management (BPM) as a key component in automating their processes, increasing standardization and improving performance and customer satisfaction. BPM typically consists of series of activities for the ongoing improvement of business processes that are carried out within an iterative life cycle (Weske, 2012). In addition, business processes are classified into two main categories depending on their nature: the first concerns well structured, highly repetitive processes. These processes are subject to little change over time and they are often supported by traditional BPM. The second category concerns loosely structured processes known as knowledge-intensive processes which cannot be supported by traditional BPM (Gottanka, 2012). As it was affirmed by (Gilbert, 2010) in an example of a large bank, more of 60% of the processes are knowledge-intensive processes known also as ad-hoc processes, not covered by classical BPM methods. While just 2.5% of them are highly complex repetitive and allow a substantial automation. Such ad-hoc processes can be seen as to what (G., 2011) called the accelerated "pace of changes" as well as the "spreading of context information and the demand for quickly created process solutions" of BPM. Furthermore, research in the field of BPM pays more attention to reduce its incapacity in order to support ad-hoc processes. The evolution of BPM over the years suggests that there are still limitations within the different stages of BPM's lifecycle. One of the main limitations of traditional BPM is the separation between the process design and execution, which is often referred to as model-reality divide (Palmer, 2011). Thus, during process execution, ideas suggested by internal performers may remain unused during process design and cannot be shared within

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the organization (Schmidt, 2009). Owing to the frequently stated fast changing business world and unpredictability of processes, several works in academia and industry propose concepts to enable the continuous and rapid adaptation of processes to change. This capability known as agility considered as inescapable feature of today's forward-looking corporates. Thus, BPM must be agile in order to be able to react quickly and adequately to internal and external events. One of the recent solutions to support BPM agility is the integration of Social Software (SS) principles and techniques within BPM leading to the emergence of Social BPM (SBPM). In literature, combination of BPM and social software is discussed under the terms subject-oriented BPM (Felishman, 2010), social BPM (Schmidt, 2009) and BPM 2.0 (Kern, 2015). These terms refer to the improvement of business processes that seeks to break down silos by encouraging a more collaborative and transparent approach. In our paper, we use the term Social BPM to describe the integration of social software principles within BPM. In such context, BPM paradigm changes from closed to open and social. Rather than centrally defining processes by the managers and deploying them for execution by internal performers, business processes can be reached to a broader class of stakeholders. The integration of social software with BPM depends on the companies' needs. Some of them will only use social software functionalities for communication, others will use it to reduce their time to market, and yet others will use it for transformation. Actually, in such continuously changing and turbulent work environment, using social software principles to enhance process adaptation and transformation seems to be strongly important. While most previous research was focused on improving the collaboration between the model creators and internal performers during process design phase, minor loosely coupled social features within BPMS are suggested. This is far from enabling full exploitation of the SBPM benefits and the principles of social software which have been identified a long time ago but not properly implemented. As well as traditional BPM, SBPM allows efficiently managing and coordinating business processes independently from human resources. They are designed to provide a support to the stakeholders involved in these processes to answer the questions: what needs to be done? When should it be done? These stakeholders are assigned to perform tasks in specified sequences without taking into consideration their acquired competencies. Indeed, competencies management, which has been suggested as a way to more effectively utilize employee skills, stills not taken into consideration while managing business processes. Thus, in this paper we aim to answer how stakeholders can find the right performers at the right time for the right type of contribution. Our work is mainly based on three phases: 1) identifying the required competencies to fulfill a specific need. Based on a semantic analysis, the system will be able to identify the required competencies and automatically extract the possible performers. 2) Then the identified performers will be evaluated against our defined criteria (availability, cohesion, flexibility...) to select the relevant ones. 3) Finally, after selecting the relevant performers, the process model will be defined based on the identified skills. Therefore, processes could be designed, modified and adjusted dynamically during execution to include unplanned participants. In this paper, we present our SBPM approach to support collaboration during execution and designing processes on the fly. So the remainder of this paper is structured as follows. Section 2 gives a depth review of BPM and the main existing issues the roots of SBPM's emergence. Then Section 3 presents the suggested approach for effective and efficient SBPM improvement. And finally, section 4 concludes the paper.

2 BACKGROUND AND RELATED WORK

2.1 BPM

Business Process Management (BPM) is the discipline that combines knowledge from information technology and knowledge from management sciences and applies this to operational business processes (Weske, 2012). The goal of BPM is to achieve the organization's objectives by aligning them with business processes and to continuously improve these processes. It includes concepts, methods, and techniques to support the design, administration, configuration, enactment and analysis of business processes (Van der Aalst, 2007). BPM provides a platform to manage business processes through their lifecycle as it is depicted in Figure 1, which represents one of the simplest proposed models of BPM's lifecycle in the literature. The technical tool to manage business processes and support the entire lifecycle is Business Process Management System (BPMS). Owing to the complexity and turbulence of work environment, BPMS support the execution of stable and simple business processes. The need to support quick adjustment of business processes in order to meet changing environmental conditions was behind the development of several approaches and suggestions in the

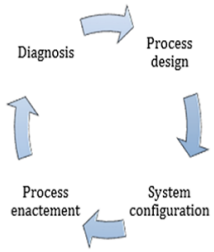

Figure 1: Van der Aalst's BPM lifecycle.

literature. One from the best and newest way of survival and success of organizations is agility. Over the last two decades, corporates have focused on improving the agility of their business processes. Several solutions emerged today, to support processes agility heavily influenced by context and application domain. One of the recent solutions is Social BPM (SBPM) mostly defined as the integration of Social Software principles and techniques within BPM. The motivation for including social software and BPM contains many facets: fostering collaboration, sharing knowledge, support process models adaptation and others. In fact, the aim of SBPM is to solve the principles issues of traditional BPM, which will be revealed in the next section.

2.2 BPM Principles Issues

The current state of traditional BPM has two principal issues identified by (Granitzer M. and Schmidt R., 2010):"model reality divide" and "lost innovations".

- *Model reality divide*: it represents the gap between what the process actually is and what happens in real life. In fact, during the design stage of BPM lifecycle, process models are created using modeling languages like BPMN, Petri-nets and others. Since these process models are often an abstraction from the real world, exceptions are often not covered by them as well as tasks that are difficult to be modeled.
- *Innovation's loss*: during business process lifecycle, the lack of model users' implication leads to lose some important ideas and information for innovation. BPM normally follows a top-down approach, where processes are designed by a group of individuals and passed on to internal performers to follow (Sinur, 2011). Working under a strict top down manner, employees are not motivated to share ideas for process improvement and innovation. Besides, their knowledge is either lost entirely, or applied on the local scale of individual process instances.

These properties of the standard BPM cycle make it unsuitable for so-called knowledge-intensive processes. These problems were behind the emergence of SBPM.

2.3 Social BPM

Research in SBPM formally started in 2008 (Schmidt, 2009) and it has evolved ever since. Several definitions have been proposed to understand what SBPM is and how it operates. Although there is not a single understanding of the concept of SBPM (Houy C. and Loos P., 2011), depending on the specified needs, SBPM could be adapted and its functionalities could be integrated to satisfy these needs. Within BPM, social software principles can be used to support the different lifecycle steps of a business process or to support an individual lifecycle phase. In the literature, various works were carried out to well integrate BPM and social software and to answer the research question of how to overcome model-reality divide and lost innovation principal issues of BPM. The first category in SBPM is to support collaborative modeling of business process. Technical and non-technical people have to participate in the discovery, modeling and design of business processes in order to ensure its acceptance. The first framework which is called BPM4PEOPLE was developed by (Fraternali, 2012). A social extension of BPMN known as BPMN 2.0 based on the use of design patterns is the principal feature of this framework. The extension made by (Fraternali, 2012) aims to support collaboration among stakeholders and to reduce model-reality-divide issue using means of communication that will enable employees to exchange, talk about, integrate and leverage existing knowledge from different sources. In (Hauder, 2014), they developed a solution based upon hybrid wiki that empowers users to collaboratively design and adapt information structures. Using hybrid wiki, no special syntax or modeling concepts are required to utilize the structured information elements. Another tool was presented by (Houy C. and Loos P., 2011) called CoMoMod. This tool supports several aspects of collaborative process modeling, such as simultaneous work of spatially distributed modelers on one process model diagram. Socially support business process during their execution phase is seldom taken into account. Few approaches were developed since the emergence of SBPM. One of these propositions is a framework called AGILIPO (AR., 2010). AGILIPO follows the principles of agile software development (Rosemann M., 2001) and of organizational design and engineering. An incomplete process definition is specified by a set of activities that describe part, but not all, of the process instances behav-

ior (AR., 2010). Another proposition to improve the SBPM functionalities is developed by (Fettke, 2013). This approach enables stakeholders to communicate with each other, to create groups for discussions or to ask question to the audience of a specific business process. The given answers are not restricted to one person rather they are visible to all members of the created group. (Karakostas B., 2013) developed another proposition that follows this idea. Their approach discusses how social tagging can be used in the context of social business process management to assist and support the execution of business processes in a social environment. Even there are several approaches proposed in the literature to integrate social software techniques within BPM, some problems remain unsolved. In many situations, a performer has to improvise or to find the suited competencies to get the work done. There are situations, where changes on an existing process model are necessary, when external context of the process is changing. Although the importance of competencies management none of the proposed SBPM approaches supports this concept. Offering BPM as social software is a promising approach that fosters communication and collection of knowledge by allowing multiple users to work on the design, operation and improvement of a business process simultaneously and without access control restrictions typical of traditional BPM (Karakostas B., 2013). Enterprises have found it difficult to utilize social software in such manner to 1) achieve its objectives, 2) add value and make it attractive to the members and 3) avoid unintended consequences. Although the importance of organizational integration none of the proposed SBPM approaches support this concept. Considering agility as the most important aspect of processes management (Wafa Triaa, 2017), SBPM needs to provide contextually useful information, customized services connecting specific users to each other in order to respond to subsequent process exceptions. Lack of customization, community creation and expert's retrieval process need to be studied and implemented to better support and exploit SBPM benefits. The accession of the required customized information in real time is a crucial concept for a robust execution of business processes. Within actual SBPM and even traditional BPM, information is not classified, structured and organized; each actor can express his or her opinion freely and give further suggestions that need analysis before select the most relevant ones. Instead of working alone, employees have to establish and maintain relationships with one another and to perform several interactions. We talk about weak ties which are of special importance in this context as they form the long tail of knowledge as it is affirmed by (Schmidt, 2009). So leveraging the collective intelligence of a business community can only be accomplished if all relevant participants are actually included and their needs considered. How stakeholders can find the right actors at the right time for the right type of contribution. To overcome this issue, we think to support customized information distribution during run time. Actually, people cannot locate knowledgeable colleagues because they are not provided with the proper means to do so. Based on competencies retrieval process, employees can identify whom to talk and capture their knowledge efficiently and easily. Our focus is to extend the reach of SBPM for good inter organizational involvement of employees during business process execution by answering the following: how, when, and which external and internal actors should be included to perform processes activities? We also want to deal with process actor autonomy as processes are often prescriptive as the reality is mostly empirical and non-determinist.

3 PROPOSED SBPM FRAMEWORK

3.1 Functional Requirements

Our goal aims to analyze and construct the social network between processes' actors, to provide answers to two important questions of "who owns what?" and "who needs what?" Owing to competencies retrieval process and data mining techniques, unplanned participations could be rapidly and dynamically taken into account. To move forward the following areas need to be investigated and addressed:

- Elimination of distinctions between designers and executors in the SBPM framework. Executors transmit the required information to complete the process model. This is in order to avoid the typical issue of model-reality divide as faced by current approaches in BPM as well as SBPM.
- Merging of the design and execution phase in the BPM model. So that there is no explicit or ordered distinction between the two phases. Such approach will support agility of business processes.
- Elimination of pre-defined tasks in the processes, in order to support knowledge intensive processes characterized by activities that cannot be planned easily. These processes may change on the fly and are often driven by the contextual scenario in which they are embedded in. The scenario dictates who should be involved and who the right

person to execute a particular task is. The set of users involved may be not formally defined and be discovered as the process scenario unfolds.

- Identifying and exploiting competencies to optimize the choice of individual (or groups) for emergent tasks. Relationships between the process participants are mapped and measured within social network analysis. One of its aims is supporting collaboration in workplaces and team building.

The above needs can be achieved through incorporating an approach where both design and execution are blended, competency management is integrated and social systems behavior is involved. Actors will be identified due to their competencies to support pull and push service. Therefore, we'll support the creation of an organizational environment that enables and fosters continuous customized contributions of all stakeholders. The scenario dictates who should be involved and who the right person to execute a particular task is. Therefore, the framework will support the design of a process during its execution (design by doing). Actually, one of the main basic processes of competency management (Giuseppe Berio, 2006), (LeBoterf, 2004) is: competency utilization. The aim of this process is to optimize the competency allocation based on predefined human resources' profiles. To better support the required-owned competency corresponding, performer's profile should be modeled. Without a clear sense of identity, there can be no foundation for trust or reputation. Thus, when using sufficient information about each performer's participation, each performer will have a specified profile defined as a set of his owned competencies facilitating the expert's retrieval process. To do so, we need to develop a competency referential to facilitate the identification of the required competencies and the allocation of the acquired competencies. Now, we will give some definition of the competency concept and its main characteristics in the next section.

3.2 Competency Definition and Characteristics

In industrial engineering competency is integrated as an essential point of view for enterprise modeling. In the literature, several definitions of competency are available. For example in the HR-XML Consortium Competencies Schema ((HR-XML,), a competency is defined as: A specific, identifiable, definable, and measurable knowledge, skill, ability and/or other deployment related characteristic (e.g. attitude, behavior, physical ability) which a human resource may possess and which is necessary for the performance of an activity within a specific business context. There are two main categories of competency derived from the available literature, (SJanas, 2008), (Giuseppe Berio, 2006):

- *Hard competency*: which refers to two types: a) Know: It concerns everything that can be learned from educational/formative systems. It represents the theoretical understanding of something such as a new or updated method or procedure, etcand b) Know-how. It is related to personal experiences and working conditions. It is learned by doing, by practice and by experience. It is the practical knowledge consisting in "how to get something done".
- *Soft competency*: which consists on relational know-whom, cognitive know-whom and behavior. It is referred to individual characters, talents, human traits, or qualities that drive someone to act or react in a certain way under certain circumstances.

During our competency retrieval process, the aim is firstly to identify what type of hard competency is needed to reach/satisfy the goal. Thus, in our work, we focus mainly on the first category of competency: Hard competency. Many studies evaluate different methods of competency modeling (Vernadat, 1999), (Zarifian, 2001), (SJanas, 2008) show that ontology have a greater expressiveness and meet better the requirements and the goals of the competency modeling. Ontology are collections of concepts, instances of concepts and relations among them that are expressed at the desired level of formality and that are deemed to be important in characterizing the knowledge domain under consideration at the desired level of detail (Prilla, 2008). In our work, we have chosen an ontological approach to define the functionalities covered by the entreprise. In our ontology as depicted in Figure 2, the central concept is "Competency" which is linked to the five identified concepts: Situation, Know-how, Know, ResourceType and Deliverable. We propose that a competency manifests as knowing how to act. It results in one or more knowledge in action (Know how) in a given situation by mobilizing knowledge (theories, procedures) and resources (technologies, materials) to provide a result. The objective and the requirements of the corresponding situation define the composition of the competencies and specify the corresponding criteria for their implementation. Possible relationships might exist between two or more hard competencies. In some cases, the execution of one competency requires the presence of other one(s). Indeed, if a stakeholder defines his goal in the form of a request, semantic matching, which will be used to enable the identifi-

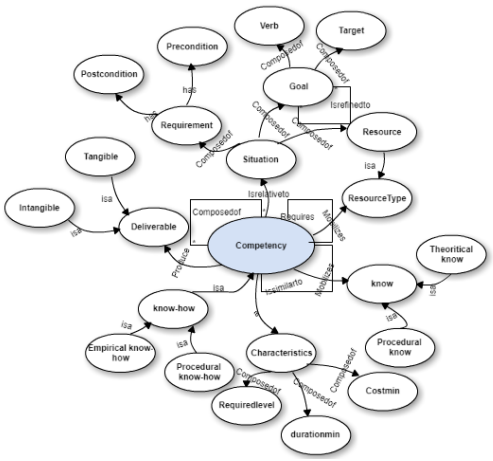

Figure 2: Competency ontology.

cation of the required competency, will not be sufficient if the relationships between them are not taken into consideration. In this case, competency definition and modeling is supported by the relationship: C_i Requires C_j where C_i and C_j are two hard competencies. Adding to that, symantic relations have been defined to avoid the no recovery situation. We considered two types of ontological relationships: conceptual relations and semantic relations. A conceptual relation is a relation between two concepts (ie "produces" is a conceptual relation between the competency concept and the deliverable concept), where a semantic relation is a relation between two names of the same concept. (ie synonymy relation between two names of the same competency: program in java "is a" develop in java). If we found different names for the same concept, so we have to define a father concept and the list of son concepts. We have defined the relationships between the concepts of ontology as illustrated in the Figure 3. The semantic relations exist between the father concept and its son concept which has the same meaning. Conceptual relations exist only between two father concepts. When expressing the need for the requestor through his request, the extracted concept(s) can be directly aligned with the competencies of our ontology or with other concept(s) that are conceptually related to competency or semantically related to another concept that is conceptually related to one or more competencies. Each concept of the stakeholder's request will be randomly integrated in the competency's ontology and using the Dice measure as defined below, the corresponding concept will

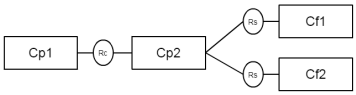

Figure 3: Identified relations.

be localized in the ontology.

$$Dice(C_r, C_o) = \frac{2 * Card(C_r \cap C_o)}{Card(C_r) + Card(C_o)} right\} \quad (1)$$

The similarity values are real numbers between 0 and 1 where:

- Case 0.0: zero recovery.
- Case 1.0: Total recovery.

To match the concept of the request with the corresponding one in the ontology, two situations are identified. On the first hand, the stakeholder could mention the name of the required competency in his request, in such case the ontology is used to extend the list of the required competencies with the similar ones. On the other hand, the stakeholder may don't know what the required competency is. In this case the ontology is used to (1) find the required competency and (2) extract the similar competencies if there exist. Thus, a set of required competencies will be identified which will be used to identify the relevant performers.

3.3 Performer's Profile

The profile of each performer is represented as a vector combing each acquired competency with the corresponding mastery level. Only father concepts are used to define each performer's profile. Where C_i is

$$\begin{pmatrix} (C_1, n_{m,1}) \\ (C_2, n_{m,2}) \\ (C_3, n_{m,3}) \\ (C_4, n_{m,4}) \end{pmatrix}$$

the index of competency i and n_{mi} is the level of mastery of competency i by the performer m. To evaluate the acquired competency, we defined five levels according to the French repository ROME (it provides a simple description of competencies to be easily identified): (0: Absence), (0.25: Sensitization), (0.5: Capacity to put into practice), (0.75: Mastery) and (1: Expertise). We have to note that the mastery level is dynamic. It depends on two factors: learning (it increases) and degradation (it decreases). According to the available literature, the degradation of competency (respectively learning) depends on the number of execution of the corresponding competency and the period of interruption (respectively depends on the number of execution and the learning ability of the corresponding performer). As part of our approach, the level of mastery is considered static but it is possible to take into account its dynamics in order to update the repository of competency. To provide an efficient access to relevant performer, we decide to present all

the identified profiles under the Galois approach. It provides a formal and efficient classification process to discover and represent hierarchies of concepts. It is the basis of what is also called "formal concept analysis", mainly used in data analysis and knowledge extraction. We chose to group all the profiles in the same repository. In such case, the framework will support presenting performers with their owned assessed competencies. The various defined performer's profile, presented in the form of competency's vector, will be aggregated. And due to an incremental structuring algorithm, 1) competencies trellis will be continuously updated, and 2) possible candidates (performers) to execute the set of required competencies will be extracted. The result of using the Galois lattice is a list of qualified competencies corresponding to the required competency as shown in the following picture: The reasons that prompt us towards the use

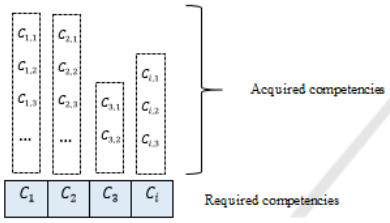

Figure 4: Result of using Galois Lattice.

of Galois Lattice are:

- It decomposes the context to characterize into concepts (a set of performers with the same mastered competencies). Indeed, every concept exists in the lattice is a response to a query (search of competencies). It gathers all actors mastering the same competencies in a concept of Galois. It is then easier to find for given competencies all corresponding performers.
- It is a dynamic method for concepts classification where new concepts can be added to the lattice or existing relationships between objects and their properties can be modified. The profile of each actor is dynamic on two factors learning and degradation. Indeed, the mastery level of the competence C_j by the actor a_i may increase or decrease or actor a_i can master a new competency.
- The relation in the Galois lattice classifies the identified concepts (set of actors with set of competences) in a decreasing or increasing way (generalization or specialization). Indeed, while browsing the lattice from bottom to top (inversely from top to bottom), the number of the shared competencies decreases and the number of actors increases (conversely the number of competencies increases and the number of actors decreases).

3.3.1 Basics of Galois Lattice

In this subsection, we briefly describe Galois lattices (or concept lattices) and we give a basic overview of the algebraic notions needed for our purposes. Galois lattices allow users to obtain every subset of instances distinguishable according to the chosen attributes. Further information, results and proofs may be found in (M. Montjardet, 1970), (Birkhoff., 1973). As input, we consider a non-binary relation between a set of individuals and a set of attributes, in our case a set of actors A and a set of keywords W of their acquired competencies. A context is a triplet (A, C, R), where R $\subseteq$ A x C. R (a, c) means that the actor "a" has the competency c with a mastery level equals to R. Using the relation R; we can derive each performer's profile (a set of keywords referring to all his/her acquired competencies). Similarly, the set of performers mastering the same competency can be identified. The basic idea of using Galois lattices is the partition of data in a set of basic classes which are clusters of instances sharing the same basic type (in our work competency). The identification of the actors is done using the following formula:

$$g(C) = \{a \in A \quad s.a \quad \forall c \in C, R(a,c) \geq \alpha\} \qquad (2)$$

Where α is the required mastery level to practice competency C. This level as defined in the previous section is between [0, 1]. Only actors, with acquired mastery level above α, are selected. Actors, with a mastery level below α, are considered as undercompetent and are not selected. To present the profile of each actor, the set of his acquired competencies with the corresponding mastery levels, we use the following expression:

$$f(A) = \{c \in C \quad s.a \quad \forall a \in A, \alpha = minR(a,c)\} \quad (3)$$

4 FURTHER SUGGESTIONS FOR OUR APPROACH

Selecting the best performer depends on various attributes from several dimensions: social, temporal, business etc To socialize our framework and to optimize its behavior with a high degree of positively affecting stakeholders' satisfaction, we add some functionality. When looking at the time dimension, regarding the fuzzy nature of the only considered attribute "availability" (of performer and resources), to trace it a need of a simple concept and easy to grasp is recommended. A simple technique already used with social applications (Facebook, twitter, Tumblr, Google Plus) is adapted. Presence is about being able

to share one's availability status (online or offline) so everyone is aware of it and can act accordingly. Traceability of the status makes day-to-day allocation easier. The social dimension typically focuses on the cohesion of the group and the closeness between the stakeholder and the performer(s). While selecting the relevant performer(s) two cases should be taken into consideration: 1) all owned competencies from one performer correspond to the required ones, in this case this candidate is adequate to satisfy the goal. Another case, one performer has less than the required competencies. Thus, team could be constructed based on "cohesion" criteria and in this case soft competency is taken into consideration. Overall, closeness between stakeholder and selected performer(s) offered the best combination of speed and efficiency; in general, the more closed the network, the more misbehavior will be detected and a significant benefit on problem solving will be offered. Regarding the cost dimension, the costs of executing a competency may be fixed or depend on the type of used resources. In our research, we are focused on cost of used resources to practice the required competencies. Costs related to human resources are out of the scope of our research. To reduce the level of uncertainty prevalent in this type of decision-making (selection of the relevant performer(s)) a multi-criteria approach will be adopted for the purpose of this step. Subsequent to the given brief description of the identified attributes, to rapidly and dynamically take into consideration unplanned participations the following requirements need to be investigated:

- R1: Identification and assessment of performer owned competencies
- R2: Presentation of each performer with his owned assessed competencies
- R3: Allowing goal and required competencies correspondence
- R4: Allowing required and owned competencies match
- R5: Selection of the relevant performer according to context dependent criteria to make a personalized service.

Each defined goal will provide the intention behind the needed competencies to be performed. Once the goal is defined and analyzed the corresponding required competencies will be identified. All these identified requirements are classified into three main steps as shown in Figure 6: Analysis, Identification and then Selection. As a last step of our framework, the process's model will be adjusted according to the identified competencies. As defined in our ontology,

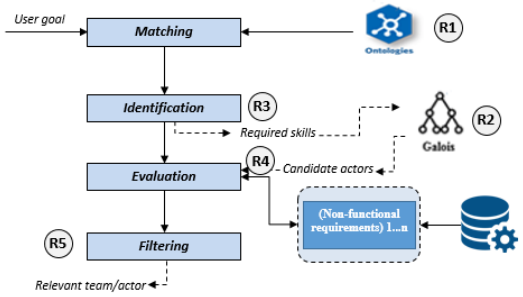

Figure 5: Proposed framework.

the concept competency exhibits an intentionality formulated by the goal (which characterizes the situation of using the competency). Using each competency goal and corresponding relations, processes could be designed, modified and adjusted dynamically during execution in order to include unplanned participations.

5 CONCLUSION

In this article we discussed the problem of traditional BPM approaches. These approaches suffered from several issues and a lot of works have been made in order to support BPM and improve their agility. Lastly, social software has been used to support the different lifecycle steps leading to the emergence of SBPM. Current SBPM approaches present their own challenges and problems that first need to be overcome. Our study shows that these approaches especially support the design phase of business processes while the execution phase is seldom taken into account. In that way, knowledge intensive processes still not supported. In our work, we aim to support running processes which can be adapted during execution to include unplanned participants and complete the work more effectively. We presented a framework for SBPM using competencies management and social network features to support emergent processes and find rapidly the relevant performers. Our framework is mainly based on competency (required and owned competency) and the context in which they can be practiced. Effective and automated competency management creates a real time and predictive inventory of the capability of any workforce. It is more than ever a primordial factor for many companies to better assess their human capital, to plan the execution of emerged tasks, to tackle highly innovative projects. Performer's selection requires a careful examination of various attributes. Two aspects evaluate the benefit: tangible and intangible. Tangible benefit includes engendered cost; we are focused on material resources

used to practice the required competencies. Intangible benefits may include social relationship with stakeholder, availability status of performers and required resources, the cohesion of the selected performers if there is not possible performer able to reach the goal. As a future work, required techniques to support Evaluation and Filtering steps of our framework will be defined and the proposed framework will be prototyped and evaluated.

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