

# Creativity Management – The New Challenge for BPM

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## Abstract

Besides classical criteria such as cost and overall organizational efficiency, an organization's ability to being creative and to innovate is of increasing importance in markets that are overwhelmed with commodity products and services. Business Process Management (BPM) as an approach to model, analyze, and improve business processes has been successfully applied not only to enhance performance and reduce cost but also to facilitate business imperatives such as risk management and knowledge management. Can BPM also facilitate the management of creativity? We can find many examples where enterprises unintentionally reduced or even killed creativity and innovation for the sake of control, performance, and cost reduction. Based on the experiences we have made within case studies with organizations from the creative industries (film industry, visual effects production, etc.,) we believe that BPM can be a facilitator providing the glue between creativity management and well-established business principles. In this article we introduce the notions of creativity-intensive processes and pockets of creativity as new BPM concepts. We further propose a set of exemplary strategies that enable process owners and process managers to achieve creativity without sacrificing creativity. Our aim is to set the baseline for further discussions on what we call creativity-oriented BPM.

## Introduction

Knowledge-intensive Processes are characterized by the involvement of what is commonly referred to as knowledge-workers (Davenport, 2005). Usually these processes are complex, unpredictable, and, as a consequence, difficult – if not impossible – to model in terms of their process flow. There is a vast body of knowledge on how knowledge-workers may be supported to carry out their tasks within such business processes. As Harmon states, knowledge workers “create special problems for anyone who tries to analyze the processes that employ them” (Harmon, 2007). He introduces a continuum where “ordinary workers” work on simple procedural processes, knowledge-workers on more complex processes, and so-called experts work on unique and extremely challenging processes. Harmon characterizes a knowledge worker as someone who “employs a few hundred rules to solve the problems he or she encounters” (Harmon, 2007). Thus, knowledge workers apply processes of convergent, rule-based thinking to solve their problems. Experts, on the other hand, usually work on problems that require very complex cognitive networks employing a vast number of rules and, in many cases, they step into new territory; i.e., the required rules, procedures, and business partners do not even exist.

We propose to add another role of stakeholders: creative people. Classifying creative people as a subtype of experts is not entirely true and sufficient. A person does not necessarily need to be an expert with many years of experience to be creative, yet may be working on a highly complex and creative task. Creative people usually perform processes that are very much characterized by *divergent thinking* (Runco, 2007). Of course, there is a continuum between convergent and divergent thinking, and most situations require both (Eysenck, 2003). That expertise actually does play a role in being creative is enforced by (Amabile, 1998) who identifies *motivation*, *expertise*, and *creative thinking* skills as the main factors that enable people to be creative. But even though expertise is an important aspect, it is surely not the sole or even the most important source of creativity. Creative individuals have to find solutions in complex processes requiring information, intensive communication, and creative freedom. Moreover, creativity in business processes also leads to particular (creative) risks, requires particular incentive systems, and demands good knowledge of the involved creative tasks and their consequences to allow the process owner to successfully allocate resources without compromising creativity where it is most needed.

Creative people and their processes play a prominent role in business processes as organizations seek to deploy the merits of business process management to more than just the set of transactional processes. Product development and marketing campaigns are just two examples of such creativity-intensive processes that increasingly find their way into the agenda of process managers. Besides this, there are entire and quickly growing industries designed around creative processes, with the entertainment industry being the most prominent example of a creative industry. Whether as a key process in the creative industries or as a complementary process in non-creative industries, creativity-intensive processes have one element in common: they consist of *pockets of creativity*. A pocket of creativity is a subset of a business process in which the input of creative personality is required to solve a creative task. Even more, these pockets of creativity are sections where the organization distinguishes itself from competitors, creates innovation, and gains competitive advantages.

It is important to note that creative processes often are not necessarily processes that occur only once, like the design phase of a new product. They actually might be executed quite frequently. Let's consider a visual effects company producing hundreds of frames and animation sequences per year. Every sequence may involve highly creative acts involving divergent thinking. Although a particular task (designing a skeleton, designing movements) may seem straightforward to the observer, it actually is a highly creative task and may massively impact the outcome of the overall business process. The notion of pockets of creativity helps to pinpoint those process parts that have high requirements regarding creativity management while the remaining parts of a process could be approached by "conventional" BPM wisdom.

Consequently, we like to go a step further and identify, classify, and improve those sections of business processes that are not only knowledge-intensive but also highly creative in nature. It may seem appropriate to view these sections as "black boxes" as the underlying processes are complex and hard to predict. However, we argue that this approach would not be sufficient and leaves too much to the individual conducting the creative task. Based on the awareness that pockets of creativity have a significant impact on business processes we believe that it is necessary to create more transparency. We do not aim to model and prescribe the process flow, as in many cases this might prevent people from being creative. However, we propose to identify how creative tasks are characterized, how creative tasks can be supported, and how they can best be integrated into their part of the overall business process. Moreover, we believe it is necessary to develop new metrics that allow the successful management of pockets of creativity. Managing creativity within business processes is a great challenge for process owners. One needs to ask questions such as "How much creativity should be allowed for what task?", "What are the consequences of allowing too much creativity?" or "How can the risk arising from creativity be mitigated?"

Consequently, we introduce the notion of creativity-intensive processes as a subtype of knowledge-intensive processes that are characterized by the involvement of creative people who produce creative products, often largely depending on divergent thinking. Creativity-intensive processes involve pockets of creativity that are crucial elements of business processes directly related to an organization's success and innovativeness and can lead to particular problems the process owner is facing.

## How Does Creativity Impact BPM?

When managing creativity-intensive processes, it is necessary to distinguish two main perspectives: task-level (or activity-level) analysis and process-level analysis. The task-level perspective pertains to the questions of how pockets of creativity are characterized and how they can be supported. In contrast, the process-level perspective takes a look at the overall business process; as mentioned earlier, the existence of creative tasks within a business process significantly affects the process as a whole.

In the following we introduce some typical scenarios in which creativity impacts business processes and their management. This is then followed by a section where we describe

exemplary actions and strategies that can be implemented to deal with challenges that arise from the existence of creative tasks within business processes.

- **Allocating resources (task-level, process level):** Let us consider a process in the film industry comprised of both creative and non-creative tasks; e.g. the development of an animation sequence. The particular creative tasks are resource and time-intensive. Thus, the process owner has to decide what resources (budget, equipment, creative individuals) have to be allocated to what task. She has to deal with a quite complex situation: First, it is necessary to identify where the actual creative tasks are within the process and how they integrate into the process. Second, the process owner needs a good understanding of how the task is characterized (who should be involved, what capabilities are required, what communication is required, is the task knowledge-intensive? etc.). Third, the process owner has to estimate the impact of the task on the overall process performance considering what can be referred to as the task's creative impact. Based on this, she can decide how much time, budget, and freedom are granted to alter process and product.
- **Enhancing creativity (task-level):** After having identified a particularly important task for the overall process (a task with particularly high *creative impact*), the process owner may want to enhance the quality of the creative product as the core output of that task. Having identified the characteristics of the task, strategies can be developed to support it in the best possible way. Typical questions: Should creative people meet face to face? Should we include a brainstorming session? Should we provide access to a knowledge base? All these questions depend on the characteristics of the creative tasks (who is involved, what type of creative task, etc.). Creativity could relate to the generation of a new idea, the evaluation of alternative proposals, or a selection process. A key difference with "conventional" knowledge-intensive tasks is that enhancing creativity means to foster, in particular, divergent thinking, which can lead to the generation of truly creative products but may also produce unwanted risks.
- **Managing creative risks (task-level, process-level):** Creative tasks are inherently connected to high variance of possible outcomes, which is due to the fact that being creative means to be original and come up with novel ideas and solutions. This may lead to unwanted consequences, such as losing control of process (losing control of time and budget), low product quality (which may lead to customer dissatisfaction), and lack of external compliance (which can lead to a loss of reputation or even to lawsuits). This is again of particular relevance in the film industry when the customer is often unable to specify the requirements and the visual effects studio, for example, has to provide a set of iterative solutions to get closer to the actual requirements. At the same time, the company has to keep control of time and budget and to comply with external requirements such as governmental policies and legal requirements (e. g., a scene must not be too sexually explicit for a particular target audience). The identification of creative tasks and their attributes within a process is the prerequisite to successfully implementing risk management strategies. Prominent examples of how to mitigate (creative) risks are appropriate review cycles. In this context a number of questions arise: Where within the process should be reviewed? Who should be involved within the review cycle? Where is formal approval needed? Should people meet physically to discuss the artefact? Can we distribute a digitized artefact for evaluation? Again, these decisions highly depend on the characteristics of the creative task as well as on the characteristics of the involved creative and non-creative persons. There is a particular challenge from the perspective of human performance analysis: What are the *creative capabilities* of particular persons? Where in the process can a person be involved to be able to actually evaluate the creative product? On a task level, the process owner can consider particular creativity techniques as well as knowledge management support and the allocation of other resources such as time and budget to avoid creative risks beforehand (risk avoidance).
- **Enhancing process performance (process-level):** As mentioned earlier, creativity-intensive processes are characterized by a high demand for flexibility. That is,

conventional process automation approaches such as workflow management or even more sophisticated approaches such as exception handling or evolutionary workflow solutions may not be appropriate. However, processes may be comprised of both well-structured parts and pockets of creativity that may not have any obvious structure at all. Identifying and better understanding these pockets of creativity therefore allows for designing an IT solution that can provide a maximum level of automation where it is suitable. However, we strictly recommend not trying to conventionally “model” and automate the creative parts of the processes in the conservative sense, as typical methods do not cater to the specific requirements of creativity. What is needed is rather a resource-based, data-driven perspective that does not impose too many constraints on the process. The aim has to be to “manage creativity without sacrificing creativity.” The examples show that there are numerous problems creativity-intensive processes create for process owners. We summarize different facets under the term *creativity-oriented BPM*. Figure 1 provides an overview about the key requirements of such processes.

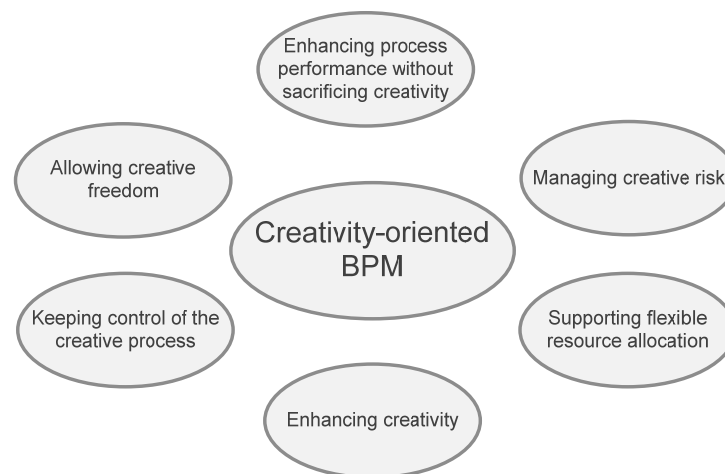


Figure 1. Facets of Creativity-oriented BPM

## Managing Creativity-intensive Processes

Facilitating transparency by identifying pockets of creativity is only a first step on the way to managing creativity-intensive processes. The process owner has to be equipped with appropriate actions and strategies. As indicated earlier, the different strategies/actions apply on two different levels: task-level and process level. However, in reality, this distinction may not always be that clear-cut. Undoubtedly, there is a close relationship between the two areas. In the following, we provide an overview of some examples. As mentioned earlier, creative thinking, expertise, and motivation are the main factors that influence people's creativity. Particularly the strategies and actions that we propose on task level aim to enhance creativity by targeting these properties of creative persons. At the same time, it is necessary to provide means to manage the overall process considering aspects such as process performance, cost, or risk.

### Strategies/actions on task level:

- **Creativity techniques:** Creativity techniques can be applied to enhance the creative potential of a task. What creativity techniques can be applied depends on the type and characteristics of a pocket of creativity. Examples for different types of pockets of creativity are *generation* (an artefact [e.g., a product] is designed), *evaluation* (creative evaluation of an artefact), and *selection* (selection of one or more artefacts out of a number of artefacts). Advanced BPM tools could potentially provide a set of pre-defined process patterns that capture alternative creativity techniques (e.g., the process of a brainstorming session).

- **Knowledge management:** Creative tasks are knowledge-intensive. There is a close relationship between a person's knowledge and a person's ability to be creative (Weisberg, 1999). For example, a creative director said to us, "Everything you draw on, everything I draw on in my creativity comes from somewhere. So it's already been created somewhere." Thus, for every pocket of creativity, you will want to consider what type of knowledge can be made available (e.g., technical guidelines on how to use a tool, previous experiences for a type of task, artefacts that have been created earlier and that can now be used as reference material). A particular challenge lies in fostering both convergent and divergent thinking by knowledge management in order to allow people to be truly creative.
- **Resource allocation:** Pockets of creativity are crucial to an organization's success. Therefore, the allocation of resources should be based on the analysis of the impact different pockets of creativity have on the overall process performance and on the quality of the creative output. Identifying task characteristics is the prerequisite for resource allocation including time and budget as well as the appropriate equipment and creative persons.
  - **Job Assignments (allocation of people):** As Amabile notes, "one of the most common ways managers kill creativity is by not trying to obtain the information necessary to make good connections between people and jobs" (Amabile, 1998). The right assignments of jobs to creative people are crucial to success. The identification and characterization of pockets of creativity and of their impact and of the demanded skills provides the process owner with a more complete picture of the overall process and allows better job assignments.
  - **Team Building (allocation of people):** Whereas homogeneous teams may produce quick results in very efficient ways, heterogeneous teams may take a longer time but come up with truly creative results (Amabile, 1998; Runco, 2007). Thus, based on the creative impact that the process owner expects from a particular task, she might favor for heterogeneous teams that may foster divergent thinking (compare also the strategy of *allowing latitude / freedom*) or homogenous teams where high process performance is required and not so much creativity. Another important aspect is that of group size as larger groups tend to inhibit creativity more than smaller groups do (Runco, 2007).
  - **Time Allocation:** Time is a central resource and deadlines need to be considered thoroughly: Whereas some tasks, such as the exploration and development of new concepts, require substantial time for incubation (Osborn, 2001), in some cases time pressure can even enhance creativity as it can increase a creative person's motivation (Amabile, 1998; Runco, 2007).
  - **Other Resources:** Assigning the required resources influences the creative output. If no sufficient resources (including budget) are allocated, people may spend their creativity on finding additional resources instead of on being creative (Amabile, 1998). At the same time, adding additional resources above a "threshold of sufficiency" (Amabile, 1998) does not enhance creativity but can increase process cost. Again, the identification and characterization of pockets of creativity throughout the process landscape sets the baseline for resource allocation. If creative tasks with high impact on the overall process success lack resources, this may fundamentally hamper an organization's creativity and success.
- **Allowing latitude / freedom:** Allowing freedom for a particular task increases variance and decreases predictability. This leads to greater creative potential but also to greater risk. The process owner has to carefully decide what freedom she allows for each and every task to achieve high creativity and innovation while still everybody works towards one aim. As Amabile puts it, autonomy "around process fosters creativity because giving

people freedom in how they approach their work heightens their intrinsic motivation and sense of ownership. Freedom about process also allows people to approach problems in ways that make the most of their expertise and their creative-thinking skills.” By defining pockets of creativity and setting up goals and constraints it can be ensured that creative persons are actually granted the freedom where it is needed while they do not have to “diverge at their own risk” (Amabile, 1998). Possible constraints are deadlines, clearly defined outputs (such as a certain number of alternative artefacts, etc.), review processes, and regular communication among creative persons and stakeholders. Obviously, there is a connection to the resource perspective as the allocation of resources such as time and budget plays a crucial role in allowing latitude and freedom.

- **Incentives / consequences:** Motivation is one of the main factors that influences a person’s creativity (Amabile, 1998; Runco, 2007). We expect that incentives for creative people with their own sense of creativity and aesthetics are different from established incentives. For example, there is a close relationship between creative freedom and motivation. As we have stated earlier, creative people’s motivation may be fostered by means such as allowing them freedom or even putting them under time pressure. It is important to note that monetary incentives in most cases are not the sole source of motivation to enhance people’s creative power. Another important source to enhance intrinsic motivation is information sharing and collaboration. Here, process management can serve as a facilitator as the identification of pockets of creativity and their required knowledge helps to understand where knowledge is created, where it is stored and located, and how it is transferred and applied.

### Strategies / actions on process level

- **Approval processes / reviewing processes:** Approval processes are a means to ensure that the creative product meets the requirements. It can be distinguished between quality assurance (technical aspects) and creative reviews (Does the product meet the creative expectations?) Approval processes are quite a complex strategy, as the process owner has to make different decisions, such as “When should the approval happen?” “Who should be invited/ involved?” “Do we have to meet physically?” This is strategy on the process level that requires identification of pockets of creativity and the particular (creative) risks due to a high variance of possible outcomes.
- **Flexible process automation:** Depending on how pockets of creativity integrate into the overall business process, flexible workflow support can be implemented. Normally, creative tasks are associated with a great number of potential exceptions that may occur. Modeling every possible exception may lead to an over-engineered and hard to manage model. Consequently, approaches such as exception handling (Casati et al., 1999) or even case handling (v.d.Aalst et al., 2005) should be considered. Moreover, recent Web 2.0 technologies such as widgets and blogs can be integrated to build more flexible infrastructures supporting the particular requirements of creative teams in rapidly changing business environments.
- **Group communication systems / continuous communication:** Communication is essential for creativity (Kristensson & Norlander, 2003). A thorough understanding of the pockets of creativity within a process and their interrelations in terms of information flow allows designing appropriate communication strategies (face-to-face meetings versus asynchronous media, etc.). Continuous communication ensures that the project team works towards one aim. Thus, this strategy aims to mitigate variance that may be caused by weak requirements specifications as well as creative freedom.

Figure 2 provides an overview of different strategies/actions on task and process level to manage creativity-intensive processes.

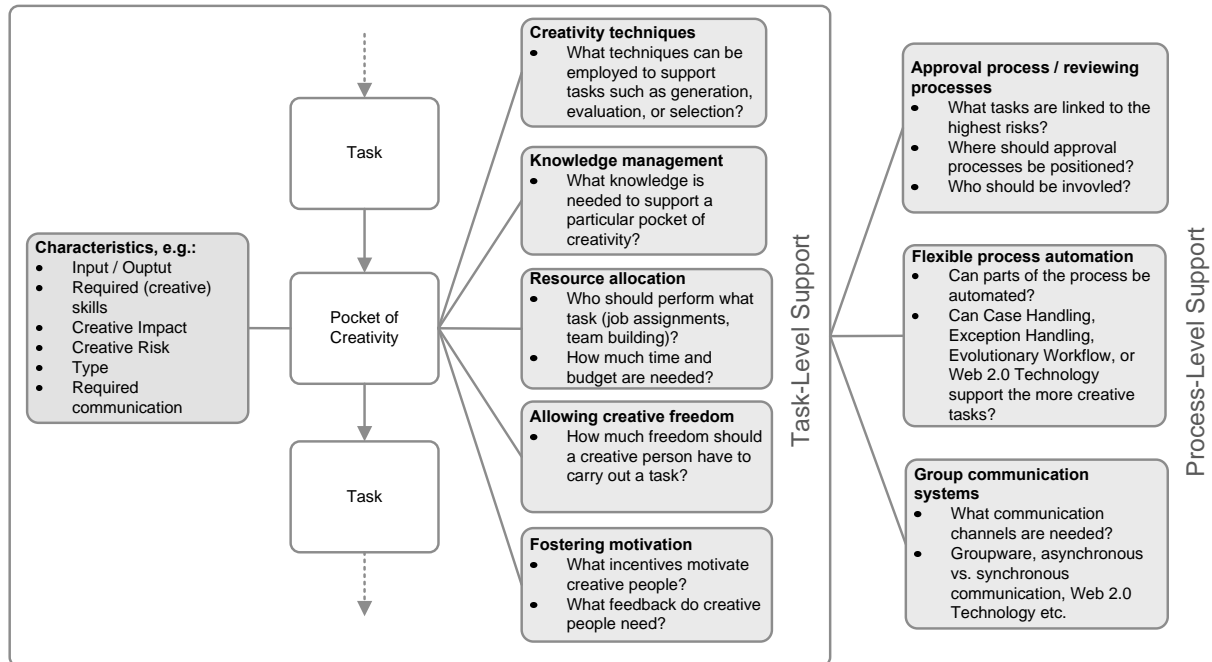


Figure 2. Managing CIP on Task-Level and on Process-Level

Managing creativity needs to be an integral part of the process of process management. We propose to integrate the following steps into this process:

- (1) **Identification of the main creative and non-creative tasks:** The first addition to classical BPM projects would be an early tagging of the creative tasks within the business processes. That is, within the process, pockets of creativity are identified. To enable the identification of suitable actions/strategies to deal with the phenomenon of creativity, the identified pockets of creativity are characterized (what skills are needed, who is involved, what communication is needed, what is the creative impact on the overall process).
- (2) **Task-level-analysis:** Task-level-analysis focuses on human performance analysis with a particular concentration on how creative performance can be supported. In contrast to conventional knowledge-intensive tasks, in pockets of creativity divergent thinking plays a prominent role. The process owner has to further decide what level of creativity she allows on the task level. This can be moderated by the freedom creative people have to alter product or process. As creative products are characterized by novelty and appropriateness, these decisions are crucial in regard to the quality of the process output.
- (3) **Process-level-analysis:** Actions/strategies on process-level include support of communication, process re-design and process improvements, approval and review processes, etc.
- (4) **Monitoring:** As with conventional process lifecycle models, creativity-intensive processes require monitoring and controlling procedures. Though it is unlikely that this will take the form of log-based process monitoring and advanced dashboards, it is required to capture the success of certain resource and data allocations to certain types of pockets of creativity in order to facilitate reuse in future similar scenarios.

## Summary

Creativity is not only the prerequisite for innovation and, thus, a core competitive factor in contemporary organizations. Creativity influences business processes and the way we conduct business process management. We have described typical scenarios in which creativity impacts business processes and their management. Moreover, we have presented exemplary strategies and actions that organizations apply to deal with the phenomenon of creativity to enhance

process performance and quality of creative products. We believe it is both relevant and timely to take a closer look at the role that creativity plays within business processes and how it can be managed. Existent modeling techniques, software tools and management practices may support some of the important aspects in this context. However, until now there is no comprehensive approach on how to manage creativity from a business process perspective. With this paper we would like to set the baseline for a discussion on the notion of the creativity-intensive process.

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