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Abstract

Although creativity is a core competitive factor and an important element of primary activities of modern organizations in many domains, there has not been an in-depth investigation on how creativity influences business processes and business process management. Within interviews with creative workers, managers and teaching professionals from the Screen Business it became evident that the existence of creativity in an organization influences business processes and has significant impact on how these should be designed and can be supported. Based on a definition of Business Process Management and on a literature review on Creativity and Creative Processes I introduce the notion of the Creativity Intensive Process. These processes are characterized by the existence of creative tasks that are carried out by creative persons in creative environments in order to create creative products. Based on the results of the initial activities of this research I introduce research questions along with the research design and a set of propositions related to the research questions. These propositions will serve as guidance for further in-depth case studies to develop a theoretical model of Creativity Intensive Processes. The paper concludes with an outlook to the future research agenda.

Keywords

Creativity Intensive Process, Creativity, Interpretive Case Study, Business Process Management

Introduction and Motivation

This paper discusses an exploratory study that investigates from a Business Process Management Perspective the nature of what is defined as a 'Creativity Intensive Process' (CIP)[1]. Business Process Management is a widely accepted approach to modeling, analyzing and improving business processes. Although creativity[2] is a core competitive factor and an important element of primary activities of modern organizations in various domains, there has not been an in-depth investigation on how creativity influences business processes and, thus, Business Process Management. This research has been motivated by interviews with creative workers, managers and teaching professionals from the Screen Business. The screen business comprises all creative and business related aspects and processes of film, television and new media content from concept to production and finally distribution (Seidel et al. 2006). Within these interviews, as well as a literature review, it became evident that creativity influences business processes and has significant impact on how these should be designed and can be supported. Particularly the highly agile nature of processes, the need for knowledge management and the important role of risk have been repeatedly expressed. Furthermore, CIPs involve creative persons that not only care about customer expectations but also their own sense of creativity and aesthetics. Particularly in CIPs, tacit knowledge is prevalent. Consequently, there is demand to make this tacit knowledge explicit to allow for a thorough analysis for possible improvements. With this work I aim to contribute to the IS body of knowledge by investigating the influence of creativity on business processes and business process management as an approach to model, analyse and improve business processes. It is

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[1] The term *Creativity Intensive Process* is defined in the next section.

[2] For a definition of *creativity* compare next section.

expected that the findings will have implications on the way processes that contain creative tasks can be modeled and supported.

Justification of this Study and Research Questions

Literature Review

This study is justified by the findings within the explorative contextualization stage (compare previous section), including a literature review. The main topics of the literature review have been the following:

First, literature from disciplines such as psychology, business administration and the humanities has been reviewed to create a thorough basic understanding of the notion of creativity (Guilford 1967; Hartley 2005; Pratt 2004). May defined creativity in 1959 as "the process of bringing something new into birth" (May 1959). Similar to this definition is that of DeGraff and Lawrence who in 2002 defined creativity as "a purposeful activity (or set of activities) that produces valuable products, services, processes, or ideas that are better or new" (DeGraff et al. 2002). Both definitions stress that the production of something "new" is at the core of creativity.

Second, Business Process Management literature has been reviewed with focus on whether aspects of creativity, creative products and creative processes have been addressed. Business Process Management has been defined as "a structured, coherent and consistent way of understanding, documenting, modelling, analysing, simulating, executing, measuring and continuously changing end-to-end business processes and all involved resources in light of their contribution to business improvement" (QUT 2006). BPM has been deployed in many organizations throughout different industries (Armistead et al. 1999; Scheer 1996). Particularly, literature on what is referred to as Knowledge Intensive Business Processes is of interest (Eppler et al. 1999; Pyke 2006). This is reasoned by the awareness that there is a close relationship between creativity and knowledge (Christiaans et al. 2005; Guilford 1967; Weisberg 1999). Guilford, for example, highlights the "role of information" and the "role of previous experience" (Guilford 1967). The concept of the knowledge intensive process is mainly concerned with the role of people, the knowledge workers, and their interaction within processes. One key point is that knowledge intensive processes demand for flexibility. From what has been learned within the initial stages of this research this is alike to what is needed in Creativity Intensive Processes. Based on a the assessment of literature on BPM and the initial findings within this research it is assumed that there are many similarities between what is referred to as a Knowledge Intensive Process and to what is defined as a Creativity Intensive Process within this work. However, aspects such as the particular characteristics of the creative product and creative person being involved in the latter ones (particular risks, support for creativity, high demand for flexibility) require a through investigation of the impact of creativity on business processes and business process management.

Third, literature on creativity support has been examined (Kristensson et al. 2003; Maiden et al. 2004; Wierzbicki et al. 2006). Kristensson and Norlander, for example, refer to group communication support systems, since efficient communication between parties involved in the creative processes are crucial to success (Kristensson et al. 2003). A good example for how creative tasks can be supported can be found in Wierzbicki and Nakamori (Wierzbicki et al. 2005; Wierzbicki et al. 2006). They introduce the concept of the Creative Space to integrate diverse approaches to knowledge creation such as the SECI Spiral Process. The Creative Space is a network-like meta model of knowledge creation processes based on a three-by-three matrix (individual, group, human heritage versus emotive, intuitive, explicit knowledge). They further present "a review of the needs and possibilities of constructing diverse types of dedicated Creative Environments (information technology systems for supporting creativity) for knowledge and, in particular, technology creation" (Wierzbicki et al. 2006). Their concept of the Creative Environment is defined as "an informational technology system (software and hardware artefacts) to support selected processes of knowledge and technology creation following the principles of systemic integration […]" (Wierzbicki et al. 2006). They further point out that processes of knowledge creation are "extremely diversified and rich" and that it is quite important to involve the future users in the process of requirements engineering for the creativity support system. The approach focuses on particular creative processes to create knowledge and technology and how support can be developed. They further identify several types of needed Creative Environments based on the intensity of research that has been done in the particular areas. These are web knowledge acquisition, debating, experiment design and support, virtual laboratories, road-mapping for scientific research, brainstorming, gaming for creativity support, electronic and distant teaching and learning, innovation in modern and small enterprises.

Furthermore, based on the awareness that Creativity Intensive Processes have a high demand for flexibility, literature on flexible process support has been reviewed (Seidel et al. 2007). Tagg identifies a fundamental spectrum of business processes with fully structured processes at the one extreme and processes with no structure at all at the other (Tagg 2003). Fully structured processes can be supported by production workflow systems (Oberweis 2006).However, these systems are far to

rigid to support processes in creative environments. More flexible approaches include workflow evolution (Casati et al. 1996), exception handling (Casati et al. 1999), a declarative approach introduced by van der Aalst and Pesic (v.d.Aalst et al. 2006) as well as case handling (v.d.Aalst et al. 2005).

Summarising, the literature review led to the conclusion that aspects of how the existence of a creative process within an overall business process influences and affects that business process and how that overall business process can be supported have not been sufficiently addressed. None of the existing approaches particularly targets the challenge of how business processes in creative environments can be modeled, designed and supported. A reason may be seen in the fact that the influence of creativity on business processes has not been investigated in depth. Consequently, this work makes a contribution to the Information Systems body of knowledge by investigating the phenomenon of creativity from a business process management perspective. The goal is to develop a theoretical model of what is referred to as Creativity Intensive Processes. This model will explain how Creativity Intensive Processes are characterized, how creative tasks can be identified and distinguished from non-creative tasks, and how these processes can be supported.

Foundation and Research Questions: The Creativity Intensive Process

To further narrow down the focus of this research and define its subject, the phenomenon of creativity is set into relationship with what is known as a business process in the Information Systems Discipline. This leads to the notion of the Creativity Intensive Process (CIP). A business process has been defined as "a completely closed, timely and logical sequence of activities which are required to work on a process-oriented business object" (Becker et al. 2003). The definition of the CIP is based on the framework introduced by Rhodes who tried to unify the many different definitions of creativity. The framework is based on the assessment of 56 definitions and clusters these around four aspects: *the creative product*, the *creative process*, the *creative person* and the *creative environment* (Brown 1989). The *creative product* corresponds to the business object in a business process that is characterized by novelty. *Creative persons* are actors within a business process. The activities within a business process are *creative processes*. Based on the definition of business processes as a logical sequence of activities, creative processes as parts of business processes are referred to as *creative tasks*. The *creative environment* is constituted by the business environment including resources, application systems, external systems, risks etc. A CIP is either a single creative activity that cannot be further broken down or a business process that contains at least one creative activity. Based on the results of the initial activities, including the literature review, the following research questions are formulated:

(R1) What characterizes a Creativity Intensive Process?[3]

(R2) How does the existence of a creative task impact a business process regarding its structure as well as metrics such as time, budget, risk?

(R3) How does the existence of Creativity Intensive Processes impact Business Process Management?

(R4) How can a Creativity Intensive Process be supported? This includes the question of how can the creative person carrying out the task be supported.

Research Method and Research Design

This research is interpretive in nature. The underlying assumption is that any access to reality is a social construction (Klein et al. 1999; Walsham 1995). This Research is based on interpretive case studies (Klein et al. 1999). Case studies have been chosen as a research method since this research covers a new topic area and an intimate connection with empirical data is sought (Eisenhardt 1989; Yin 2003). Besides, exploratory case studies have been used to refine the research problem and have thus further contributed to the contextualization of this research. Case study partners have to employ Creativity Intensive Processes as defined above and their core processes or primary activities have to target the creation of Creative Products as defined above. Thus, organizations are chosen, where "the process of interest is 'transparently observable'" (Eisenhardt 1989). The aim is to fill the described theoretical gap through theoretical sampling.

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[3] This research question acknowledges that the initial definition of a CIP might change in the course of this exploratory study.
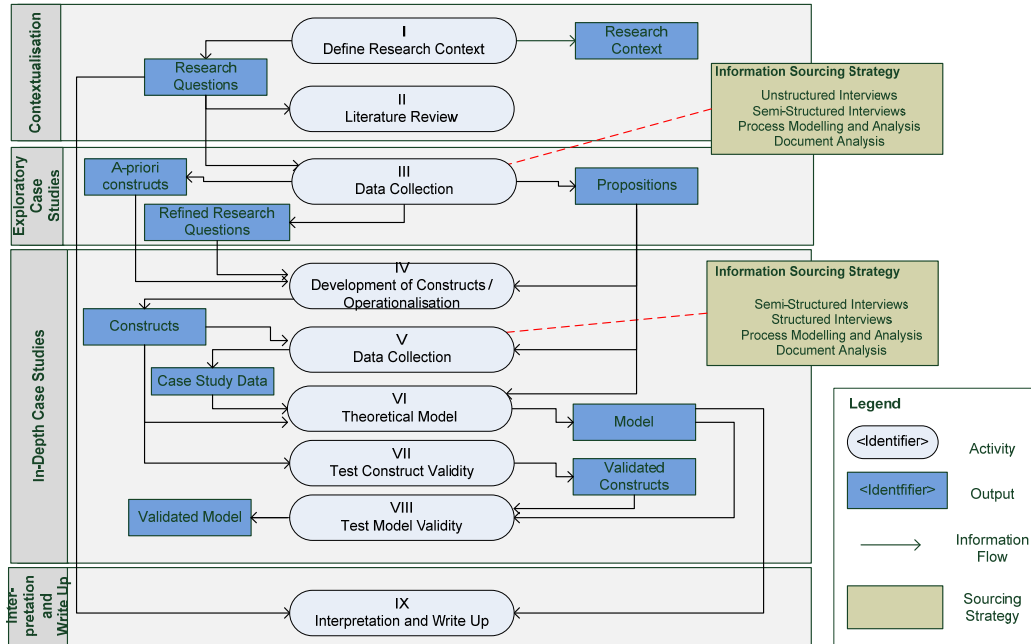
Figure 1: High-level Research Design

The research design is summarized in Figure 1. Within the contextualization stage (I-II) including a literature review the above described problem situation became apparent and tentative research questions were defined. Within exploratory case studies (III) with two case study organizations from the Screen Business, research questions have been refined and initial propositions have been developed along with a-priori constructs. Within the exploratory case studies unstructured and semi-structured interviews, process modeling and analysis and document analysis have been used as means of data collection. The initial propositions are used as guidance for further in-depth case studies. Within these case studies, constructs are developed (IV). Then evidence for the propositions is collected (V) and a theoretical model (VI) is developed. The in-depth case-studies are based on semi-structured and structured interviews, process modeling and analysis and document analysis. It is thought that this leads to triangulation that provides a strong substantiation of the evolving theory. After the theoretical model has been constructed, validity of constructs (VII) and the model (VIII) are tested. The final phase of this research consists of interpretation and writing up (XI). Due to the fact that this research is interpretive in nature and based on interpretive case studies, it is continuously evaluated based on the criteria proposed by Klein and Myers (Klein et al. 1999). The Fundamental Principle of the Hermeneutic Circle is the basic principle: The study iterates between the analysis and understanding of parts of CIPs and the process as a whole.

Current Status and Propositions

Phases I-III have been completed and a set of propositions has been defined based on exploratory case studies with two case study organizations. The information sourcing tactic involved unstructured and semi-structured interviews with creative workers, managers, and teaching professionals as well as a literature review. Within the interviews process models of CIPs have been constructed. These models have been used to identify creative persons, creative products, involved IT systems and risks. It has to be considered that these findings are still speculative which is due to the interpretive nature of this research and the fact that they are based on case studies with only two organizations. The following propositions have been formulated:

Propositions primarily related to (R1):

    (P1)   The existence of a creative product, a creative person and a creative environment are the main characteristics of creative tasks / processes.

(P2) Creative tasks within CIPs are linked with *Creative Risks[4]* which, if they are not mitigated, lead to customer dissatisfaction and additional revisions of the creative product which in turn leads to higher cost and lower performance.

(P3) Creativity Intensive Processes cover multiple levels of structure ranging from full structure at the one extreme to no obvious structure at all at the other extreme and therefore have a high demand for flexibility and adaptability.

Propositions primarily related to (R2):

(P4) The existence of creative tasks within a process lead to difficulties in the estimation of metrics such as time and budget as well as risk. The identification of relevant aspects such as involved creative and non-creative persons, required knowledge and potential risks of the according creative task can facilitate this estimation.

(P5) External and internal approval steps involving customers as well as creative and technical persons are appropriate means to cater for creative risks within CIPs.

(P6) Detailed requirements specifications for a creative product lead to lower creativity and lower risk. In contrary, vague requirements specifications for a creative product lead to higher creativity and higher risk.

Propositions primarily related to (R3):

(P7) The identification and explication of creative tasks including the involved creative persons, required knowledge and the creative products enables process owners to better plan for resources, budget and time and (creative) risk controls.

Propositions primarily related to (R4):

(P8) Creativity Intensive Processes can be facilitated by flexible process support covering multiple levels of structure which leads to reduced process costs and time consumption.

(P9) Creative tasks within Creativity Intensive processes can be supported by knowledge-related systems. This leads to higher quality of the creative product and lower learning-times of creative persons.

Summary and Outlook

Creativity Intensive Processes as a subset of business processes largely differ from conventional business processes. Among other aspects, they are characterized by the existence of creative persons, creative tasks and creative risks. This leads to special demands such as flexibility and adaptability as well as mechanisms for mitigation of creative risks. Consequently, this research has been investigating the phenomenon of creativity from a business process management perspective with the aim to develop a theoretical model of the Creativity Intensive Process. Its contribution to the IS body of knowledge is both of theoretical and practical relevance: A theoretical model of Creativity Intensive Processes is precondition to construct IT infrastructures that are capable of supporting these processes. As the propositions show, re-designing and supporting these processes may lead to higher product quality, lower cost and time consumption. The propositions presented here are based on findings within exploratory case studies. The next step of this research will be in-depth case studies to refine the initial propositions and to develop a theoretical model of Creativity Intensive Processes.

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[4] Creative risks are defined as follows: *Creative Risks refer to the quality of the creative product. A creative error occurs if the creative product does not meet the customer expectations.*

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