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Culture in Business Process Management: A Literature Review

Abstract

Purpose – Business Process Management (BPM) is a management approach that developed with a strong focus on the adoption of Information Technology (IT). However, there is a growing awareness that BPM requires a holistic organizational perspective especially since culture is often considered a key element in BPM practice. Therefore, the purpose of this review is to provide an overview of existing research on culture in BPM.

Design/methodology/approach – This literature review builds on major sources of the BPM community including the BPM Journal, the BPM Conference and central journal/conference databases. Forward and backward searches additionally deepen the analysis. Based on the results, a model of culture's role in BPM is developed.

Findings – The results of the literature review provide evidence that culture is still a widely under-researched topic in BPM. Furthermore, a framework on culture's role in BPM is developed and areas for future research are revealed.

Research limitations/implications – The analysis focuses on the concepts of BPM and culture. Thus, results do not include findings regarding related concepts such as Business Process Reengineering or Change Management.

Practical implications – The framework provides an orientation for managerial practice. It helps identify dimensions of possible conflicts based on cultural aspects. It thus aims at raising awareness regarding potentially neglected cultural factors.

Originality/value – Although culture has been recognized in both theory and practice as an important aspect of BPM, researchers have not systematically engaged with the specifics of the culture phenomenon in BPM. This literature review provides a frame of reference that serves as a basis for future research regarding culture's role in BPM.

Keywords – Business Process Management, Culture

Paper type – Literature review

1 Introduction

Business Process Management (BPM) is comprised of several core areas. The comprehension of the concept in both science and practice ranges from purely IT-driven to a holistic understanding of BPM (Rosemann and de Bruin, 2005b; Harmon, 2010). Technical approaches to BPM focus on the support of business processes and their design through information systems (van der Aalst *et al.*, 2003; Reijers, 2003). Holistic approaches (Pritchard and Armistead, 1999; Zairi, 1997), in contrast, include further organizational aspects of BPM (Rosemann and vom Brocke, 2010) and perceive “processes as the central core from which business is conducted, so long as they are supported by the people within the organization” (Jeston and Nelis, 2008b, p. 4). In this regard, culture is increasingly recognized as one central factor influencing and being influenced by BPM (Spanyi, 2003; Llewellyn and Armistead, 2000; Hammer, 2010). Moreover, culture is referred to as a source of failure or success in BPM initiatives (Melenovsky and Sinur, 2006; Ravesteyn and Versendaal, 2007; Bandara *et al.*, 2009). Even though most culture references in BPM relate to organizational culture, some studies recognize national culture and work group culture as influential factors in BPM (Jayaganesh and Shanks, 2009; Lee and Dale, 1998).

With regard to managerial practice, analysts of the Forrester Group identify cultural resistance as the main cause of BPM project failure (Savvas, 2005). In many cases, this is due to a lack of an employee’s identification with the need for process change or general process thinking. According to a study of the Aberdeen Group, “the ability for BPM to permeate the organization and drive value to multiple areas of the business is heavily dependent upon organizational culture” (Lock, 2008, p. 12). Thus, a project’s success may depend more than expected on a shared common understanding of why and how, for example, a new IT system benefits process orientation. Shared values supporting the process organization and the awareness of how cultural aspects affect and are affected are essential for BPM. Given this background, we seek to analyze how far the relevance of culture’s role in BPM has been covered in the literature. Therefore, we attempt to answer the following research question in this paper: *What is the current state of research on culture’s role in BPM?*

Answering this research question, we intend to achieve the following research objectives: (a) *provide an overview of existing research on culture within the domain of BPM*; (b) *develop a frame of reference regarding culture’s role in BPM*; (c) *derive potential areas for future research in this field*. Thus, we examine what the term culture refers to and what the relation between culture and BPM is in BPM research. Addressing these questions, a literature review of major sources in BPM provides a basis for the development of a framework on culture in BPM. The structure of this paper is designed in the following way. First, an elaboration of the two main concepts – BPM and culture – serves as a theoretical background for the literature review to give relevance to culture in BPM and defines the scope of the concept of culture. Second, the design of the literature review is illustrated and the research results are presented and discussed. Furthermore, a frame of reference for the emerging research area of culture in BPM is developed. Third, a discussion of the results helps reflect the impact of the framework, deliberate limitations of the literature review, and identify the need for further research. Finally, the paper concludes with a summary and outlook.

2 Theoretical background

2.1 Business Process Management

BPM emerged as a succeeding concept to Total Quality Management (TQM) in the 1980s (Crosby, 1979; Powell, 1995) and Business Process Reengineering (BPR) in the 1990s (Hammer, 1990; Hammer and Champy, 1993; Davenport, 1993). Following BPR, several IT systems such as Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) gained organizational focus (Jeston and Nelis, 2008a). Given this history of IT systems, BPM initially focused on technical, IT-related aspects of business processes and their design via technology (van der Aalst *et al.*, 2003; Reijers, 2003). Despite an early awareness by some (Zairi, 1997; Armistead and Machin, 1997), researchers have only in recent years more broadly considered BPM to be an integrated approach that moves beyond purely an IT focus (Harmon, 2010; Box and Platts, 2005; Hung, 2006; Chang, 2006; Rosemann and de Bruin, 2005b).

Several process maturity models aim at a holistic approach towards process management and include culture as an important factor among others in their models (Rosemann and vom Brocke, 2010; Hammer 2007; Fisher 2004; Maull *et al.*, 2003). For example, the BPM maturity model developed by Rosemann and de Bruin (2005b) provides strong empirical evidence for the relevance of culture in BPM. What has historically been the first association with BPM, IT remains but one factor in six that is relevant for BPM maturity. The six core factors of BPM identified in this model are strategic alignment, governance, methods, IT, people, and culture. Each of the factors builds on five capability areas. Focusing on culture as one factor of the BPM maturity model, the specific capability areas include responsiveness to process change, process values and beliefs, process attitudes and behaviors, leadership attention to process management, and process management social networks (Rosemann *et al.*, 2008). The capability areas of the culture factor refer to dimensions of a specific organizational culture supportive of BPM.

Based on this aspect, we can assume that there is a complex interconnection between the concepts of BPM and culture. This leads to the need for distinction between different relations of the two concepts. We refer to an extensive literature review on culture in Information Systems (IS) research in which Leidner and Keyworth (2006) differentiate the following relations between the concepts culture and IT: the impact of culture on IT, the impact of IT on culture, and IT culture. Given this background, we discern culture's influence on BPM and BPM's influence on culture in the course of this research. Furthermore, we examine to what extent a BPM culture is referred to in the literature. We conclude that culture is an essential subject within the BPM domain and that there seem to be different relationships between the concepts BPM and culture. Before going into more detail on research in the respective areas, a closer look at culture is offered to determine what characterizes its concept.

2.2 Culture

Culture is a broad and blurry concept because it is associated differently depending on the context. More than 150 definitions of culture have been identified by Kroeber and Kluckhohn (1952). Still, many of the definitions have a common theme. For example, Hofstede (2005) considers culture to be the "collective programming of the mind" while Schein (2004) sug-

gests that a group learns “a pattern of shared basic assumptions.” Facing the variety of culture conceptualizations, we define the scope of culture by differentiating between two defining elements: (1) the manifestation of culture and (2) the scope of the referenced group.

(1) With regard to culture’s manifestation, Schein’s (2004) concept of culture is crucial to understanding this aspect. He differentiates three layers of culture: artifacts, espoused values, and basic underlying assumptions. The different layers are either more or less observable. On the surface, culture manifests itself through visible artifacts such as a company’s symbols, its products, typical behaviors and rituals, the way of dressing, and architecture. Espoused values are less visible; they include publicly expressed strategies and goals as well as norms and rules that provide day-to-day operating principles for members of a culture group. Below the surface, basic underlying assumptions account for the biggest part of culture. This subconscious part of culture further accounts for a mental map of fundamental aspects of life such as the nature of time and space, the role of social hierarchies, and the relative importance of work, family, and self-development. While publicly expressed values (e.g., enjoying commitment) are visible, some lived values (e.g., appreciating security) may be hidden based on underlying assumptions (e.g., you can trust no one). Deciphering underlying assumptions allows for interpreting artifacts correctly since the visible parts of culture result from an institutionalization of the underlying values (Schein, 2004). For example, an organization manifests its culture through visible structures and strategies (Tichy, 1983).

(2) Regarding the scope of the referenced group, prominent examples include national culture in Hofstede’s (2005) studies and organizational culture in Goffee & Jones’ (1996) model. Yet there are also further cultural groups that are distinguishable. In their research on culture in IS, Leidner and Keyworth (2006) recognize the differences between a national, organizational, and subgroup level of culture and suggest a holistic understanding of culture based on its manifestation. Reflecting the culture concept in the context of BPR, Baba and Falkenburg (1996) discern national, organizational, and work group culture as well. Therefore, our understanding of culture regarding the referenced group ties in with an established differentiation. Even though organizational culture seems to be perceived as the first group culture recognizable in BPM (Pritchard and Armistead, 1999; Spanyol, 2003), we can see that there are also national cultures and work group cultures affecting BPM (Jayaganesh and Shanks, 2009; Vieira and Neumann, 2008). Considering culture as a group’s collective phenomenon (Hofstede, 2005), it is important to note that apart from the referenced group, the concept of culture does not fundamentally differ between various culture research streams. We can conclude that on all group levels, there are values manifesting themselves in visible artifacts that can be perceived as beneficial or cumbersome regarding BPM. The following section provides insights into current research on culture’s role in BPM.

3 Literature review on culture in BPM

3.1 Design

By conducting a structured literature review, we aim to provide insights into the role of culture in BPM. According to the nature of this research method (vom Brocke *et al.*, 2009; Creswell, 2009; Webster and Watson, 2002), maximum transparency should be achieved regarding the various decisions in the review process. Hence, in this section, the design of the literature review is described with the intention of considering the contemporary scope of BPM

research. We focus on journal and conference publications because we assume that prevailing BPM research problems are discussed therein and because we recognize the value of peer-reviewed research. Regarding the analysis of the literature, we draw lessons from established research on culture in the IS discipline. Details of our approach to the literature review are given in the following three steps.

3.1.1 Defining a research basis

Both the BPM Journal and the BPM Conference were chosen as a starting point for the analysis. Extending the review sources to general journal and conference databases, we aim at covering a broad range of relevant literature to explore the state-of-the-art research on culture in BPM. We began with the BPM Journal in the Emerald database, further including the remaining Emerald database, EBSCO Business Source Premier, and ABI Inform. We chose to separate the analysis of the BPM Journal from the remaining Emerald database since the journal is a major information and publishing source of the BPM community. We used the same pattern to browse the BPM Journal and the different databases mentioned above. To cover articles dealing with culture in BPM, we searched for “business process management” or “BPM” in the title or abstract of the papers and used the wildcard search term “cultur*” in full text searches. As for quality criteria, we only included peer-reviewed (scholarly) articles. With regard to the conference search, we began with the BPM Conference and considered all published conference proceedings. In addition, we searched the eLibrary of the Association of Information Systems (AIS) to cover published proceedings of other conferences. Table 1 provides an overview of our research approach.

	BPM Journal	Journal databases	BPM Conference	Conference database
Source	Emerald	Emerald, EBSCO BSP, ABI Inform	Google books, hard copies	AIS Electronic Library
Search Term I	“business process management journal”	“business process management” OR BPM	culture	“business process management”
Search Field I	publication title	document title / abstract	full text	title / abstract
Search Term II	[AND] “business process management” OR BPM	[AND] cultur*	[OR] cultural	[OR] BPM
Search Field II	document title / abstract	full text	full text	title / abstract
Search Term III	[AND] cultur*	[NOT] “business process management journal”	-	[AND] cultur*
Search Field III	full text	publication title	-	full text
Additional Requirements	articles only	articles only / scholarly peer reviewed	-	-

Table 1. Research approach

3.1.2 *Extracting and categorizing relevant research*

This step aims to provide a quantitative overview of relevant research on culture topics in BPM. In the analysis, research is considered relevant if it specifically covers cultural aspects in the BPM field. All journal and conference papers were categorized according to the extent to which they engage in research on cultural aspects in BPM. We defined two categories of relevant papers and left out those that either do not reference culture in the context of BPM or focus on a different concept with the same abbreviation (BPM). Intending to keep categorization as simple and objective as possible, we only defined the following two:

- *Research that mentions culture's role in BPM:* This category includes papers that refer to culture's role in BPM research in few words and only mention the relation of the concepts BPM and culture within their actual research focus.
- *Research that elaborates on cultural aspects in BPM:* This category includes papers that more intensively consider culture's role with respect to BPM. This definition leaves much leeway regarding the intensity of the culture focus, which ranges from a paragraph or single section to a significant focus of culture in BPM.

As for the procedure, we categorized papers from both journals and conferences through a full-text search, focussing on the two concepts of BPM and culture to identify relevant research. We did not consider research on concepts related to BPM such as Business Process Reengineering (BPR), Business Process Outsourcing (BPO), or Supply Chain Management (SCM). Even though culture likely plays an important role with regard to these concepts, we specifically aimed for state-of-the-art in BPM research. With regard to the concept of culture, we took a literal approach as well since an additional search for concepts like change management, leadership, and communication calls for a more subjective handling and a softening of the culture concept.

Based on the relevant papers found through the initial categorization, we conducted a forward and backward search to identify additional articles considering culture in BPM research. As for the backward search, we included further relevant contributions by analyzing references that were used in the context of cultural aspects in BPM. Thus, the additional journal and conference sources went beyond the ones used for the initial search. Regarding the forward search, we checked the databases in which we found the article for citations of the respective paper. The results of forward and backward searches were categorized in the same way as the initial papers. Furthermore, we included two more papers that we came across on the Internet. They could not be found in the structured search because 2009 was not yet included as a publication year in the conference database. This approach provided an initial overview on culture in BPM research.

3.1.3 *Analyzing research on culture in BPM*

Seeking a more qualitative approach for examining extant research, this literature review aims to develop an understanding of how culture is perceived in BPM research. Therefore, we analyzed all papers mentioning or elaborating on culture with regard to the following two dimensions derived from extant research on culture and particularly from culture research in the IS discipline (Leidner and Keyworth, 2006).

- *The group referred to:* First, we examined which group is referenced when discussing culture. We identified whether the term culture refers to (I) work group culture, (II) organizational culture, or (III) national culture.
- *The relationship between BPM and culture:* Second, we determined the link between our two main concepts. As described earlier in this literature review, we assumed three relationships of culture and BPM: (a) culture as an independent factor influencing BPM, (b) culture as a dependent factor influenced by BPM, and (c) culture as BPM culture.

Based on the specifications described above, we categorized all of the papers using the two dimensions. The categorization of all articles according to cultural group and the relationship between BPM and culture was the first step in the qualitative analysis of relevant articles. This provides a qualitative overview of all articles either mentioning or elaborating on culture's role in BPM. In a second step, papers elaborating on culture in BPM underwent a deeper analysis. The results of the literature review are introduced in the following section.

3.2 Results

3.2.1 Quantitative results of research categorization

Having identified papers potentially relevant to culture's role in BPM, this effort offered a preliminary glimpse into the current state of cultural research in BPM. The initial 19 articles found when searching the BPM Journal accounted for only 3.3% of all articles published in the journal since its first publication in 1995 when entitled Business Process Re-engineering & Management Journal. This offered the first evidence that the topic has been under-researched in the BPM community. The categorization procedure added to this assumption and provided some profound figures (see Table 2), which show that the percentage of articles in the BPM Journal that elaborate on culture's role in BPM is as low as 0.3%. In total, 29 papers mention culture as one aspect in BPM research while only 13 papers elaborate on culture's role in BPM. As expected, the BPM Journal includes relatively many relevant papers as compared to the journal databases that are comprised of a large number of journals. The BPM Conference, however, covers fewer relevant papers than other conferences that do not have so fine a focus. This is less surprising than one may think since the BPM Conference has always concentrated on technical aspects of BPM. Therefore, one could expect that it covers relatively little research on culture in BPM. We can record as a first result of this literature review that few articles discuss or study culture's role in BPM research. This provides further evidence that culture is still a widely under-researched topic in BPM.

Sources	BPM Journal	Journal databases	BPM Conference	Conference database	Total
Number of total publications	572	-	223	-	
Research basis	19	109	8	10	146
Culture ' mentioned ' in BPM research	5	12	3	6	26
Backward search	-	1	-	-	1
Forward search	1	1	--	--	2
Total	6	14	3	6	29
Culture ' elaborated ' on in BPM research	2	3	-	3	8
Backward search	1	-	-	2	3
Forward search	-	-	--	--	-
Random finding in the internet	--	--	--	(2)	2
Total	3	3	0	5 (+2)	13

Table 2. Quantitative overview of culture in BPM research

3.2.2 Overall qualitative results of research analysis

Taking a qualitative approach, a closer look at the papers examining culture in their research allows for a more detailed statement on the current state of the research. In this section, we start with a rough overview of how culture is perceived in research mentioning or elaborating on culture's role in BPM. To do so, we categorized the papers according to the two dimensions derived from established culture research, namely referenced cultural group and relation between BPM and culture. Table 3 shows an overview of the qualitative results (papers elaborating on culture's role in BPM are shown in italics while papers mentioning culture are shown in standard letters). Below, we provide a brief summary regarding the qualitative categorization of the identified papers. Subsequently, in section 3.2.3, we more deeply analyze those papers that specifically elaborate on culture in BPM research:

- I. *BPM and work group culture*: Regarding work group culture, we observed that almost no research contribution explicitly considers cultures of sub-groups in organizations. Even though BPM is an approach that is characterized as transcending departmental thinking toward process thinking (Davenport and Short, 1990), challenges based on departmental cultures seem to be not recognized as such but included under challenges based on organizational culture. In fact, some authors who refer to organizational culture also mention process groups and other teams in their examination of culture (Lee and Dale, 1998; Pritchard and Armistead, 1999; Armistead and Machin, 1997; Corrigan, 1996). Still, BPM is noted as a concept facing challenges through departmental thinking. Yet this aspect seems to have not been perceived as a work group cultural phenomenon.
- II. *BPM and organizational culture*: Our analysis shows that most articles reference organizational culture whereas work group culture and national culture are rarely recognized in BPM research. Naturally, organizational culture is the dominant type studied since BPM initiatives affect big parts of an organization. In fact, BPM projects often face obstacles and a need for change with regard to the organizational culture.

III. *BPM and national culture*: It was interesting to note that the two articles referring to national culture view culture as an independent variable that influences other BPM factors. This is a logical consequence since national cultures are relatively stable over time and difficult to influence as compared to organizational cultures. What is surprising is the fact that there are only two papers that mention national culture as a topic within BPM. Given that global corporations' business processes often transcend national borders and BPM initiatives tend to include locations worldwide, challenges based on national cultures are apparent.

	(I) Work group culture	(II) Organizational culture	(III) National culture
(a) Culture as (independent) factor influencing BPM	-	Chen, 1999; Fagan, 2006; Ghalimi, 2008; de Bruin and Rosemann, 2006; Fenz <i>et al.</i> , 2009; Ravesteyn and Versendaal, 2007; Vanhoenacker <i>et al.</i> , 1999; Willaert <i>et al.</i> , 2007; Bandara <i>et al.</i> , 2009; Corrigan, 1996; Rosemann and de Bruin, 2005b; Rosemann and de Bruin, 2005a; Rosemann <i>et al.</i> , 2004	Banerjee <i>et al.</i> , 2006; Jayaganesh and Shanks, 2009
(b) Culture as (dependent) factor influenced by BPM	-	Gulledge Jr and Sommer, 2002; Indulska <i>et al.</i> , 2006; Knights, 2008; Pyke, 2006; Scheer and Klueckmann, 2009; Stohr and zur Muehlen, 2008; Armistead and Machin, 1998; Pritchard and Armistead, 1999	-
(c) Culture as BPM culture		<i>Armistead et al., 1999; Armistead and Machin, 1997; de Bruin, 2007; de Bruin and Rosemann, 2007; Zairi, 1997</i>	
(d) Culture as important aspect in BPM	Smart <i>et al.</i> , 2009	Armistead, 1996; Caverlee <i>et al.</i> , 2007; Chong, 2006; Process intelligence, 2007; Fries, 1995; Hung, 2006; Lee and Dale, 1998; Llewellyn and Armistead, 2000; Mencer and Jelenc, 2005; Niehaves, 2009; Sentanin <i>et al.</i> , 2008; Simpson <i>et al.</i> , 1999; Skrinjar <i>et al.</i> , 2008	-

Table 3. Qualitative overview of culture in BPM research¹

Considering the relationship between BPM and culture, we identified three options when it comes to studying culture in BPM: (a) culture as an independent factor influencing BPM; (b) culture as a dependent factor influenced by BPM; and (c) culture as BPM culture. Analyzing the papers, an additional category surfaced leading to the following four dimensions:

- a) *Culture as an independent factor influencing BPM*: Identifying culture as an independent factor in BPM research turns out to be difficult since most articles only mention culture within their actual research topic. As a strategy for categorization, we

¹ Papers 'elaborating' on culture's role in BPM in italics; papers 'mentioning' culture in BPM in standard letters.

chose to allocate papers that perceive culture as a success factor or barrier regarding BPM to category (a).

- b) *Culture as a dependent factor influenced by BPM*: While identifying these types of papers, we faced the same difficulties as above given the few papers that elaborate on culture as a dependent factor influenced by BPM. Thus, articles in category (b) recognize BPM systems or general BPM initiatives as affecting culture.
- c) *Culture as BPM culture*: As we had assumed based on existing research on culture in IS, there are papers that reference a BPM culture. In this regard, we identified overlap of the two dimensions ‘referenced group culture’ and ‘culture-BPM relation’ in that a BPM culture can be understood as a special facet of an organizational culture. Thus, organizational culture is the only group culture considered with regard to category (c).
- d) *Culture as an important aspect in BPM*: In many cases, it was neither possible to identify a clear direction of influence with regard to BPM and culture nor identify a prescription of a BPM culture. Thus, we defined this additional category (d) to capture those articles that simply find that BPM requires attention to culture.

The categorization of the papers according to the dimensions derived from the literature provides the first qualitative overview of existing BPM research that considers cultural aspects. We can see that research commonly refers to organizational culture as both an independent and a dependent factor. Additionally, we confirm that the concept of a BPM culture is present in BPM research. Regarding work group and national culture, few papers were found that examine those topics in a BPM context. As for work group culture, we did not identify research elaborating on the phenomenon. As stated before, this may be due to a partial inclusion of the concept under organizational culture. With regard to national culture, the little recognition of the concept in BPM research is surprising. Given these results, we more deeply analyzed those papers that elaborate on culture in BPM.

3.2.3 Detailed analysis of papers elaborating on culture in BPM

Starting with research on national culture (category IIIa), we could only analyze one paper. Jayaganesh and Shanks (2009) examined the role of national culture regarding an IT-enabled BPM strategy. They particularly focused on two companies in India and, on the basis of Hofstede’s cultural dimensions, analyzed the impact of national culture on BPM. Taking a value approach regarding the cultural examination, the authors recommend “adopting formal BPM strategy and governance practices” to reduce negative intercultural effects in international business. Hence, the authors call for an institutionalization of process orientation in the form of BPM strategy and governance practices. Furthermore, they state that national culture’s influence on BPM is largely unexplored. These statements correspond to our findings.

Regarding organizational culture, several papers elaborate on culture as an independent factor that influences BPM (category IIa). Bandara *et al.* (2009) conducted a literature review that suggests culture is one of nine success factors for BPM that can serve both as a supporting or hindering BPM success factor. According to Bandara *et al.*, cultural success factors include “a tendency for collaboration” (e.g., visible in decentralized decision-making) or “readiness for change” (e.g., comprising the rewarding and encouragement of creativity). Corrigan (1996) reports on findings from several interviews elaborating on cultural barriers in BPM such as hierarchical structures, vertical communication, and the perception of IT as an enemy. These aspects represent both visible and invisible organizational cultural elements that do not seem

to go along with a BPM approach. Rosemann and de Bruin (2005a; 2005b) and Rosemann *et al.* (2004) emphasize culture as a critical success factor regarding BPM, identifying cultural barriers such as resistance to change and a lack of process understanding. In research papers of this category, underlying values and beliefs as well as the institutionalization of them in organizational structures and people's actions play a role regarding organizational culture's influence on BPM.

Looking at culture as a dependent factor of BPM (category IIb), Armistead and Machin (1998) report on a case study that suggests a cultural shift toward process orientation through the implementation of process measurements. The company described in the case study set up an Information System supporting the assessment of service productivity and achieved a culture change along with the system change. This approach suggests to change people's thinking through a structural change. Pritchard and Armistead (1999) consider organizational culture change as one of the main benefits achieved through BPM. They additionally refer to case studies considering culture in BPM initiatives. One company, for example, introduced process specialists functioning as multipliers of process knowledge. Research papers of this category report on culture changes through structure changes.

Considering papers describing a BPM culture (category IIc), we identified only two that explicitly refer to a BPM culture (Armistead *et al.*, 1999; Zairi, 1997). Armistead *et al.* (1999) recognize such a culture as a central theme in BPM, emphasizing that the approach to BPM should fit within the organization's culture and providing examples of companies with a BPM approach. The Royal Mail defined its business direction by considering the corporate values of the company. The authors tie this research in with a preceding paper in which Armistead and Machin (1997) discuss a cultural fit that is required between the overall approach to BPM and the organizational culture. In a subsequent paper, Armistead *et al.* (1999) recognize this as a BPM culture. Furthermore, Zairi (1997) proposes some suggestions regarding the development of a BPM culture that includes continuous improvement and performance measurement. These concepts seem familiar in a BPM context. However, Zairi did not elaborate on their cultural meaning. Understanding these concepts as part of a BPM culture places their meaning beyond that of mere buzzwords or single silo approaches in an organization. Continuous improvement as a cultural value may be visible in organizational structures and employee's actions, yet most importantly, values like this one provide a general inner orientation for everyone involved. We can conclude from research explicitly referring to BPM culture that the concept generally describes a culture supportive of BPM objectives.

Additionally, we included two papers by de Bruin and Rosemann in category IIc in which they do not explicitly refer to a BPM culture. However, they do include the capability areas of the culture factor in their BPM maturity model. These can be viewed as requirements for a BPM culture including process values and beliefs, process attitudes and behaviors, and process management social networks. We conclude from the papers analyzed that the concept of a BPM culture is present in the literature but that it has not been explicitly explored regarding its cultural manifestations. Since a culture is predominantly defined through the basic underlying values that are inherent in visible artifacts (Schein, 2004), the examination of BPM values is essential. Even though the analyzed papers do not explicitly refer to specific BPM values, we can derive values such as consistency, quality, continuous improvement, customer orientation, process orientation, and responsiveness to change from the research examined. These may be general BPM values; however, there may also be specific BPM values differing based on the organizational context or depending on the process to which they refer. For example,

creative processes may require different values in their BPM approach than routine work. The analysis of BPM values clearly needs further consideration in future research.

In reference to research that considers organizational culture and/or BPM culture, we argue that there appear to be organizational values supportive of BPM thus fitting to BPM culture values and other values that may not be compatible with BPM values resulting in actions demonstrating resistance. We further argue that the implementation of a BPM approach and its values is challenged through the existing organizational culture and changes it at the same time. What has been noted as a necessary fit between organizational culture and BPM may, in fact, be a cultural fit or a value fit between the existing organizational culture and a BPM culture as a new facet of the corporate culture. The same cultural fit or misfit seems to hold true regarding national culture. We have seen that national values do not necessarily fit with a BPM approach and its values.

The analysis of papers elaborating on culture's role in BPM allows for the following argument regarding the development of a BPM culture as a culture supportive of BPM objectives: We have seen that the start of a BPM initiative may generate resistance (Rosemann and de Bruin, 2005a; Rosemann and de Bruin, 2005b). We have also seen that the implementation of a new organizational structure may be capable of changing people's thinking and ultimately organizational culture (Armistead and Machin, 1998). We further know that culture consists of invisible values and their visible institutionalizations in artifacts (Schein, 2004). Consequently, we argue that the development of BPM culture may function like this: The decision for a BPM approach is likely based on a few people valuing process orientation for various reasons. These values lead to visible actions that may result in a visible change of the organizational structure (e.g. an IT system implementation or process change). Structural changes may require a corresponding change in the actions of all employees. This way, a change in values – and thus a culture change involving the whole organization – may be achieved. This argument implies a culture triad of underlying *values* that account for both visible *action* and *structure*. We are aware that the small sample of existing research elaborating on culture's role in BPM is not sufficient to verify the relationships between the concepts in this triad. In fact, we argue that this triad can be derived from Schein's understanding of culture by summarizing espoused values and underlying assumptions as underlying *values* and, in addition, specifying artifacts as both visible *structures* (e.g., physical environment, technology and products, descriptions, organization charts) and visible *actions* (e.g., manners, observable rituals and ceremonies, visible behaviour) (Schein, 2004).

From the analysis of papers elaborating on culture in BPM, we can learn that organizational culture is the most common culture examined in BPM research. We see that national culture and work group culture are also related to BPM. Furthermore, we note that differing relationships between BPM and culture exist. In this regard, we identified the concept of a BPM culture being present in BPM research. Furthermore, the notions of different group cultures as influencing or influenced factors with regard to BPM - respectively a BPM culture - can be explained by a necessary cultural fit of underlying values. Finally, we see that the culture triad of values, action, and structure can be derived from cultural studies and seems to have explanatory power with regard to cultural phenomena identified through our analysis of BPM literature. Due to a lack of models structuring and visualizing these aspects, we propose a framework on culture's role in BPM.

3.3 Framework

Based on our literature review, we suggest a framework that can be used to structure current and future research on culture in BPM. The development of the model primarily builds on the following findings:

- The concept of a BPM culture is present in BPM research. In fact, BPM can be viewed as a management approach that requires a BPM culture (Source: BPM research).
- The three group culture categories derived from IS research - national culture, organizational culture, and work group culture - are not considered equally in existing research. However, they do play a role in BPM research (Source: IS research, BPM research).
- To achieve BPM objectives, a BPM approach requires a cultural fit (Source: BPM research).
- Invisible values manifest themselves in visible actions and structures (Source: Culture research).

Our framework on the role of culture in BPM comprises several elements that are displayed in Figure 1.

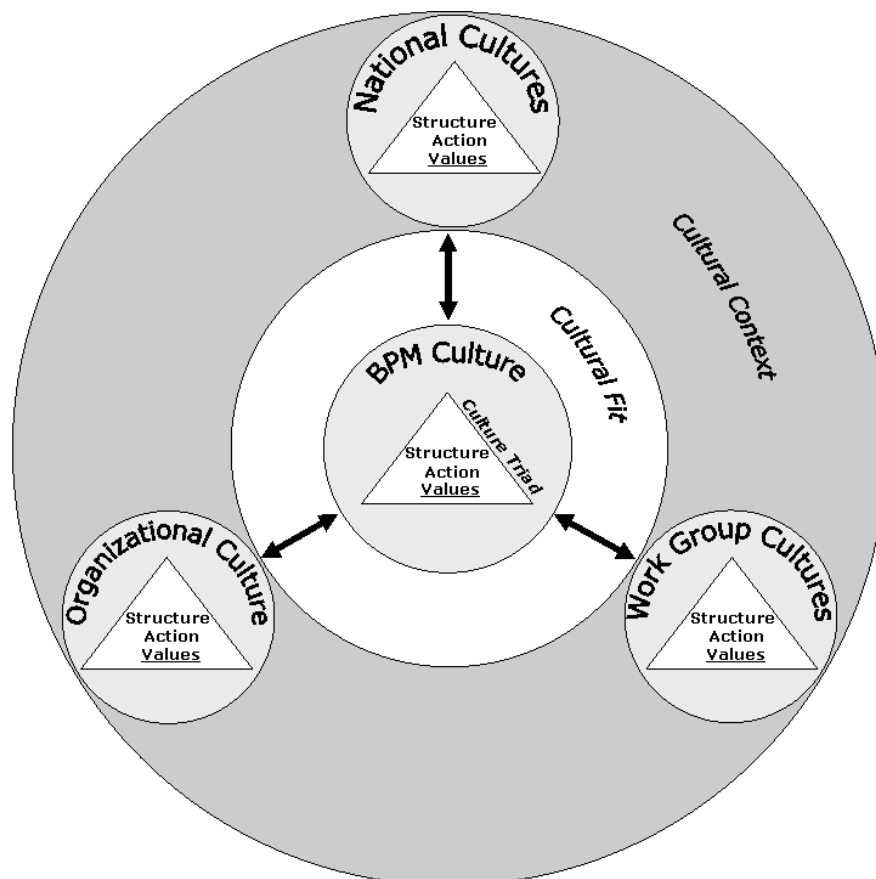


Figure 1. BPM-Culture-Model: A framework for culture's role in BPM

The model shows that – according to the results of our literature review – the following constructs appear to be particularly useful to conceptualize the role of culture in BPM:

- *BPM culture*: With regard to BPM culture, we refer to a certain set of values considered supportive of BPM objectives. While we can identify a general understanding of BPM culture in the literature, it remains open to future research which particular values actually constitute such a BPM culture. Presumably, there might also be the need to specify the concept of a BPM culture according to organizational context factors.
- *The cultural context*: Each BPM initiative faces a certain cultural environment that we call cultural context. Even though the cultural context is determined by diverse situational factors, typical dimensions driving this context can be distinguished: organizational culture, work group cultures, and national cultures. These cultures are interconnected in a complex way and influence the cultural context as a set of values driving human action. They may serve as a starting point for determining the diverse cultural context of a specific BPM initiative.
- *The cultural fit*: Regarding the cultural fit, we refer to a basic congruence between the cultural context and the BPM culture. Such a fit is considered critical for a successful BPM implementation. To achieve the cultural fit, measures need to be taken that bring the cultural context into line with the BPM culture. In this respect, future research is needed to explore strategies on how to systematically align existing cultural values with BPM values. Such strategies may serve as reference in different contexts.
- *The culture triad*: To explain cultural phenomena with regard to BPM, the culture triad of values, action, and structures serves as a pattern for the internal differentiation of culture. Underlying values are the essential element of a culture and become visible in actions and structures. The visible elements help develop or maintain respective values in that actions constantly re-create the essence of culture and structures additionally visualize it.

Having introduced the BPM-Culture-Model, we discuss the impact, limitations and implications of our findings in the following section.

4 Discussion

4.1 Impact

The results of our literature review suggest an impact for both research and practice. Regarding the implications for research, the framework on culture's role in BPM can be perceived as a basis for existing and future BPM research in two respects. First, the framework serves as a starting point to structure research on culture in BPM. Second, the framework depicts the interconnection of different culture concepts; it describes the cultural fit that is necessary within a cultural context that may support or challenge a BPM culture. Furthermore, the framework can be used to explain culture-driven phenomena in BPM on the basis of the culture triad. Thus, the framework represents the foundation for future research on BPM culture and its relationship to interfering group cultures.

The managerial impact of the literature review lies in the orientation it provides for practice. It helps foresee dimensions of possible conflicts that are based on cultural aspects. It may thus raise awareness regarding potentially neglected cultural factors. The practical explanatory power of the model regarding the development of a BPM culture can be briefly shown on the

basis of the culture triad. The case of Hilti may serve as an example to illustrate this explanatory power (vom Brocke *et al.*, 2010). The corporation globally harmonized its processes and data in a tremendous effort that lasted almost 10 years. Because Hilti leadership had always perceived a global approach reasonable, it was possible to constitute a project team led by Hilti IT that took action based on this value orientation. This action resulted in a huge structural change that, in turn, required a change in action for all employees since the global harmonization of the Hilti processes accounted for a transformation of the daily work of the employees. Furthermore, actions were taken such as the realization of special communication strategies to ensure people understood the significance of the initiative. This way, BPM values were spread and it was possible for Hilti to achieve a BPM culture. With regard to organizational culture, Hilti's BPM approach was supported by the strong culture the corporation realized in previous years and very consciously maintains. This example shows how the framework is able to explain cultural phenomena in BPM practice. In the following section, we discuss the limitations of our research.

4.2 Limitations

Concerning the framework, we are aware that it can be discussed to what extent one should speak of a BPM culture or a business process culture since process-orientation not only affects management. Still, we chose to stick with the term BPM culture, perceiving it as a culture supportive to BPM objectives and tying in with extant research. Regarding the design of our literature review, we are aware that an extension of our conceptual frame may further strengthen our findings. We chose not to include preceding concepts of BPM such as BPR or TQM in the research to gain a clearer result for the BPM concept. With regard to culture, we significantly focused on this very concept in our search strategy. Yet, not all researchers examining cultural issues in BPM may use the term culture. We still chose to keep our focus on the literal concept since research becomes more subjective when including related concepts in research such as leadership and communication. Furthermore, not all sources may have been covered in the literature review. This became obvious when we came across two more papers dealing with culture in BPM. These were from sources that should have been covered in our choice of databases. However, the 2009 publication year had not yet been included in the database. Beyond this, we are aware that a complex interconnection of group cultures exists; for example, expatriates from different countries in a work group or the fact that organizational culture may determine work group cultures to a large extent. In addition, one can imagine that the national culture of the home country may greatly determine the organizational culture even in foreign countries. At the same time, organizational culture may constitute a "third place" (Kramsch, 2009) functioning as a cultural home independent from different national cultures. Despite this awareness and for the sake of model simplicity, we espouse the distinction of the three group cultures derived from our research on culture in IS. Furthermore, the findings of our structured literature review revealed only a small sample of articles resulting in restricted generalizations. Additional research on work group culture and national culture with regard to BPM would further strengthen our framework as would BPM research verifying the relations of the culture triad. We examine areas of future research in the following section.

4.3 Future research

The results of the literature review call for further research regarding several aspects of culture's role in BPM. Generally speaking, there seems to be little research elaborating on culture in BPM and yet there are several papers mentioning the significance of the topic without specifically illuminating it. This makes the few research papers examining the topic even more surprising suggesting a strong need for further research. Based on the framework we developed, we suggest that future research consider the following questions:

- What characterizes the concept of a BPM culture in detail? Even though the concept of BPM culture is present in research as a culture supportive to BPM objectives, there are few references as to what exactly constitutes a BPM culture and especially, which values define it. Those papers considering BPM culture do not solely focus on this concept; this leads to sketchy consideration of the concept. Still, much research mentions the need for culture change in BPM initiatives even to the point of implicitly calling for the development of BPM culture. Therefore, an examination of the concept seems necessary in future research.
- What determines the relationship between BPM culture and national, organizational, and work group cultures? The literature review shows that the mapping between the different group cultures and BPM culture seems to be challenging. Therefore, a detailed examination of the relationship between a BPM culture and its cultural context should provide valuable insights to address the following research question:
- What measures are suitable to achieve a cultural fit between a BPM culture and its cultural context? We have seen that cultural barriers are present in BPM initiatives. Thus, future research should focus on measures that overcome these barriers or alternatively, find ways to use cultural differences in a positive way.

Beyond the examination of these research questions, a review of culture's role in BPM-related concepts, like BPR, may provide valuable insights transferable to the BPM concept and the framework developed here. At the same time, an analysis of culture in organizational sciences may help find approaches dealing with cultural issues in organizations that follow a BPM approach. Summing up, the literature review provides evidence that little research on culture in BPM exists. Thus, this study serves as a starting point for future research.

5 Conclusion

Answering the research question *What is the current state-of-the-art of research on culture's role in BPM?*, we provide a framework structuring current and future research on culture's role in BPM. This framework builds on a literature review that involves major sources of the BPM community, the BPM Journal and the BPM Conference, as well as several journal and conference databases. The literature review gives both quantitative and qualitative insights on research considering culture in BPM. The quantitative overview shows that few articles from several journals and conferences deal with culture as a topic in BPM research. Of the small number of papers found, the qualitative analysis clearly confirms the need for further research that had already been revealed on the basis of the quantitative results. In fact, we uncovered several gaps in BPM research to be considered in future contributions. Based on the review, our three research objectives have been achieved. (1) We provided an overview of existing research on culture within the domain of BPM, (2) we developed a frame of reference regard-

ing culture in BPM, and (3) we derived potential areas for future research in the field. This paper calls for more awareness of culture in BPM research and for more research on the topic. This recommendation is based on a holistic understanding of both the BPM and the culture concept.

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