Viewpoint

On the role of context in business process management

Jan vom Brocke*, Sarah Zelt, Theresa Schmiedel

University of Liechtenstein, Fuerst-Franz-Josef-Strasse, 9490 Vaduz, Principality of Liechtenstein, Liechtenstein

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ABSTRACT

Business Process Management (BPM) has proven successful to help organizations improve and innovate, and its application has grown in scope and context. One essential problem related to this development is that the BPM body of knowledge does not account for a broader variety of business contexts. On the contrary, most approaches, methods, or models in BPM suggest one way forward, and we recognize that BPM projects following a one-size-fits-all approach are prone to fail, since they do not sufficiently consider situational requirements. In this viewpoint article, we argue that BPM needs to be contextual in order for projects to be most efficient and effective. We observe a lack of research on how to identify and characterize business contexts relevant for tailoring the right BPM approach. Therefore, we examine contextual factors that influence BPM and propose a framework to identify the context in which BPM is applied. We define context in BPM as situational factors related to goal-, process-, organization-, and environment-dimensions. Our viewpoint article not only creates awareness for contextual BPM, it also intends to stimulate research on the role of context in BPM and to help practitioners better understand the specific business context in which BPM initiatives are applied.

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1. Introduction

Business Process Management (BPM) has gained importance over the last decades and many organizations today focus their attention on identifying and documenting business processes, defining key performance indicators (KPIs) for measuring and monitoring process performance, and implementing means for continuous process improvement and innovation (Gartner, 2013; Rosemann, 2014; vom Brocke & Rosemann, 2015; Zairi, 1997). BPM comprises both enterprise-wide BPM programs that aim to establish a comprehensive process view regarding the management of operations within the company (e.g., ERP implementation, culture development) and also the day-to-day management of single business processes (e.g., monitoring, implementation of software to automate and control processes) (de Bruin & Doebeli, 2010; Dyer et al., 2012; Harmon & Wolf, 2014).

Today, we see more and more organizations considering BPM in various business contexts (Harmon & Wolf, 2014), but we also see more and more organizations reporting on project failure. Therefore, much research has been conducted to examine success factors for BPM in general (Ravesteyn & Batenburg, 2010; Trkman, 2010)

and how these factors influence the different stages of BPM adoption (Buh, Kovačič, & Indihar Štemberger, 2015). In this paper, we argue that one reason for the frequency of BPM project failure is the lack of knowledge about how to sufficiently address the different contexts in which BPM is applied (Benner & Tushman, 2003); or, in other words, BPM approaches, methods and models are not sensitive enough to diverse business contexts.

The contemporary BPM body of knowledge was developed for a specific type of business context, focusing mainly on clear-cut, structured processes that require improvement, standardization, or automation enabled by workflow management and enterprise systems in order to improve time, costs, and quality (vom Brocke & Rosemann, 2015). However, the extended scope of BPM to further business contexts that includes, for example, more creative business areas, leads to a variety of new requirements, which the current BPM body of knowledge has not sufficiently understood. Research should therefore explore internal and external factors that influence BPM requirements and derive customized BPM solutions contingent on those factors (Paim, Cauliraux, & Cardoso, 2008; Plattfaut, Niehaves, Pöppelbuß, & Becker, 2011; Roeser & Kern, 2015).

Contexts for BPM application are highly diverse and are determined by various contextual factors. For example, the nature of industries and organizational structures and cultures can differ largely across organizations (Chatman & Jehn, 1994; Trkman, 2010). But also within one organization, the scope of BPM can be highly

* Corresponding author.
  E-mail addresses: jan.vom.brocke@uni.li (J.v. Brocke), sarah.zelt@uni.li (S. Zelt),
theresa.schmiedel@uni.li (T. Schmiedel).

diverse since BPM is no longer applied only to semi- or well-structured processes supported by or operated through application systems (Hammer, 2015; Harmon, 2015). Instead, a greater diversity of processes are subject to BPM, including innovation and strategic-planning processes (e.g., Gassmann, 2006). In addition, BPM today is applied to different purposes, with a trend from the exploitative to the exploratory capabilities of BPM (Benner & Tushman, 2003; Rosemann, 2014). While BPM has traditionally focused on increasing the efficiency and effectiveness of business processes through standardization or automation (exploitation), it also offers opportunities for innovation (exploration) (vom Brocke & Schmiedel, 2015).

Given the variety of contexts in which BPM is applied, we question the universal appropriateness of traditional methods and tools developed in BPM research and practice. The diversity of organizational processes and application fields provides various possibilities of how to manage business processes, for instance, whether to virtualize or standardize them (e.g., Hall & Johnson, 2009; Overby, 2008; Schäfermeyer, Grgecic, & Rosenkranz, 2010; Schäfermeyer, Rosenkranz, & Holten, 2012). It is unlikely that one single BPM approach fits all the needs and meets all the requirements with which BPM initiatives are often confronted. This view is supported by contradictory findings as to whether BPM activities increase or decrease organizational performance (for a detailed discussion see Benner & Tushman, 2003). The inconsistent results indicate that the effects of process management are contingent on numerous contextual factors (Benner & Tushman, 2003; Johns, 2006; Trkman, 2010), which are insufficiently considered in the contemporary BPM body of knowledge. Previous research on specific contexts in which BPM is applied is limited to single, mainly external, environmental contextual factors. It has been examined, for example, which role environmental factors play in the area of process design or process mining (Günther, Rinderle-Ma, Reichert, Van der Aalst, & Recker, 2008; Ploesser & Recker, 2011; Rosemann, Recker, & Flender, 2008). However, while not explicitly talking about "context," there is an emergent body of knowledge studying whether process management also needs to examine factors inherent to BPM, such as the characteristics of processes or the goals of BPM initiatives (Benner & Tushman, 2003; Davenport, 2015; Lillrank, 2003; Rosemann, 2014; Schäfermeyer et al., 2012; Seidel, Shortland, Court, & Elzinga, 2015; vom Brocke et al., 2014). While it is useful to consider discrete dimensions of context and examine their influence on aspects of BPM, it is also important to combine them to derive typical context patterns that are more meaningful than any of the dimensions would be in isolation (Johns, 2006; Rousseau & Fried, 2001).

The aim of this paper is to move the attention of BPM researchers and practitioners towards a more situational perspective on BPM and to encourage a consideration of a broad variety of contextual factors that determine business contexts in which BPM is applied. We believe that a situational view on process management would enable both researchers and practitioners to better understand the role of various contextual factors, to make more informed decisions, and to prevent wasted efforts (Rosenkranz, Seidel, Mendling, Schäfermeyer, & Recker, 2009; Schäfermeyer et al., 2010, 2012; Venkatesh, 2006). For this reason, we build on the current process management literature and propose a framework to better understand contextual factors that are relevant for BPM. This framework can provide a foundation for future BPM research striving towards a context-sensitive perspective in BPM research and practice. Our view of context is new in two ways. First, we view context not only as external to BPM (e.g. environmental or organizational characteristics) but also as inherent to BPM (e.g. process characteristics or BPM goals). Second, we do not consider contextual factors for single areas of BPM, such as modeling or monitoring, but aim to derive contextual factors that play a role for BPM in general.

The remainder of the paper is structured as follows. First, we review existing theories in order to understand the importance and facets of contextual factors based on theoretical findings. Second, we review research on contextual factors in BPM and related fields. Based on these observations, we derive an integrated framework of context in BPM and showcase with three illustrative examples how the framework can be used to determine context-sensitive BPM approaches. In conclusion, we discuss our framework and suggest an agenda for future research.

2. Theoretical background

Situational perspectives on the management of organizations have a long tradition in research. They build on the perception that organizations consist of interdependent parts that constitute a whole which, in turn, is interdependent with a larger environment (Thompson, 1967). Contrary to classical management theory which held that there is "one best way" of organizing such complex systems (Brech, 1957), contingency theories state that there are multiple ways that can be equally effective depending on the situation. In other words, there is no best way to structure or manage an organization, but the optimal course of action seems to be contingent upon the external and internal context (Donaldson, 2001; Morgan, 2007).

Contingency theories emphasize that various contextual factors are critical for organizational structure, decision making, and behavior. The most frequently discussed factors are task uncertainty, organization size, and environmental factors (Donaldson, 2001). High task uncertainty, for example, is likely to occur in case of non-routine and complex processes, and needs to be managed through little formalization, high professionalization, and participation (Donaldson, 2001). Choosing between a mechanic management approach (defined by formalization and control) and a more organic management approach (defined by autonomy and participation) therefore seems to depend on task uncertainty. As another exemplary contextual factor, the size of an organization appears to play an important role in how to manage an organization, since research has found that large organizations should focus more on formalization than smaller organizations (Donaldson, 2001).

Contingency perspectives have also been transferred to both lower and higher units of analysis such as organizational sub-unit tasks/processes and supply chains (Goodhue & Thompson, 1995; Overby, 2008; Trkman, 2010; Tushman & Nadler, 1978; Stonebraker & Afifi, 2004). This transfer was motivated by the view that not only organizations but also sub-units/processes and supply chains can be viewed as systems (people, tasks, structure, technology, etc.) which interact with each other and with their environment (Melão and Pidd, 2000). Thus, management practices should fit to the respective context, for example in the selection of the right information technology to support tasks (Gattiker & Goodhue, 2005; Goodhue & Thompson, 1995) or in the decision of which processes to virtualize (Overby, 2008).

Overall, the need for a context-sensitive view in process management can be derived from theories in the field of organizational design and process management. Following the notion that a contingency perspective considers both external and internal factors, contextual BPM requires a consideration of various environmental and organizational factors (e.g., environmental uncertainty, organizational size) as well as specific internal factors (e.g., type of process). As the number of potential contextual factors might be unlimited, the first step toward a contingency approach to BPM is to understand relevant contextual factors and to develop a classification system (Morgan, 2007; Zeithaml, Rajan Varadarajan, & Zeithaml, 1988). Such a framework not only helps to describe a

given context but also aids in monitoring contextual changes that enable organizations to engage in dynamic capability building in order to facilitate competitive survival (Teece, 2009). Thus, we build on current process management literature to identify potential factors that constitute business contexts in which BPM is applied and propose a framework to structure the results.

3. Contextual factors in business process management research

While the role of context has been studied intensively in the field of organizational behavior, it is still in its early stages for the area of BPM. Nonetheless, reviewing extant literature, we found contributions that take a situational stance, even if not conceptualizing contextual factors. In addition, we found that contributions take a specific focus regarding situational aspects and their role for BPM, limiting their view of context to only single aspects of BPM. In the following, we give an account of such contributions which serve as a valuable source for the more comprehensive understanding of the role of context in BPM as we intend to suggest it in this viewpoint article.

Recently, a *principle of context awareness* has been identified as one critical capability for successful BPM implementations (vom Brocke et al., 2014). Rooted in contingency theory (Donaldson, 2001), the principle of context awareness assumes that there is no unique way of managing business processes but that BPM should fit the organization and the management of processes should fit the process nature (vom Brocke et al., 2014).

Similarly, Melão and Pidd (2000) argue that it is crucial to understand the nature of processes (e.g., deterministic machines, complex dynamic systems, interacting feedback loops, and social constructs) and that process management approaches should be adapted to the nature of the process in focus. Other related work focuses on examining organizational or environmental factors such as location, weather, or legislation and their influence on process design and execution (Rosemann et al., 2008). The aim of this research stream is to increase the flexibility of business processes with regards to various contextual factors; context is defined as any information that is relevant to and might affect the execution of a business process (Kröschel, 2010). Examples can be found in the area of context-aware process modeling (Ploesser & Recker, 2011; Rosemann et al., 2008), adaptive reference modeling (Becker, Delfmann, & Knackstedt, 2007; Becker, Delfmann, Knackstedt, & Kuropka, 2002), or context-aware process mining (Günther et al., 2008).

An emergent body of knowledge also considers contextual factors for management areas other than process design or execution, such as process standardization (Schäfermeyer et al., 2012) or BPM implementation (Ravesteyn & Jansen, 2009). As an example, researchers examined multiple factors influencing process standardization including characteristics of the environment as well as characteristics of processes (such as process complexity) (Hall & Johnson, 2009; Rosenkranz et al., 2009; Schäfermeyer et al., 2010; Schäfermeyer et al., 2012).

For knowledge-work as one example of a specific type of process, Davenport (2015) examines management requirements resulting from the degree of interdependence and the complexity of knowledge-intensive processes. He suggests that highly collaborative and complex work is reliant on deep expertise across multiple functions and depends on fluid deployment of flexible teams, while routine work is more reliant on formal rules, procedures and training and depends on low discretion workforce or automation. For knowledge-intensive processes, a specific management approach is required as opposed to formalized and structured processes that do not require the active utilization of deep knowledge.

Overall, we found that previous studies only focused on one or two contextual factors and their influence on one aspect of BPM (e.g. process standardization) at a time. However, it is likely that a contextual factor which is relevant for one aspect of BPM (e.g. process design) is also relevant to another aspect of BPM (e.g. process standardization). For example, environmental factors have been identified as influencing both process design (Rosemann et al., 2008) as well as process standardization (Hall & Johnston, 2009; Rosenkranz et al., 2009). Therefore, we call for a more integrated consideration of contextual factors that views the business context of BPM as a specific configuration of contextual factors and that has the potential to derive more meaningful insights than isolated observations regarding how to manage business processes (Johns, 2006; Rousseau & Fried, 2001).

4. Towards an integrated framework for context-sensitive BPM

To develop an overall understanding of the role of contextual factors in BPM, we study the phenomenon of context based on both external and internal contextual factors. We review literature on context-aware process design, on BPM success factors, as well as on BPM or related fields that examine more or less explicitly the role of contextual factors for process management activities. Our review of extant contributions shows that the context relevant for BPM can be characterized from different perspectives. We derive the following dimensions of context: (1) goals of BPM, (2) characteristics of the process, (3) specifics about the organization in which BPM is applied, and (4) the broader business environment in which BPM is embedded. We outline each dimension in more detail in the following sections.

4.1. Contextual factors related to BPM goals

The first contextual factor crucial for BPM is the goal an organization has when implementing process management practices, because goals directly influence how BPM should be implemented or which tools and techniques should be applied. For example, several authors recently differentiated between exploitation and exploration as two distinct goals of BPM (Benner & Tushman, 2003; Rosemann, 2014; vom Brocke, Seidel, & Tumbas, 2015).

Exploitation relates to attempts at increasing process efficiency and effectiveness by utilizing known tools, management approaches, and techniques of BPM. In this case, BPM is applied to assure operational excellence and to realize incremental improvements (Rosemann, 2014). Quality management approaches, reference modelling, process integration, and compliance serve as appropriate approaches to deal with an exploitation-oriented goal (Rosemann, 2014).

Exploration-oriented BPM, on the contrary, aims at innovating processes, services, products, and business models, thereby utilizing creative techniques, abductive thinking, design, and communication (Rosemann, 2014). In this case, BPM is applied with a focus on innovating processes by using new technologies, techniques, et cetera. To pursue this goal, traditional BPM approaches are less adequate (Benner & Tushman, 2003). Instead, more creative management approaches such as design thinking, open innovation, or product innovation are more appropriate (Rosemann, 2014).

Generally, a big share of BPM research focuses on process improvement and compliance (Sadiq, Governatori, & Namiri, 2007), while other BPM research focuses on innovation (Davenport, 2013a; vom Brocke & Schmiedel, 2015). While both improvement and innovation are important for practice, a BPM initiative usually focuses on one of these goals. Trkman (2010) gives the example of a bank that needs to decide whether it should actively encour-

age employee's innovativeness or focus on cost reductions. As traditional process management activities are less conducive to organizational effectiveness in situations where innovation is pursued (Benner & Tushman, 2003), process managers need to select and adapt their management approach depending on their goal. An example from process modelling research is that process models which are developed based on radical innovation are usually developed in a step-by-step, iterative, and creative approach, possibly resulting not in one single but a portfolio of process models (LeLoarne & Maalaoui, 2015). The focus of BPM can therefore be considered as a contextual factor for BPM guiding the selection of appropriate management approaches.

4.2. Contextual factors related to processes

An emerging body of knowledge indicates that process characteristics play a critical role for managing business processes. BPM seems to have shifted its focus from optimizing structured, transactional processes only to serving human-centric or knowledge work processes (Davenport, 2013b, 2015; Eppler, Seifried, & Röpnack, 2008). BPM today is confronted with a diversity of organizational processes ranging from automated and mass-customized processes (Feitzinger & Lee, 1997) to artistic and creative processes (Hall & Johnson, 2009; Seidel et al., 2015).

In this respect, several authors differentiate between knowledge-intensive and non-knowledge-intensive business processes (KIBPs and non-KIBPs) (Davenport, 2015; Eppler et al., 2008; Isik, Mertens, & Van den Bergh, 2013). KIBPs contain the transfer of knowledge between process participants and require human judgment (Gronau, Müller, & Korf, 2005; Isik et al., 2013). Knowledge-intensive business processes can only be partially mapped by conventional process models due to unpredictable decisions or tasks (Gronau et al., 2005), and traditional methods for process measurement and improvement seem to be inappropriate due to the iterative, unstructured, and often collaborative nature of KIBPs (Dalmaris, Tsui, Hall, & Smith, 2007; Davenport, 2013b, 2015; Gronau et al., 2005). As knowledge work is growing today, it is important to develop appropriate management approaches which are agile, include participation of people, and involve knowledge management practices (Davenport, 2015).

Similarly, processes can differ with regards to their creativity-intensiveness (Seidel et al., 2015). For example, processes such as software development or the creation of marketing campaigns require more creativity than transactional or administrative processes. Creative processes demand more flexibility, autonomy, personal judgment, as well as low levels of structure (Hall & Johnson, 2009; Seidel et al., 2015). Consequently, the management of processes and their underlying supporting information technology (e.g., ERP system) needs to be adapted to fit the specific process characteristics (Wang, Lin, Jiang, & Klein, 2007).

Other frequently mentioned process characteristics for which specific management recommendations have been derived are the degree of value contribution (Gibb, Buchanan, & Shah, 2006; Leymann & Roller, 2000; Ould, 1995), the repetitiveness of a process (Leymann & Roller, 2000; Tenhiälä, 2011), the interdependence of process participants (Davenport, 2015; Tenhiälä, 2011), and the process variability (Daft & Lengel, 1986; Gebauer & Lee, 2008). As an example, processes with a high value contribution (core processes) offer differentiation opportunities for which customer satisfaction is particularly important (Gibb et al., 2006); processes which are interdependent require more detailed planning (Tenhiälä, 2011) and hamper the use of agile methodologies (Thiemich & Puhlmann, 2013); and processes with a low variability can be supported cost efficiently with an enterprise system (Gebauer & Lee, 2008).

All these perspectives and examples share the common claim that the diversity of organizational processes opens up various pos-

sibilities for their management and that BPM approaches have to be tailored to the type of process under investigation. For this reason, even if not explicitly named as a "contextual factor", process characteristics play an important role in determining a specific context for BPM and are thus critical to the success of BPM initiatives. We therefore consider process characteristics as the second context dimension for BPM.

4.3. Contextual factors related to the organization

Characteristics of the organization in which BPM is applied are also relevant to identifying the right BPM approach (Morton & Hu, 2008; Roeser & Kern, 2015). The scope of a BPM initiative can refer to either intra-organizational processes or processes crossing organizational boundaries such as whole supply chains. In some situations, it is crucial to not only understand and optimize internal processes but also to control costumer processes (Trkman, Mertens, Viaene, & Gemmel, 2015) or even whole supply chains (Palma-Mendoza & Neailey, 2015; Palma-Mendoza, Neailey, & Roy, 2014). A number of methodologies have been proposed that deal with increased complexity in inter-organizational processes as compared to intra-organizational processes (Palma-Mendoza & Neailey, 2015; Palma-Mendoza et al., 2014; Trkman et al., 2015). In particular, these methodologies focus on the sharing of information, the coordination of physical goods flows, and the integration of business processes.

Another organizational contextual factor which is relevant to BPM can be derived from contingency theories, i.e. organizational size. For bigger organizations, higher bureaucracy as well as vertical and horizontal differentiation within an organization are viewed as appropriate (Donaldson, 2001). These organizational design principles also influence business processes, e.g. in terms of their design and degree of formalization. Several researchers examined the role of organizational size in related management fields such as TQM and Lean Management considering it as an important contingency factor (Jayaram, Ahire, & Dreyfus, 2010; Malhotra & Temponi, 2010; Shah & Ward, 2003). We therefore, argue that organizational size also plays a role for BPM in the sense that big organizations should focus more on BPM practices for formalized processes that cross vertical and horizontal functions than smaller firms.

Another important organizational contextual factor that can be derived from both BPM research and practice is the industry in which BPM is applied. Researchers examined BPM practices, for example, in the service industry (Reijers, 2003), the photography and paint industries (Benner & Tushman, 2003), as well as the product and process industries (Jayaram et al., 2010). The same BPM practices may not apply to all companies as the industry might be a critical context factor for BPM (Roeser & Kern, 2015; Škrinjar & Trkman, 2013). This industry differentiation is also reflected in BPM practice with examples such as IBM® offering Business Process Manager Industry Packs, or APQC offering industry specific business benchmarking for process performance indicators, best practices, and knowledge management research.

Further, organizations can also differ with respect to the degree to which their organizational culture is supportive of BPM (Schmiedel, vom Brocke, & Recker, 2013; Schmiedel, vom Brocke, & Recker, 2014). Customer orientation, excellence, teamwork, and responsibility are relevant cultural values for BPM, and, when these cultural values are high, BPM initiatives are likely to succeed (Schmiedel et al., 2013, 2014). Cultural values also determine the methodologies that should be selected for a BPM project. For example, agile methodologies are appropriate in a culture that is open for change (Thiemich & Puhlmann, 2013), while classical planning approaches seem to be more appropriate for a culture that values continuity. For this reason, BPM approaches need to consider

Table 1
Morphological box to identify the context of BPM.

Contextual factors	Example characteristics:		
Goal-dimension			
Focus	Exploitation (Improvement, Compliance)	Exploration (Innovation)	
Process-dimension			
Value contribution	Core process	Management process	Support process
Repetitiveness	Repetitive	Non-repetitive	
Knowledge-intensity	Low knowledge-intensity	Medium knowledge-intensity	High knowledge-intensity
Creativity	Low creativity	Medium creativity	High creativity
Interdependence	Low interdependence	Medium interdependence	High interdependence
Variability	Low variability	Medium variability	High variability
Organization-dimension			
Scope	Intra-organizational process	Inter-organizational process	
Industry	Product industry	Service industry	Product & Service industry
Size	Start-up	Small and medium enterprise	Large organization
Culture	Culture highly supportive of BPM	Culture medium supportive of BPM	Culture non-supportive of BPM
Resources	Low organizational resources	Medium organizational resources	High organizational resources
Environment-dimension			
Competitiveness	Low competitive environment	Medium competitive environment	Highly competitive environment
Uncertainty	Low environmental uncertainty	Medium environmental uncertainty	High environmental uncertainty

the culture within one organization and attempt to increase the presence of those values that support BPM.

Beyond the introduced factors, resources represent another organizational characteristic relevant to BPM. BPM can only be implemented successfully when an organization frees necessary resources such as personnel and investments in IT. In a study in the public sector, Niehaves (2010) investigated the influence that personnel resource scarcity exerts on process innovation. He found that personnel resource scarcity restricts the involvement of customers which, at the same time, has consequences for BPM-related collaboration and innovation. Therefore, we claim that the resource situation represents another contextual factor for BPM.

4.4. Contextual factors related to the environment

Finally, we identified environmental characteristics relevant to BPM that could be derived from management research. Environmental factors can be defined as factors outside of the organization. These factors include characteristics of the market and higher socio-cultural or political factors. One of the most frequently mentioned environmental characteristics is environmental uncertainty or turbulence. Such characteristics are critical to consider as rapidly changing environments increase the need for dynamic capabilities which can be defined as the capacity of an organization to purposefully create, extend, or modify its resource base (Helfat et al., 2009).

With regard to BPM, environmental uncertainty seems to have an influence on the possibility to standardize processes (Hall & Johnson, 2009; Schäfermeyer et al., 2010), on the information processing requirements (Daft & Lengel, 1986; Galbraith, 1973), and on the project management approach (Shenhar, 2001). Several researchers also state that traditional process management approaches are not appropriate for turbulent environments (Benner & Tushman, 2003; Borch & Batalden, 2015). In turbulent environments, it is important to build additional capacities and competencies which include broader cooperation and stakeholder management, focusing on change and risk management, strengthening analytical or research capabilities, and fostering open innovation in order to deal with the extreme environment (Borch & Batalden, 2015). Therefore, traditional process management activities are associated with organizational effectiveness only during periods of stability (Benner & Tushman, 2003). This view is in alignment with BPM practitioners suggesting more flexible, goal-oriented BPM approaches in situations of high envi-

ronmental uncertainty, which means organizing processes around "what is to be achieved" rather than "what is to be done" (TIBCO, 2015; Macronetics, 2015).

Beyond uncertainty, competiveness also represents an important environmental contextual factor for BPM. To be successful, organizations must also align their strategy and structure with the competitive environment (Rogers, Miller, & Judge, 1999). In some industries, for example in time-sensitive and competitive industries such as personal computers, the implementation of information technology to support organizational processes is particularly helpful to reduce cycle time, improve inventory management, and increase customer satisfaction (Kraemer, Dedrick, & Yamashiro, 2000). Considering competitiveness as an environmental factor is particularly important for core processes as compared to support processes since core processes often offer differentiation opportunities in the market (Gibb et al., 2006).

4.5. Integrated framework of contextual factors in BPM

Based on the discussed research, we propose an integrated framework in the form of a morphological box consolidating contextual factors of BPM. This framework is shown in Table 1. We consider the goal-, process-, organization-, and environment-dimensions as important dimensions in a high-level classification scheme to structure the derived contextual factors. The proposed characteristics serve as examples and are not necessarily the only possible operationalization of the contextual factors included in the framework. Also, we do not consider this framework to be complete. With this viewpoint article, we rather hope to invite further research and discussion on such dimensions, factors, and characteristics.

The framework in Table 1 can be used to characterize the context of a BPM project. For each contextual factor within each dimension, one or more characteristics can be identified that describe a specific situation or context. The framework is comprehensive in that it covers factors describing goal-, process-, organization-, and environment-dimensions. We suggest that, particularly at the beginning of a BPM project (i.e. during the planning phase), the goal-, process-, organization-, and environment-dimensions should be examined to more precisely understand the particular situation and to plan and manage effective BPM projects. This approach has also been proposed for project management in general (Engwall, 2003; Shenhar, 2011). Shenhar (2011), for example, differentiates between types of projects and suggests that

organizations should add a formal step of project classification to the traditional planning phase based on which organizational implications can be derived. While our contextual framework was originally derived for the area of BPM, some of the dimensions (such as organization and environment) might also be relevant for project management in general (Engwall, 2003).

Researchers can use the framework in order to develop a more context-sensitive BPM body of knowledge. They can better position single contributions, as well as specifically add new contributions for aspects of context which do not seem to be sufficiently considered in the contemporary BPM body of knowledge. In the following sections, we showcase multiple possible contexts of BPM projects that result in multiple management recommendations to give some ideas of how to apply the context framework.

5. Exemplary application of the context framework

In this section, we offer distinct hypothetical examples to demonstrate how our proposed framework can be applied. We first describe three illustrative examples with different contexts of BPM and then derive and compare specific BPM recommendations.

5.1. Describing the contexts of BPM

In a first step, our framework can be used to understand the context in which BPM is applied. For this, each contextual factor is evaluated individually and the resulting pattern describes the overall context of BPM. We did that for three illustrative examples that are summarized in Table 2.

5.1.1. Context in example A: Standardization of a support process in a large, global corporation

This example refers to a large, global corporation providing technology and services for the engineering industry. The aim of their BPM initiative is to globally standardize their customer support process and related data structures supported by a global ERP solution. The process in scope is repetitive and supported by various IT systems which are harmonized during the BPM initiative. The corporation is able to invest large resources into the global standardization of the process. This is fortunate since the improvement of the support process also requires huge efforts for cultural reasons. In fact, the development of a BPM-supportive culture is seen as a critical determinant for the success of this initiative. A medium competitive environment allows the organization to focus on their internal changes.

5.1.2. Context in example B: Reengineering of a core process in a small start-up company

Our next example refers to a start-up company from the telecommunication industry that aims to innovate their product development process. Due to the highly competitive environment the company acts in, it puts a lot of effort into keeping up with state-of-the-art technological developments. As a very agile company, the start-up is particularly eager to stay up-to-date in their core business and thus also in their core processes. The process under investigation in their reengineering initiative is a core process which is non-repetitive, highly knowledge-intensive and creative, and shows low interdependence with other departments but high variability. The culture of the organization is highly supportive of BPM.

5.1.3. Context in example C: Technology implementation in a support process of a large, global corporation

Another example refers to a technology implementation project of a large corporation in the IT industry which acts in a highly competitive and uncertain environment due to the rapid development of new technologies. The company values the exploration of digital possibilities and therefore, invests a significant amount of resources to implement new technologies in their human resources department. The processes in scope are administrative processes of the human resources department that can be classified as supportive, repetitive, low in knowledge-intensity, low in creativity, low in interdependence, and low in variability. The culture of this organization is highly supportive of BPM showing a long history of BPM initiatives.

5.2. Deriving BPM approaches

Understanding the context of BPM, we can derive methods which are context-sensitive and take goal-, process-, organization-, and environment-dimensions into consideration. Looking at our examples, we observe similarities and differences in the contextual factors that constitute the overall context in which BPM is applied. To illustrate how the management of business processes differs across contexts despite similarities of the examples, we pick several contextual factors and showcase the respective management approaches in the three scenarios.

5.2.1. BPM goals as a contextual trigger of BPM: exploitation vs. exploration

While examples A and C have many similarities, for example, regarding process-related contextual characteristics in that both focus on similar types of processes (i.e. support processes that are repetitive, neither very knowledge-intensive, nor creative, nor interdependent, nor variable), the approach of the two BPM initiatives differs largely based on the distinct BPM goals (exploiting process performance through standardization in example A vs. exploring performance enhancement through implementation of new technologies in example C). This difference determines which methods need to be applied for successful process improvement or innovation. The context in example A requires the application of traditional BPM methods such as process analysis, re-design, and the development of a standardized data structure. The ERP solution supports many of the process activities and thus helps to harmonize the process on a global scale and increase its efficiency and effectiveness. However, because the focus of the BPM initiative in example C lies in innovation and exploring the implementation of a new technology, more creative methods should be applied for the process re-design phase, such as design thinking methods, instead of extensively measuring and analyzing the as-is process performance.

5.2.2. Process characteristics as a contextual trigger of BPM: creative core vs. repetitive support process

Examples B and C also share similarities, for example, in that both focus on exploration and build on a BPM-supportive organizational culture. However, the management of the two initiatives also differs strongly since other contextual factors such as process characteristics are very distinct and call for different methodological approaches. While example B deals with a knowledge-intensive core process for which the participation of many process stakeholders and the flexibility of process participants are particularly crucial (Davenport, 2015), example C focuses on a structured support process that is rather repetitive. These different contexts require different BPM approaches. Example B requires a focus on creative methods such as design thinking to reengineer the product development process. For designing the new process, it is also important to involve process participants as much as possible to make sure that the process design leaves them enough flexibility in executing the process in the future. In addition, information processing capabilities of process participants need to be enabled, for example, through knowledge management systems.

Table 2
Exemplary contexts of BPM.

Contextual factors	Example characteristics:		
Goal-dimension			
Focus	Exploitation (Improvement, Compliance) (A)	Exploration (Innovation) (B)(C)	
Process-dimension			
Value contribution	Core process (B)	Management process	Support process (A)(C)
Repetitiveness	Repetitive (A)(C)	Non-repetitive (B)	
Knowledge-intensity	Low knowledge-intensity (A)(C)	Medium knowledge-intensity	High knowledge-intensity (B)
Creativity	Low creativity (A)(C)	Medium creativity	High creativity (B)
Interdependence	Low interdependence (A)(C)	Medium interdependence	High interdependence (B)
Variability	Low variability (A)(C)	Medium variability	High variability (B)
Organization-dimension			
Scope	Intra-organizational process (B)(A)(C)	Inter-organizational process	
Industry	Product industry (B)(C)	Service industry	Product & Service industry (A)
Size	Start-up (B)	Small and medium enterprise	Large organization (A)(C)
Culture	Culture highly supportive of BPM (B)(C)	Culture medium supportive of BPM	Culture non-supportive of BPM (A)
Resources	Low organizational resources (B)	Medium organizational resources	High organizational resources (A)(C)
Environment-dimension			
Competitiveness	Low competitive environment	Medium competitive environment (A)	Highly competitive environment (B)(C)
Uncertainty	Low environmental uncertainty	Medium environmental uncertainty (A)	High environmental uncertainty (B)(C)

Example A (A)   Example B (B)   Example C (C).

The performance of the process can be monitored through KPIs for customer satisfaction and customer adoption since the product development process is a core process of the organization. In contrast to this BPM approach, example C deals with processes that do not need to be managed with high levels of flexibility but for which efficiency and standardization of the process execution is important. This is why global processes with only low levels of deviation can be designed with KPIs focusing more on efficiency measurements. It has to be highlighted that both organizations can use design thinking for the process design phase, but that the future process execution should be handled differently (ensuring high flexibility in example B and low flexibility in example C).

5.2.3. Organizational characteristics as a contextual trigger of BPM: supportive vs. non-supportive culture, small vs. large organization

Examples A and C are very similar regarding the size of the organization and the large amount of organizational resources. However, at the beginning of their BPM initiatives, they differ largely in another organizational characteristic, i.e. the supportiveness of their organizational culture for BPM. While example A faces cultural challenges at the start of their BPM initiative, example C is already equipped with an organizational culture that facilitates BPM. Therefore, the management approach in example A focuses on the development of the right corporate culture, which was not necessary in example C where the organizational culture was already supportive of BPM. In addition, example B differs from example A and C with respect to the size of the organization. As the organizations are quite large in examples A and C, much focus is put on discussing segregation of duties and creating formal documents that can be sent out to all relevant stakeholders. While documenting the process is also important for example B, the amount of formalization and the level of detail can be smaller than in examples A and C due to the size of the organization and the availability of resources.

5.2.4. Environmental factors as a contextual trigger of BPM: high vs. medium/low competition

Example A differs from examples B and C with respect to environmental competitiveness and uncertainty. Even if example C shows similar organizational and process characteristics to example A, it is more important for example C to design processes that are easily adaptable because the uncertainty of its environment can rapidly change the context of its BPM initiative. This can be reached through defining flexible roles and authorization concepts. In addition, a higher flexibility is required for example B than example A, as the environment of example B is highly competitive. This further emphasizes the need of company B to focus on the important core process and to involve customers as much as possible into the process design in order to ensure process excellence and a process that differentiates itself from competitors.

6. Discussion and conclusion

Based on research on context-aware process design, BPM success factors, differentiated BPM, and related process management fields, we propose a framework summarizing contextual factors for BPM across four different dimensions. Contrary to a one-size fits all approach, we claim that BPM needs to consider the context in which it is applied, consisting of factors related to BPM goals, processes, the organization, and the environment. These contextual factors should be examined quite early in the BPM project (i.e. during the initial planning phase) and should have an influence on the selection of management practices.

Obviously, contexts change over time. Therefore, we argue that BPM requires continuous adaptation to the given context since contextual factors, such as resources or competitiveness, may change from time to time. Such changes may not only be triggered through external factors but also through BPM initiatives that were established in a certain situation. For example, the culture of an organization may change over time and thus provide a situational change for further BPM initiatives in the organization (vom Brocke et al., 2015).

The illustrative examples show how the framework can be used to identify and describe the context of BPM, which is the first step of every contingency approach (Zeithaml et al., 1988). Having such a framework is crucial to structure the range of contextual elements and variables in disjoint categories or context subtypes (Zeithaml et al., 1988) so that, ultimately, these factors can be considered for selecting appropriate BPM approaches.

A contingency approach that considers contextual factors of BPM contributes not only to BPM practice but also to organizational research as it can help to explain conflicting results as to whether BPM activities increase or decrease organizational performance (Benner & Tushman, 2003; Johns, 2006; Zeithaml et al., 1988). Furthermore, future research can use this framework to examine the mechanisms of how contextual factors influence the success of BPM approaches. While the contextual factors are specifically derived for process management activities, they are not exclusive to the area of BPM. Research can examine to what extent they also hold true for managing projects in general as has been proposed for organizational and environmental factors in research on project management (Bucher & Winter, 2009; Engwall, 2003 ; Shenhar, 2001).

However, our framework is not without limitations. As research on contextual BPM is still in its early stages, we derived many contextual factors from related fields such as TQM and organizational design which still require empirical investigation in the BPM field. However, due to their similarities with BPM (e.g., focus on organizational processes, design of systems and interconnected subsystems), we believe that these factors are also relevant to BPM.

Another limitation of our framework is that we propose contextual factors without considering their potential relationships. Contextual factors are, however, interdependent. As examples, organizational size influences organizational resources (Germain & Spears, 1999; Shah & Ward, 2003), and industry type influences organizational and process characteristics (Chatman & Jehn, 1994; Jayaram et al., 2010). These interdependencies have not been considered and are subject to future research. We believe, however, that there is also value in considering one factor at a time (holding the other factors constant) because organizations that are comparable on dimensions such as size, culture, and industry might still be different in terms of their process characteristics or goals.

As one of our aims was to focus attention on context-sensitive BPM and to foster further research on contextual factors in BPM, we propose the following directives for future research:

First, research can validate and enhance the proposed model. Alternative methods such as surveys, coding, or content analysis of previous papers (e.g., Indulska, Hovorka, & Recker, 2012) could be applied to validate the contextual factors. This could also result in the identification of additional or alternative dimensions, factors, or characteristics that help to study BPM contexts. While we provided a list of critical process characteristics, researchers have called for a more integrated and systematic understanding of process characteristics (Schäfermeyer et al., 2012).

Second, research can derive context-sensitive management practices. While we provided some examples of how the management of specific contexts can look, we think more research is needed to understand the relationship between contextual factors and BPM requirements. One example could be the development of context-sensitive BPM maturity models that evaluate the relevance of each maturity criteria in a given situation.

Third, research can examine the relationships between contextual factors. As most studies only look at one factor at a time, more research is needed that examines their relationships. This also includes examining their relative importance compared to other contextual factors in a given situation. Future research could, for example, use our framework to identify relevant contextual factors in case studies of BPM projects and derive quantitatively testable propositions of the relations of these factors. Further research may test related hypotheses and use the findings to further develop our framework.

Fourth, research can examine the interaction between BPM initiatives and specific BPM contexts. Since context can change over time, it influences the selection of appropriate BPM methods and thus the organizational BPM approach. At the same time, BPM initiatives can influence the context of BPM (such as process characteristics or BPM culture). An appropriate means to examine cause-effect relationships in-depth could be longitudinal case studies that inspect the dynamics of context factors and BPM initiatives from a qualitative perspective. Also, with a detailed overview of a large number of BPM projects, quantitative tests on the relation between BPM initiatives and contextual factors can yield valuable insights.

Fifth, research can develop measurement tools that support identifying and monitoring changes of the BPM context. It would be very helpful for practitioners to easily understand the context of a particular BPM initiative in order to select the right management approaches. Therefore, it is not only important to identify but also monitor situational changes in order to adapt the BPM approach if required.

In this viewpoint article, we call for more situational research and practice that considers the role of context in BPM. We argue that BPM should not follow a one-size-fits-all approach as the business contexts in which BPM is applied are highly variable. To better understand these contexts, we propose a framework consisting of contextual factors related to BPM goals, processes, organizations, and environments. These contextual factors are BPM-specific but not BPM-exclusive, which means that some of the contextual factors might be applicable to fields beyond BPM as well. Our framework can help both researchers and practitioners to describe the specific context of a BPM initiative and to derive an appropriate BPM approach. In addition, the framework implies various possibilities for future research striving towards a comprehensive understanding of the role of context in BPM.

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