

Exploring Explorative BPM – Setting the Ground for Future Research

Thomas Grisold², Steven Gross³,
Maximilian Röglinger¹, Katharina Stelzl¹, Jan vom Brocke²,

¹ University of Bayreuth, 95444 Bayreuth, Germany

² University of Liechtenstein, 9490 Vaduz, Liechtenstein

³ Vienna University of Economics and Business, 1020 Vienna, Austria
{maximilian.roeglinger, katharina.stelzl}@uni-
bayreuth.de, {jan.vom.brocke, thomas.grisold}@uni.li;
{steven.gross}@wu.ac.at

Abstract. Recent claims in the literature highlight that BPM should become more explorative and opportunity-driven. The underlying argument is that BPM has been mainly concerned with exploitation activities – i.e., analysis and improvement of existing business processes – but it has neglected the role of innovation. In this conceptual article, we aim to establish a systematic understanding of what explorative BPM is and how it can be brought about. We pursue three goals. First, we derive an overarching definition of explorative BPM. Second, we propose the “triple-diamond model” as a means to integrate explorative BPM activities in business process work. Third, we point to future research opportunities in the context of explorative BPM.

Keywords: Explorative BPM · Process Innovation · Opportunity Identification

1 Introduction

Recent claims highlight that BPM should become more innovation-driven [15,29,30]. Underlying these claims is the observation that BPM has made considerable progress to increase efficiency and effectiveness of business process work but has neglected the question of how organizations can facilitate innovation. That said, it is remarkable that Michael Hammer, founder of the Business Process Reengineering discipline and perhaps the most influential promoter of the process paradigm, prominently stated in one of his last articles that BPM has two primary intellectual antecedents: the quality movement and business process engineering. The first focusing on improving existing processes and the second focusing on rethinking processes using new technology aiming at innovation [11]. To some extent, this element of innovation, which has been at the core of BPM, seems to have faded into the background over the past decade. Moreover, digital technology today drives innovation at such speed and scale [3] that it provides new opportunities and challenges for BPM. What is subsumed under the term *explorative BPM* suggests that process-oriented organizations should be able to develop new

capabilities and competences to detect emerging opportunities in terms of new technologies and business models [22]. In light of today's highly dynamic business environment, this is considered essential to ensure customer satisfaction and foster inter- and intra-organizational collaboration [8]. Research on explorative BPM is still a new frontier and innovation and opportunity-driven process redesign are, to some extent, contradictory to the logics of what has been researched and practiced referred to as BPM in the recent past. Following Benner and Tushman [1], BPM helps organizations to achieve error reduction and variance control but, due to increasing standardization, it decreases an organization's capability to sense, seize, and transform ground-breaking innovations. How can exploration be integrated into business process work? This is a question that should deserve more attention in the literature [8, 15, 22].

Within the tutorial presented at BPM 2019, we aim to approach explorative BPM in a systematic way and develop the grounds for future research agendas. In particular, we will (1) point to related (management) disciplines, (2) review the most important features of explorative BPM, (3) introduce an integrated framework to realize explorative BPM in organizations, and (4) derive a research agenda.

2 Related Fields and Agendas

Following Rosemann's call to "mix up relevant communities" when studying explorative BPM [17, p.637], we draw on a number of related fields and research agendas in the domains of management and organizational science. We draw on research on organizational ambidexterity (OA) and innovation management (IM) as both fields seem promising to extend our understanding of explorative BPM.

OA has been a buzzword in the management literature for more than twenty years, promising organizations long-term survival in turbulent environments [24, 27]. In essence, OA is an organization's dual capability to develop management capabilities for both exploitation, i.e., incremental innovation leading to short-term efficiency gains, and exploration, i.e., radical long-term innovation activities [12,20,24]. In detail, *exploration* is characterized as a consistent opportunity-seeking approach with a focus on long-term growth through the development and introduction of radical innovation in line with external demands [12,21]. It requires organizations to develop adaptive processes and structures that can be (re-) configured on demand [20] and a culture marked as risk-taking, flexible, and fast, supported by a visionary leadership style. Moreover, OA research investigates how to put OA into practice, e.g. by systematically developing OA capabilities based on an OA maturity model or by using a decision model that assists organizations in selecting and scheduling exploration and exploitation projects to become ambidextrous in an economically reasonable manner [18,23].

IM encourages the development and introduction of new products, services, business models, and processes by frequently following an outside-in approach that is guided by customers' needs [28]. Specifically, process innovation describes the "implementation of a new or significantly improved production or delivery method [i.e., process]. This includes significant changes in techniques, equipment and/or software" (OECD 2005, p. 49). Hence, process innovation comprises the effective redesign (and efficiency or effectiveness improvement) of existing processes but also the development of new ones

by following a structured procedure [6,14]. Process innovation can further be split into ‘technological process innovation’ and ‘organizational process innovation’ [9,11], ranging from single process elements (e.g. activities) to whole process chains [14], and it can be described as incremental or radical [25,28]. Triggers for (process) innovation can be push and pull factors, where the former is based on the demand of internal or external customers while the latter is brought about by new technologies [28]. Besides the definition of IM, researchers and practitioners have developed a large set of methods and tools to generate new ideas for innovation, and have brought them into practice for an organizational competitive advantage [25]. All in all, descriptive and prescriptive knowledge on OA and IM appears to be a promising theoretical lens for closing the theoretical and methodological gap in explorative BPM.

3 Conceptualizing Explorative BPM

While there is no explicit definition of explorative BPM, authors highlight a number of features that are commonly associated with it.

First and foremost, explorative BPM emerged as a complementary view to established understandings of BPM. Over the past decades, the main focus of BPM has shifted towards an exploitative management discipline that pursues “reaction-based” improvements when negative deviance and changes occur. From this perspective, BPM has been driven by an “inside-out” logic, ensuring the efficiency and effectiveness of processes. Innovation, on this view, occurs when organizations face a pressure to do so. This implies that innovation is incremental as it relies on existing resources and capabilities to detect and correct for undesired deviance [2].

Explorative BPM, in contrast, calls for an “outside-in” logic that applies “environmental scanning capabilities” to identify new opportunities in dynamic business environments [22, p.3]. It is transformational in the sense that it develops new capabilities, identifies new business opportunities, and capitalizes on emerging technologies [19]. While new opportunities and emerging technologies might be novel and unfamiliar, organizations should be able to recognize and evaluate them in terms of their affordances and underlying potentials [3, 17]. Even if organizations do not face any threat or crisis, they are able to rethink or unlearn their established practices and approaches [16] to integrate innovations into their business process work.

When organizations capitalize on new business opportunities such as emerging technologies or new customer expectations, explorative BPM can transform business processes in three different ways leading to different value propositions for customers. For a better overview, Figure 1 differentiates between three dimensions of process innovation and its typical combinations for explorative and exploitative BPM. Focusing on explorative BPM, in the first and second case, new opportunities can lead to a reengineering of existing processes that, in turn, entail the same or an enhanced value proposition for customers [4]. For example, leveraging artificial intelligence for detecting fraudulent insurance claims innovates the process from the company’s internal perspective, while the value proposition for the consumer remains the same. An enhanced value proposition may result from the integration of customers’ connected devices into the insurance premium calculation, especially for cost-conscious customers. In the third

case, new opportunities may enable the creation of entirely new processes resulting in a new value proposition for customers [4]. For example, building on smart contracts enables insurances to provide a flight delay coverage without the required customer trust, as the involved parties may even remain anonymous and the contract executes itself. This clearly differs from traditional insurance contracting where the insurance payout depends on and is initiated by the insurance company.

A third important feature is that explorative BPM activities must not to be understood as selective and single interventions but require continuity [32]. Explorative BPM needs ongoing visioning [22] and experimenting [8] to develop new resources and capabilities [19]. Establishing continuity in terms of exploration is a challenge for process-oriented organizations. According to [1,2], BPM, while reducing errors and variation, leads to inertia in the long run. Organizations become path-dependent in the sense that they draw on existing capabilities, resources, and best practices; those practices that helped organizations to achieve efficiency in the first place can now “impede an organization’s adaptation to major technological transitions” [2, p.323]. In order to ensure continuity in terms of explorative BPM, organizations can, for example, implement “opportunity points” in business processes to integrate new technologies, or establish teams and units that are concerned with identifying new trends and opportunities and mapping them to organizational work [2,22]. Central to these interventions is that explorative BPM is contingent on capabilities to continuously sense, seize and transform opportunities into innovations.

Three dimensions of BPM			
Trigger	Problem-driven		Opportunity-driven
Action	Improve existing process	Reengineer existing process	Create new process
Value proposition	Same value proposition	Enhanced value proposition	New value proposition

Typical combinations for explorative and exploitative BPM	
Exploration	Opportunity + Reengineer existing process + Same value proposition
	Opportunity + Reengineer existing process + Enhanced value proposition
	Opportunity + Create new process + New value proposition
Exploitation	Problem + Improve existing process + Same value proposition
	Problem + Reengineer existing process + Same value proposition
	Problem + Improve existing process + Enhanced value proposition
	Problem + Reengineer existing process + Enhanced value proposition

Figure 1: The three dimensions of process innovation and its typical combinations for explorative and exploitative BPM

To summarize, based on the features commonly associated with explorative BPM, we understand it as *the continuous process of questioning underlying business logics – i.e. the established understanding how value is generated – and integrating innovation opportunities (both in terms of business and technology) into business process work, even if there is no perceived pressure to do so. Explorative BPM refers to the offering of the same, enhanced, or new value propositions through the reengineering of existing processes or the creation of new processes.*

4 Realizing Explorative BPM: Towards an Integrated Model

Having outlined the features and characteristics of explorative BPM, we now introduce an integrated framework to realize explorative BPM in organizations. Figure 2 depicts the so-called *Triple Diamond Model*. This model builds on the concept of divergent and convergent thinking [5] to integrate innovation opportunities. Within divergent thinking, novelty is created through a creative process. Taking the information at hand, multiple alternative solutions are created through unexpected combinations, a transformation of information into unexpected forms and other techniques [5]. Convergent thinking evaluates a solution according to criteria such as speed, accuracy, or logic [5].

This process of divergent exploration and convergent evaluation is the core of the three diamonds. These diamonds represent the business perspective, the technology perspective, and the integration perspective. It is not meant to be understood as a rigid method, but rather as a blueprint which forms the explorative BPM process. This also means that there is no strict order within its elements. The model is context-aware, i.e. it takes into consideration the specific situation of the organization at hand [7,31].

In the business diamond, current local and global trends are identified. This may be a shift of consumer expectations towards higher data control, greater personalization of products and services, or an orientation towards subscription-based models, to name a few examples. The identification and exploration of these trends is part of the divergent thinking phase, in which new ideas are generated regardless of their feasibility or limitations given. Subsequently, in the convergent thinking phase, the context of the organization is considered. This includes the industry, its strategy, positioning, current products and processes. The previously identified and generated alternatives are thereby evaluated regarding criteria like applicability, feasibility, and fit to the current strategy.

The technology diamond identifies current technological trends and innovations. Emerging technical solutions have been found to be a promising source of business process innovation [8, 13]. In the divergent thinking phase, it is first explored which technological trends are available and how these technologies can potentially influence future process interactions and executions [3]. This boundless exploration of emerging technologies is followed by the convergent thinking phase. In this stadium, the identified opportunities are evaluated regarding their associated risks, technological affordances, and features of the specific technologies. In this phase, the evaluation of the technology is yet context-independent of a specific application scenario.

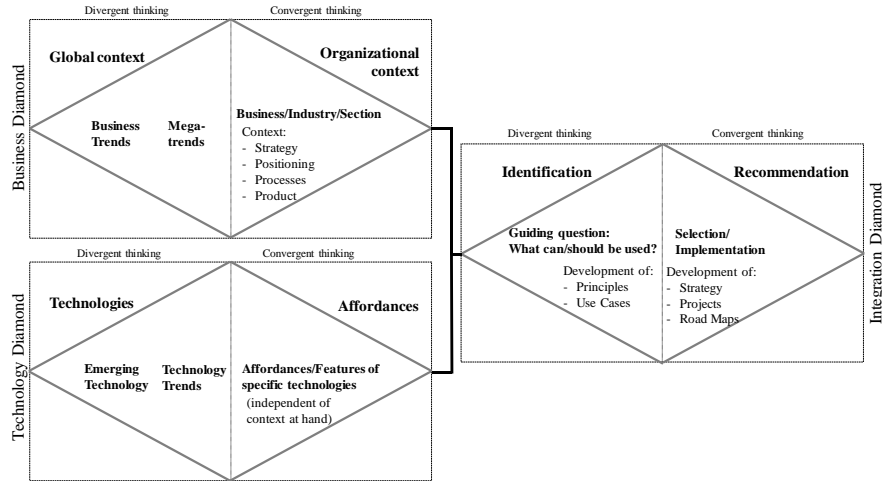


Figure 2: The “Triple Diamond Model” to foster explorative BPM

Once both business and technological trends have been identified and evaluated, the integration diamond combines both sides with the organizational process perspective. The development of use cases takes part in the divergent thinking phase. These use cases should be identified and developed independent from potential organizational limitations. The guiding question in this phase is: Which technological and business trends can be leveraged in the organization at hand? This supports the organization to generate new alternative ways how value is generated. The evaluation of these use cases takes part in the convergent thinking phase of the integration diamond. There, the generated alternatives are assessed and selected. At the end of this phase, concrete results are generated. This includes but is not limited to a clear strategy for the implementation and concrete projects and roadmaps for operationalizing the new business process idea. By doing so, either existing processes are majorly modified, new processes are established, or new outcomes are generated within the organization.

5 Conclusion and Research Agenda

The management of business processes in research and practice has much focused on process-driven operational excellence. Current trends in the area like process mining, which has received great attention beyond the BPM community, emphasize this course by targeting and analyzing existing processes for identifying operational weaknesses. This paper aims at expanding this exploitative view on BPM by an integration of innovation opportunities into organizational business processes – called explorative BPM.

In the course of this paper, we defined explorative BPM and its characteristics. While radically re-thinking existing business processes has been aimed for over three decades, it is only a part of what we describe as explorative BPM. Compared to the traditional exploitative perspective, it is opportunity-driven and includes the creation of new processes offering new value propositions. Thus, rather than focusing solely on existing

processes, explorative BPM also takes into consideration novel ways to extend the organizations' existing process landscape. The exploration of new opportunities is also a continuous endeavor rather than a one-time process. We also proposed an integrated model, which incorporates the different dimensions of explorative BPM into one consistent framework.

We see explorative BPM as a promising research stream which has the potential to reshape existing paradigms and self-perceptions in BPM research and practice. We acknowledge that, despite existing research which aims to define and characterize explorative BPM, more research is needed to understand its nature and integration into organizational practices. Hence, we want to point to the following future research streams.

1. Defining and evaluating methods which put explorative BPM into practice. A plethora of methods and management approaches exist which aim to incrementally improve existing processes [7, 10]. However, more research is needed to design procedures that help implement explorative BPM in a step-wise manner [29]. To evaluate these methods, appropriate criteria have to be defined to ensure the applicability of these methods of the validity of their results.

2. Investigating which organizational capabilities foster explorative BPM. Despite the methodological view on the topic, other organizational capabilities such as culture and governance are likely to affect the successful integration of explorative BPM into practice. We see explorative BPM as a holistic approach [30], within the organizational context, thus investigating required capabilities that affect the successful integration of the approach is of high interest [15].

3. Expanding the theoretical foundation by other research streams. Although explorative BPM specifically targets business processes within organizations, relevant insights from the IM, OA, and organization science discipline and related fields should be used to complement the theoretical foundation by integrating relevant concepts and theories. For practical and historical reasons, research has often been conducted within separate communities. However, explorative BPM should build on and integrate innovation research from different disciplines like innovation-, design-, and organizational research, to name but a few.

We believe the BPM community has the chance to complement its existing mature understanding of methods, techniques, and tools for operational excellence by an explorative perspective. We want to emphasize that these are two sides of the same coin. It is not a shift but an expansion of the current understanding of BPM and thus beneficial for the community as a whole.

References

1. Benner, M. J., and Tushman, M. L.: Exploitation, Exploration, and Process Management: The Productivity Dilemma Revisited. *Academy of Management Review* (28:2), pp. 238-256. (2003)
2. Benner, M. J., and Tushman, M. L.: Process Management, Technological Innovation, and Organizational Adaptation. in *Business Process Transformation*, V. Grover and M. L. Markus (eds.), M.E. Sharpe: Irvine, CA, pp. 317–326. (2007)

3. Berger, S., Denner, M. S., Röglinger, M.: The Nature of Digital Technologies: Development of a Multi-layer Taxonomy. 26th European Conference on Information Systems (ECIS), Portsmouth, UK, 2018. 96 (2018)
4. Christensen, C.M., Hall, T., Dillon, K., Duncan, D. S.: Know Your Customers' "Jobs to Be Done". *Harvard Business Review*, pp. 54-62. (2016)
5. Cropley, A.: In praise of convergent thinking. *Creativity research journal*, (18:3), pp. 391-404. (2006)
6. Davenport, T. H.: *Process Innovation: Reengineering Work through Information Technology*. MA: Harvard Business School Press, Boston, Massachusetts: Harvard Business School Press. (1992)
7. Denner, M. S., Röglinger, M., Schmiedel, T., Stelzl, K., Wehking, C.: How Context-Aware Are Extant BPM Methods?-Development of an Assessment Scheme. In *International Conference on Business Process Management*, Springer, Cham. pp. 480-495. (2018)
8. Dezi, L., Santoro, G., Gabteni, H., & Pellicelli, A. C.: The role of big data in shaping ambidextrous business process management: Case studies from the service industry. *Business Process Management Journal* (24:5), pp.1163-1175. (2018)
9. Edquist, C., Hommen, L., and McKelvey, M.: *Innovation and Employment: Process versus Product Innovation*, Cheltenham, United Kingdom. Edward Elgar Publishing. (2001)
10. Gross, S., Malinova, M., Mendling, J.: Navigating Through the Maze of Business Process Change Methods. *Proceedings of the 52nd Hawaii International Conference on System Sciences*, pp. 6270-6279. (2019)
11. Hammer, M., and Champy, J.: *Reengineering the Corporation: A Manifesto for Business Revolution*, New York, USA: Harper Business Books. (1993)
12. He, Z.-L., and Wong, P.-K.: Exploration vs. Exploitation: An Empirical Test of the Ambidexterity Hypothesis. *Organization Science* (15:4), pp. 481-494. (2004)
13. Kemsley, S.: Emerging technologies in BPM. in *BPM-Driving Innovation in a Digital World*. Springer, Cham. pp. 51-58. (2015)
14. Kern, E.-M., Röser, T., Ulrich, S.: Prozessmanagement: Trigger Und Befähiger Für Prozessinnovation?. in *Prozessinnovation Und Prozessmanagement. Zwei Managementfelder Zur Stärkung Der Prozessleistung in Unternehmen*, C. Mieke (ed.), Berlin: Logos, pp. 1-26. (2013)
15. Kerpedzhiev, G., König, U., Röglinger, M., Rosemann, M.: *Business Process Management in the Digital Age*. BPT Trends. (2017)
16. Klammer, A., Grisold, T. and Guldenberg, S.: Introducing a 'stop-doing' culture: How to free your organization from rigidity. *Business Horizons*. (in press).
17. Kohlborn, T., Mueller, O., Poepplbuss, J. Roeglinger, M.: Interview with Michael Rosemann on ambidextrous business process management. *Business Process Management Journal* (20:4), pp. 634-63 (2014)
18. Linhart, A., Röglinger, M., Stelzl, K. A Project Portfolio Management Approach to Tackling the Exploration/Exploitation Trade-off. *Business and Information Systems Engineering*, pp. 1-17. (2018)
19. Ohlsson, J., Han, S., Bouwman, H.: The prioritization and categorization method (PCM) process evaluation at Ericsson: a case study. *Business Process Management Journal* (23:2), pp. 377-398. (2017)
20. O'Reilly, C. A., Tushman, M. L.: The Ambidextrous Organization. *Harvard Business Review* (82:4), pp. 74-81. (2004)
21. O'Reilly, C. A., Tushman, M. L.: Organizational ambidexterity: Past, present, and future. *Academy of management Perspectives*, 27(4), 324-338. (2013)

22. Rosemann, M.: Proposals for Future BPM Research. in Proceedings of the Asia-Pacific Conference on Business Process Management, C. Ouyang and J. Y. Jung (eds.), Switzerland: Springer, pp. 1-15. (2014)
23. Schwindenhammer, L., Röglinger, M., Stelzl, K. How to Put Organizational Ambidexterity into Practice –Towards a Maturity Model. In International Conference on Business Process Management–Business Process Management Forum, Springer, Cham. pp. 194-210 (2018)
24. Teece, D. J.: Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance. *Strategic Management Journal* (28:13), pp. 1319–1350 (2007).
25. Tidd, J., and Bessant, J.: *Managing Innovation: Integrating Technological, Market and Organizational Change*. (5th ed.), Chichester, United Kingdom: Wiley. (2013)
26. Tumbas, S., Berente, N., vom Brocke, J.: Three Types of Chief Digital Officers and the Reasons Organizations Adopt the Role. *MISQ Executive* (16:2), pp. 121-134. (2017)
27. Tushman, M. L., and O'Reilly, C. A.: *Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change*. *California Management Review* (38:4), pp. 8–30. (1996)
28. Vahs, D., and Brem, A.: *Innovationsmanagement: Von Der Idee Zur Erfolgreichen Vermarktung*. (4th ed.), Stuttgart, Germany: Schäffer-Poeschel. (2013)
29. vom Brocke, J., Mendling, J.: Frameworks for business process management: a taxonomy for business process management cases. In *Business Process Management Cases*. pp. 1-17. Springer, Cham. (2018)
30. vom Brocke, J., Rosemann, M. (Eds.): *Handbook on business process management 2: strategic alignment, governance, people and culture*. Springer. (2014)
31. vom Brocke, J., Zelt, S., Schmiedel, T.: On the Role of Context in Business Process Management. *International Journal of Information Management* (36), pp. 486–495. (2016)
32. vom Brocke, J., Schmiedel, T., Recker, J., Trkman, P., Mertens, W., Viaene, S.: Ten principles of good business process management. *Business Process Management Journal* (20:4), pp. 530-548. (2014)