

Process-pattern.app – A collection of business process redesign patterns

Tobias Fehrer^{1,2}

¹FIM Research Center for Information Management, University of Bayreuth, Bayreuth, Germany

²Branch Business & Information Systems Engineering of the Fraunhofer FIT, Bayreuth, Germany

Abstract

This paper introduces process-pattern.app, a website consolidating Business Process Redesign (BPR) patterns from the literature and the field. The site seeks to enhance the usability of BPR patterns by providing features such as case studies, cheat sheets, and suggestions for pairing individual patterns. Process-pattern.app seeks to inspire creative thinking in process improvement and bridge the gap between academic knowledge and practice application. This work contributes to the BPM field by fostering a shared learning environment.

Keywords

business process redesign, pattern repository, process improvement, web resource

1. Introduction

The undeniable importance of efficient Business Process Management (BPM) in today's organizations is well recognized. An essential activity of BPM is Business Process Redesign (BPR) (not to be confused with business process re-engineering), which focuses on reshaping business processes to enhance goal achievement and improving process performance [1]. Often, BPR relies on innovative thinking and creative ideas for process improvement [2]. Research in BPM is dedicated to developing methodologies that bolster BPR efforts. In response to this, the BPM community is tasked with creating tools that facilitate the practical application of these methods for practitioners and researchers alike [3]. One method to express, document, and share BPR knowledge is using BPR patterns, often referred to as best practices or redesign heuristics. A pattern is an abstract solution intended to solve distinct issues by leveraging pre-existing knowledge rather than reinventing the wheel [4, p. 2]. One of the strengths of patterns is that they are sufficiently specific to tackle the problem at hand. Yet, they maintain a level of generality that allows them to address potential future problems [4, p. 2]. BPR patterns in specific "suggest particular changes to an existing process to influence its operation in certain ways" ([5, p. 193]). In this context, patterns can stimulate the creativity required for [6, 2]. One example of a BPR pattern is the *knock-out pattern*, wherein a workflow requires multiple

Proceedings of the Best Dissertation Award, Doctoral Consortium, and Demonstration & Resources Forum at BPM 2023 co-located with 21st International Conference on Business Process Management (BPM 2023), Utrecht, The Netherlands, September 11th to 15th, 2023

✉ tobias.fehrer@fim-rc.de (T. Fehrer)

ORCID [0000-0002-8798-5724](https://orcid.org/0000-0002-8798-5724) (T. Fehrer)



© 2023 Copyright for this paper by its authors. Use permitted under Creative Commons License Attribution 4.0 International (CC BY 4.0).

 CEUR Workshop Proceedings (CEUR-WS.org)

conditions to be met for successful completion. If flexibility allows, conditions are checked in an order determined by the most favorable ratio of expected knock-out probability to the expected effort to check each condition (i.e., “If it must fail, let it fail early”). Knowledge of this pattern and implementing it appropriately can lead to cost savings, albeit with a slight increase in time – two performance dimensions frequently considered in BPR as part of the Devil’s Quadrangle [7, 8].

BPR patterns aren’t typically invented from scratch but instead discovered from the field, subsequently compiled for use [9]. There are numerous publications on BPR patterns, encompassing general business processes [10, 8] as well as specific domains such as customer-centricity [11] and sustainability [12].

Making these collections of patterns accessible to users is a crucial success factor for their adoption. Apart from research papers, websites have demonstrated their usefulness in communicating pattern-related knowledge in BPM: bpmpatterns.org¹ connects publications related to process model (anti-)patterns, classifies them, and arranges them in a taxonomy [13]. While the site is beneficial for gaining an overview of the literature, it does not delve into specific pattern details. [Workflowpatterns.com](http://www.workflowpatterns.com)² provides detailed descriptions of patterns for process design. However, it does not focus specifically on BPR. Aiming to address the arising gap and to render BPR patterns more practical for practitioners and researchers, this paper introduces process-pattern.app. This site compiles BPR patterns and enhances them with supplementary resources.

2. Innovations and Characteristics

[Process-pattern.app](http://process-pattern.app) is designed to facilitate identifying, comprehending, and applying BPR patterns. The site consolidates BPR patterns from various sources into a single location. The design objective is to present BPR patterns understandably and supplement them via content elements such as case studies, cheat sheets, pattern pairings, and original research papers [14, 15].

Patterns On an overview page, users can search for patterns by name or filter them via tags (see Figure 1). An individual BPR pattern is presented on a single page and can consist of (a) a graphic that symbolizes the pattern, (b) a short name that encapsulates the essence of the pattern, (c) a summary outlining the pattern’s key idea or guiding question for its use, (d) a reference to the original academic publication or report from where the pattern was collected, (e) a section clarifying the pattern’s workings and its application, (f) key takeaways, (g) details regarding its estimated influence on business process performance and a radar chart – a graphical representation depicting the multi-dimensional impact of the BPR pattern on performance dimensions (similar to the visualization of the Devil’s Quadrangle), (h) related patterns that have a conceptual or practical connection to the current pattern, and (i) real-world examples demonstrating the pattern’s application and effectiveness.

¹<http://bpmpatterns.org/>

²<http://www.workflowpatterns.com/>

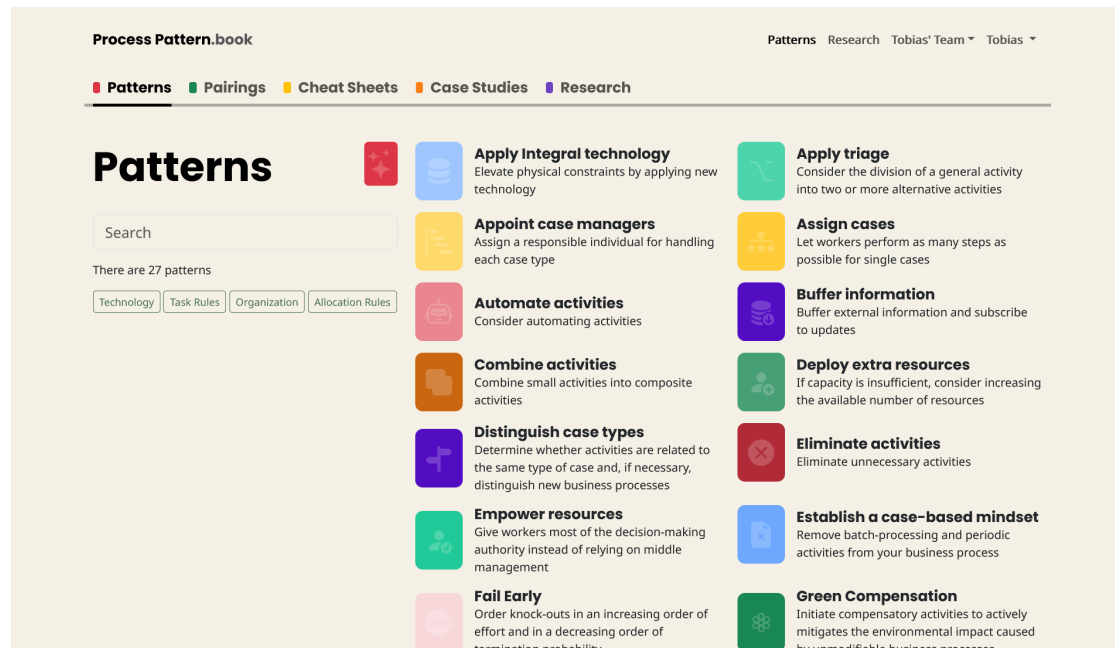


Figure 1: Process Pattern Book page, screenshot from (<https://process-pattern.app/book>).

Pairings The pairings section shows how different BPR patterns can be combined for process improvement. The idea is that combining individual patterns can offer more significant improvements or more suitable applications.

Case studies The idea behind the case studies section is to provide real-world examples of how BPR patterns or pairings have been applied in practice. These case studies provide practical insights and demonstrate the patterns' effectiveness in various contexts. Case study pages link back to their patterns.

Cheat sheets The cheat sheets section provides summaries of BPR patterns belonging to one topic (e.g., sustainability). The idea is to offer a reference guide that users can refer to when they need a focused view on a topic in BPR.

Research The research section is a repository featuring all academic publications presenting the BPR patterns on the site or covering various process improvement topics.

3. Maturity

The site is accessible at <https://process-pattern.app>. A tutorial document³ and a introduction video⁴ demonstrate the site. The site is under ongoing development from a content and func-

³Tutorial: <https://dtdi.de/s/bpm23-tutorial>

⁴Video screen cast: <https://dtdi.de/s/bpm23-video>



Figure 2: Preview of a resource as displayed on social media platforms.

tional perspective. While the innovations and characteristics presented in this paper will remain integral to the site, other functionalities might be subject to change or improvement. An initial set of 33 patterns from academic resources (e.g., [8, 11, 12]) has been added to the site. As of today, the site features one exemplary pairing, three cheat sheets, and five case studies. The website is developed for compatibility with varying screen sizes, offers an RSS feed for subscription to updates, and includes sharing cards for promoting content on social media platforms (see Figure 2). The site's content administration is facilitated through a content management system. Contact information for suggesting content is provided on the site.

4. Discussion and further developments

The site `process-pattern.app` aims at capitalizing on the significant research endeavors in the realm of patterns for BPR. `Process-pattern.app` is designed primarily for practitioners, consultants, and researchers. Practitioners and consultants can use the site to identify process improvement opportunities, while researchers can use it to study the practical application of BPR patterns. It is designed to make knowledge accessible to a broad audience, responding to the BPM community's call for tools that facilitate process improvement and bridge the gap between academic research and industry practice [3]. The site is envisioned as a continually evolving platform for process improvement knowledge. Future developments include adding additional content and integrating mechanisms for users to share case studies and evaluate the

performance impact of patterns on a scale, enhancing the site's practical value. Also, integrating process-pattern.app's content in third-party tools, such as process modelers is an idea for further development. This integration might streamline the application of BPR patterns. With these continual enhancements, process-pattern.app aims complement existing offers in the BPM community, fostering a community of shared learning and practice.

References

- [1] M. Dumas, M. La Rosa, J. Mendling, H. A. Reijers, *Fundamentals of Business Process Management*, 2 ed., Springer, 2018. doi:10.1007/978-3-662-56509-4.
- [2] G. Zellner, A structured evaluation of business process improvement approaches, *BPMJ* 17 (2011) 203–237. doi:10.1108/14637151111122329.
- [3] B. Zuhaira, N. Ahmad, Business process modeling, implementation, analysis, and management: the case of business process management tools, *BPMJ* 27 (2021) 145–183. doi:10.1108/BPMJ-06-2018-0168.
- [4] E. Gamma, R. Helm, R. Johnson, J. Vlissidies, *Design Patterns: Elements of Reusable Object-Oriented Software*, 4 ed., Addison-Wesley, 1995.
- [5] S. Limam Mansar, H. A. Reijers, Best practices in business process redesign: use and impact, *BPMJ* 13 (2007) 193–213. doi:10.1108/14637150710740455.
- [6] M. H. Jansen-Vullers, H. A. Reijers, Business Process Redesign in Healthcare: Towards a Structured Approach, *INFOR* 43 (2005) 321–339.
- [7] N. Brand, H. van der Kolk, *Workflow Analysis and Design: (in Dutch)*, Kluwer Bedrijfswetenschappen, Deventer, 1995.
- [8] H. A. Reijers, S. Limam Mansar, Best practices in business process redesign: an overview and qualitative evaluation of successful redesign heuristics, *Omega* 33 (2005) 283–306. doi:10.1016/j.omega.2004.04.012.
- [9] G. Zellner, Towards a framework for identifying business process redesign patterns, *BPMJ* 19 (2013) 600–623. doi:10.1108/BPMJ-Mar-2012-0020.
- [10] J. Recker, M. Rosemann, *Being innovative without being creative*, QUT Innovation Briefs, Information Systems School, Queensland University of Technology, Australia, 2014. URL: <https://eprints.qut.edu.au/75985/>.
- [11] L. Frank, R. Poll, M. Röglinger, R. Lea, Design heuristics for customer-centric business processes, *BPMJ* 26 (2020) 1283–1305. doi:10.1108/BPMJ-06-2019-0257.
- [12] A. Nowak, F. Leymann, D. Schleicher, D. Schumm, S. Wagner, Green business process patterns, in: *Proceedings of the 18th Conference on Pattern Languages of Programs, PLoP '11*, ACM, New York, 2011. doi:10.1145/2578903.2579144.
- [13] M. Fellmann, A. Koschmider, R. Laue, A. Schoknecht, A. Vetter, Business process model patterns: state-of-the-art, research classification and taxonomy, *BPMJ* 25 (2019) 972–994.
- [14] R. E. Mayer, Using multimedia for e-learning, *Journal of Computer Assisted Learning* 33 (2017) 403–423. doi:10.1111/jcal.12197.
- [15] L. L. Jacoby, L. R. Brooks, Nonanalytic Cognition: Memory, Perception, and Concept Learning, in: G. H. Bower (Ed.), *The psychology of learning and motivation*, volume 18, Elsevier, 2000, pp. 1–47. doi:10.1016/S0079-7421(08)60358-8.