



Managing BPM Projects and Their Implications on Organizations – Experiences from Research and Teaching

Manuel Weber^(✉)  and Jan vom Brocke 

Liechtenstein Business School, University of Liechtenstein, Vaduz, Liechtenstein
{manuel.weber, jan.vom.brocke}@uni.li

Abstract. Business Process Management (BPM) is a holistic management discipline in which numerous facets and dimensions can be addressed within education and teaching. Especially for novices (in educational institutions and practice), the large body of knowledge can be perceived as overwhelming due to the pluralistic background and its resemblance to other related management disciplines. Also, especially in real-world settings, BPM initiatives must be considered holistically since local process improvements rarely yield satisfactory results. Within this contribution, we report on our experiences using the BPM Billboard in several practitioner workshops or student seminars in which we regularly utilize this tool to discuss or showcase BPM initiatives on a high- and holistic level. We apply the BPM Billboard to an ongoing real-world project in the context of e-government and discuss the implications for the organization. The results indicate that practitioners and students need to master this basic knowledge to successfully communicate and coordinate large-scale projects across the organization.

Keywords: Business Process Management (BPM) · BPM Billboard · E-Government

1 Introduction and Motivation

Understanding and managing change in organizations has become one of the most critical success factors for maintaining organizational performance and competitiveness. Therefore, training and education initiatives are even more important for interns and students who will later have to compete in the industry. To successfully seize and scope large-scale projects in the corporate context, practitioners can utilize various models and frameworks as found in handbooks or scientific articles. However, few tools or approaches go beyond traditional process thinking and process modeling [1, 2].

Within this contribution, we report on our experiences at the interface of teaching and research in BPM and point to the importance of knowledge transfer to students and practitioners. We report on the use and benefits using the BPM Billboard by vom Brocke et al. [3], which we regularly use in workshops with representatives from several industries, and students from our Information System (IS) Master's class. Based on scientific

results and grounded in theory, such a model not only facilitates discussions within a student's class or practitioner's workshops to showcase their projects but also proves useful in highlighting key factors relevant to manage projects holistically and successfully. Moreover, by applying this holistic approach, novices can work out the basics of BPM as a process-oriented management discipline and gain valuable insights into the interplay between BPM and the organization, its structure, and strategy. To showcase this statement, we describe the real-world case of a State Department in the context of electronic government (e-government) located in Central Europe. The State Department is undergoing a significant wave of digitalization initiatives and is confronted with adopting new information technologies (IT) to realize the re-design of its core business processes. The case results demonstrate that such a tool captures the key elements in BPM and reveals the impact and associated changes on the organization.

The remainder of this contribution is structured as follows: After this brief introduction (Sect. 1), we report on the problem and issue being addressed (Sect. 2). In Sect. 3, we briefly report on the goal of this paper and present the results in Sect. 4. Finally, Sect. 5 presents the benefits for the BPM educators community and beyond.

2 Problem and Issue Being Addressed

As part of our research activities in Business Process Management (BPM) and Information Systems Research (ISR), we organize workshops and regularly hold seminars and lectures at various universities. We encounter experienced managers and decision-makers from SMEs or local authorities and first-semester students who are required to describe and analyze BPM initiatives as part of their seminar, bachelor, or master theses.

The core idea of these seminars is the interlinking of science and practice and, thus, the transfer of scientific and practical results. We present the latest concepts from BPM science and also offer a kind of "reality check" for the participants. Hence, we provide content from our research or collaborations with other companies and deliberately incorporate a "hands-on" element by asking participants to analyze and present their projects from their business environment or trainees to the other participants. In these "learning by doing" sessions, participants from different industries and knowledge bases can learn from each other. Valuable discussions arise, leading us as researchers to new insights and approaches. Finally, according to the motto "show, don't tell", we want to get them to report about their pitfalls and success stories.

Practitioners and managers consider BPM to be a panacea and a goal itself. However, research has shown that BPM should never be pursued as a goal but rather as a means. Accordingly, we see BPM as a driver or enabler of digitalization projects and the implementation of corporate goals [4]. The same applies to new information technologies (IT), which are closer to the process than ever before. For example, process mining enables the investigation of process behavior by analyzing process logs, the digital traces left by each information system, and process stakeholders along a digitized process [5].

However, based on our experiences from university-industry collaborations and research projects, we learned that fundamental and overarching issues such as strategy and governance are often neglected and rarely considered when re-designing single processes. Therefore, we often miss the socio-technical view of processes in practice

and with students, coupled with divergent discussions and views on different altitudes. Particularly in a multi-dimensional setting such as the ongoing digital transformation in which most of our partner organizations find themselves, process stakeholders must communicate on the same level and solve complex problems. One-sided and isolated considerations are a central challenge in today's dynamic environment. Therefore, organizational change can occur on many levels [7, 8] and must be structured and consistent with the organization's strategy and the prevailing BPM paradigm.

Among other issues, this myopia partially originates from the pluralistic background of BPM as a process-oriented management discipline and a key concept in information systems research (ISR) [6, 7], but also due to the resemblance with other management and research disciplines such as information systems research or organization science, in which processes often the main focus. Although we do not expect practitioners, early-career researchers, or even students to be familiar with the extensive literature, we argue that BPM education and training beneficiaries must be equipped to deal with complex issues in practice and have a sound basic understanding of multi-dimensional challenges. Finally, as an advanced BPM (education and even research) community, we must attempt to successfully communicate the special aspects and particularities of our process-oriented management discipline and advertise for it.

3 Goal of the Contribution

Within this contribution, we draw attention to the abovementioned topics and share our experiences from being involved in practice-oriented research projects and teaching in different educational institutions and forms. In addition, we contribute to findings in the literature to make BPM training and education more efficient for the participants and to provide them with added value [2]. To this end, we present a tool that has received little attention in research and practice. Its application proves intuitive and is therefore suitable for various teaching purposes, as it considers high-level elements and capabilities relevant to successfully conducting BPM. Presenting a case from a real-world and ongoing project in a State Department of Economic Affairs, we demonstrate the tool's suitability for developing information systems (IS) and re-designing processes. This procedure aligns with research findings demonstrating that contemporary BPM goes beyond individual aspects of methods or tools and instead addresses the management of the associated capabilities [7]. Therefore, we offer a way to promote BPM as a modern and competitive discipline and make it more accessible to novices and practitioners. Finally, applying the tool to the case, we demonstrate how to use the tool to get practitioners and students to engage in fundamental discussions at a common level and consider the integrative nature of BPM within the organizational context.

In the following paragraphs, we first describe (and recap) the BPM Billboard by vom Brocke et al. [3] and then use it to present the case organization and one of its ongoing projects.

4 Analyzing a Real-World Project Using the BPM Billboard

Within the BPM and IS research community, numerous models and concepts have been developed to conceptualize and elaborate on projects or re-design initiatives within organizations. In addition to reducing complexity, the aim is to make abstract content tangible and present it in a comprehensible way [e.g., 8, 9]. This tool is not only available in published version [3] but can also be accessed via the website (<https://www.bpm-billboard.com>). The contact details of the authors are also available, who support practitioners in their projects through their many years of experience and industry contacts.

The BPM Billboard, designed as a one-page illustration (see Fig. 1), intends to support practitioners in linking their projects to the corporate strategy and assess the organizational capabilities relevant to its realization. Moreover, the framework is easy to understand and especially valuable for practitioners to convey the essential elements from BPM research to practice. Next, the BPM Billboard has been published in a leading BPM handbook dedicated to showcasing contemporary and real-world case studies for practitioners, scholars, and educators by applying a holistic approach [10]. Besides its practice-oriented approach, the elements of the BPM Billboard are empirically grounded, underlying the theory and research about maturity models. In addition, it has been empirically validated and refined [4].

It also proves useful for establishing the (allegedly) missing link between business, IT, and strategy [1] – in addition, far more elements are considered (governance, method, people, culture, etc.). Moreover, it proves useful to highlight key dimensions in BPM as it covers the six core elements and the associated capability areas, which have gained popularity in BPM research and beyond [4, 7]. In addition, we find the strategic and operational levels (represented by the strategy, strategic alignment, and project results) relevant to understand the implications and change in organizations [11, 12].

In previous studies, we also find evidence to use such a (maturity) model to study organizational change. Following the study of Andreassen and Gammelgaard [13], we find attempts to guide the investigation of change using maturity models – the underlying idea of six core elements within the BPM Billboard. Along the same line, Andersen and Henriksen [14] also propose a maturity model to discuss the caused changes triggered by digitalization initiatives. Finally, we argue that applying the framework contributes to examining change in BPM and the respective organization.

Our case organization is a State Department located in Central Europe. It is generally responsible for supervising and implementing the government's economic policy. Among other areas, the State Department supervises trade law. As part of this sovereign task, they verify and approve trade licenses for corporations that conduct business in the country or which offer inbound commercial services. As of today, the State Department identified 32 trade law processes, which they visualized using a Business Process Modeling Notation (BPMN). In 2019, the State Department launched a project to develop a new IS platform for re-designing and managing their trade law processes end-to-end. In 2022, the Parliament passed a legal basis for implementing electronic communication between authorities, citizens, and local companies (their "clients"). The idea is that citizens and corporations exchange data and documents with the State Department solely electronically using the new "e-government IT services" (in short, "e-gov services").

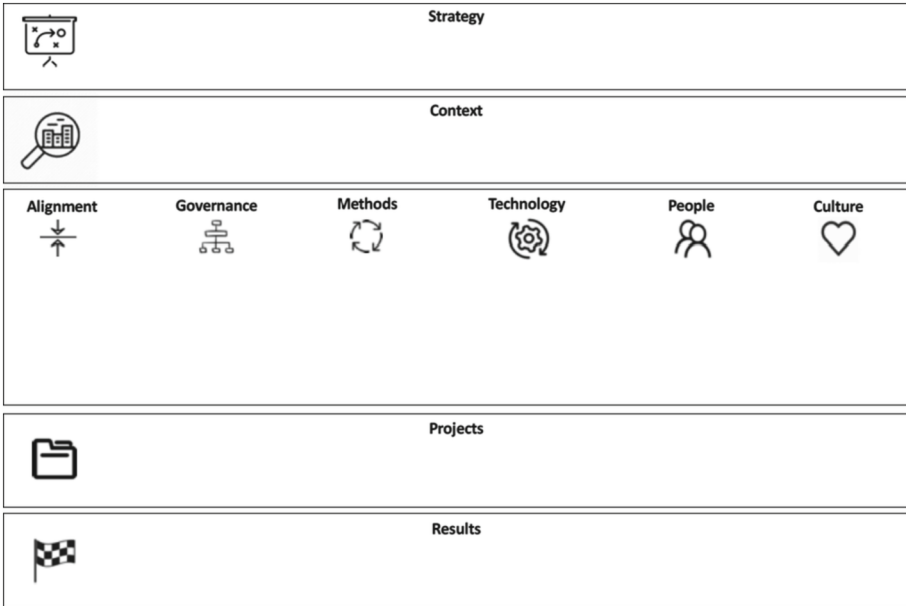


Fig. 1. The BPM Billboard [3].

The State Department’s current information system (IS) – we refer to it as the “Trade Register Application (TRA)” is outdated from a technical point of view and thus has reached end-of-life. By now, it has served as a simple register to store metadata of trade licenses. To apply for an extended trade license, customers had to fill out PDF forms and send them to the State Department. The data transfer into the TRA was done manually by the officers. To coordinate work between the officers, they used an Excel file to store and highlight incoming customer requests. In the past, customers could not check the current processing status online but had to call the State Department by phone or contact it via email. In a nutshell, the work for the officers was time-consuming and cumbersome (Table 1).

Using the BPM Billboard, we identified five paradigm shifts the case organization is currently facing. Subsequently, we briefly describe the upcoming changes and paradigm shifts and link them back to the elements of the BPM Billboard (see italic and CAPITALIZED elements in brackets). These effects show the new understanding of end-to-end processes within the case organization and reflect the specific impact of such a complex project on the entire organization. With these tangible links, such multi-layered initiatives can be better communicated within an organization:

Paradigm shift no. 1 refers to the closer customer integration into the supervisory processes. Before the new IS platform replaced the Trade Register Application, customers had no transparent overview of pending applications and trade licenses. Also, the customers had to use other communication channels, such as telephone or email, to check the status of their application and ask for details. Now, the IS platform provides the customer with an overview of the status and details of the customer’s applications

Table 1. Analyzing the Project Using the BPM Billboard, adapted from [3].

Strategy (of the project)	The new IS platform and processes will be re-designed from an end-to-end perspective. The State Department and its customers can communicate with each other without media discontinuity and process applications for trade licenses electronically and efficiently. Integrating the “e-gov services” results in a modern and efficient platform for managing and registering trade licenses
Context	The processes and tasks of the State Department are determined by several Acts and Ordinances. In e-government, these regulatory adjustments considerably influence the re-design of processes. Within these regulations, however, there is no process orientation explicitly recognizable. Nevertheless, one can find strict requirements and checks and balances among the several actors mentioned. At the very least, this enables the process-related distribution of roles and responsibilities, which in turn influence the design of the new IS platform
(Strategic) Alignment	The development of the IS platform implements the government’s requirements and digitization strategy. Corporations and the State Department must communicate with each other exclusively electronically
Governance	Previously, responsibilities within the State Department were distributed among several specialists, and each officer acted within the scope of their professional expertise. Today, they can independently assign orders from a central order book. Responsibilities are distributed. This shared knowledge enables better deputy regulation within the State Department
Methods	The new IS platform (a web application) re-uses relevant customer data multiple times. The methods for retrieving and processing information have changed fundamentally (“once-only principle”). In addition, there is a stronger focus on the customer and his integration into the processes (“push and pull principle”) A multi-view is applied to the processes to better manage the requirements and goals of the process stakeholders involved. Customers can view existing trade licenses more transparently in their self-service area and modify them (with subsequent approval by the officers)
(Information) Technology	The e-government IT services relevant for the identification, representation, payment, and delivery (“basic functions”) significantly determine and influence the re-design and realization of the trade law processes
People	Using the new IS platform requires new skills to view processes from an end-to-end perspective. Due to the high level of customer integration, employees must demonstrate a high degree of understanding of the entire process landscape

(continued)

Table 1. (continued)

Culture	The mode of operation and handling of digital files leads to a new way of working and a new work culture. Digital files also make working in the home office or on business trips possible. Physical files were usually not allowed to leave the workplace and had to remain in the State Department due to security standards
Projects	The project team depends on the developments and advancements of e-government IT services. Renewals must be constantly reviewed and implemented within the framework of the new IS platform
Results	The result of the project is that commercial law topics can be mapped end-to-end and digitally. The project leaders see further potential for mapping the IS platform around other topics and for other areas of law

and requests. Customers can access and log in to the new IS platform via a web service portal using their “e-identification”. This shift is not only based on the strategic viewpoint (*STRATEGIC ALIGNMENT*) of redesigning and managing processes for enhanced customer integration but also leads to changed process descriptions and visualizations (*METHOD*). Due to the enhanced customer integration and their extended possibilities to intervene in the business processes, the State Department officers need to evolve their skills in thinking across their process landscape and understand the interdependencies (*PEOPLE*).

In **paradigm shift no. 2**, the triggering of processes is no longer unilateral and distributed over several channels. Rather it is bi-directional in the sense of a push and pull principle: Until now, customers had to find a workaround (phone or email) to contact the relevant State Department officers to retrieve the status of their applications or requests. Now, the IS platform enables triggering services and processes by the customer or the State Department through a self-service approach. For example, ordering an extract from the register will be done without the intervention of the State Department officers. This “four-eyes principle” and role is omitted here (*GOVERNANCE*). Rather the customers can order such an extract on their own. Moreover, customers will automatically receive notifications via email or within the self-service area. Also, the customer can withdraw initiated processes. This principle will revolutionize the way the two parties communicate with each other. Both parties can initiate processes and services via the “push principle” or request them via the “pull principle. What changes is the distribution of roles and rights. Although approvals are still reserved for the State Department (as described by law), customers can now view their data in real time and initiate adjustments on their own (*GOVERNANCE*).

We also identify **paradigm shift no. 3**: The obligation to communicate (exclusively) electronically with corporations and the adoption and use of e-gov services results in a further paradigm shift. According to law, a mandatory requirement is to re-use data the customers had entered once (*legal CONTEXT*). Until now, data provided by applicants

or generated by the State Department's officers had to be entered multiple times across the processes. Now, data can be exchanged more easily across other State Departments.

We identified **paradigm shift no. 4**: The customer's file and records, including the application forms and attached documents, were previously kept as a physical file. Customers could upload the attachments while filling out the online form. A web service then generated PDF files, which had to be manually downloaded by the Department officers. It was also possible for the customers to send the documents via the postal service. The physical documents were scanned and stored as PDF files in a specific file storage. The E-Government Act stipulates that documents and the customer's files may only be kept electronically (*LEGAL CONTEXT*). Digital documents will become the so-called "digital primacy" at the moment of introduction. As soon as documents are scanned and transferred to a document management system (DMS) (*IT*) via the interface, they are legally perceived as the "original documents". Furthermore, the DMS allows to electronically sign documents.

Paradigm shift no. 5 represents the enhanced alignment and integration of business and organizational processes (*STRATEGIC ALIGNMENT*). For years, the State Department officers had different priorities in processing applications. To coordinate the incoming applications, one officer is assigned to coordinate the processing of the tasks and clarify any legal issues. The assigned officer had to enter the applications into an Excel list. With the new IS platform, an "order book" was created to map all customers' applications (new trade licenses or adjustments to existing ones). Consequently, every officer has the opportunity to assign orders independently and manage the application process end-to-end. Internally, the State Department can easily assign the responsibilities of received applications to other employees and automatically trigger follow-up processes (*GOVERNANCE*).

5 Impact and Benefits for the BPM Educators Community

Based on our experiences from research and teaching, we were able to derive three main and general lessons learned:

The systematic capturing of key factors in BPM should lead to a holistic picture of how processes are managed and integrated into the organizational context. In this regard, considering the organizational context enables educators to teach BPM in an integrated way and thus not isolated from other topics. The elements covered are based on research findings and grounded in maturity model theory and a context-aware management approach [e.g., 15]. Therefore, we advocate that the BPM educators community increase the use of concepts, models, and tools supported by theories from organization science or management research that enable the connection between theory and practice. The advantages are obvious: Research can reflect valuable insights and findings from practice and examine them scientifically. This approach enables us to reduce research latency and the gap to rapidly integrating and publishing results valuable to the community. In this context, we still see the potential for the BPM community to move closer to practice and vice versa. To meet this demand, the annual International Conference on Business Process Management offers professional and promising platforms for researchers and practitioners. Finally, we want to encourage the BPM (education) community to develop further tools and platforms that move research and practice closer to each other.

Moreover, such a framework should not offer a one-size-fits-all solution but empower the participants and allow them to work out the essential factors in a context-sensitive way. The BPM Billboard meets this requirement as it not only demands and considers the respective context but also includes the organizational strategy and, thus, the realization of the corporate goals. We learned that such a bottom-up approach also triggers the learning process and enables participants to develop “their own projects”. In addition, practitioners reported that with top-down management approaches, the (top) executives in charge may be unfamiliar with all the issues in detail (on operational level) and therefore have little knowledge of what is actually happening.

Applying the BPM Billboard, we demonstrated that BPM should not be viewed in isolation from the organizational context. Rather, it represents a framework that requires integration into organizational structures, strategy, and tangible outputs. In this regard, it provides a basis for discussion so that any new project can be holistically aligned with the organization, which ultimately releases and provides the resources for BPM [15]. This increased understanding and knowledge of which key elements and capability areas of the organization are critical, enables participants to achieve a greater emphasis on the communication and coordination of projects across the whole organization. This asset or skill enables them to better represent their expertise to the management and beyond. Ultimately, getting the key stakeholders and decision-makers involved is a matter. They must be convinced of new projects and support the decisions. Ideally, this will lead to less resistance within the organization and its stakeholders.

Finally, we mention that such tools can never fully cover all conceivable factors or needs of project stakeholders. We would like to point out that no model guarantees that projects will be completed on time or even in the most efficient way. Nevertheless, they can help to conceptualize a certain aspect or level of consideration.

References

1. Seethamraju, R.: Business process management: a missing link in business education. *Bus. Process. Manag. J.* **18**, 532–547 (2012)
2. Thennakoon, D., Bandara, W., French, E., Mathiesen, P.: What do we know about business process management training? Current status of related research and a way forward. *BPMJ* **24**, 478–500 (2018)
3. vom Brocke, J., Mendling, J., Rosemann, M.: Planning and scoping business process management with the BPM Billboard. In: vom Brocke, J., Mendling, J., Rosemann, M. (eds.) *Business Process Management Cases Vol. 2*, pp. 3–16. Springer, Berlin, Heidelberg (2021). https://doi.org/10.1007/978-3-662-63047-1_1
4. Rosemann, M., vom Brocke, J.: The Six Core Elements of Business Process Management. In: vom Brocke, J., Rosemann, M. (eds.) *Handbook on Business Process Management 1*, pp. 107–122. Springer, Heidelberg (2010)
5. van der Aalst, W.: *Process Mining*. Springer, Heidelberg (2016)
6. Mendling, J., Berente, N., Seidel, S., Grisold, T.: Pluralism and pragmatism in the information systems field: the case of research on business processes and organizational routines. *Data Base Adv. Inf. Syst.* **52** (2021)
7. Niehaves, B., Poepplbuss, J., Plattfaut, R., Becker, J.: BPM capability development – a matter of contingencies. *Bus. Process. Manag. J.* **20**, 90–106 (2014)

8. vom Brocke, J., Maedche, A.: The DSR grid: six core dimensions for effectively planning and communicating design science research projects. *Electron. Mark.* **29**, 379–385 (2019)
9. Frank, U., Strecker, S., Fettke, P., vom Brocke, J., Becker, J., Sinz, E.: The research field “modeling business information systems”: current challenges and elements of a future research Agenda. *Bus. Inf. Syst. Eng.* **6**, 39–43 (2014)
10. vom Brocke, J., Mendling, J., Rosemann, M. (eds.): *Business Process Management Cases, vol. 2: Digital Transformation – Strategy, Processes and Execution*. Springer, Heidelberg (2021)
11. Harmon, P.: *Business Process Change: A Guide for Business Managers and BPM and Six Sigma Professionals*. Elsevier/Morgan Kaufmann Publishers, Amsterdam/Boston (2007)
12. Kettinger, W.J., Grover, V.: Toward a theory of business process change management. *J. Manag. Inf. Syst.* **12**, 9–30 (1995)
13. Andreasen, P.H., Gammelgaard, B.: Change within purchasing and supply management organisations – assessing the claims from maturity models. *J. Purch. Supply Manag.* **24**, 151–163 (2018)
14. Andersen, K.V., Henriksen, H.Z.: E-government maturity models: extension of the Layne and Lee model. *Gov. Inf. Q.* **23**, 236–248 (2006)
15. vom Brocke, J., Zelt, S., Schmiedel, T.: On the role of context in business process management. *IJIM.* **36**, 486–495 (2016)