Digitalization for Agile Business
Process Management: The BPM-D® Application

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The BPM-D® Application

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Abstract: More and more organizations recognize that Business Process Management (BPM) has become a key management discipline that translates strategy into people and technology based execution. It helps organizations to realize the full potential of their digitalization initiatives. BPM is implemented through the “process of process management” (PoPM). To assure agility and continuous improvements of the PoPM an appropriate digitalization approach for the PoPM itself is essential. However, many companies are failing to recognize the importance of an integrated digitalization of the PoPM. As a result their management approach is missing the necessary agility required in a digital world. This paper presents a successful approach for the digitalization of the PoPM to enable the discipline of agile BPM. It includes experiences from a first pilot implementation of the developed prototype, the BPM-D Application.

1 BPM NEEDS TO INCREASE ITS PERFORMANCE

More and more organizations see Business Process Management (BPM) as a management discipline that has significant impact. It provides important value by transforming strategy into people and technology based execution – at pace with certainty. BPM plays a key role in realizing the full potential of digitalization initiatives. The discipline of process management enables ongoing strategy execution and digitalization in our volatile business environment.

The BPM-Discipline is also implemented through a process of its own, the process of process management (PoPM). The increasing importance of the BPM-Discipline for the success of an organization requires an appropriate performance improvement of the PoPM. The BPM-Discipline has to become more agile itself. First progress in this area has been made through the appropriate design of the PoPM (Kirchmer, 2015). In order to achieve the next performance level, including the required agility, we apply digitalization systematically to the PoPM itself (Kirchmer, Franz, Gusain, 2017).

In a research study The Gartner Group showed that only 13% of organizations reach their yearly strategic goals (Cantara, 2015). This situation can even get worse with more and more organizations starting their digitalization journey and thus increasing the requirement for the pace of change. According to the same study only 1% of business have their processes sufficiently under control to realize the full potential of digitalization. So the gap between expectations and reality grows even more. This is where the BPM-Discipline helps. Established and carried out the right way it closes the gap between strategic expectation and reality.
1.1 Discipline of Strategy Execution

BPM enables an effective strategy execution across the organization (Swenson, von Rosing, 2015). It operationalizes strategy so that it can be executed through the appropriate combination of people and technology, fast and at minimal risk (Franz, Kirchmer, 2012). This is visualized in the BPM-D® Framework shown in figure 1. This framework summarizes key aspects of a comprehensive definition of BPM and operationalizes them by an appropriate management of the process lifecycle from design, implementation, and execution to control of the process.

It is possible to leverage the BPM-Discipline for enterprise-wide strategy execution mainly because of the transparency it creates as well as its organization-wide customer and outcome-oriented approach. The discipline of BPM enables cross-departmental initiatives to achieve values like quality and efficiency, agility and compliance, integration into enterprise networks and internal alignment as well as innovation and conservation of existing practices (Kirchmer, 2015). These typical values that the discipline of BPM delivers are shown in the BPM-D Value-Framework in figure 2.

These values, or a sub-set of them, are systematically combined through the BPM-Discipline to make strategy happen. The supporting methods and models enable an efficient and effective approach to this strategy execution and minimize the related risk.
1.2 Value-Switch for Digitalization

A rapidly increasing number of organizations makes digitalization a part of their strategy. Digitalization is defined as the integration of physical products, people and processes through the internet of things (IoT) and related information technology (IT) (McDonald 2012) (Scheer 2015). This definition is visualized in figure 3.

Figure 3: Definition of Digitalization

Business normally have a solid management discipline around products they produce or procure, e.g. in form of equipment. Examples are product or asset management disciplines. They normally also have a good discipline around their people and their information technology. However, in many cases the discipline around their business processes is missing (Cantara, 2015). The BPM-Discipline closes this gap. It uses the opportunities of digitalization to create new or improved business processes which realize the strategy of the organization.

BPM provides the answers to the main issues business struggle with in their digitalization initiatives. Figure 4 shows key challenges organizations encounter – all of them addressed through the BPM-Discipline.

Figure 4: Key challenges of Digitalization Initiatives
1.3 The Process of Process Management

The BPM-Discipline is implemented, just as any other management discipline: through the appropriate business processes. We refer to those processes realizing the BPM-Discipline as the “process of process management” (PoPM) (Franz, Kirchmer, 2012). This PoPM consists of project-related sub-processes, focused on improving the organization and realizing the targeted value, and asset-related processes, enabling efficient and effective improvements. In both groups we can distinguish planning and realization related sub-processes. A definition of the PoPM is described in the BPM-D Process Framework, represented in figure 5.

Figure 5: The BPM-D Process Framework

To support the implementation and continuous improvement of this PoPM we have described this business process from all relevant views (Scheer, 1998): organization, functions, data, deliverables and control view (Kirchmer, 2015). In over 40 business transformation and improvement initiatives we have proven that this PoPM definition delivers significant value - adjusted and applied in the specific business context of an organization (Kirchmer, 2016).

The PoPM helps to focus on what really matters, improves or transforms processes in the specific context of a company and sustains those improvements.

The high importance of the BPM-Discipline for strategy execution and digitalization requires and justifies an even more accelerated improvement of the PoPM and its application to specific organizations. This can be achieved by digitalizing the PoPM itself. This is illustrated in figure 6.

Especially the “focus” and “sustain” effects of the PoPM are often underestimated and underdeveloped in traditional companies so that the BPM-Discipline helps here to move existing practices to the next level of performance. It becomes the key means that helps the “Chief Process Officer” (Kirchmer, Franz, 2014a) guide his/her journey of ongoing strategy execution and digitalization.
2 OBJECTIVES OF THE DIGITALIZATION OF THE PROCESS OF PROCESS MANAGEMENT

There are a large number of digital tools supporting the PoPM, such as process modelling and repository tools, robotic process automation and workflow engines, block chain, or process analytics and mining tools. Most of them target the execution or design of processes or some other smaller components of the PoPM. Those digital enablers are often only loosely integrated. In order to get best possible results, the digitalization of the PoPM needs to be more comprehensive. We have identified three core objectives:

• Focus on what matters most;
• Don’t re-invent the wheel; and
• Make process management fun.

These objectives are realized based on the BPM-D Process Framework as an example. They can be applied the same way to other PoPM reference models and frameworks.

2.1 Focus on what matters most

An analysis of the different sub-processes of the BPM-D Process Framework based on over 200 process initiatives has shown that there are nine areas which are currently not well covered through digital tools. The operationalization of a company strategy through an appropriate process strategy is one important area that is not well supported. An organization only competes with about 15-20% of its processes (Franz, Kirchmer, 2012). All the others are commodity processes that do not really impact the competitive positioning provided that they are performed at least at an industry average level. It is key for an organization to know its high impact processes, align the process management capabilities with those and define a BPM agenda or roadmap consistent with these findings. The systematic support of this development of a value-driven process strategy is crucial for a successful BPM-Discipline and has to be adjusted with every major change of strategy or market. We have not identified any existing focused digital tools supporting this part of the PoPM, hence this should be part of a new, more holistic digitalization approach.
While the management of improvement projects is normally well captured through project management systems, the value-realization after the project and the related process and data governance is not sufficiently covered. This is another area where an enhancement of digital support can lead to significant improvements of the PoPM.

In practice, the whole “people dimension” of process management is also not given adequate digital support in many BPM approaches. In most process transformation and improvement approaches the challenges is less related to technology but rather about people (Spanjij, 2003). Since only some processes can be fully automated, people and their skills are often the bottleneck. While there is good progress made with digitally enabled change management approaches (Ewenstein, Smith, Sologar, 2015), such as the use of eLearning or various communication tools, the active management of process communities and their integration with change management is still not sufficiently covered. Hence, this is another area for an improved digitalization of the PoPM. Figure 7 shows all the focus areas needed for a more advanced digitalization of the PoPM.

2.2 Don’t re-invent the wheel

This clearly defined functional focus of the PoPM digitalization initiative also paves the way for the second objective. Existing digital process management tools and applications need to be re-used and integrated in the new digital BPM environment. This saves time and cost, which is key in our fast-changing business environment. In addition, it makes the adoption easier for organizations who have often already made significant investments into existing process management tools.

An important aspect is to re-use data available in other applications. The knowledge about processes stored in a repository as part of an enterprise architecture, for example, is excellent master-data for other digital tools. This data can be used to identify high impact processes, support the value-realization of a process improvement or guide the management of process communities.

In many organisations process information is maintained separately by various functional groups:

- Training team – user procedures and training material
- Quality – managing controls and compliance
• IT – how-to documentation of systems all of these are delivered in different environment, often redundant.

The new PoPM digitalization needs to be complementary to existing tools and provide an integration environment to optimise the overall support of the PoPM – as efficiently as possible.

2.3 Make Process Management Fun and Initiative

The acceptance of a PoPM, with a significant higher degree of digitalization is again dependent on the people who have to use it. To motivate them and make the PoPM part of a positive process-oriented culture it is important that the new digital components are fun for the users to deal with.

This requires a simple and intuitive user interface. It needs to make people feel familiar and comfortable with it by copying behaviours from existing widely used applications. On the other hand, it must also bring innovations to the table that make it interesting to migrate, for example from the use of a spreadsheet, to the new PoPM application.

The integration of gamification, self-learning and data analytics components, is another way to get people excited and make dealing with the new set of tools fun while improving PoPM performance. This is especially important when it comes to community management and application functionality that is used on a daily basis.

To make the use of the tool fun, its administration has to be efficient. Hence, a cloud-based approach is required. The cloud has become a main driver of digitalization. The PoPM digital initiative is not an exception to this (Abolhassan, 2016).

3 APPROACH OF THE DIGITALIZATION OF THE PROCESS OF PROCESS MANAGEMENT

In line with these objectives, work has progressed on the design and implementation of an integrated BPM-D Application that aims to properly support and digitalize the Process of Process Management (PoPM). The approach, initial implementation and early pilots demonstrate considerable progress in regard to the defined objectives.

3.1 Design of the BPM-D Application

To effectively digitalize the PoPM and achieve the defined objectives appropriate software must be developed. We call it the BPM-D Application. In order to meet the objectives, the following functional requirements have been identified, using a design science approach (Nixon, 2013):

1. Digitally manage Strategy execution
   • Centrally document business strategy and the process impacted by it
   • Translate strategy into executable value-driven work packages using required process and BPM capabilities
   • Prioritize related projects and support a strategy-driven process-oriented project portfolio management
   • Define, manage, track and improve maturity level of BPM capability in an organization
   • Track and continuously manage business process impact on projects
   • Define, Track and manage role based controls, metrics and measurable outcomes of past project activities

2. Apply Analytics to a process and its execution
   • Analyse maturity of PoPM and operational processes, visualize results in dashboards
   • View, analyse, and manage selected process knowledge
   • Leverage process knowledge to support various use case scenarios, for example the enforcement of process standards and controls

3. Enable Gamification based collaboration of the BPM community
   • Setup and manage the required process and data governance
• Enable and encourage collaboration across the BPM Community
• Support focused training of BPM community

4. Integration with existing technologies
• Track and manage a portfolio of business process-related technologies
• Identify integration-scenarios and solutions

3.2 Implementation of the BPM-D Application

The BPM-D Application is an intuitive tool that is being developed in an agile approach to meet these requirements (Sims, Johnson, 2014). It is a web-based platform delivering the defined objectives. The result is an integrated enabler of ongoing strategy execution and digitalization for the next generation enterprise.

The BPM-D Application provides the functionality in the key priority areas identified above in figure 7 and then integrates where appropriate with a series of other tools that currently digitalize other functional areas of the PoPM. The integration of the application to other modules is enabled by the prevalence of XML as a standard for data communication. Hence, the BPM-D Application supports from the first prototype on focused integration with existing tools, enhancing the value that those tools deliver and avoiding re-inventing existing digital solutions.

The application consists of a set of modules as shown in the figure 8. In a following commercialization phase of this prototype those modules could be licensed separately.

![Figure 8: BPM-D Application Module](image)

The key development tenets of the BPM-D Application are:
• Cloud based for easy access
• Mobility enabled (access through mobile phones, tablets)
• Intuitive user interface
• Open Source Architecture to facilitate ongoing development and improvement
• Service Based Architecture enabling integration and layered modular architecture that supports plug and play approaches for agile implementation

The Application modules are based on the BPM-D framework which segments into six main sections:
• BPM-S Strategy
• BPM-D Assets
• BPM-D Project Execution
• BPM-D People Enablement
• BPM-D Management
• BPM-D Technology Enablement

The overall architecture of the BPM-D application is shown in figure 9. This is a high level view, stressing the importance of the integration into an existing PoPM-related software environment.

![BPM-D Application Architecture](image)

**Figure 9: BPM-D Application Architecture**

The basis of the BPM-D Application is the effective management of process knowledge. The definition of business processes in form of process models are typically well supported through modelling and repository tools. The BPM-D Application focuses on contextual and management information about the processes as shown in the Process Master module in figure 10. This has been developed using the comprehensive BPM-D Data Framework (Kirchmer, 2015), describing the data view of the PoPM.

![BPM-D Process Master Module](image)

**Figure 10: BPM-D Process Master Module**
On basis of this master data, the BPM-D Application systematically fills the PoPM gaps identified earlier. The starting point is the connection of business strategy to the process hierarchy using the Value-Driver Tree and Process Impact Assessment (Kirchmer, 2015). The easy to use value-tree creation page is shown in figure 11.

![Figure 11: BPM-D Application Value Tree creation](image)

This intuitive interface helps to gather information relevant for process impact and maturity very collaboratively and then identifies the high impact and low maturity processes. Based on the ever-changing strategy, these priorities will also change. The BPM-D Application offers the process professional the ability to react to these changes in an agile manner, being well informed about possible impacts of this strategy change.

Another key component of the BPM-D Application is the Process Governance module. Identifying process performance gaps is only useful if it is clear who has responsibility and accountability for taking any process improvement action. Process governance is multi-dimensional as it needs to reflect three key organisational realities:

- Functional responsibility: Which processes can I touch?
- Organisational responsibility: What actions am I entitled to execute?
- Process management responsibility: Whom do I collaborate with from the BPM organization?

These realities need to be applied to all modules of the BPM-D Application to enable an effective support of the PoPM. This is a pre-condition for a holistic integrated digitalization approach.

Translating the identified process performance gaps (high impact, low maturity processes) into improvement actions is achieved through the definition of work packages in the Process Agenda module. Here the responsible process owner can review the work packages that are already in progress and check how well they address the performance gaps. As shown in figure 12, a graphical interface assists in identifying how many current work packages are in progress in support of each process. It is clearly shown where there are misalignments in the focus of interventions. Where there are a number of work packages in progress impacting lower priority processes, these can be assessed and possibly stopped. High impact low maturity processes with no active work packages identify the need for initiating new action and where there are a number of overlapping work packages, these can be assessed for consolidation opportunities.
In early discussion with a number of organisations that are evaluating the use of the BPM-D Application they consistently mention that this approach has numerous benefits in better focusing and aligning the portfolio of improvement initiatives in an organisation. It also provides the capability to much better identify and manage the value realisation of initiatives. Each work package is assessed in terms of its impact on delivering process improvements. Then through the process impact assessment KPIs can be identified. The impact that work packages therefore have on the KPIs can be quantified into a much more representative business case. This provides the basis for an effective value realisation approach.

5 EXPERIENCES WITH THE FIRST PILOT

A first version the BPM-D Application is being developed with customers and some features are already live and used by the same clients. The initial live functionality is the “Control Management” of the Value Realization component.

5.1 Pilot Client Overview

One of the early adopters of the BPM-D Application is a large shipping company headquartered in Europe with offices globally. They manage over 100 vessels and live under a very robust regulatory and control environment. Their finance organisation is structured in a hybrid way with a combination of a corporate oversight, individuals in each business unit to support their management and a centralised global business services team executing many of the transactional and reporting tasks.

Alignment of processes and the necessary controls across these finance entities is important to ensure that actions are not overlooked and that there is the proper segregation of responsibilities. These controls were managed in a very manual way and were thus not as robust as was required. Their business processes were mapped in a diagramming tool which was little more than a pictorial representation of the workflow. The controls were highlighted on the workflow and they used a combination of a worksheet and email to manage the compliance and audit of these controls.

Changes to the processes and the controls were also difficult to implement as they were kept on a local server and not integrated. The controls team attempted to keep these up to date and then needed to distribute changes through email notifications.

The organisation required a much more integrated and accessible solution to achieve the controls objectives effectively.
5.2 Leveraging the BPM-D Application

The organisation therefore embarked on a programme of implementing a cloud-based full functional process modelling and repository tool. All of their financial processes were duly converted into this tool and verified through a collaborative on-line process. It proved to be a great opportunity for them to bring their process models up to date and to ensure that all of the globally-dispersed finance team had access to the same process information.

This only provided half the solution and they recognised the need for controls and compliance management that was more tightly coupled with these processes. An enlightened process professional helped them recognise that this was the first step towards more effectively digitalizing their process of process management, with controls simply being one of the many management requirements.

They therefore agreed to be one of the pilot adopters of the BPM-D Application. The financial process hierarchy was loaded into the application with integrated references back into the process repository to the detailed process information. The process models were developed in BPMN 2.0 (Fisher, 2012) notation and included references to the required controls. This is shown in figure 13.

![Figure 13: Process Model in BPMN 2.0 with Controls marked in Red](image)

These controls are accessed through the BPM-D Application and managed against the control objectives hierarchy. All of the context information related to the controls and their management responsibility was then managed using the BPM-D Application governance module. The controls could thus be seamlessly managed by the controls administrator as shown in figure 14. The control related information is then instantly available through the cloud-based environment to the finance users globally.
Finance users then are assigned control related tasks that need to be performed periodically. These tasks are simply added into the BPM-D Application task management module alongside all other process management tasks. The application filters the tasks based on their governance profile and then makes it easy for them to display their tasks and capture their actions against these tasks. This is shown in figure 15.

A central control manager then manages their area of responsibility and checks on the progress of the periodic tasks. The BPM-D application has a graphical representation of the controls status and the ability to easily identify and act on delayed or outstanding actions, as shown in figure 16.
While the examples shown here for this pilot project are specific to controls management, the BPM-D application simply recognises control compliance to standards as one of the numerous process management tasks and these same modules cater for the effective process management activity across the organisation for a range of other PoPM usage scenarios.

5.3 Learnings and further development of the BPM-D Application

The integrated and intuitive nature of the BPM-D Application proved to be very popular with the pilot organisation’s finance users. The control management for compliance activities now require less time to execute and are thus more diligently performed. The fact that the user community works on-line ensures that they are executing the latest version of the controls and there is an excitement to apply the same approach in other parts of the group.

A very exciting by-product of the implementation was that the related process models now more accurately reflect the business operations and there is an incentive to ensure that they are properly understood and kept current. The ownership for these models has moved from being with one lonely process owner to being much more effectively managed in a collaborative way by the broader stakeholder community.

This has made the finance team much more aware of the benefits of value-driven process management. They are looking to extend their capability and simultaneously extending their adoption of the BPM-D Application functionality.

In the next steps of the agile development of the BPM-D Application the following modules will be added:

- Target Value – strategy-driven process impact assessment
- BPM Capability Assessment – capability assessments report maintenance
- Process Agenda – Prioritization and strategy-driven process-oriented project portfolio management
- Process Data – Managing and maintaining further process context
- Governance – the setup of user roles, responsibilities and content access rights

All of those modules exist in the mean-time in functional beta versions. These will be tested in the near future in real business situations in collaboration with our clients.

These developments will be combined with the launch of the implementation of new usage scenarios for the process control related modules and the integrated support of people change management and process-oriented community management. In that way more and more of the discovered PoPM gaps will be closed while already creating benefits through existing BPM-D Application components.
6 INCREASED PERFORMANCE THROUGH DIGITAL BUSINESS PROCESS MANAGEMENT

The first step of the digitalization of the PoPM has proven the initial hypothesis that this will significantly increase the performance of the process management discipline. The continued development of the BPM-D Application will lead to a more efficient and far more effective approach to establishing a value-driven BPM-Discipline in an organization.

The permanent change of our business environment also impacts the PoPM. Hence, this process also changes continuously. This can be managed through the agile BPM-D Application.
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About the Authors

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Dr. Kirchmer is a thought leader and innovator in the field of Business Process Management (BPM) and Digitalization, successfully integrating business and technology initiatives. He has combined his broad business experience with his extensive academic research to deliver pioneering management approaches that have proven to be both, sustainable and provide immediate benefits. Dr. Kirchmer co-founded BPM-D. Before he was Managing Director and Global Lead of BPM at Accenture, and CEO of the Americas and Japan of IDS Scheer, known for its ARIS Software. He has published 11 books and over 150 articles. Dr. Kirchmer is affiliated faculty at the University of Pennsylvania and teaches regularly at several other universities. In 2004, he received a research and teaching fellowship from the Japan Society for the Promotion of Science.

Peter Franz
Peter Franz has been working at the forefront of Business Process Management (BPM) for many years as part of a 30-year career with Accenture. He has a deep understanding of the application of Business Process Management discipline to drive real business results. His career includes education and experience in the use of Information Technology and thus understands the Business / IT interaction from both sides and can help bridge this divide. He is passionate about BPM and its application to real business challenges.

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