Digitalization of the Process of Process Management
The BPM-D® Application

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Abstract: Business Process Management (BPM) has become a key manage 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 continuous improvements of the PoPM an appropriate digitalization approach for the PoPM itself is essential. However, little work has been done in this field and companies are failing to recognise the importance of an integrated digitalization of the PoPM. This paper presents a successful approach for the digitalization of the PoPM to enable a powerful BPM-Discipline. It includes experiences from a first pilot implementation of the developed prototype, the BPM-D Application.

1 INTRODUCTION

Business Process Management (BPM) is increasingly seen as a management discipline that has significant impact on an organization (von Rosing et al., 2015). It provides value by transforming strategy into people and technology based execution – at pace with certainty (Franz and Kirchmer, 2012). BPM plays a key role in realizing the full potential of digitalization initiatives (Kirchmer and Franz, 2016; Kirchmer, 2017). 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. 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 we apply digitalization systematically to the PoPM itself.

2 BPM FOR STRATEGY EXECUTION AND DIGITALIZATION

In a recent 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 and 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. It closes the gap between strategic expectation and reality.

2.1 Discipline of Strategy Execution

BPM has become the management discipline that enables an effective strategy execution across the organization (Swenson and 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 and Kirchmer, 2012). This is visualized in the BPM-D® Framework shown in Figure 1. This patent-pending

framework summaries key aspects of a comprehensive definition of BPM and operationalizes them by an appropriate management of the process lifecycle from design, implementation, execution to control of the process.

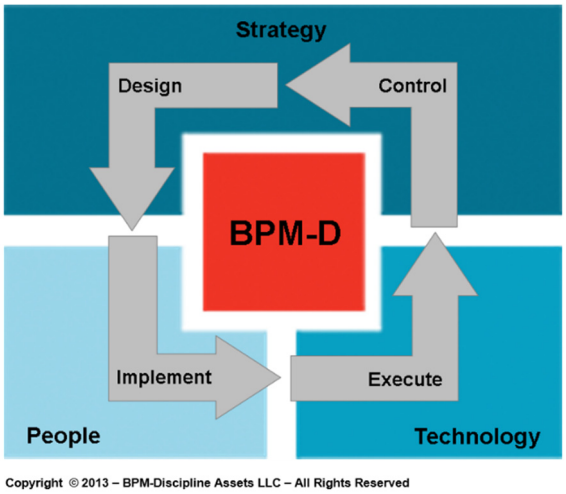

Figure 1: BPM-D® Value Framework.

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 the discipline of BPM delivers are shown in the BPM-D Value-Framework in Figure 2.

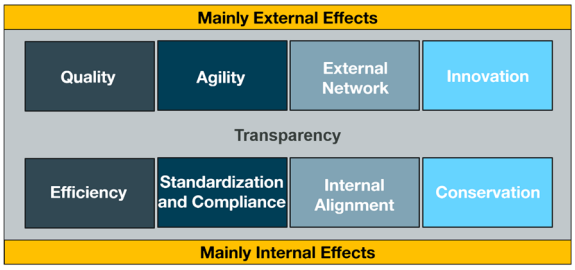

Figure 2: The BPM-D Value-Framework.

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.

2.2 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.

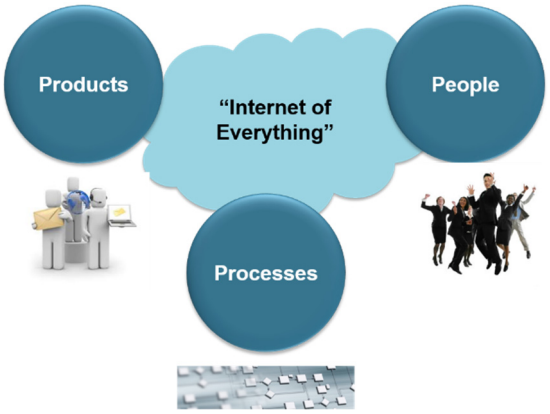

Figure 3: Definition of Digitalization.

Business normally have a solid management discipline around products they produce or buy, e.g. as 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.

2.3 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 and 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 (Kirchmer, 2015; Kirchmer, 2017).

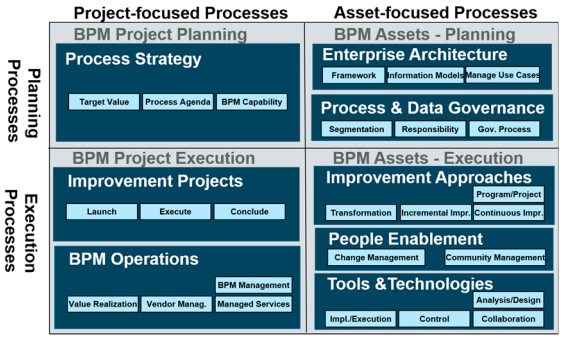

Figure 5: The BPM-D Process Framework.

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 (Kirchmer, 2016). It is sufficiently complete and consistent.

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

The high importance of the BPM-Discipline for strategy execution and digitalization requires and justifies and 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 help the "Chief Process Officer" (Kirchmer and Franz, 2014a) guide his journey of ongoing strategy execution and digitalization.

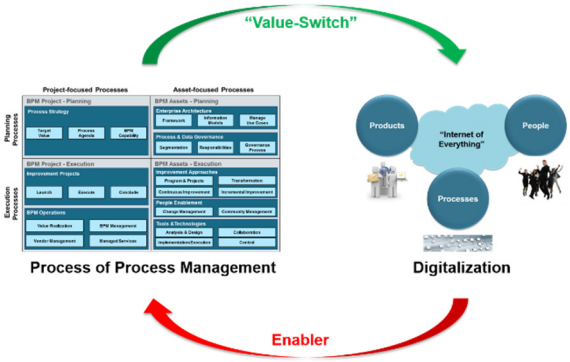

Figure 6: Digitalization of the Process of Process Management.

3 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, process automation and workflow engines, robotic process automation, block chain, or process analytics and mining tools. Most of them target the execution or design of processes or some other small components of the PoPM. Those digital enablers are often not or 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
- 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.

3.1 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 and 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 (Kirchmer and Franz, 2014b). 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 are 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 are less on the technology side but rather on the people side (Spanyi, 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 et al., 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 for an advanced digitalization of the PoPM.

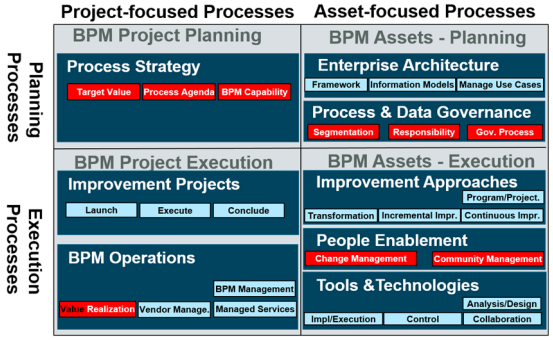

Figure 7: Functional focus of PoPM Digitalization.

In addition, there is a lack of integration between the different existing digital tools. Hence, a next generation digitalization of the PoPM needs to address this and deliver the right degree of integration enabling best performance of the overall PoPM.

3.2 Don't Re-invent the Wheel

This clearly defined functional focus of the PoPM digitalization initiative also prepares 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 organization who often have 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.

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.

3.3 Make Process Management Fun

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 nice to work with 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).

4 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.

4.1 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
- 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

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

4.2 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 and Johnson, 2014). It is a web-based platform delivering the defined objectives. Hence, it becomes an 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 tool, 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 Figure 8. In a following commercialization phase of this prototype those modules could be licensed separately.

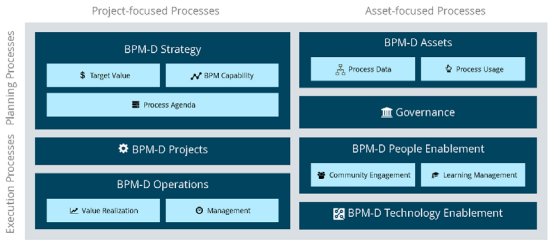

Figure 8: BPM-D Application Module.

The key develop 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 in Figure 9. This is a high level view, stressing the importance of the integration into an existing PoPM-realted software environment.

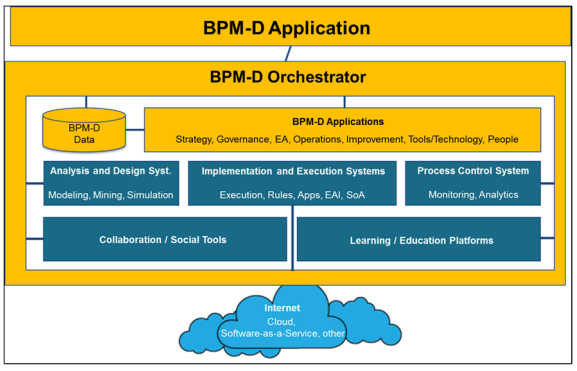

Figure 9: BPM-D Application Architecture.

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.

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 us value-tree creation page is shown in Figure 11.

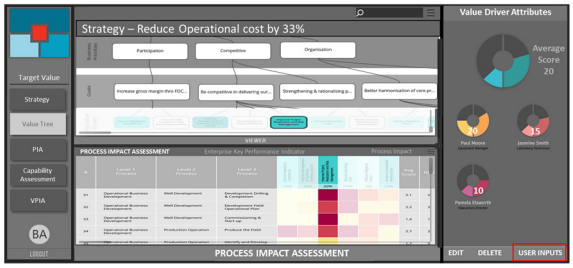

Figure 11: BPM-D Application Value Tree creation.

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.

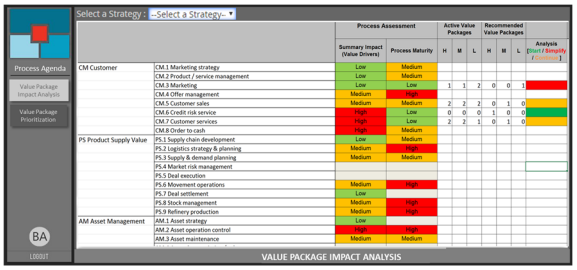

Figure 12: BPM-D Application work package analysis.

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 also provides the basis for an effective value realisation approach.

5 EXPERIENCES WITH THE FIRST PILOT

The Beta version of the BPM-D Application is being developed with trial customers and some features are already live and used by the same clients.

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.

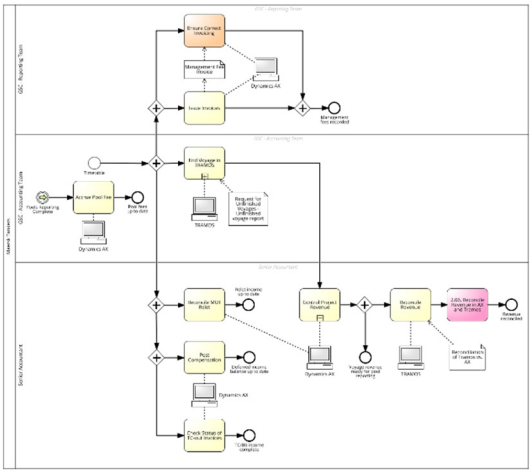

Figure 13: Process Model in BPMN 2.0 with Controls marked in Red.

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.

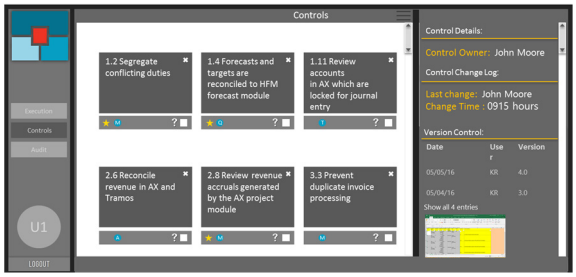

Figure 14: BPM-D Application Process Controls Management in the Process Governance Module.

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.

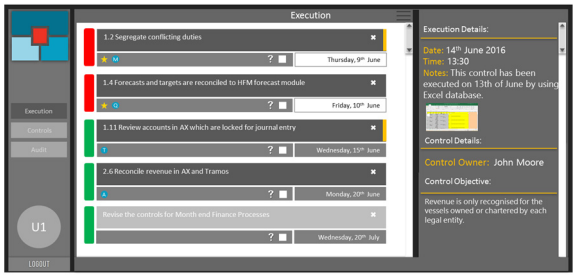

Figure 15: BPM-D Application Task Management.

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.

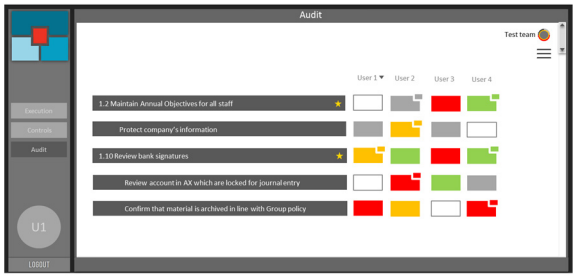

Figure 16: BPM-D Application Task Status Monitoring.

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 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 Data – Managing and maintaining further process context
- Governance – the setup of user roles, responsibilities and content access rights
- Process Agenda – the ability to create business case reports as a result of assessments

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 CONCLUSION

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 and with it the requirements for the BPM-D Application. Therefore, an agile ongoing development approach is required.

Ongoing research about the change of the PoPM in our digital world needs to deliver the requirements for this ongoing development. This makes the BPM-Discipline the execution engine for strategy execution and business digitalization, delivering fast results at minimal risk.

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