

Global accounting with the TIM BPM Suite at Deutsche Bahn Group

Fabian Ludacka¹, Jean Duell² and Philipp Waibel³

¹ Product Manager, TIM Solutions GmbH, Parkring 29, 85748 Garching near Munich, Germany

² SeMa Application Owner & Operational Management, Deutsche Bahn AG, Europaplatz 1, 10557 Berlin, Germany

³ Institute for Information Business, WU Wien, Welthandelsplatz 1, 1020 Vienna, Austria

Abstract. The accounting of the Deutsche Bahn Group, a public German railway company with 320,000 employees, went through a centralization process to transfer the entire company's accounting activities from 350 locations to three shared service centers. In the course of the transformation, processes had to be changed on a global level and a workflow management system was needed in order to automate these processes. The project, Global Accounting Shared Service Center (GASSC) started in 2015, choosing TIM, a workflow management system specialized on human workflows, as one main pillar out of several digital tools that were introduced simultaneously to make this transition possible. A workflow-driven approach was required to efficiently handle all accounting requests and communication efforts, while considering legal and compliance requirements at the same time. The subproject of the GASSC project, for which the TIM product was chosen, was named SeMa – Service Management. The organizational desire for further automation led to efforts to combine the workflow with existing third-party systems to meet regulatory requirements, faster turnaround time goals and to realize performance monitoring at a global scale. This was realized by partly using robotic process automation in combination with human workflows. The SeMa project was honored with the “Process Solution Award 2019” in the category of workflow management by the renowned gfo organization in Germany.

Keywords: Digitization, human workflow management, accounting workflow, global financial process, robotic process automation

1 Introduction

Deutsche Bahn Group¹ is a German railway company, which is one of the largest transport companies of the world. With more than 320,000 employees it is the largest railway operator and infrastructure owner in Europe and the largest employer in Germany.

The previously decentralized accounting of the Deutsche Bahn Group (350 locations worldwide, approx. 70 in Germany) was centralized into three locations, so called Shared Service Center (SSC), using the TIM BPM Suite² as a digital request and communication tool. The implementation based on TIM is called “SeMa” (Service Management) as part of the overall program Global Accounting Shared Service Center (GASSC). Each SSC is responsible for different countries. The SSC Germany in Berlin is responsible for the German companies, the SSC Europe/Africa in Bucharest for the continents Europe and Africa, and SSC APAC in Manila for the rest of the world. A tool for decentralized posting requests had to be introduced which digitizes standardized processes for the approval of posting requests and inquiries and their further management at a global scale. The goal of Deutsche Bahn was to achieve the status of a profitable quality leader and to aim for a return on capital employed of at least 8%. In addition to the economic component, employee satisfaction was also to be strengthened. Jobs and working activities were to be made fit for future through digitization and all aspects of work 4.0.

The SeMa project was awarded with the “Process Solution Award 2019” in the category of workflow management by the renowned German organization called gfo³. It was chosen because of its strategic importance, consequent use of methods, creation of acceptance and its measurable qualitative and quantitative benefits.

The remainder of this paper is organized as follows: Section 2 presents the decentralized accounting before the GASSC project. Subsequently, Section 3 presents the actions that were taken in the GASSC project to reach a centralized accounting approach. Section 4 presents the achieved results and Section 5 concludes the paper with a summary of the lessons learned.

2 Situation Faced

The previously decentralized accounting was not sustainable in terms of quality and economical aspects, so the drastic step towards centralization was taken within the GASSC program. The centralization, however, meant that processes had to be changed to ensure transport and approval of accounting requests to the SSCs. In addition to that, the heterogeneous system landscape within the 350 accounting locations was a huge roadblock for optimization.

¹ <https://www.deutschebahn.com/>

² <https://www.tim-solutions.de/>

³ <https://gfo-web.de/>

Before the introduction of the tool, the actual processes were documented by a separate team and compared with the standards. Workshops lasting several days were held, partly in the respective countries and partly at headquarters, in order to gain an insight into each individual global process. Accounting requests were handled through various channels, an approval history could not be provided and it was hard to trace accounting transactions.

Due to documentation obligations for ICS and taxes, it was necessary to establish a way of working which was consistent and traceable. Before the introduction of a digital system, no reliable reporting was available because processes were handled by writing thousands of e-mails each day.

Without having an insight into process performance indicators [4] and a fragmented accounting system landscape, it was nearly impossible to improve the processes. Handling processes without a centralized accounting platform also meant that there was no transparency about single process instances. This caused delays, inquiries by telephone and unnecessary meetings. Fig. 1 summarizes the situation at global level.

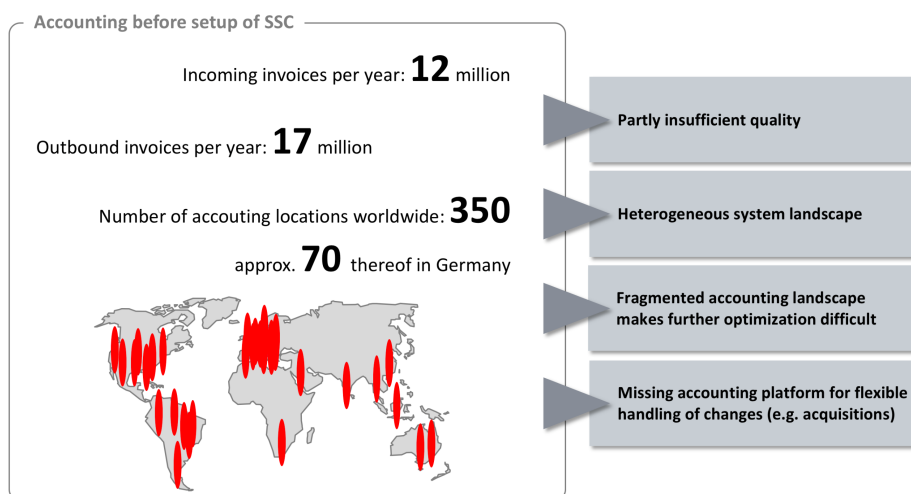


Fig. 1. Global situation and obstacles before the centralization into three shared service centers.

Facing this situation, the project was started in 2015. The actions which led to project's success are described in the following sections.

3 Action Taken

In the following, we will discuss the actions that were taken to transform the former complex decentralized accounting to a centralized one.

3.1 Actions taken on Process Level

As a first step in the transformation, from the previous decentralized approach to the new centralized approach, several new processes were created. The creation of these processes was inspired by the BPM lifecycle [2]. The BPM lifecycle describes an approach whose goal it is to improve the usage of processes in the daily business. For this, the BPM lifecycle starts with the identification of a process, subsequently, the process is constantly improved in an iterative process (see Fig. 2).

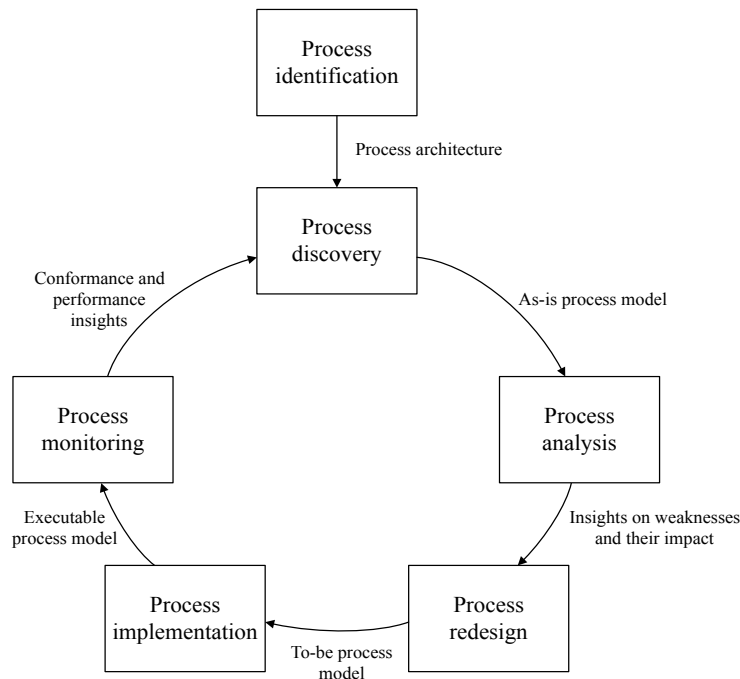


Fig. 2. The BPM lifecycle (adapted from [2]).

At the beginning of the SeMa project the process identification, as defined by the BPM lifecycle, took place. In this phase, various teams, led by Global Process Owners (GPOs) for accounting, performed process identification to identify the scope of the individual processes and to define the relationship between the processes. The processes were modeled using the BPMN 2.0 [5] industry standard and documented in process manuals. This process documentation then served as a template for different user stories in the SeMa project. These user stories were then used to analyze the designed processes, to implement the processes, and to improve the processes as defined in the BPM lifecycle.

The SeMa project was managed by using an agile development method called Scrum [7]. Within the Scrum framework, five sprints with a duration of two weeks each, were determined. After each development sprint, a review meeting was held to present the results of the previous sprint and carry out realistic tests. Within the scope of these tests,

various optimization options were identified and suggested for the upcoming sprints. From a technical point of view, in the SeMa project, the product owners were a representative of two SSCs and a representative of the Global Process Owner Organization (GPO).

3.2 Actions taken on Process Task Level

The implemented workflows are generating all tasks based on the BPMN 2.0 process models and are assigning them to the corresponding agent at runtime. Thanks to the model-driven approach, each workflow can be changed easily and tasks may be added or deleted. Since more than 220 companies are working with the tool and more are constantly being added, an easy integration of new companies including their users and legal structure is indispensable. Following this approach, the SSCs were set up as independent tenants in the TIM BPM Suite and put into operation by the Deutsche Bahn on its own. Furthermore, in compliance with the BPM lifecycle, constant process monitoring, process analysis, and process implementation are done to improve the processes.

Another crucial part of the SeMa project was the integration of third-party systems. It was decided to use robotic process automation (RPA) [1] instead of developing expensive interfaces between the systems. RPAs are software tools that automate tasks that are heavily based on repetitive tasks. For instance, such a repetitive task that was substituted by RPA in the course of the SeMa project is the following: The statutory tax requirements state that accounting documents must be kept for 10 years. For this reason, a History PDF file, created by the TIM BPM Suite (consisting of all attached files and process data of one request), must be archived in SAP – meaning it must be attached to the respective SAP posting. This repetitive and unpopular process step takes about 3 minutes when performed manually by an accountant. Due to the high error rate and the loss of time for qualitatively demanding work, it was, therefore, an ideal candidate for an improvement with RPA. Hand in hand with the human workflow, the robot automatically processes several steps within TIM and SAP – day and night. After logging into SAP and TIM, it identifies all relevant tasks in TIM. For each task, the History PDF file is downloaded and the SAP posting number copied into the clipboard. Now the robot switches to SAP, navigates to the transaction FB03 and opens the posting by using the number out of the clipboard and uploads the PDF file. Then the task in TIM is completed and the same procedure starts for the next request.

As mentioned in the Introduction, each SSC is responsible for different countries with different languages and accounting requirements. Therefore, it is mandatory that a posting request is processed by the right employee with the correct skills. For this, virtual teams exist in the SSCs that process the posting requests of certain companies on the basis of language and accounting skills. The dynamic allocation of these teams takes place by means of five parameters, e.g., company, category and region, via a so-called rules matrix (decision table comparable to the DMN standard [8]). These rules can be flexibly changed by the Deutsche Bahn without further development efforts. This allows the workload of the individual teams to be controlled in detail. For instance, there are currently 4,433 such rules at the SSC Europe/Africa in Bucharest. An Excel import and export supports the administration of these rules.

3.3 Workflow Application Rollout

The TIM BPM Suite is web based, so the technical rollout was easy. As the GASSC program had far-reaching consequences for several thousand employees, the organizational rollout was planned professionally. It was decided to do the rollout in a step vice approach, in which the software was rolled out in different countries separately. **Error! Reference source not found.** shows the rollout development within the involved countries over time.

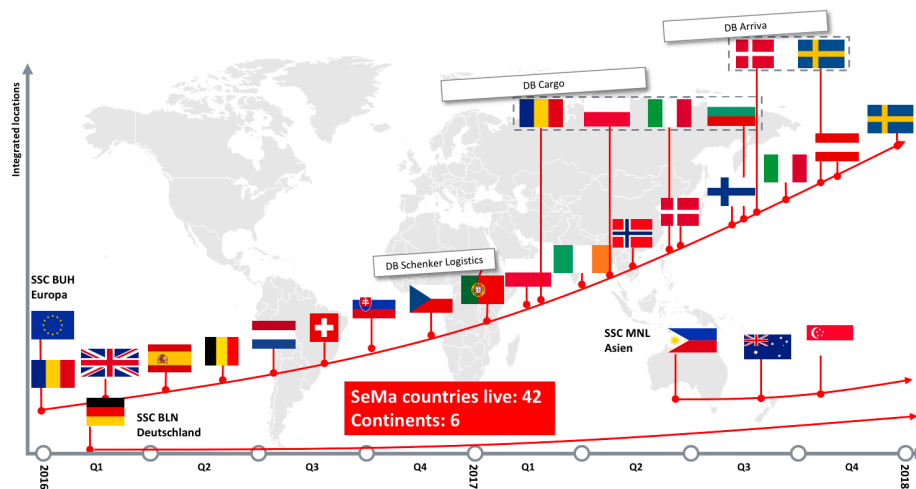


Fig. 3. Global rollout of the workflow application within the Deutsche Bahn Group.

Dedicated rollout teams planned each rollout of a company or country and introduced the new tool. There were many events, discussions, and the workers' council was involved as well. In addition, the project management team provided monthly information about the progress and goals of the project via a newsletter and an own intranet page. E-learnings and on-site training courses were carried out and workshops with the accounting departments were held.

After the Go Live, several optimizations to the workflows were implemented. These can be seen in **Error! Reference source not found.**

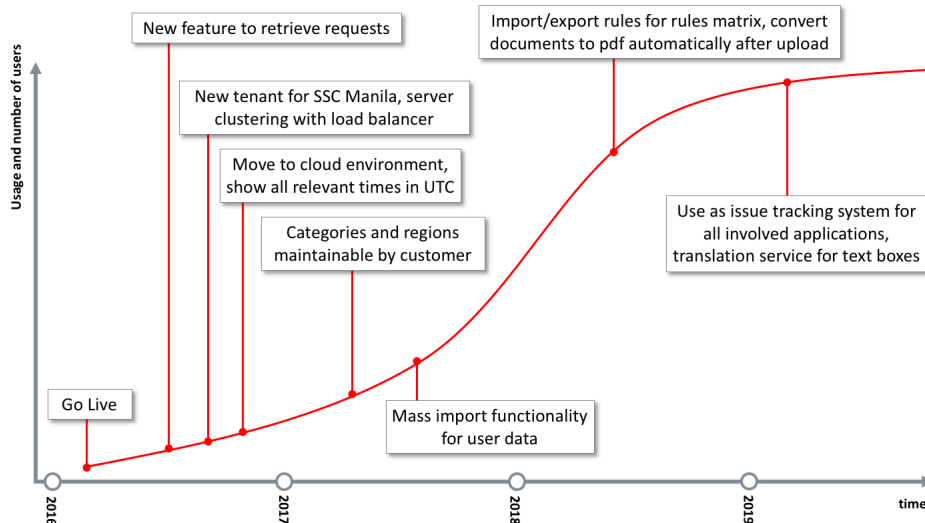


Fig. 4. Number of users and implemented optimizations over time.

3.4 Process Performance Monitoring

As part of the GASSC program, there is a separate sub-project ‘Service & Performance Management’. This sub-project is responsible for the analysis of process performance [4]. To ensure that the sub-project system has access to the operational data from SeMa, an interface to an existing business intelligence tool was created.

Another topic are the various Service Level Agreements (SLAs) between the involved companies and the SSCs. Since these SLAs cannot be mapped in the system, due to their amount and complexity, extensive reports were created to be able to monitor compliance. For this purpose, dashboards within the TIM BPM Suite were created, which show the time spent in the company and SSCs per single posting request. Filter and sorting options as well as an Excel export make it easy to determine the problematic posting requests.

The escalation management is handled by e-mail reminders. These are sent automatically as soon as the tasks are not completed within 16 business hours. This ensures that users, who do not complete tasks in time, do not cause delays in the processes.

3.5 User Acceptance

Studies have shown that transformation initiatives, as the GASSC and the integration of the TIM BPM Suite, are far from easy, and several projects fail [2, 6]. One crucial part for the success of such a transformation initiative is the acceptance of a new approach by the people that are working with it. However, as studies showed, this is always a complex topic [3].

To increase the acceptance of the new digital processes, the involved users were integrated right from the beginning. For instance, accountants were involved in the design process at an early stage to ensure that a product was developed, which covers all functional requirements. Furthermore, an employee survey on all introduced tools was performed, and national and international pilot programs have been carried out. After these pilot programs, recalibrations of the project and tools took place. Moreover, meetings and workshops were held to exchange experience at an early stage to be able to adapt the tool if necessary. These actions and the idea of global standardization served to increase acceptance. In the Lessons Learned section (Section 5), we will further address the aspect of project acceptance.

4 Results Achieved

The SeMa project guarantees globally standardized digital processes, has positive economies of scale thanks to its flexible rollout options, and, thus, facilitates the integration of existing companies and acquisitions. In addition, all legal and compliance requirements are met. Fig. 5 shows the SeMa workflow environment including all components. The workflows are initiated by filling the forms of the TIM BPM Suite. A process instance of a specific BPMN 2.0 process is started and different tasks according to the process model are created within the workflow system. After the approval, specific parameters are sent to the rules matrix in order to find the correct processing team in the SSC. This team gets a new task in their task inbox and has to do the posting in the ERP system. After that, the archiving of the History PDF is automatically done by an RPA robot. SLAs and other key performance indicators can be monitored in real time using the TIM Business Activity Reporting.

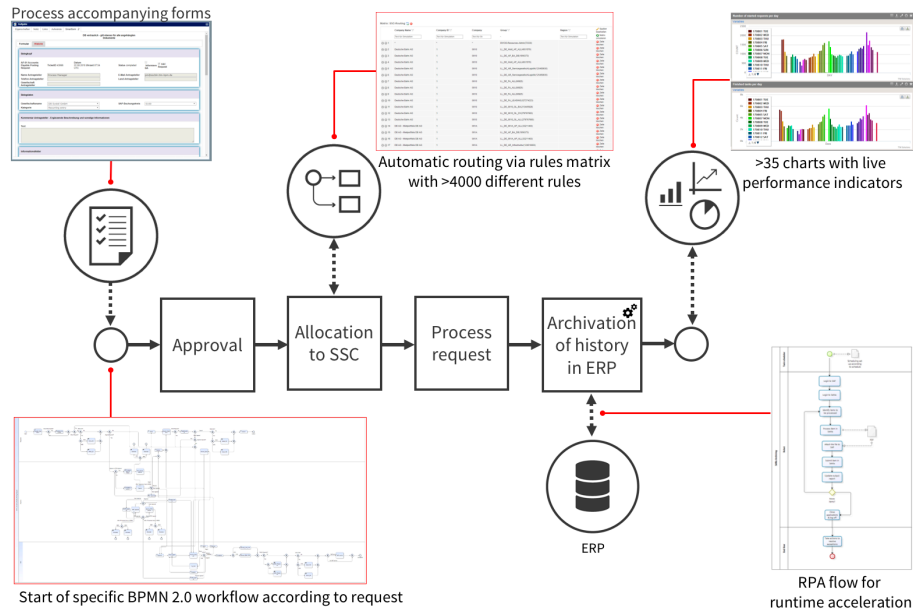


Fig. 5. SeMa workflow with relevant components.

Due to the high number of requests that are processed in the tool and its 24/7 usage around the world, the project has a very high priority in the company. In the event of a failure, the SSCs would not be able to make any further postings and, as a consequence, the accounting department would come to a standstill. In such a failure case, the requests would have to be processed by e-mail, as an alternative. But this would not be controllable with the mass of requests and would not be feasible due to compliance reasons. Fig. 6 shows key performance indicators of the project as of March 2019.

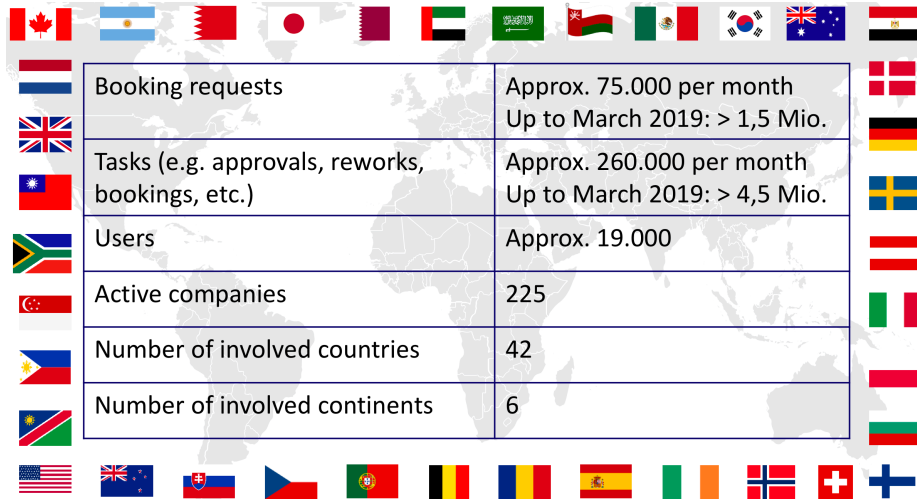


Fig. 6. Status of project key performance indicators as of March 2019.

Several goals were achieved, which make sure that the processes are running efficiently, such as the integration of third-party systems by using RPA and the continuous monitoring of process performance indicators.

For instance, the task of storing the History PDFs from the TIM BPM Suite to SAP (as described in Section 3.1) improved drastically by using RPA. Instead of an average duration of 3 minutes the robot only needs 30 seconds for such a process. It works error-free (exceptions are reported) and is available 24/7. With approx. 60,000 archiving per month this means a saving of 3,000 hours of human work (= 20.5 FTE). At an average hourly rate of 30 €, these are savings of 90,000 € per month or rather 1,08 Mio. € per year.

By the centralization of the accounting, the involved departments in the companies were significantly reduced. In addition to that, savings due to lower salaries in the SSCs and the reallocation to low-wage countries, were achieved. This procedure is regarded as a general goal of centralized processes. The actual monetary savings of the program GASSC are not to be published. However, it is obvious that the processes are handled by fewer people than before.

5 Lessons Learned

Acceptance was one of the most important key factors for the whole project. Many actions were taken in order to deal with the acceptance of the project and the tools used. The lessons learned are focusing on this and are described below.

In a company as large as Deutsche Bahn Group, there are various opinions on new features and change requests. But these wishes have to meet the budget and have to fit all use cases. For example, it was difficult for many users to say goodbye to their beloved e-mail inbox, even though their task inbox of the TIM BPM Suite presents their

tasks in a similar way. Changing habits generally represents a difficult task [3]. The processing of accounting requests by e-mail was easier for the employees, but it was impossible to meet legal and ICS-related requirements. The adaption to a way of working without using e-mails remains a challenge. The explanation and open-minded handling of the global situation helped to improve the situation.

Maybe a digital process without any e-mails at all may never be achieved, especially since demands for the integration of external parties (e.g., customers and suppliers) are getting louder. Due to security concerns, these external parties may not access the internal parties and are involved in the processes by using e-mail communication.

Many questions came up about the handling of the tool but in most cases these questions referred to a lack of knowledge about the workflow implementation. To deal with these and other issues, key user meetings and SSC round tables took place (and still do) every three months. These are organized by the application owner for the German and international colleagues. The opportunity to get in touch with power users and to get specific feedback on problems and features were very helpful. Additionally, it was a very good approach to get a better understanding of how users actually use the tool in order to improve it.

Another approach to improve acceptance was an employee survey on all global tools introduced. Unfortunately, it was addressed to the supervisors, who were mostly no hands-on users. Due to their lack of knowledge and experience regarding the handling, they obviously made incorrect statements. Issues such as compliance or ICS were not taken into consideration at all. However, the statements were discussed and solved during further meetings. As a consequence, the organizers are going to address future surveys to the power users who use the system every day.

Moreover, the numerous users (currently 19,000) may submit suggestions for improvement to their responsible key users. The requirements must be entered into an existing template so that all necessary information is included and, thus, submitted by authorized persons in accordance with a globally standardized change request process. The application owner clarifies open questions with the requester, then agrees the final requirements including the cost offer with the manufacturer and submits them to the board for approval. Almost all improvements have so far been initiated by the users. There are also exceptions, e.g., the conversion to application server cluster operation (JBoss cluster) or administrative issues (mass import of users).

In general, centralization projects of this kind do not have an easy time regarding acceptance. Especially when these projects are accompanied by resource optimizations and are linked to further budgetary restrictions. No matter which tool is used, this lack of acceptance may not be solved in the first place, but it grows with time and continuous support. Moreover, it is important to listen to the actual users of the system. Therefore, acceptance may partly be delayed. Regular key user training sessions and discussions with process managers help to gradually increase acceptance on a global level.

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