Leading European Bank

Nominated by ISIS Papyrus Europe AG, Austria

1. EXECUTIVE SUMMARY / ABSTRACT

This case study describes the implementation of an Adaptive Case Management system—Banking Correspondence Management System (BCMS)—in a leading European Bank (in the following named 'the Bank').

The Bank is one of the largest players in the world with roots anchored in Europe's economic history. With presence in more than 70 countries and over 180,000 employees, the Bank is a leader in the Eurozone and a prominent international banking institution. For the Bank, the existing solution to create mass business communication as well as online requested business documents has become slightly old and was calling for a complete remake to use more efficiently the human resources of the output management department who are dealing with document design, development as well as production.

The newly defined Banking Correspondence Management System (BCMS) aims to facilitate flexibility in the document management processes that are daily executed, enabling ad hoc changes directly by the business departments in order to react on short notice to new document requirements and become less dependent on IT development resources. The solution supports design, sign-off, deployment and production of customized individual online correspondence as well as mass batch document production. In average 20-25 new document template definitions are released every month producing typically 15,000 online documents per hour and more than 20 million batch documents for central printing each month. Moreover, BCMS links so far independent working environments of different departments to facilitate cooperation and teamwork between all knowledge workers. The goal is to establish a flawless communication between involved people and departments controlling the whole document lifecycle across all departments of the Bank.

Built upon an Adaptive Case Management (ACM) framework, BCMS provides the flexibility, spontaneity and transparency for case management, handling the document lifecycle from design over development including deployment into production as well as production management. BCMS empowers knowledge workers to create and maintain a huge amount of document templates in a flexible manner with consistency by design and compliance of contents. Further, the system facilitates the collaboration between business and IT to increase the efficiency and timeliness of production processes enabling also multichannel output based on client's preferences.

2. OVERVIEW

Document design is an important factor in the business communication of the Bank. Documents sent to their customers not only transfer information but also represent the image of the bank. Producing high quality documents that have consistent design in every case and follow all regulations is critical and thus document templates are strategic elements of their customer communication. Using document templates can facilitate writing in the same style; publishing in single or batch documents with automatic data input; and maintenance for thousands of designs. Moreover, document templates classified in different language versions

can reduce the complexity of multi-language documents adhering to the same standards.

BCMS aims to facilitate the document design and development process by providing a common working environment for a productive collaboration between business users and IT developers. The acknowledged benefits gained from the project are the improved document content quality and the reduction of time and effort along with the increasing number of documents generated every month. Besides the good results, the project also encounters some challenges from user perspective and from the techniques applied for the system.

In BCMS, business users are responsible for the document design and act as knowledge workers in the ACM-based BCMS. They fully participate in the document development process and design the documents directly in the change managed production system. The system brings an intuitive interface to business users for creating document layouts and defining business logic on document building blocks. An important goal is to empower business users in the creation of business logic with no or only minimal support from IT. The document logic including data interfaces that are out of the scope of business users is described for IT people in the document specification as comments using natural language. This way, the communication gap between business users and IT developers is closed with the middle to long-term expectation that after some learning period business users can care for all the business logic themselves. All teams are working in a common system using the same document objects under the control of a change management system.

The change management is part of the ACM framework and enables multiple versions and project stages of business entities in BCMS. Users have private projects where they freely develop their ideas independently from others and publish to public projects when ready. The release handling process of BCMS ensures that different types of projects are managed for individuals as well as whole teams. Further, the change management ensures a harmonious working environment where independency and cooperation can go hand in hand.

BCMS produces high-quality documents by using professional document design functions. Various regulatory and industry standards are aligned in every single document template. To achieve these results, business users need to adapt to the new technology for document design and get used to the new system. After overcoming the obstacles that usually occur during the introduction of new complex systems, the system has been launched into production and an increased number of users is added gradually for daily release and production work.

3. BUSINESS CONTEXT – THE INITIAL STATE OF THE BANK

Communication with millions of customers is a key focus in the Bank where retail banking is a large business unit of the organization. Documents for customers in diverse business domains require different layouts. Therefore, document design needs to be flexible and quickly adapted to meet various requirements.

Collaboration between business users and IT developers

The output management department has a size of about 20 persons with responsibility for more than 2,500 document layouts, with a growth of around 250 new templates per year. Business users draft document layouts with MS Word and describe the specification for the document development process. Based on the drafts along with specifications, IT developers build document layouts in an application specific for document development with business data integration. This

kind of application requires IT skills from users that are not suitable for business users. In order for the document development to fully meet the business specifications, IT developers need to have a good communication with business users to understand the expected products.

In the initial system, the document design and development processes were quite isolated in terms of working environments and people involved. Business users provided document specifications and document layouts as material for the document development process. They could not really participate in the process where IT developers were working on their desired document applications. The communication between IT and business users was using mainly emails with attachments of document specifications. Due to the lack of a seamless communication system, which allows all involved people to access all necessary information, misunderstandings could cause time-consuming communication loops that affected the productivity of the process.

Document design in MS Word-based systems

The maintenance of a document template library is managed by the output management team. Thousands of document templates in different languages were handled through standard file management systems that were not designed to support the linkage between document templates and its language variants and versions. Moreover, the creation of a new document had to be started from scratch without inheriting useful definitions from the existing documents. With up to 25 new document layouts per month, maintenance of the document template library became a challenge for the team.

4. THE KEY INNOVATIONS OF THE NEW SYSTEM

4.1 Business

Improve the response capability on customer requests

Reworking of documents can be minimized in BCMS as business users are able to create new versions of document templates, which were defined by business in cooperation with IT developers. In case of a simple document without new data structures, the document template can be fully handled by the business user and quickly released into the production stage. Moreover, business users have flexibility to reopen a closed document design case without involving a complex process of authorization. The system not only reduces the efforts in document design but also increases the quality of document templates. According to an internal statistic, in average 20-25 new document template definitions are released every month producing 15,000 online documents per hour and more than 20 million batch documents for central printing each month.

4.2 Case Handling

The initial system with isolated working tools

In the initial system, business designers create document layouts with MS Word based on the requirements from business departments (see Figure 1).
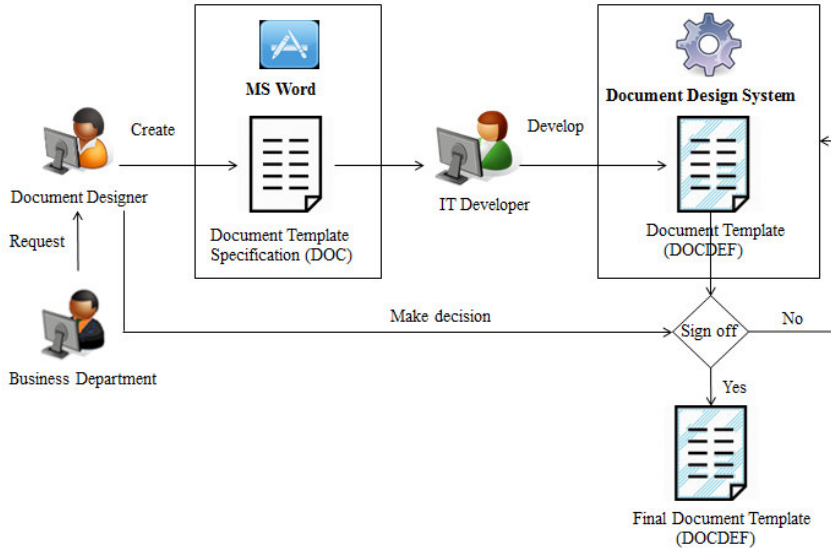
Figure 1: Change Management in the MS Word based system

Every new document is created from scratch or by duplication from existing similar documents. The details of the document layout and its business logic are described by the business department requesting a specification for IT development from document designers. The document draft attached to the specification is sent to IT developers for implementation in the document design system. The document designer signs off the document development for entering the test phase. The business department signs off the document template specification its content and layout as well as the IT development part for production during the test phase.

The overall system architecture of the new BCMS

Built upon on ACM, BCMS is a solution for correspondence design and management. The system provides GUIs for different types of users with different roles. Document designers construct document templates following the document template specification received from business departments. The business logic that needs the implementation from IT developers is specified as annotation comments attached to the document template. Business departments evaluate the document designs before IT developers implement the technical parts. The document templates are located in a central document template library as common storage providing access to every authorized user.
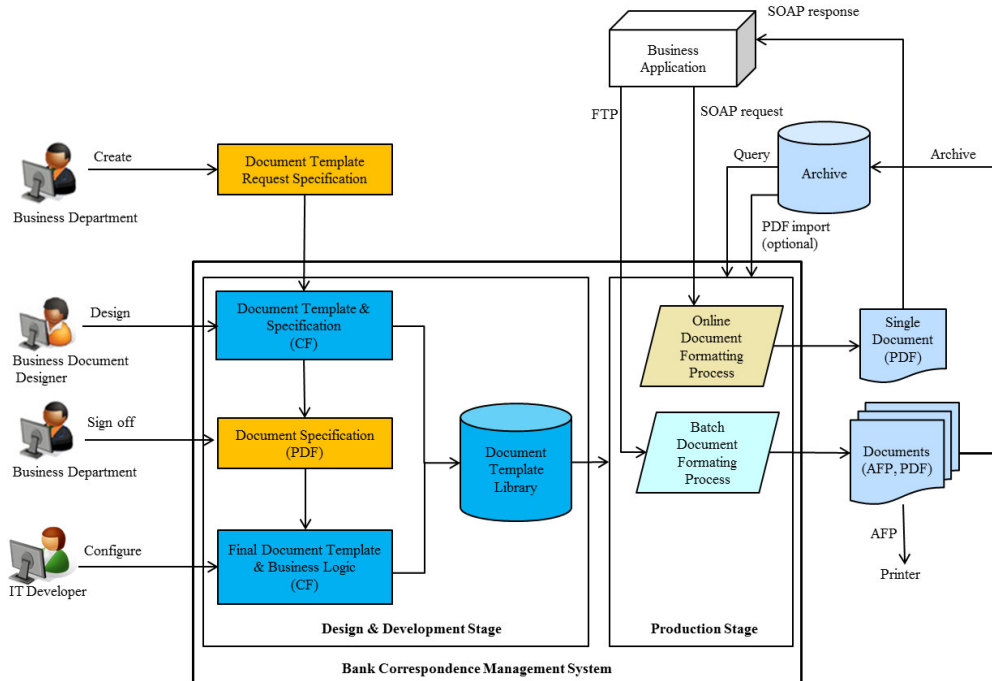
Figure 2: Overview of BCMS

After completion in the design and development stage (see Figure 2), document templates are delivered to the production stage for online as well as batch production. Printing and archiving are consecutive steps outside BCMS. In the production stage, an external business application sends a Webservice SOAP request to trigger formatting of a single online document or trigger via FTP a batch file for a mass document formatting run. Single documents are sent back to the business application via SOAP responses as PDF documents. Mass documents are handed over to external print services in AFP format and are archived in PDF format. During document formatting, pages from archived PDF documents can be directly imbedded into the newly formatted documents.

In BCMS, Business users, aka knowledge workers, have autonomy to design and operate ad hoc actions based on their current business situation. Those ad hoc actions are managed and harmonized by change management and compliance-checking techniques implemented in BCMS with ACM, as discussed in the following sections.

Change management and role assignment of the new BCMS

The change management principle applied in BCMS is a fully customizable ACM-based process and aims to involve the right people for the right work at the right time. Figure 3 represents the change management process through all stages of a project where users with assigned roles have responsibility for changing of transitions.

In the *private development stage*, document designers, i.e. business users, and IT developers create document entities, such as document building blocks, document templates, building block language variants, etc. based on the requirements from business departments. The private projects belong to each person and cannot be seen by the others until they are published. When completing the private

development, users notify project coordinators for promoting their document entities to the group development projects for teamwork.
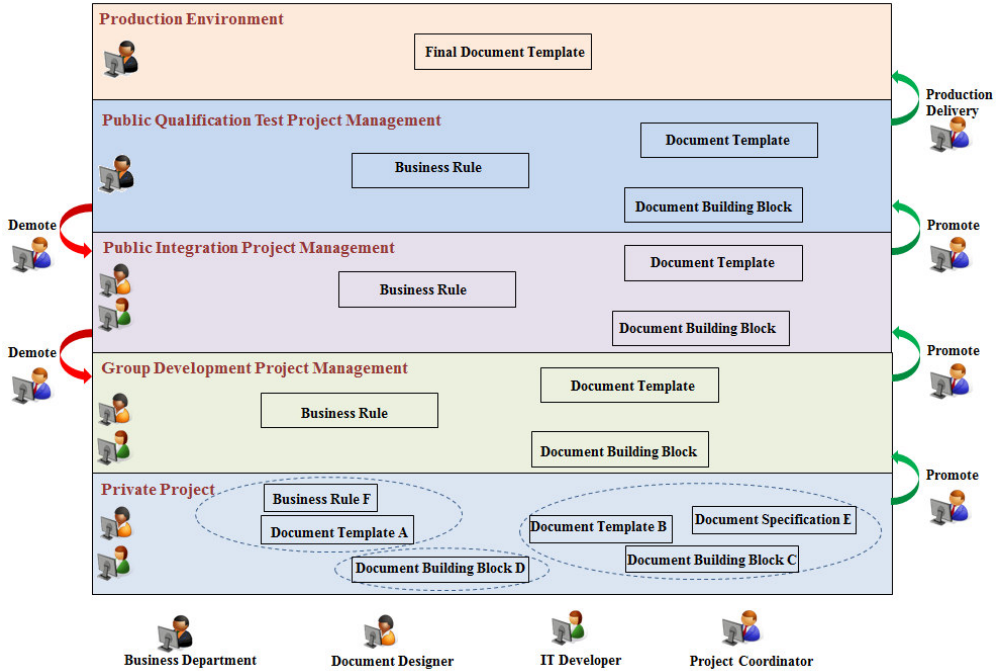

Figure 3: Change management in BCMS

In the *group development project management stage*, users, who are document designers and IT developers, can access commonly accessible document entities for their working assignment and do initial development integration tests. Business departments validate the document design and specification before handing over to IT developers. Supervisors of the development team assign the tasks to available IT developers. Business coordinators validate the documents before promoting them to the next stage, which is the public integration stage.

In the *public integration project management stage*, the new development is tested for integration with existing components. Before the document items are released to the *production environment*, they are tested in the *public qualification test project management*. Project coordinators have the responsibility to promote or demote document entities between the stages of the change management system. The details of document design and change management are represented by use cases as follows.

Document template design in the new BCMS

Figure 4 shows an ACM case view where users have all functions to deal flexibly with a case. A document design is managed within a case, aka a project in the business perspective of business users, including a set of predefined steps and related data. Besides the predefined tasks, business users are allowed to add goals or ad hoc tasks under a particular regulation that ensures the consistency of the case.
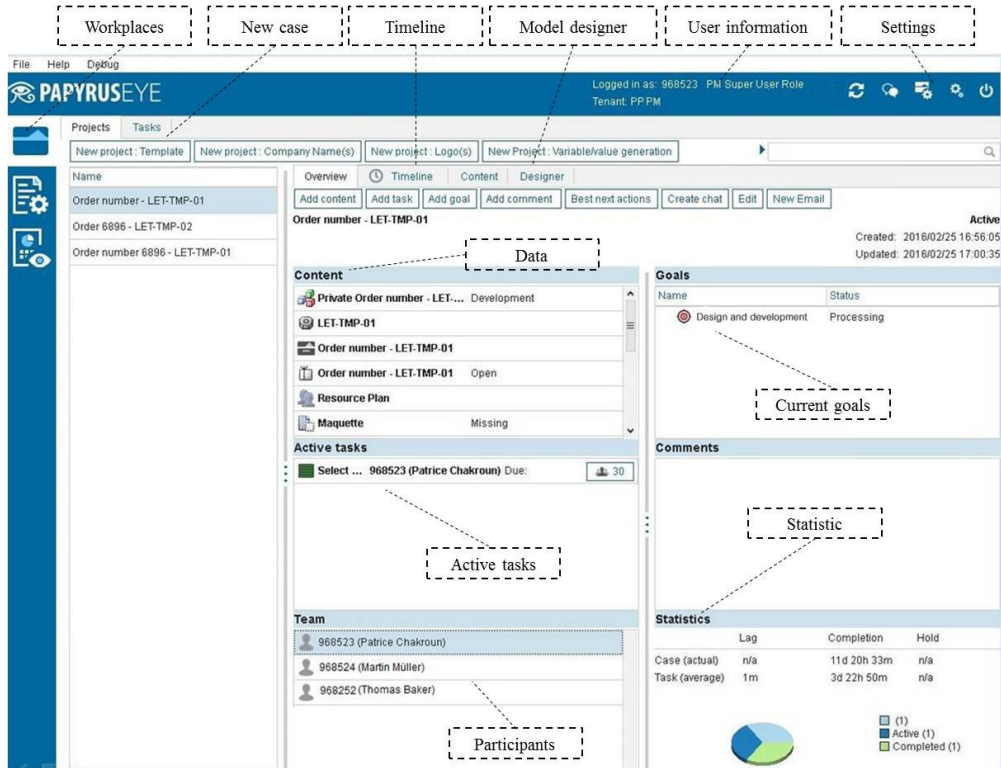

Figure 4: A case management view

Access control and configuration

The system authorizes each user with access rights specified by roles and privileges. The user information is shown along with their username, role and organization they belong to. Business users can easily customize basic application settings, such as the UI language.

Various workplaces

The system provides GUIs for different types of users with different roles. As seen on the left side of Figure 4, the user can select between different workplaces like the workplace shown for case management. The second workplace is for document design and the last one is for document reporting, e.g. querying statistics about document templates that meet particular conditions.

Goal orientation

The case management workplace provides all functions for case management. A new case is instantiated by the function "New case" executed by business users, independent from IT developers. A case is driven by a single goal or several structured goals which can be defined by the user. The goal represents a completion criterion for closing a case successfully.

Visualization

To facilitate full case management, the system provides access to a case model designer, statistics and a task timeline. The model designer shows a visualization of the so far prepared and executed processes. In the timeline, the executed list of tasks is chronologically presented for the temporal view on a case. The statistics information shows the state of the current work in graphical diagrams.

Collaboration

The list of participants shows who is able to work on a case or a certain task. The involved data of a case is shown in the case view and used for previewing the associated task.
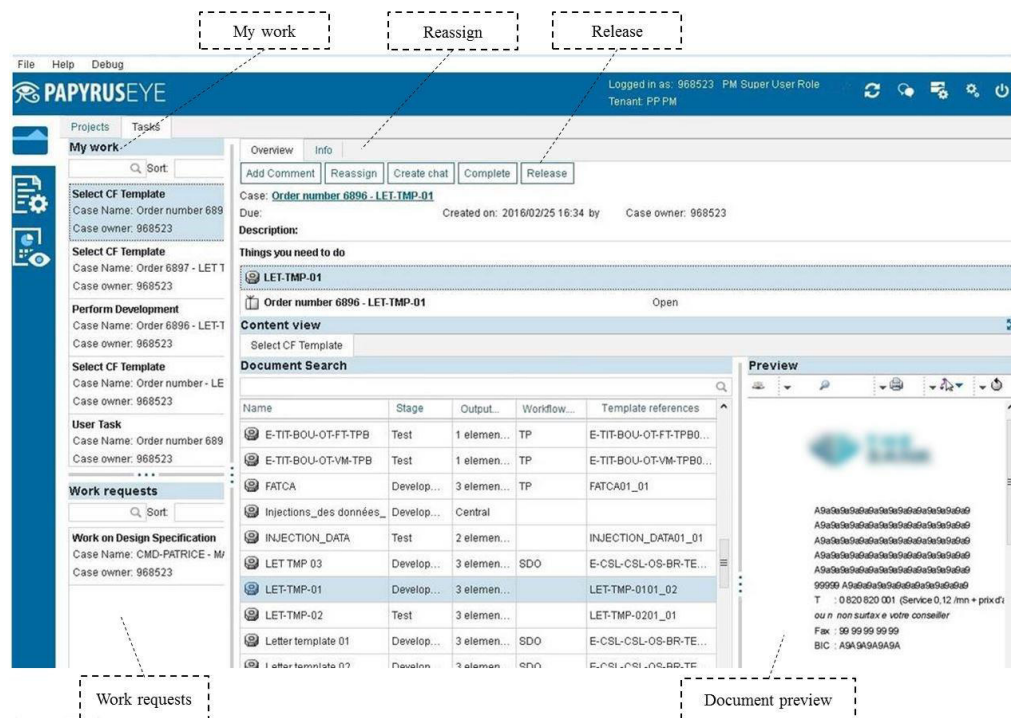

Figure 5: Collaboration in BCMS

Figure 5 shows the task view where business users have the overview of their own currently active tasks and tasks assigned to them. They have to accept a task from the work requests, reassign a task to another user or release a task back to a case owner. Moreover, conversation between users is facilitated within the system by an integrated chat function. The data involved in a case can be visualized in a preview panel on the right side of the figure, with full control of the document and its layout. During template definition where no business data are available placeholders are shown.

Access to the document template library

Users can access the document template library to select a suibtable template for the current document design (see Figure 6). The library is categorized based on building block types, which can be text language variants, image language variants, business data variables or complete document templates. Users can create a new item, edit or delete the existing one, or create a document from multiple parts if the desired template is not existing yet. Moreover, users can simulate the business logic in the template by importing test data to have a complete overview of the document in all data constellations that will be delivered to customers.
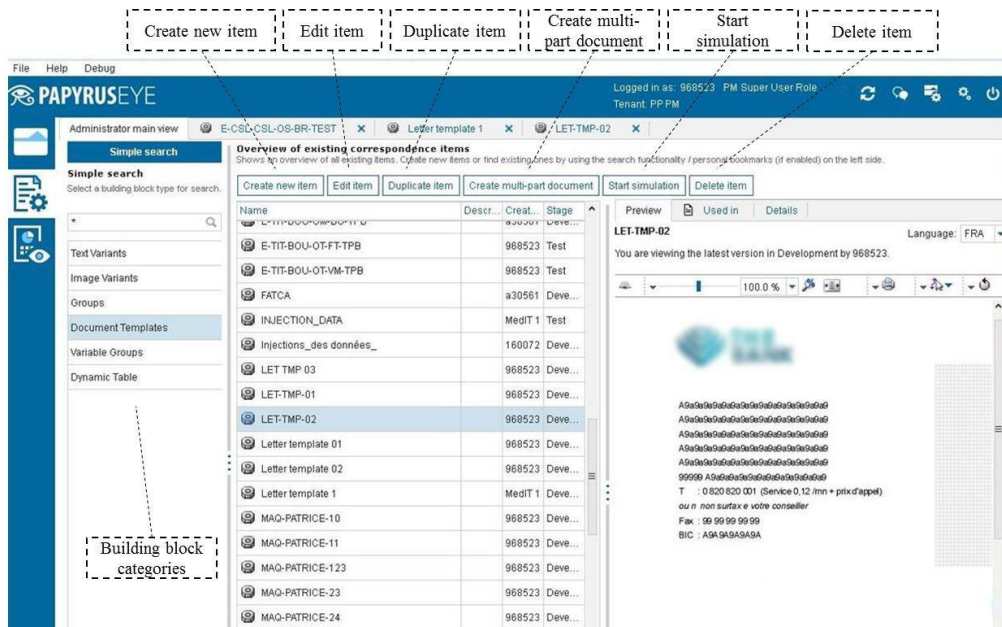

Figure 6: Document template library

Document building blocks

Document building blocks are the constructing components of a document template. Figure 7 shows how a document template is built from several building blocks. It is important that business users can independently select a user interface language (English in Figure7) and the correspondence language (French in Figure 7) which supports a predefined set of company defined languages with spellchecking and hyphenation. Each building block has multiple versions in different languages that can be specified on the interface by the language setting. The left frame displays the whole document template while the frame on the right bottom corner previews a single building block which can be added to the document template at a certain position. To add such a building block from the library to the document template, users simply drag a block from the buidling block library and drop it onto the right position of the document tree structure. Properties of each buidling block contain attributes which define exact position and format on the document canvas. Each building block can have rules defined in natural language to make its invocation dependent on certain input data variables.
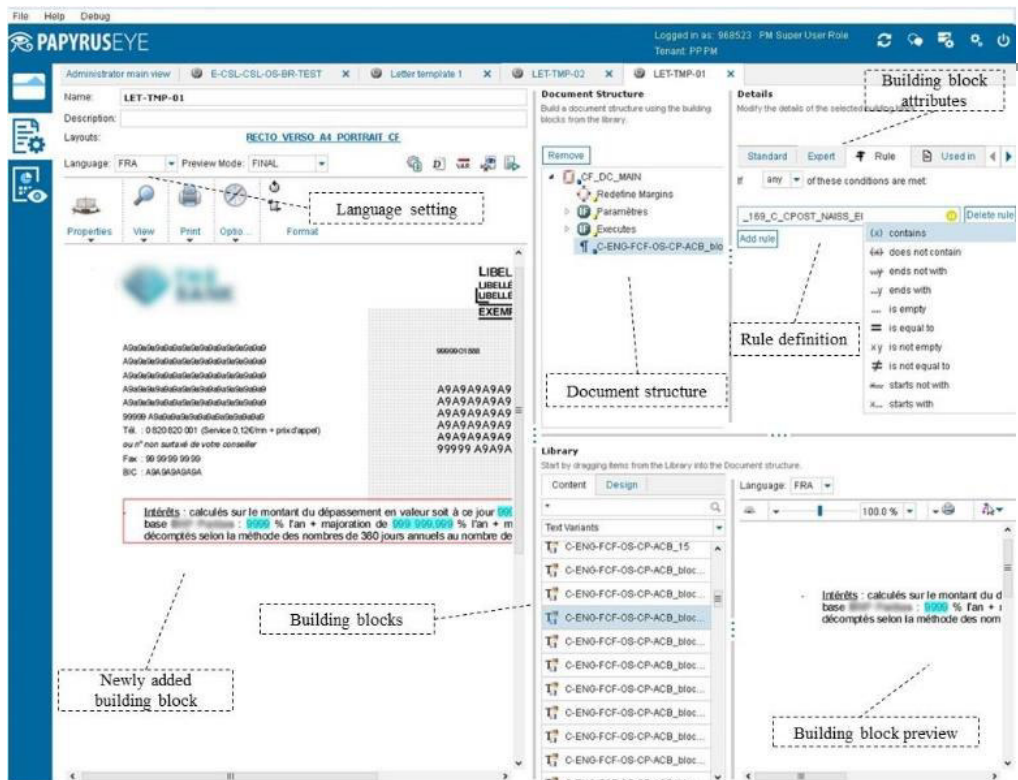
Figure 7: Document building blocks

Change management

Business departments verify the document template designed by document designers, as shown in Figure 8. If the "Validate" function is selected, the document is sent further to developer supervisors. With "Reject" it is sent back to document designers with attached comments including requirements for improvement.

Figure 9 shows the workplace of developer supervisors where they assign available IT developers to a certain case. The selected IT developers will receive the document template to finish the document development which is mainly about technical configurations related to more sophisticated document elements, such as data interfaces for input of business data, complex business rules or dynamic tables. When the document is finished, it is sent to project coordinators who verify the development, as seen in Figure 10. A compare view shows two versions of a document template to facilitate the verification. If the document is rejected, it is returned to IT developers. If it is validated, business department will test the document and decide whether it is released in production
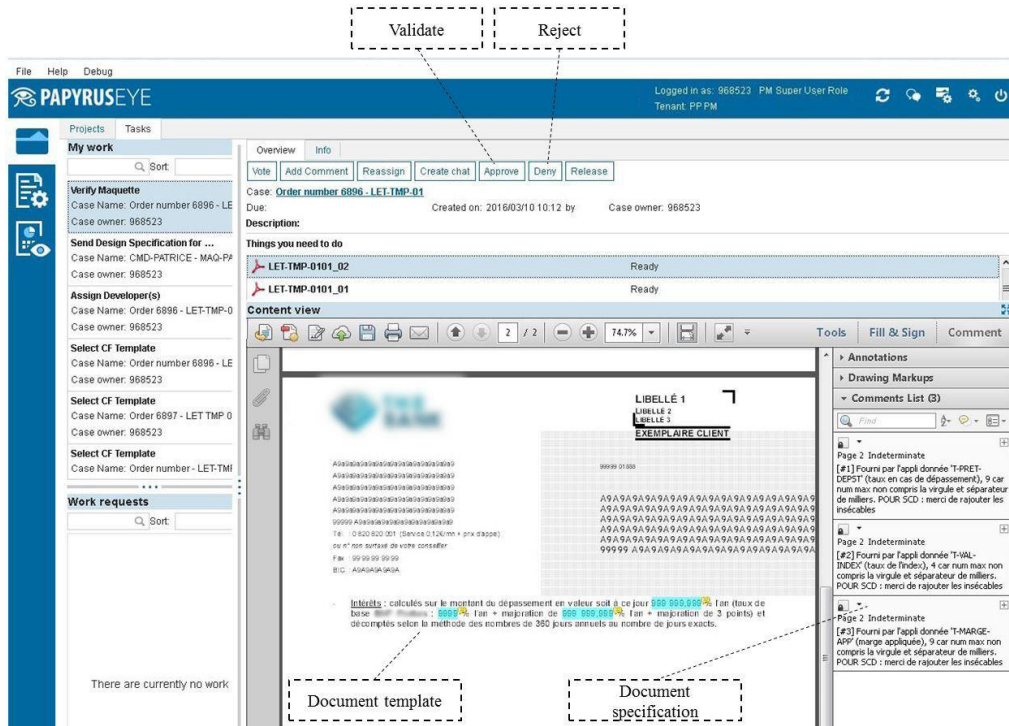
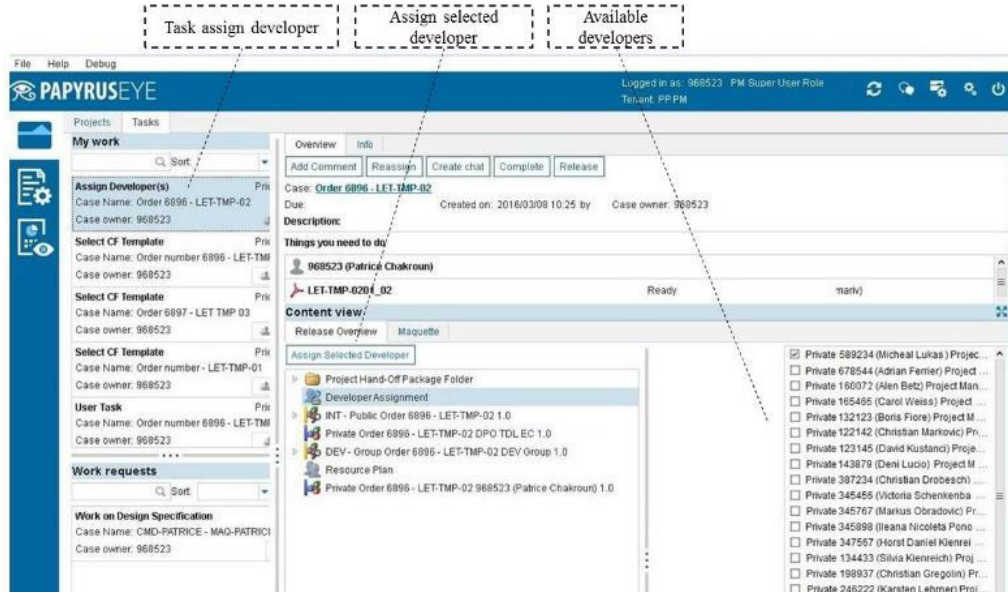*Figure 8: Document design validation*
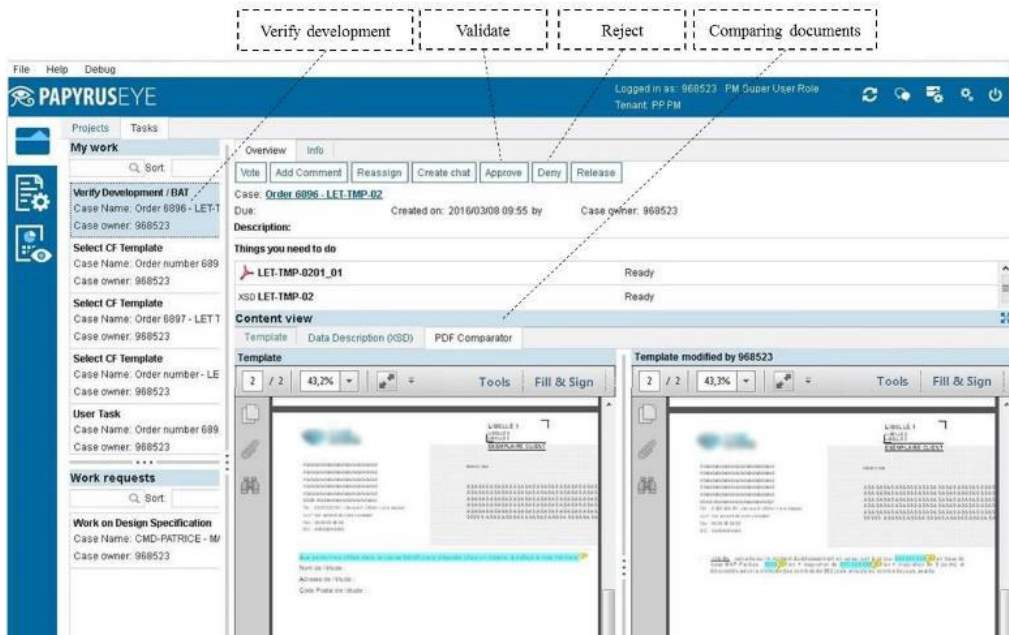

Figure 9: Assign developers

Figure 10: Validate development

Ad hoc actions

BCMS allows users to add tasks on the fly or reopen a case.
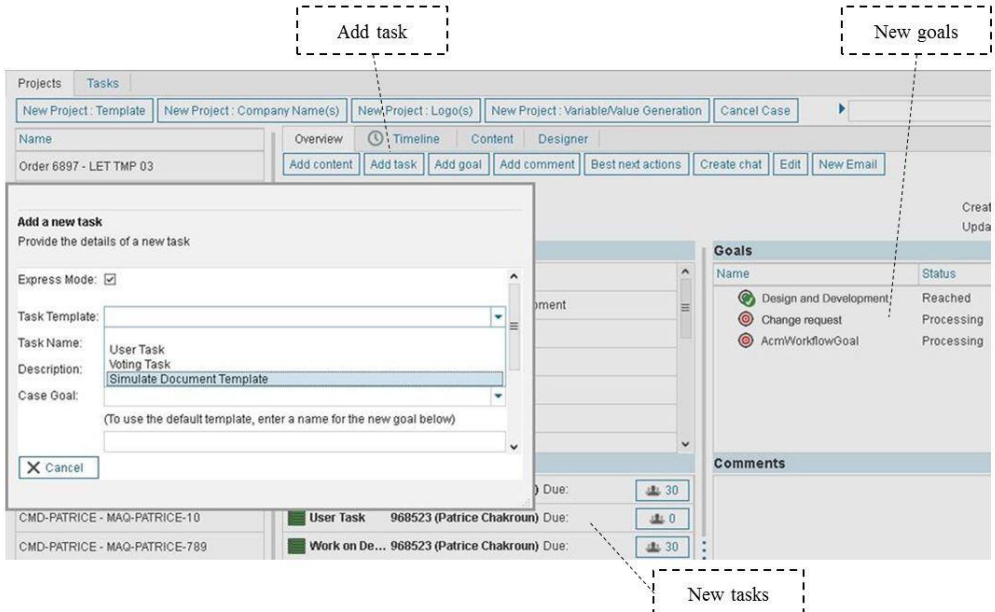

Figure 11: Ad hoc actions in BCMS

As seen in Figure 11, a case is closed when the main goal is reached. However, the user interface allows users to simply reopen the case and continue editing a document when e.g. the need for a late change was recognized. A new goal is added on the goal structure and a new task also appears in the task list. Moreover, users can add an ad hoc task that was not planned for the case by clicking the "Add task" button. A selection of task templates is offered in a browse window which contains beside generic task templates also specific templates for ad hoc situations that were not expected. For example, the task "Simulate document template" can be added in the middle of a document design process to preview the document with a set of test input data. The selected ad hoc task is added to the case via a generic goal, as the AcmWorkflowGoal seen in Figure 11.

4.3 Organization & Social

Seamless communication and productive collaboration between business users and IT developers

Communication between business users and IT developers is a key factor leading to an efficient system where IT developers can satisfy effectively the business requirement specified by business users. Because of the big difference between their knowledge-intensive domains, the communication is a challenge especially when users are in different locations and use different terminologies. Instead of using emails to exchange work packages, business users and IT developers share their work in a unified system. The workflows between people are seamlessly operated without media breaks as seen in the former system. BCMS facilitates harmonious collaboration between private projects and teamwork and thus bring seamless workflows between individuals and groups. Therefore, BCMS enables an efficient communication between business users and IT developers.

Business teams are satisfied that they can design document templates more quickly and independently

BCMS provides business teams with business user GUIs with full capabilities to design document layouts. After some training for the change management processes, business users are able to work independently on document design tasks. If some parts of the document demand for business logic definitions, business users specify the requirement for IT developers who develop the technical components. However, the document design by business users is released into the central document library ready for the next steps of the document design process. IT developers complete the definition of documents based on the specifications imbedded in the document templates.

IT developers enforce corporate identity consistently through predefined layout templates.

BCMS manages the production of thousands of customer communication documents to meet corporate, regulatory and industry standards for the global financial organization of the Bank. It ensures the consistency and compliance of the document layouts by providing predefined templates for business users. The corporate identity is enforced in thousands of document templates and thus, it ensures well-designed and high quality documents representing the Bank to their customers.

5. HURDLES OVERCOME

Changing working environments is a challenge to the users and thus, requires a transition period for full acceptance of the new way of working. Thus, BCMS was initially deployed but continuously adapted based on daily feedback of the Bank's employees. Trainings were provided to all business users in order to promote the usage of the system. Besides communicating the benefits for daily work, the management of the Bank encouraged employees to accept BCMS also by high-lighting the commercial benefits that the Bank gains through the system, as discussed in Chapter 6.

BCMS allows business users to directly participate in the document development process. Although the user interfaces are designed especially considering the needs of business users, some background knowledge about document design with reusable building blocks and change management helps to understand the new approach. Moreover, the system provides professional document design functions, such as building block composition, content formatting including spell-checking in the related document language and sign-off which requires additional skills from the business users. Therefore, the document design process needed in the early stage of BCMS uses less time than in the old system.

6. BENEFITS

6.1 Cost Savings / Time Reductions

- The development time is reduced by 50% in the development phase and up to 90% in the release phase of document templates.
- The total effort for the whole process is cut down on average by 50%.

6.2 Increased Revenues

In the first phase of the project, the revenues cannot be estimated.

6.3 Quality Improvements

- Consistency in document layouts and content
- Well-designed format
- Corporate identity enforced in every document

7. BEST PRACTICES, LEARNING POINTS AND PITFALLS

7.1 Best Practices and Learning Points

- ✓ The work of document designers can be reused and continued by IT developers.
- ✓ As a key factor for a successful system implementation, the collaboration between involved teams has to be in focus in every phase of the project.
- ✓ A solid but adaptable change management process is essential for an expanding collection of document templates with different versions.
- ✓ Data visualization facilitates users in capturing the overview as well as details of a document design case.

7.2 Pitfalls

- ✗ The background knowledge required for the new system should be trained to users as early as possible.
- ✗ Business users should be involved in the user interface discussion early, so that they get familiar with the new system and contribute from their experiences to increase user acceptance.

 ✘ *Professional trainings for business users are important to seamlessly intro-duce a new system for correspondence management.*

8. COMPETITIVE ADVANTAGES

Allowing business users to develop documents themselves is the most competitive advantage of BCMS. The gap between business users and document developers was eliminated as they can share and continue work of each other. As a long-term plan, this collaboration will increase the benefits as the business can get into full control of the process producing their desired documents. Moreover, the system ensures the consistency of corporate identity and high quality in every document design.

Built on ACM, BCMS inherently supports flexibility in the document design process. Business users are able to create or edit a document template at any time independently from document developers. Moreover, the change management in BCMS with a flexible release process handles different versions of document templates efficiently and gives the control of the release process to the business departments.

9. TECHNOLOGY

ACM is used as a framework to combine ad hoc flexibility with predefined processes for a document design and release management system. The unique benefit of ACM for BCMS is that a document design case can be handled flexibly along the design process. The system provides a full set of functions for document design prepared with predefined templates. However, business users can independently edit a document case to flexibly deal with the challenges of daily work.

Change management is applied in BCMS to support the collaboration of business users and IT people. The release process allows business users to promote or demote business entities to another release stage depending on the assessment of the current development situation.

Correspondence management provides business users with a design tool for document templates. BCMS models documents from separate building blocks including business logic. The building blocks are treated as independent document entities and can be reused in different document templates to benefit from shared resources. A tradeoff between reduced development efforts vs. increased testing efforts when shared resources are being changed has to be found. With this technique, BCMS empowers the Bank's document designers as well as IT developers to apply their expertise to daily development work.

10. THE TECHNOLOGY AND SERVICE PROVIDERS

ISIS Papyrus Europe AG delivers BCMS for correspondence design and management based on the standard software Papyrus platform. ISIS Papyrus offers a consolidated, end-to-end solution for inbound and outbound business communication and process management, using standard software components and solution frameworks:

- Papyrus WebRepository with ACM Solution Framework
- Papyrus Correspondence Solution
- Papyrus DocExec document formatter
- Papyrus DocExec/PDF
- Papyrus Designer for IT document development

ISIS Papyrus - Communication and Process Platform: https://www.isis-papyrus.com/