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Business Process Model Document

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CASPER – Business Process Model Document

## Definitions, acronyms and abbreviations

|  |  |
| --- | --- |
| **Project acronyms** | |
| Acronym | Definition |
| **A2A** | Application-to-Application |
| **ADAMS** | ADA Managed Service |
| **API** | Application Programming Interface |
| **ARIS** | Architecture Integrated Information Systems |
| **BPM** | Business Process Model |
| **CASPER** | Centralised Submission Platform |
| **CBA** | Collecting Business Area |
| **CO** | Collection Owner |
| **CST** | CASPER Support Team |
| **DISC** | Data Intelligence Service Centre |
| **DMZ** | Demilitarized Zone |
| **EDGE** | External Data Gateway Exchange |
| **EIB** | ECB shared technical service implementing an Enterprise Service Bus |
| **ESCB** | European System of Central Banks |
| **EUM** | Enterprise User Management software |
| **EMMA** | Architecture Modelling Tool |
| **HP ALM** | HP Application Lifecycle Management |
| **IAM** | ESCB Identity and Access Management |
| **JIRA** | Issue & Project tracking software |
| **LAN** | Local Area Network |
| **MOMO** | IT infrastructure monitoring |
| **NCA** | National Competent Authorities |
| **SP** | Service Provider |
| **SO** | System Owner |
| **RA** | Reporting Agent |
| **RIAD** | Registry of Institutions and Affiliates Database |
| **U2A** | User-to-Application |
| **UHD** | User Help Desk |
| **WLA** | IT Work Load Automation |

# Introduction

## Purpose

The Business Process Model document provides a detailed description of the business processes designed and implemented in CASPER. To capture as much details as possible, each business process is described verbally and graphically by using the semi-formal modelling language ArchiMate (enterprise architecture modelling language). As CASPER evolves over the time, business processes are presented in their as-is definition but also in case of revisions in their to-be design.

Different definitions can be found under the term “Process”. In this document the term “Process” is defined as followed:

“*A process is an activity. Generally a process would be a composite activity and be geared to serve some purpose. Depending on the specific process, its tasks could be some combination of services that correspond to queries, transactions, interfaces to other applications, and administrative activities.*” The services are either automated by the CASPER system or manual. Manual services are being executed by the users of CASPER within their specific user roles (see 1.5).

The business processes described are implemented by the CASPER system to improve the efficiency of data submission, data reception, data validation, data monitoring, data definition and data transfer.

## Scope

The document deals with processes that were addressed within requirements defined in the [CASPER URD](https://darwin.escb.eu/livelink/livelink/overview/181657359) as well as within the document [CASPER - Organisational Considerations](https://darwin.escb.eu/livelink/livelink/overview/188395746) which describes the collection management processes from the view point of the business area. In addition, the IT-related organisational processes are modelled and described.

## Audience

The Business Process Model Document provides a high-level overview on the processes

* Defined by DG-S that support the governance of the CASPER platform,
* To be implemented in CASPER.

It addresses business users as well as developers getting to know the activities that are executed within the processes related to CASPER. The process descriptions as well as the respective models give a deeper inside what happens within the execution of the manual, semi-automated and fully automated business processes around and within the CASPER platform.

## Reference documents

|  |  |
| --- | --- |
| File name | Path |
| CASPER High-level requirements | <https://darwin.escb.eu/livelink/livelink/overview/175785691> |
| CASPER Detailed User Requirements | <https://darwin.escb.eu/livelink/livelink/overview/181657359> |
| [CASPER - Organisational Considerations](https://darwin.escb.eu/livelink/livelink/overview/188395746) | https://darwin.escb.eu/livelink/livelink/overview/188395746 |
| CASPER IT Architecture Frame | <https://darwin.escb.eu/livelink/livelink/overview/186943309> |
| CASPER SAD | <https://darwin.escb.eu/livelink/livelink/overview/190430216> |
| CASPER Test strategy | <https://darwin.escb.eu/livelink/livelink/overview/194136021> |

## User Roles

Roles are introduced to get a picture from the future end-users of the system by introducing archetypical user profiles, as examples of the kind of users that would interact with CASPER. Roles will help to understand the business requirements and related processes by giving an idea which users are going to use it and what motivation they will have for using the software. The list of roles should not be intended as final, but only illustrative at this stage. The roles will often be reused as actors within the ArchiMate models.

|  |  |  |
| --- | --- | --- |
| Role[[1]](#footnote-1) | User profile | Motivation |
| Data expert  (CBA) | * is responsible for setting up data collections * ideally has got experience in software development * has managed previous data collections successfully and has received any relevant training * wants to ensure the customers’ needs are met | * expects to decrease manual effort with the introduction of the new software * has high requirements related to flexibility and adaptability * won’t be challenged when confronted with some complexity related to rule definitions * wants to be guided through the system either by the system itself or by comprehensive documentation |
| Data service expert (CBA/CO) | * is responsible to monitor the data collection related to data quality and completeness * prepares daily reports on the status of the overall data collection before and after the remittance date | * expects a system that supports the task in monitoring the submissions * wants to see all expected and received submission with the result of the data quality assessment * needs to be able to view statistics and dashboards based on the submission metadata |
| Data administrator  (CST) | * checks that the defined governance processes were followed before the start of new data collections * needs to ensure that the setup of a data collection has no negative impact on existing data collections * approves a new or updated data collection * assigns access rights to internal and external users | * expects that the configuration has been thoroughly prepared by the data expert * wants to ensure that the process steps were correctly executed for the initiation of a data collection * needs to have proof that the data collection was tested sufficiently before the go-live * strives for consistency of concepts and reduced reporting burden across data collections |
| NCA/NCB data service (RA) | * works at a NCA or a NCB * submits regularly the data which were received from reporting institutions to the ECB * relies on the manual data submission channel due to the fact that some implementation is still ongoing to enable an automated submission | * wants a system easy to be used * expects to be able to upload files for all institutions in one step * needs an overview on the submitted files and their validation status * wants to be informed about delays |
| IT technical expert (RA) | * works at a NCA/NCB or a reporting institution as IT project manager * wants to enable the automated submission of ad-hoc data collections to the ECB | * expects a detailed documentation on how to set-up the A2A connectivity to the ECB * needs to test submissions in the Acceptance environment * wants to be informed about data reception and possible errors identified by the ECB * would expect to use standard data exchange methods |
| Bank business professional (RA) | * works at a credit institution * is a highly skilled business expert * is requested to fill out an online survey for the ECB | * wants a system that’s easy to use * would like to be guided to the survey, e.g. direct link to the web forms * wouldn’t expect to use the software often |
| Auditor or other reporting service providers (RA) | * provides his service to credit institutions * is a highly skilled accountant * is requested to submit data for several credit institutions | * wants a system that’s easy to use * expects to be able to upload files for all institutions in one step * needs an overview on the submitted files and their validation status * wants to be informed about delays * needs to sign-off the submission to the ECB |
| Bank senior manager (RA) | * needs to be sure that the data consolidation and internal quality checks are finalised before the data is submitted to the ECB | * wants a system that’s easy to use * wants to sign-off the submission to the ECB |
| External user administrator (RA) | * grants access to data collections related to the reporting entity he is able to manage * in case of reporting service providers access can be granted to one or more reporting entities based on the set of reporting entities able to be managed by the external user administrator | * wants to authorise external users to report or access the external portal of CASPER * wants an interface to CASPER to set-up the user access rights easily by assigning specific user roles and data collections to an external user of the same reporting entity or service provider |
| ECB IT technical expert (SP) | * works at the ECB as an IT project manager * wants to use CASPER as a collection service for data * has tight time constraints in terms of availability of data * needs to incorporate changes on data collections (metadata) in a reporting cycle | * would expect to use ECB standard data exchange methods * expects a reliable and fast collection service * wants an interface to CASPER to be set-up easily * expects data of good quality |
| ECB business professional (CO) | * works at the ECB in a business area requesting the data collection * has very tight time constraints to fulfil the tasks on time | * expects a reliable and fast collection service * needs access to files even if errors are detected * wants to communicate with external data providers to receive answers or additional information |
| Support team member (CST) | * manages all operational activities * provides trainings on the usage of the CASPER system * decides on the evolution of the software | * wants to monitor the system on a technical basis * needs to monitor the capacity of the system * wants to be supported in the task in moving the configuration to a next stage, e.g. new data collection, changed validation rules |

Table 1: User roles and their motivation

# High-level business processes

The high-level business process of “collecting” data in a broad sense consists of four logical steps: preparation, collection, validation and transfer.

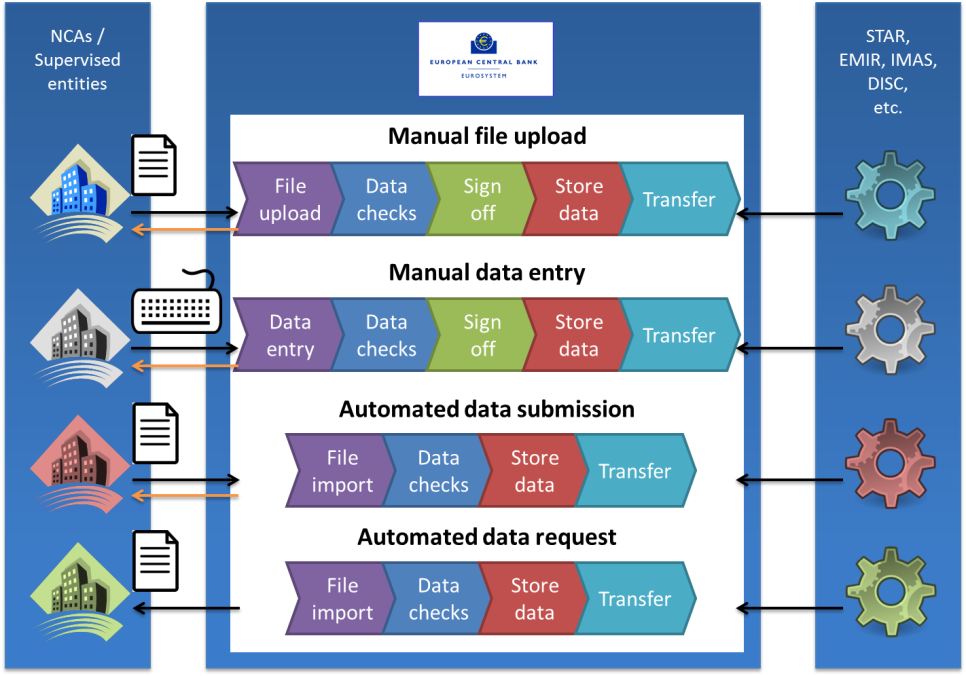


Figure 2: Main collection processes

The starting point of each data collection is the **preparation**. A user of a business area aiming to collect data from external data providers needs to populate the metadata that governs the data collection into the system.

After the metadata preparation, the succeeding steps shall be executed fully automated by CASPER. The **collection** step is, in the first phase of CASPER, initiated by the data provider who can select one of the four submission channels offered by the system:

* Manual file upload
* Manual data entry
* Automated data submission
* Automated data request.

The figure above visualises the process steps of collection, validation and transfer within possible workflows. In case the data is manually uploaded or the user enters the data manually, the **validation** step is performed. The validation applies also the files submitted via the A2A channel. The checks will take into account the rules specified within the metadata definition. The validation will execute checks on following levels:

* Level 1: Technical checks
* Level 2: Business checks to determine the data quality
* Level 3: Complex business validation to be executed by another system

CASPER shall notify the data provider if errors are detected; either by visualising the errors within the forms used for the manual data entry or by initiating an email to the data provider that informs about an error report available to be downloaded.

CASPER shall store the data in its original structure and, in case of structured data, also on detailed level. All completed submissions as well as the related metadata shall be accessible for data consumers. The **transfer** step is initiated by the backend applications representing the data consumers by using the generic interfaces of CASPER.

A further business process to be provided by the system is a **reporting cockpit** for internal ECB users as well as external data providers. External users shall be able to get an overview on the files and on the submissions sent and on submissions expected to be sent in the upcoming reporting cycle based on the configured reporting obligations. For internal users, CASPER shall provide monitoring possibilities to check the completeness of the data collection, e.g. related to a reporting cycle or related to a reporting institution. Furthermore, the reporting cockpit shall offer administrative functionalities.

In addition, CASPER will provide an embedded user administration system that allows the **management of users**. A role management based on general identity and access management applications (EUM) will be enhanced by flexible management of permissions of roles and the assignment of users to data collections and reporting entities.

# Process Overview

The table below provides an overview on the business processes to be implemented in CASPER (Centralised Submission Platform). The processes described in this document are highlighted in green.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Data definition** | **Data submission** | **Data reception** | **Data transfer** | **Data monitoring** | **User management** |
| Request a new data collection | Manual file upload | Access the CASPER Portal | Query via API | Monitoring reporting obligations | Access rights |
| Data collection preparation | Manual data entry | File processing | External validation | Open a discussion | Support CASPER users |
| IT Demand management | Automated file submission (push) | Reception status changes | Transfer to DISC | Answer a discussion |  |
| Requirements change process | Automated file submission  (pull) | Notifications |  |  |  |

Table 3: Business process overview

# Business Process description structure

Each business process is described in a table form in this document. Below is the explanation of the contents of the table rows.

|  |  |
| --- | --- |
| **Business Process ID** | The process described in this document is referenced via a business process ID of each business process. |
| **Purpose and scope** | The tasks and scope of the process are briefly described. |
| **Responsibility** | Roles / Actors responsible for the business process. |
| **Process input** | Input data necessary for the process (e. g. templates, approvals, files). |
| **Boundaries** | Define the process boundaries by identifying what is included in the process and what is not included in the process |
| **Process flow** | Description of the process steps |
| **Process output** | Output data/results delivered by the process. |
| **Interfaces** | Interfaces to other system components or other E(S)CB applications |
| **Exceptions** | Exceptions are events that deviate a process from its normal course. |
| **Figure** | Reference to the business process model modelled in EMMA via the ARIS Designer. |

Table 4: Business process table rows explanation

# Business Processes

## Data collection preparation

### Request a new data collection

|  |  |
| --- | --- |
| Process name | Request a new data collection |
| **Process Id** |  |
| **Purpose & scope** | Before a data collection can be prepared and executed via CASPER, the responsible business areas have to agree on the content and the technical impact. The request of a new collection is initiated by informal discussions between the CO and CBA/CST. These discussions serve to assist the CO and CBA in understanding and defining the scope/size of the collection. The SO will decide if a new data collection can be prepared in CASPER. |
| **Responsibility** | CO, CBA, CST, SP, SO |
| **Process input** | All material prepared in advance to a data collection will serve as input for the assessment, e.g. Excel templates, validation rules to check the data quality, the frequency of the submissions and the type and number of reporting entities that are requested to submit data. In addition, the CO/CBA has to present the process on how to validate the admin user’s identity. |
| **Boundaries** | This manual process is executed outside CASPER. The business areas can decide on tools for defining and monitoring the business-related workflow and its progress. |
| **Process flow** | The process starts with a request of a CO to collect data from counterparties outside the ECB:   1. The CO shall contact the responsible CBA within DG-S. 2. The CO and the CBA will refine the data collection with the Data Integration Team (DIT). Within the refinement process the parties will take into account the envisaged templates, validation rules, reporting population, format and frequency. In addition, the CO has to proof that an appropriate user validation process is in place. 3. The DIT will decide if the Data Stewards Group is to be informed about the newly requested data collection. 4. The CST will analyse the technical impact and prepare an assessment note. 5. The assessment note is to be sent to the SO as basis for taking an on-boarding decision. 6. The on-boarding decision can result in an approval of the data collection to be prepared in CASPER. The CO and the CBA will get informed by the CST. 7. The CO and the CBA will afterwards request the Data Committee for approval. 8. After that, the data collection can be prepared in CASPER. 9. In case of necessary technical changes required before the data collection can be on-boarded, the demand will be forwarded to the IT Demand Management (see chapter 5.1.3). 10. If there is a conflict identified between existing and newly requested data collection, the CST will consult with the CO and the CBAs. 11. Optionally, the conflict can be escalated to the Data Committee. |
| **Process output** | Decision about the on-boarding of a data collection in CASPER. |
| **Interfaces** | No technical interfaces to CASPER. |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 6: 001 - BPM Request a new data collection | |

### Data Collection Preparation

|  |  |
| --- | --- |
| Process name | Data Collection Preparation |
| **Process Id** |  |
| **Purpose & scope** | The software shall enable high agility that allows a short-time to market of data collections without IT interventions. CASPER shall therefore offer data experts an easy to use self-service platform for defining and managing data dictionaries, reporting obligations, business rules and metadata related to the data transfer to backend systems. The definition of the collection will be performed in a staging process similar to those used in the creation and publication of content in a content management system. Therefore, the CO and/or the CBA prepare and test the data collection in a staging area before its publication. |
| **Responsibility** | CST, CO, CBA, SO |
| **Process input** | Metadata related to a data collection like the data dictionary with at least a set of data points, the expected file format, the reporting population, the reporting obligations based on the remittance calendars, the validation rules, the workflow definitions and, if applicable, the table structures for the manual entry |
| **Boundaries** | The preparation is initiated by the CST after the decision has been taken to on-board the new data collection. Prerequisite for all steps within the process is that access is granted to the CBA/CO users responsible for the data collection preparation. A test guide for the prepared data collection is to be drafted by the CST that serves as input for future tests. The data collection tests will be independent from the CASPER IT project/service due to the self-service character of CASPER. |
| **Process flow** | The process starts after the decision to on-board a new data collection in CASPER:   1. The CST registers a new data collection in CASPER and defines the constraints based on the detailed data collection requirements as agreed with the CO and the CBA. 2. In addition, the CST grants access to CBA/CO users responsible for the data collection preparation. 3. After that, the CST notifies the CBA that the data collection preparation can be initiated. 4. The CST offers trainings on the subject of data collection preparation. 5. The user can start with one of the following process steps:    1. Users of the CBA/CO assign one or more reporting cycles to the data collection    2. Each data collection is to be split in one or more modules. For each module, it is to be defined if the data is expected as structured or unstructured data.    3. The data dictionary is prepared by defining observations, dimensions, domains, related members, and attributes for the various data points to be collected.    4. Users of the CBA/CO specify the reporting entities from which data is expected or requested.    5. Users specify the workflows, e.g. which channels can be used to submit data for the data collection. 6. After the definition of the reporting population, the reporting entities are to be assigned to entity groups. 7. After the preparation of reporting cycles, modules and entity groups, the user defines reporting obligations by combining these data collection information with the defined reference dates and the remittance dates. 8. Based on the data dictionary, the user specifies the business validation rules to be executed. In addition, the user can configure the validation rule filters to be applied on entity groups by specifying the characteristics of the validation rule, e.g. filter type, severity, confidentiality. 9. Optionally, the user can specify the table structure in which the data points are to be displayed. The information will be used to render the web forms for the manual data entry. 10. After the data collection preparation, the user can define the staging reporting entities for the tests to be executed. 11. The CO and the CBA shall execute tests based on the test guide prepared by the CST. 12. The test execution shall be documented in a test report. 13. The CST will check the test execution and results before proposing to publish the data collection metadata to the production area. 14. The SO approves the publication and the CST initiates the copy from staging to production via the CASPER Portal. |
| **Process output** | The data collection is published and the respective data can be collected via CASPER. |
| **Interfaces** | Interface to RIAD within the process of defining the reporting population. |
| **Exceptions** | In case of bugs identified during the tests, the CBA/CO has to fix the problems and to execute further tests. |
| **Figure** EMMA **-** ARIS Designer: Figure 7: 002 - BPM Data Collection Preparation | |

### IT Demand management

|  |  |
| --- | --- |
| Process name | IT Demand management |
| **Process Id** |  |
| **Purpose & scope** | CST is responsible for collecting the IT demand that is not covered by the existing platform capabilities, e.g. due to a new data format, revised business processes, incidents reported by users or due to infrastructural changes planned by DG-IS.  CST in cooperation with the System Provider will document the required evolution of the platform, plan and manage its implementation. |
| **Responsibility** | CST, CBA, CO, SP, SO |
| **Process input** | All IT demand that is raised via various channels, e.g. email, JIRA, discussion forum in CASPER, defects raised during testing, infrastructural changes requested by DG-IS. |
| **Boundaries** | The process describes the steps from the IT demands raised until the implementation and go-live. |
| **Process flow** | The IT Demand Management is a continuous process to adapt CASPER to the future needs of the various business areas in the ECB.   1. IT demand arise from various stakeholders, either from the CST but also from CBAs and COs. All requirements are collected by the CST supported by JIRA. 2. CBA, CO or CST need to open a requirement in JIRA. 3. The requirements are to be analysed by the CST and the SP and to be approved before they are further detailed. 4. Detailed requirements are to be specified in collaboration with the CST and the SP. The requirements are to be documented by the SP in HP ALM (see chapter 5.1.4 for the details of the sub process). 5. IT demand might be raised due to infrastructural changes planned by DG-IS. 6. Based on detailed requirements and infrastructural changes, the priorities are set which build the basis for the release planning. 7. Especially requirements of high or medium priority will to be integrated in the next release. 8. Some requirements will stay in the product backlog and might be part of a following release depending on their priority. 9. The implementation in CASPER is to be done by the SP. 10. In addition, the IT technical tests are executed by the SP before the UAT. 11. The CST supported by the respective CBAs is responsible for the execution of the tests in the pre-production environments. 12. After the approval of the system owner, the new release is deployed in production. |
| **Process output** | The demand prioritised for the release is available after the Go-live as new features within CASPER or will stay in the product backlog. |
| **Interfaces** | A synchronisation of requirements between JIRA and HP ALM is to be configured. |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 8: 003 - BPM IT Demand Management | |

### Sub process: Requirements change process

|  |  |
| --- | --- |
| Process name | Sub process: Requirements change process |
| **Process Id** |  |
| **Purpose & scope** | The requirements change process is a sub process of the IT Demand Management and envisages the following objectives:   * The progress of a requirement or a change should be traceable during the specification as well as during the development phase. * A managed process will reduce the risks in the project by making changes more transparent. * The management of changes on requirements will increase the consistency between the documented requirements, the source code being developed and the according tests to be executed. * The requirements change process should be supported by software.   As the project management in CASPER combines components of the classical project management with agile PM aspects, changes to requirements will emerge during the release lifecycle.  IT Business Analysts are responsible to detail the described need for a change in requirements which are understandable for IT developers and specific enough to allow an implementation. The requirements should be supported by use cases. To acquire the necessary details, requirements workshops are to be executed. |
| **Responsibility** | CST, CBA, CO, SP |
| **Process input** | New demand that was raised in JIRA by the CST, CBA or CO and accepted as new requirements by the CST and the SP will be part of the described sub process. |
| **Boundaries** | The sub process starts after the acceptance of a new IT demand by the CST and the SP. It ends with the effort estimation by the development team. The succeeding steps are described in the main process. |
| **Process flow** | 1. Accepted requirements in JIRA will be synchronised with HP ALM. 2. The SP will execute requirements workshops to detail the high-level requirements raised. 3. The detailed requirements are to be specified in HP ALM. 4. For analysis and review by the business experts, the detailed requirements are exported from HP ALM into a Word document. 5. The CBA and the CST shall review the requirements to justify that the IT Demand is completely and precisely reflected in the requirements. 6. The SP will incorporate the review results into HP ALM. 7. The business experts will approve the requirements based on an updated requirements document. 8. As soon as the status of a requirement is changed, the SP can initiate an effort estimation which will be taken into account in the process of prioritising the requirements and the release management of within the main process. |
| **Process output** | The sub process output is a set of detailed requirements based on the IT demand raised that is approved by the business experts and estimated by the development team. |
| **Interfaces** | The process is supported by HP ALM but not to be implemented by CASPER. |
| **Exceptions** | The requirements can be declined by the CST or the CBA at any point of time within the process. |
| **Figure:** EMMA **-** ARIS Designer: Figure 9: 004 - BPM Requirements change process | |

## Data submission

The data submission is initiated by a data provider who can select one of the four submission channels offered by the system to fulfil his reporting obligation:

* Manual file upload
* Manual data entry
* Automated data submission
* Automated data request.

### Automated data submission (push)

|  |  |
| --- | --- |
| Process name | Automated data submission (push) via the External Gateway |
| **Process Id** |  |
| **Purpose & scope** | The automated data submission via the A2A channel is foreseen for external data providers who are regularly requested to transmit data to the ECB. The sender of the data initiates the file submission (push-based file transfer). The fully automated channel relies on a secure and reliable connection. |
| **Responsibility** | External data provider via the Internet |
| **Process input** | Submission data based on files or an explanatory document to be submitted to the ECB |
| **Boundaries** | The process starts when an external data provider accesses the External Gateway (EDGE) and it includes all process steps until the submitted file is stored in the CASPER Internal File store. The process steps can be synchronous or asynchronous triggered, especially if required from a security perspective. |
| **Process flow** | The data submission process starts after an external data provider accesses the ECB external gateway:   1. Authentication of the A2A user is controlled by the Identity & Access Management component (EUM). 2. The external data provider submits the file(s). 3. An antivirus check is executed. 4. The result of the antivirus check is forwarded as validation result to CASPER together with the metadata related to the file reception. 5. The CASPER External Portal receives the metadata and store it in the External Data Store 6. The internal CASPER service initiates the synchronisation of the metadata in the databases in the DMZ and in the LAN. 7. The EIB pulls the file from EDGE and forwards it to the CASPER Workflow Engine in the LAN. 8. The metadata provided by the EIB is stored in the Transactional Data Store. 9. The Workflow Engine moves the file(s) to the Internal File Store. |
| **Process output** | The submitted file is stored in the Internal File store. Metadata related to the data submission or the antivirus check is available in the Transactional Data Store. |
| **Interfaces** | External: EDGE to push the metadata related to the reception of the file.  External: EIB to move the metadata and the file to CASPER in the LAN.  External: EUM for the authentication of the accessing application.  Internal: EU Gateway to push the metadata related to the reception of the file.  Internal: EXDI to move the metadata and the file to CASPER in the LAN.  Internal: IAM for the authentication of the accessing application. |
| **Exceptions** | Possible exceptions are a failed authentication or the identification of a virus within the file. The first exception is going to be handled by EUM. In case a virus is detected, the error message from the sanitisation service is forwarded to CASPER and the external data provider can use the API to retrieve the validation result of the file submission.  EDGE is not available: contingency measures can be used, e.g. manual file upload. |
| **Figure** | Figure 10: 005 - BPM Data Submission (push) |

### Manual file upload

|  |  |
| --- | --- |
| Process name | Manual file upload |
| **Process Id** |  |
| **Purpose & scope** | Within the U2A channel, a data provider can fulfil his reporting obligation by uploading a file in the data format defined by the ECB. In addition, the manual file upload functionality can be used by data providers using the A2A channel as contingency method in case of a temporary unavailability of the automated connection. |
| **Responsibility** | External data providers and for contingency reasons ECB users (via the Internet or via Corenet) |
| **Process input** | Submission data based on files or an explanatory document to be submitted to the ECB |
| **Boundaries** | Prerequisite for the process is the successful authentication and authorisation of the user. The user was granted the right to submit data via the U2A channel for a respective data collection and for a reporting entity. The process includes all process steps until the submitted file is stored in the CASPER Internal File store. |
| **Process flow** | The manual file upload process starts after a user has opened the list of reporting obligation and clicked on an action item to upload a file. The user can either select to upload only one file or a zip file summarising several files. In case the user accesses the external CASPER Portal, data is synchronised between the internal and external data / file store.   1. The external data provider uploads the file(s) via the CASPER Portal. 2. In case only one file is uploaded, the system sets the filename according to the specified filename conventions. If a zip file is uploaded, the user has to respect the predefined file naming structure. 3. The system stores the related metadata in the data store. 4. An antivirus check is executed via the shared sanitisation service component. 5. The result of the antivirus check is forwarded as validation result to the Workflow Engine. 6. The validation result is stored it in the data store. 7. The Workflow Engine moves submitted files to the Internal File Store. |
| **Process output** | The submitted file is stored in the Internal File store. Metadata related to the file reception is available in the Transactional Data Store. |
| **Interfaces** | EUM for the authentication of the accessing application. |
| **Exceptions** | Possible exceptions are a failed authentication or the identification of a virus within the file. The first exception is going to be handled by IAM. In case a virus is detected, the error message from the sanitisation service is forwarded to CASPER and the user can retrieve the validation result of its file submission within the CASPER Portal. |
| **Figure** | Figure 11: 006 - BPM Data submission (manual) |

### Manual data entry

|  |  |
| --- | --- |
| Process name | Manual data entry |
| **Process Id** |  |
| **Purpose & scope** | The manual form based data entry can be used for structural data when the underlying table structures were defined as metadata for the data collection.  As manually entering data can be cumbersome, it is expected that this form of data submission is used more in exceptional cases for larger amount of data.  If a data collection is designed as a survey, e.g. to collect more qualitative information, the manual entering of data could be more convenient for users. |
| **Responsibility** | External data providers |
| **Process input** | Metadata definition related to the data collection including the table rendering |
| **Boundaries** | Prerequisite for the process is the successful authentication and authorisation of the user. The user was granted the right to enter data in web forms within the CASPER Portal for a data collection and for a reporting entity. The process includes all process steps until data is summarised within a file which is finally stored in the CASPER Internal File store. |
| **Process flow** | The manual file upload process starts after a user has opened the list of reporting obligation and clicked on an action item to manually enter data. In case the user accesses the external CASPER Portal, data is synchronised between the internal and external data / file store.   1. The external data provider selects a module for the manual data entry. 2. The CASPER Portal visualises the set of tables defined for the module. 3. A table is to be selected by the user. 4. The system will display the table based on a web from presented on basis of the tables structure definition defined as metadata. 5. The external data provider can enter data. 6. The user can initiate the storage of the entered values. 7. The system creates a file that contains the entered data. 8. The system stores the related metadata in the data store. 9. The related metadata on the submission is stored it in the data store. 10. The Workflow Engine moves the created file to the File Store. |
| **Process output** | The file is stored in the Internal File store. Metadata related to the data submission is available in the Transactional Data Store. |
| **Interfaces** | No external interfaces |
| **Exceptions** |  |
| **Figure** | Figure 11: 006 - BPM Data submission (manual) |

### Automated data submission (pull)

|  |  |
| --- | --- |
| Process name | Automated data submission (push) via the External Gateway |
| **Process Id** |  |
| **Purpose & scope** | The automated data request is a pull-based file transfer via the A2A channel. This use case is foreseen for data consumers at the ECB who need to initiate the request of data from external data providers. The process should be fully automated and relies therefore also on a secure and reliable connection. |
| **Responsibility** | ECB Scheduling component |
| **Process input** | Configuration within EDGE related to the server to be accessed; credential, i.e. certificates are available as requested by the external data provider |
| **Boundaries** | The process starts when a date/time is reached and it includes all process steps until the submitted file is stored in the CASPER Internal File store. |
| **Process flow** | The process for requesting data from external data providers is triggered via a ECB Scheduling component:   1. The ECB scheduling component initiates the data retrieval via EDGE. 2. EDGE connects based on the defined configuration to the external data provider. 3. Authentication and authorisation via security certificates are controlled by the external data provider. 4. EDGE receives the file(s). 5. An antivirus check is executed. 6. The result of the antivirus check is forwarded as validation result to CASPER together with the metadata related to the file reception. 7. The CASPER External Portal receives the metadata and stores it in the External Data Store 8. The internal CASPER service initiates the synchronisation of the metadata in the databases in the DMZ and in the LAN. 9. Based on the configured workflow, the process executes the following optional process steps: 10. The EIB pulls the file from EDGE and forwards it to the CASPER Workflow Engine in the LAN. 11. The metadata provided by the EIB is stored in the Transactional Data Store. 12. The Workflow Engine moves the file(s) to the Internal File Store. |
| **Process output** | The file is stored in the Internal File store. Metadata related to the antivirus check or the file reception is available in the Transactional Data Store. |
| **Interfaces** | EDGE to push the metadata related to the reception of the file. The EIB to move the metadata and the file to CASPER in the LAN. EUM for the authentication of the accessing application. The ECB Scheduling component to trigger the data retrieval according to the defined scheduling. |
| **Exceptions** | External data provider is not available.  Failed authentication due to missing or outdated security certificate.  File contains a virus.  EDGE is not available. |
| **Figure** | Figure 12: 008 - BPM Data submission (pull) |

## Data reception

### Access the CASPER Portal

|  |  |  |
| --- | --- | --- |
| Process name | Access the CASPER Portal | |
| **Process Id** |  | |
| **Purpose & scope** | CASPER will provide an external and an internal frontend to enable external data providers to submit data. To offer access to non-ECB users, the component will be available in the Demilitarised Zone (DMZ) of the ECB. The Internal Frontend will be used by internal ECB users and NCA/NCBs and it will be available in the ECB LAN. The following modules are offered in detail:   * File Upload * Web data entry * Validation Functions * Reporting Cockpit * User Management (Authorisation / Permission) * Discussion component * Data Definition (only for the internal frontend) * Admin Panel (only for the internal frontend) | |
| **Responsibility** | All users that were granted the right to access CASPER. | |
| **Process input** | User credentials and other security measures, i.e. 2-factor authentication | |
| **Boundaries** | The process does not include the process of the user registration for the usage of CASPER. The process ends when access to the Portal is given to the user by displaying the overview page of CASPER. | |
| **Process flow** | The process starts when user sends a request to open the CASPER Portal via a web browser.  *Internal frontend:*   1. The CASPER user sends the URL to access the Portal. 2. The request is forwarded to the IAM login page. 3. The user can either    1. Type in user name and password or    2. Use a certificate for his authentication. 4. After a successful authentication, IAM directs back to the CASPER Internal Portal. 5. Within the Portal, the user-specific header attributes provided by IAM are checked. 6. The user is granted access according to the user configuration within CASPER (related to data collections and reporting entities). 7. The system displays the CASPER overview page according to the user’s authorisation.   *External frontend:*   1. The CASPER user sends the URL to access the Portal. 2. The request is forwarded to the iWelcome landing page. 3. The user types in username and password. 4. If the check is passed, a 2-factor authentication might be requested. Depending on the option chosen, the user can either 5. Receive an SMS with a token to be entered into iWelcome or 6. Use an one-time token from an authentication App of his smart phone. 7. After a successful authentication, iWelcome directs back to the CASPER External Portal. 8. Within the Portal the token provided by iWelcome is checked. 9. The user is granted access according to the user configuration within CASPER (related to data collections and reporting entities). 10. The system displays the CASPER overview page according to the user’s authorisation. | |
| **Process output** | The submitted file is stored in the Internal File store. Metadata related to the file reception is available in the Transactional Data Store. | |
| **Interfaces** | IAM for the authentication and authorisation of an ESCB user.  iWelcome for the authentication and authorisation of an external user. | |
| **Exceptions** | Possible exceptions are a failed authentication. The first exception is going to be handled by iWelcome or IAM. In case a user is not authorised in CASPER, the user shall not see any data. | |
| **Figure:** EMMA **-** ARIS Designer: Figure 13: 009 - BPM Access the CASPER Portal | |

### File processing & validation

|  |  |
| --- | --- |
| Process name | File processing & validation |
| **Process Id** |  |
| **Purpose & scope** | All files available and stored in the Internal file store are to be processed by the CASPER Service according to the defined workflow for the respective data collection. Initially, the validation starts with the filename check, followed by checks related to the reporting obligations and the reporting population based on the details of the filename. After that, specific rules related to structured data are executed like validating the file structure and the data types. The CASPER service ensures that only tested files and data is made available to E(S)CB backend applications. |
| **Responsibility** | CASPER Service |
| **Process input** | The submitted file is stored in the Internal File Store. Metadata related to the file reception is available in the Transactional Data Store. |
| **Boundaries** | The only mandatory process step is the technical validation of the file. The following process steps depend on the workflow configuration for the data collection. Based on the process chosen, the system will decide based on defined criteria if the data is made available to the backend system. |
| **Process flow** | The process starts when a file is received and stored within the Internal File Store.   1. The Workflow Engine initiates the file processing and validation based on the workflow configuration. 2. The system executes the technical checks, including the filename check. 3. The validation results are stored as metadata of the file in the Transactional Data Store. 4. Based on the configured workflow, the process executes the following optional process steps: 5. In case the file passed the technical validation, the structured data is extracted from the file and stored on level of observations in the Transactional Data Store. 6. Business checks are performed on basis of a set of business validation rules to determine the data quality of a submission. They are mainly based on basic mathematical and logical operations. 7. The system stores the validation results in the Transactional Data Store. 8. In addition to the business checks directly executed by CASPER, the system can request additional business check, either executed by a defined backend system or by an external validator. 9. The user gets notified about the validation result and the status of the file submission. 10. The system stores the validation results in the Transactional Data Store. The validation check might be asynchronous scheduled so that the results are injected by the backend system with delay. 11. In case the file was uploaded with a test flag (“test file upload”), the file and data are to be removed after a defined time period, e.g. overnight. A real submission is still outstanding. 12. If the workflow defines a dedicated sign-off by a specific user role, the submission is made available for the backend systems after the manual sign-off. 13. Optionally, the user receives a notification about the finalisation of the file processing. 14. The last optional process step allows access to the file(s) and data via an API by the respective backend systems. |
| **Process output** | Depending on the workflow definition, in general the process ends when the data is made available to the backend applications. |
| **Interfaces** | Interfaces need to be defined for the 3rd level checks. In addition, CASPER provides an A2A interface accessible by E(S)CB backend systems. |
| **Exceptions** | Failed technical validation will be rejected with a fatal error. The external data provider has to upload a new file to fulfil his reporting obligation. |
| **Figure:** EMMA **-** ARIS Designer: Figure 14: 010 - BPM File processing | |

### Reception status changes

|  |  |
| --- | --- |
| Process name | Reception status changes |
| **Process Id** |  |
| **Purpose & scope** | The purpose of this process is to describe in detail the possible status changes during the reception process. The status distinguishes clearly between a received file and a submission and provides information on the follow-up process steps, e.g. “Waiting for sign-off” or “Pending external validation”. In addition, the changes on the validation status and the external validation status are visualised. |
| **Responsibility** | CASPER Service |
| **Process input** | A data submission is received in the Internal File Store. |
| **Boundaries** | The process includes mainly the process steps that result in status changes. |
| **Process flow** | After the definition of the reporting obligation, the initial value of all statuses is “NA”.   1. When CASPER stores the file, the Status is set to “File received”. 2. The Status is changed to “File in process” when the file is picked up to execute the technical validation. 3. In case the technical validation fails, the Status is set to “File rejected” and the Validation Status is “Fatal”. If it passes the validation, the status is set to “File processed”. The Validation Status is still “NA”. 4. In case business checks were defined and they are passed, the errors identified will result in a change of the Validation Status to “Valid”, “Warning” or “Error”. In case of fatal errors, the Status of the submission changes to “Rejected” and the Validation Status to “Fatal”. 5. When external business checks were defined, the Status changes from “File processed” to “Pending external validation”. 6. When the external business checks are passed, the External Validation Status is set to either “Valid”, “Warning” or “Error”. The Status is either set to “Waiting for sign-off” when sign-off conditions exist or to “Completed”. Fatal errors within the external validation will also result in a Status “Rejected” with the External Validation Status “Fatal”. 7. In case a submission in Status “Waiting for sign-off” is confirmed by a user, the Status changes to “Completed”. Otherwise, the user needs to cancel the submission that results in a Status “Cancelled”. |
| **Process output** | Statuses of the data submission set according to the workflow configuration and the related validation results. |
| **Interfaces** | Interfaces to backend applications for the execution of the external validation. |
| **Exceptions** | A procedure needs to be defined on how to handle submissions which stay for a longer period of time in status “Waiting for sign-off” or “Pending external validation”. |
| **Figure:** EMMA **-** ARIS Designer: Figure 15: 011 - BPM Reception Status Changes | |

### Notification configuration

|  |  |
| --- | --- |
| Process name | Notification configuration |
| **Process Id** |  |
| **Purpose & scope** | CASPER shall support external data providers in their task to deliver data of high quality to the ECB. It will therefore summarise important information to be followed-up by the RA, CBA, CO or CST. |
| **Responsibility** | CBA, CO, CST |
| **Process input** | Rule that specifies the conditions when the notification shall be triggered. |
| **Boundaries** | The process includes all process steps that lead to a complete notification configuration. The process ends when the rule is successfully saved in the transactional database. |
| **Process flow** | The process is initiated when a new demand is raised for a notification to be sent to RA and/or ECB backend systems.   1. CBA, CO or CST user accesses the CASPER Portal. 2. The use case of configuring the notifications is selected. 3. The user determines the data collection on which the notification shall be applied. 4. The event type is specified (schedule or change). 5. The user sets the further rule attributes like “active”, “order” (in case of several notifications for one event), rule message and the addressee(s). 6. Rule syntax is used to define the conditions for which the notification shall be triggered. 7. The user confirms the configuration setting. 8. CASPER checks the correctness of the rule syntax. 9. In case the check is passed, the notification rule is saved in the transactional data store. 10. If errors are detected, the system will request a change in the rule definition. |
| **Process output** | The process ends with a successful saving of the notification rule. |
| **Interfaces** |  |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 16: 012 - BPM Notification configuration | |

### Trigger a notification

|  |  |
| --- | --- |
| Process name | Trigger a notification |
| **Process Id** |  |
| **Purpose & scope** | CASPER shall be able to send notifications based on specified rules. A notification rule defines the event, condition and the action to be taken by the system. In case a rule matches to an incoming event and the conditions are met, the specified action is to be performed. |
| **Responsibility** | CASPER Service |
| **Process input** | A rule is specified and its conditions match to the incoming event. |
| **Boundaries** | The process starts with the identification of a relevant event linked to a notification rule and ends when the notification has been sent to the defined addressee(s). |
| **Process flow** | An event listener is constantly evaluating if an event occurred for which a notification is to be created.   1. CASPER identified that a rule is configured for the event. 2. The system queries for the respective notification rule. 3. The rule is evaluated based on the notification rule metadata. 4. The notification is created and sent to the defined addressee(s). 5. The system stores a log message for the notification performed. |
| **Process output** | The system performs the specified action, e.g. sending a notification via email to a CASPER Portal user. |
| **Interfaces** | Interface to a SMPT server that sends the email notifications. |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 17: 013 - BPM Trigger a notification | |

## Data transfer

### Query via API

|  |  |
| --- | --- |
| Process name | Reception status changes |
| **Process Id** |  |
| **Purpose & scope** | CASPER shall be a service for ECB users and services for gathering data from external data providers. It must therefore provide functionalities that allow backend systems to retrieve the data automatically from CASPER. |
| **Responsibility** | CASPER Service |
| **Process input** | A request for data or metadata is received via API from a backend system. |
| **Boundaries** | The process starts when the request is received from the backend system and ends when the response is provided by CASPER. The exchange of certificates is not described but envisaged as prerequisite for the data provisioning to other applications. |
| **Process flow** | The process starts with the request for data or metadata is received via the API.   1. CASPER will check the certificates within the connection setup with the external application. 2. The access right of the data consumer is checked according to the authorisation configuration in CASPER. 3. CASPER provides the requested response in form of collected data, data dictionary, validation rules & results, reporting obligation & population, table rendering information, discussions etc. |
| **Process output** | Data and metadata provided to the requesting backend application. |
| **Interfaces** | Interfaces to backend applications |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 18: 014 - BPM Query via API | |

### Integrate external validation result

|  |  |
| --- | --- |
| Process name | Integrate external validation result |
| **Process Id** |  |
| **Purpose & scope** | CASPER will provide an application interface to external systems (e.g.: STAR) for initiating the external validation by the backend system. The external business validation is introduced to cover the level 3 checks which are to be executed by the respective backend system after the technical and/or business validation within the CASPER system. |
| **Responsibility** | CASPER Service |
| **Process input** | The workflow engine is with an external validation task. |
| **Boundaries** | The process starts when a request is sent to the backend system and ends when the validation results are provided by the backend system. The exchange of certificates is not described but envisaged as prerequisite for the data provisioning to other applications. |
| **Process flow** | The process is initiated by the workflow engine when the 2nd level validation was successfully passed:   1. CASPER sends a request to the backend application to initiate the external validation process 2. The system will check the certificates within the connection setup with the external application. 3. The backend system sends an acknowledgement which is received by CASPER. 4. The system will wait for an external event to continue with the process. 5. The backend system uses the API to query for data and metadata as essential input for the validation (see Figure 18: 014 - BPM Query via API). 6. After the completion of the external validation, the backend system will inform CASPER. 7. CASPER will resume with the process and request the validation results from the backend system. 8. The response from the backend system is received and the system continues with the main file processing process. |
| **Process output** | Validation results are provided by the backend application. |
| **Interfaces** | Interfaces to backend applications |
| **Exceptions** | The backend system does not provide a validation result due to technical issues. The request could be repeated in a defined interval until a response is received. |
| **Figure:** EMMA **-** ARIS Designer: Figure 19: 015 - BPM Integrate external validation result | |

### Transfer to DISC

|  |  |
| --- | --- |
| Process name | Transfer to DISC |
| **Process Id** |  |
| **Purpose & scope** | CASPER shall transfer data to the DISC to support its data consumers in advanced analytics. The collected data will be exported in the relational structure. Within the DISC, it will be stored in a data store that supports relational models in a convenient way. CASPER will use the Workload Automation Service for the scheduling of the transfer of data to the DISC. |
| **Responsibility** | CASPER Service, WLA (IT Work Load Automation) |
| **Process input** | Data and metadata received and/or updated since the last data transfer. |
| **Boundaries** | The process deals with the regular data transfer to the DISC from the schedule time until the data is extracted and loaded to the DISC. The process does not include processes within the DISC to prepare for advanced analytics, e.g. by updating underlying data marts. |
| **Process flow** | The process starts when the defined schedule/time is reached.   1. The scheduling component (WLA) initiates the data transfer to the DISC. 2. CASPER queries for metadata and data inserted or updated since the last data transfer. All data and metadata will be taken into account. 3. Afterwards, the data and metadata is transferred to a defined relational structure and stored within one or more files. 4. CASPER will check the certificates within the connection setup with the DISC. 5. Afterwards, the file is transferred to the DISC. 6. All data and metadata will be stored in the DISC DataLab. 7. DISC will provide access to data consumer. |
| **Process output** | Data and metadata provided to data consumer within the DISC DataLab. |
| **Interfaces** | Interface to the DISC |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 20: 016 - BPM Transfer to DISC | |

## Data monitoring

### Monitoring reporting obligations

|  |  |
| --- | --- |
| Process name | Monitoring reporting obligations |
| **Process Id** |  |
| **Purpose & scope** | CASPER will provide external as well as internal users an overview of the reporting obligations expected and received (submissions). They should be able to   * View the received submissions with respect to their processing results * Check for upcoming or even outstanding submissions * Execute appropriate actions based on the status of the submission. |
| **Responsibility** | CASPER user, CASPER ECB user |
| **Process input** | Reporting obligations registered in CASPER and received files/submissions |
| **Boundaries** | The discussion functionality is only available for users that have successfully logged in into CASPER. Depending on the action chosen, the status of the reporting obligation is just changed or the action results in a sub process that is linked to the high-level action description. |
| **Process flow** | The process is initiated by a CASPER user that wants to get an overview on the status of the selected reporting cycle or reference date by a dashboard and by a detailed list of the received and expected submissions.   1. The CASPER user successfully accessed the CASPER Portal. 2. CASPER displays the data collections for which the user has the according permissions. 3. The user can filter by reporting cycle, reference date and reporting entities, in case several reporting entities are assigned to the user. 4. The system queries for the respective data and displays    1. The list of reporting obligations that are referenced by a reporting cycle in status “Started”.   Based on the list of reporting obligations filtered by the user, action items are displayed to:   * Upload a file * Manually enter data * Download either an empty file or the already uploaded file * Discard a submission in case of an ECB user * For submissions in status “Completed, the user can upload additional documentation. * A revalidation is also only possible for completed submissions. * In case errors were detected during the validation runs, the user is able to view the validation results. * In case additional documentation was uploaded, a user can download the uploaded files. * For submissions in status “Waiting for sign-off”, the sign-off can be executed or * The user can cancel a submission.   1. Dashboards based on submissions in status “Completed”.   2. Link to the reporting instructions. |
| **Process output** | Depending on the action item |
| **Interfaces** | Interface to a SMPT server that sends the email notifications. |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 21: 017 - BPM Monitoring reporting obligations | |

### Open a discussion

|  |  |
| --- | --- |
| Process name | Open a discussion |
| **Process Id** |  |
| **Purpose & scope** | CASPER will support the communication between RAs and ECB users. The discussion functionality allows ECB users to request clarification or additional information from the external counterparties or vice versa. Furthermore, the CASPER feature provides transparency by linking the communication to the related topics discussed.  A CASPER user will be able to open a discussion on:   * one or more reporting obligations/submissions * one or more validation results * one or more technical topics (predefined set of discussion topics) |
| **Responsibility** | RA, CST, CBA, CO |
| **Process input** | Business or technical issue raised by an external data provider or an ECB user |
| **Boundaries** | The discussion functionality is only available for users that have successfully logged in into CASPER. The communication related to the counterpart of the discussion is described in the following business process. The notifications are to be configured which is not part of this business process. |
| **Process flow** | The process is initiated by a CASPER user that requests clarification on a business or a technical issue.   1. The CASPER user successfully accessed the CASPER Portal. 2. The user can either discuss on business or on technical issues.    1. In case of business questions, the user has to select either a set of reporting obligations/submissions or one or more validation results. After that, is he is able to open a discussion in which the selected discussion topics are added.    2. For technical issues, the user can open the discussion forum that provides a list of all discussions with search and filter functionalities. Within the discussion forum the user can open a technical discussion and select one or more predefined technical topics. 3. A title and a comment are to be added to the discussion. 4. Optionally, an explanatory document can be attached to the discussion. 5. After that, the entries are to be saved. 6. CASPER will store the discussion details in the database and 7. Inform the counterparty via a notification. The counterparty for an initiated technical discussion will be the CST. Depending on who opened the business-related discussion, either the CBA/CO will be informed or the external reporting agent via an email notification (to be configured). |
| **Process output** | A discussion object exists that is expected to be answered by the respective counterparty. |
| **Interfaces** | Interface to a SMPT server that sends the email notifications. |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 22: 018 - BPM Open a discussion | |

### Answer a discussion

|  |  |
| --- | --- |
| Process name | Answer a discussion |
| **Process Id** |  |
| **Purpose & scope** | ECB users as well as RAs shall be able to enter comments or upload an explanatory document to a discussion. An ECB user will be able to close or reopen a discussion. |
| **Responsibility** | RA, CST, CBA, CO |
| **Process input** | A discussion in the status open or closed. |
| **Boundaries** | The discussion functionality is only available for users that have successfully logged in into CASPER. The process of opening a discussion is described in a separate business process (see above). The notifications are to be configured which is not part of this business process. |
| **Process flow** | In general, CASPER users will receive a notification via email that a discussion has been opened that requests an answer.   1. The CASPER user has logged into the CASPER Portal. 2. Ideally, a link in the email notification should forward the user directly to the referenced discussion. 3. If a link is not provided, the user can open the use case “Discussion forum” and use the search and filter functionality to select the discussion within the list of discussion items. 4. After selecting a discussion, the details are displayed. 5. The following options are provided, depending to the user role:    1. Add a comment to a discussion.    2. Close a discussion.    3. Reopen a closed discussion. 6. If necessary, an explanatory document can be attached to the discussion. 7. After that, changes on the discussion are to be saved. 8. CASPER will store the discussion details in the database and 9. Inform the counterparty via a notification. Depending on who answered the business-related discussion, either the CBA/CO will be informed or the external reporting agent via an email notification (to be configured). |
| **Process output** | A discussion object either answered or flagged according to the status setting by the ECB user. |
| **Interfaces** | Interface to the notification service which sends the email notification via a SMPT server. |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 23: 019 - BPM Answer a discussion | |

## User management

### Access rights

|  |  |
| --- | --- |
| Process name | Access rights |
| **Process Id** |  |
| **Purpose & scope** | The management of users should be based on the principle of decentralisation. That means that the platform provides a mechanism whereby registered users of external data providers will be able to add and remove users for their own organisation. Initially, the CBA and/or the CO will create user accounts in IAM and iWelcome for administrators or application access approvers who will act as user managers at the data providers’ site. |
| **Responsibility** | RA, CO, CBA, NCB/NCA |
| **Process input** | For iWelcome an access request template has to be submitted. Access for IAM is to be requested via a letter to the CBA/CO.  The user administration role is assigned to the CBA/CO (see Figure 19: OV iWelcome roles) for managing new users. |
| **Boundaries** | The process of informing the external data providers about the need to register users in iWelcome or in IAM is out of scope of this process. The CO and/or the CBA are responsible to notify the data providers.  The CBA and/ or the CO are responsible to validate the user’s identity. The related business process is therefore not defined in this document. |
| **Process flow** | *iWelcome access request:*   1. The RA submits a request template to get access for one or more administrators who will manage the RA users responsible for the data submission to the ECB. 2. The CBA or the CO will validate the user’s identity. 3. After that, a user account will be created in iWelcome. The user will be assigned to the respective RA. 4. The role “Local administrator” will be assigned to the user account. 5. iWelcome generates a notification to inform the new user about the granted access right.   *IAM access request:*   1. The NCA or NCB submits a letter to request access for an application access approver in its organisation. 2. The CBA/CO receives the letter and forwards it to the relevant approver. 3. The request gets approved. 4. After that, the CBA/CO assigns the role of an application access approver for CASPER to the IAM user account. Figure 18: OV IAM roles provides an overview on the split of roles and capabilities. 5. The user receives an email notification about the new role.   *CASPER user configuration:*   1. CASPER synchronises user accounts and roles with IAM and iWelcome. 2. The CBA/CO assigns the respective data collections to the user account in CASPER. 3. In addition, the access will be limited to either a country (for NCB/NCA) or to a set of reporting entities. 4. The user will be notified when the authorisation is configured. |
| **Process output** | The user is successfully added to the respective identify & access management system and the authorisation in CASPER is configured. |
| **Interfaces** | CASPER needs to synchronise the user and roles with IAM and iWelcome. |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 26: 020 - BPM Access rights | |

## Support

### Support for external and internal CASPER users

|  |  |
| --- | --- |
| Process name | Support for external and internal CASPER users |
| **Process Id** |  |
| **Purpose & scope** | For internal users the existing DG-IS support channels are to be used, e.g. in case of a technical issue the user help desk is to be contacted. For all external data providers, the CST will be the single point of contact in case of technical issues, either via discussions or via email. Technical issues that can’t be solved by the CST will be forwarded to the DG-IS incident management. The CST can directly open tickets to forward the issue to the SP.  Business related support is provided by the CBA or the CO via the discussion functionality. |
| **Responsibility** | RA, CST, CBA, CO, SP |
| **Process input** | Business question or issue or technical incident |
| **Boundaries** | The process includes the process steps from the CST/CBA point of view. The IT incident management process is not described in detail. |
| **Process flow** | The process distinguishes between external users that are logged in or not logged in and internal ECB users.  *Internal ECB users via DG-IS help desk:*   1. The incident will be resolved via the DG-IS Support Service (see details: Figure 29: 023 - BPM Technical support)   *Internal ECB users via email:*   1. Internal user sends an email to the CST. 2. CST will either provide the answer that resolves the issue or 3. Assign the issue to the DG-IS Support Service (see details: Figure 29: 023 - BPM Technical support). 4. Or open a business-related discussion.   *External user not logged in:*   1. External users that have problems to login to CASPER can contact the CST via email. 2. The CST will either provide the answer that resolves the issue or 3. Assign the issue to the DG-IS Support Service (see details: Figure 29: 023 - BPM Technical support). 4. Or open a business-related discussion.   *External user logged in:*   1. External users that have access to the Portal, can either open a discussion to report a technical issue or 2. Open a business-related discussion (see Figure 14: BPM Open a discussion and Figure 15: BPM Answer a discussion). 3. In case the CST can’t answer, the issue will be assigned to the DG-IS Support Service (see details: Figure 29: 023 - BPM Technical support). |
| **Process output** | Depends on the communication channel chosen, the CASPER is to be informed via email or by answering the discussion in the CASPER Portal. |
| **Interfaces** | No direct interfaces. |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 27: 021 - BPM CASPER Support | |

## CASPER Information flow

|  |  |
| --- | --- |
| Process name | CASPER Information flow |
| **Process Id** |  |
| **Purpose & scope** | The process displays the information flow from the RA to the respective business area based on a file submission. |
| **Responsibility** | RA, CASPER, Backend Application, CO, CBA |
| **Process input** | Submission data based on files to be submitted to the ECB |
| **Boundaries** | The process starts with the preparation of the submission by a RA and its submission to the ECB via CASPER. In general, the process is finalised when the data is made available to DISC and, if available, to the Backend Application. |
| **Process flow** | The information flow starts when the remittance date is reached and the RA is requested to fulfil his reporting obligation:   1. The RA prepares the requested data in form of a file based on a template provided by the CO/CBA, e.g. Excel file. 2. The submission of the data is initiated by the RA. One of the available reporting channels will be used, e.g. U2A, A2A. 3. CASPER receives the file. 4. After that, the processing of the file is automatically initiated following the workflow configuration assigned to the data collection received. 5. CASPER executes the first and second level validation. In case of fatal error detected, a resubmission is expected. 6. In case of structured data received, data is stored in the database. 7. CASPER initiates the 3rd level validation if an external validation is configured. 8. The Backend Application executes the 3rd level validation. 9. The external validation result is injected into CASPER by the Backend Application. In case of fatal error detected, a resubmission is expected. 10. CASPER notifies the RA about the final result of the processing. 11. The process data is transferred to DISC and, if applicable, 12. processed data is made available to the Backend Application. 13. The Backend Application queries for the received data. 14. The data can be further processed by the Backend Application. 15. The CO/CBA can use the data via DISC or via the Backend Application. |
| **Process output** | Submitted data is provided to the CBA and the CO. |
| **Interfaces** | Interface to a backend application and to DISC |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 28: 022 - BPM CASPER Information flow | |

## DG-IS Organisational processes

### Technical support

|  |  |
| --- | --- |
| Process name | Technical Support |
| **Process Id** |  |
| **Purpose & scope** | The goal of this procedure is adequate and fast recovery of the CASPER service. ADAMS Support Services team is monitoring the software for any new incident for CASPER. This function is performed as a horizontal service for all ADA Services in scope of ADAMS. Major incidents (Priority 1) that are related to serious defects are escalated directly to the SP to ensure that the necessary level of technical knowledge is available to resolve the incident. |
| **Responsibility** | ECB user, CST, SP, ADA Managed Service (ADAMS), User Help Desk (UHD) |
| **Process input** | Technical incident |
| **Boundaries** | The process includes the process steps from the DG-IS point of view. The organisational process of DG-S is described in detail in chapter 5.7.1. |
| **Process flow** | The process starts when a technical issue occurred which needs to be addressed to DG-IS.   1. An ECB user calls the UHD and a ticket is opened by DG-IS providing the 1st level support. 2. The issue will be analysed. 3. In case it can be resolved, 4. An incident report and a root cause analysis are prepared. 5. After that, the ticket can be closed. 6. MOMO notifies the support teams about the incident resolution. 7. Finally, the user who raised the ticket gets informed. 8. If a resolution of the incident is not possible for the UHD, the ticket will be assigned to the 2nd level support. The 2nd level is supported by the ADA Managed Service. 9. A ticket can be also opened by the CASPER Support Team and directly assigned to the 2nd level support. 10. The ADAMS will follow steps 2 to 7 in case an incident resolution is possible. 11. If not, the ticket will be assigned to the 3rd level support. The 3rd level is supported by the CASPER Service Provider. 12. The CASPER Service Provider has to analyse and 13. Resolve the issue. 14. After that, steps 4 to 7 are followed. |
| **Process output** | The issue is resolved and the users involved notified. |
| **Interfaces** | MOMO (DG-IS incident ticketing system is to be used) |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 29: 023 - BPM Technical support | |

### Training

|  |  |
| --- | --- |
| Process name | Training |
| **Process Id** |  |
| **Purpose & scope** | The SP shall provide a CASPER customized training service, containing:   * Learning strategy incl. overview on different audience groups * Course curriculum plan and content overviews incl. learning objectives * Various access ready User training materials, including   + Audience specific on-site, live instructor led platform trainings   + Audience specific video learnings/ webcasts   + Self-learning training software/ learning management software   + Platform wiki for self-service research on FAQs and frequent problems   + Train the trainer offering * Post training session documentation |
| **Responsibility** | SP |
| **Process input** | CASPER software in the current state of development |
| **Boundaries** | The process includes the steps from the creation of the test strategy to the conduction of the virtual or live training sessions and the training evaluation by the training participants. |
| **Process flow** | The process starts in the initiation phase of the project with the specification of the training strategy. For the following releases, just the training need is to be analysed as a first process step.   1. The SP specifies the training strategy. 2. The training need is analysed by preparing the training curriculum. 3. Based on the analysis result, the training material is developed or updated. 4. All training material will be hand-over to the ECB. 5. The training will be conducted by the SP. 6. Afterwards, feedback from the training participants is gathered. |
| **Process output** | Training material published, live trainings executed and feedback gathered. |
| **Interfaces** |  |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 30: 024 - BPM Training | |

### IT Testing

|  |  |
| --- | --- |
| Process name | IT Testing |
| **Process Id** |  |
| **Purpose & scope** | The process gives a high-level overview on the tasks to be executed by the SP and the TSP (Testing Service Provider). The TSP will collaborate with the SP already at an early stage of the project. Both providers will be responsible to executed tests, while the SP concentrates mainly on unit, integration and system tests, the TSP prepares the business tests and supports the UAT. The aim is to have well-tested software to be handed over for the UAT to be conducted by the CBA, CO and CST. |
| **Responsibility** | SP, TSP, ECB Project Management |
| **Process input** | CASPER Test strategy, user & system requirements, business process models |
| **Boundaries** | The process includes the process steps from the DG-IS point of view. The process starts with the initiation of the project or the preparation of a new release and ends with the hand-over of the testing results for the UAT. |
| **Process flow** | The process is based on the test strategy defined for the CASPER project. Several sub processes are to be prepared in parallel:  a)   1. Setup of the test team of the SP and the TSP. 2. Definition of the test approach based on the test strategy. 3. Design of test cases taking into account the user and system requirements. 4. Preparation of test data 5. Development of test scenarios covering the functionalities requested for the business processes.   b)   1. Setup of the test environments by the SP. 2. Setting up the user accounts. 3. Supply of test data to the test environment. 4. Deployment of the test object.   c)   1. Preparation of the Master Test Plan by the TSP. 2. Definition of the detailed test plan. 3. Scheduling of the test case execution 4. Execution of the test cases for the different test levels.    1. Preparation of test reports    2. Report of defects    3. Calculation of test metrics 5. After the IT tests a decision is taken by the ECB Project Management to abort or proceed with the UAT. 6. In case of an abort decision, the software is to be revised and retested. 7. Finally, the test deliverables are handed over for the UAT. |
| **Process output** | Hand-over of the test results to the CBA, CO and CST for the UAT or software revision including further IT tests. |
| **Interfaces** |  |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 31: 025 - BPM IT Testing | |

### Platform Extension service

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| --- | --- |
| Process name | Platform Extension service |
| **Process Id** |  |
| **Purpose & scope** | CASPER Platform Extension services are mainly focused on extending the CASPER Platform by implementing newer types of submissions (like statistical data collection), or on boarding new business organisations (like SRB considering their needs of specific data collections), or can be more extensive technology platform changes which might result in a larger architecture redesign. Platform extensions are expected to also be larger releases. This means, it can involves large scale development covering all SDLC phases from analysis, design, preparation, development, installation, system integration, testing, configuration and hand-over (incl. documentation) to maintenance and support services. |
| **Responsibility** | CST, CBA, CO, SP, TSP |
| **Process input** | Business and/or IT demand not covered by the initial set of detailed requirements (URD) |
| **Boundaries** | The process includes the process steps from the DG-IS point of view. The organisational process of DG-S is described in detail in chapter 5.1.3. |
| **Process flow** | The process starts with a new demand raised by the CBA, CO or CST.   1. Initially, the high-level requirements are defined. 2. Detailed requirements are to be specified in collaboration with the CST and the SP (see chapter 5.1.4 for details related to the process step). 3. The SP will determine the complexity level based on the effort estimation. 4. The detailed requirements will build the basis for the release planning. 5. The implementation in CASPER is to be done by the SP. 6. In addition, the IT technical tests are executed by the SP and the TSP. 7. The CST supported by the respective CBAs is responsible for the execution of the UAT. 8. After successful tests, the new release will go live. |
| **Process output** | The platform extension features are available after the Go-live. |
| **Interfaces** |  |
| **Exceptions** |  |
| **Figure:** EMMA **-** ARIS Designer: Figure 32: 026 - BPM Platform Extension | |

# Annex

## Architecture models legend

Below is a brief explanation of the symbols used in the business process model.

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Name** | **Description** |
| cid:image002.png@01D2499B.86161B80 | Business Actor | An actor is defined as an organisational entity capable of (actively) performing behaviour. |
| cid:image004.png@01D2499B.86161B80 | Business Role | A Role is defined as a named specific behaviour of a business actor participating in a particular context. |
| C:\Users\sucevic\Desktop\Legend\business_process.png | Business Process | A Process describes the internal behaviour performed by a role in order to produce a set of products or services. |
|  | Business Process optionally | A Process that can *optionally* be performed by a role in order to produce a set of products or services. |
| C:\Users\sucevic\Desktop\Legend\event.png | Business Event | An Event is defined as something that happens (internally or externally) and influences behaviour. |
| C:\Users\sucevic\Desktop\Legend\business_object.png | Business Object | A Business Object is a unit of information that has relevance from a business perspective. It represents the important “informational” or “conceptual” elements. |
|  | Application Component | An Application Component is defined as a modular, deployable and replaceable part of a system that encapsulates its content and exposes its functionality. |
| C:\Users\sucevic\Desktop\Legend\AND.png | AND junction | AND logical operator |
| C:\Users\sucevic\Desktop\Legend\XOR.png | XOR junction | XOR logical operator |
| C:\Users\sucevic\Desktop\Legend\triggers.png | Triggers | The Triggering relationship describes the temporal or causal relationships between behavioural elements and events. |
| C:\Users\sucevic\Desktop\Legend\is_assigned_to.png | Is assigned to | The Assignment relationship links units of behaviour with active elements (Roles, Components, etc.) that perform them, Roles with Actors that fulfil them. |

Table 5: Architecture Model Legend

## ArchiMate Business Process Models

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| 001 - Request a new data collection |
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Figure 6: 001 - BPM Request a new data collection

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| 002 - Data Collection Preparation |
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Figure 7: 002 - BPM Data Collection Preparation

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| 003 - IT Demand Management |
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Figure 8: 003 - BPM IT Demand Management

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| 004 - Sub process: Requirements change process |
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Figure 9: 004 - BPM Requirements change process

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| 005 - Data submission (push) |
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Figure 10: 005 - BPM Data Submission (push)

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| 006 - Data submission (manual) |
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Figure 11: 006 - BPM Data submission (manual)

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| 008 - Data submission (pull) |
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Figure 12: 008 - BPM Data submission (pull)

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| 009 - Access the CASPER Portal |
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Figure 13: 009 - BPM Access the CASPER Portal

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| 010 - File processing |
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Figure 14: 010 - BPM File processing

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| 011 - Reception Status Changes |
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Figure 15: 011 - BPM Reception Status Changes

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| 012 – Notification configuration |
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Figure 16: 012 - BPM Notification configuration

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| 013 – Trigger a notification |
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Figure 17: 013 - BPM Trigger a notification

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| 014 - Query via API |
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Figure 18: 014 - BPM Query via API

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| 015 - Integrate external validation result |
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Figure 19: 015 - BPM Integrate external validation result

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| 016 – Transfer to DISC |
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Figure 20: 016 - BPM Transfer to DISC

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| 017 – Monitoring reporting obligations |
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Figure 21: 017 - BPM Monitoring reporting obligations

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| 018 - Open a discussion |
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Figure 22: 018 - BPM Open a discussion

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| 019 - Answer a discussion |
|  |

Figure 23: 019 - BPM Answer a discussion

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| Overview on the IAM roles |
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Figure 24: OV IAM roles

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| Overview on the iWelcome roles |
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Figure 25: OV iWelcome roles

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| 020 - Access rights |
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Figure 26: 020 - BPM Access rights

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| 021 - CASPER Support |
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Figure 27: 021 - BPM CASPER Support

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| --- |
| 022 - CASPER Information flow |
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Figure 28: 022 - BPM CASPER Information flow

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| --- |
| 023 – Technical support |
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Figure 29: 023 - BPM Technical support

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| --- |
| 024 - Training |
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Figure 30: 024 - BPM Training

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| 025 – IT Testing |
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Figure 31: 025 - BPM IT Testing

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| --- |
| 026 – Platform Extension service |
|  |

Figure 32: 026 - BPM Platform Extension service

1. The system provider (SP), which is DG/IS

   The collection owner (CO), which may be any business area in the ECB   
   The collection owner, is the business area which defines the collection characteristics and receives the collected data.

   The collecting business areas (CBA), which assist the CO in the configuration of a collection in the CASPER platform   
   The CBA is typically a division within DG/S which has the capability to best understand the underlying business need of the CO and thus best assist in the definition of the collection

   The information/data providers, reporting agents (RA) which are parties external to the ECB and which provide their data to the ECB via the platform

   The CASPER Support Team (CST) which manages all of the operational activities, training and evolution of the platform [↑](#footnote-ref-1)