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## EU CUSTOMS BUSINESS PROCESS MODELLING POLICY

### 1. INTRODUCTION

#### 1.1. Background

The development of the EU Customs Business Process Models (BPM)<sup>1</sup> started in 2010 when Member States requested the preparation of High Level and Business Requirements BPMs to understand and agree on the customs processes and procedures that were defined in the Modernised Customs Code (MCC)<sup>2</sup> and its Implementing Provisions. Since then, this work has served as a supporting instrument to facilitate the alignment between legal and business requirements and the transition from the MCC to the Union Customs Code<sup>3</sup> and the related Delegated<sup>4</sup> and Implementing<sup>5</sup> Acts (DA/IA).

On the ground of the positive experience and feedback on the early Business Process Modelling activities, the BPM policy was **expanded in 2012 and has evolved continuously:**

1. To include a common **EU customs BPM methodology** based upon a structured hierarchical, levelling approach reflecting the complex business environment of EU customs (leading to the development of new types of models such as the EU Customs Global BPM, the EU Customs Interaction BPMs and the Functional Requirements BPMs); and
2. To apply to **all the EU customs projects**, i.e. the UCC and other customs related initiatives and projects requiring business analysis and modelling support (including cross-linking projects for the information exchange with third countries and with other Commission DGs or other public authorities).

The EU Customs BPM Levelling Guidelines, the BPM Methodology and User Guide have been further **enhanced and updated in 2015** to ensure a better understanding of the models, the automated integration of the modelling tools, ARIS and GEFEG, the improvement of the data modelling approach and ease of maintenance. The Methodology Metamodel that presents all the ARIS objects and diagrams used in the EU Customs BPM has been also created to facilitate processes for users and reviewers.

**The UCC Level 1-2-3 BPM has been finalised in Q2 2016 and published on the EUROPA website.** The UCC Level 1-3 BPM is fully aligned with the adopted UCC DA/IA and Annexes and the legal provisions are copied and linked to the Level 3 legal tasks. The UCC legally defined data are depicted in Level 2 (High Level) and Level 3 (Conceptual Data Models) BPM and mapped in Level 2-Level 3 Mapping Matrix Models.

The enhancement of the BPM policy remains a paramount objective for the e-Customs architecture. Given the complex business environment of EU customs, **DG TAXUD is considering ways of improving its delivery model to streamline the preparation and implementation of the functional and technical specifications.** This would entail **the introduction of agile practices to enhance the end-to-end view of the various project artefacts as well as the cross-systems alignments and to create a more efficient environment for requirements' analysis.** Careful consideration will be given to the impact that these changes may have on the different stakeholders involved, in particular the Member States. DG TAXUD intends to hold consultations and organize workshops in due time to present and discuss the integration of these agile solutions into the current modelling discipline. This streamlining exercise will aim at facilitating a smooth transition from the business analysis and business modelling phase to the elaboration phase along with the project initiation phase, while supporting the timely deployment of customs IT systems.

#### 1.2. EU Customs BPM Purpose and Value

The EU Customs BPM and its related business analysis activities have been evaluated as important instruments to support the EU Customs Union in its efforts to modernise, harmonise and streamline its customs procedures and systems.

The EU Customs BPM provides the Member States and Trade with:

- business analysis tools in order to ensure better understanding of the customs legislation and policies being prepared or revised, and of the impact on the overall business architecture and the specific processes;
- business models and interaction models allowing the necessary assurance regarding coherence between the EU Customs Business Processes and procedures and the draft legal provisions before being voted;

<sup>1</sup> Business Process Modelling (BPM) is the activity of representing processes of an enterprise to analyse and improve current processes. The BPM is commonly performed by business analysts and managers who are seeking to improve process efficiency and quality.

<sup>2</sup> Regulation (EC) No. 450/2008 of the European Parliament and of the Council of 23 April 2008 laying down the Community Customs Code (Modernised Customs Code), OJ L 145, 04.06.2008.

<sup>3</sup> Regulation (EU) No 952/2013 of the European Parliament and of the Council of 9 October 2013 laying down the Union Customs Code (recast), OJ L269 of 10.10.2013, p. 1-101.

<sup>4</sup> Commission Delegated Regulation (EU) 2015/2446 of 28 July 2015 supplementing Regulation (EU) No 952/2013 of the European Parliament and of the Council as regards detailed rules concerning certain provisions of the Union Customs Code, OJ L 343, 29.12.2015, p. 1-557.

<sup>5</sup> Commission Implementing Regulation (EU) 2015/2447 of 24 November 2015 laying down detailed rules for implementing certain provisions of Regulation (EU) No 952/2013 of the European Parliament and of the Council laying down the Union Customs Code, OJ L 343, 29.12.2015, p. 558-893.

- visual representation of business processes and detailed Functional Requirements to guarantee that the envisaged operational IT systems will function as foreseen in the legislation, international agreements or other instruments, such as guidelines and specifications.

The EU Customs BPM serves several purposes:

- to depict and render understandable the business domains and processes foreseen in the customs and customs related legislation (UCC Delegated Act and Implementing Act (DA/IA), agreements with partner countries, etc.;
- to check the business logic provided in the legal draft for amendments against the existing or newly introduced customs legislation and to provide comments on the proposed business processes;
- to assess the effectiveness of the business process and identify opportunities for streamlining with the purpose of specifying potential economic gains and quality improvements in the business case;
- to perform a quality control on the legal text and provide comments on the legal draft;
- to assist in the overall project definition and in IT scoping<sup>6</sup> exercise by defining *firstly*, the business scenarios responding in the most appropriate way to the strategic goals and commercial reality, *secondly*, the (steps in the) processes that require automation and, *thirdly*, the business and IT architecture and solutions that can be considered for implementation and the business case for the identified IT project;
- to ensure that the functional and non-Functional Requirements for the development of a new IT system or the enhancement of existing IT systems are well specified and agreed with the Member States and Trade;
- to ensure a common understanding and a harmonised, effective and efficient implementation of the EU Customs Business Processes defined.

## 2. EU CUSTOMS BPM METHODOLOGY - BPM LEVELLING DEFINITIONS

Levelling refers to different levels / layers of abstraction by which the representation of business processes is structured. Hierarchical modelling enables the development of a holistic view of the Customs organisation that can be presented to and understood by a wider audience. It is necessary to define the level of detail for this hierarchy, regarding the content of the model and the perspective from which it is viewed in order to assist the modeller in providing the right level of detail and ensuring that the levels are linked. It is also essential to adapt the level of detail in a model depending on the intended audience and the purpose of the model. Each level should be linked and have a common thread running through the hierarchy.

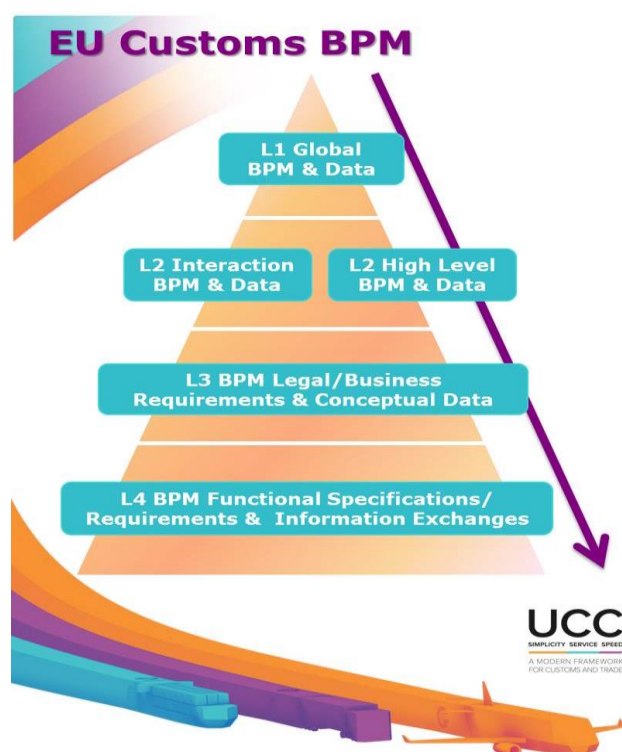
The approach for the EU Customs BPM levelling encompasses four levels of models. Those levels present both horizontal and vertical views of the Customs organisation. When performing Business Process Modelling at different levels of abstraction, alternative viewpoints are made available:

The vertical viewpoint is a hierarchical view whereby the models are connected top down and bottom up.

- Every model has a connection to an upper level within the hierarchy;
- The top-level view looks at domains and their value-driven functionality, which can be traced by cascading down through the levels.

The horizontal viewpoint of a process refers to viewing the models at one single level, and each level presents a different viewpoint.

- The models can be interconnected and may have dependencies;
- The models may be grouped based on a common functionality or goal;
- The models are presented in different ways depending on the level (e.g. the lower levels provide an end-to-end view of a specific activity, whereas, the higher levels address interdependencies of an entire domain or domains).



**Level 1 BPM & Data** provides an overview of all customs business domains and global business data within EU Customs;

**Level 2 Interaction BPM & Data** shows the interactions between the customs business domains and depicts the input and output high level data for each customs business domain;

**The Level 2 High Level BPM** shows the interactions between the main business processes within one business domain;

**Level 2 High Level Data** refines the global business data following the legal data requirements and the data types defined in the legislation;

**Level 3 BPM & Data** depicts the detailed process flow and the conceptual data elements as defined by the UCC legislation;

**Level 4 BPM & Data** specifies the functionality of the envisaged system, information exchanges, data rules and conditions, System Requirements and test scenarios.

The reader could best start from the overall EU Customs Global BPM (Level 1) and then zoom into the next, more detailed Level 2-3-4 BPMs, which include also specific cross-references to different parts of the UCC legislation.

<sup>6</sup> Defining the scope of a project develops a common understanding of what is included in and excluded from the project. Defining a project's scope helps establish a common understanding for all project stakeholders.

### 2.1. Level 1 - Global BPM & Data

This model builds on the EU Customs business domains and presents the highest aggregation level for the representation of DG TAXUD's business processes. The main EU Customs business domains are classified as:

- Enabling – the business domains which provide an amount of information (inputs) to facilitate the core business or the other enabling domains;
- Core – the business domains that are directly related to the movement of goods.

The Global Business defined in the legislation and used by the core and enabling processes are also depicted in the Level 1 model.

The main goal of this level is to serve as a map providing the highest aggregation level for the representation of EU Customs Business Processes and to facilitate the linking and traceability with lower level BPMs.

Ideally, the EU Customs business domains depicted on Level 1 should be scoped around end-to-end Level 2 high level business processes and the global business data should be refined via Level 2 high level data models.

### 2.2. Level 2 - Interaction and High Level BPM & Data

This level of abstractions refines the global business domains and data defined in the Level 1 model and consists of three model types that can be accessed via the Level 1 model. The three model types are:

- **Level 2 Interaction BPM** – this model defines the relationships/connections between the EU Customs business domains and highlights the global business data dependencies. The high level data exchanged between the business domains are identified and depicted in the Level 2 Interaction BPMs.

The main goal of the Interaction BPM is to provide models that show the interfaces between EU Customs business domains. This model has no link to current Level 3 models.

- **Level 2 High Level BPM** – this model defines the main business processes within each EU Customs business domain and represents the main business scenarios for a given domain. The Level 2 High Level BPMs are linked to the Level 1 business domains and the Level 2 main business processes are linked to Level 3 BPMN models that provide more details describing the flow for each customs business domain.

The main goal of the High Level BPM is to present the high level end to end scenarios relevant for a specific EU Customs business domain and to illustrate what main processes are needed to achieve business goals and objectives. The High Level BPM also facilitates the decomposition to the Level 3 BPM (each main business process potentially have a Level 3 BPM attached to it in order specify the business tasks).

- **Level 2 High Level Data** – this model defines how each global business data collection from Level 1 is specified in data clusters. In most cases, the global business data corresponds to main data types defined in the UCC DA/IA Annexes. For example, the global business data collection "Declaration and Notifications Data" is defined in the UCC DA/IA Annex B and specified in the high level data as "Exit summary declaration", "Re-export notification", "Export declaration and re-export declaration", etc.

The main goal of the High Level Data Model is to give an overview of the legally defined data requirements and to enable the creation of Level 2-Level 3 Matrix Models that provide the mapping between the EU Customs business entities (high level data) and the data elements defined in the legislation.

### 2.3. Level 3 - Business Requirements BPM & Data

This level provides detailed tasks on how to achieve a specific business objective through a detailed Business Process Model. It examines the steps taken and the interaction between actors in a process.

The main goals of this level are:

- to give guarantee that the legal proposals are harmonised and applicable in practice and will have added value;
- to illustrate the involved business organisations and responsibilities through a series of process models which include actors, their roles and associated activities;
- to show all information exchanges and involved actors on the Level 3 BPMN diagrams;
- to provide a conceptual data model and link the high level data to this data model;
- to ensure the alignment to the data requirements defined in the UCC DA/IA annexes and EU Customs Data Model (EU CDM);
- to clearly and logically provide the steps to achieve a defined business objective(s), i.e. the trigger for the process and its intended results;
- to potentially provide a business data model and link the processes and tasks to it.

The Level 3 BPMN diagrams describe in detail the main business processes identified at Level 2. The Level 3 tasks usually have a legal reference and the UCC and UCC IA/DA legal provisions corresponding to the Level 3 task can be consulted directly in ARIS BPM via the Level 3 Functional Allocation Diagrams.

The Level 3 Conceptual Data are the data elements defined in the UCC DA/IA Annexes and EUCDM. If available, the relevant conceptual data are imported in ARIS from GEFEG in order to ensure the data consistency. The link between the high level and the conceptual data is specified in the Level 2-Level 3 Mapping Matrix Models.

The Level 3 BPM & Data are linked to the legal text and support the revision of the customs legislation.

The ultimate goal of the model is to specify the legal and business steps and data and to evaluate which tasks or steps can be automated. In case of envisaged IT System, the Business Requirements identified at this stage are refined and linked to the Level 4 Functional Requirements and to the test scenarios specified in the Business Acceptance Criteria Document.

#### 2.4. Level 4 - Functional Requirements BPM & Data

This level provides detailed steps on how to achieve a specific business objective from a system point of view. Level 4 Functional Requirements BPM & Data are considered an evolution of Level 3 BPM & Data and focus primarily on specifying the required functional and non-functional elements of the system. Level 4 BPM may be reused and a particular model may relate to more than one Level 3 BPM, and more than one business objective.

The main goals of this level are:

- to provide a detailed outline of tasks, as identified on a Level 3 model(s), to illustrate how a business objective might be achieved through human or system interaction;
- to fully explore exceptions and how to handle them. If an exception has a business impact, then it should be propagated to the Level 3 models and handled accordingly;
- to show all the electronic information exchanges and corresponding involved actors on the BPMN diagrams;
- to further explore the business data model and to complete the requirements for information exchanges for a complete end-to-end process;
- to specify the information exchanges structures, business code lists and their (re-) usage and to define rules and conditions for the data elements;
- to clearly identify user, semi-automated and fully automated tasks;
- to specify the link between the Business Requirements identified in the Level 3 BPM and the Functional Requirements defined in the Level 4 BPM;
- to define non-Functional System Requirements and Business Acceptance Criteria for the envisaged IT System(s).

The Level 4 BPM & Data translate the Business Requirements into System Requirements and Specifications to serve as a basis for the development of Technical Specifications for the related IT systems. For each business process, the detailed system flows, user tasks and the exchange of information between the actors involved are depicted in a Level 4 BPMN diagram. The data, input or output associated with each Level 4 task is identified and added to the details of the process steps. In addition, each information exchange and its structure is modelled with the optionality of the elements and its format. Rules and conditions are included in the business data models related to the information exchanges.

The data elements specified in the EU Customs legislation and transformed into Level 3 Conceptual Data Models in ARIS are reused in the Level 4 Information exchange models to ensure data consistency and alignment with the legal requirements.

### 3. BPM ACTIVITIES

All EU Customs business domains are subject to analysis and modelling activities in order to build up the overall picture of EU Customs. For each EU Customs business domain, BPMs with different level of detail are produced depending on the degree of harmonisation and automation required. The BPM activities will be produced in accordance with the delivery plan (as reported to the ECCG and TCG) and in accordance with the objectives and priorities inscribed in the MASP-C (Annex II) and/or the 2019 Revision of the UCC Work Programme.

In this way, it is clear from the outset, which BPM can be expected, their scope and the timeframe for review and acceptance. The **EU Customs BPM register** lists all BPMs created and published, and their status (information, review, and acceptance). This register is updated with each new publication and made available on CIRCABC.

The EU Customs Global BPM and the created Level 2-3 BPMs (as listed in the EU Customs BPM Register) including cross-references to the legislation should allow for identifying gaps in the legislation and/or modelling activities and as such ensure that all customs business processes are covered. Each BPM can be composed of several diagrams (e.g. BPMN diagrams, function allocation diagrams, message allocation diagrams, etc.) which cover different aspects of the same BPM (e.g. normal procedure flow, simplified procedure flow, information exchange structure, business and Functional Requirements links, etc.). When combined, these different aspects form a single BPM at a given level of detail for a specific EU Customs business domain.

Business Process Modelling is facilitated by **ARIS**,<sup>7</sup> a software tool that enables the reusability and the continuous improvement of business processes and business data. Member States and Trade have access to all the EU Customs BPMs via the ARIS Business Publisher. The main BPM deliverables are ARIS publications sent for review, acceptance or information to the Member States and Trade. The BPM supporting documents are published on CIRCABC (e.g. BPM delivery note, review supporting information, .pdf reports with the BPM content extracted from the ARIS database, etc.) together with each ARIS publication.

The EU Customs BPMs agreed and accepted by the Member States and Trade are made available to the public on the EUROPA website: [http://ec.europa.eu/taxation\\_customs/business/union-customs-code/ucc-bpm\\_en](http://ec.europa.eu/taxation_customs/business/union-customs-code/ucc-bpm_en)

<sup>7</sup> DG TAXUD has chosen ARIS produced by Software AG as a technical supporting tool for the Business Process Modelling in 2010 following the Commission overall policy of using ARIS software platform.



### 3.1. Level 1 and 2 Global and Interaction BPM & Data

#### 3.1.1. ARIS BPM Publications

The Level 1 EU Customs BPM & Data and Level 2 Interaction BPM & Data are revised regularly under the BPM maintenance activities. The latest versions of those models are included in each ARIS Publication and can be consulted for information on the interfaces between the customs business domains (ref. EU\_Customs/Customs Business Processes/01\_CBP L1-L2 Global and Interaction BPM).

At the start of each new BPM project the related business domain and global business data are to be classified and depicted on the EU Customs Global BPM & Data and the relationships between this business domain and the rest of the EU Customs business domains are to be explored and depicted in an Interaction BPM & Data. The updated EU Customs Global BPM & Data and the new Interaction BPM & Data are to be included in an ARIS publication and reviewed by Member States and Trade. A dedicated publication "EU Customs Global and Interaction BPMs" also could be made and reviewed by Member States and Trade.

#### 3.1.2. BPM Supporting Documents published on CIRCABC

- BPM Delivery Note;
- Review Supporting Information and Guidelines;
- EU Customs Global and Interaction BPM Report.

### 3.2. Level 2 and 3 High Level and Business Requirement BPM & Data

#### 3.2.1. ARIS BPM Publications

The Level 2 High Level BPM & Data and Level 3 Business Requirement BPM & Conceptual Data are created as a result of the analysis of the requirements defined in the (draft) customs legislation. The models are updated based on the changes in the legal provisions, the comments received during the review of the BPMs and the discussions during the ECCG BPM workshops (ref. EU\_Customs/Customs Business Processes/02\_CBP L2-L3 HL and Business Requirement BPM; EU\_Customs/Customs Business Processes/04\_CBP Data Models).

The ARIS publication of the new and updated High Level and Business Requirement BPMs are usually made per customs business domain and reviewed by Member States and Trade.

#### 3.2.2. CIRCABC BPM Supporting Documents

- BPM Delivery Note;
- Review Supporting Information and Guidelines;
- EU Customs High Level and Business Requirements BPM Reports per customs business domain;
- The following documents can be also created as a result of the business analysis:
  - **Business Case<sup>8</sup>**: a high-level document describing the main changes in a business domain and providing basic information on the expected business use and utility, volumes to be handled, expected costs and benefits, expected evolutions or extensions, etc.;
  - **Suggestions to the Customs Code Committee (CCC): A list of findings** as a result of the quality checks of the legal text and;
  - **Business optimisation proposals: A list of recommendations and suggestions** with a purpose to improve the underlying business processes.

### 3.3. Level 4 Functional Requirement BPM & Data

#### 3.3.1. ARIS BPM Publications

The Level 4 Functional Requirement BPM is developed after the verification of the Level 3 Business Requirements BPM in order to provide clear requirements for the implementation of the envisaged EU Customs IT Systems and to guarantee that the IT systems will function as described in the legal provisions. (ref. EU\_Customs/Customs Business Processes/03\_CBP L4 Functional Requirement BPM);

The ARIS publication of the new and updated Functional Requirement BPM are usually made per IT System and reviewed by Member States and Trade.

#### 3.3.2. CIRCABC BPM Supporting Documents

- BPM Delivery Note;
- Review Supporting Information and Guidelines;
- EU Customs Functional Requirement BPM Report per IT System;

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<sup>8</sup> The Business Case Document is defined in the Commission Project Management Methodology PM2 and is now being produced by the system owners during the inception phase of the IT project – see definition and references in the MASP-C Annex 1-2.

- Business Acceptance Criteria (BAC) - test cases and scenarios that define how the implementation of the business and Functional Requirements will be validated before the deployment of an IT system.

### 3.4. EU Customs BPM Guidelines

The EU Customs BPM guidelines are created to support the BPM modellers and reviewers and to ensure common understanding of the EU Customs BPM. The following documents are available on CIRCABC:

- (1) EU Customs BPM Levelling Guidelines;
- (2) EU Customs BPM Methodology Document;
- (3) User Guide for Customs Business Processes (in ARIS Business Publisher);
- (4) Change Management for EU Customs BPM and EIS Functional Specifications;
- (5) EU Customs VACD Notation Poster;
- (6) EU Customs BPMN Notation Poster.

The EU Customs Metamodel is available in ARIS.

## 4. BPM GOVERNANCE

DG TAXUD is responsible for the production of the BPM and requests its contractors to support this task. In order to ensure an adequate level of quality, DG TAXUD closely associates the Member States and Trade representatives as experts during this activity.

The ECCG/TCG and CCC are the main reviewers of the BPMs. CCC receives the feedback from the BPM reviews and will need to decide whether comments lead to an update of the legal text. Whilst recognising that the ECCG is responsible for reviewing and accepting the BPM, the formal acceptance would only occur when the corresponding legislation is approved and adopted.

### 4.1. Cooperation with Member States and Trade Representatives

Effective cooperation with Member States has been established by means of discussions at the level of the ECCG or specialised workshops. However, the need for quick progress, imposed by the legal deadlines, forced the Commission to seek out new methods of accelerating the production of BPMs and streamlining the preparation and implementation of the functional and technical specifications. Whilst it is clear that additional services provided by external consultants and the use of the ARIS tool will result in considerable time savings, DG TAXUD also intends to introduce agile practices to enhance the end-to-end view of the various project artefacts and create a more efficient environment for requirements' analysis. In this regard, careful consideration will be given to the impact that these changes may have on the different stakeholders.

Member States are expected to remain closely associated to this exercise through receiving drafts for information once the internal Commission review has been finalised. The Member States will also be consulted as part of the drafting, reviewing and acceptance process. For the consultation process, one-on-one meetings or WebEx sessions are considered more effective than the use of the collaboration tool, which may only have a secondary role. DG TAXUD also intends to involve the representatives of EU trade associations in the consultation and review process through their participation in the ECCG.

### 4.2. Review mechanism of BPM's produced

DG TAXUD will consult internally all units concerned, experts from the MS (delegates of the ECCG or its appropriate subgroup) and trade associations (put forward by TCG members) for the drafting exercise. The Commission will make available an electronic copy (review form) for the submission of comments.

Once the BPMs are agreed within DG TAXUD, they will be published to the ECCG/TCG and the appropriate Customs Code Committee (CCC) section for review. Author positions will be prepared on the comments and published on CIRCABC. If needed, a review meeting will be held bilaterally or with ECCG and/or CCC to agree on the follow-up to the comments. The BPM package (including all supporting documents and ARIS .pdf reports) and the associated author positions will then be made available, as well as the recommendations for the legal experts. The outcome of the Level 2-3 BPM external reviews are to be considered as supporting information for the discussions and finalisation of the legal text in the concerned CCC and CEG platforms.

### 4.3. BPM Change Management

Any further comments on the accepted BPM packages and alignments to the legislation (UCC DA/IA amendments) will be treated as **Request for Change (RfC)** following the standard Change Management procedure defined in the guide "*Change Management for EU Customs BPM and EIS Functional Specifications*" which is available on CIRCABC Library > EU Customs BPM Guidelines (<https://circabc.europa.eu/w/browse/c7869014-3296-4c3d-ac4d-63760c68abd4>).

**Request for Changes (RfCs)** can be initiated by Member States, TCG members, DG TAXUD Units, etc. at any time and will be assessed, discussed and agreed upon at regular intervals (depending also on the urgency) within the existing governance structure (ECCG, TCG, CBG). The RfCs will be stored and shared with Member States and TCG members also via CIRCABC.

## 5. BPM PLANNING

A BPM planning will be kept updated and made available to the ECCG for review and agreement and to the CPG and/or the HLSG for endorsement. A BPM reference and milestones are defined for each project described in Annex II of MASP-C.

The ECCG and TCG will monitor the implementation, review progress against the plan and advise in case of issues.