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for Reconstruction and Development

**MOLDOVA: POLICY ADVICE AND SUPPORT IN
LEGISLATIVE DRAFTING FOR EPROCUREMENT
REFORM**

**TECHNICAL SPECIFICATIONS for the development of
the Networking Multi-Platform Electronic Public
Procurement System – the MTender System**

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LIST OF ABBREVIATIONS

AA	European Union - Republic of Moldova Association Agreement
CDU	Central Database Unit
CPV	Common Procurement Vocabulary
DPS	Dynamic Purchasing Systems
EBRD	European Bank for Reconstruction and Development
EO	Economic operator
eProcurement	Electronic Procurement
ESPD	European Single Procurement Document
EU	European Union
EUPD	European Union Procurement Directives
GPA	Government Procurement Agreement
NCSA	National Complaints Settlement Agency
NEPP	Networking Electronic Procurement Platform
NGO	Non-Governmental Organisation
OJEU	Official Journal of the European Union
PP	Public Procurement
PPA	Public Procurement Agency, Ministry of Finance of the Republic of Moldova
PPL	Public Procurement Law
SME	Small to Medium Enterprises

HOW TO READ THIS DOCUMENT

The purpose of this document is to provide a detailed level description of the functional characteristics of the MTender system. Therefore, a summary of the eProcurement reform concept is included, the public procurement procedures covered by MTender are presented and the system features, including the functional, non-functional and technical requirements are described.

As part of the public procurement reforms, a reform concept for electronic public procurement, business model, as well as and implementation plan including functional and technical requirements for the ‘end-t-end’ electronic public procurement system was developed by the Ministry of Finance of the Republic of Moldova. This document describes, in each of the system features, the functional requirements that have already been implemented in the pilot. An indicator is added in each of the functional requirements table to indicate whether the requirement was included in the pilot.

In order to reflect the pilot implementation, each of the system features includes a “Link to MTender technical documentation” section, which allows the reader to establish a clear relation between the contents of the current document and the technical documentation of MTender.

The current document is structured as follows:

1. **Introduction:** this section provides information about the context of MTender and purpose of the document;
2. **Moldovan eProcurement scheme:** this section introduces the eProcurement model that has been implemented in Moldova and its main principles;
3. **Public procurement procedures and techniques covered:** this section provides a description of the procedures covered and their approach in MTender;
4. **System features:** this section presents the most relevant changes regarding how the different modules/functionalities are described. It also contains the technical requirements of the system. Each functionality will be described with the following information:
 - a. **Description:** it describes the functionality from a business requirement perspective;
 - b. **Workflow conditions:** it provides a set of pre-conditions or dependencies and post-conditions of the functionality;
 - c. **Functional requirement:** it provides the functional requirements for the development of the functionality;
 - d. **User actions:** it provides a compilation of actions that the different users can perform;
 - e. **Link to MTender technical documentation:** it links the current document to the Technical Documentation of the MTender system (the eProcurement system pilot), to show how the functionality has been implemented.

5. **System integration requirements** → it describes the potential integrations of MTender (government registers and eGovernment tools);
6. **Annexes:** it includes additional information not previously included.

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1 Introduction

The implementation of digital processes in the field of public procurement ensures improvement of the transparency and efficiency of procurement of goods, works and services and benefits all stakeholders of public procurement processes: the Government, business community and citizens who use public services. The development of a comprehensive electronic public procurement system provides, for digital and standardized procurement processes, a decrease in the time of the selling-buying cycle, encourages the participation in public tenders by suppliers, service providers and contractors and creates a transparent relationship between the Government and the local business community, small and medium-sized enterprises.

The electronic public procurement forms an integral part of the electronic governance, as specified in the *Concept of Electronic Governance*, approved by *Governmental Decision no. 733 as of June 28, 2006* (Official Gazette of the Republic of Moldova, 2006, no.106-111, art.799) and envisaged by policies of the European Union.

The experience of many governments globally proves that implementing modern public procurement policies can be best achieved by incorporating electronic public procurement procedures in local procurement practice and developing suitable electronic procurement (*eProcurement*) tools. Adopting an ‘end-to-end’ digital public procurement process, covering web-based tools for procurement planning, tendering, contract management and reporting and market analysis, standardizes local procurement practices and makes conducting procurement easier for public and private process stakeholders as well as it generates benefits for public finance management.

To enable a comprehensive implementation of the digital public procurement process in Moldova it is necessary to develop and to implement the MTender System - Networking Multi-Platform *Electronic Public Procurement System* to support the entire public procurement cycle and to enable public procurement management as well as market analysis, monitoring and audit of public procurement function in the public sector in the Republic of Moldova.

The MTender System aims to support the entire procurement cycle, from procurement planning to the final payment for the completion of public contracts, and provides dedicated online purchasing tools, such as auctions, e-catalogues and framework agreements, to conduct electronically all public procurement in Moldova.

The *MTender System*’s functional specification is intended to support public and private purchasers (in particular *Contracting Authorities* and *Central Purchasing Bodies covered by public procurement law*), but also entities required or wishing to comply with transparency and competition standards of the Agreement on Government Procurement of the World Trade Organization.

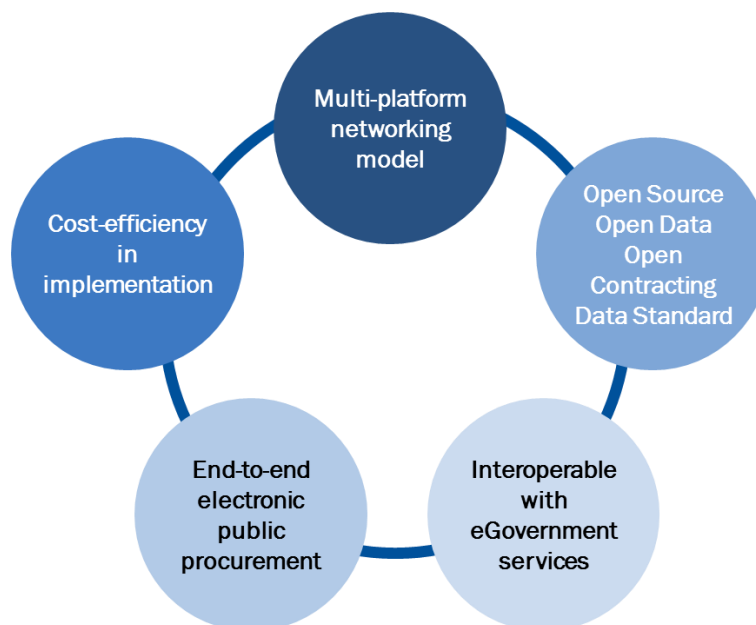
It supports monitoring, dedicated public procurement review and remedies mechanisms, as well as it provides access to public procurement information to general public and civil society achieved by the integration of *Open Contracting Data Standards*.

The Technical Specification describes the goals, key objectives and schedule of the digital public procurement cycle implementation in Moldova and presents legal, business and technology principles, as well as a planned scope and minimal functional and non-functional requirements of the MTender System.

2 The Moldovan eProcurement scheme

The main pillars for the eProcurement reform in Moldova are the following:

Figure 1. Main pillars of eProcurement reform for Moldova



- Multi-platform networking model.** The eProcurement scheme will consist of the CDU networking in real time with a) several NEPPs and b) different eGovernment services to provide a complete electronic procurement service. A contemporary and business-friendly networking approach ensures a short implementation period, low development and maintenance costs and free-of-charge access to eProcurement services for contracting authorities.
- End-to-end electronic public procurement.** The eProcurement scheme will cover the entire public procurement process, from procurement planning to invoicing and payments under public contracts. Online tools for ePlanning, eTendering and eContract Management will make the system easier for all end-users and will generate process improvements and significant benefits for public finance management.
- Interoperable with eGovernment services.** The eProcurement system will be designed to ensure interoperability with existing and future eGovernment services and national public registers. This approach guarantees a modern advanced eProcurement system with comprehensive functionalities, but without presenting huge risk or expense since eGovernment services have already been significantly developed in Moldova.
- Open source, open data, open contracting data standard.** The CDU will be based on open source applications and foster transparency and accountability of public procurement by incorporating open data and Advanced Open Contracting Data

Standards¹. Transparency and openness of data shall help building citizens' and economic operators' trust in the Government, in efficiency of public procurement management and discourage any corrupt practices.

- **Cost-efficient in implementation.** The eProcurement scheme development is seeking cost-efficiency through a) employing Open Source applications, b) the reuse of existing eGovernment tools and services c) taking on a sustainable business model based on users' fees. The flat transaction fee model is adopted to align interest of the local business community and the Government and to achieve full sustainability of the MTender System in the long-term without jeopardising competition on the market of electronic procurement service providers.

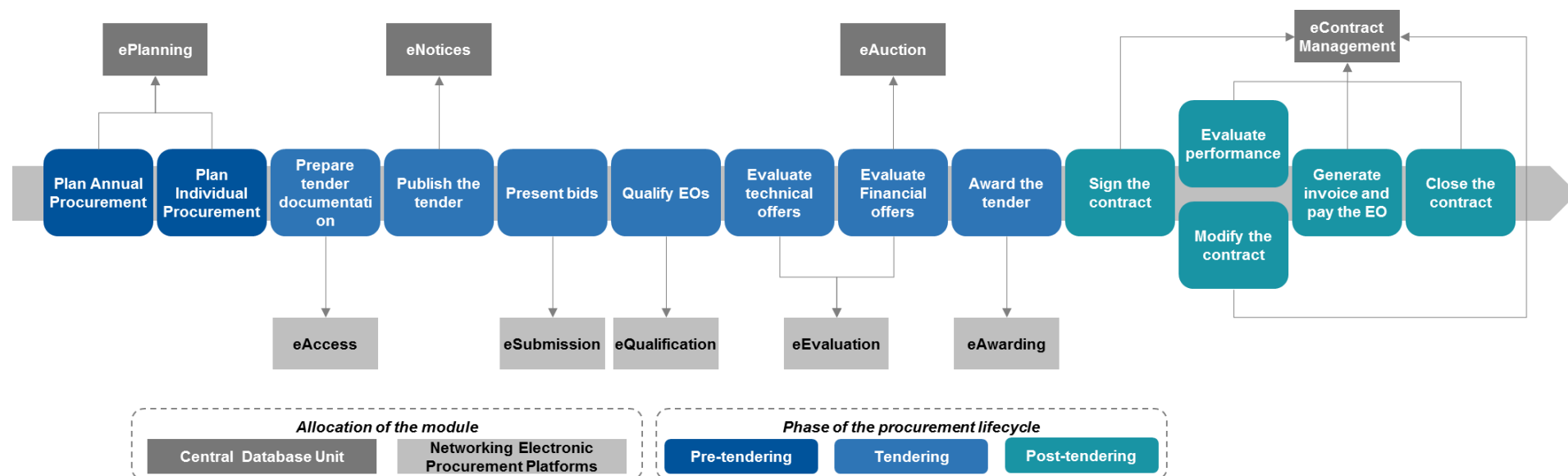
The networking multi-platform model is based on a structure where the Central Database Unit, object of this Technical Specification, consolidates and distributes all data entered and generated by Networking Electronic Procurement Platforms, and performs the most sensitive transactions of the eProcurement lifecycle, such as electronic auctions. Both the Central Database Unit and the Networking Electronic Procurement Platforms must be compliant with EUPD 2014 and with the requirements set by the GPA.

The compliance requirements for the Central Database Unit of the MTender System are set out in this Technical Specification, while Networking Electronic Procurement Platforms will be required to undergo an accreditation process to ensure that they provide the services specified by the Moldovan government and also meet EU and GPA requirements. This process will require the definition of Service Level Agreements, compliance clauses, and requirements that Networking Electronic Procurement Platform operators must fulfil in order to provide eProcurement services to contracting authorities and economic operators.

The interaction between the Central Database Unit of the MTender System and Networking Electronic Procurement Platforms is depicted in the diagram below:

¹ For further references see: <http://standard.open-contracting.org/latest/en/>

Figure 2 Indicative procurement lifecycle and platforms interaction



The eProcurement scheme will also have additional modules to perform cross-functions such as registration of users, monitoring of data, etc.

2.1 MTender public procurement flow

To implement the basic scenarios and system functions, the ‘MTender’ system shall automate the entire procurement lifecycle (from planning to payment recording and contract completion) for all procurement methods defined in the national public procurement legislation.

Basic activities done under scenarios specific to public procurement are defined as follows:

7. Initiation of the procurement. At the initial stage, realized through the ePlanning module, which ensures the annual procurement planning activities, but also the individual planning (initiation) of the procurement procedure, the following activities will be carried out:
 - f. Initiation of the procurement. The CA will draft, using the functionalities of ePlanning module and online workflows, a request for procurement based on their needs and indicating the available budget as well as the result of market consultations, when required. That request will be sent via the ‘MTender’ system for validation with the Regional Treasury, if required by the law, to confirm budget availability for the specified procurement procedure;
 - g. request for information/consultations. An offline process to request information from EOs and other stakeholders will be carried out by the CA in order to help in the drafting of the Tender Documents;
 - h. drafting Tender Documents. An offline process to develop technical specifications and requirements for planned procurement which will then serve as the basis for preparing the contract notice;
 - i. drafting Contract Notice. An online process by the CA for specifying detailed information on organized procurement, for potential economic operator participants using templates and forms in an online workflow in the “MTender” system. This step will be achieved through the eAccess module;
 - j. publishing Contract Notice and Tender Documents. Using the eNotice module, finalised electronic documents covering Contract Notice and Tender Documents will be sent via the ‘MTender’ system for publication on the Web Portal and Official Journal of the European Union (TED) as appropriate.
8. conduct of the procurement procedure, tender evaluation and conclusion of contract. This stage of the procurement procedure is carried out after the publication of the contract notice through the eSubmission module, which represents the flow of electronic processes for procurement procedures according to the public procurement method selected /purchasing technique, as prescribed in the PPL no. 131 of 03 July 2015.

In case of an individual contract, the eSubmission will start by enabling economic operators’ enquiries to the tender documents where the contracting authority will provide the necessary clarifications. After the tenderers’ registration to participate in the

procurement procedure and online submission of tenders, the tenders will be evaluated by the contracting authority through the eEvaluation module and will be finalised by the publication of the award notice through eAwarding module, electronic signing of the contract and its registration at the Regional Treasury, if applicable.

9. In case of an aggregated procurement under the framework agreement, the eSubmission will start by enabling enquiries to the tender documents and registration of tenderers to submit a request to participate in the framework agreement. Next, a submission of indicative tenders, their evaluation through eEvaluation module and awarding of framework agreement through eAwarding module will be enabled. This will be finalised by the publication of the award notice, electronic signing of the framework agreement and its registration at the Regional Treasury, if applicable. After this stage, the 'MTender' system will provide the creation of an additional electronic workflow for the competition of the second stage under the multi-supplier framework agreement, which can be conducted as a request for quotation or electronic reverse auction (eAuction module). Specifically, the FA subsequent contract will be assigned in the second stage with repeated competition and the object of the subsequent contract will remain the same as prescribed in the FA concluded at the first stage. The subsequent contract resulting from the procedure will have a direct link to the FA from which it originated, thus recording all the contracts awarded under the framework agreement and the payments made; submission of complaints. The complaint mechanism from the eComplaint module ensures an online workflow for the submission of a complaint by the EO participating in the procurement, starting with the stage of publication of the contract notice for the public procurement procedure to the signing of the public procurement contract, including registration, examination and settlement of complaints by National Complaints Settlement Agency;
10. after the conclusion of the public procurement contract, at different times during the performance of the contract, operations for management of public procurement contracts occur through the eContract Management module and include the following processes:
 - a. Modification of contract without impact on the total value of the contract – making amendments. Process for making modifications to the contract not affecting its value;
 - b. modification with impact on the value of the contract – extensions. Process making modifications to the contract that affect the contract budget and will include the registration of these modifications with the Regional Treasury, if applicable;
 - c. evaluation of contract progress – for goods and services. Process for reviewing the contract performance and the implementation status of procurement of goods and services;

- d. evaluation of contract progress – for works. Process for reviewing the contract performance and the implementation status of work procurement;
- e. creation and modification of contract payment schedule: The contracting authority will create and administer a payment schedule for each contract, and link it to milestones/deliverables for goods, services and works purchased. The workflow shall also allow modification of the payment schedule during the contract validity;
- f. issuing and acceptance of invoices: By integrating the electronic services (eFactura) and other information systems, the “MTender” system will allow the issuance and acceptance of invoices. The process must also be linked to the evaluation of project progress and the payment schedule;
- g. processing of payments: The Regional Treasury is responsible for executing payments requested by the Contracting Authority. In this context, by communicating with the Regional Treasury information systems, the “MTender” system must receive and register the data regarding payments made by the Regional Treasury under the contract;
- h. managing of eOrdering: The eContract Management module will provide the eOrdering functionalities, through which the contracting authorities will be able to issue purchase/ supply orders under signed contracts.

3 Public procurement procedures and techniques coverage

This section describes the public procurement procedures covered by the MTender system, as implemented during the MTender pilot.

3.1 Request for quotation

Request for Quotation (RFQ) is used for small value purchases. This process consists of the contracting authority defining a need for procurement and setting the technical specifications of the product/service/work needed and the potential economic operators placing a price quotation for the provision of the contract.

Through this procedure, each economic operator from which a quotation is requested shall be informed whether any elements other than the charges for the subject matter of the procurement itself, such as any applicable transportation and insurance charges, customs duties and taxes, are to be included in the price.

Each economic operator is permitted to give only one price quotation and is not permitted to change its quotation. No negotiations shall take place between the contracting authority and an economic operator with respect to a quotation presented by the economic operator.

The successful quotation shall be the lowest-priced quotation meeting the needs of the contracting authority as set out in the request for quotations.

This process has to be implemented with two variants in the MTender system, as defined in Article 55 of PPL no. 131:

- RFQ with mandatory electronic reverse auction used for low value purchases of goods and services;
- RFQ with optional electronic reverse auction used for low value purchases of works.

3.2 Open tender

The Open tender process consists of the publicly advertisement of the public procurement process and the possibility by any economic operator of submitting their bids. The evaluation process shall be transparent and must guarantee the fair treatment of all bidders.

This process has been implemented in Moldova with the following two variants:

- Open Tender with electronic reverse auction used for low value purchases of goods and services;
- Open Tender without electronic reverse auction used for low value purchases of works.

Additionally, an additional feature of the open tender is the possibility of aggregating the demand, consolidating the acquisition of several products or services within the same tendering process.

3.3 Restricted tender – not currently implemented by MTender

Restricted procedures are based on a two-stage process where only those economic operators who have been qualified and/or shortlisted may submit tenders. The qualification and

shortlisting of economic operators will be facilitated through the eQualification module. The eQualification module will offer automated prequalification of economic operators based on the ESPD Part I-IV and qualitative selection of qualified economic operators in accordance to selection criteria specified in the ESPD Part V.

As a first step, the qualification requirements are set out in a contract notice and expressions of interest are invited from potential bidders. Based on received expressions of interest, interested economic operators are qualified or preselected, to form a ranking of best qualified to be invited to bid for the contract.

The second step involves an invitation to tender being sent only to pre-qualified or pre-selected bidders as having the requisite level of professional, technical and financial expertise and capacity.

The qualification requirements cover eligibility and general qualification requirements (minimum qualification requirements) and the selection criteria are specified in respect to the nature of the procurement contract. For example, the selection criteria may address the capacity of the economic operator to fulfil tender specifications, including technical and management competence, financial viability, relevant skills, experience and availability or key personnel.

This procurement procedure is not currently covered by the MTender pilot system. It will be available by the first semester of 2020.

3.4 Framework agreements – not currently implemented by MTender

A framework agreement is an agreement between one or more contracting authorities and one or more economic operators, the purpose of which is to establish the terms governing contracts to be awarded during a given time limit, in particular with regard to price and, where appropriate, the quantity envisaged². The contracting authorities use and uses one of the standard procurement procedures (open, restricted, negotiated, etc.) for the conclusion of framework agreements. Consequently, the normal rules, in particular concerning publicity, time limits, criteria for exclusion, selection and award, apply.

The system will allow to conduct four different types of framework agreement procedures, in accordance to UNCITRAL Model Law³. The four types of framework agreements arise from the two different dimensions of two axis:

- Open or Closed, based on whether it allows the incorporation of new suppliers during the period of execution of the framework:

² Additional information on Framework Agreements: <https://www.oecd-ilibrary.org/docserver/5js4vmnmnhf7-en.pdf?expires=1564147101&id=id&accname=guest&checksum=0BCB80EF1618D4539CC98BAE118BD267>

³ UNCTIRAL Model Law (2011) <http://www.uncitral.org/pdf/english/texts/procurem/ml-procurement-2011/2011-Model-Law-on-Public-Procurement-e.pdf>

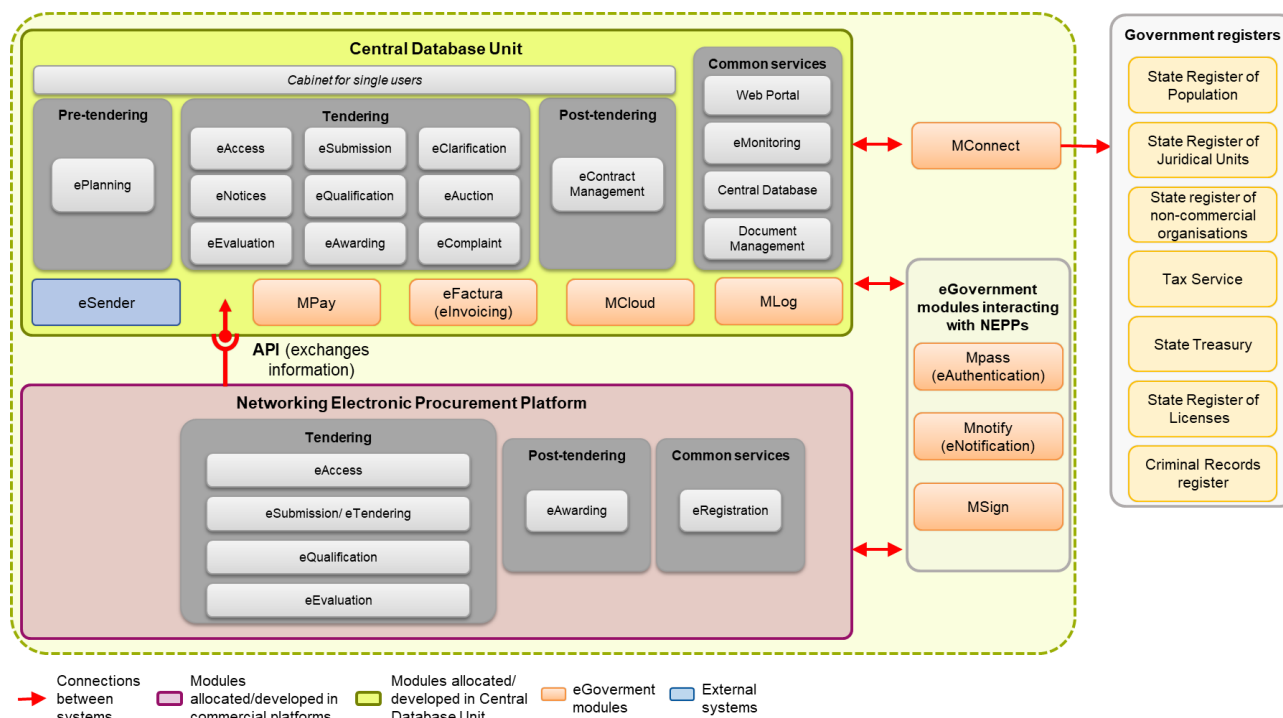
- **Closed framework agreement:** it means a framework agreement to which no supplier or contractor that is not initially a party to the framework agreement may subsequently become a party;
- **Open framework agreement:** it means a framework agreement to which a supplier (or suppliers) or a contractor (or contractors) in addition to the initial parties may subsequently become a party or parties.
- With or without second stage competition for selecting the supplier involved in the provision of the service:
 - **Framework agreement procedure with second-stage competition,** (second-stage competitions are also called call-offs or mini-competition): it means a procedure under an open framework agreement or a closed framework agreement with more than one supplier or contractor in which certain terms and conditions of the procurement that cannot be established with sufficient precision when the framework agreement is concluded are to be established or refined through a second-stage competition;
 - **Framework agreement procedure without second-stage competition:** it means a procedure under a closed framework agreement in which all terms and conditions of the procurement are established when the framework agreement is concluded.

This procurement procedure is not currently covered by the MTender pilot system. It will be available by the first semester of 2020.

4 System features

This section explains the main functionalities of each module of the MTender system. The following figure represents a high-level architecture of the MTender system.

Figure 3 MTender high-level architecture



4.1 Web Portal

Single government portal providing an open access to the eProcurement System and publishing all relevant information on public procurement in Moldova for all public procurement process stakeholders, including civil society.

4.1.1 Description

The web portal will be a single-window point of access to all public procurement information in Moldova. It shall contain general information about public procurement in Moldova, relevant public procurement legislation and guidelines for participation in public tenders and public access information on public procurement decisions.

It will also contain frequently asked questions (FAQs), with an active chat option for ‘ask the PPA a question’, and a help desk linked to the Public Procurement Agency, responsible for advice on procurement legislation and regulations. The eProcurement System cabinets for key stakeholders, located within the Central Database Unit, will also be accessible via the web portal, following prior authentication.

The MTender Web portal will provide links to dedicated modules: business intelligence, monitoring tools, auditing tools, to be accessible via the Web portal, following prior registration and authentication.

Moreover, since the Central Database Unit will replicate in real-time all information received from Networking Electronic Procurement Platforms, the Web portal shall publish all current contract notices as well as public procurement data. The Web portal will be accessible from the most common web browsers as well as accessible from portable devices (mobile phones, tablets, etc.).

The Web portal will be used for information purposes and will not be used for registration and authentication of Contracting Authorities and Economic Operators.

4.1.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> n/a
Post-conditions	<ul style="list-style-type: none"> The users can access procurement plans, including budget plan, procurement plan and prior information notices; the users can access the publication of the tender information in the NEPPs portals; the users can consult the historical data on public procurement; the users can access general information on public procurement (legislation, regulation, standard bidding documents, frequently asked questions, etc.).

4.1.3 Functional requirements

#	Activity	Requirement	Pilot
FR-WP-001	Public procurement information	The eProcurement portal MUST contain general information about the public procurement process (i.e. instructions to participate in tenders, fees applicable, etc.).	YES
FR-WP-002	Public procurement information	The portal MUST provide information about all active tenders and historical data. Since participation in the tendering process is conducted through the Networking Electronic Procurement Platforms, the information displayed on the eProcurement web portal MUST link to the Networking Electronic Procurement Platform where the tender was initiated.	YES
FR-WP-003	Public procurement information	The portal MUST link to all Networking Electronic Procurement Platforms involved in eProcurement and other relevant institutional websites (i.e. Public Procurement Agency, Ministry of Finance, eGovernment Agency, etc.).	YES
FR-WP-004	Public procurement information	The portal MUST allow online requests for quotation notices on public procurement: contract notice, award notice, contract register notice.	NO

#	Activity	Requirement	Pilot
FR-WP-005	Interface	The portal MUST have a user-friendly interface. Visual design and navigation characteristics MUST be coherent in all sections. The web portal must be accessible from the most common web browsers as well as accessible from portable devices (mobile phones, tablets, etc.).	YES
FR-WP-006	Interface	The portal MUST be multilingual, supporting at least Romanian, English and Russian.	YES
FR-WP-007	Interface	An access to the cabinets for single users MUST be habilitated within the web portal.	NO
FR-WP-008	Interface	The portal MUST have a back-office for content administration.	YES
FR-WP-009	Interface	The portal MUST provide information about all actual Annual Procurement Plans published by the CAs.	YES
FR-WP-010	Interface	The portal MUST support functionality of the Contract Register: all passed tenders (both positive and negative), concluded electronic contracts including implementation.	NO
FR-WP-011	Interface	The portal MUST provide end-users with search engine functionalities based on general attributes of information: APPs, tenders, contracts.	YES
FR-WP-012	Interface	The portal MUST support functionality of publication of periodic information (i.e. news, FAQ).	YES
FR-WP-013	Interface	The portal MUST provide portal's administrators with a content management tool.	YES

4.1.4 User Actions

The following users are able to access the feature and perform the following activities:

User	Possible actions
Public Procurement Authority	<ul style="list-style-type: none"> • Uses the portal to display general information on public procurement, including legal and regulatory information, standard bidding documents, etc.
Economic Operators	<ul style="list-style-type: none"> • Access the portal to consult general information on public procurement or consulting information on public procurement processes.
Contracting Authorities	<ul style="list-style-type: none"> • Access the portal to consult general information on public procurement.
Single users	<ul style="list-style-type: none"> • These stakeholders undertake specific roles in the public procurement process and should have at their disposal a dedicated workspace – a cabinet that supports delivering their roles

4.1.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.2 ePlanning

ePlanning allows the scheduling of public procurement procedures from yearly and individual perspectives.

It supports and registers all tasks to be completed to determine the strategy, timing and cost of a public procurement procedure.

4.2.1 Description

Procurement planning involves adopting a coherent approach to the acquisition of work, goods, or services, the definition of the procurement process, the engagement of stakeholders, and the governance of the project.

Typical tasks include initial opportunity and spend analysis, identification of stakeholders and their engagement, identification of the organisation's needs based on the category, analysis of the supply market, development and execution of a strategy for the category, and development and execution of the engagement strategy for the supplier.

The ePlanning tool must allow users to aggregate demand according to different variables such as CPV codes, procurement procedure types, dates, and others to be defined in order to crosscheck the planning between contracting authorities and build an annual aggregated procurement plan. The planning functionality will enable validation of budget availability, using CPV code of planned procurements and local budgetary classification code of the state budget line.

The ePlanning tool should allow the identification of potential individual procurement planning to be aggregated in order to launch a centralised Framework Agreement.

During the pilot, a basic public procurement planning functionality will be developed, which will enable publication of a basic procurement plan with information regarding the object to be purchased (including CPV classification), the estimated timing for publication of tender notice and contract termination.

The planning process is divided into two sub-processes, which are summarised below:

- **Yearly planning:** The ultimate goal of procurement planning is to coordinate and integrate the actions of a public administration to fulfil a need for goods, services or works in a timely manner and at a reasonable cost. Early and accurate planning is essential to avoid last minute, emergency or ill-planned procurement, which is contrary to open, efficient and effective – and consequently transparent – procurement. In addition, most potential savings in the procurement process are achieved by improvements in the planning stages. The outcome of the yearly planning is the Annual Acquisition Plan (AAP). The publication of the AAP will be developed during the pilot. This Technical Specifications includes the development of functionalities that allow for creation, modification and approval of AAPs. Moreover, it should allow to make amendments to the planning, facilitating that contracting authorities are able to adjust their planning during its execution.

- **Individual procurement planning:** The scope of the individual procurement plan will depend on the complexity of the requirement. While it is a good practice to always make a plan, in the case of low-risk/low-spend requirements, the plan should be simple, but include an overview of the necessary steps of the project and the associated timeline. At the other end of the scale, managing the procurement of an extremely high risk/high spend requirement is in fact project management, and should entail a thorough and comprehensive planning process⁴.

4.2.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> Needs assessment, market research and budgeting must be performed prior to the preparation of the procurement plan.
Post-conditions	<ul style="list-style-type: none"> Procurement processes can be initiated after a procurement plan is done; procurement plan information is published online to provide information on future procurement processes.

4.2.3 Functional requirements

#	Activity	Requirement	Pilot
General requirements			
FR-eP-001	Risk management	The module MUST allow management of the risks associated with each specific procurement, allowing them to be monitored (i.e. not enough time to organise a new procedure before the current contract expires). The module will allow introduction of the risk, the mitigation action proposed, the person responsible for completing it, the due date for the mitigation action and the status of the mitigation action.	NO
FR-eP-002	Monitoring tools	The module MUST provide tools to monitor the procurement planning developed, with visibility of different characteristics (the type of procedures used, the total amount of products purchased through Framework Agreements, the total expenditure on individual procurements in relation to the APP forecast, and other indicators that MUST be defined during the definition phase). Only authorised users MUST be granted access to this information dashboard.	NO
FR-eP-003	Framework agreements	The ePlanning tool MUST allow planning of Framework Agreements.	NO

⁴ UN (2012), UN Procurement Practitioner's Handbook. Access at: <https://www.ungm.org/Areas/Public/pph/index.html>

#	Activity	Requirement	Pilot
FR-eP-004	APP Preparation	The module MUST allow for the creation of the planning item	YES
FR-eP-005	Amendments	The module MUST allow the amendment of the planning during its duration.	YES
FR-eP-006	Module interface	The module MUST be accessible from the Networking Electronic Procurement Platforms and the cabinets for single users and follow the same look and feel as the eProcurement web portal.	YES
FR-eP-007	Module interface	The front-end of the ePlanning module MUST be user-friendly.	YES
FR-eP-008	APP preparation	The content of an eProcurement plan MUST be validated by the system to ensure that all the information is provided in a proper and correct manner.	YES
FR-eP-009	APP preparation	The authorised entity MUST be able to configure the information shown in the public procurement plans.	YES
FR-eP-010	Procurement preparation	The module MUST create ID-based references between APP line and procurement procedure, based on it: event-driven verification of execution of APP	YES
FR-eP-011	Budget allocation	The module MUST allow the definition of allocated budget for each APP line	YES
FR-eP-012	Planning process	This module MUST allow the validation of budget availability, using CPV code of planned procurements and local budgetary classification code of the state budget line.	YES
FR-eP-013	Planning process	This module MUST allow the publication of a basic procurement plan with information regarding the object to be purchased, the estimated timing for publication of tender notice and contract termination. This functionality has been developed in the pilot.	YES
Aggregated planning			
FR-eP-014	Aggregation of demand	The module MAY allow generating an alert when the products purchased are covered through an active Framework Agreement.	NO
FR-eP-015	Aggregation of demand	The module MUST allow generation of an alert when the products purchased are included in the APP of other CAs, facilitating the realisation of joint procurements.	NO

#	Activity	Requirement	Pilot
FR-eP-016	Aggregation of demand	The module MUST allow central purchasing bodies to analyse potential goods or services to be aggregated in centralised purchasing procedures in the APPs submitted by all CAs.	NO
FR-eP-017	Aggregation of demand	The module MUST allow a final consolidation of procurement plans to be performed by the central purchasing bodies and/or PPA and its publication.	NO
FR-eP-018	Aggregation of demand	The module MUST support re-consolidation of procurement plans at any level in case of submission of new versions of procurement plans.	NO
Specific requirements of the yearly and Annual Procurement Plan (APP)			
FR-eP-019	APP preparation	The module MUST allow CAs to load a pre-defined APP in electronic format, and complete and validate the pre-defined information.	NO
FR-eP-020	APP preparation	The module MAY be able to build new APPs based on previous ones.	YES
FR-eP-021	APP preparation	The module MUST permit publication of the APP in a structured format.	YES
FR-eP-022	APP preparation	The module MUST allow modifications and updates to the APPs already published.	YES
FR-eP-023	APP preparation	The module MUST keep a record of the modifications made to the APP, and maintain each of the documents according to the date of publication.	YES
FR-eP-024	APP preparation	Authorised users MUST be able to export the APP in electronic format.	YES
FR-eP-025	APP preparation	Authorised users MUST be able to create a multi-year procurement plan, linked to budget allocation and forecasted expectations.	NO
FR-eP-026	APP preparation	Annual Procurement Plan MUST cover all mandatory information required for TED Buyer's profile and prior information notice (PIN)	YES
FR-eP-027	APP preparation	Publication of Annual Procurement Plan constitutes both TED Buyer's profile and prior invitation notice (PIN) (once-only principle)	YES
FR-eP-028	APP preparation	Any update of Annual Procurement Plan is automatically updating Buyer's profile and is published as new PIN notice	YES

#	Activity	Requirement	Pilot
		(export to TED prepared, to be launched when it becomes mandatory for Moldova in January 2020)	
Specific requirements of the individual planning			
FR-eP-029	Market research	The module MUST be able to generate pre-defined forms, according to the CAs' input, to request information from EOs about a specific product, making it comparable to other suppliers' information.	NO
FR-eP-030	Market research	The module MAY allow the treatment of EOs' feedback in a semi-automated way, allowing the comparison between EOs' products.	NO
FR-eP-031	Tender requirements preparation	New individual procurement processes MUST be able to be created by replicating a previous individual procurement process.	YES
FR-eP-032	Tender requirements preparation	Authorised users MUST be able to customise qualifying requirements and criteria for evaluation of tenders (legal, technical, financial, etc.).	YES
FR-eP-033	Tender requirements preparation	The module MUST be able to associate more than one product to the need to be purchased, using the classifier of goods, works and services.	NO
FR-eP-034	APP association	The module MUST allow linking the individual procurement with its associated APP.	YES
FR-eP-035	APP association	The module MUST generate an alert/highlight procedure when the products purchased in the individual procurement are not associated to any APP.	NO
FR-eP-036	Framework agreements	The module MUST allow linking of individual planning to a Framework Agreement planned within the annual planning.	NO
FR-eP-037	Process cancellation	The module MUST allow cancelling an individual planning process, by introducing a typified justification.	NO
FR-eP-038	Planning process	The system MUST have access to state budget systems for planning purposes – validation	YES

4.2.4 User Actions

User	Possible actions
Contracting Authorities	<ul style="list-style-type: none"> Preparation and management of public procurement plans, including the creation, modification and cancellation.

User	Possible actions
	<ul style="list-style-type: none"> Preparation of annual procurement plans and individual procurement planning.
State treasury	<ul style="list-style-type: none"> Validation, if required by the law, to confirm budget availability for the specified procurement procedure.

4.2.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.2.2 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.3 eAccess

eAccess allows users administrations on the CDU side to set the workflow, validation rules, data structure and other features of the tender information to be published by the NEPPs.

4.3.1 Description

The eAccess module, although primarily accessed and allocated through the NEPPs, is developed within the CDU. The module in the CDU must control the process logic, knowledge, validation rules and master-data. Therefore, NEPPs shall recover such data structure and workflows from the CDU and develop user interfaces for users to create the tender workspace based on CDU requirements. Before publicly publishing the tender, NEPPs shall share with CDU information on the tender notice so CDU can conduct automatic validation of the data to be published and return the notice to NEPPs with a pass/fail test result.

On the economic operator side, this module **gives access to all notices and tender documents** and provides the option to ask questions and receive answers regarding the Call for Tenders.

The electronic preparation of a tender must allow the contracting authorities to initiate a procurement procedure, choose a public procurement method, build tender nomenclature (positions) and define the technical specifications of goods, services or works to procure. Through this functionality, the module must support most of the preparatory work to be performed by a contracting authority procurement officer before a contract notice is published and the tender documents are made available online. The preparation of a tender will be associated to a procurement plan. Moreover, the module will enable completion of the following tasks:

- **Administration of draft tenders under preparation, to be published online:** This module allows contracting authorities to view the details of an existing tender and to modify them. It relates only to Calls for Tenders that are still under preparation (i.e. the tender documents that have not been published yet). Certain details of the Call for Tenders must be made exempt from modification, depending on its exact phase and on user authorisations. For instance, when a Call is in the tender evaluation phase, the module must not allow users to modify the details of the contract documents;
- **preparation of the list of requirements:** Allows contracting authorities to define the qualification requirements. These requirements will be used at the qualification phase. The list of requirements must be sent to the eQualification module;
- **preparation of the awarding criteria:** Allows contracting authorities to define the awarding criteria for the Call for Tenders. These criteria will be used in the tender evaluation phase, when all received tenders are evaluated. The criteria must be sent to the eEvaluation module;
- **preparation of notices:** The module will automatically send information to eNotice module for the publication. All document templates, including template notices and standard bidding documents for preparation of Tender Documents can be created and retrieved from the document management module of the Central Database Unit of the eProcurement System.

4.3.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> Procurement plans are created by contracting authorities; the preparation of the contract notice and tender document starts from an already existing procurement plan; where applicable, the individual procurement budget has been approved by the state treasury.
Post-conditions	<ul style="list-style-type: none"> The information for the contract notice, including the tender documents, is sent for publication to the eNotice module.

4.3.3 Functional requirements

12	Activity	Requirement	Pilot
FR-eAC-001	Procurement preparation	The module MUST allow to create procurement procedure based on APP	YES
FR-eAC-002	Procurement preparation	The system MUST have the ability to prepare procurement procedure with several lots	YES
FR-eAC-003	Procurement preparation	The system MUST have the ability to define requirements and criteria for evaluation (legal, technical, financial, etc.).	YES
FR-eAC-004	Procurement preparation	The system MUST have the ability to define non-price criteria	YES
FR-eAC-005	Procurement preparation	The system MUST have the ability to define general and specific conditions of future contract	YES
FR-eAC-006	Procurement preparation	The system MUST have the ability to define planned payment schedule under future contract	YES
FR-eAC-007	Procurement preparation	The system MUST have the ability to attach/update tender documentation	YES
FR-eAC-008	Procurement preparation	The system MUST have the ability to cancel procedure for separate lot	YES

12	Activity	Requirement	Pilot
FR-eAC-009	Procurement preparation	The system MUST have the ability to cancel the procurement procedure	YES
FR-eAC-010	Procurement preparation	The system MUST have the ability to create an amendment of the procurement procedure during its duration	YES
FR-eAC-011	Procurement preparation	The system MUST have the ability to define an awarding method (price only, cost only, quality only, rated criteria)	YES
FR-eAC-012	Procurement preparation	The system MUST provide a control and protection for significant attributes of announced procedure from any changes during the period of exposition	YES
FR-eAC-013	Procurement preparation	The module MUST be accessible from the Networking Electronic Procurement Platforms and the cabinets for single users and follow the same look and feel as the eProcurement web portal.	YES

4.3.4 User Actions

User	Possible actions
Contracting authority	<ul style="list-style-type: none"> Administration of draft tenders under preparation, to be published online; preparation of the list of requirements, including selection, exclusion and award criteria; preparation of information to be published in the notices; View or update/modify the details of existing Calls for Tenders.

4.3.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.3.2 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.4 eNotices

On the Central Database Unit, eNotices module will support the dispatch of procurement notices for online publication and publication in the Official Journal of the European Union (OJEU), best known by the name of the platform publishing the information, Tender Electronic Daily (TED)⁵, via the eSender tool.

4.4.1 Description

eNotices must enable the publishing of **official notices for below EU threshold procedures**, such as prior information notices, contract notices, contract award notices, and national notices.

Notices shall be created in standardised formats suitable for BAP and TED. Additionally, the eSender must facilitate linking with the TED platform for the **official publication of notices for above EU threshold procedures**.

The notices will be generated in a structured way that is compatible with eSender to avoid duplications due to the production of different types of notices. The notices template will be based on TED template and mandatory and optional fields will be identified depending on the value of the contract.

The Central Database Unit will execute the eSender functionality at least once a day, sending all procurement notices for publication on TED.

eSender must link eProcurement information with the TED platform for official publication of notices, such as prior information notices, contract notices, or contract award notices, and must comply with EU standards and procedures. More information about the integration of eSender can be found on the SIMAP website: <https://simap.ted.europa.eu/web/simap/sending-electronic-notices>.

The remaining functions of eNotices module will be executed within the Networking Electronic Procurement Platforms. These functions include: preparation/modification and publication of notices in the public portal (i.e. prior information notices, contract notices, contract award notices, etc.), uploading/modifying tender specifications, and searches of published contract notices, amongst others.

4.4.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> The information for the notices is received from the Contracting Authority.
Post-conditions	<ul style="list-style-type: none"> The information is sent for publishing in the NEPPs portal and MTender web portal, taking into account whether notices need to be validated by state treasury and/or whether it also needs to be sent to TED for publication.

⁵ <http://ted.europa.eu/TED/browse/browseByBO.do>

4.4.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eN-001	Preparation of procurement notices	Preparation of full local version of TED notices for all procurement methods covered by the new legislation for BAP and TED publication: <ul style="list-style-type: none"> • contract notice; • contract award notice; • contract registration notice (equivalent of old CRF); • corrigendum notice. 	YES
FR-eN-002	Procurement preparation	The system MUST allow the preparation of Contract notice for procedures with mandatory notice	YES
FR-eN-003	Procurement preparation	The system MUST allow the preparation of Award notices.	YES
FR-eN-004	Procurement preparation	The system MUST allow the preparation of Contract registration notices.	YES
FR-eN-005	Procurement preparation	The system MUST allow the preparation of Voluntary transparency notice for procedures without mandatory notice.	YES
FR-eN-006	Receipt of procurement notices	The module MUST be able to compile the procurement notices received from the Networking Electronic Procurement Platforms and store them in a systematic and harmonised database.	YES
FR-eN-007	Bid Guarantee	Bid guarantee MUST be enabled but not digitalized and automated (an agreement with National Central Bank needs to be developed)	YES
FR-eN-008	Publication of notices	The module MUST support the automatic submission of notices to for online publication.	YES
FR-eN-009	Publication of notices	The module MUST support the automatic submission of notices to TED and the receipt of the electronic confirmation of dispatch (through eSender)	NO
FR-eN-010	Publication of notices	The module MUST allow the publication of the snapshots of all the stages and packages of each procurement process on real-time basis	NO
FR-eN-011	Aggregation of information	The module MUST allow the publication of the Procurement Record reflecting all the changes, updates, additional information, parts and steps of procurement process	YES

4.4.4 User Actions

User	Possible actions
Economic Operators	<ul style="list-style-type: none"> • Access published notices (all types of notices), through a search both in the MTender website and NEPPs portals. • Access tender documents both in the MTender website and NEPPs portals.
State Treasury	<ul style="list-style-type: none"> • If necessary, validate contract notices before publishing.

4.4.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.10.2 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.5 eClarification

The eClarification module allows the economic operators to communicate with the contracting authority and request clarifications both during the tendering process and at the end of the tendering period.

4.5.1 Description

The eClarification module involves adopting a coherent approach to the acquisition of work, goods, or services process, to elaborate on the communications between suppliers and the public administration to address possible misunderstandings occurred in the procurement processes. In this sense, such module intends to engage stakeholders to take measures regarding the identification and mitigation measures for issues or inconsistencies that suppliers and the public administration may encounter in the procurement processes.

The eClarification module shall allow for:

- **During the tendering process**, the eClarification module must allow a set of different actions in respect to the specific procurement procedures according to selected procurement methods. Such activities give details as for the provision of an initial validation of requested duration of clarification period, support scheduling; support the publication of questions and requests for clarification from EOs, the publication of answers and clarifications from CAs, among others.
- **By the end of period**, the eClarification module must support a flow of clarification period closure under a specific procurement procedure, as well as a flow of automated extension of the initially scheduled duration of the clarification period in a particular procurement procedure. In addition, the module may support a flow of suspension of a procurement procedure at the end of the clarification period, as well as a flow of resuming a suspended procurement procedure.

4.5.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> • The contract notice has been published, so the clarification period is open.
Post-conditions	<ul style="list-style-type: none"> • The stage for submission and registration of bids is opened; • the procedure can suffer modifications (changes in tender documents, changes in contract notices, etc.); • the procedure can be suspended or cancelled.

4.5.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eC-001	Tendering	The module MUST provide an initial validation of requested duration of clarification period in respect to the specific	NO

#	Activity	Requirement	Pilot
		procurement procedure according to selected procurement method	
FR-eC-002	Tendering	The module MUST support scheduling, saving and serving of requested duration for clarification period in respect to the specific procurement procedure according to selected procurement method	NO
FR-eC-003	Tendering	The module MUST support the publication of questions and requests for clarification from EOs during clarification period	NO
FR-eC-004	Tendering	The module MUST support the publication of answers and clarifications from CAs	NO
FR-eC-005	Tendering	The module MUST support publication of received requests and related clarifications in the real-time mode	NO
FR-eC-006	Tendering	The module MUST support a flow of pre-closing of clarification period under specific procurement procedure (disclosure of quality and status of received requests)	NO
FR-eC-007	End of period	The module MUST support a flow of closing of clarification period under specific procurement procedure (disclosure of authors of received requests)	NO
FR-eC-008	End of period	The module MAY support a flow of a suspension of procurement procedure at the end of clarification period (i.e. in case if there is no requested clarification received from CA or there is a restriction received due to decision of Review Body)	NO
FR-eC-009	End of period	The module MAY support a flow of resuming of suspended procurement procedure (i.e. when requested clarification received or complaint is resolved)	NO
FR-eC-010	End of period	The module MUST support a flow of automated extension of initially scheduled duration for clarification period in particular procurement procedure	NO

4.5.4 User Actions

User	Possible actions
Economic Operators	<ul style="list-style-type: none"> Request clarifications regarding a Call for Tender to the Contracting Authority.
Contracting Authorities	<ul style="list-style-type: none"> Answer to the Economic Operators' questions on the Call for Tender; publish clarifications; modify the contract notice and tender documents, if necessary; suspend or cancel the procurement procedure, if necessary.

4.5.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.4.2 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.6 eSubmission

This module must allow economic operators to **prepare their bids in a structured and secured way in response to a contract notice and to submit** their bids electronically, using the interactive submission workflows of the eProcurement System.

4.6.1 Description

eSubmission module shall be partially developed in the CDU to accommodate some functionalities, such as providing data structure for eSubmissions and storing the bids and facilitating its encryption.

On the Contracting Authorities' side, this module **generates a standardised interactive template** for bid or proposal (based on data structure stores in CDU) – a tender submission form - in the relevant procurement method, with or without an e-catalogue.

It **allows secure opening of the received tenders** upon expiry of the tender deadlines. Once the deadline for submission has passed, no changes to the submitted tenders will be permitted by the system.

To facilitate bid encryption and control access to submitted bids in different phases of the public procurement procedure, a three envelopes submission scheme will be applied in Moldova, separating basic types of bidding documents of the economic operators:

1. Self-declaration and/or Qualification Documents, covering eligibility to participate in public procurement and qualification requirements;
2. Technical Proposal, and
3. Financial Offer.

The electronic submission shall be enabled for:

- Request to participate: Allows economic operators to express their interest to participate in a restricted tender or any other procedure where pre-qualification or qualification of interested Economic Operators takes place.
- Bid submission: Allows economic operators to create and submit a bid in a particular tender. The tender specifications will include the bid submission deadlines and the requested document structure.

Visualisation/submission of requests and publication of clarifications or addenda: Allows users to view all published information for a tender (i.e. questions and answers), as well as to submit new requests for clarifications or explanations. In addition, this functionality allows contracting authorities to provide clarifications or explanations, within prescribed deadlines.

4.6.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> • The contract notice and tender documents are published. • The period for clarifications is finished.
Post-conditions	<ul style="list-style-type: none"> • After the specified period, the reception of bids is no longer permitted. • The process of qualification of bidders is started.

4.6.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eS-001	Scheduling of period	The module MUST provide an initial validation of requested submission period in respect to the specific procurement procedure according to selected procurement method	YES
FR-eS-002	Scheduling of period	The module MUST support scheduling, saving and serving of requested duration for submission period in respect to the specific procurement procedure according to selected procurement method	YES
FR-eS-003	Submission of bids	Submission of bids in accordance to prescribed terms, set of lots and permitted by Contract Notice rules of submission (II.1.6 Information about lots)	YES
FR-eS-004	Submission of bids	The module MUST allow EO to submit a bid both lower and higher than estimated value	YES
FR-eS-005	Submission of bids	The component MUST allow EO to attachment typed documents	YES
FR-eS-006	Submission of bids	The module MUST allow EO to submit a set of values for all requested rated criteria of requirements and non-price criteria described by CA in Contract Notice	YES
FR-eS-007	Submission of bids	The module MUST support the ability to amend submitted bid by EO during tendering period	YES
FR-eS-008	Submission of bids	The module MUST support the ability to withdraw submitted bid by EO during tendering period	YES
FR-eS-009	Submission of bids	The module MUST support the ability to update submitted bid by selected EO during contract preparation stage	YES
FR-eS-010	Submission of bids	The module MUST support automated invalidation for bids received before significant changes of initial procedures' conditions were applied by the CA	YES
FR-eS-011	Scheduling of period	The module MUST support a flow of pre-closing of submission period under specific procurement procedure (partial disclosure of values of the received bids without tenderers profiles)	YES

#	Activity	Requirement	Pilot
FR-eS-012	Scheduling of period	The module MUST support a flow of closing of submission period under specific procurement procedure (disclosure of the received bids together with tenderers profiles)	YES
FR-eS-013	Scheduling of period	The module MUST guarantee privacy of all received bids during entire submission period	YES
FR-eS-014	Scheduling of period	The module MUST support a flow of automated extension of initially scheduled duration for submission period in particular procurement procedure	YES

4.6.4 User Actions

User	Possible actions
Economic Operators	<ul style="list-style-type: none"> • Search and download tender documents or other information relevant to a Call for Tenders (applicable only to Economic Operators who are logged in the system). • Receive notifications for addenda or clarifications on a Call for Tenders. • Prepare and submit bids.

4.6.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.5.2 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.7 eQualification

This module **handles the legal, economic and financial qualification of the Tenderer selected for award of public contract.**

4.7.1 Description

The eQualification module is responsible for defining the qualification rules that EOs must accomplish and for cross-checking information within different registers in order to decide whether an EO is qualified or not.

The CDU will include eQualification functionalities that allow the definition of data structure in which NEPPS shall build their qualification forms and validation of self-declaration (by using eGovernment services available via MConnect only). For example, connection to the registry of banned economic operators is only possible through the CDU (via MConnect). The module shall provide a pass/fail test result to NEPPs for each economic operator.

The module must be aligned with the EU policies and international best practice that allows economic operators to self-declare their legal, economic and financial capacity, rather than providing full documentary evidence as previously required.

The module shall provide two different modes of qualification:

- Basic qualification: based on ESPD the module must allow an automated Pass/Fail mechanism of qualification.
- Qualitative qualification: the pre-selection or shortlisting of economic operators shall be made in accordance to Art. 65 of EUDP 2014/24 (*Reduction of the number of otherwise qualified candidates to be invited to participate*) and Part VI of ESPD. The system allows to conduct a scoring and ranking of the bidders according to their capabilities in fulfilling the technical and professional capacities needed for performing the contract.

When used for procurement methods that allow pre-qualification or shortlisting prior to submission of bids or proposals (restricted tender, competitive dialogue, negotiated procedure with publication), this module, upon expiry of pre-qualification deadlines, shall enable Procurement Officer/Evaluation Staff to access a ranking of tenderers who submitted a request to participate. The tenderers will be ranked based on received self-declarations or requested documentary evidence, if required by the CA when the qualification based on eGovernment services is not available. The Procurement Officer / Evaluation Staff will invite top ranking tenderers to submit a bid/proposal.

ESPD

The ESPD is a self-declaration by economic operators providing preliminary evidence replacing the certificates issued by public authorities or third parties. As provided in Article 59 of Directive 2014/24/EU, it is a formal statement by the economic operator that it is not in one of the situations in which economic operators shall or may be excluded; that it meets the relevant selection criteria and that, where applicable, it fulfils the objective rules and criteria that have been set out for the purpose of limiting the number of otherwise qualified candidates to be invited to participate.

The module will enable the automated validation of data from economic operators from ESPD against government registries. The system will gather the evidence produced by the responsible entities through the connection to State Registers (via MConnect) and perform its cross-check against information submitted in ESPD by Economic Operators.

The implementation of ESPD automated validation shall be respectful with the Commission implementing regulation (EU) 2016/7 of 5 January 2016 – establishing the standard form for the ESPD⁶.

The integration with state registers and automated evaluation of qualification evidence would reduce dramatically the risk of administrative mistakes and the time required to manage all the evidence.

4.7.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> The economic operators have submitted their bids. The period for submission of bids is closed.
Post-conditions	<ul style="list-style-type: none"> The qualified bids are selected and invited for evaluation through eAuction.

4.7.3 Functional requirements

#	Activity	Requirement	Portal
FR-eQ-001	Criteria preparation	The module MUST support initiation, preparation and execution of awarding period in respect to the specific procurement procedure according to selected procurement method	YES
FR-eQ-002	Criteria preparation	The module MUST support functionality of automated (if applicable) and manual eligibility check of received bids against eligibility criteria initially described by CA in Contract Notice	YES
FR-eQ-003	Criteria preparation	The module MUST support a functionality of automated ranking of disclosed bids in accordance to awarding methodology, selected by CA in Contract notice	YES
FR-eQ-004	Criteria preparation	The module MUST support functionality of three envelopes disclosure scheme depending on awarding methodology used	YES
FR-eQ-005	Bids evaluation	The module MUST allow CA to evaluate received bids in order according to provided ranking	YES

⁶ Access at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016R0007>

#	Activity	Requirement	Portal
FR-eQ-006	Bids evaluation	The module MUST allow CA to reject received bid	YES
FR-eQ-007	Bids evaluation	The module MUST allow CA to accept received bid as a winning under specific lot	YES
FR-eQ-008	Bids evaluation	The module MUST allow CA to change his decision before evaluation protocol was submitted	YES
FR-eQ-009	Bids evaluation	The module MUST allow CA to cancel previously submitted evaluation protocol and step back to evaluation of bids in case of satisfied complaint or other legal prescription	YES
FR-eQ-010	Bids evaluation	The module MUST support publication of steps and outcomes of qualification and evaluation by CA in real-time	YES
FR-eQ-011	Qualification process	The module MUST support automated evaluation of ESPD Part I-III.	YES
FR-eQ-012	Qualification process	The module MUST support automated evaluation of ESPD Part IV, prepared for automation (integration with MConnect and Treasury Systems in progress), except for manual inputs from Criminal record, Tax record and Blacklisting register (no digital version available in MConnect).	NO
FR-eQ-013	Qualification process	The module MUST support self-declaration in Tender Form for all participants and full documentary evidence from winning bidder	YES
FR-eQ-014	Qualification process	Component MUST support publication of steps and outcomes of qualification and evaluation by CA in real-time	YES

4.7.4 User Actions

User	Possible actions
Contracting authority	<ul style="list-style-type: none"> View the administrative, financial and other information and documentation provided by the economic operators. Submit requests for clarifications to economic operators (when applicable). Access economic operator's data.
Economic Operators	<ul style="list-style-type: none"> Securely manage their Company Data. Prepare and submit self-declaration and qualification documents, in the form of ESPD documents. Provide clarifications and/or explanations.

4.7.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.6.2 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.8 eAuction

eAuction must **facilitate the configuration, coding of bidders and management of auctions** held electronically.

4.8.1 Description

The eAuction module must facilitate running of reverse electronic auctions. This allows the ranking of ‘lowest price’ and ‘price and other criteria’ based on an automated assessment method, according to the options prescribed by the contracting authority in the contract notice. Other criteria can be included in the eAuction module as quantifiable elements of quality, which can be expressed as a value suitable for incorporation within a formula. Contracting authorities should be able to set the parameters of the formula for each eAuction.

All communication, including the invitation to pre-qualified bidders (if pre-qualification is used) to submit new prices and/or values, must be made electronically in real-time.

The eAuction module will be based on the available Open Source code donated by the Transparency International Ukraine upon request of the European Bank for Reconstruction and Development.

The steps covered by an eAuction module are as follows:

- Once the qualification process has been completed, auction is scheduled. Successful bidders are coded with unique auction participant numbers and invited simultaneously by electronic means to participate in the price bidding.
- The electronic invitation states the connection details, and the date and time of the eAuction, which cannot be sooner than two working days after transmission of the invitation.
- The electronic invitation must provide information about the auction process and minimum differences required for a new bid, as well as the outcome of the initial evaluation if quality criteria are applied. Where the eAuction is to be conducted in phases, the invitation to participate must state the number of phases and associated timetable.
- The module should provide the bidder with auction status information during the course of the auction.
- The auction will follow the logic of the reverse auction, with a three-round competition, where each bidder will be able to place a bid three times in order to decrease his price and determine the winner of the price bidding.
- In each round, the bidder with the lowest price starts the next round. Each round will have a fixed amount of time during which bids can be placed.
- The auction can be closed by fixing the date and time in the invitation to participate. It can also be closed when no new prices or values that meet the minimum difference criterion are submitted, or when the specified phases are completed.
- At the end of the auction, the initial evaluation is combined with changes to values arising from the auction in an automated way to identify the winning bid.

eAuction module must be able to organise auctions for multi-position procedures, grouped into lots positions and/or separate (not grouped into lots) positions.

eAuction module can support ‘lowest price’ or ‘price and other criteria’ methods, depending on the decision published in the contract notice or tender documents. In the case of the price and other criteria method, any ‘quality’ features of the bid (i.e. terms of delivery or warranty) carried forward to the eAuction stage must be capable of being expressed as a value (figure or percentage), which can be incorporated within the formula that will be used to rank bids. Limits to quality values arising from specified requirements must be stated in the tender specifications and sent together with the invitation to participate.

The eAuction module will be initially developed during the pilot, so the present Technical Specification covers procedures with non-mandatory auction, if decided by the contracting authority and further development of the module to provide price and other criteria selections. Customisation may entail changes in the moment of the procedure when the eAuction is held, as well as specific changes in the procedure for bidding (i.e. changes in the number of rounds, etc.). The pilot has already implemented some functionalities such as ranking of bidders and possibility of using not only price criteria. Some of this functionalities, nevertheless, have not been put in practice yet.

In addition, an alert system will be implemented, which will automatically report to the PPA in case of abnormal auction outcomes.

Finally, the MTender Operator must be provided with an alert system that will automatically report technical problems with the eAuction or any irregular outcome of the bidding in the reverse electronic auction for any Contracting Authority.

eAuction is not the only financial evaluation mechanism available in Moldova, but it is the only one developed and integrated in the Central Database Unit.

4.8.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> eAuction evaluation mechanism is envisaged in the contract notice. The qualification process is completed and some bidders are invited to participate in the auction.
Post-conditions	<ul style="list-style-type: none"> An auction winner is selected. The auction results are transferred to the evaluation module so an awardee can be selected.

4.8.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eAU-001	Creation of eAuction	The module MUST allow the creation of a virtual workspace, where all eAuction related information can be stored.	YES
FR-eAU-002	Creation of eAuction	The virtual workspace MUST be accessible to authorised users only.	YES

#	Activity	Requirement	Pilot
FR-eAU-003	Creation of eAuction	eAuction activities, such as tenderers' placing of bids and displaying ranking of tenders, MUST be performed within this virtual eAuction workspace.	YES
FR-eAU-004	Creation of eAuction	The module MUST allow the configuration and management of different types of auctions, at least reverse auction.	YES
FR-eAU-005	Creation of eAuction	The eAuction module must be able to organise auctions for multi-position procedures, grouped into lots positions and/or separate (not grouped into lots) positions.	YES
FR-eAU-006	Dispatch of eAuction invitations to tenderers	The module MUST allow users to specify the exact date/time for the auction to start, to select the tenderers for invitation to the event, and to create an appropriate notification for the invitation to auction.	YES
FR-eAU-007	Dispatch of eAuction invitations to tenderers	The module MUST allow users to upload/attach documents, which MUST be sent to the tenderers, to explain how the auction will be conducted, all related terms/conditions, all technical requirements for connection/participation in the auction, and any other important information.	YES
FR-eAU-008	Dispatch of eAuction invitations to tenderers	The notification MUST be sent to tenderers using the eNotification module of the eProcurement system.	YES
FR-eAU-009	eAuction opening	The module MUST automatically be ready to start the auction when the pre-defined date/time is reached (and likewise, close the auction).	YES
FR-eAU-010	eAuction opening	The module MUST be able to check if the participating EOs have established their connection to the system.	YES
FR-eAU-011	Entering the eAuction room	The module MUST allow authorised users to access the virtual eAuction room in order to visualise and participate in the eAuction event.	YES
FR-eAU-012	Entering the eAuction room	The users MUST authenticate themselves in the system.	YES
FR-eAU-013	Entering the eAuction room	The module MUST prevent an EO from entering the eAuction room if they have not been invited by the CA, or attempt access before the date and time set for the beginning of the auction.	YES

#	Activity	Requirement	Pilot
FR-eAU-014	eAuction running	The eAuction room MUST display relevant information about the eAuction event to the user.	YES
FR-eAU-015	eAuction running	The tenderer identities MUST remain closed until the eAuction event is completed.	YES
FR-eAU-016	eAuction running	The whole operation of the eAuction MUST be fully automated; manual intervention by procurement officers ⁷ MUST not occur.	YES
FR-eAU-017	eAuction running	The module MUST allow for the running of test auctions or dummy auctions to identify any potential problems prior to the real auction event.	YES
FR-eAU-018	eAuction running	The module MUST allow for monitoring and visualisation of the auction in real-time.	YES
FR-eAU-019	Bid submission	The module MUST allow users to create and submit a bid during an eAuction event.	YES
FR-eAU-020	Bid submission	The module MUST ensure that the specifications of the auction are met (i.e. each bid is validated against the specifications to see if it is within the price range required by the auction).	YES
FR-eAU-021	Bid submission	If a bid is rejected for any reason, the module MUST inform the tenderer.	YES
FR-eAU-022	Monitoring of eAuction	The module MUST constantly check the status of the connections of the participating EOs.	YES
FR-eAU-023	Monitoring of eAuction	The module MUST notify the system administrators and the CA officials about connection disruptions.	YES
FR-eAU-024	Score calculation	The module MUST automatically evaluate and rank bids according to the pre-defined evaluation formula.	YES
FR-eAU-025	Score calculation	When a new valid bid is placed, the module MUST apply the pre-defined evaluation formula to the various bids and calculate the bid score.	YES
FR-eAU-026	Score calculation	The tenderers MUST be ranked according to the new bid score received (in the case of lowest price, the ranking is in ascending order, while in the case of the most economically advantageous tender, it is in descending order).	YES

⁷ Procurement Officers are the professional staff responsible for administering the procurement tasks within a contracting authority.

#	Activity	Requirement	Pilot
FR-eAU-027	Score calculation	The module MUST disclose to the tenderers their relative position in the auction during the event.	YES
FR-eAU-028	Score calculation	The details of the received bids will be only disclosed to tenderers and procurement officers according to the specifications of the auction.	YES
FR-eAU-029	eAuction closing	The module MUST automatically stop the eAuction event when the pre-defined conditions are met (i.e. time deadline, specific time without activity, etc.).	YES
FR-eAU-030	eAuction closing	For an eAuction event running in rounds, the module MUST constantly monitor the closure of each round. The closing of the final round constitutes the closure of the eAuction event itself.	YES
FR-eAU-031	eAuction closing	For an eAuction event running on time, the module MUST constantly monitor whether the pre-specified date/time is reached.	YES
FR-eAU-032	eAuction closing	The module MUST allow for the eAuction time period to be automatically extended in case a bid is received during the closing minutes of the eAuction event.	YES
FR-eAU-033	eAuction closing	The module MUST allow recording of all the activities performed in the eAuction module. These activities must be available for audit. The PPA will receive a report in case of an eAuction abnormal result.	YES
FR-eAU-034	eAuction closing	The module MUST provide a report with the auction result, with the name of the EOs, and with the last offer of each EO, which will be integrated into the Networking Electronic Procurement Platform's eEvaluation module.	YES
FR-eAU-035	Auction types	The module MUST allow the performance of Lowest price auction automated auction.	YES
FR-eAU-036	Auction types	The module MUST allow the performance of Lowest cost auction automated auction.	YES
FR-eAU-037	Auction types	The module MUST allow the performance of Multi-criteria auction in rounds automated.	YES
FR-eAU-038	Auction types	The module MUST allow the performance of auction with non-price criteria in the auction evaluation.	NO

4.8.4 User Actions

User	Possible actions
Contracting Authority	<ul style="list-style-type: none"> Define the type of auction and the evaluation criteria, either locally or by importing data from the eNotices or eSubmission modules. Carry out test runs of auctions prior to the live auction to ensure that online price bidding is working properly. Monitor EO connectivity issues during the auction and act accordingly. Communicate messages to EOs prior to the auction. Receive the results of eAuction.
Economic Operators	<ul style="list-style-type: none"> Submit bids in real-time and improve their bids during the rounds of the auction. Monitor the progress of their bid and bids of other EOs. Receive the results of eAuction.
Public Procurement Agency	<ul style="list-style-type: none"> Monitor the progress of the eAuction. Receive the results of eAuction.

4.8.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.7 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.9 eEvaluation

This module provides tools to support the **evaluation of tenders** by the contracting authorities.

4.9.1 Description

The eEvaluation phase covers all actions regarding the evaluation of bids (excluding eAuction), and the selection of an economic operator for the award of a public contract. The following types of evaluation shall be made available to CAs:

- Price ranking – automated ranking by lowest price in electronic reverse auction
- Price ranking – automated ranking by lowest price from Tender Form when electronic auction is not used for evaluation
- Price and other criteria with technical scoring –offline evaluation by tender committee is reported by procurement officer to the system by filling in evaluation forms and uploading scans of hard copy documents signed by tender committee
- Lowest cost ranking with value inputs by supplier in Tender Form, when no auction is used – automated ranking by sum of cost components from Tender Form;
- Price and other criteria with value inputs by supplier in Tender Form, when no auction is used - automated ranking by sum of values from Tender Form,
- Price and other criteria with value inputs by supplier during electronic auction – automated evaluation of price and other criteria;
- Price and other criteria with individual scoring against price and other criteria by each member of tender committee individually; no reporting by procurement officer.

The functionalities of the Networking Electronic Procurement Platforms eEvaluation module include:

- Once all bids/proposals are accessible it allows specifically authorised users (Procurement Officer or Evaluation Panel) to evaluate technical proposals or technical proposal and financial offers received and to create tender rankings.
- Procurement Officer/Evaluation Panel are required to provide scores for the technical and financial evaluation criteria, before ranking the tenders according to the pre-defined evaluation function.
- Alternatively, if automated evaluation is selected by the contracting authority, the system will automatically evaluate and rank bids submitted depending on the evaluation parameters defined for the procurement procedure in the Contract Notice.
- If eAuction is conducted, the outcomes of the eAuction will be registered in the eEvaluation module, as an input to evaluation.
- If eAuction is not envisaged in Contract Notice, the eEvaluation module will contain a tool for performing automated or semi-automated evaluation of Technical Proposals and Financial Offers.

Different types of evaluations shall be made available to CA/CE in stages and not all online workflows for eEvaluation will be available in initial phases of the implementation of the eProcurement system.

In pilot stages, semi-automated or offline qualification and evaluation will be permitted. Results of offline qualification or evaluation will be recorded on the eProcurement system by Procurement Officer, based on hard-copy reports duly prepared and signed upon completing qualification or evaluation procedures by the Procurement Officer/Evaluation Staff.

4.9.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> The qualification process has been concluded. If the procurement process had envisaged an auction, the auction has been concluded and the outputs are transferred to the eEvaluation module.
Post-conditions	<ul style="list-style-type: none"> An awardee is proposed and this information is transmitted to the eAwarding module, for generation of the award notice and notification. The procurement process can be cancelled, with no awardee selected.

4.9.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eV-001	Evaluation types	<p>The module MUST support the evaluation type:</p> <ul style="list-style-type: none"> 1) Price ranking – automated ranking by lowest price in electronic reverse auction 	YES
FR-eV-002	Evaluation types	<p>The module MUST support the evaluation type:</p> <ul style="list-style-type: none"> 2) Price ranking – automated ranking by lowest price from Tender Form when electronic auction is not used for evaluation 	YES
FR-eV-003	Evaluation types	<p>The module MUST support the evaluation type:</p> <ul style="list-style-type: none"> 3) Price and other criteria with technical scoring –offline evaluation by tender committee is reported by procurement officer to the system by filling in evaluation forms and uploading scans of hard copy documents signed by tender committee 	YES
FR-eV-004	Evaluation types	<p>The module MUST support the evaluation type:</p> <ul style="list-style-type: none"> 4) Lowest cost ranking with value inputs by supplier in Tender Form, when no auction is used – automated ranking by sum of cost components from Tender Form 	YES
FR-eV-005	Evaluation types	<p>The module MUST support the evaluation type:</p> <ul style="list-style-type: none"> 5) Price and other criteria with value inputs by supplier in Tender Form, when no auction is used - automated ranking by sum of values from Tender Form 	YES

#	Activity	Requirement	Pilot
FR-eV-006	Evaluation types	The module MUST support the evaluation type: <ul style="list-style-type: none"> 6) Price and other criteria with value inputs by supplier during electronic auction – automated evaluation of price and other criteria; 	YES
FR-eV-007	Evaluation process	For evaluation methods 1, 2, 4, 5, 6 – the system MUST allow the procurement officer to report in the system the compliance of technical proposal with technical specifications in Tender Documents. The compliance with technical specifications is being verified by tender committee on pass/fail basis and reported to the system by procurement officer by filling in evaluation forms based on hard copy documents signed by tender committee.	YES
FR-eV-008	Evaluation process	For evaluation methods 1, 2, 4, 5, 6 – the system MUST allow to upload scans of hard copy documents when evaluation forms are filled.	YES
FR-eV-009	Evaluation process	For evaluation method 2 – the system MUST allow the procurement officer to report in the system the compliance of technical proposal with technical specifications in Tender Documents. Tender committee undertakes offline full technical and financial evaluation by scoring and result of offline evaluation is reported to the system by procurement officer filling in evaluation forms based on hard copy documents signed by tender committee.	YES
FR-eV-010	Evaluation types	The module MUST support the evaluation type: <ul style="list-style-type: none"> 7) Price and other criteria other criteria with individual scoring against price and other criteria by each member of tender committee individually; no reporting by procurement officer 	NO
FR-eV-011	Evaluation process	Contracting Authorities MUST be able to select the type of evaluation to be applied in process.	YES
FR-eV-012	Evaluation process	The module MUST allow to perform a ranking of economic operators based on the scores obtained.	YES

4.9.4 User Actions

User	Possible actions
Contracting authority	<ul style="list-style-type: none"> Review automatically calculated scores. Approve evaluation report. Review the technical and financial bids. Access the tenders after they have been unlocked to enter scores for each criterion for all tenders and to complete/modify the evaluation report if it has been prepared by the system.

4.9.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.10 eAwarding

The module allows for awarding the contract and preparation of the contract, as well as notifying the stakeholders involved.

4.10.1 Description

This module allows preparation of the **contract award notice** (prepare data for the eNotice module) **and notification to awarded and non-awarded tenderers in standardised formats**. It ensures exchange of documents with the tenderer during the awarding phase.

The module will also prepare the contract award notice in a structured way, in order to be submitted to the eNotice module.

4.10.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> An awardee is selected.
Post-conditions	<ul style="list-style-type: none"> The awardee is notified and the contract is generated. The workspace for the contract administration is created.

4.10.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eAW-001	Support of Contract Award Notices	The module MUST support functionality of automated preparation and generation of the negative Contract Award Notices for cancelled lots (cancelled by CA before or during awarding period).	YES
FR-eAW-002	Support of Contract Award Notices	The module MUST support functionality of automated preparation and generation of the negative Contract Award Notices for unsuccessful lots where winner is not selected.	YES
FR-eAW-003	Support of Contract Award Notices	The module MUST support functionality of automated preparation and generation of the negative Contract Award Notices for unsuccessful lots where no bids were received during submission period.	YES
FR-eAW-004	Support of Contract Award Notices	The module MUST support functionality of automated preparation and generation of the negative Contract Award Notices for unsuccessful lots where period of validity for all received bids in expired.	YES
FR-eAW-005	Support of Contract	The module MUST support functionality of automated preparation and generation of the negative Contract Award Notices for unsuccessful lots.	YES

#	Activity	Requirement	Pilot
	Award Notices		
FR-eAW-006	Support of Contract Award Notices	The module MUST support functionality of automated preparation and generation of the positive Contract Award Notices for successful lots.	YES
FR-eAW-007	Contract Award Notices evaluation	The module MUST allow CA to cancel previously published positive Contract Award Notice (with relevant justification) in case if selected winner cannot confirm any required information or rejects the contract.	YES
FR-eAW-008	Contract Award Notices evaluation	The module MUST allow CA to step back to evaluation under specific lot in case if related positive Contract Award Notice was cancelled.	YES
FR-eAW-009	Contract Award Notices evaluation	The module MUST allow CA to upload information related to decision under specific lot - report on decision as document attached.	YES
FR-eAW-010	Support of Contract Award Notices	The module MUST allow CA to upload information related to decision under specific lot - report on decision as a set of machine-readable data).	YES
FR-eAW-011	Contract award notification	The module MUST notify the participating tenderers about the outcome of the evaluation and preparing the contract award notice.	NO
FR-eAW-012	Contract preparation	The module MUST support publication of all kinds of generated Contract Award Notices.	YES
FR-eAW-013	Contract preparation	The module MUST allow CA to initiate a contract preparation stage for supplier, selected under specific lot.	NO
FR-eAW-014	Contract preparation	The module MUST allow CA to initiate a contract preparation stage for supplier, selected under several lots.	NO

4.10.4 User Actions

User	Possible actions
Contracting Authority	<ul style="list-style-type: none"> Introduce relevant information for the generation of Contract Award Notices.

User	Possible actions
	<ul style="list-style-type: none"> • Send Contract Award Notices for publication. • Modify and resend Contract Award Notices for publication.
Economic Operators	<ul style="list-style-type: none"> • Receive notifications for the award of the contract. • Submit required documentation (only the awarded tenderer).

4.10.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.8.2 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.11 eContract Management

eContract Management is designed to **monitor a contract and its requests and changes once it has been signed**. This includes amendments and extensions, deliverables, and performance reports.

If not provided for in separated dedicated modules, the eContract Management shall also support eOrdering/ePurchasing functionalities, management of Framework Agreements, eCatalogues and centralised purchasing functionalities.

4.11.1 Description

eContract Management is the electronic enhancement of the management of receivables, payments, contract settlements, contract variations, performance securities, and audit and control activities. The eContract Management module will translate the stages of the current contract management process that can be executed electronically into electronic procedures. The implementation team will define the contract management process in the definition phase, if not already available, before translating it into the system. The process will include activities from the pilot regarding the registration of the contract, publication of contract milestones, payment schedules, modification to the contract (additional agreements), termination of the public contract, and closure of the contract. If the new procedures need a customisation of existing functionalities, these functionalities must be updated.

The present Technical Specification includes the development of functionalities for reception and approval of deliverables, generation and approval of payments, and monitoring and evaluation of goods, works and services purchased.

The module will display information on the status of the payment schedule. Other information, such as the total amount to be paid, the amount already paid, payment due dates, and other indicators to be defined will be displayed along with the status of the payment schedule, according to the data available from the State Treasury.

In order to allow auditing of the public procurement process and the execution of contracts, the State Treasury will access the eContract Management system and review all necessary information. Additionally, the State Treasury will be able to approve payments to economic operators and block the contract budget and payments, if necessary, through direct integration developed during the pilot.

The module will incorporate at least four different users with an active role in the Contract management role. These users will include the Public Procurement Agency, central purchasing bodies, contracting authorities and economic operators.

Four sub-processes for eContract Management have been defined as summarised below:

- **Modification without effect on the project budget – amendments.** Process for requesting and approving modifications to the contract not affecting the budget.
- **Modification with effect on the project budget – extensions.** Process for requesting and approving modifications to the contract that affect the budget.
- **Evaluation of project progress – for goods and services.** Process for reviewing the contract performance and the implementation status of a goods or service procurement.

- **Evaluation of project progress – for works.** Process for reviewing the contract performance and the implementation status of work procurement.

Additionally, the following procedures, yet to be defined, will be included in the system:

- **Creation and modification of the payment schedule:** It shall be possible to create a payment schedule for each contract, and relate it to milestones/deliverables of the good, service or work purchased. The module shall also allow modification of the payment schedule during the contract.
- **Issuing and acceptance of invoices:** The system must collaborate with the State Treasury to create and accept invoices. The process must be linked to the evaluation of project progress and the payment schedule. Invoices will be created with eFactura.
- **Processing of payments:** The State Treasury is responsible for executing payments. The eProcurement system must receive and register the data regarding payments made by the State Treasury in the contract file. To that end, connection to the State Treasury data will be developed (see Section 3.5).

During the pilot, the functionalities developed allow for contract generation, contract signing and contract registration in the Treasury. However, although the system allows for contract amendment, modifications are not registered in the Treasury systems. Currently, the system does not process invoices or payments, nor tracks the contract execution.

The present Technical Specification includes the update and adaptation of the module to service additional functionalities and procurement procedures not developed during the pilot, as well as developing the Framework Agreements and aggregated purchasing functionalities.

4.11.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> • A contract has been signed and initiated. • The contract administration workspace is set.
Post-conditions	<ul style="list-style-type: none"> • The contract can be amended or extended. • Payments can be made. • Additional features can be executed (eOrdering, framework agreements management, DPS management and eCatalogues management).

4.11.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eCM-001	Module interface	The module MUST be accessible from the Networking Electronic Procurement Platforms and the cabinets for single users and follow the same look and feel as the eProcurement web portal.	YES

#	Activity	Requirement	Pilot
FR-eCM-002	Module interface	The front-end eContract management module MUST be user-friendly.	YES
FR-eCM-003	Generation of contract documentation	The contract MUST be generated by taking the tender documentation as a basis.	YES
FR-eCM-004	Generation of contract documentation	A unique identification code MUST be assigned to each contract based on OCDS. Tracking with the tender procedure MUST be possible.	YES
FR-eCM-005	Contract formalisation	The module MUST allow the set-up of a checklist for contract annexes verification.	NO
FR-eCM-006	Contract formalisation	Basic information of the contract guarantees and their status MUST be registered.	NO
FR-eCM-007	Notifications	Automatically generated notifications MUST be made when certain actions in the contract management occur.	YES
FR-eCM-008	Notifications	The module MUST allow the manual generation of notifications by all actors involved in the contract management process when necessary.	NO
FR-eCM-009	Notifications	The module MUST allow the configuration of different alerts and reminders (i.e. notifications from EOs or CAs, proximity of a contract milestone, etc.).	NO
FR-eCM-010	Down payment	The module MUST allow the approval of down payments.	NO
FR-eCM-011	Down payment	The module MUST allow the creation of the down payments management plan.	NO
FR-eCM-012	Contract modifications	Contract modifications MUST be conducted (extensions and amendments, at minimum).	NO
FR-eCM-013	Payments	The module MUST display the payment schedule with information regarding the total amount to be paid, the amount already paid, payment due dates, and other indicators to be defined along with the status of the payment schedule.	NO

#	Activity	Requirement	Pilot
FR-eCM-014	Payments	The module MUST allow the generation of a unique authorisation payment code associated to the payment value approved.	NO
FR-eCM-015	Payments	The economic operator MUST be able to submit electronic invoices or to attach scanned copies of invoices and associate them to the corresponding authorisation payment code.	NO
FR-eCM-016	Payments	Authorised users MUST be able to create and modify the payment schedule.	NO
FR-eCM-017	Payments	The payment schedule MUST be able to link payments to the acceptance of deliverables or evaluations of performance of the services, goods or works purchased.	NO
FR-eCM-018	Payments	The process to carry out payments MUST be included in the system, as defined in the definition phase.	NO
FR-eCM-019	Invoices	The process to exchange invoices MUST be included in the system, as defined in the definition phase.	NO
FR-eCM-020	Invoices	Users MUST have the possibility to search and navigate submitted invoices.	NO
FR-eCM-021	Monitoring and controlling	The module MUST allow assignment of a supervisor for the contract and the identification of the contract controller.	NO
FR-eCM-022	Monitoring and controlling	The module MUST allow for an evaluation of the project performance (project progress of works and services contracts, at least) to be conducted.	NO
FR-eCM-023	Monitoring and controlling	The module MUST allow for the setting up and monitoring of the execution schedule and contract payment plan.	NO
FR-eCM-024	Monitoring and controlling	The module MAY allow for the setting up of task checklists for the contract supervisor or the contract controller.	NO
FR-eCM-025	Monitoring and controlling	The module MUST allow the registration and control of contract changes through a visualisation tool (deadlines, contract value, contract guarantee, etc.) that keeps an historical tracking.	NO

#	Activity	Requirement	Pilot
FR-eCM-026	Monitoring and controlling	The contract supervisor or the contract controller MUST be able to register in the eContract Management module the receipt of products purchased (goods, services or others).	NO
FR-eCM-027	Monitoring and controlling	The module MAY allow the evaluation of the products (goods, services or others) received through a pre-defined evaluation form.	NO
FR-eCM-028	Monitoring and controlling	The module MUST allow registration in the system of whether the economic operator has failed or succeeded in complying with the requested requirements of a service, work or good purchased.	NO
FR-eCM-029	Monitoring and controlling	The module MUST allow searches of the contracts according to the user permissions level (i.e. contracting authorities will only be allowed to see their own contracts, while the system administrator will be able to see all the contracts in the system).	NO
FR-eCM-030	Monitoring and controlling	The module MUST allow the configuration of a checklist of contract deliverables, displaying information about their delivery status, and allow its modification.	NO
FR-eCM-031	Monitoring and controlling	CAs MUST be able to export information about contracts they are involved with.	NO
FR-eCM-032	Monitoring and controlling	CAs MUST be able to upload scanned copies of bank securities for the project (i.e. performance security, advanced payment security, etc.).	NO
FR-eCM-033	Monitoring and controlling	In order to allow the auditing of the public procurement process and the execution of contracts, the State Treasury MUST be able to access to the eContract Management system and review all necessary information.	NO
FR-eCM-034	Monitoring and controlling	The State Treasury MUST be able to approve payments to economic operators and block the contract budget and payments if necessary.	NO
FR-eCM-035	Contract closing	The module MUST allow the closure of the contractual relationship according to the law.	YES
FR-eCM-036	Contract closing	The module MUST allow the set-up and monitoring of the contract closure schedule and subsequent activities.	NO
FR-eCM-037	Contract closing	The module MUST have an alert system that notifies users of an upcoming deadline of the guarantee period, in order to start the process of returning it to economic operators.	NO

#	Activity	Requirement	Pilot
FR-eCM-038	Users and user permission generation	The module MUST allow the interaction of different users with different roles within the system.	NO
FR-eCM-039	Users and user permission generation	The module MUST allow the assignment of different roles to users involved in the contract management process according to their function.	NO
FR-eCM-040	Contract preparation	The module MUST support a functionality of contract preparation stage: updating of automatically prepared draft with additional required or needed information before contract is generated and sent to be signed by parties	YES
FR-eCM-041	Contract preparation	The module MUST support a confirmation mechanism for CAs and EOs actions under specific contract preparation stage (i.e. digital signature)	YES
FR-eCM-042	Contract preparation	The module MUST support step-by-step process of contract approval: signed by CA, signed EO, approved/rejected by State Treasury.	YES
FR-eCM-043	Contract preparation	The module MUST support online signing through MSign	YES
FR-eCM-044	Contract preparation	The module MUST support ability to confirm/reject a contract during contract preparation stage by any involved party according to prescribed flow	YES
FR-eCM-045	Contract preparation	The module MUST allow CA to cancel specific contract preparation stage any time before the contract send to State Treasury for verification and registration	YES
FR-eCM-046	Contract preparation	The module MUST allow Validating budget (IBAN) with the Treasury and buyer and supplier data with registers using MConnect data, generating electronic doc of contract and online signing of the contract for three types of contracts: goods, works, services, on updated contract templates	YES
FR-eCM-047	Contract preparation	The module MAY allow CA to request any additional confirmations from EO (except general approval by EOs' contracting Authority)	YES
FR-eCM-048	Contract preparation	The State Treasury MUST be able to approve/reject generated contract signed by Parties	YES
FR-eCM-049	Contract preparation	The system MUST allow the generation and online signing aggregated contract for multi-lot procedures (merged contracts)	YES

4.11.4 Additional eContract Management functionalities

The eContract Management module will integrate several functionalities in order to manage processes associated with second stage competition processes, centralised purchasing, and other contract management related activities.

4.11.4.1 ePurchasing/eOrdering

The eContract Management module will manage the ePurchasing/eOrdering functionalities, through which contracting authorities will be able to issue orders for a signed contract.

4.11.4.1.1 Description

ePurchasing/eOrdering begins with the issuance of an order by a CA and ends with the receipt of the order response by the supplier, via electronic means. The process may include an order change or cancellation from the buyer and shipping/dispatch and advice from the supplier.

Additionally, the ePurchasing/eOrdering module will allow contracting authorities to request prices from the different providers or provider awarded with a contract, and to compare in a user-friendly way the prices offered.

4.11.4.1.2 Functional requirements

#	Activity	Requirement	Pilot
FR-ePC-001	ePurchasing/eOrdering	The module MUST allow issuance of orders to suppliers within a contract and producing an order report.	NO
FR-ePC-002	ePurchasing/eOrdering	The module MUST allow users to reject or modify purchase orders and to add comments for revision, if necessary, to purchase orders.	NO
FR-ePC-003	ePurchasing/eOrdering	The module MUST allow users to request prices from economic operators within the contract that the economic operators are awarded.	NO
FR-ePC-004	ePurchasing/eOrdering	The module MUST allow listing and comparing the prices offered by economic operators.	NO
FR-ePC-005	ePurchasing/eOrdering	The module MUST allow management of the delivery notes and the production of invoices (using the government eInvoicing module: eFactura).	NO
FR-ePC-006	ePurchasing/eOrdering	The module MUST allow production and issuance of certificates of delivery upon the goods, works and services received.	NO

4.11.4.1.3 User Actions

User	Possible actions
Contracting Authorities	<ul style="list-style-type: none"> • Issuance of purchase order against an existing contract; • change, modification or cancellation of the purchase order; • request prices from different suppliers awarded with a contract and compare them.
Economic Operators	<ul style="list-style-type: none"> • Review, accept, reject or propose modifications to a purchase order; • provide prices upon request of a contracting authority.

4.11.4.1.4 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.11.4.2 Framework agreements management

A framework agreement is an agreement between one or more contracting authorities and one or more economic operators, the purpose of which is to establish the terms governing contracts to be awarded during a given time limit, in particular with regard to price

4.11.4.2.1 Description

The eContract Management module will allow the creation of a new tender procedure originated from a Framework Agreement (FA). This procedure will allow the contracting authority to undertake a new procedure starting with the preparation of the tender (eAccess phase).

The new tender procedure originated from the FA will maintain the characteristics of the FA. Specifically, the FA contract value will be assigned to the new procedure and the object of the contract shall remain immovable. The contract resulting from the procedure will have a link to the FA from which it originated.

On the file of the FA contract, the value allocated to the new procedure, once awarded, will be displayed, and the payments made will be registered.

The system will allow to conduct four different types of framework agreement procedures, in accordance to UNCITRAL Model Law⁸. The four types of framework agreements arise from the two different dimensions of two axis:

- Open or Closed, based on whether it allows the incorporation of new suppliers during the period of execution of the framework:

⁸ UNCITRAL Model Law (2011) <http://www.uncitral.org/pdf/english/texts/procurem/ml-procurement-2011/2011-Model-Law-on-Public-Procurement-e.pdf>

- **Closed framework agreement:** it means a framework agreement to which no supplier or contractor that is not initially a party to the framework agreement may subsequently become a party;
- **Open framework agreement:** it means a framework agreement to which a supplier (or suppliers) or a contractor (or contractors) in addition to the initial parties may subsequently become a party or parties;
- With or without second stage competition for selecting the supplier involved in the provision of the service:
 - **Framework agreement procedure with second-stage competition**, (second-stage competitions are also called call-offs or mini-competition): it means a procedure under an open framework agreement or a closed framework agreement with more than one supplier or contractor in which certain terms and conditions of the procurement that cannot be established with sufficient precision when the framework agreement is concluded are to be established or refined through a second-stage competition;
 - **Framework agreement procedure without second-stage competition:** it means a procedure under a closed framework agreement in which all terms and conditions of the procurement are established when the framework agreement is concluded;

During the MTender pilot, the modality implemented was the closed framework agreement with second-stage competition, being second competitions conducted through price quotation only. The complete capacities for framework agreements, including all types of procedures as prescribed by UNCITRAL, will be developed by the contractor during the full deployment of the system.

The FA shall have a FA administrator (CPB) and can have one or several CAs that can make use of the FA to purchase goods, services or works. The Framework Agreements module shall only be available to those contracting authorities that are participants of a Framework Agreement.

Only EOs that are participants to a FA will have access to the FA module and be invited to forthcoming tendering procedures.

4.11.4.2.2 Functional requirements

#	Activity	Requirement	Pilot
FR-eFA-001	FA creation	The module MUST allow to initiate a new tendering process for a Framework Agreement over the basis of a previous FA.	NO
FR-eFA-002	Framework agreements	The module MUST facilitate the management of framework agreements, allowing the contracting authority manager of the framework agreement to start a new procedure within the framework agreement (second competition).	NO
FR-eFA-003	Framework agreements	The new tendering procedure originating from the FA shall maintain the characteristics of the FA.	NO

#	Activity	Requirement	Pilot
FR-eFA-004	Framework agreements	The contract resulting from the procedure will have a link to the FA from which it originated.	NO
FR-eFA-005	Framework agreements	The FA related procedure MUST start in the preparation phase (eAccess, preparation of tender documentation and its upload).	NO
FR-eFA-006	Second competition	The module MUST allow different kinds of second competition as defined in procurement procedures: <ul style="list-style-type: none"> • Direct award (under a certain threshold) • Purchasing contract under Multi Fixed Terms Close Framework agreement • Purchasing contract under Multi Open Framework Agreement • Purchasing under Single Fixed Terms Closed Framework Agreement 	NO
FR-eFA-007	FA modification	The module MUST allow for the modification of the Framework Agreement (contract modification, contract extension, contract closing).	NO
FR-eFA-008	FA browsing	The module MUST facilitate the browsing of the Framework Agreements. This MUST be performed in a human readable format.	NO
FR-eFA-009	FA browsing	The module MUST allow authorized users (initially, those who are responsible for a given Framework Agreement, but can be redefined during definition phase) to access the Framework Agreement record.	NO
FR-eFA-010	Second competition	The module MUST guarantee that only CAs that are participants to a FA will have access to this FA workspace and can initiate second stage tendering procedures.	NO
FR-eFA-011	Second competition	The module MUST guarantee that only EOs that are participants to a FA will have access to this FA workspace and be invited to forthcoming tendering procedures.	NO
FR-eFA-012	Second competition	The module MUST guarantee that the EOs awarded with contracts within the FA are participants to the FA.	NO
FR-eFA-013	FA browsing	The module MUST allow authorized users to initiate second competition procedures, upon their permissions.	NO

#	Activity	Requirement	Pilot
FR-eFA-014	FA execution control	The module MUST facilitate the control of the FA budget execution, consolidating the contract value of awarded contracts within a FA.	NO
FR-eFA-015	FA execution control	The system MUST notify the FA manager when the FA duration is about to end. The duration remaining that trigger the alert will be decided in the definition phase.	NO
FR-eFA-016	FA closing	The module MUST allow to close a Framework Agreement upon completion of contract period or other justified causes.	NO

4.11.4.2.3 User Actions

User	Possible actions
Contracting Authority	<ul style="list-style-type: none"> To Create/Edit/Update and publish a call for competition (mini-competition) within a framework agreement, taking into account the type of framework agreement and its conditions; invite all admitted participants to submit a bid for a second-stage competition under the Framework Agreement; monitor the execution of the framework agreement budget.
Economic Operators	<ul style="list-style-type: none"> Access to tendering processes opened and to which the EO has been invited; submit or update a tender for a second-stage competition; browse through the tendering processes closed and access the bids submitted (for those for which bids have been submitted).

4.11.4.2.4 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.11.4.3 Dynamic Purchasing System

The Dynamic Purchasing System (DPS) is a completely electronic procedure for purchasing works, services and goods generally available on the market.

4.11.4.3.1 Description

The rules to be followed by the contracting authority to set a DPS are those of the restricted procedure. All the candidates satisfying the selection criteria shall be admitted to the system, and the number of candidates to be admitted to the system shall not be limited. Where contracting

authorities have divided the system into categories of products, works or services, they shall specify the applicable selection criteria for each category.

Contracting authorities shall give any economic operator, throughout the entire period of validity of the DPS, the possibility of requesting to participate in the system.

The DPS might be divided into categories of products, works or services that are objectively defined on the basis of characteristics of the procurement to be undertaken under the category concerned. Such characteristics may include reference to the maximum allowable size of the subsequent specific contracts or to a specific geographic area in which subsequent specific contracts will be performed.

The DPS involves a two-stage procurement process. First, in the initial setup stage, all Economic Operators who meet the selection criteria and are not excluded must be admitted to the DPS. The steps followed in the first stage are:

1. Establishment of DPS: The module must automatically establish a DPS workspace when a Contracting authority publishes a notice for restricted procedure to establish a DPS. This initial DPS set-up phase only covers the exclusion and selection criteria. The TED contract notice should specify the nature of the requirements and the approximate quantities or values envisaged.
2. Economic Operator request: Any Economic Operator must be able to request to participate to a DPS, subject to registration in the system. Economic Operators should “self-certify” their compliance with the selection requirements and confirm that none of the grounds for exclusion apply.
3. Evaluation of requests: The Contracting Authorities must ensure that the Economic Operators fulfil with the selection criteria within 10 working days of receipt; this may be extended to 15 working days if justified. All Economic Operators who meet and pass the exclusion and selection criteria must be admitted to the DPS and/or the relevant categories within it. The system must be prepared for configuring forms that allow the automatic evaluation of requests, though also other non-automatic ways of evaluation may be used.

Individual contracts are awarded during the second stage. In this stage, the authority invites all Economic Operators on the DPS to bid for the specific contract. The steps included in this stage are:

4. Invitation to submit tender: The Contracting Authorities must invite all Economic Operators admitted to the DPS who meet and pass the exclusion and selection criteria to submit a tender and set the time-limit for tender submission.
5. Submit a tender: The Economic Operators must submit the tenders and the module must record the exact time and date of the receipt of the tender and store tender in a protected area.
6. Open and evaluate tenders: The Contracting Authorities must open the tenders and evaluate and rank tenders based on the evaluation method defined at the establishment of the DPS. The system must allow for each DPS to define the necessary committees, each one with a number of people, profiles and roles assigned. The module must report tender integrity and

authenticity and report data/locking infringements and violation of any confidentiality rules.

7. Contract Award: The Contracting Authorities must create/edit/update Contract Award Notice and dispatch Contract Award Notice to TED and the system for publication. They have to notify tenderers on the award of the contract and the awarded tenderer is invited to conclude / sign the contract. Only the awarded Economic Operators should be expected to provide documentary evidence of their status.

4.11.4.3.2 Functional requirements

#	Activity	Requirement	Pilot
FR-eDPS-001	DPS configuration	The module MUST ensure that all the steps of a DPS are performed in an electronic way.	NO
FR-eDPS-002	DPS configuration	The module MUST allow dividing the DPS into categories of works, services or goods, which are objectively defined on the basis of characteristics of the procurement to be undertaken under the category. The characteristics used to define a category MAY include indicative value of the contract or geographical area of contract delivery.	NO
FR-eDPS-003	DPS configuration	The module MUST ensure that all DPS have a limited duration and are open to all Economic Operators that fulfil the exclusion criteria.	NO
FR-eDPS-004	DPS configuration	The module MUST admit all Economic Operators which comply with the selection criteria (the number of Candidates cannot be limited).	NO
FR-eDPS-005	DPS configuration	The procurement documents MUST be made freely available electronically from the date of the advert. These procurement documents MUST remain available electronically throughout the duration of the DPS.	NO
FR-eDPS-006	DPS participation	Economic Operators SHOULD “self-certify” their compliance with the selection requirements, and confirm that none of the grounds for exclusion apply, in order to gain admittance to the DPS.	NO
FR-eDPS-007	DPS participation	The module SHOULD ask the Economic Operator to confirm that the documents submitted under previous contract are still applicable, and only provide new documents as preceding ones expire, or circumstances change.	NO

#	Activity	Requirement	Pilot
FR-eDPS-008	DPS participation	The module MUST allow the Economic Operators to join the DPS at any point during its validity if they satisfy the selection requirements, and none of the grounds for exclusion apply.	NO
FR-eDPS-009	DPS participation	The authority is required to evaluate these Economic Operators' requests within 10 working days of receipt; this may be extended to 15 working days if justified.	NO
FR-eDPS-010	DPS participation	The system MUST notify contracting authorities of new requests by Economic Operators for participation in the DPS.	NO
FR-eDPS-011	Award system	Once the DPS is set up, the system MUST allow Contracting authorities to award specific contracts using a DPS that they are entitled to use by inviting all Economic Operators admitted to the relevant category to bid.	NO
FR-eDPS-012	Award system	The award criteria to be used for the award of individual contracts are to be set out in the original contract notice.	NO
FR-eDPS-013	Award system	The award process and permissible award criteria are consistent with those of the restricted procedure; the minimum timescale for return of tenders is 10 days.	NO
FR-eDPS-014	Award system	The authority may choose to require that tenders for a specific contract comprise or include electronic catalogues, adapted to the specific requirement, in which case the authority should have asked the Economic Operators request to participate to be accompanied by a catalogue.	NO
FR-eDPS-015	Award system	Contract award notices MUST be published for specific contracts awarded under the DPS.	NO

4.11.4.3.3 User Actions

User	Possible actions
Contracting Authorities	<ul style="list-style-type: none"> To Create/Edit/Update and publish a call for competition making it clear that a Dynamic Purchasing System is involved. Offer unrestricted and full direct access, as long as the system is valid, to the procurement documents in conformity. Inform the Economic Operator concerned at the earliest possible opportunity of whether or not it has been admitted to the Dynamic Purchasing System.

User	Possible actions
	<ul style="list-style-type: none"> • Invite all admitted participants to submit a tender for each specific procurement under the Dynamic Purchasing System. • To Create/Edit/Update and publish the Contract Award Notice, to dispatch Contract Award Notice to TED and to make the national publication in the system.
Economic Operators	<ul style="list-style-type: none"> • Submit their request to participate in a DPS. • Submit or update a tender for a second-stage competition.

4.11.4.3.4 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.11.4.4 eCatalogues

The eContract Management module will include the functionalities that allow the creation of eCatalogues and submission of orders for products or services included in the electronic catalogue.

4.11.4.4.1 Description

eCatalogues are used by economic operators to describe goods or services offered for sale and may be used by contracting authorities to purchase goods or services, or to obtain product or pricing details. They can be a component of both the tendering (pre-award) and the purchasing (post-award) processes.

eCatalogues must be electronic documents created by the economic operators that can serve to automate the submission of offers and orders in a public procurement process. In particular, eCatalogues are expected to be useful in repetitive purchasing procedures, where the same data (administrative or item-related) may be exchanged and reused several times.

The eCatalogues module shall cover the entire cycle of the eCatalogues lifecycle from the creation of the catalogue in the system by economic operators to the issuing of purchasing orders associated to the catalogue by contracting authorities.

The creation of eCatalogues and the issuing of offers are represented as follows:

1. Contracting authority: initiation of the catalogue submission process and accreditation of economic operators.
2. Economic operator: preparation of the electronic catalogue, uploading products/services, prices and stocks.
3. Contracting authority: acceptance/rejection of the economic operator's catalogue.
4. Contracting authority: preparation of the request for goods or services by searching products in economic operator-managed catalogues, quickly and easily.
5. Contracting authority: sending of the request, together with the required documents.
6. Economic operator: receipt of the request for goods or services, and acknowledgement of receipt sent to the contracting authority.
7. Economic operator: confirmation of willingness to make an offer.
8. Economic operator: preparation and sending of the proposal to the contracting authority.

9. Contracting authority: analysis of the proposal made by the economic operator and proposal acceptance (or refusal).
10. Economic operator: submission of the formal offer.
11. Contracting authority: produce and send purchasing orders to economic operators automatically.
12. Economic operator: approval of the purchasing orders.

4.11.4.4.2 Functional requirements

#	Activity	Requirement
FR-eCAT-001	eCatalogues creation	The module MUST be able to automatically create a Catalogue Workspace for conducting a procurement procedure based on eCatalogues and/or as a result of the preceding procurement process.
FR-eCAT-002	eCatalogues creation	The module MUST validate that all information is provided, in order to properly create the Catalogue Workspace. The module MUST detect any technical error and non-compliance with business rules (e.g. value out of a range, etc.) which might occur during the electronic catalogue submission.
FR-eCAT-003	eCatalogues creation	The module MUST allow the assignation of different roles to users involved in the eCatalogues process.
FR-eCAT-004	eCatalogues creation	EOs MUST be able to upload a catalogue within the eCatalogues Workspace and update eCatalogues if necessary.
FR-eCAT-005	eCatalogues creation	CAs MUST be able to review a submitted catalogue before its Items are made available for purchasing.
FR-eCAT-006	eCatalogues creation	Catalogues with a start date in the future MUST be made active for purchasing once the defined start date is reached.
FR-eCAT-007	eCatalogues creation	The module MUST provide a workflow service so that once received the electronic catalogue is automatically routed to a predefined approval workflow. These workflows can be fully automated (i.e. no Human intervention) or semi-automated (i.e. requiring some step(s) of human intervention).
FR-eCAT-008	eCatalogues creation	The module MUST provide a multi-step approval workflow which enables the approval of the catalogue by several roles of the leading organisation.

#	Activity	Requirement
FR-eCAT-009	eCatalogues creation	In the context of the approval workflow, the module MUST notify the approver that a catalogue created request or updated request requires his/ her approval.
FR-eCAT-010	eCatalogues browsing	The module MUST facilitate the browsing of the electronic catalogues. This MUST be performed in a human readable format.
FR-eCAT-011	eCatalogues browsing	CAs MUST be able to compare catalogue items from different EOs by different variables such as price, product specifications, etc.
FR-eCAT-012	eCatalogues browsing	CAs MUST be able to add catalogue items in a shopping cart after accessing the details of an item.
FR-eCAT-013	eCatalogues browsing	CAs must be able to modify the shopping cart, allowing them to remove items, clear all items, see total value of items in the cart and initiate the purchase order.
FR-eCAT-014	eCatalogues browsing	The module MUST allow customers to search through the electronic catalogue. This search should allow the usage of, at least, the following parameters: <ul style="list-style-type: none"> • Latest contract amendment version • Catalogue classification identifier • Product or service description Product or service characteristics
FR-eCAT-015	eCatalogues orders	The module MUST facilitate the use of the electronic catalogue for the creation of orders.
FR-eCAT-016	eCatalogues orders	The module MUST acknowledge the receipt of the electronic catalogue once the Economic Operator submits it.
FR-eCAT-017	eCatalogues modification	The module MUST support the modification of the electronic catalogue and linking to the contract amendment functionality of the system.
FR-eCAT-018	eCatalogues modification	The module MUST support the versioning of the Catalogue. For this purpose, the electronic catalogue MUST at least include the following data: <ul style="list-style-type: none"> • Catalogue ID • Issue Date • Catalogue Version • Contract reference

#	Activity	Requirement
FR-eCAT-019	eCatalogues modification	The module MUST support the archiving of each version of the electronic catalogue. This is especially relevant as part of the updating process.
FR-eCAT-020	eCatalogues modification	The module MUST enable the automatic comparison of two versions of the same Catalogue.
FR-eCAT-021	eCatalogues modification	The module MUST enable retrieving of each version of the electronic catalogue.
FR-eCAT-022	eCatalogues creation	The electronic catalogue MUST enable the complete, accurate and uniform description of the offered products and/or services, prices, etc. facilitating their automated processing. The data scheme enclosing these data definitions should be understandable both at the level of the logical concept and also at the level of its applicability. It should be equally based on simple and widespread formats, which can be accommodated through the use of electronic catalogue standards.
FR-eCAT-023	eCatalogues creation	The module MUST facilitate the import of well-defined catalogues in commonly used formats. In this case the approval process should consider the catalogue as approved.
FR-eCAT-024	eCatalogues browsing	The module MUST facilitate the export of well-defined catalogues in commonly used formats.
FR-eCAT-025	eCatalogues closing	The system should control the validity of the electronic catalogue content (including the associated services). Once the validity period of the product of the electronic catalogue is expired then these products should be marked as no longer valid (i.e. not available for purchasing). Once the validity period of the associated services of the products of the electronic catalogue is expired, these associated services should be marked as no longer valid (i.e. not available for purchasing).
FR-eCAT-026	eCatalogues closing	Catalogues MUST be deactivated once their end date is reached.

4.11.4.4.3 User Actions

User	Possible actions
Contracting authorities	<ul style="list-style-type: none"> • Consult products/services, prices, stock, etc. • Compare products services and prices. • Order products/services. • Set deadlines for submission of offers and additional documents. • Request additional information or clarifications from EOs.
Economic operators	<ul style="list-style-type: none"> • Create the electronic catalogue and update it. • Accept, reject, accept with changes, or modify (if justified) the purchasing orders. • Offer/request additional information or clarifications from CAs.

4.11.4.4.4 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.11.5 Link to MTender technical documentation

For more information, you can find the technical description of this module in the section 3.3.9.2 of the latest version of the technical document, ‘Architecture of the OCDS Open Source Central Unit for Networking Digital Public Procurement System’.

4.12 eMonitoring

This module must allow **data extraction** as well as **access to reports and analysis** of the data stored in the database. The module will follow the model developed by Transparency International to monitor and analyse public procurement data.

4.12.1 Description

The eMonitoring module will follow the model developed by Transparency International, and building on Open Government principle and Advanced Open Contracting Data Standards (OCDS). The Transparency International module recommends three tools to facilitate open data access, monitoring and reporting of public procurement:

- Open access to public procurement information (Open Data Observer);
- Public procurement analysis and investigation (Open Data Explorer);
- Civil Society monitoring portal (Feedback Tool).

The **Open Data Observer**⁹ is a web-based tool open to general public and civil society and its goal is to provide easy access to basic procurement statistics. On the Open Data Observer various default reports on public procurement are available and kept up to date to allow quick access to key public procurement information (i.e. procurement value per supplier, per type of procedure, a number of complaints analysis, etc.).

It can be developed building on <http://opencontracting.date.gov.md/>, an Open Data portal launched by the Government of Moldova in 2016 and shall include, as a minimum, default reports for key performance indicators, annual and individual procurement plan progress report for the GPA and AA implementation, a dashboard for complaints and remedies decisions analysis, and a dashboard for central purchasing bodies.

The **Open Data Explorer** is designated for specialist users, serving as watchdogs or with other enforcement authorities that need a deeper understanding of the public procurement market data. The access is restricted to authorised users only. It is expected to be used by:

- Enforcement bodies (i.e. Competition Council, Court of Accounts, State Treasury, etc.)
- Watchdogs;
- International donors/partners.

The Open Data Explorer will access the same OCDS structured public procurement data as the Open Data Observer, along with additional analytical functionalities, designed for professional users. The key analytical features are the following:

- Instant user-defined reporting: each user can personalise their reports and flag indicators;

⁹ An example of the implementation of the TI model for Observer Tool can be consulted here: <http://bi.prozorro.org/en> for the Ukraine case.

- risk management and visualisation (red flags): the tool has developed a red flag system that alerts the user about any possible irregularity in a particular procedure;
- tools for teamwork and collaboration.

The Open Data Explorer also allows obtaining the details of each tender besides the whole public procurement aggregated information. In order to obtain data from the eProcurement system, both the Open Data Observer and the Open Data Explorer execute a periodical copy of the data to another server, and an analysis of this copy is performed. This process prevents the Central Database Unit database from being overloaded with information requests, and also ensures that eProcurement transactions run smoothly, without interference from the eMonitoring module.

The Open Data Explorer will be integrated into a dashboard presenting historical data on public procurement.

Finally, the **Feedback Tool** is a platform where process stakeholders can provide feedback to a state procurement entity or supplier, discuss and assess the conditions of a specific procurement, analyse procurements of a specific government authority or institution or prepare and submit a formal appeal to the oversight bodies. The Feedback tool enables civil society and media representatives to discuss a specific tender with potential and existing suppliers, hear their expert opinion on the correctness of the wording in the Tender Documents, etc.

Contracting authorities have a chance to go beyond appraising a certain vendor and analyse feedback from businesses to amend the procurement process, and even create their own risk management system.

During the pilot, the Open Data Explorer was partially developed and is being used by some internal users only (Ministry of Finance, PPA). Besides, the OCDS export has been implemented, although the data has not been made public yet.

4.12.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> • A considerable amount of public procurement procedures have been conducted in the eProcurement system.
Post-conditions	<ul style="list-style-type: none"> • Policy measures can be taken based on the evidence analysis.

4.12.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eM-001	Reporting and analytics	The module MUST allow searching of data by different criteria such as CA, EO, type of procedure, etc.	NO
FR-eM-002	Reporting and analytics	The module MUST allow visualisation of online data in an understandable manner, such as dashboards, tables or the most suitable format for each type of data.	NO

#	Activity	Requirement	Pilot
FR-eM-003	Reporting and analytics	The module MUST have a user-friendly report generator to allow authorised users to create reports as well as screen queries and dashboards, using all the data stored in the system database(s).	NO
FR-eM-004	Reporting and analytics	CAs MUST be able to prepare regulatory reports, which will provide information on all aspects of public procurement procedures, including reports mandatory for GPA and AA.	NO
FR-eM-005	Reporting and analytics	The module MUST support the discovery and communication of meaningful patterns in data to facilitate better decision-making. Once a report has been produced, the module MUST provide: <ul style="list-style-type: none"> the facility to preview the report on the screen; the facility to allow reports to be emailed/downloaded as PDF documents; the ability to export the data selected to spreadsheet format (xls, csv) and/or other standard desktop applications. 	NO
FR-eM-006	Data access	All eMonitoring tools (Observer Tool, Explorer Tool and Feedback Tool) must be accessible from the web portal. The Explorer Tool will only be open to authorised users while the Observer Tool and the Feedback Tool will be open to everyone.	NO
FR-eM-007	Data structure	The data shown MUST follow OCDS standards for data storing and management.	YES
FR-eM-008	Data export	The module MUST allow OCDS export from transitional database for planning, tendering and contract register	YES
FR-eM-009	Monitoring tools	The module MUST have an OCDS-based BI tool	NO
FR-eM-010	Monitoring tools	The module MUST have a red flags monitoring tool	NO
FR-eM-011	Monitoring tools	The module MUST have risk based ex-ante control monitoring tools	NO
FR-eM-012	Monitoring tools	The module MUST support a data feed for compliance and performance audit	NO

4.12.4 User Actions

User	Possible actions
Civil Society	<ul style="list-style-type: none"> • Review of on-going and concluded public procurement procedures; • review aggregated statistics on public procurement.
Specialist users, watchdogs, Public Procurement Authority	<ul style="list-style-type: none"> • Review the full details to each tender conducted on the 'MTender' system; • generate pre-defined reports for investigation purposes; • review red-flags and alerts generated by the system.

4.12.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.13 Document Management

This module is responsible for **generating, registering and archiving** the decrypted human readable version of the tender documents.

4.13.1 Description

The module must provide basic document management functionalities for reception, dispatch, storage and retrieval of all electronic documents and non-electronic documents created and recorded during the electronic tendering procedure and logging activity of the electronic and non-electronic documents included in the tender bundles/packages.

The module must provide an integration with the MLog, enabling long-term preservation of electronic documents and records in digital format and ensuring that human-readable versions can be easily retrieved without conversions for audit purposes.

Furthermore, it must provide the tender package/envelopes scheme for electronic documents and ensure that the documents are treated with the adequate level of security and protection, taking into account the specifics of public procurement methods (i.e. confidentiality of bids before tender opening session).

The security provided will be determined by a matrix to be built for each type of document stored. Per type of document, the matrix will define which users can access it and which type of authorisations they are granted (i.e. read, edit, delete). Additionally, the module must be able to manage the legal retention period for documents in order to comply with Moldovan legislation.

Regarding template management, the module must allow authorised users to create, modify and delete templates¹⁰. The user will be able to choose a template depending on the specificities of the procurement process. The templates may be used throughout the whole procurement process, in the different modules of the system.

Economic operators and contracting authorities need access to the business documents¹¹ exchanged via electronic means. The contracting authority responsible for the system and other authorities needs access to this module in order to consult, check or revise any document that is publicly available.

4.13.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> n/a
Post-conditions	<ul style="list-style-type: none"> Templates are available in the system to be reused. Business documents contained in the system can be used.

¹⁰ The content of some templates is already defined by law, mainly in Annex 3 of PPL n° 131, secondary regulation, and guidelines from the Ministry of Finance

¹¹ Business documents are documents (on paper or electronic documents) that represent economic operators in relation to external parties, such as letters, invoices, order sheets, credit notes and bills. Envelopes, advertising material and business cards are not deemed to be business documents.

4.13.3 Functional requirements

#	Activity	Requirement	Pilot
FR-DM-001	Creation of documents and templates	The module MUST support the creation and administration of specific identifiers for each document.	YES
FR-DM-002	Creation of documents and templates	The module MUST only allow the uploading of certain files in readable format, which will be defined in the definition phase.	YES
FR-DM-003	Creation of documents and templates	The module MUST allow the generation of documents from other templates previously created in the system.	YES
FR-DM-004	Documents repository	The module MUST allow for indexing, categorising, storing, and searching for information and documents in any file format.	YES
FR-DM-005	Documents repository	The module MUST support the three envelopes submission scheme.	YES
FR-DM-006	Documents repository	The module MUST guarantee that tenderers documents cannot be accessed until the due period stipulated in the tender specifications.	YES
FR-DM-007	Documents repository	The module MUST support the electronic archiving of business documents such as invoices, notes, etc.	YES
FR-DM-008	Documents repository	The module MUST archive the business documents for a pre-defined retention period.	YES
FR-DM-009	Documents repository	The module MUST support the archiving of the documents attached to the archived business documents.	YES
FR-DM-010	Documents repository	The module MUST provide an instrument for Networking Electronic Procurement Platforms and the special cabinets for single users to upload, read and retrieve documents.	YES
FR-DM-011	Documents repository	The module MUST archive the business documents received via electronic means in their original format.	YES
FR-DM-012	Documents repository	The module MUST archive every message received via electronic means, even if technically malformed or invalid when recognised, via its name as an invoice, a note, etc.	YES

#	Activity	Requirement	Pilot
FR-DM-013	Documents repository	Submitted tenders MUST be archived for the time required by PPL no. 131, and other applicable government laws and regulations.	YES
FR-DM-014	Documents repository	Archived tenders MUST remain unmodified and readable throughout their storage period. If necessary, documents will be updated by uploading a new version, whilst preserving all historical versions.	YES
FR-DM-015	Documents repository	The module MUST comply with the existing legal data protection requirements and, where available, make use of technologies that are privacy compliant and privacy enhancing.	YES
FR-DM-016	Documents authenticity and security	To guarantee that the business document's intent is not altered throughout the storage period, the module MUST ensure the authenticity of origin and integrity of content of the archived data during the full archiving period.	YES
FR-DM-017	Documents authenticity and security	If electronic signatures are used, each electronic signature and the associated meta-data to validate it MUST be equally archived.	YES
FR-DM-018	Documents access	Once archived, the module MUST guarantee full online access to authorised personnel.	YES
FR-DM-019	Documents access	The module MUST enable users to search for the archived business documents. This service MUST, at minimum, allow searching with simple criteria such as a range of dates (i.e. the date of submission of the business document) and the type of business document (i.e. Invoice). A request MUST contain one or more types of business documents. As a result, the module MUST return a single or a list of specific identifiers of the requested business document(s) and corresponding status. This list MUST be restricted to a pre-defined number of items and within a pre-defined time window.	YES
FR-DM-020	Documents access	The module MUST enable users to retrieve archived business document(s), using the specific identifier of a pre-defined number of items, within a pre-defined time window. As a result, the module MUST return a list with a single item or multiple items of structured alphanumeric data (i.e. the business document, such as an invoice). This list MUST be restricted.	YES

#	Activity	Requirement	Pilot
FR-DM-021	Documents access	The module MUST enable the users to retrieve the documents attached to a single business document using the specific identifier of that business document. As a result, the module MUST return all the attachments to the requested business document.	YES

4.13.4 User Actions

User	Possible actions
Economic Operators	<ul style="list-style-type: none"> Consult any of its business documents.
Contracting authority	<ul style="list-style-type: none"> Consult all of their business documents, closed tender information, and any other information regarding their tenders
Public Procurement Agency authorised staff	<ul style="list-style-type: none"> Consult any document or information.
Enforcement agencies, such as the Competition Council	<ul style="list-style-type: none"> Carry out different legal checks and verifications upon request.

4.13.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.14 eInvoicing

This module encompasses the process of **issuing, transmitting, and receiving invoices in a structured electronic format**, which allows for their **automatic and electronic processing**.

4.14.1 Description

This module allows economic operators to create invoices and cost claims and send them to contract authorities and follow up on the status of the documents sent.

The module will allow contracting authorities to view all invoices, cost claims and credit notes that have been received; receive invoices/cost claims; consult invoice status; and receive notifications.

The eInvoicing functionality will be developed based on existing eGovernment service, eFactura.

4.14.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> A contract has been established between the economic operator and the contracting authority. The economic operator is allowed to claim an invoice payment from that specific contract.
Post-conditions	<ul style="list-style-type: none"> The approved invoices are submitted for payment.

4.14.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eIN-001	Invoice creation and submission	The module MUST provide a service for invoice creation and submission via electronic means.	NO
FR-eIN-002	Invoice creation and submission	The module SHOULD provide a service for submission of attachments to business documents (such as invoices) via electronic means. The submitted attachments MUST have a reference to a valid business document.	NO
FR-eIN-003	Invoice creation and submission	<p>An invoice MUST contain at least the following elements to be compliant:</p> <ul style="list-style-type: none"> Date of issue of the invoice Sequential number, based on one or more series, which uniquely identifies the invoice VAT identification number of Economic Operator VAT identification number of Contracting authority Full name and address of Economic Operator Full name and address of customer Quantity and nature of the goods supplied or the extent and nature of the services rendered 	NO

#	Activity	Requirement	Pilot
		<ul style="list-style-type: none"> • Date of supply of goods or rendering of services or date on which payment of account was made if different from invoice date • Price per unit • Discounts or rebates not included in the unit price • Taxable amount per rate or exemption • VAT rate applied • VAT amount payable in the national currency <p>Where the person liable to pay the tax is a tax representative, the identification number for VAT purposes, together with full name and address</p>	
FR-eIN-004	Invoice creation and submission	The module SHOULD enable users to submit invoices in Romanian, Russian or English. The responses generated by the module SHOULD comply with the language of the request or with the user's predefined language.	NO
FR-eIN-005	Invoice creation and submission	The module SHOULD be able to handle allowances and additional costs such as freight bills via electronic means.	NO
FR-eIN-006	Notifications	The module SHOULD support a notification service. The module SHOULD provide mandatory and optional notifications. The optional notifications SHOULD be subject to subscription. Un-subscription SHOULD also be possible.	NO
FR-eIN-007	Invoice creation and submission	The module SHOULD enable Economic Operators to consult online on the status of their invoices.	NO
FR-eIN-008	Invoice creation and submission	Any data of a successfully submitted invoice or credit note cannot be modified. The module MUST NOT provide a service for the update of successfully submitted data.	NO
FR-eIN-009	Invoice creation and submission	Any data of a successfully submitted invoice or credit note cannot be deleted. The module MUST NOT provide a service for the deletion of a previously submitted invoice. Therefore un-deletion is also not required.	NO
FR-eIN-010	Payment schedule	The module SHOULD be capable of conveying data on the Invoice payment details.	NO
FR-eIN-011	Payment schedule	The module SHOULD automatically handle the payment reminders from the Economic Operator to the Contracting authority, when the Contracting authority does not pay the invoice within the agreed payment term.	NO

#	Activity	Requirement	Pilot
FR-eIN-012	Credit and debit notes	The module SHOULD provide a service for submission of credit notes by Economic Operators, via electronic means.	NO
FR-eIN-013	Credit and debit notes	A credit note MUST always refer to a single invoice.	NO
FR-eIN-014	Credit and debit notes	The module SHOULD provide a service for submission of Debit Notes by Economic Operators, for goods and services, via electronic means.	NO
FR-eIN-015	Credit and debit notes	A debit note MUST always refer to a single invoice.	NO
FR-eIN-016	Invoices validation and approval	The module SHOULD enable contracting authorities to dispute invoices via electronic means. This service SHOULD convey a dispute notice of a single invoice to the Economic Operator. This notice MUST allow the Contracting authority to specify the reason for the non-acceptance of the invoice and the proposed corrections to be made. This dispute SHOULD be traceable and the Economic Operator SHOULD be able to reissue the notice in case of failure.	NO
FR-eIN-017	Invoices validation and approval	The module SHOULD facilitate the access to support documentation directed to its users/end-users.	NO
FR-eIN-018	Invoices validation and approval	The module MAY provide a service so that invoice is automatically routed to a predefined approval workflow. The selected workflow will depend on the content of the invoice e.g. routing based on the Order number, routing based on the Project Number, etc. These workflows can be fully automated (i.e. no Human intervention) or semi-automated (requiring some step(s) of Human intervention).	NO
FR-eIN-019	Invoices validation and approval	The module SHOULD support the automatic validation of the tax values in the Invoices, Credit Notes or Debit Notes.	NO

4.14.4 User Actions

User	Possible actions
Contracting authority	<ul style="list-style-type: none"> View all invoices, cost claims and credit notes that have been received; receive invoices/cost claims and their related attachment files;

User	Possible actions
	<ul style="list-style-type: none"> • accept or reject invoices/cost claims and their related attachment files; • consult the statuses of an invoice; • receive the corresponding notifications.
Economic Operators	<ul style="list-style-type: none"> • View all invoices, cost claims and credit notes that have been exchanged with contracting authorities; • create invoices/cost claims and their related attachment files; • send invoices/cost claims and their related attachment files; • consult the statuses of an invoice; • receive the corresponding notifications.

4.14.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.15 eRegistration

This module allows the **creation of users and their registration** in the system, creating a unique ID for each user and user's record.

4.15.1 Description

The eRegistration module must cover the initial registration of contracting authorities and economic operators as well as the maintenance of databases with their records for identification and their authorisation throughout the different phases of the public procurement cycle.

Registered users should be able to update specific profile information (typically non-sensitive data, such as telephone numbers, addresses, etc.).

Registration of contracting authorities and economic operators should be a one-off procedure, and involves the contracting authority/economic operator wishing to be registered submitting the necessary information or documentation.

4.15.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> Users that want to perform modifications to their profiles, need to be previously registered in the system.
Post-conditions	<ul style="list-style-type: none"> Users register themselves in the system; users registration request (for certain roles) is approved or rejected; users can maintain their profiles information (company data, contact information, etc.).

4.15.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eRe-001	Registration	The system MUST allow users to self-register in the system, depending on the role they wish to perform.	YES
FR-eRe-002	Registration	The system MUST validate that the information introduced for registration is in the correct format.	YES
FR-eRe-003	Registration	The system MUST display error messages on those fields of information that have been introduced incorrectly.	YES
FR-eRe-004	Registration	When submitting the registration information the system MUST display a message to confirm that the registration request is successful.	YES

#	Activity	Requirement	Pilot
FR-eRe-005	Registration	The system ALLOWS user to confirm their identity using a digital certificate.	YES
FR-eRe-006	Registration	The Public Procurement Authority approves or rejects the user registration request for some specific roles. Once done, a confirmation e-mail is sent to the user whose request was reviewed with the outcome of it.	YES
FR-eRe-007	Registration	The different users of the Contracting authority MUST be able to be authorised to perform different roles in the system.	YES
FR-eRe-008	Registration	Different users of an Economic Operator MUST be able to register to the platform.	YES
FR-eRe-009	Registration	The platform SHALL allow registration of informal and formal joint ventures (JV, consortia, etc.) which may be formed for particular tenders and required details including country of registration of all JV members to be captured. This SHALL require individual company registrations in the platform, with a lead partner identified as the point of contact.	YES
FR-eRe-010	Profile management	The system MUST allow the users to review, update or delete their profiles.	YES
FR-eRe-011	Profile management	The module MUST allow disabling a user of the Economic Operator.	YES

4.15.4 User Actions

User	Possible actions
Public Procurement Authority	<ul style="list-style-type: none"> Validate the registration of users for certain roles.
Contracting Authority and Economic Operator	<ul style="list-style-type: none"> Register in the system; update their information profile.

4.15.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.16 eAuthentication

This module is responsible for **identifying the users, and obtaining and setting their authorisation to perform specific actions within the system.**

4.16.1 Description

The authentication (validation) process will be based on the available digital data of the suppliers, verified as a minimum through two independent digitally accessible sources, such as bank accounts, eGovernment services or state registers. The authentication process will be as follows:

- The registered user signs into the system using their credentials (username and password) and accesses the 'Profile' option. This step must be possible to be conducted through the MPass module as well (except foreign users).
- The module checks the existence of the user in the system user's database and authorises the connection to the system.

Users will be authenticated in the system according to their level of permissions and will only be able to access functionalities or information that are available to their level of permissions (i.e. a user that authenticates him/herself in the system as an economic operator will not be able to access certain information on contracting authorities, or other economic operators).

4.16.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> • Users access the log in functionality; • users are registered in the system; • several user roles with different permissions are available in the system.
Post-conditions	<ul style="list-style-type: none"> • Users are authenticated and can access information and functionalities according to their level of permissions; • users are not allowed to access the system.

4.16.3 Functional requirements

#	Activity	Requirement	Pilot
e-eAU-001	Log-in	The system MUST allow users to authenticate themselves in the system (i.e. login).	YES
e-eAU-002	Log-in	The system COULD allow the authentication of users having their profiles in an external user registry system (e.g. e-ID infrastructure).	YES
e-eAU-003	Log-in	The system COULD support user authentication through Single Sign-On (SSO) services.	YES

#	Activity	Requirement	Pilot
e-eAU-004	Log-in	Users COULD be obliged to accept a User Agreement / Terms and Conditions text before obtaining access to the full system functionality.	YES
e-eAU-005	Log-in	Non-authenticated users MUST have access only to information that is publicly available.	YES
e-eAU-006	Log-out	The system SHOULD automatically logout authenticated users if they remain inactive for a pre-specified period of time (i.e. session timeout).	YES
e-eAU-007	Password failure	A "forgot password" mechanism MUST be made available to the users.	YES
e-eAU-008	Password failure	Users SHOULD be locked out of the system after a specific number of failed log-in attempts.	YES
e-eAU-009	Password failure	Re-activating a "locked" account MUST be possible to Administrator users.	YES

4.16.4 User Actions

User	Possible actions
All registered users	<ul style="list-style-type: none"> Users access the system and introduce their log in username and password. The system validates their permissions to log in the system.

4.16.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.17 eNotification

This module enables **communications among system users and notifications on new events** on the public procurement process.

4.17.1 Description

Both NEPP and CDU will have their own notification mechanism for users. In this context, the "notification" implies "MTender" system-generated and sent message to notify a user or a category of users about some events occurring within the "MTender" system. The notification can be initiated by both the "MTender" system and a separate user, e.g. the contracting authority. In order to increase the likelihood that the message was delivered and read in time, along with the internal notification mechanism, both the NEPP and CDU will integrate with the e-Government notification service, MNotify, which will duplicate the notification messages with increased importance.

4.17.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> The service is triggered by another system functionality or process on the need to send a notification to one of the system users.
Post-conditions	<ul style="list-style-type: none"> The notification is sent to the relevant user.

4.17.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eNT-001	Notification process	MTender MUST send notification to relevant user related to the business processes (events) where user must be involved or informed.	YES
FR-eNT-002	Notification process	MTender MUST provide an efficient mechanism to send notifications.	YES
FR-eNT-003	Notification process	Alternatively, the notifications COULD be sent by using the government dedicated service: MNotify (CDU will be integrated with MNotify)	YES
FR-eNT-004	Notification process	MTender SHOULD offer 3 strategies for notification: <ul style="list-style-type: none"> notification via E-mail; notification via the user's Dashboard/Cabinet. notification via both categories mentioned above. 	YES
FR-eNT-005	Notification process	MTender MUST cover, at least, following notification events: <ul style="list-style-type: none"> notice publication; addition/modification tender documentation; 	YES

#	Activity	Requirement	Pilot
		<ul style="list-style-type: none"> tender opening; award of the tender; submitting request; bid submission – confirmation; complaints submission; document submission (in communication) reaching deadline of the standstill period etc. 	
FR-eNT-006	Notification process	The authenticated users (regardless of their roles) COULD the possibility of configuring their preferred notification means.	YES
FR-eNT-007	Notification process	The authorized users SHOULD receive notifications on business events related to their job duties or necessity to be informed.	YES
FR-eNT-008	Notification process	The notification SHOULD include the link for document download where appropriate.	YES
FR-eNT-009	Notification process	The Economic Operators SHOULD receive confirmations on receiving bid, complaint or another document sent via MTender.	YES
FR-eNT-010	Notification process	Notifications stored in the user's Dashboard SHOULD have reference of direct access to the file/ form/document related to notifications.	YES
FR-eNT-011	System performance notifications	MTender MUST notify the System Administrator on all issues affecting the performance and availability of the IT System.	YES

4.17.4 User Actions

User	Possible actions
All registered users	<ul style="list-style-type: none"> Configure the preferred notification means; Review notifications in the user dashboard and receive notifications by email.

4.17.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.18 Cabinets for single users

Cabinets are dedicated work areas for single users (PPA, Remedies Body and central purchasing bodies) **located on the Public Portal** within the system, where they can execute their specific functions and access the information they need within the system.

4.18.1 Description

The MTender system will provide access to dedicated workspaces for key public procurement stakeholders. These stakeholders, named hereafter “Single Users”, undertake specific roles in the public procurement process and should have at their disposal a dedicated workspace – a cabinet that supports delivering their roles. The single users identified for each main phase of the public procurement cycle and their roles in the procurement process are listed in a table below.

The functions of the State Treasury will be performed through integration with their systems and not through a specific Cabinet.

The eProcurement System should be designed to be adaptable to allow the inclusion of new single users in the future with minimal impact on the Central Database Unit of the System.

4.18.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> Cabinets for single users have been created and single users are aware of their role in the system; MTender is integrated with the single users systems, as needed to perform the single users’ actions.
Post-conditions	<ul style="list-style-type: none"> Post-conditions will depend on the activities carried out by each type of user.

4.18.3 Functional requirements

#	Activity	Requirement	Pilot
FR-CSU-001	Public procurement workflow participation	Single users MUST have access to the eProcurement Central Database Unit through a single specific cabinet.	NO
FR-CSU-002	Public procurement workflow participation	Single users MUST be able to conduct all necessary activities without having to interfere in other modules. Any interaction with Networking Electronic Procurement Platforms or other modules within the Central Database Unit must be seamless for single users.	NO
FR-CSU-003	Public procurement	Single users MUST have access to all information required to conduct their activities.	NO

#	Activity	Requirement	Pilot
	review process		
FR-CSU-004	Public procurement review process	Single users MUST be able to access to the required documents stored in the document repository to conduct their activities, and have permissions to consult and retrieve them if necessary.	NO
FR-CSU-005	Public procurement review process – Remedies Body	The full cycle of complaints receive, management and resolution by the Remedies Body MUST be enabled electronically within the Remedies Body Cabinet	NO
FR-CSU-006	Public procurement review process – Remedies Body	The Remedies Body SHOULD be able to suspend public procurement procedures from their cabinet.	NO
FR-CSU-007	Cabinet interface	Single user cabinets front-end MUST be user-friendly.	NO
FR-CSU-008	Cabinet interface	Single user cabinets MUST allow for more than one user from the same public body (for example PPA) to connect with it, using different access authorisations.	NO
FR-CSU-009	Cabinet interface	Cabinets MUST be accessible from the eProcurement web portal and follow the same look and feel.	NO

4.18.4 User Actions

User	Possible actions		
	Pre-tendering	Tendering	Post-tendering
State Treasury	<ul style="list-style-type: none"> Approve financing for procurement plan of a Contracting Authority 	<ul style="list-style-type: none"> No specific role 	<ul style="list-style-type: none"> Register public contracts for payment Monitor payment schedule

User	Possible actions		
	Pre-tendering	Tendering	Post-tendering
			<ul style="list-style-type: none"> Process payment approvals
Public Procurement Agency	<ul style="list-style-type: none"> Monitor procurement planning Manage qualified/banned operators list 	<ul style="list-style-type: none"> Monitor procurement procedures of contracting authorities 	<ul style="list-style-type: none"> Manage contract performance Prepare annual, sector specific, GPA and EU reports
Remedies Body	<ul style="list-style-type: none"> No specific role 	<ul style="list-style-type: none"> Full electronic cycle of complaints review Receives and manages of tender notices, tender documents and the overall tendering process The remedies body bears the powers to suspend public procurement procedures on a facultative basis 	<ul style="list-style-type: none"> The remedies body bears the powers to suspend the award of the public procurement procedure
Central purchasing bodies	<ul style="list-style-type: none"> Prepare aggregated procurement procedures 	<ul style="list-style-type: none"> Launch centralised purchasing procedures 	<ul style="list-style-type: none"> Manage and monitor centralised purchasing contracts

4.18.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.19 eComplaint

This module enables the registration, examination and settlement of complaints using electronic processes within the MTender system.

4.19.1 Description

CDU will provide a dedicated API to the NEPPs (exposed by eComplaint module) needed to implement on the NEPPs the workflows for submission of a complaint, starting with the stage of publication of the contract notice to the public procurement procedure and the signing of the public procurement contract.

The registration, examination and settlement of complaints using electronic processes within the MTender system are carried out by the national review body - National Complaints Settlement Agency Cabinet. The module allows EO to prepare and submit Complaints within the procedure to the Public Remedies Body. Upon submission, the complaint system notifies NCSA users that a complaint has been submitted for a procedure. It allows users to submit an amendment to the complaint if requested by NCSA. Through this module, contracting authority can send answers to complaints to NCSA.

The module allows NCSA to reject / accept appeal, to send a call for expression on complaint to a selected Economic Operator or a competitor (involve third party), to send requests for amendment. NCSA can prepare and publish the decision and suspend the procedure.

4.19.2 Workflow conditions

Conditions	Description
Pre-conditions	<ul style="list-style-type: none"> A public procurement procedure is on-going or has been concluded. An economic operator initiates a complaint procedure.
Post-conditions	<ul style="list-style-type: none"> The complaint is resolved. The procedure may or may not be affected (suspended / cancelled) by the result of the complaint process.

4.19.3 Functional requirements

#	Activity	Requirement	Pilot
FR-eCP-001	Complaint submission	The system MUST ensure an online workflow for submission of a complaint, starting with the stage of publication of the contract notice for the public procurement procedure to the signing of the public procurement contract.	NO
FR-eCP-002	Complaint submission	The system MUST allow the EO to prepare, sign and submit complaints within the procedure to the NCSA.	NO
FR-eCP-003	Notification process	The system MUST notify an EO about receiving/rejecting the complaint.	NO

#	Activity	Requirement	Pilot
FR-eCP-004	Notification process	Upon submitted, the system MUST notify relevant NCSA users that complain has been submitted for a procedure.	NO
FR-eCP-005	Complaint amendment and clarification	The system MUST allow users to submit amendment to complaint if requested by NCSA. Through	NO
FR-eCP-006	Complaint amendment and clarification	The system MUST allow the CA to sends answer to complain to NCSA.	NO
FR-eCP-007	Complaint resolution	The system MUST allow NCSA to reject/accept an appeal.	NO
FR-eCP-008	Complaint resolution	The system MUST allow to prepare and publish the decision and suspend the procedure (if necessary).	NO

4.19.4 User Actions

User	Possible actions
Economic operator	<ul style="list-style-type: none"> • Prepare and submit Complaints within the procedure to the Public Remedies Body; • provide amendments to the complaint if requested.
Contracting authorities	<ul style="list-style-type: none"> • Provide commentaries to the NCSA regarding a specific complaint.
NCSA	<ul style="list-style-type: none"> • reject / accept an appeal; • send a call for expression on complaint to a selected Economic Operator or a competitor (involve third party); • send request for amendment; • prepare and publish the decision and suspend the procedure.

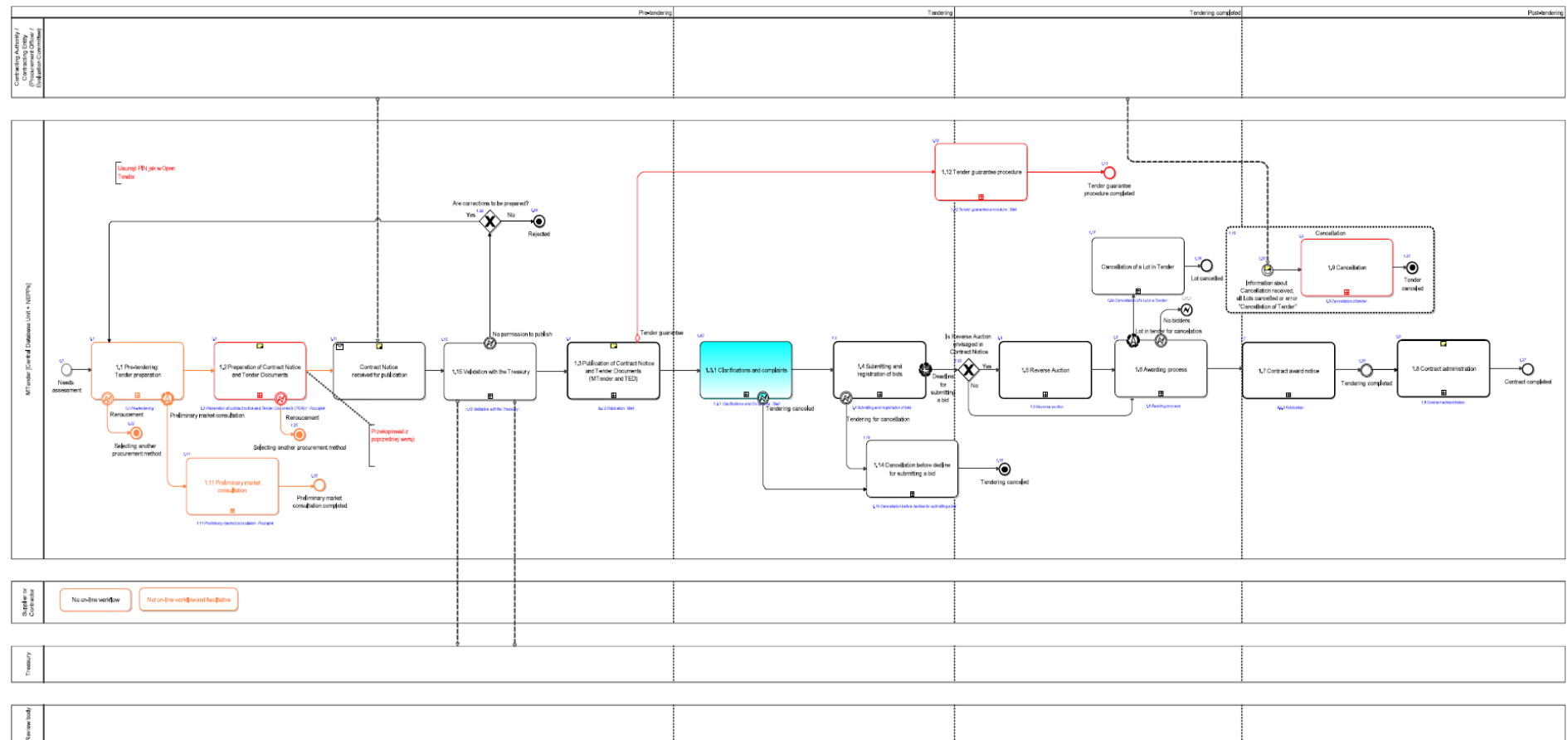
4.19.5 Link to MTender technical documentation

This module has no reference with the MTender technical documentation for the pilot system, therefore, it is not possible to establish a link.

4.20 Diagram comprehension example

This section provides an example of a workflow for an open tender process as described in the BPMN and its interaction with the different modules in the MTender system.

4.20.1 Diagram Flow



4.20.2 Diagram Information

Step	Involved modules
1.0 Needs assessment	<ul style="list-style-type: none"> • <i>Does not apply</i>
1.1 Pre-tendering	<ul style="list-style-type: none"> • ePlanning
1.2 Preparation of Contract Notice and Tender Documents	<ul style="list-style-type: none"> • eAccess
1.3 Publication of contract Notice and Tender Documents	<ul style="list-style-type: none"> • eNotice
1.3.1 (1.40) Clarifications and complaints	<ul style="list-style-type: none"> • eClarification • eComplaint
1.4 Submitting and registrations of bids	<ul style="list-style-type: none"> • eSubmission
1.5 Reverse Auction	<ul style="list-style-type: none"> • eAuction
1.6 Awarding process	<ul style="list-style-type: none"> • eQualification • eAuction • eEvaluation • eAwarding
1.7 Contract award notice	<ul style="list-style-type: none"> • eNotification
1.8 Contract administration	<ul style="list-style-type: none"> • eContract Management • eInvoicing
1.9 Cancellation	<ul style="list-style-type: none"> • eAccess
1.11 Preliminary market consultation	<ul style="list-style-type: none"> • eNotice
1.12 Tender guarantee procedure	<ul style="list-style-type: none"> • eAccess • State Treasury (Government Registers)
1.13 Tender guarantee procedure completed	<ul style="list-style-type: none"> • eAccess • State Treasury (Government Registers)
1.14 Cancellation before deadline for submitting a bid	<ul style="list-style-type: none"> • eAccess
1.15 Validation with the Treasury	<ul style="list-style-type: none"> • State Treasury (Government Registers)
1.16 Tendering cancelled	<ul style="list-style-type: none"> • eAccess
1.17 Cancellation of a Lot in Tender	<ul style="list-style-type: none"> • eAccess
1.18 Lot cancelled	<ul style="list-style-type: none"> • eAccess
1.19 Tender cancellation	<ul style="list-style-type: none"> • <i>Does not apply</i>
1.20 Information about Cancellation received	<ul style="list-style-type: none"> • <i>Does not apply</i>
1.21 Tender cancelled	<ul style="list-style-type: none"> • eAccess
1.22 Selecting another procurement method	<ul style="list-style-type: none"> • eAccess

Step	Involved modules
1.23 Preliminary market consultation completed	<ul style="list-style-type: none"> • eNotice
1.25 Renouncement	<ul style="list-style-type: none"> • eAccess
1.26 Tendering completed	<ul style="list-style-type: none"> • eNotification
1.27 Contract completed	<ul style="list-style-type: none"> • eContract Management • eInvoicing
1.29 Is Reverse Auction envisaged in Contract Notice	<ul style="list-style-type: none"> • <i>Does not apply</i>
1.31 Contract Notice received for publication	<ul style="list-style-type: none"> • eAccess
1.38 Are corrections to be prepared	<ul style="list-style-type: none"> • <i>Does not apply</i>
1.39 Rejected	<ul style="list-style-type: none"> • <i>Does not apply</i>

The modules “eRegistration”, “eAuthentication”, “eMonitoring”, “Document Management” and “Cabinets” are transversal modules, which are used in most of the previous steps.

5 Non-functional requirements

This section presents the non-functional requirements that should be met for the correct implementation of the MTender system functionalities described in this document.

5.1 Security

Electronic public procurement procedures include the exchange and storage of rather sensitive data, such as technical and financial offers. Therefore, the eProcurement system must support adequate security mechanisms in order to create a secure procurement environment and ensure the following security objectives:

- **Authentication:** Guarantees that the restricted areas of the service are only accessible to users with a verified identity through MPass and another independent digital eGovernment service for resident users and a similar mechanism or MPay for non-resident users;
- **authorisation:** Guarantees that authenticated users are only able to access the services and data that match their roles and access rights. Each contracting authority will have the right to register new users from their organisation and assign them to one of the existing roles, according to the given permissions for each user. The capacity to create new roles will remain with the PPA;
- **confidentiality:** Guarantees that the data exchanged between the person requesting it and the provider cannot be intercepted or accessed by a non-authorized third party, and that the data cannot be accessed at an inappropriate point in time (i.e. before the opening of the bids);
- **integrity:** Guarantees that data exchanged between the person requesting it and the provider has not been modified or tampered with by a non-authorized third party;
- **non-repudiation:** Guarantees that the sender of the message cannot deny, at a later point in time, that he/she sent it.

To achieve these objectives, the system shall provide several security mechanisms:

In the micro value pilot:

- **Firewalls:** Firewalls form part of the system's technical architecture in order to provide a line of defence when external users try to connect to the system from the Internet or another network. Firewalls must be configured in such a way to allow only the absolutely necessary network services and protocols for the operation of the system. No additional services and/or protocols can be enabled (principle of least privilege). They must also support failover for high availability. This feature is provided by integration with MCloud;
- **antivirus / antispam:** Hardware and/or software/hardware solutions must provide antivirus and antispam protection for all servers. Files will be scanned while uploading to the system. In case an infected file is detected, the uploading procedure will be stopped and the file will be rejected. The system must be configured to automatically update definitions on a daily basis during non-business hours. This feature is provided by integration with MCloud;
- **intrusion Detection System:** The intrusion detection system will include all necessary agents for all servers. This feature is provided by integration with MCloud;

- **secure communication** (data transfer) **between the web servers and users:** The exchange of sensitive information must be adequately secured. For this reason, a secure protocol such as HTTPS must be used, in order to avoid any unauthorised access to the information exchanged. This secure protocol must be used consistently across all eProcurement system websites, without having any part of the website contents loaded over HTTP. Otherwise, users could be exposed to several types of attacks. Ideally, the website should support forward secrecy. This feature is provided by integration with MCloud;
- **systematic backup of stored data:** Allows quick and reliable recovery of data in the case of an ‘incident’ resulting in data loss or deterioration. This feature is provided by integration with MCloud;
- **encryption of data:** some of the data stored in the various components of the system (including CDU and NEPPs) (i.e. servers, data storage, LDAP) shall be encrypted;
- **digital certificates:** The system must be capable of using digital certificates in addition to usernames and passwords for ensuring integrity and non-repudiation principles. This feature is partially enabled by integration with MCloud, MSign and MPass.

In the small/high value pilot:

- **Audit trailing facility:** All activities performed by users, whether successful or unsuccessful (such as attempted but failed logins), must be monitored and recorded in the system logs with restricted access to unauthorised users. This feature is provided by integration with MLog;

In addition, the system should include other security controls, in particular:

- **secure technical architecture:** The system should implement at least a 3-tier architecture (database, application and presentation tiers), and its architecture must be divided into different security zones and contain at least a DMZ¹² and an internal zone;
- **security controls embedded in the system:** For example, user roles with pre-defined access rights, the ‘four-eye’ principle for key business decisions, validation checks when entering data, etc.;
- **time-stamping mechanism:** Ensures that all transactions within the system are time-stamped. The time-stamping mechanism can either be part of the system or a service provided by an external time-stamping authority.

The system will fully comply with the minimal requirements on cybersecurity, approved by governmental decision on 25 January 2017.

5.2 Scalability – Upgradeability

The system will be designed to handle a significantly larger transactional load than what is currently received. Therefore, the system’s logical architecture must be able to sustain at least a

¹² A DMZ or demilitarized zone (sometimes referred to as a perimeter network) is a physical or logical sub-network that contains and exposes an organisation’s external-facing services to a usually larger and untrusted network, typically the Internet.

30% increase to the transactional load on a yearly basis. From a physical point of view, this can be achieved by scaling up or scaling out the components of the system:

- **Scaling up** (vertical scalability) means increasing the capacity of existing hardware or software components by adding CPU, memory, storage, etc.;
- **scaling out** (horizontal scalability) means adding more instances of the same components that work as a single logical unit.

Moreover, the system must be easily adaptable to new requirements imposed by changes in legislation (updates of national or European law).

5.3 Availability

Procurement procedures imply significant requirements in regard to the availability and performance of the system. The eProcurement system as a whole must be designed in order to be **available 24/7** (24 hours a day, 7 days a week, with the exception of planned maintenance windows), especially the public procurement portal. Concerning specific characteristics, it should be noted that the eAuction module is expected to be used only during standard working hours, as the auctions will take place in this timeframe.

The system shall comply with Tier 2 requirements, and it shall not have a single point of failure. It must be designed in a way to ensure availability of at least 99.75% (less than 22 hours of unavailability per year).

5.4 Performance

The performance of the system is measured by the time needed for an action to be completed. The following definitions apply:

- Simple query: a query accessing a single database table or a join of two tables;
- complex query: a join of three or more database tables (reference data not considered);
- report: a report ready to be printed;
- document management: uploading, downloading and opening of a document to/from the system to the client workstation (a standard document size of 2Mb will be used for testing purposes);
- active user: a user of the application performing typical operations;
- response time: the period of time from the moment the user initiates an action (i.e. by clicking on a button or a link) until the moment the requested information or update confirmation message is completely downloaded and displayed on the screen of the user. Response time can be affected by Internet latency, and therefore is commonly tested in a Local Area Network (LAN) environment.

The system must be able to effectively serve in parallel:

- Up to 5 system administrators;
- up to 1.000 active users;
- up to 5 members for each single user cabinet;
- up to 25,000 read-only users of the general public.

The system must be able to store information from:

- Up to 5,000 contracting authorities;
- up to 40,000 registered tenderers.

On a yearly basis, it is estimated that at least 12,000 above EU threshold tenders will be processed by the system. Although the total number of below EU threshold tenders is not precisely known, it is expected to be two to three times larger, based on Ukraine's experience. Therefore, the system should be able to store all information – including attached files – for an estimated total number of 50,000 tenders per year.

Taking into account the information above, response times **will not exceed**:

- 1 second for the execution of 90% of simple queries;
- 3 seconds for the execution of 99% of simple queries;
- 3 seconds for the execution of 90% of complex queries;
- 10 seconds for the execution of 99% of complex queries;
- 3 seconds for the generation of 90% of reports;
- 10 seconds for the generation of 99% of reports;
- 3 seconds for the execution of 90% of document management activities;
- 10 seconds for the execution of 99% of document management activities.

The system must provide the above response times for at least 100 concurrent active users. The primary peak times expected in the system's use are the following:

- During the normal working hours of contracting authorities (08:00 to 18:00) and near the submission deadline of each Call for Tenders;
- during an electronic auction.

The performance measurements must be included in the monthly reports submitted to the contracting authority. However, system administrators must be able to monitor the system's performance themselves. Thus, they must have access to the monitoring software.

5.5 Interoperability – Interconnectivity requirements

The eProcurement system must be based on a tightly coupled modular solution and on a secure and service-oriented architecture, facilitating the exchange of structured information with external information systems using different types of data sources.

The implementation of the system must follow open standards and use well-known and widely accepted technologies in order to ensure interoperability. Therefore, the following requirements must be fulfilled:

- The entire system implementation must be based on Internet (web-based) technologies, standards and protocols such as Service Oriented Architecture (SOA), XML-based communication protocols (SOAP and XML-RPC), TLS/SSL, etc.;
- the system must implement the **Advanced Open Contracting Data Standard** to enable disclosure of data and documents at all stages of the contracting process.

The systems that must be interoperable with the new system are listed below:

- Central Database Unit;
- Networking Electronic Procurement Platforms;
- eGovernment Agency modules: MLog, eFactura, MPass, MPay, MNotify;
- Hosting platform: MCloud;
- EU systems: TED;
- Registers: State Register of Population, State Register of Juridical Units, State Register of Non-commercial Organisations, tax service, State Treasury, and State Register of Licenses.

6 Technical requirements

The following chapter explains the main technical requirements from application design and infrastructure perspectives.

6.1 General requirements

Regarding its technical design and underlying infrastructure, the implementation of the eProcurement system must comply with several general requirements, which are highlighted below:

- The system interfaces must be based on the most recent version of the **Open Contract Data Standard** from the start of the project;
- the system must be **built using the open source code developed during the pilot**, configuring and customising this source code to the specific needs of the Moldovan context. Additional development may be needed in order to integrate with the existing eGovernment modules;
- the Central Database Unit must be **hosted in MCloud**;
- the system must integrate with several eGovernment Agency modules:
 - **MPass** for authentication of the end-users;
 - **MNotify** for sending notifications by email (mobile notification may be supported in the future);
 - **MLog** for logging events in order to monitor the system, allow tracking of issues and incidents, and provide administrators with KPIs;
 - **eFactura** for the creation of electronic invoices;
 - **MPay** for allowing electronic payment for e-services.
- the system should preferably **use MConnect** to exchange information with state registers. In order to ensure a high degree of automation of processes within the "MTender" system, increased "MTender" system efficiency, data quality, the "MTender" system will communicate with existing state information systems and registers and will integrate existing government electronic services. Real-time data exchange with state information systems and registers will be achieved by integrating CDU with the MConnect Government Interoperability Platform;
- the implementation of the system must **follow open standards** and use well-known and widely accepted technologies in order to **ensure interoperability, ease of use, and scalability**;

6.2 Technical architecture

The system will be deployed on the existing MCloud infrastructure by the eGovernment Agency.

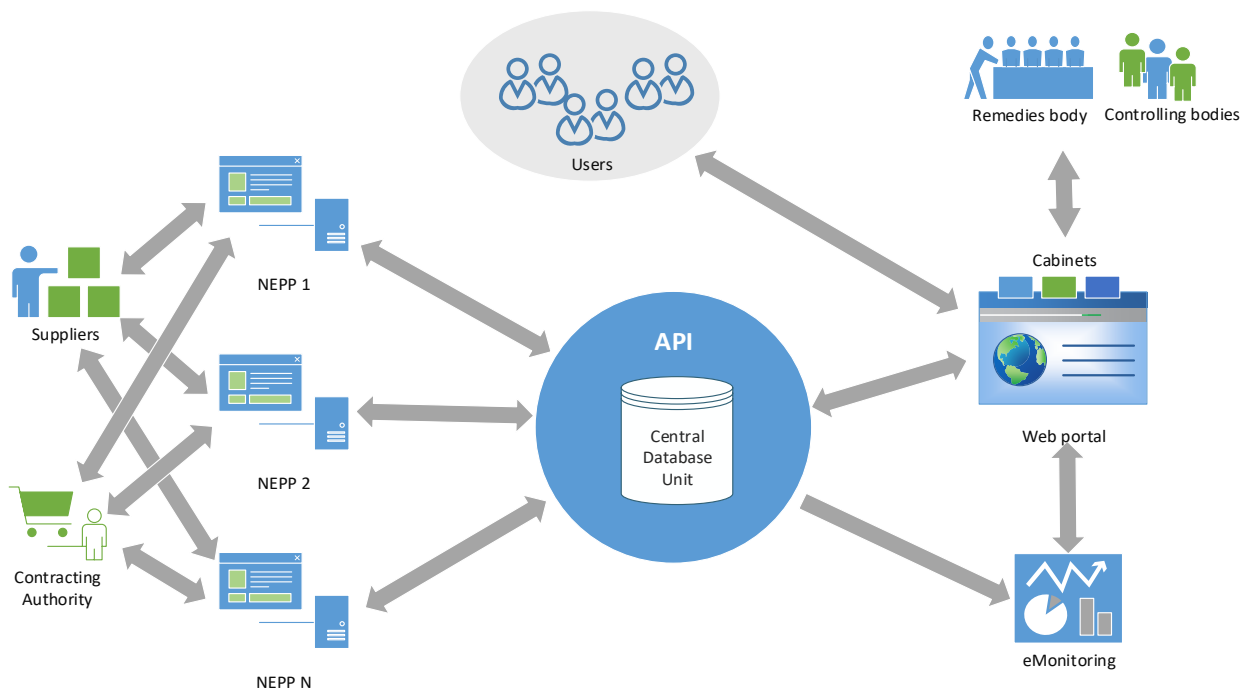
From a connectivity perspective, the servers (virtual machines) will be interconnected in a Virtual Local Area Network (VLAN). External connections will be established through dedicated virtual channels based on MCloud network infrastructure. The Contractor may suggest other network and utilities services necessary to operate the system.

It is recommended the use the following reusable components provided by the eGovernment Agency on the MCloud platform to develop the system:

- Operating systems: Linux Red Hat, Linux SUSE, Windows Server 2008 R2 +;
- Database management system: MS SQL or an open source alternative;
- ECMP with the following elements:
 - Orbeon (form designer);
 - Liferay (portal);
 - EMC Documentum (back-end);
 - MS Reporting Services (report designer).

The technical architecture shall include, at minimum, the components presented in the sections below. The proposed high-level architecture for the system is depicted below:

Figure 4. Proposed architecture



6.3 Web servers

These servers will host the front-end components of the different modules of the Central Database Unit, as well as the front-end components of some common services.

The setup of these servers shall provide robust failover and scalability capabilities to ensure high availability of the system and to support an increasing load. Therefore, it is expected to have

several web servers¹³ in web farm or cluster architecture with load balancing to meet these requirements.

6.4 Application servers

These servers will host the back-end components of the different modules of the Central Database Unit as well as the back-end part of some common services. They will also host the workflow and transaction engines of the system.

The setup of these servers shall provide robust failover and scalability capabilities. Therefore, it is expected to have several application servers in web farm or cluster architecture with load balancing to offer the necessary redundancy.

6.5 Database servers

Database servers will host the database engines. The setup of these servers shall provide robust failover and scalability capabilities. It is recommended to foresee at least two database instances.

Concerning the licenses of the database management system, the eGovernment Agency can provide licenses for MS SQL Server. Alternatively, open source database management systems are also allowed. However, it is strongly recommended to use a database management system supported by the common technological stack of the MCloud platform.

6.6 File servers

File servers will manage access to the file storage, such as Calls for Tenders and bids documentation.

6.7 Storage solution

The storage solution provided by MCloud will be used to store databases, files and other data of the system. An initial capacity of 1Tb is estimated to be needed, which would have to be upgradeable to 10Tb. Nevertheless, the capacity will be allocated as needed.

6.8 Authentication services

Whenever appropriate, authentication services will be provided by MPass or MSign and validated with state registers, if appropriate. Integration between MPass and the eProcurement system are within the scope of this project. Authentication services are to be provided by the MPass e-government service through various authentication mechanisms: mobile signature, electronic signature, electronic identity card, username and password and, if necessary, authentication results will be validated with state registers, if appropriate.

6.9 Antivirus / Antispam solution

It can be assumed that this service will be provided by the MCloud infrastructure. This refers to hardware and/or software solutions to provide antivirus and antispam protection for all servers.

¹³ Although there are no restrictions of operating systems supported by MCloud, the currently installed systems are Windows or Linux-based.

Files will be scanned while uploading to the system. If an infected file is detected, the uploading procedure will be stopped and the file will be rejected.

These must be configured to automatically update definitions on a daily basis during non-business hours.

6.10 Intrusion Detection System

It can be assumed that this service will be provided by the MCloud infrastructure. It refers to the software solution – including all necessary agents for all servers – to scan both the DMZ and protected network, and will identify any unwanted attempt to access the servers.

6.11 Email services

It can be assumed that automatic email services for notifications of the business and technical events will be provided by the MNotify module. This should cover the needs for exchanging information between the Central Database Unit, the Networking Electronic Procurement Platforms and the end-users during the eProcurement process and for informing system administrators and end-users of any technical issues on the system.

6.12 Monitoring services

It can be assumed that monitoring services will be provided by MCloud and MLog. Integration between MLog and the eProcurement system are within the scope of this project.

6.13 Backup solution

It can be assumed that backup and recovery services will be provided by MCloud. Any configuration, customisation and testing of these services for the eProcurement system are within the scope of this project.

6.14 Network equipment

It can be assumed that network equipment for the hosting of the system in the Moldovan data centre will be provided by MCloud infrastructure.

6.15 Firewalls

It can be assumed that firewalling capabilities that meet the needs of the system will be provided by MCloud infrastructure.

7 System integration requirements

7.1 National registers

The MTender System shall be interoperable with the following state registers when the interconnection is allowed by the affected entities:

Table 1. State registers to be connected to the eProcurement system



Registers or entities	Description
State Register of Population	A national system for the registration of citizens in the Republic of Moldova and a source of personal data. Contains data on births, deaths, divorces, marriages, and internal and external migrations. Each person has an IDNP (a national identification number for physical persons) that brings up the available information regarding the person.
State Register of Juridical Units	Contains registration data about enterprises and establishments, types of activity, details about the founders, the administrators, etc. Each entity has an IDNO, which is the unique registration number for the juridical units and also the entity's fiscal number. It provides information on the company's legal organisation structure, main types of activities, year since foundation, whether a company is active or not, etc. This register contains central and sub-central administrative bodies.
Tax Service	Service in charge of the collection of taxes paid by both citizens and businesses. It is a source of information on the past and current situation of potential bidders, regarding their obligations to state and public institutions. It is also a database of annual income declarations of natural and juridical persons. By accessing the current account of the taxpayer, comprising the information on juridical and natural entities as well as public authorities' tax obligations, all the information regarding fiscal obligations (debts or overpaid taxes etc.) can be found online.
State Treasury	Unit within the central government responsible for the management of the government treasury. It holds a register of the contracts awarded, and the payments and invoices issued in relation to these contracts. The State Treasury approves all the contracts for payment (confirming that there are funds available under the corresponding account for the corresponding contracting authority).
State Register of Licences	Register of relevant licenses, which is kept by the Chamber of Licensing of Moldova. As an example of this function, it will allow instantly checking if a certain company has an active license in a specific area required for a given tender.
State Register of Non-commercial Organizations	This registry is kept by the Ministry of Justice of Moldova. It comprises political parties, NGOs, different religious entities, public associations, etc.

Registers or entities		Description
Criminal Register	Records	This registry is kept by the Ministry of Internal Affairs of Moldova and allows consulting any criminal record from a company or individual.

7.2 eGovernment tools

The MTender System will use the following eGovernment tools:

Table 2. eGovernment tools to be integrated with the eProcurement system

eGovernment tool	Description
eFactura	Tool to create electronic invoices, to be used for eInvoicing.
MPass/eID	National service that allows authentication and access to digital public services. The service offers different authentication mechanisms: mobile signature, digital certificate, username, and password.
MSign	Tool to sign documents electronically. It will be used to submit bids and sign contracts online and will be integrated within Electronic Networking Procurement Platforms.
MNotify	Tool to send electronic communications. Can be used to communicate notifications to EOs and CAs.
MConnect	National interoperability BUS that can be used to facilitate connection to the above-mentioned registers, as well as connection between the Central Database Unit and Networking Electronic Procurement Platforms.
MCloud	National cloud service that will be used to host the system.
MLog	Tool that will keep a register of the transactions within the system.
MPay	Tool that allows payments to be made electronically.

8 Annex 1: Detailed level non-functional and technical requirements

8.1 Non-functional requirements

Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
NFR-001	Security	The entire MTender System MUST be secure in such a way that the level of security is trusted by the economic operators and the contracting authorities.	P-O	This is provided by the integration with MPass.
NFR-002	Security	The authentication module MUST identify the different users accessing the system in a secure and traceable way.	P-O	This is provided by the integration with MPass.
NFR-003	Security	The system MUST guarantee that the services are only accessible to users with a verified identity.	P-O	This is provided by the integration with MPass.
NFR-004	Security	The system MUST guarantee that authenticated users can only access services or data matching their role and access rights.	P-O	This is provided by the integration with MPass.
NFR-005	Security	The system MUST guarantee that the data exchanged between the requester and the provider cannot be intercepted or accessed by a non-authorised third party, and that the data cannot be accessed at an inappropriate point in time (i.e. before the opening of the bids).	P-C	
NFR-006	Security	The system MUST guarantee that data exchanged between the requester and the provider has not been modified or tampered with by a non-authorised third party.	P-C	
NFR-007	Security	The system MUST monitor and record in the system logs all activities performed by users, whether successful or unsuccessful (such as attempted but failed logins). A server-side solution for	P-O	This is partially provided by the integration with MLog.

Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
		log's collection from multiple sources simultaneously and analysing in a visual way MUST be developed.		
NFR-008	Security	The system MUST be tested at least according to OWASP Top 10 Vulnerabilities.	P-O	It is recommended to conduct these tests for each release.
NFR-009	Security	The system MUST implement the required firewalls in order to provide a line of defence when external users try to connect to the system from the Internet or other networks.	P-C	This is provided by MCloud.
NFR-010	Security	The system MUST implement an Intrusion Detection System, including all necessary agents for all servers.	P-C	This is provided by MCloud.
NFR-011	Security	The system MUST provide secure communications between: <ul style="list-style-type: none"> the client browser and Networking Electronic Procurement Platforms ; the Central Database Unit and Networking Electronic Procurement Platforms. 	P-C	
NFR-012	Security	The system MUST foresee systematic backup of stored data and servers' configuration, allowing quick and reliable recovery of data in case of an incident resulting in data loss or deterioration.	P-C	This is provided by MCloud.
NFR-013	Security	The system MUST encrypt some of the data containing sensible information stored in the various components of the system.	P-C	
NFR-014	Security	The system MUST be capable of using digital certificates on top of usernames and passwords for ensuring integrity and non-repudiation principles.	P-O	This is provided by the integration with MSign.
NFR-015	Security	The system MUST provide Single Sign-On for end-users and	P-O	This is provided by the



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
		system administrators so that they can access services on the front-end and back-end without any additional authentication.		integration with MPass.
NFR-016	Security	The system MUST implement at least a 3-tier architecture (database, application and presentation tiers).	P-C	
NFR-017	Security	The system architecture MUST be divided into different security zones and contain at least a DMZ and an internal zone.	P-C	
NFR-018	Security	The system MUST foresee embedded security controls.	P-C	
NFR-019	Security	The system MUST be hosted in a physical location with adequate HVAC, access controls, and fire detection and suppression mechanisms.	P-O	This is provided by MCloud.
NFR-020	Security	The system MUST provide a time-stamping mechanism on all transactions.	P-C	
NFR-021	Scalability	A combination of efficient software architecture, along with sufficient hardware components, MUST guarantee the scalability of the system.	P-O	
NFR-022	Scalability	The system's logical architecture MUST be able to sustain at least a 30% increase in transactional load on a yearly basis.	P-O	
NFR-023	Scalability	The system MUST easily adapt to new requirements imposed by changes in legislation.	P-O	
NFR-024	Availability	The MTender System MUST be designed according to high availability principles.	P-C	High availability of the infrastructure is provided by MCloud.



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
NFR-025	Availability	The system MUST comply with Tier 2 requirements: <ul style="list-style-type: none"> no single point of failure (redundant hardware component, load balancing, support for failover); availability (software, hardware, network) of at least 99.75% (or less than 22 hours of unavailability per year). 	P-C	It is recommended to conduct performance tests for each release.
NFR-026	Availability	The system MUST incorporate a heartbeat service, which will periodically communicate on the normal work status of the system.	P-O	
NFR-027	Availability	The system MUST comply with the following Tier 3 requirements: <ul style="list-style-type: none"> multiple independent distribution paths serving the IT equipment; all IT equipment must be dual-powered and fully compatible with the topology of a site's architecture. As an alternative, it MUST be connected to a UPS device capable of providing the electricity to power the system. 	P-C	
NFR-028	Performance	The system MUST be able to effectively serve simultaneously: <ul style="list-style-type: none"> up to 5 system administrators; up to 1,000 active users; up to 5 members of each single user cabinet; up to 25,000 read-only users of the general public. 	P-O	
NFR-029	Performance	The system MUST be able to store information from: <ul style="list-style-type: none"> up to 5,000 contracting authorities; up to 40,000 tenderers; up to 50,000 tenders per year. 	P-O	
NFR-030	Performance	Response time of the system MUST not exceed 1 second for the execution of 90% of simple queries for at least 100 concurrent	P-O	



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
		active users during normal working hours.		
NFR-031	Performance	Response time of the system MUST not exceed 3 seconds for the execution of 99% of simple queries for at least 100 concurrent active users during normal working hours.	P-O	
NFR-032	Performance	Response time of the system MUST not exceed 3 seconds for the execution of 90% of complex queries for at least 100 concurrent active users during normal working hours.	P-O	
NFR-033	Performance	Response time of the system MUST not exceed 10 seconds for the execution of 99% of complex queries for at least 100 concurrent active users during normal working hours.	P-O	
NFR-034	Performance	Response time of the system MUST not exceed 3 seconds for the generation of 90% of reports for at least 100 concurrent active users during normal working hours.	P-O	
NFR-035	Performance	Response time of the system MUST not exceed 10 seconds for the generation of 99% of reports for at least 100 concurrent active users during normal working hours.	P-O	
NFR-036	Performance	Response time of the system MUST not exceed 3 seconds for the execution of 90% of document management activities for at least 1.000 concurrent active users during normal working hours.	P-O	
NFR-037	Performance	Response time of the system MUST not exceed 10 seconds for the execution of 99% of document management activities for at least 1.000 concurrent active users during normal working hours.	P-O	
NFR-038	Interoperabil	In order to facilitate adoption by public administration, the system	P-C	



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
	ity	MUST have a high degree of independence from other applications.		
NFR-039	Interoperability	Any references to nomenclatures in the context of public procurement MUST be made using the ‘Common Procurement Vocabulary’ (CPV).	P-O	
NFR-040	Interoperability	The system MUST implement the Advanced Open Contracting Data Standard to enable disclosure of data and documents at all stages of the contracting process.	P-O	
NFR-041	Interoperability	The platform MUST be compliant with other recognised European standards.	P-O	
NFR-042	Usability	The provided solution MUST be user-friendly and easy to use.	P-O	
NFR-043	Usability	The front-end of the eProcurement system MUST comply with Web Content Accessibility Guidelines (WCAG) 2.0 ¹⁴ .	P-O	
NFR-044	Usability	The MTender System MUST be multilingual. It MUST support Romanian, Russian and English.	P-O	Romanian will be used during the pilot. English and Russian will be added once the system is fully developed.
NFR-045	Access & non-	The economic operators MUST be able to respond to the most common procurement procedures.	P-O	

¹⁴ <https://www.w3.org/TR/WCAG20/>



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
	discrimination			
NFR-046	Access & non-discrimination	The tool for the preparation of the tender bid MUST be made available by the contracting authority to the interested economic operators "free of charge".	P-O	
NFR-047	Logging	The system MUST register all system events and errors, status of exchanged messages, etc.	P-O	
NFR-048	Logging	The system log MUST contain the following data: date, time, system process, type/nature of actions, system error message.	P-O	
NFR-049	Logging	The system MUST provide a way to track system events by different criteria: date and time, system process, error number, availability of the system.	P-O	
NFR-050	Logging	The system MUST generate a message upon any successful or unsuccessful update of a nomenclature, lists, etc.	P-O	
NFR-051	Logging	System events MUST be classified into categories: successful, unsuccessful and errors by criticality.	P-C	
NFR-052	Logging	Error messages MUST be informative and easy to understand. Error messages MUST be written to error logs to enable these issues to be properly audited and investigated. The system MUST incorporate all usability heuristics to support ease of navigation and general use of the system, including data entry.	P-O	
NFR-053	Logging	All errors MUST have an error code and all error codes MUST be	P-O	



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
		clearly and correctly described in the administrator's user guide.		
NFR-054	Logging	The system MUST ensure sending, if necessary, of electronic messages to a system administrator or a person authorised by the contracting authority. The setup of parameters necessary for the configuration of certain electronic addresses, such as the message-generating criticality level or type of errors, MUST be made using the system resources.	P-O	
NFR-055	Control & audit	An auditor MUST be authorised to read all documents in the system related to a particular procedure(s).	P-C	
NFR-056	Control & audit	User groups MUST be created and maintained. These are not bound to a particular role and access rights but serve only for convenience of the management process of user permissions.	P-C	
NFR-057	Control & audit	The system MAY NOT allow deletion of users. Only temporary or permanent withdrawal of the access of a user MAY be allowed.	P-C	
NFR-058	Control & audit	The system MUST allow filtering and sorting of users by different criteria (i.e. by institution, by roles, etc.).	P-C	
NFR-059	Control & audit	The system MUST register in the log all user actions: login to the system, view, search, creation, edit, and deletion of data. In each instance of a data update, a history of changes must be kept (i.e. which user, when and what has changed).	P-O	
NFR-060	Control & audit	The system MUST ensure a reliable mechanism for recording all events related to the system's user management and user permissions.	P-C	



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
NFR-061	Control & audit	The system MUST support the generation of reports based on the records and according to a pre-defined set of criteria.	P-O	
NFR-062	Control & audit	The system MUST produce a report on user actions containing the following information: date and time of login and logout, work session duration, user data, IP address of the machine, nature/type of actions, and references to completed actions.	P-O	
NFR-063	Incident management	The system MUST ensure a mechanism for recording all security-related events (access and authorisation control, control of system and configuration changes, shutdown and start of the system). These records must provide information regarding users, PC or workstation identification, time and action.	P-O	
NFR-064	Incident management	The system MUST NOT allow deletion of data records. Only logical deletion is allowed. Deleted data MUST be marked accordingly in the system and not removed from the system, so that it can be consulted during future investigations.	P-O	
NFR-065	Incident management	The system MUST register terminated actions and other errors (such as unauthorised use of the system, security breach, etc.).	P-O	
NFR-066	Incident management	The system MUST not allow deletion of event records in system logs.	P-O	
NFR-067	Backup & recovery	The system MUST support a functionality allowing administrators to set it up for archiving, data restore, creation of backup copies, and scheduled maintenance.	P-O	
NFR-068	Backup &	The system MUST support a functionality allowing the review of	P-O	



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
	recovery	archived data and recovery after crashes. When an administrator is using the manual archiving functionality, an appropriate reminder mechanism at determinable time intervals MUST be in place.		
NFR-069	Backup & recovery	The system MUST maintain the creation of a regular backup copy, as well as a backup copy prior to migration of data, new versions, or other critical actions, for the purpose of restoring to the last working configuration of the system (including the database, configuration files, etc.).	P-O	
NFR-070	Operations	A mechanism MUST be created for elimination of temporary files generated by different processes, whereas the parameters for their elimination MUST be managed by an administrator with system resources.	P-O	
NFR-071	Operations	The system MUST ensure the data consistency check procedure and the procedure for recovery of partially broken data.	P-O	
NFR-072	Operations	The system MUST provide a monitoring console or dashboard for system administrators to quickly and easily check the status of the system.	P-O	
NFR-073	Operations	The system MUST provide system administrators with a possibility of cancelling the last user's operations related to a specific tender.	P-O	
NFR-074	Operations	The system MUST integrate with the MCloud monitoring system. This implies an automated way to feed the monitoring system.	P-O	
NFR-075	Office	The system MUST ensure a high level of integration with	P-O	



Non-functional requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications for the Central Database Unit
	integration	spreadsheets and word processors, including copy, cut and paste (as a minimum). The Contractor is requested to specify whether drag and drop capability is also enabled for the system.		
NFR-076	Office integration	The system MUST allow export of Business Intelligence data and report in TXT, CSV and PDF format.	P-O	
NFR-077	End-users support	The system MUST provide online context sensitive help facilities and user manual help facilities. The system help feature MUST assist users in the recognition, diagnosis and recovery of errors.	P-O	
NFR-078	End-users support	The system MUST include tools such as manuals, tutorials and guidelines.	P-O	
NFR-079	End-users support	The system MUST allow auto-complete in the form fields.	P-O	
NFR-080	End-users support	The system MUST allow the description of the field on the forms.	P-O	

8.2 Technical requirements

Technical requirements				
#	Category	Requirement	Implementation stage	Development requirements clarifications
TR-001	Architecture	The system interfaces MUST be based on the most recent version of Open Contract Data Standard available at the start of the project.	P-C	
TR-002	Architecture	The system MUST be built upon MTender System open source code.	P-C	
TR-003	Architecture	An ad hoc process MUST be foreseen to allow for regular upgrades to the version of the MTender System source code used by the eProcurement system, so that the system can be easily upgraded to the most recent updates of MTender System.	P-O	
TR-004	Architecture	The system MUST be hosted in MCloud.	P-O	
TR-005	Architecture	The system MUST integrate with MPass for authentication of the end-users and other relevant eGovernment services - MConnect, MLog, eFactura, MPay, MNotify.	P-O	
TR-006	Architecture	The system MUST integrate with MNotify for sending notifications by email (mobile notification may be supported in the future).	P-O	
TR-007	Architecture	The system MUST integrate with MLog for logging events in order to monitor the system, allow tracking of issues and incidents, and provide administrators with KPIs.	P-O	
TR-008	Architecture	The system MUST integrate with MPay for allowing electronic payment for e-services.	FD	
TR-	Architecture	The system SHOULD preferably use MConnect to exchange	P-O	

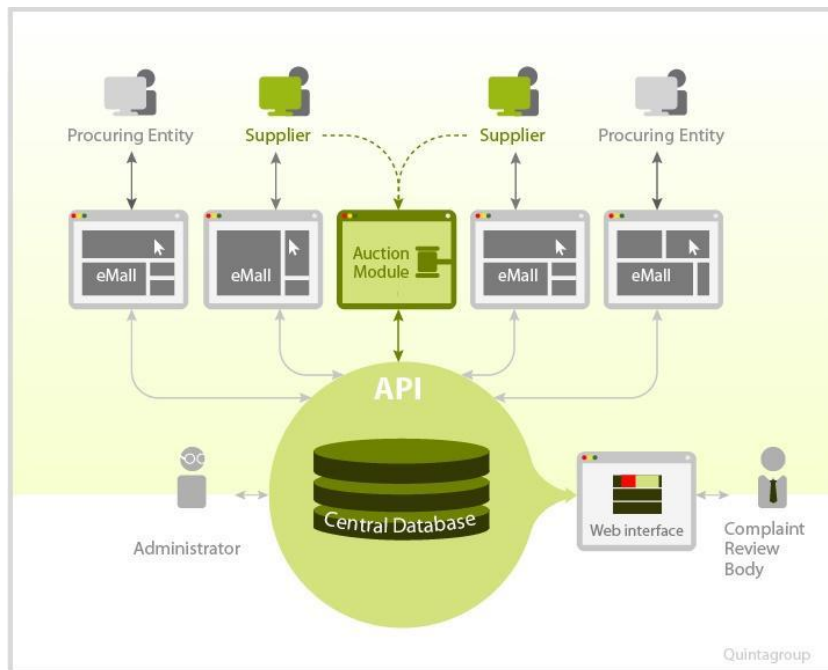


Technical requirements				
#	Category	Requirement	Implementati on stage	Development requirements clarifications
009		information with state registers.		
TR-010	Architecture	The implementation of the system MUST follow open standards and use well-known and widely accepted technologies in order to ensure interoperability, ease of use, and scalability.	P-O	

8.3 Prozorro's integration and lessons learnt

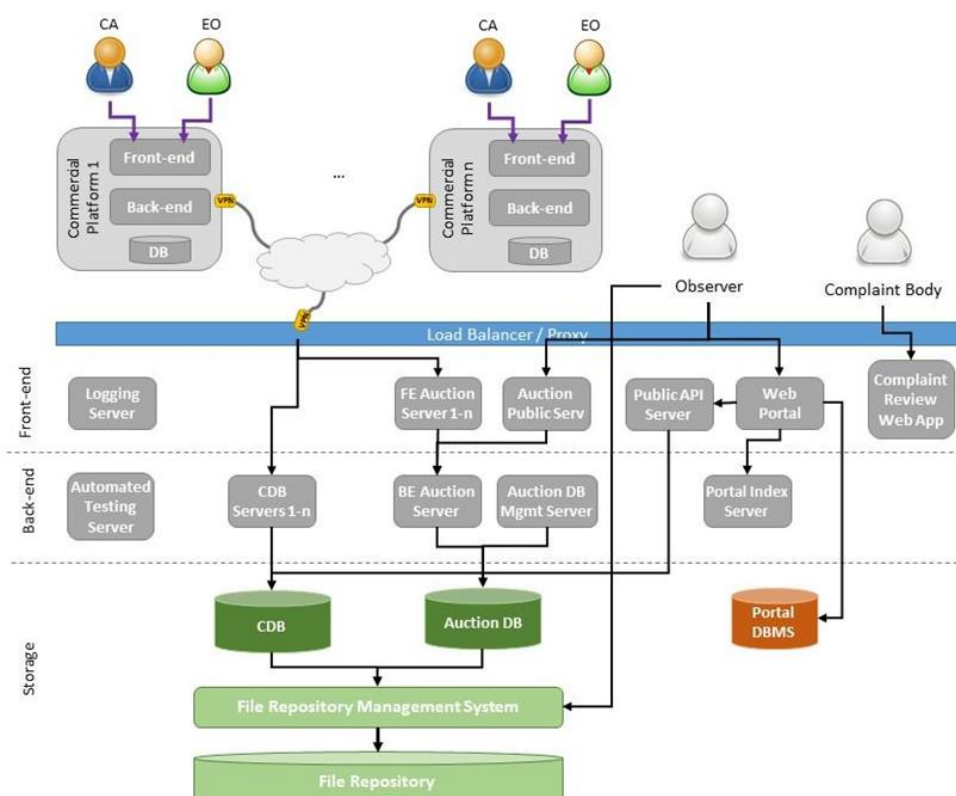
Prozorro is the eProcurement system developed to manage electronic procurement in Ukraine and it is the inspiration for the MTender System. In the following chapter, an overview on the technical aspects of the Prozorro system is provided in order to give a more comprehensive understanding how lessons learned from Prozorro were utilised to design the MTender System.

Figure 5. Architecture of Prozorro system



The figure below depicts the technical components of the Central Database Unit of the Prozorro system.

Figure 6. Technical components of the Central Database Unit of the Prozorro system



The role of each component is described in the following table:

Table 3. Components of the Central Database Unit of the Prozorro system

Component	Role	Internet Connectivity
Networking Electronic Procurement Platform	Networking Electronic Procurement Platforms independent from the Central Database Unit, through which CA conduct all their operations, and EO submit their offers as well as their questions and complaints. Connection between the Networking Electronic Procurement Platforms and the Central Database Unit is secured by a VPN providing an encrypted channel of communication as current legislation. In order to take part in an eAuction, each EO receives through their Networking Electronic Procurement Platform a link to their individual web page, which is generated by the central system. There is no additional encryption over this connection.	Yes
CDB servers 1-n	Cluster of servers, which provide read-write operations and cooperation between the Networking Electronic Procurement Platforms and the CDB. Authorisation for each Networking	Yes, through VPN connection

Component	Role	Internet Connectivity
	Electronic Procurement Platform is provided by the individual admin access tokens.	
CDB	Central database, which contains information about the tender notice, offers received, qualification results, questions and complaints, and results of their review by the complaint body.	No
File repository management system	Server managing the access to the file repository. It controls the access to the files and reads the files from the repository.	Yes
File repository	Storage of the files attached to the tender notices, offers, and complaints.	No
Front-end auction servers 1 - n	Cluster of front-end servers for the eAuction module, which serves eAuction users by: <ul style="list-style-type: none"> displaying an individual user's page; retrieving the current status of the auction from the CDB server; etc. 	Yes
Auction public server	Front-end eAuction server, installed for the observers. It displays the webpage for read-only users, so that everybody can watch how an eAuction is running. Current status of the auction is received from the DB auction server. It does not allow making bids.	Yes
Back-end auction server	Back-end eAuction server. It receives bids uploaded through the front-end auction servers, saves them in the auction DB, and executes the logic of the eAuction module. During the auction, it keeps track of the time allocated to each bidder and it determines the sorting order of the bidders at the end of each round according to the award criteria.	No
Auction DB management server	Back-end server, which provides correlation between the back-end auction server and the auction DB.	No
Auction DB	Auction database, which contains information about the auctions in progress and the bids provided by every participant.	No

Component	Role	Internet Connectivity
Logging server	Server where a register of activities by the API servers, DB servers and Networking Electronic Procurement Platforms are saved. It provides an external interface to allow other stakeholders to consult the logs.	Yes
Automated testing server	Server that runs test scripts on the OpenProcurement API and the software developed by Networking Electronic Procurement Platforms in order to control the correctness of these elements.	No
Web portal	Website that presents procurement information in compliance with legislation, from the CDB through the portal's public API. Contains general information pages as well.	Yes
Portal index server	Server for indexing and storing indexes of records received from the CDB through the public API.	No
Public API server	Server that displays CDB records in read-only mode. Only information allowed for publication by the current legislation is displayed. It does not show offers of the bidders until the opening session (disclosure) of the bids, and it does not permit consultation of files tagged as confidential by a bidder.	Yes
Portal DBMS	Database that is used for storing webpages with static content that are displayed on the web portal.	No
Complaint Review web app	Web interface for the representatives of the Remedies Body. Members of this entity can access the complaint, review it, accept or reject it, and finally publish the decision on the CDB through the API.	Yes, only for allowed IP addresses

8.3.1 Key lessons learnt from Prozorro's experience

Based on the experience of the Ukrainian government in implementing a networking multi-platform eProcurement system, some lessons have been learnt that will help the current project go faster and smoother during its implementation.

- **Keep the system simple.** Not all users are proficient in public procurement and/or IT systems. The system was kept simple (always going through eAuction) and user-friendly. The most valued feature for the CAs was that the system provided an easier and less time-consuming manner to complete their procurement procedures;
- **use an agile approach (scrum or similar methodology).** The Prozorro office and everyone involved in the project used scrum methodology to deliver working versions of the system in

a short period of time, promoting quick-wins and early adoption from day one. It was also used to accelerate other non-IT related issues within the project, such as legal reforms;

- **promote project reputation and trustworthiness.** The perception of a transparent, anti-corruption, and fair system is key to ensuring both the participation of EOs in the system and the support of citizens and politicians. In the Ukrainian case, the involvement of external parties, such as Transparency International, as watchdogs was key in convincing EOs of the fairness and transparency of the system, as well as international donors;
- **communicate through relevant channels.** Ukraine used social media extensively, especially Facebook, to keep momentum high and communicate the achievements and setbacks of the project constantly;
- **allocate budget for communication and training.** A considerable effort was made in informing potential users, both CAs and EOs, about the advantages of Prozorro. Numerous trainings have been conducted all over Ukraine in collaboration with the Networking Electronic Procurement Platforms;
- **get relevant champions of the project** as a way to engage with EOs and CAs. Prozorro was adopted during the pilot by a big company (Metro) as well as by one of the most important CAs, the Ministry of Defence;
- **start with micro value procedures.** The Ukraine experience has been that there are many more tenders in this threshold, and that **resistance to adoption has not necessarily come from small, isolated CAs** with low IT and public procurement skills, as might have been expected. Rather, it has often come from large contracting authorities that were not able to continue with their schemes. In that sense, micro value procedures are a good place to start to mitigate resistance to change;

