

**Approved**

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**TENDER BOOK**

**for**

**Operational Center Unit (OCU)**

**S.I.R.A.T. (SELEC Intelligence Reporting Application Tool)**

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## **TENDER BOOK**

This section is an integral part of the tender documentation for the design, execution, fitting-out, hardware, software, implementation and support services for the SELEC and it represents the whole set of basic requirements based on which each tenderer elaborates the technical proposal.

The requirements imposed through this Tender Book shall be considered as minimal. If any of the tenderers fail to comply with one or more of the requirements, the respective tender shall be rejected as inadequate (irregular).

The technical specifications which indicate a certain origin, source, production, a special procedure, a trade mark, patent, manufacturing license, are mentioned for the easy identification of the product type and do not result in favoring or exclusion of certain economic operators or products. Such specifications shall be understood as having the mention similar or equivalent.

## **GENERAL PROVISIONS**

The tenderer shall elaborate its technical proposal as a project for SELEC (named here “Contracting authority”), containing, without limiting, at least:

- Solution Description
- Technical Project
- Electric Design
- Networking Design
- Detailed requirements matrix
- Description of project management methodology and implementation services.
- Acceptance Tests List

The tenderer declared winner of the tender (hereinafter referred to as “Contractor”) shall have to follow, under the coordination of the Contracting authority all the required tasks and to deliver all the deliverables, including documents, products and services. All the procedures for obtaining all the necessary authorizations, and approvals, according to the Romanian legislation and other applicable regulations of SELEC, as well as to respect the existing Foundation, are the Contracting authority’s responsibility.

The tenderer declared winner of the tender will update and maintain the project documentation.

## **ABOUT THE CONTRACTING AUTHORITY**

The Southeast European Law Enforcement Center (SELEC) is a law enforcement, treaty-based international organization that brings together the resources and expertise of Police and Customs authorities from 11 Member States that join synergies in combating more effectively trans-border organized crime in the region. SELEC was established in 1999 and it’s headquartered in Bucharest/Romania, within the Palace of Parliament.

The National Focal Points are the single point of contact in SELEC Member States for communications with SELEC, through the Liaison Officers of the respective Member State to ensure the rapid information flow, by collecting and distributing the information requests and answers from and to the law enforcement agencies

and the Liaison Officers posted at SELEC Headquarters. The National Focal Points offices are located in each of the SELEC Member States.

## **GENERAL OBJECTIVE**

The scope of the project is to implement a fully-operational Operational Center Unit (OCU) including customized S.I.R.A.T. (SELEC Intelligence Reporting Application Tool) in SELEC Headquarters, integrated with the National Focal Points that will consist of the following milestone components and competences:

High level design of the OCU concept which will include:

- OCU office design, organization and architecture respecting all legal and operational requested certifications;
- Physical security and control access and solution;
- Furniture and fitting design, organization concept and space transformation;
- Video wall configuration and architecture, and integration solution into the command and control (C2) OCU;
- Workspaces for the dispatching staff including project management team;
- C2 operational platform including Geographic Information System (GIS), situational awareness, incident management, reporting, working procedure;
- Integration and communication with National Focal Points including voice and video communication solutions;
- Crisis steering committee room and integration into the OCU including voice, data and video communication.

High level configuration and architecture design implementation for the new OCU network including services convergences solution with the existing SELEC network:

- Switch and routing data network;
- Voice and Data Communication network;
- C2 portal server, data storage and back up concept and solution;
- Information security and physical security solution for OCU concept;
- Fitting, cabling and accessories and implementation for low and strong cabling infrastructure.

Data analytics law enforcement intelligence application including collection information tool and document management solution implementation:

- Law enforcement intelligence data analytic portal and infrastructure concept;
- Law enforcement data analytic application implementation;
- Collection information tool and document management implementation, and backup implementation, security and management;
- Collection information tool and document management implementation, and integration within OCU concept;
- Law enforcement intelligence data analytics application hand over process and user certificated training.

Law enforcement specialized virtual reality training room including concept design, implementation and training.

Customized S.I.R.A.T. (SELEC Intelligence Reporting Application Tool) will ensure a fast collection, analysis and exchange of strategic and operational information among Case Officers, National Focal Points, SELEC Liaison Officers, SELEC analysts.

- A. Case management platform. Includes: Intranet/Extranet web platform that includes:
  - a. Data acquisition & Management system Unlimited licenses
  - b. Reporting & BI
  - c. GIS Integration and Management
  - d. installation and customization
  - e. support
  
- B. Information flow includes:
  - a. Maximum 100 users
  - b. Reporting module
  - c. OCR Module
  - d. Installation and customization

**The bidder must specify the capability to start the implementation in maximum 5 (five days) after the signature of the contract.**

**The bidder must close the project within maximum 100 days.**

**Winner will be awarded based on the rule “best value for money”, as explained in the Annex**

## **GENERAL DESCRIPTION**

In order to execute the first determinate stage of this Project, the Contractor shall have the obligation and the responsibility to perform the activities in full accordance with the applicable Romanian legislation as well as with the SELEC regulations.

The Contractor shall undertake the obligation to elaborate the design in accordance with the architectural solution provided by the Contracting authority and, for that purpose, the design will comply with the functions, gauges and all the information in general included in the present documentation.

**For the final details and accurate measurements, a site survey is required before issuing the bid. Additional work or time overrun due to lack of knowledge of the site is not accepted.**

The Contractor must maintain the Preliminary Project and the Detailed Design.

Preliminary Project (PP) shall contain written documentation and drawings, in accordance with the specifications in this tender book and the outcome of the site survey. It must contain written documentation: descriptions, detailed indication of the materials, equipment and installation, schedule of works.

Detailed Design (DD) shall contain written documentation and drawings, in accordance with the specifications and must contain written documentation: indication of the specific solutions for the methods of work.

The Contractor shall maintain the Preliminary Project (PP) and Detailed Design (DD), under the coordination of the Contracting authority, in order to actual start the work.

In order to execute this Project, the Contractor shall have the obligation to perform the following works, in full accordance with the applicable Romanian legislation as well as with the SELEC regulations.

- execution of all construction works
- interior fitting-out
- supply with the goods and equipment mentioned in the tender book

The Contractor shall not initiate any works without the prior approval of the Contracting authority. In order to execute the above-mentioned works, the Contractor shall also have to procure and deliver all materials, tools, equipment, installations and any other necessary goods. In order to execute the above-mentioned works, the Contractor shall present the list of personnel used.

The Contractor should supply 3D simulation for the furniture and all the proposed furniture should be approved in advance by the Contracting authority.

The Contractor shall execute the works in a manner fitted to cause as little inconvenience as possible to the constructive structures or services in the work site, taking actions in order not to hinder circulation and access, as well as to avoid the destruction or degradation of common areas.

In addition to this, the Contractor shall take measures for fire prevention at the site of the work, being liable for any damage that may occur by fire, both to the work site and the surrounding area, in the absence of such measures, the Contracting authority having no responsibility regarding the violations of those regulations.

Also, the Contractor shall strictly follow all regulations for work safety and environment protection, the Contracting authority having no responsibility regarding the violations of those regulations.

In order to have a fully-operational Operational Center Unit (OCU) including customized S.I.R.A.T. (SELEC Intelligence Reporting Application Tool) in SELEC Headquarters, integrated with the National Focal Points, we have to purchase a VR System, along with Development Services for Multimedia Educational Content and Content for Virtual Reality Applications

## **Chapter A - FITTING, FURNITURE, ELECTRIC AND STRUCTURED CABLING**

### **Infrastructure fitting - equipment and implementation services – Batch 1**

#### **STRUCTURED CABLING DESCRIPTION**

- a. Will be installed a new structured cabling system with the following specifications:

For the new operational OCU Center will be installed a new structured cabling system. For each of the 12 seats and for dispatcher will be 2 data pop-up sockets in desks. Supplementary will be 2 data port for the videowall and one socket for each network printer.

For the other spaces and offices from 9<sup>th</sup> and 10<sup>th</sup> floors will be replaced existing Cat.5 port (including a new structured cabling system) with minimum Cat. 6A and will be added new ports as necessary. The old Cat5 port will be removed.

- For each of the 18 offices of the members of each country SELEC from 10th floor are 8 data ports and will be mounted in new technical floor housing that will replace the existing ones.
- For Operational Meeting room, in restricted area, it will be installed 2 ports mounted in new technical floor housing.
- For the office of General Director of SELEC, including the secretariat and the printers will be installed 14 ports mounted in new technical floor housing that will replace the existing ones.
- For the office of Director of Operation of SELEC, will be installed 4 ports mounted in new technical floor housing that will replace the existing ones.
- For the Conference room (stability hall) will be installed 4 ports in the existent rack.
- For 8 offices from the administrative area, it will be installed a total of 15 new ports (see intercom section) in new technical floor housing.
- For the Server room (9<sup>th</sup> floor) will be installed 2 floor housing (8 data ports each), replacing existing ones.

Two additional ports for each of the 2 network printers in the Operational area.

For vertical connections will be installed a Fiber Optical network of 2 lines, one to connect the network rack from 10<sup>th</sup> floor installed in the Administrative area with the existing network rack from Server room from the 9<sup>th</sup> floor and one to connect the new network rack that will be installed in 10<sup>th</sup> floor (restricted area) from the same rack in Server room.

INTERCOM: SELEC uses 70 telephony ports cabled on the 9<sup>th</sup> floor and they need to be cabled in the new RACK on the 10<sup>th</sup> floor. For that, we need the following:

- a copper intercom consists of 1x100 pairs or 2x50 pairs, 80m length.
- 4 telephony patch panels with 50 ports Cat. 3
- 70 Patch cords Cat. 3

The cabling network will be installed in parallel with the existing one without affecting the activity of the users if possible. After the installed is finished the transfer to the new network will be made with the minimum downtime.

All the cables should be LSZH (Low Smoke Zero Halogen) and to respect the standards to fire propagation.

Will be used F/FTP cable at least Cat.6A and Cat.6A conectics.

The fiber optic will be multimode minimum OM3.

All the cables will be hidden in the existing technical floor using the existing cable trays and flexible tubes. Where is possible the cables will be installed in the existing structure (walls, ceiling).

Data Socket will be mounted in technical floor housing and will replace the existing ones.

The supplier will include all the necessary elements for a professional network that respect the standards (cables, connectors, cable tray, Rack, patch panels and all the mounting elements).

In this specification are included only the network components that need technical details for performance.

The patch cords will go to the server room or network rack where will be connected to patch panels.

All the passive components of the network (cables, connectors, patch panels and patch cords) have to be from the same producer and to have performance certificate from the producer in order to assure the best integration and performance.

- b. The supplier will make all the technical installation details in fully acceptance of the Contracting authority Technical Supervisor.
- c. All the equipment (socket, cables, port, patch panels) will be labelled to permit traceability and network configuration management. The final project supplied will be according to the final labels of the network.
- d. After the finalization of the work and testing and putting in function of the new network the old network will be removed.

#### ELECTRICAL INSTALLATION DESCRIPTION

The electrical installation will be upgraded to correspond the extended office and appliances.

In order to supply all the offices and equipment in the SELEC will be installed a new electrical panel on the 10<sup>th</sup> floor connected through cable from the building electrical panel on the 9<sup>th</sup> floor (approx. 50m). The new panel will have sufficient fuses to connect all the workstations, printers, HVAC equipment and videowall and spare fuse to connect future appliances. The electrical diagram will be inside the panel. All the circuits in the panel will be Schneider Electric / Eaton or similar.

For the 18 offices of the members of each country SELEC from 10<sup>th</sup> floor will be installed new electrical socket with modules mounted in new technical floor housing, one for each member, that will replace the existing ones. For each office we require 12 electrical sockets.

For the office of General Director of SELEC, including the secretariat and the printers will be installed 3 electrical sockets with 4 modules mounted in new technical floor housing that will replace the existing ones.

For the office of Director for Operation of SELEC, will be installed 3 electrical sockets with 3 modules mounted in new technical floor housing that will replace the existing ones.

For the Conference room (Stability hall) will be installed 4 electrical sockets with 4 modules each mounted in new technical floor housing that will replace the existing ones.

For the OCU room will be installed for each of the 13 workstations one electrical socket with 4 modules mounted in technical floor housing, and 13 tower plugged in each desk, with 1 module of electrical socket and 2 USB (pop-up style). For videowall and printers and HVAC equipment will be separate circuits and electrical sockets.

For Operational Meeting room, in restricted area, it will be installed 8 module of electrical socket and 2 USB in the middle of the oval table.

For the Server room (9<sup>th</sup> floor) will be installed 10 floor housing (6 electrical sockets each), replacing existing ones.

All the electrical socket will be connected to the electrical panel on the 10<sup>th</sup> floor with copper cable type CYYF 3x2,5mm and will be installed in existing or new cable tray, depending on the infrastructure. If possible, in some situation if the existing cable respect the standard it can be used or reconfigured. If not, it will be replaced with new cable.

The Contractor must provide quality services and has to be compliant at least with:

- ISO 9001 (Quality management)
- ISO 14001 (Environment management)
- ISO 27001 (Information security information)
- Experts and certifications:
  - The supplier must be authorized by the producers for the structured cabling, rack, ups and should have at least one specialist certified by the producer for each.
  - ANRE 2A/2B Certification for company and at least 2 engineers / technicians certified ANRE for Electrical installations.

#### A. TESTING AND FUNCTIONING REQUIREMENTS

The Contractor must comply with the following:

- Check the continuity of the cables
- Category tests for F / FTP and optical fiber cables, with electronic test bulletins
- All copper wires must be tested in accordance with IEC 61935-1 standard and test procedures recommended by the manufacturer.
- Testing of copper links must be done in accordance with EN 50174 Ed.3.
- The cabling system must be tested against ISO Class EA limitations.
- Measurements must be made using level 4 test equipment.
- Channel performance must be stable up to 500MHz.
- Testing equipment must be calibrated annually by its optician. In order to prove that he can comply with this requirement, the tenderer will include a copy of the calibration certificate in the technical offer.

Warranty:

- Minimum 2 years for products, services, fitting and furniture

## Furniture and Fitting – Batch 2.

### a. OCU Room (Operational Center Unit ~500x400)

In the OCU Room will be installed one video wall systems and one big operational desk with 12 generic seats and 1 special dispatcher seat.

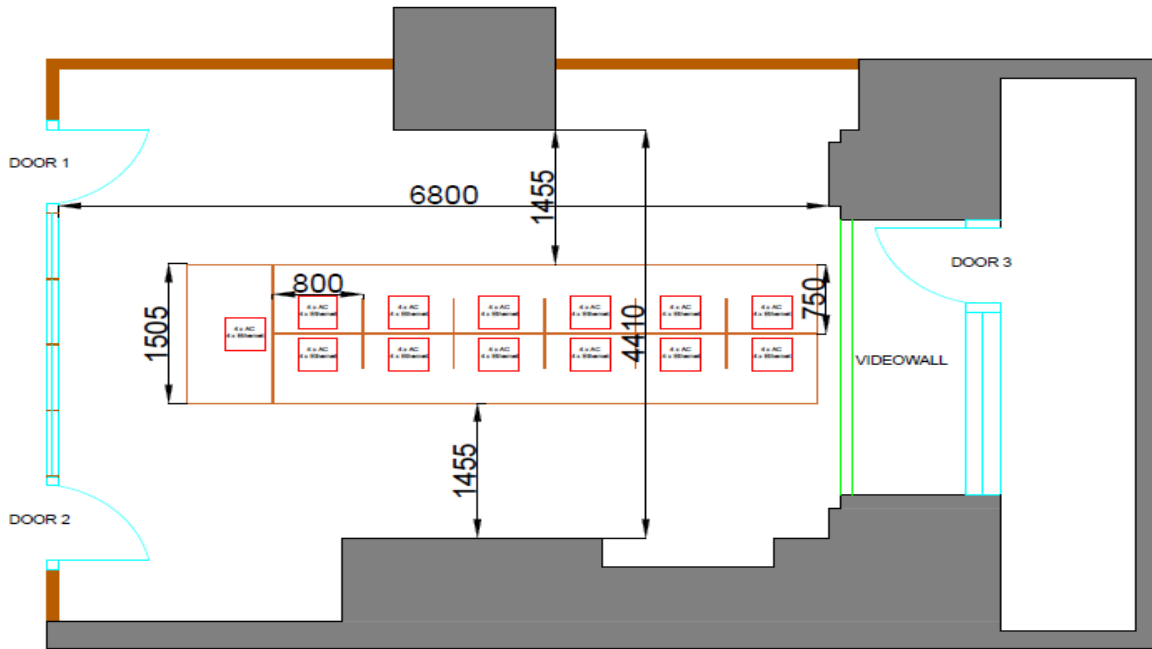


Chart. Operational Center Unit

The room surface will be extended by modifying the access wall and the side wall moving the existing wood wall (if possible), as in the below drawing. If the wood wall cannot be moved, a new one will be built. On the two glass doors will be mounted keylock with cipher. There is also the option to reuse the existing doors.

For the window to the balcony of the room will be applied new louvers.

In the room will be installed one big operational desk with 12 offices 750x750mm separated between them with maximum 15 cm separators with professional round design and one office of 1500x800 for dispatcher with plugged in pop-up with 3 electrical sockets and 2 USB port. The desk will have no sharp edges. For all the offices will be supplied also ergonomic office chairs.

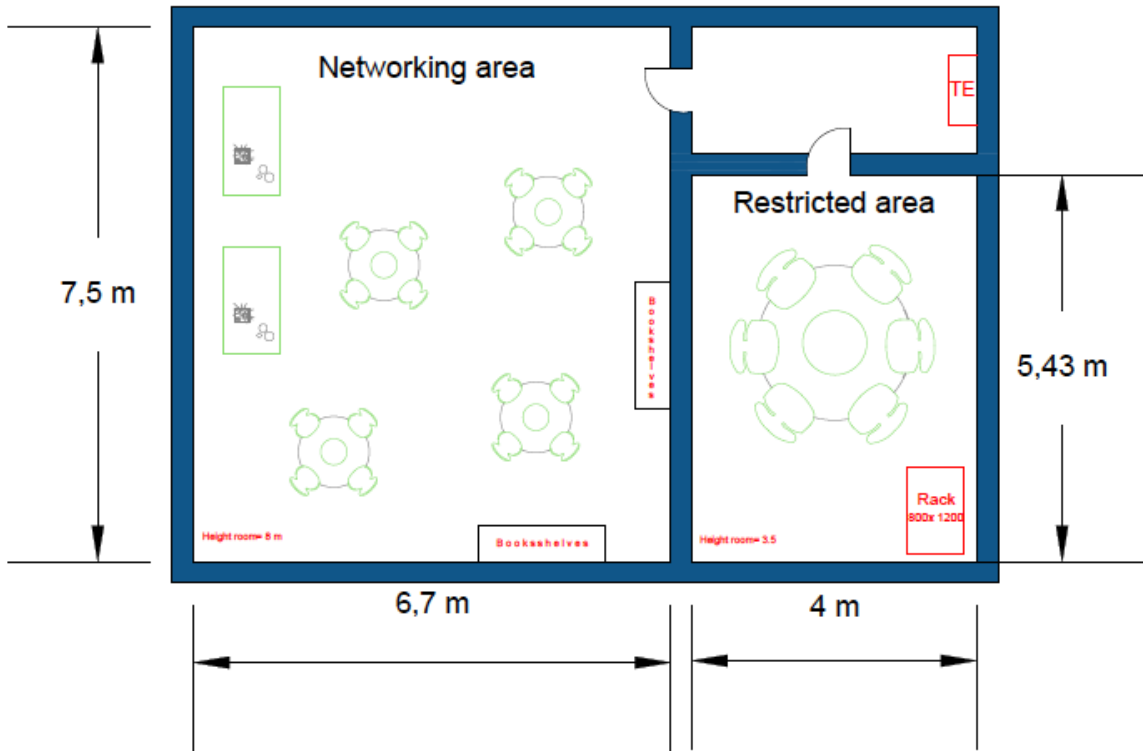
**SELEC is looking for a modern and high-quality desk and chairs to provide an excellent work environment and to fit into the general picture of the SELEC headquarters.**

**The design, quality and materials used for the operational desk and the ergonomic chairs will be set during the site survey.**

In the OCU room will be installed 1 new air conditioner, floor mounted on the side walls of the room. The cooling units will have a nominal capacity of at least 3.5kW, with inverter in cooling mode with the maximum dimensions of the unit (LxHxl) 720mmx620mmx200mm. The cooling circuit from the inside unit to the condenser outside will be made under the technical floor and the condenser will be installed on the balcony. The existing air conditioner will be moved in the Operational Meeting room (Networking area)

### b. Operational Meeting room (Door sign Operational Meeting Room 500x400)

- i. One restricted area door sign 300x200
- ii. One networking area door sign 300x200



**Chart. Operational Room**

The height of the restricted area will be modified from 2.5 meters to 3.5 meters by installing a new false cassette ceiling with new led lights with the dimensions 600x600 mm. The access from the room to balcony will be closed by a new cardboard wall with a door. All the technical floor will be covered by carpet.

In the restricted area will be installed a professional meeting desk, round design with 8 ergonomic meeting chairs.

In the restricted area will be installed 1 new air conditioner floor mounted on the side walls of the room. The cooling units will have a nominal capacity of at least 3.5kW in cooling mode with the maximum dimensions of the unit (LxHxl) 720mmx620mmx200mm. The cooling circuit from the inside unit to the condenser outside will be made under the technical floor and the condenser will be installed on the balcony. The existing air conditioner will be moved in the Operational Meeting room (Networking area)

The networking area should be equipped with necessary furniture (tables, chairs, shelves, desk, a/o)

The walls in the operational meeting room (restricted area and networking area) will be repainted without modifying the room layout. Also, the floor baseboard will be replaced. Repairs of the walls, ceiling and floor is also needed.

Both rooms (OCU and Operational meeting room) should be secured from physical security and control access point of view.

**c. SELEC Server Room**

The existing OCU Server room, in the 9th floor will be refit.

In the SELEC Server room all the IT equipment will be rearranged in two IT Racks and the structured cabling will be Modified / Upgraded for the new format to assure a fully functioning system.

In order to increase the efficiency of the cooling equipment in the room, the existing cooling equipment will also be rearranged in the room and will be installed one new HVAC equipment floor standing, min 7,1 kW standard cooling capacity, inverter and anti-dust filter.

For the Server room will be installed a new roof at 0.3m over the existing compartment made of PVC modular mounted on the metal structure of the room.

### Estimated Quantities

#### Lan Network:

Description	U/M	Quantity.
Network passive components		
Cable F/FTP Cat.6a, 4x2xAWG23/1, 500MHz, LS0H, Dca, blue	m	10000
Patchpanel for 24 modules TOOLLESS LINE, 1UH, 19, RAL7035"	pc.	10
Module RJ45 shielded, Cat.6a, ISO/IEC 11801 AMD2, TOOLLESS LINE	pc.	214
Centralplate for 2 modules (SFA)(SFB), 45x45mm, angled, RAL9010	pc.	105
Module RJ45 shielded, Cat.6a, ISO/IEC 11801 AMD2, TOOLLESS LINE	pc.	214
Cable organizer 19' 1U, RAL7035	pc.	13
Cable organizer 19' 2U, RAL7035	pc.	2
Rack patch cords		
Patchcord Cat.6a/10GB shielded RJ45,LS0H,orange 1m	pc.	50
Patchcord Cat.6a/10GB shielded RJ45,LS0H,orange 2m	pc.	100
Network patch cords		215
Patchcord Cat.6a/10GB shielded RJ45,LS0H,orange 1m	pc.	30
Patchcord Cat.6a/10GB shielded RJ45,LS0H,orange 2m	pc.	120
Patchcord Cat.6a/10GB shielded RJ45,LS0H,orange 3m	pc.	50
Patchcord Cat.6a/10GB shielded RJ45,LS0H,orange 5m	pc.	15
Floor boxes		
Floor box with adjustable height 75mm to 105mm, 18 modules, grey RAL7031, stainless steel cover	pc.	7
Floor box with adjustable height 75mm to 105mm, 12 modules, grey RAL7031, stainless steel cover	pc.	25
Multi-support single socket Mosaic - German standard - 2P+E without shutters - 2 modules	pc.	10
Multi-support multiple socket Mosaic - 2 x 2P+E automatic terminals - standard	pc.	21
Cable mounting accessories		
plastic flexible installation tube, medium black, D25mm L50m	m	450
back-to-back fastener, 13mm (roll of 25m)	pc.	2
perforated metal cable tray, 60x300x0.75mm	m	9
plastic cable ties, 3.5x200 (100 pcs.)	pc.	1000
Cable tray mounting accessories	pc.	50
Testing and labeling	pc.	1

**Intercommunication FO:**

Description	U/M	Quantity.
Optic cable A/I-DQ(ZN)BH 12x50/125µm OM3, LS0H-3.	m	160
Splicebox, fully equipped, 24 fibres, LC, 50/125µm OM3, sliding,19", 1U, ECO	pc.	3
Patchcord duplex, LC/LC, 50/125µm OM3 2m	pc.	10
Patchcord duplex, LC/LC, 50/125µm OM3 3m	pc.	10

**INTERCOM**

Description	U/M	Quantity.
Multipair telephone cable		
Cable F-vYAY 100x2x0,5 gri	m.	80
Voice patch panel		
Patchpanel Cat.3 unshielded 50xRJ45U 8/4 RAL7035	pc	4
Voice patch cords		
Patchcord Cat.5e unshielded RJ45 gri 1m	pc	15
Patchcord Cat.5e unshielded RJ45 gri 2m	pc	35
Patchcord Cat.5e unshielded RJ45 gri 3m	pc	20

**Rack restricted area + Server room:**

Description	U/M	Quantity.
Rack cabinet for Data Room on 9th floor 42U 750x1100 mm, steel, front door with safety glass, metal side panels and rear door, 3 cable entries and fan cut-outs, 2 pairs of depth adjustable heavy duty 19" mounting rails, 2 pairs of adjustable feet, black	pc.	1
Rack 42U 750x1100mm, steel, front door with safety glass, metal side panels and rear door, 3 cable entries and fan cut-outs, 2 pairs of depth adjustable heavy duty 19" mounting rails, 2 pairs of adjustable feet, black in the restricted area	pc.	1
19" vertical cable organizers, set of 2 pcs. (left + right), for 42U 750mm racks, Ral9005	pc.	2
power distribution unit 19", 9xDIN 49440 (schuko), plug DIN 49441 (unischuko) 16A/250V, red ON/OFF switch with blind	pc	4
Schuko socket with rubber cover, with 16A IP44 cable, black (for 16A cables)	pc	4
signal grounding key	pc	2
Flexible V/G conductor for earthing racks in datacenter	m	20
Nut in housing + M6x4 screw with PVC washer	pc	100

**Air Conditioning Server room and OCU:**

Description	U/M	Quantity.
HVAC Equipment Server room Cabinet floor standing with 7,1 kW standard cooling capacity with fans with inverter motor and anti-dust filter included.	pc.	1

HVAC Equipment OCU floor cassette mounted on the wall with nominal capacity of at least 3.5kW in cooling mode with the maximum dimensions of the unit (LxHxI) 720mmx620mmx200mm.	pc.	2
All the necessary materials for installation of the two HVAC Equipment	pc.	3

#### Furniture:

Description	U/M	Quant.
Conference Table	pc	1
Overall Size Conference Table: approx.: 5,6/1,5/1 <sup>1</sup>	.	
PVC Lamination with Beveled Floating Edge Top MDF or Wood – (PAL excluded) Minimum wood height: 30 mm Metal or wood underframe Light separators, Material (MDF or wood, PAL) min 30mm thickness Color: White		
Ergonomic chairs	pc	13
Supported Weight: minimum 120 kg Type: modern Grey / Black Ergonomic Hydraulic mechanism for height Armrest of metal or mixt metal/plastic/leather Wheels Total Height: minimum 110 cm (including headrest) Total width– minimum 60 cm Back rest: minimum 50 cm Seat width: minimum 55 cm Sear depth: minimum 50 cm Textile or ecological leather or both		
Meeting Table – in restricted area	pc	1
Meeting table specifications - Restricted area Oval shape to fit in the room with 8 seats Material (MDF or wood, PAL) min 30mm thickness Chairs – as in the OCU Room – 8 pcs		
Bookcase – in networking area	pc	1
Bookcase made from MDF, or high-quality PAL, or similar material - Adjustable shelves and glass doors. - The total size: ~L2000mmxH1800mm (made from 2 or 3 parts)		
Table with Chairs set – in networking area	pc	4
Table with Chairs: - 4 high-quality tables (modern of glass or MDF, round or square, – surface of: min 0.6 sqm – max 1.5 sqm; height 0.7 – 0.8m) - 16 chairs (plastic transparent or wood) – with backseat, fixed for high		

\* During the site survey

traffic. - minimum weight supported 120 kg - 4 metal feet		
Set stand up desk – in networking area	pc	1
Carpet: for heavy traffic, grey (in line with SELEC’s style), modular	m <sup>2</sup>	To be measured*
Installation services	pc	1

## Chapter B - Development Services for Multimedia Educational Content and Content for VR

In order to have a fully-operational Operational Center Unit (OCU) including customized S.I.R.A.T. (SELEC Intelligence Reporting Application Tool) in SELEC Headquarters, integrated with the National Focal Points, we have to purchase a VR System, along with Development Services for Multimedia Educational Content and Content for Virtual Reality Applications

The platform must be tailored and customized by the bidder to be accordingly with the educational content.

It must consist of 2 sets with the following minimum requirements:

- At least compact 2.5x2.5m<sup>2</sup> Space Stage
- Headset Control for Content Start
- A TV to show the Content Synchronously
- VR Headset (2K)
  - o 2K Eye-protective LCD Screen (2160X1200)
  - o Dual AMOLED 3.6" diagonal
  - o 110°FOV & IPD Adjustment
  - o Low latency Low afterglow No dizziness
  - o Ergonomic & Adjustable head strap Design
  - o Compact and Lightweight
- We are looking for a platform like the following picture:



## **Educational Content Presentation**

Within the current procedure, the Contracting Authority intends to purchase custom made multimedia educational content. The content will be used for the training of the participants in charge with the identification of transports of illicit goods. The Contracting Authority's main objective is to reduce the illegal traffic with illicit goods through the dissemination of best practice developed in the successful missions which have been carried out.

The multimedia content will be used as an educational resource within the training sessions organized by the Contracting Authority. In order to meet the particular needs of the Contracting Authority, the training materials developed within the contract must fall into two categories:

- multimedia interactive content which will be played on the existing desktops in the training centre of the Contracting Authority and will offer the needed medium for putting into practice the information presented during the trainers' lectures;
- content for a virtual reality application which will offer the trainees the possibility to directly interact with one of the training scenarios presented during the training.

In total, within the contract, a total of eight interactive content course modules and 1 virtual reality application with 1 work scenario implemented will be purchased. The minimal characteristics with which the 2 types of content must comply are presented below.

## **Interactive Multimedia Content**

### ***General requirements***

The interactive multimedia content which will be purchased within the present procurement procedure must comply with the following requirements:

- the content will be designed, developed and delivered as 8 independent course modules
- each module must be autonomous, in the sense that it's use must not depend on input data or on actions carried out by the trainee in other modules;
- each module must be designed so that it can be used as a didactic resource within the face-to-face training programmes carried out by the Contracting Authority within its own training centre
- the course modules must work properly both locally, on desktops and laptops, and on-line, through a learning management system which is SCORM compatible;

- the course modules will be developed in English, but their format must allow for the facile translation in other languages.

The selected provider will develop interactive multimedia educational content on a minimum of 8 border control scenarios. The scenarios will be formulated and agreed upon with the Contracting Authority in the analysis phase of the contract.

### ***Didactic Requirements***

The multimedia interactive content in the 8 course modules must comply with the following didactic requirements:

- the content must focus on the development of decision making and problem-solving abilities among the students;
- the multimedia training materials must create a work environment where the trainees can learn through discovery, benefitting from guidance at any stage within the content;
- the training materials must provide the trainees with a safe environment which will allow them to practice, try different solution, redo tasks in order to acquire the skill level sought after by the Contracting Authority;
- the training materials will provide an accommodating training environment, which will not sanction error, but will use it to identify those aspects which are unclear for the trainees and to guide them in the correct direction using feedback.

The bidders will describe the concrete way in which they will ensure that above mentioned requirements will be observed in the multimedia content they will develop.

- the multimedia content will be developed especially for adult training; taking this into account, the instructional design must observe the following requirements>
  - i. the content will offer the trainees control upon the learning rhythm and upon the didactic itinerary;
  - ii. the course materials will take into account the trainee's previous experience in order to integrate the new knowledge easier;
  - iii. the multimedia material will have a practical character, providing the framework and the work instruments which will allow the trainees to apply the information they learn during the course;
  - iv. the multimedia course materials must be relevant for the trainees' needs, and will be designed to help them identify solutions for the problems they face in their daily activities;
  - v. the multimedia materials must include an appealing work format and diverse activities in order to prevent monotony or trainee demotivation.

The bidders will describe the didactic strategy they intend to propose so that they will meet the requirements presented above. At the same time, they will describe the concrete way in which each of the above-mentioned requirements will be met during the instructional design process.

- each course module will be based on a distinct instructional scenario, inspired from the daily activity of the future trainees, based on the practice of border control of goods meant to reduce illicit goods trafficking;
- the subject matter information and the necessary materials used as models for the creation of scenarios, characters, graphics and background elements will be provided by the Contracting Authorities; still, the bidders must include in their own team experts in the field who can provide the information and assistance needed so that the developed instructional scenarios are useful, complete, correct and in accordance with reality.
- the instructional scenarios will include multiple paths to follow which will lead to different solutions; only one of the solutions the trainees can choose will be correct, while the others are either wrong or will allow for reaching the expected results only in part;

The bidders will describe the didactic model they intend to employ and the practical way in which they will implement the above-mentioned requirement, according to the specifics of the training materials to be developed following the current procedure.

- the multimedia content must be designed and developed so that it contributes directly to accomplishing the educational objectives of the training programmes it will be part of; The bidders will describe their proprietary instructional design practices which will be employed in order to ensure that this requirement is met.
- the multimedia content must be designed so that they provide the information needed to exactly measure the actual progress of the trainee compared to the course learning objectives; The bidders will describe the way in which they will formulate the course modules' educational objectives and will ensure that they will be reached. The bidders will exemplify their method using an objective they will formulate, on a course subject of their choice.

### ***The Course Module Structure***

Each of the 8 course modules will be designed and developed based on an interactive, branched scenario. In this respect, the course modules must comply with the following requirements:

- each module will be structured in "screens";  
A screen is the multimedia equivalent of a digitized page and will be the smallest measure unit for the content. It may include various types of resources, from text to images, videos, diagrams, tasks, etc.
- each module will be designed and developed as a branched scenario, that is as an itinerary which can follow multiple paths, each of them set out according to the choices made by the trainee in certain key moments along the script;
- a branched scenario must include at least the following screens:
  - i. introduction screens meant to describe to the trainee the context in which the scenario will unfold, which will be relevant for the successful completion of the scenario
    - they will rely on images, filmed sequences or animations in order to persuasively present the context in which the trainee will operate;
    - will provide the trainees with the input information needed in order to choose the correct course of action throughout the scenario;
    - will present the final result trainees are expected to achieve at the end of the scenario; the expected result will be quantifiable so that it can be easily told apart from a partial or incorrect result;
    - will focus on the authenticity of the background, characters, events and dialogues presented in order to facilitate the trainee immersion in the scenario which is about to start.

The bidders will present their own approach to introducing branching scenarios and will explain the way in which they will ensure that the above-mentioned requirements are observed.

- ii. choice-type screens which introduce a certain context in which the trainee must take decisions in order to advance through the scenario;
  - each screen of this type will be interactive;
  - the screen must include a didactic interactivity which will require the trainee to perform an action in order to successfully solve the task, advance and eventually reach the correct result;
  - the trainee will always have the possibility to choose between different possible course of action;
  - the trainee's choices send the trainee on different branches of the scenario;
  - each scenario will include at least 8 choice-type screens;

- each choice-type screen must be authentic and must come from the trainees' field of work and daily activity;
  - a maximum of 50% of the didactic activities will rely on the interpretation of theoretical information presented in the course (ex. identifying the legal norm which will be applied in a certain situation)
  - the rest of the activities must rely on decisions the trainee needs to take after analysing the task context and relying on his/her own experience and on the information presented in the training;
  - the trainee will always have to choose between correct, incorrect and less-than-perfect solutions; the less-than-perfect solutions will not lead to obtaining the desired final result);
- iii. consequence-type screens, which present the way in which the decisions taken by the trainee in the challenge-type screens have influenced the way the scenario unfolds and the results they led to;
- are based on images, filmed sequences, text, voice in order to present the consequences of the actions carried out by the trainee in order to solve the challenge;
    - o each consequence must be realistic and credible, extracted from the trainees' field of work and daily activity;
  - guide the trainee to a new challenge-type screen, on the scenario branch he/she follows.
  - provide feedback concerning the consequences of the chosen course of action, it's influences on the way in which the scenario will unfold and, on the probability, to reach the desired result;
    - o the feedback provided is formative, prompt, thorough and clear, it guides the trainee and offers the possibility to redo a wrong choice;
- iv. conclusion-type screens which present the result the trainee obtained;
- close the branched scenario;
  - indicate if the obtained result is the correct;
  - justify why the obtained result is / isn't the desired result;
  - if the desired result was not reached, it offers the possibility to play the scenario from the beginning in order to improve the obtained result.

Throughout a branching scenario, the trainees will have at their disposal an instrument which will indicate their progress towards obtaining the desired result. This instrument must also indicate the deviations for the optimal itinerary in a clear, easy to understand manner. This instrument must be included in all the challenge-type and consequence-type screens in the branched scenarios.

The structure described above is a minimal requirement that must be met by all the branched scenarios developed following the present procurement procedure.

### **Content material**

Various content items can be included in the screens which make up the branched scenarios. All the content items used must serve the didactic purpose of the course and will not be used for purely aesthetic reasons. The Contracting Authority formulates a set of requirements for certain content categories which must be observed by the bidders:

Images:

- good quality imagery will be used throughout the course materials, with resolutions of min 72 dpi, preferably 109 dpi;

- the images used for the activities within the branched scenarios must depict authentic contexts, which are specific to the trainees' activity;
- the bidders must not use only generic imagery, without direct connection to the specifics of the course context and theme;
- the markings, uniforms, signage must be specific to the field of activity of the Romanian Border Police.

#### Video:

- the video content must be elaborated based on the information and the indications contained in a storyboard which is validated in advance;
- the video content is elaborated according to a production design meant to unify the specifications, technical elements and creative means employed;
- the production must be carried out in a relevant location which is in line with the course specific
- the location must include relevant décor elements for the subject of the video content;
- the inscriptions, uniforms, markings must be specific to the activity of the Romanian Border Police;
- the video sequences must employ professional actors, able to interpret the characters depicted in the storyboard and to bring added credibility and expressivity to the story;
- the minimal technical requirements for the filmed sequences included in the multimedia content are:
  - video: min HD resolution, extended dynamic range (min 14 stops), lossless codec, 12-bit depth of colour, logarithmic colour curve
  - audio: sound recorded from an external source, 24bit/96kHz
  - the final material must have colour correction and gradation, regardless of the export and encoding characteristics.

#### Voice:

- each module will have human voice narration, in Romanian.

#### Didactic activities:

- the didactic activities included in each course module must be interactive in the sense that they must intermediate the direct interaction between the trainee and the information he/she is provided with in the course;
- the didactic activities' role is not to facilitate de memorization of data, but to facilitate the processing of information and the development of competencies based on that information;
- the interactivity which consists of operating the navigation controls, accessing and operating menus and controls which help play the multimedia items is considered functional interactivity, with no didactic relevance and does not meet the Contracting Authority requirements;
- the didactic activities included in the course modules must be diverse; they will include at least the following types of tasks:
  - multiple choice questions
  - dual choice questions
  - hotspot
  - selection (drag and drop)
  - sorting

The bidders must describe their own approach for didactic interactivity and the specific way in which they will use interactivity within the content in order to meet the above-mentioned requirements.

### ***Content sequencing, navigation***

The trainees must pass freely from one stage to another within a branched scenario. The scenarios will not impose a certain itinerary the trainees have to follow. They will have the freedom to explore any of the scenario branches and to analyse their results so that, afterwards, they can redo the scenario and improve their performance.

In order to make transitions between content sequences easier, each module must be divided into distinct sections, which are easily identifiable, according to the structure previously indicated by the Contracting Authority. The trainees must be able to easily understand the role of the section they are in, what they are required to do next and the alternatives they have already tried. Each section will have its own distinct role. The bidders must describe the solutions they propose in order to meet these requirements. Navigation within a branched scenario must be intuitive. The navigation controls must be easily identifiable, intuitive and easy to use. The bidders will describe the practical way in which they will implement navigation through the multimedia content so that they meet these requirements.

The branched scenarios must run properly both on desktop or laptop systems and on mobile devices. The content items must be accessible, and texts must be readable even on smaller screens. The screen size must not impede on the quality of the education experience the user has. The bidders must present the solutions they will implement so that the multimedia materials meet these requirements.

### ***Standards***

Each of the multimedia course modules proposed by the bidders must run locally, on a desktop or laptop, and on-line, within a learning management system (LMS). The modules must be portable on different LMSs. To this end, all the multimedia course module must be compatible with the SCORM 2005 reference model or an equivalent e-learning standard, with similar adoption rates.

### ***Usability***

The multimedia content must be used properly by any individual with basic PC operation skills (basic operation skills include using a browser for on-line navigation, using a text editor, opening and playing multimedia items like videos, opening documents in browsers).

For the design of the multimedia materials, the bidders will employ design and usability principles which can ensure the design and development of easy-to-use, appealing and effective learning materials. The bidders must present the design principles they will use and the way in which they will be applied to serve the ease-of-use, appeal and effectiveness of the multimedia content.

The trainee will be able to access a Help section, which will be available in the course materials interface, in an easy-to-spot and accessible location. The Help section will offer the trainee all the necessary information on how to run the interactive scenarios, the navigation controls use, on running the didactic activities, interpreting the information concerning the results obtained. The information in the Help section will be clear and comprehensive, organized in topics.

### ***Technical Solutions***

The contracting Authority requires that the entire multimedia content can be edited by staff within the Contracting Authority, without any need for specific programming skills on their behalf and for further development or assistance services from the content provider. The bidders will present the solution they plan to use for interactive multimedia content development and the practical way in which it observes the above-mentioned requirements.

The technical solution used by the bidders for content development must be accessible for the Contracting Authority. It must be available off the shelf, must include support services and training services for using it.

The multimedia content will run properly both on Android and on IOS powered mobile systems. It will also run properly on desktop systems with Windows 8 or more recent operating systems.

The multimedia content will be delivered in HTML5 format. The multimedia content must run properly on the following browsers:

- Internet Explorer v.9 and more recent;
- Chrome 32 and more recent;
- Safari v. 7 and more recent.

## **Content for Virtual Reality Applications**

The Contracting Authority intends to contract the development and installation of a virtual reality environment in which the institution can implement and deliver training activities.

The aim is to purchase and set up a virtual environment in which to replicate specific activities related to goods inspections for identifying tobacco-based products trafficking. The Contracting Authority intends, on one hand, to use this new learning medium in order to provide a more motivating experience for the trainees, one that is closer to reality, and on the other hand to increase the overall appeal of the training programme.

The content and the virtual reality application through which the content will be accessed must ensure the smooth unfolding of the work scenario, interactivity with elements from the virtual environment and realism.

The environment where the simulated scenario will unfold will be a virtual one, developed by the selected content provider. The environment will use 3D models and will benefit from the same dynamics as a “point and click” application. It will include all the elements, stages and defining actions specific to this type of activity (goods inspection carried out by the agents). The work procedure, the composing elements of the scene, the script for the inspection which is reproduced in the virtual environment will be decided upon together with and will be validated by the Contracting Authority.

The work scenario will be built upon the specific procedures which are applicable in these situations. The trainee will be able to interact with and consult information on the procedure applied in the VR scenario. Throughout the scenario, in designated locations, certain actions which should be performed by the trainee in order to obtain the desired result to be signalled to him / her in case he / she is not able to spot them.

The environment will allow the trainee's avatar to move through the virtual space, to enter enclosed spaces (ex. the interior of an automobile), the interaction with objects in the space where the scenario unfolds (ex. moving a panel, opening a door), zooming in on a section, checking papers, having conversations with the characters the avatar interacts with during the scenario, accessing information resources (course materials with support information).

Within the virtual scenario, it is mandatory that the details of the environment (a certain moment in the day, a season), the buildings and structures (e.g. border crossing checkpoint), vehicles (cars, transport vehicles), specific signs, markings and uniforms are simulated realistically. The interactions in the scenarios must be realistic, whether they imply objects or people.

The virtual reality content must be developed in modules, so that the Contracting Authority can add new scenarios or expand the existing ones with new elements, according to its future necessities.

The application must be able to collect data regarding the user, the actions he / she performs, the time when these actions are performed, and the results obtained from them. The collected data will cover at least the following information:

- the time spent in the virtual scenario;
- the number of locations visited by the trainee avatar;
- the number of items discovered from the total number of items which must be found.

The application will publish a report for each user after the scenario is finalized. The report will present the trainee's results in graphic, easy to understand format. The report will be accessed by the trainer.

The trainers of the Contracting Authority must be capable to operate and configure the application which manages the activity in the virtual environment. The bidders will provide the training and support services for the Contracting Authority staff who will operate the VR application and content. Once the Contracting Authority purchases the VR application and content, the institution will not have to cover any other licensing expenses to third parties in order to run the VR solution or any of its components.

The bidder must describe in the technical offer the methods used for the design of the VR solution, the process and technical solution for developing the VR application and the corresponding content.

Also, the bidder will describe the hardware and software infrastructure needed for the proper functioning of the VR solution and the way in which it will be set up in the training headquarters of the Contracting Authority. The application and the VR environment will run locally, on hardware installed in the training centre. The VR content and application will run on a desktop hardware platform, employing a VR headset and controllers. The application will be used by one trainee at a time, without any interaction with other users.

## Development Methodology

The bidders will describe their methodology for the development of multimedia content. The methodology will briefly present the concrete way in which the bidders plan to implement:

- multimedia educational content items development and the development of the virtual reality content, indicating the steps in the workflow;
- transferring the didactic performance standards to which the bidder commits within the developed content;
- collecting the client's requests and measuring the degree to which they have been met;
- quality assurance;
- effective communication with the client and development traceability.

The bidders must briefly describe the way in which the presented methodology was applied in a project involving multimedia content development implemented by them.

## Expert Profiles

The bidders must allocate a dedicated team with all the relevant competencies needed for the successful implementation of the project. The minimum structure and requirements for the project team are presented below.

### i. Multimedia educational content design expert

Requirements:

- specialized in educational software design
- expertise in adult training
- general work expertise in IT&C of minimum 5 years
- specific work expertise: taking part in the implementation of at least 1 project in which the expert carried out activities in line with the specific responsibilities for this position.

Responsibilities:

- choosing the didactic strategy for the multimedia courses
- elaborating instructional scripts and storyboards for the development of multimedia educational content
- providing didactic consultancy for the development team).

### ii. Multimedia educational content development expert

Requirements:

- general work expertise in IT&C of minimum 5 years
- specific work expertise: taking part in the implementation of at least 1 project in which the expert carried out activities in line with the specific responsibilities for this position.

Responsibilities:

- developing educational content in interactive multimedia format using the technical solutions proposed by the bidder
- ensuring the content compatibility with the e-learning standards proposed by the bidder.

### iii. Video and multimedia expert

Requirements:

- specialized in directing and / or video production
- general work expertise in cinematography and multimedia of minimum 5 years

- specific work expertise: taking part in the implementation of at least 1 project in which the expert carried out activities in line with the specific responsibilities for this position.

Responsibilities:

- developing the script for the video and animated sequences which are used in the educational content
- creating the video and animated sequences which are used in the educational content.

## Chapter C - IT Infrastructure and Application

In order to have a fully-operational Operational Center Unit (OCU) including customized S.I.R.A.T. (SELEC Intelligence Reporting Application Tool) in SELEC Headquarters, integrated with the National Focal Points, we have to implement and integrate the following components:

**Note:** Wherever there is a model or brand specified, it is done for better understanding of the business requirements and the respective specification must be interpreted as “similar with”.

- A. In the OCU Room will be installed one video wall systems having frameless design to form an entirely flat seamless digital canvas allowing a completely homogeneous image across multiple unified screens.
- B. 25 All In One desktop systems
  - a. 12 All In One desktop systems for the OCU room
  - b. 1 All In One desktop system for the dispatcher position in the OCU room
  - c. 12 All In One desktop systems for the National Focal Points
- C. 15 Notebooks
- D. 3 powerful Workstations with dual monitors for the Analysts equipped with full disk encryption PGP or similar.
- E. Software COTS for Advanced Analysis specific to Law Enforcement operations
  - a. IBM I2 ANB
  - b. IBM I2 iBase
  - c. IBM I2 Designer
  - d. IBM I2 TextChart
  - e. IBM I2 iBase Geographic Information System
- F. GIS Platform
- G. Microsoft SQL Server Standard Edition
- H. Customized S.I.R.A.T. (SELEC Intelligence Reporting Application Tool)
- I. Mobile Device Management Software
- J. Management and Monitoring solution for the entire infrastructure
- K. Advanced Security Solutions
- L. Audio and Video Conference system

M. Data Centre Servers and Network Equipment

- a. Switches
- b. Routers with traffic encryption capabilities
- c. Servers
- d. Storage
- e. Backup appliance
- f. Multifunctional Printer

A high-level design for the above components in in the following diagram.

NFP	All In One - Notebooks - Routers - Video Conference			
End User	Video Conference	All In One	Notebooks	Analyst Workstations
Application Layer	I2	ArcGIS	S.I.R.A.T.	Portal
Admin Layer	Backup	MDM	Management and Monitoring	Security
Hardware Layer	Rack		Servers	
Network Layer	Routers and Switches			

**TECHNICAL REQUIREMENTS**

This section consists of the detailed description of modules listed in General Description section.

**A. Video Wall**

In the OCU Room will be installed one video wall systems having frameless design to form an entirely flat seamless digital canvas allowing a completely homogeneous image across multiple unified screens.

Seamless Video Wall Surface with good visual appearance and image homogeneity using frameless design with a minimal inactive screen area of minimum 0.9 mm.

High energy efficient LED backlit display having low power consumption, long backlight lifetime and lighter design for easy transportation, mounting and integration.

Native UHD Daisy Chaining to enable the user to create UHD video walls with either a single UHD image or 4 different Full HD sources.

Reliable color reproduction with minimum 10-bit color performance, large viewing angles and hardware calibratable LUT for accurate image rendering.

Ability to monitor and control the heat inside the display.

Ability to manage all connected display devices from a centralized location.

The display must be hardware color and brightness calibrated to secure a consistent image presentation over the entire video wall.

Reliable and secure for mission critical applications with 24/7 operational performance.

### **Videowall monitors**

The video wall must have the following minimum requirements:

Panel Technology	S-IPS with Direct LED backlights
Active Screen Area (W x H) [mm]	1,210 x 680
Screen Size [inch/cm]	55 / 139
Aspect Ratio	16:9
Brightness [cd/m <sup>2</sup> ]	500, 300 Eco
Contrast Ratio (typ.)	Static Contrast 1200:1; Dynamic Contrast 150000:1
Viewing Angle [°]	178 horizontal / 178 vertical (typ. at contrast ratio 10:1)
Response Time (typ.) [ms]	8
Bezel Width [mm]	Max 1.8
Panel Refresh Rate [Hz]	60
Haze Level [%]	44
Supported Orientation	Face Up; Landscape; Portrait
Horizontal Frequency [kHz]	31.5 - 91.1
Vertical Frequency [Hz]	50 - 85
Native Resolution	1920 x 1080 at 60 Hz
Input Video Analogue	1 x D-sub 15 pin
Input Video Digital	1 x DisplayPort (with HDCP); 1 x DVI-D (with HDCP); 1 x HDMI (with HDCP); 1 x Interface Extension Slot; 1 x OPS Slot
Input Audio Analogue	2 x 3,5 mm jack
Input Audio Digital	1 x DisplayPort; 1 x HDMI
Input Control	LAN 100Mbit; remote control wire (3,5mm jack); RS232
Output Video Digital	1 x DisplayPort out (loop through: DisplayPort, DVI-D, HDMI, Interface Extension Slot, OPS)
Output Audio Analogue	3,5mm jack
Output Control	LAN 100Mbit
Remote Control	LAN with SNMP; Remote Control IR; RS-232C (9-pin D-sub) Input
Temperature Sensor	Integrated, 3 sensors, triggered actions programmable

NFC Sensor	Integrated, 2cm range
Operating Temperature [°C]	+0 to +40
Operating Humidity [%]	20 to 80
Energy Efficiency	Carbon savings meter; ECOMode; Energy efficiency class: B; Human Sensor
Safety and Ergonomics	C-tick; CE; Energy Star 6.0; FCC Class A; PSB; RoHS; TÜV GS; UL/C-UL or CSA; VCCI
Pixel Failure Class	ISO 9241-307, Class 2

Sound of the system must have the following minimum requirements:

Woofers	(2) 3 inch (76 mm) polypropylene cone w/rubber surround
Passive Radiators	(2) 3 x 4-3/8 inch (76 x 112 mm) polypropylene cone w/rubber surround
Tweeters	(2) 1 inch (25 mm) polyester dome
Amplifier Power	20 Watts per channel, stereo
Frequency Response	100 Hz to 20 kHz (±3 dB)
Output Sensitivity	83 dB SPL @ 1 meter, both channels driven @ 1 Watt each
Input Sensitivity	0.75 Vrms per channel for full rated output
Go To Sleep Time	20 minutes (±5 minutes) with no signal present

**The videowall monitors shall be supplied with a custom mounting solution tailored according to the on-site requirements**

#### **Control Processor**

The control processor must be real-time, preemptive multi-threaded/multitasking kernel; Transaction-Safe Extended FAT file system and must supports up to 10 simultaneously running programs.

Features:

- Onboard 512MB RAM & 4GB Flash memory
- Expandable storage up to 1TB
- Rear panel memory card slot
- High-speed USB 2.0 host port
- Industry-standard Ethernet wired communications
- iPhone®, iPad®, and Android™ control app support
- SNMP remote management support
- One RS-232/422/485 COM port with hardware and software handshaking
- Two RS-232 COM ports with software handshaking only
- Eight IR/serial, eight relay, and eight Versiport I/O ports
- Programmable event scheduling with astronomical time clock
- Full Unicode (multi-language) support
- Secure access through full user/group management or Active Directory integration
- Hardware level security using 802.1X authentication
- JITC certified model available for use in secure network environments
- TLS, SSL, SSH, and SFTP network security protocols
- FIPS 140-2 compliant encryption
- IPv6 ready
- Front panel USB computer console port
- Delivered with a computer interface in order to command and control the matrix switcher remotely via LAN interface

## Matrix switcher for digital video and audio

The system must support at least 17 video digital input ports and at least 9 video digital output ports and at least 8 analog Bi-directional configurable analog stereo ports (input/output) with embedding and de-embedding capabilities.

The matrix will be equipped with:

- Processor board, Video data rate 12,8Gbps
- Provide Ethernet and RS-232 extension to the endpoints
- Frame Detector for input signal analysis on any port
- Multiple TCP/IP connection
- Non-blocking topology
- Advanced error handling and logging with time code
- Combine non-HDCP and HDCP capable I/O boards in the same frame
- Advanced EDID Management
- Intuitive control software
- HDCP compliant
- Simultaneous control over several interfaces
- Redundant power supplies
- Hybrid Modular and Cross Platform technology
- Full crosspoint configuration save and reload as preset (32 presets) Control Options:
- Front panel buttons and 4 line LCD menu
- RS-232
- TCP/IP Ethernet (multiple connections)
- Built-in website (multiple access)
  
- Remote access to matrix switchers
- Setup and programming through Ethernet connection
- 10/100 Ethernet connection
- Programmable Preset
- XY control possibility
  
- 16 HDMI input ports
- HDMI 1.4a; DVI and HDCP compliant
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), 1080p @ 120 Hz, 2560 x 1600, 2048 x 2048, HDCP enable/disable mode, HD video resolutions and all 3D formats are supported
- Advanced EDID Management and Frame Detector
- Pixel Accurate Reclocking
- Dolby TrueHD and DTS-HD Master Audio
- 36-bit deep color support
  
- 1 Dual Link DVI compatible (one Dual Link port uses two Single Link ports) input
  
- 4 HDMI output ports supporting 3D and 4K
- 4 TPS output ports accepts HDMI + Ethernet + RS-232 over one CAT5/6/7 cable up to 170m distance
- HDMI 1.4; DVI and HDCP compliant with or without HDCP
- 4K / UHD (30Hz RGB 4:4:4, 60Hz YCbCr 4:2:0), 1080p @ 120 Hz, 2560 x 1600, 2048 x 2048, 10/100 Ethernet transmission
- Supports all HDMI audio formats
- Pixel Accurate Reclocking
- Advanced EDID Management
- Frame Detector
- Compatible with deep color, Dolby TrueHD and DTS-HD audio

- 1 Dual Link DVI compatible (one Dual Link port uses two Single Link ports) output
- 8 Bi-directional configurable analog stereo ports with 5-pole Phoenix connector
- Stereo PCM audio up to 96 kHz can be de-embedded from the HDMI signals
- Stereo audio (up to PCM 48 kHz) can be embedded (or replaced) into the HDMI signal
- Volume, gain, balance, bass and treble control
- Phase invert and de-emphasis option

**Receiver for video and audio signals transmitted through Cat X cables (2 pieces)**

- HDMI1.4 + Ethernet + RS-232 + bidirectional IR HDBaseT receiver over CATx cable.
- HDCP, 3D
- Supports 4K / UHD (30Hz RGB 4:4:4 , 60Hz YCbCr 4:2:0) resolution
- Working up to 170m extension distance.
- Remote powering through matrix switcher outputs boards.

**Receiver for video and audio signals transmitted through Cat X cables that must be mounted in monitors (2 pieces)**

- Fully compatible with the monitors offered
- HDMI + Ethernet + RS-232 and IR HDBaseT receiver over CATx cable.
- Supports resolutions up to 4K2K at 24/25/30 Hz and 1920 x 1200 at 60 Hz
- Working distance up to 100 m using cat X cables

Ancillary materials needed to make a fully functional assembly including but not limited: power and ethernet cables, fixing hardware but not including HDMI cables

**B. All In One desktop systems – 25 pcs.**

They must meet the following minimal requirements

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
Processors	Minimum Intel Core i5-8500T or equivalent
Chipset	Intel H310 or equivalent
Design	All In One
Display	Minimum 23" diagonal FHD (1920 x 1080)
	2.0 megapixel webcam (FHD)
Installed Memory	Minimum 8 GB DDR4, 2666 MHz
Maximum Memory	Up to 32 GB DDR4-2666 MHz
Internal Storage	Minimum 256 SSD M.2 NVMe SED
Optical Drive	Integrated, DVD-RW

Audio	internal stereo speaker
	headset and headphone (3.5 mm)
Available Graphic	Integrated video with shared memory.
Communications	802.11 ac
	Bluetooth 4.2
	Integrated 10/100/1000 Ethernet Controller
Ports and Connectors	1 x DisplayPort
	4 x USB 3.1
	3 x USB 2.0
	1 x RJ-45
Operating System	Windows 10 Pro 64, OEM
Software	Microsoft Office 2019 Standard Antivirus for Windows with 3 years support
Input Device	USB Wired Keyboard USB Optical Wired Mouse
Power	Maximum 170 W, up to 90% efficiency, active PFC;
Energy Efficiency Compliance	ENERGY STAR; EPEAT Silver
Warranty	Next business day Onsite The provider will grant a minimum warranty period of 24 months HDDs that will experience hardware failures during the warranty period will be replaced with other HDDs (with identical or higher performance) without being returned to the Provider (regardless of the nature of the defect). Both HDDs (replacing and replaced HDDs) will remain the property of the Beneficiary
Accessories	UPS 750VA / 500W Tower, minimum 6x IEC320 C13 (10A) output connections
Note:	External adaptors for the equipment's interface and ports will not be accepted.
	The products presented in the offer will be accompanied by all the necessary accessories for them to function (hardware and software module) at the parameters demanded in the present technical specification, even if the beneficiary has omitted to request them explicitly.
	It is requested to attach documents issued by the manufacturer containing the technical specifications for the products presented in the offer.
	The delivered equipment will be new. Remanufactured equipment and/ or equipment containing elements which were previously used is not accepted.

### C. Notebooks 15 pcs.

They must meet the following minimum requirements:

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
Processors	Minimum Intel Core i7-8650U or equivalent
Display	Minimum 13.3" diagonal, FHD IPS anti-glare, non-touch, Brightness: 300 cd/m2 ISO 9241-307 - Pixel class II
	Built-in webcam (HD)
Installed Memory	Minimum 16 GB DDR4, 2133 MHz
Internal Storage	Minimum SSD M.2 PCIe NVMe 512GB SED
Audio	stereo speakers
	dual digital array microphone
Available Graphic	Integrated video with shared memory.
Communications	802.11 ac
	Bluetooth 4.2
	4G/LTE - optional
Ports and Connectors	1 x HDMI
	1 x USB Type-C
	2 x USB3.1 Gen1
	1 x headphone/microphone combo
	1 x RJ-45
Expansion Slots	1 smart card slot
Security	TPM 2.0
	Integrated palm vein sensor
Operating System	Windows 10 Pro 64, OEM
Software	Microsoft Office 2019 Standard
	Antivirus for Windows with 3 years support
Pointing Devices/ Keyboard	Multi gesture touchpad with two mouse buttons, spill resistant
Battery	4-cell, up to 11 hours
Weight	Maximum 1.2 kg
Energy Efficiency Compliance	ENERGY STAR; RoHS
Warranty	Next business day Onsite
	The provider will grant a minimum warranty period of 24 months HDDs that will experience hardware failures during the warranty period will be replaced with other HDDs (with identical or higher performance) without being returned to the Provider (regardless of the nature of the defect). Both HDDs (replacing and replaced HDDs) will remain the

	property of the Beneficiary
Note:	External adaptors for the equipment's interface and ports will not be accepted.
	The products presented in the offer will be accompanied by all the necessary accessories for them to function (hardware and software module) at the parameters demanded in the present technical specification, even if the beneficiary has omitted to request them explicitly.
	It is requested to attach documents issued by the manufacturer containing the technical specifications for the products presented in the offer.
	The delivered equipment will be new. Remanufactured equipment and/ or equipment containing elements which were previously used is not accepted.

3 of the notebooks must be equipped with an advanced full disk encryption having the following minimum requirements:

It must leverage the encryption mechanisms provided by Windows (BitLocker) and Mac (FileVault), taking advantage of the native device encryption, to ensure compatibility and performance.

There must be no additional agent to deploy and no key management server to install.

Encryption management from the same cloud or on-premise console you are using for endpoint protection

It must use proven native encryption for Windows (BitLocker) and Mac (FileVault) and must avoid performance issues, with no new agent required

It must be simple to deploy to endpoints and manage or restore keys from a console

It must provide encryption specific reports to help us to demonstrate compliance

It must have pre-boot authentication enforcement

#### **D. Workstations with dual monitors for the Analysts 3 pcs.**

They must meet the following minimum requirements:

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
Processors	Minimum Intel Xeon E-2124G or equivalent
Installed Memory	Minimum 32 GB DDR4, 2666 MHz
Maximum Memory	Up to 64 GB DDR4-2666 MHz
Internal Storage	Minimum 1 x 512 GB SED SSD
Optical Drive	Integrated, DVD-RW
Available Graphic	Dedicated, Radeon Pro WX 5100 8GB or equivalent.
Communications	Integrated 10/100/1000 Ethernet Controller
Ports and Connectors	1 x DVI

	2 x DisplayPort
	1 x Audio In
	1 x Audio Out
	5 x USB 3.1
	2 x USB 2.0
	1 x RJ-45
	1 x power connector;
Drive Bays	M.2-2280: 1 x on mainboard (for PCIe or SATA SSD modules)
Operating System	Windows 10 Pro 64, OEM
Software	Microsoft Office 2019 Professional Plus Antivirus for Windows with 3 years support
Input Device	USB Wired Keyboard USB Optical Wired Mouse
Power	At least 280 W, up to 90% efficiency, active PFC;
Dimensions / Weight / Environmental	Dimensions (W x D x H): 334 x 339 x 90 mm Operating position: horizontal / vertical Weight: maximum 10 kg Operating ambient temperature: 10 - 35 °C
Energy Efficiency Compliance	ENERGY STAR; RoHS, WEEE, Microsoft Operating Systems (HCT / HCL entry / WHQ
Display (2 pcs.)	Display Size (diagonal): 23.8" Display Type: In-Plane Switching (IPS) technology, anti-glare; Viewing Angle: 178° horizontal; 178° vertical Aspect Ratio: 16:9 Contrast Ratio: 1000:1 Response Time: maximum 5 ms Brightness: 250 cd/m <sup>2</sup> Native Resolution: 1920 x 1080 Input Signal: 1 x VGA; 1 x DisplayPort 1.2; 1 x DVI, USB: minimum 3 x USB 3.1 Audio sound output: 2 x 2W  Power consumption (typical): Operating maximum brightness: maximum 21 W Power save mode: maximum 0.28 W
Warranty	Next business day Onsite The provider will grant a minimum warranty period of 24 months

	HDDs that will experience hardware failures during the warranty period will be replaced with other HDDs (with identical or higher performance) without being returned to the Provider (regardless of the nature of the defect). Both HDDs (replacing and replaced HDDs) will remain the property of the Beneficiary
Note:	External adaptors for the equipment's interface and ports will not be accepted.
	The products presented in the offer will be accompanied by all the necessary accessories for them to function (hardware and software module) at the parameters demanded in the present technical specification, even if the beneficiary has omitted to request them explicitly.
	It is requested to attach documents issued by the manufacturer containing the technical specifications for the products presented in the offer.
	The delivered equipment will be new. Remanufactured equipment and/ or equipment containing elements which were previously used is not accepted.

**E. Software COTS for Advanced Analysis specific to Law Enforcement operations**

a. IBM I2 ANB

IBM i2 Analyst's Notebook is a visual analysis tool that helps you turn data into intelligence. The solution provides innovative features such as connected network visualizations, social network analysis, and geospatial or temporal views to help you uncover hidden connections and patterns in data. This insight can help you better identify and disrupt criminal, cyber and fraudulent threats.

Perform analysis of a wide range of data types with a flexible data modeling and visualization environment.

Gain insight into and deeper understanding of data using multiple analysis views including association, temporal, spatial and statistical views.

Use integrated social network analysis capabilities to increase understanding of the structure, hierarchy and method of operation of criminal, terrorist and fraudulent networks.

b. IBM I2 iBase

IBM® i2® iBase is an intuitive intelligence data management application that enables collaborative teams of analysts to capture, control and analyze multi-source data in security-rich workgroup environments. It addresses the analyst's daily challenge of discovering and uncovering networks, patterns and trends in today's increasing volumes of complex structured and unstructured data. i2 iBase provides a multi-user data sharing environment that combines rich analysis and visualization capabilities with dissemination tools.

Flexible data acquisition and management capabilities and automated task driven analysis facilitate data acquisition, importing and modeling for further analysis.

Security rich data access built in collaboration tools and user notifications increase team efficiency and awareness.

Rapid out of the box deployment, a flexible data model and intuitive user design help teams experience the benefits of i2 iBase quickly.

c. IBM I2 iBase Designer

We plan to use iBase Designer to perform the following types of task:

Design databases— this process usually involves consulting with the intended users to decide exactly what information is to be stored and in what form.

Create and update databases— includes creating all the required entity and link types and keeping them up-to-date as requirements change.

Configure databases— setting up the features that affect how the database is used, such as predefined code lists, labeling schemes, auditing, and assign semantic types.

Administer the database— tasks that are done regularly, such as adding new users, maintaining passwords, setting security, and deleting old records.

Perform tasks that can only be done when other users are excluded from the database— this type of task includes bulk imports into SQL Server databases and applying schema updates.

d. IBM I2 TextChart

IBM® i2® Text Chart is a powerful, intuitive, user-controlled text extraction and visualization application that helps overcome the challenges associated with the assimilation of unstructured data.

It quickly transforms text-based information into a structured graphical format, facilitating the production of understandable and valuable materials for analysis purposes.

With Text Chart we plan to highlight key information within text-based documents, extract, and visually represent those details in an intuitive chart.

We usually work with a collection of documents, so Text Chart will help us to discover and extract high value information from each document and present the findings as a consolidated view.

e. IBM I2 iBase Geographic Information System

IBM® i2® iBase Geographic Information System Interfaces (GIS) enables the user to use GIS mapping applications as part of the data analysis. We want to plot entities and links in IBM® i2® iBase databases to maps and then analyze them visually using the analysis tools in the mapping application.

We plan that sets and queries to be passed back to iBase for further analysis, and entities and links to be sent to and from IBM® i2® Analyst's Notebook®.

Entities and links will be plotted on the map using geocode data, in the form of x and y coordinates. Additional data will be sent to the mapping application, and data will be displayed using icons or symbols, and labels.

## ***Certified training***

After delivery of the products, during the implementation phase, the winner must provide official I2 certified trainings as the following:

- Ibase user (advanced)
- Ibase designer
- Analyst Notebook (advanced)

Training sessions must be instructor lead.

If necessary, all training sessions can be hosted on our premises and we can provide all the necessary equipment (laptop, projector, pen and paper, etc.).

Otherwise, the winner must support all the training related expenses, including travel and accommodation (if training are held outside of Bucharest).

We require trainings for 4 people located in Bucharest.

## **F. GIS Platform**

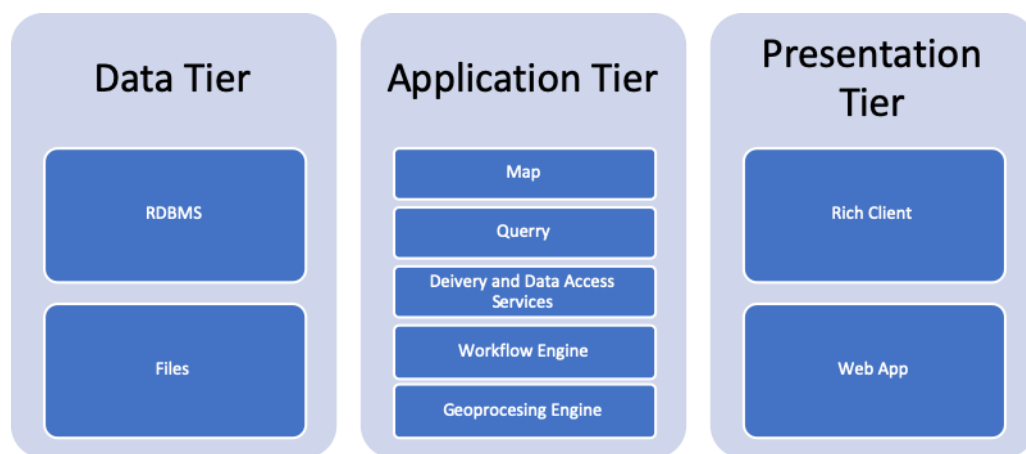
The proposed GIS Server must respect the 3-Tier Architecture principle:

- Presentation Tier
- Application Tier
- Data Tier

From this principle could be an exception for initial data loading using a dedicated desktop GIS solution used in order to load the data into the system. The desktop solution can connect directly to the data in order to extract, process and load.

The presentation tier must offer possibility to address users with web applications, mobile apps, and rich client applications.

The Application Tier must address the following components: data services, tiling services, geoprocessing services, data access services and OGC data services



### ***Data Tier***

The platform must allow access to different sources of content, by enabling connections to different types of internal and external providers. The following content types must be present:

- Imagery – Internal imagery datasets available for the apps.
- Vector Data - Internal vector data available from direct connections to an Oracle, Microsoft SQL Server or PostGIS database)
- GeoServices - OGC WMS, WMTS and WFS Services created from internal content available in any of the supported enterprise spatial database), external OGC WMS, WMTS and WFS Services and base mapping services (OpenStreetMaps and Here Maps), which can be made available for app.

### ***Application Tier***

#### **Map**

The system must be designed and implemented as a high-performance geospatial platform by using state of the art development patterns, map rendering optimization and caching techniques, geometry simplification and performance of data delivery to clients in context of thousands simultaneous accesses of users and poor connectivity at the level of communication infrastructure.

The system must provide reliable vector caching techniques, which must address the following challenges:

- Reduced I/O operations to store and access tiles;
- Guaranteed file sizes and consistent distribution;
- Significant performance gains in tile production;
- The payload against the data source to read data and generate the tile is also minimized;
- Minimalizing the overall storage size and data transfer.

The system must prove improvement in handling of vector data, especially suited for static datasets or those with low frequency update rates that are typically used as vector backdrops (e.g. topographic maps). Using latest technics, like automatic geometry simplification, vector caching, the system must ensure a reduced number of requests to the map server, reduced cache file, and improved access and rendering speed, yet preserving full legend control capability (i.e. show hide individual layers).

## Query

The Query component must offer a highly flexible approach for querying data, as it is not bound to a predefined set of queries as typically found in other commercial solutions. Must provides a powerful and easily understandable API to query attributive and spatial data, based on RESTful web services open to all programming languages.

The query definition is constructed at the client side source code based on user inputs, and transformed into standard SQL syntax that is then sent to the application server through HTTP GET/Post Requests. Multiple formats are supported for the response to be displayed at the client side, including attributive tabular data, in standard JSON and CSV formats, and spatial data, in GeoJSON format.

## Delivery and Data Access Services

The system must provide robust and reliable data access services to databases and to tile cache files.

Regarding delivery mechanisms of spatial data, the system must provide RESTful web services OGC Services (WMS, WMTS and WFS) and ECWP (optimized protocol for streaming ECW imagery).

## Workflow Engine

The system must provide highly configurable rules and workflow engine that enables organizations to implement life-cycle workflows, feature-level access control, data validation and behaviour, and integration into other systems.

Workflow Engine must:

- Process experts pre-define report, form, and plot layouts,
- Configure geospatial processes (i.e. "workflow trees") based on XML files,
- Define automatic validation and conditions for each workflow node,
- Drive (remote control) the different clients (map content, area, scale, functions),
- Define task-specific forms (for queries, analysis, editing, reports, etc.) using XML files, including text boxes, check boxes, drop-down lists, and context-based help,
- Integrate external applications on the server side,
- Define workflow steps and forms based on user- and rights-management, including connection to Active Directory or LDAP,
- Define disconnected workflows and forms, which enable the end users to capture and edit attributive and spatial data while offline from the internet:
  - o A synchronization process enables posting edits back when the client reconnects
  - o Project based conflict handling can be added via Workflow definitions
- Triggering of server processes by user workflows using XML workflow triggers

A graphical workflow designer should be available for administrators in order to:

- Create your unique workflow with a modern and easy-to-use graphical interface
- Easily extend and customize your workflow
- Respond faster to business requirement changes

## Geoprocessing Engine

The platform must include a geoprocessing engine in order to enrich the automatic data processing and the user workflows. Into the platform must be present a module for designing environment that allow operators to be assembled into spatial models that execute specified geospatial workflows by defining relationships to data sources and other operators and models. Models may perform combinations of raster, vector, and point cloud operations. Models assemble sets of operators into more complex algorithms and relate to datasets and inputs and generate results. Existing models can be customized so that organizations can create important variations of them for specific purposes or create entirely new models.

An **operator** is responsible for encapsulating a computational element that performs calculations, processes data, fuses information, analyses, or visualizes a large variety of data formats. Each operator includes ports which describe the inputs, outputs, and parameters of the function. These ports dictate required and optional inputs and prerequisites, ensuring that all necessary information is available prior to executing the operator. Operators are linked together using these ports.

A developer kit must be present to allow for creation of new operators using a development environment. This can be used to create operators that incorporate third party algorithms, allowing for very powerful and seamless integration with the rest of the geospatial operators.

These models and the services created when they are published should be strung together in sequence, nested, and reorganized in many ways to support specific workflows. The platform must give offer instruments to test step-by-step during development and results viewed in real-time, thereby accelerating the authoring cycle. In the end, the platform must offer the “published” environment as a RESTful web service from where they are consumed by different applications from platform or other systems from organization.

Through this approach, specialists and census matter experts develop methods and algorithms, author and authenticate the models, and then publish them as web services. End users may then execute these approved geospatial web services in a reliable and consistent manner. This mechanism provides great flexibility for taking “best-of-breed” algorithms from different sources (government, academia, industry) and assembling them into services for broader use.

The platform should include the following geospatial models:

- Terrain Analysis - Terrain Differencing, Automatic Terrain Generation
- On demand map generation - Execute cartographic web services (CWS): Create GeoTIFF from CWS, Create Geospatial PDF from CWS
- Elevation processing - Smooth Elevation Values, Remove Elevation Spikes, Flatten Terrain, Detect Vertical Obstructions

Once these operators have been assembled into models published as services, the platform must offer intuitive configuration to integrate them into stand-alone targeted applications, essentially creating very intuitive interfaces for accessing and executing these geospatial web services.

## **Presentation Tier**

The platform must allow building different types of client applications, including:

- Rich Client web applications to access from desktop clients
- Thin Client web applications to access from web browser clients
- Native apps to access from mobile devices (iOS and Android)

## **Rich Client Apps**

The platform should offer a rich client that is easy to be deployed, self-configuring and self-updating. The client must uses web protocols and standards for communications, but must be entirely separate and does not need to run in web browsers.

Rich Client main features must includes the following:

- One-click start-up for a user to get working with the client

- Application configures automatically based on user profile
- Automatic updates without user action
- Look and feel and performance of a desktop application

The rich client must have the following characteristics:

- High-level Cartographic Map Display
  - o Extended style capabilities based on OGC standard “Symbology Encoding” (SE)
  - o Definition of very complex and scale-dependent styles
  - o Coordinate system support, including support for geographic (Lat/Lon) and custom coordinate systems within the primary database (ORACLE and Microsoft SQL Server)
  - o Use of SVG icons to style points, line strings, and area fills
  - o Support of Rich Text Format (rtf) and halo effects
  - o Style Editor
  - o Raster backdrop supported by file-based image formats and web services
    - Raster format support for TIFF, JPG and PNG
    - Client side integration of WMTS including on the fly coordinate transformation
    - Client side Bing Maps (street maps, imagery and imagery with labels) integration including coordinate transformation on the fly
      - Client side ECWP integration (imagery is scaled and delivered on the fly - no need for pre-cached tile set)
- Measurement. Including various commands to perform point, linear, circle, and area measurements on features. The measure results are represented in the client as a working level. The user can create and delete the following measurements:
  - o Point (coordinates)
  - o Line (angle and length)
  - o Cumulative distance (segment length, angle, and polyline length)
  - o Circle (radius, perimeter, and area)
  - o Polygon (side length, perimeter, area, and angles)
- Dimensioning. Including various commands to dimension features on the map. The dimensioning results are stored in the database and represented in the client as a working level.
  - o Utilize snapping with any dimensioning function
  - o Simple Dimensioning – allows you to depict the distance between two points of a feature
  - o Orthogonal Dimensioning – allows you to depict the distance between two points of a feature, drawing the line orthogonally displaced from the existing line feature
  - o Free Dimensioning – dimensioning line can be placed “free” regarding the vertical orientation
  - o Radial Dimensioning – allows you to create radial dimensions for circle and arc features
  - o Chain Dimensioning – includes Orthogonal Chain Dimensioning, Chain Absolute Dimensioning, and Chain Difference Dimensioning
  - o Edit/delete dimensioning text and position
- Redlining. Enables drawing new graphics on the map such as points, polylines, polygons, buffers, or text. The graphics can be stored in the database or just in the local cache directory, and represented in the client as a working level. Redlining commands include:
  - o Draw text features, polylines, polygons, rectangles, buffers
  - o Edit existing redline features
  - o Copy existing features to the redline working level
  - o Delete an existing feature(s)
- Feature Selection. Enables selecting features on the map, which is essential for conducting queries. Features can be selected by clicking on the map or may be based on spatial “fences” represented by geometric objects such as circle or polygons. The user must select active features by: Point, circular, polyline, rectangular, polygonal fence, Map window extent, Click on the map.
- Attribute and Spatial Queries. Enables filtering geographic objects based on specified attributive and spatial constraints. Results of the query can be observed in the corresponding data window while objects are highlighted in the map. Results can also be sorted and exported to Microsoft Excel®, for example.
  - o Search with attributive input (“Input-Query”) – allows you to execute queries based on attributive constraints

- Search with map selection (“Selection-Query”) – allows you to conduct queries based on a spatial map selection; the selection could be created by clicking on objects or by defining spatial fences
  - Combined Search – allows you to run an “Input-Query” on already pre-selected objects
- Snapping Tools. Enables accurate creation, editing, measurement, or dimensioning of features by snapping to existing vertices, midpoints, endpoints, intersections, and tangents. Most tools are also supported by assigned “F keys.”
  - Midpoint snapping – allows you to snap to the midpoint of a line segment
  - Intersection snapping – allows you to snap to the intersection point of two or more feature line segments
  - Tangent snapping – allows you to snap to tangent points of a circle or arc
  - Perpendicular snapping – allows you to snap one feature line to another whereat the two lines are exactly perpendicular (right-angle)
  - Vertex snapping – allows you to snap to single points of a feature
  - Endpoint snapping – allows you to snap to the end point of a feature
  - Detail settings – set snapping tolerance and feature class selection and de-activate smart snapping
- Advanced Geo-caching. Use of intelligent geospatial data caching for raster and vector data, supporting high performance, and disconnected mobile editing.
  - Raster and vector data cached either on the server in the LAN or on the client
  - Client caches kept current through a fully automated process using timestamps, without any need for user intervention
  - Manually synchronize the client and server cache. A statistics panel must shows static and dynamic information concerning the cache synchronization process, including:
    - How many feature classes are selected and are hence taken into account for cache synchronization
    - How many tiles those feature classes contain, including how many of those tiles have been successfully synchronized, or synchronized with failures
- Printing. Enabling high-quality, true-to-scale printing.
  - Including large-format plotting in A4 to A0 formats (Letter to E size)
  - Rotate content
  - Enlarge or diminish the map extract to be printed
  - Specify page title, the page subtitle, and any additional info text
  - Dynamic attributive information
  - Save print settings
  - Page preview
  - Create snapshots
  - Include scale bar
- Useful application tools
  - Bookmarks. Create, delete, import, and open user-defined map configurations. Save your current map settings (i.e. the map extract and contents) at any time, and then call them back up again at a later date. Capture thumbnail automatically from the map for visual context in the bookmark
  - Smart Search. Use a single point of input to search and set legend entries, bookmarks, queries, map center and scale.
- Administration & IT.
  - Automatic delivery of applications over a web HTTPS connection
  - High-level enterprise administration for users, roles, apps, etc.
  - Secure data access control supporting AD and LDAP and audit trails
  - Integration to external data and systems
- Security
  - Supports username/password credentials to authenticate and authorize access from the client to its server application
  - Data access control: security, audit-trails and access control (using feature-level attributes, geographic areas, functional groups, etc.)

## WEB Apps

Browser apps offers capabilities to provide a deeper understanding of data inside and operational data flows of an organization and allows non-GIS experts to leverage the power of geospatial data.

Browser apps built with M.App Enterprise support the following web browsers:

- Google Chrome
- Mozilla Firefox
- Microsoft Internet Explorer 11
- Microsoft Edge

The platform should offer the possibility to deploy at least the following types of web browser applications:

- Data-centric applications
- Geospatial centric applications
- Business Intelligence applications

### *Data-centric applications*

Data-Centric applications are represented by different workflows and forms that enable the platform to offer to the user to address different operational flows to collect attributive data about enumeration areas, dwelling units, or to collect data about different activities performed during the census project. In these types of application, the map it is not present, or it is „called” just for minimal functionalities (digitization, visualisation).

A JavaScript API must be available, in order to provide customization options to extend the capabilities of browser apps, according to the operational needs.

### *Geospatial centric applications*

Geospatial-Centric applications are represented applications designed to start all the workflows from a map. Specific map tools must be present in order to search and navigate and to edit the data.

Business Intelligence applications are applications designed to monitor and to analyses the data form the system. They are a combination of thematic maps (point, line or area) and different graphs or search engines. The standard features provided in browser apps must include Map Navigation (Zoom and Pan), Legend Control (layer visibility and translucency), Measurements (Show coordinates, measure area and measure line) and Feature Info. The client must reach at least the following:

- Display base map
- Display maps defined by the administrator
- Display raster and vector (coming soon) layers in a form of a map
- Layers can be created on data or received from any WMS, WMTS or slippy tiles service
- Support for multiple projections, any geographic or projection CRS can be used via its EPSG code
- Manipulate the legend, change order of feature classes, set their translucency
- Search for geographical names and addresses globally, addresses and geonames can be given in multiple languages
- Zoom in/Zoom out
- Map pan
- Where Am I?
- Adjust Layer visibility / Show and Hide layer
- Measurements
  - o Show coordinates
  - o Measure line
  - o Measure area
- Map compositions selector
- Display GetFeatureInfo with feature properties in a form
- Print a map with browser Ctrl-P

The browser apps must enable full vector support in all major browsers, without any dependency of the browser framework. Pure HTML5/CSS browser technologies must be used, removing the dependency of plugins usage for rendering vector maps. The browser vector renderer engine must support any map projection and style definitions based on OGC<sup>®</sup> Styled Layer Description and Symbology Encoding (SE) standards.

### ***Business Intelligence applications***

Business Intelligence applications must enable data analytics and dissemination processes into an organization. For Business Intelligence Application the platform must ensure a map and BI widget with dynamic filtering based on selections by default. A JavaScript API must be available, in order to provide customization options to extend the capabilities of browser apps, according to the operational needs. The platform should be intuitive in designing business intelligence applications and must offer to the administrator the possibility to use templates of predefined BI widgets connected to a thematic map based on point, linear or areal features.

Business Intelligence (BI) applications must have the following functionalities:

- Base Map selector (base map can be created on the fly)
- Define data sources (attributes and geometries)
  - o From content like Geojson, Shapefile, CSV (attribute data only)
  - o From external source like a file available on the web or an WFS
- Manage Content:
  - o Browse for content using traditional folder hierarchy.
  - o Search by name for assets available in storage.
  - o Filter content.
  - o Display content preview with basic information about selected assets.
  - o Upload new content.
  - o Add selected content to list of favourites and then filter by favourite filter.
  - o Select assets to be used in development.
- Data Preview
- Date/Time extraction from data
- Create applications with multiple stages representing multiple BIs in one app
- Stage definition – stage consist of the selected data source and the BI maps and charts configuration
- Each stage can contain more than one geometry and each geometry can have a scale range assigned. This feature allows presentations of data on different levels of administrative units based on current zoom.
- Define dimensions – to be used by all charts including map presentations
- Define measures – to be used by all charts including map presentations
- Levels of Measurements - there are typically four levels of measurement that are defined:
  - o Nominal - numerical values just name the attribute uniquely. No ordering of the cases is implied
  - o Ordinal - the attributes can be ordered but the distances between attributes do not have any meaning
  - o Interval - the distance between attributes does have meaning
  - o Ratio - there is always an absolute zero that is meaningful (fractions have meaning)
  - o Custom expressions (with validation)
- Define colour palettes – to be used by all charts including map presentations
- BI widgets available: pie chart, row chart, bar chart, line chart, information charts, text chart, data table, 2-dimensional charts - dot chart, 2-dimensional charts - heat map, containers - composite chart container, containers - custom chart container, time charts - time bar chart, time charts - time line chart, gauge.

### ***Tools to administer the platform***

The platform must offer to the administrations and to application builders to design, configure and administer their platform, including:

- Definition of enterprise security concept, including users and role management;
- Configuration and administration of access permissions to applications;
- Design application layout (using predefined templates);
- Connect your content to apps (raster and vector datasets, geospatial web services, etc.);
- Define complex and scale-dependent map styles using powerful style editor fully compliant with OGC "Symbology Encoding" (SE) standard;
- Configure your analytics (using predefined Business Intelligence widgets etc.);
- Model business processes to control the flow of the information using spatially enabled workflows, using a graphical and intuitive web based editors ;
- Create geoprocessing services using web-based graphical spatial model editor;
- Configure print layouts;

For the entire platform the administrative workflows of users' management must be integrated with the people enrolment process of the census operational workflows. The administrative workflows of roles management should be integrated with posts management and application rights must managed by post allocation process. The platform must offer instruments for translation of the applications. Based on user configuration the applications will be displayed in the user configured language.

## ***Desktop GIS Application***

GIS Desktop Application must offer advanced capabilities to access, process, analysis and visualise the spatial data available. The key feature of the proposed software must be:

- creation and management of geospatial databases by defining Feature class definition( Geometry types, Attribute types, Hypertext), Feature categories and groups, Coordinate system definition, Enterprise libraries, Shared GIS information (Connections to data sources, Legends, Styles, Queries, Categories, Searches, Spatial filters, Queues)
- analytical capabilities by including raster data analysis, vector feature analysis and advanced analysis like hot spot analysis along with site location and corridor planning.
- Ability to generate terrain artefacts such as contours, shaded relief, and color-coded elevations for the creation of mapping products.
- Geometry validation tools.
- Intuitive user interface with tooltips and Help, eTraining and tutorials available on-line
- Capacity to manage relational databases, CAD server schemas, Text file Server
- Capacity to define specific coordinate system files
- Ability to access and read the data from different formats: Microsoft® Access, ArcView® Shape files, File Geodatabase (FGDB), MapInfo®, MicroStation® .dgn files, AutoCAD® files, Intergraph I/CAD .map files, GeoMedia SmartStore files, Object Space files, GML, KML, ODBC Tabular, OGC® WCS, OGC WMS, OGC WFS, OGC WFS-T, Oracle® Object Model (including spatial types), Microsoft SQL Server® (including spatial types), PostgreSQL with PostGIS (including spatial types), Text file, Vector Product Format (VPF)
- Ability to access and read/write the data from different formats: Microsoft Access, File Geodatabase (FGDB), OGC WFS-T, Oracle Object Model (including spatial types), Microsoft SQL Server (including spatial types), PostgreSQL with PostGIS (including spatial types), OGC GeoPackage (including spatial types).
- Ability to present and render different styles for all types of geometries (point, line, area) and other objects (text, image, compound geometries)
- Ability to create thematic maps, enriched with charts (bar and pie charts)
- Ability to define label properties and rules for label placement. Capacity to have static and dynamic labelling on a map.
- Ability to apply vector analysis operations over the data like: attribute query, native query (for vendor-specific database management systems), join and union (of database tables), buffer zone, aggregation, analytical merge, analyse geometry, functional attributes (including custom functions), spatial query, spatial intersection, spatial difference, queries, searches.

- Ability to create and run spatial models over vector data.
- Ability to place and edit feature on map with advanced tools for snapping.
- Ability to track and analyse data that is associated with locations along a linear network.
- Ability to geocode addresses, take an address in text form and locate that address as point geometry, and geocode an entire feature class or query rendering the addresses.
- Ability to integrate third party maps like Microsoft Bing Maps aerial/map/birds-eye display window.
- Access GPS data in real time to track positions on a map view and efficiently populate or update features in database.
- Ability to define custom layouts composition– Map, Legend, Scale Bar, North Arrow, etc.
- Ability to print map layouts and for batch plotting.
- Ability to export in common file formats: AutoCAD DWG, AutoCAD DXF, Esri shapefile, Esri file geodatabase, MapInfo MIF, MicroStation DGN, GML, Oracle Objectg and SQL Server
- Basic imagery tools for geospatial mapping, visualization, enhancement, and geocorrection, including enterprise-enabled access to OGC web services and relational databases such as ArcSDE®, Oracle Spatial, and GeoMedia Warehouses.

## ***Training***

After delivery of the products, during the implementation phase, the winner must provide official GIS certified training tailored on the GIS platform provided.

Training session must be instructor lead.

If necessary, the training session can be hosted on our premises and we can provide all the necessary equipment (laptop, projector, pen and paper, etc.).

Otherwise, the winner must support all the training related expenses, including travel and accommodation (if training is held outside of Bucharest).

We require training for 4 people located in Bucharest.

## **G. Microsoft SQL Server Standard Edition**

Microsoft SQL Server is a relational database management system, or RDBMS, that supports a wide variety of transaction processing, business intelligence and analytics applications in corporate IT environments.

Like other RDBMS software, Microsoft SQL Server is built on top of SQL, a standardized programming language that database administrators (DBAs) and other IT professionals use to manage databases and query the data they contain. SQL Server is tied to Transact-SQL (T-SQL), an implementation of SQL from Microsoft that adds a set of proprietary programming extensions to the standard language.

We plan to use Microsoft SQL Server as a backend for the IBM I2 related software requested in this tender book.

## **H. Customized S.I.R.A.T. (SELEC Intelligence Reporting Application Tool)**

### ***Overview***

S.I.R.A.T. tool is the core of the project. This is a collaborative suite with a portal and workflow management integrated.

S.I.R.A.T. tool must include analytical capacities (user-friendly environment): to generate on the spot: reports, statistics, charts, mapping of seizures, activity reports, etc.

The system is accessed permanently by:

- All the liaison officers
- All the SELEC staff
- Management
- All NFPs
- OCU users
- Temporary online users (during operations)

This must be an intelligent information management platform that organizes content based on what it is, not where it's stored. We also plan to connect to existing network folders and systems to make them more intelligent with built-in AI to automatically categorize and protect information. This solution must be installed and configured based on our requirements.

During the project implementation there is an analysis stage to collect all the solution requirements. The winner must create a detailed analysis document and carry on all the customization and additional development described there.

**Business requirements:** They are high-level requirements that are taken from the business case from the projects.

**Architectural and Design requirements:** These requirements are more detailed than business requirements. It determines the overall design required to implement the business requirement.

**System and Integration requirements:** At the lowest level, we have system and integration requirements. It is detailed description of each and every requirement. It must be in form of user stories which is really describing everyday business. The requirements must be detailed, and all the development and customization must be based on it.

This platform must consist of the following components:

- A collaborative suite to facilitate the exchange of information and do the workflow management
- A portal suite to handle all the forms and required reports

***The collaborative suite must meet the following minimum requirements:***

### ***General requirements***

The solution must have a client-server architecture;

The "Server" component must be deployable on one of the following platforms: Microsoft Windows, Linux, UNIX, or equivalent;

The solution must offer several types of "Client" component:

"desktop" client;

Web client - running the same functionality on any of the usual browsers, such as: Internet Explorer, Mozilla Firefox, Google Chrome, Safari;

Native mobile client - for the most common mobile operating systems: Android, iOS, Windows;

The proposed solution must be able to use one of the following databases as persistence layer: Oracle, Microsoft SQL Server, MySql, IBM DB2, Sybase, or equivalent;

The solution must ensure integration with LDAP for authentication and centralized user management;

The solution must provide support for one of Microsoft Active Directory, Novell eDirectory, Oracle Internet Directory and IBM Tivoli Directory Server, Sun Java System Directory Server, or equivalent;

To make customizations or integrate with other external applications, the solution must offer interfacing or development capabilities through API (Application Program Interface) or SDK (Software Development's Kit);

From the point of view of document storage, the solution must allow the storage of files in file systems and their associated metadata in standard databases;

To ensure encryption of data transmission between the "Server" component and the "Client" component, the solution must allow secure connection (Secure Sockets Layer) both for the desktop client and for the " web"

The solution must also offer the possibility of integration with other web-based applications;

The solution must allow the addition of any type of file, regardless of its format: Office document, image, text, audio-video file, drawings, etc.

## ***Functional requirements***

### **Application Access Requirements:**

Access to the application will be done by authentication, by user and password;

By integrating with LDAP, the system must allow authentication in the operating system or in the domain to also allow authentication in the application;

### **Application user requirements:**

By integrating with the Directory Service (for example, Active Directory), the solution must offer the ability to import users and groups within it;

The solution must also offer the ability to synchronize Users and Groups with the Microsoft Active Directory Service to mirror the changes that occur in the AD;

### **Document Organization Requirements:**

The solution must allow for the definition of document storage volumes (physical storage locations, on different environments), making it possible to use several volumes simultaneously;

In each volume, the solution must allow the definition and organization of the types of objects contained, whether they are document objects or record objects;

For each type of object (document or just simple registration), the solution must allow for the definition of typologies of documents / records that may be contained;

For each document / record typology, the solution must allow the definition of one or more metadata that will be used to identify the documents / entries in that typology.

The solution must also allow documents to be organized by a folder / subfolder structure;

The solution must provide access restriction facilities for specific users / groups of users at the document warehouse level at the content object type level at document / record typology level and at document / registration level;

The solution must provide the ability to customize each defined metadata, determining the type of data that can be entered (numeric, alphanumeric, date, boolean) and how to represent the text (textbox, combobox, multiple value list);

The solution must allow the creation of multi-file documents, documents made up of multiple files (such as Windows Explorer folders). The solution must allow the definition of multi-file document metadata;

The solution must allow the linking of several documents to a group of documents (file); For each document, the solution must allow the definition and storage of indexing fields and, in addition, must allow the definition of document group metadata;

When creating the document group, the solution must allow for each document the choice of the version to be included in the group: the latest version of the document or a specific version;

### **Requirements for ingesting into document storage**

The solution must be able to save any visible document from Windows Explorer to the document repository by using "shell" commands (right-click on the file and add to the document store);

The solution must allow the creation of a new document in the document repository, directly from the interface, starting from a template; After completing the metadata, they will be automatically inserted into the document, according to the correspondences set when creating the template;

The solution must also allow the addition of a document, group of documents or folders to the document store by drag & drop or copy & paste from "Windows Explorer" into the desktop client interface;

The solution must also allow the import of files or folders in the file system by choosing the source and specifying whether or not the folder structure already exists in the file system;

The solution must allow the addition of scanning documents directly from the application for any TWAIN, or equivalent scanner;

The solution must offer Optical Character Recognition (OCR) features, and after the scan operation, a text-backed PDF file is obtained;

### **Requirements for off-line work capabilities:**

The solution must work even if the user is not in the network with the server

The solution must allow the user what documents / records he wants to access when the user is not connected to the network;

The solution must allow changing the available "offline" documents (new versions) and creating new documents;

Upon returning to the network, the solution must allow the synchronization of new documents or newer versions on the server;

### **Requirements for archiving features:**

To optimize the size of the document / record store, the solution must allow documents / records that are no longer active to be archived, and can then be removed from the archive at the request of users;

### **Requirements for document versioning functionality**

The solution must provide check-out / check-in document functionality to ensure consistent document change when working collaboratively; a document in the "check-out" status for editing will remain visible to other users read-only;

The solution must provide document versioning functionality, keeping all versions through which, a document passes.

The solution must offer "Roll Back" functionality, that is, a return to a previous version;

The solution must offer the possibility of labelling each version, so that it is easy to understand what changes have been made from one version to another;

### **Requirements for search / retrieval functionality**

The solution must provide search and retrieval functionality for documents;

The search engine must allow:

- The search engine must allow searches by indexing fields, by document title and searches in document contents;

- searches according to the date of the change of the documents;

- searches according to the date of the last user access;

- Searches into the results obtained in another previous search step;

- The search engine must be configured to search in all versions of the document, not just in the latest version;

### **Requirements for the search results functionality**

The solution will automatically highlight within the documents (in preview) the terms used as search criteria, at least in Microsoft Word, Excel, PowerPoint and Outlook documents;

The search results must be displayed according to the search result (relevance of the term searched in documents)

The solution must be able to define "filtered" documents by specifying the parameters used for filtering (example: documents of a certain type with a certain value in an indexing field or created by a particular user) and how to display the results (grouped after one year, or after any other field, for example);

These "filtered lists" must be general, for all users or specific to a particular user;

These "filtered lists" should be named suggestively (eg: documents from project x) and can also be grouped according to the specific (example: "filtered accounting department accounts");

The solution must allow "filtered lists" to be exported at least in CSV format;

### **Integration requirements with Microsoft Office and AutoCAD**

The solution should integrate with Microsoft Office and AutoCAD suite applications, providing access to its functions directly from these applications;

The solution must allow, directly from the interfaces of these applications, navigation in document storage and opening of documents;

The solution must allow the saving of documents in document storage directly from the interfaces of these applications;

The solution must allow the user to access the check-in / check-out functionality directly from the interfaces of these applications;

The solution must allow the user to compare the versions through which a document passes;

The solution must allow editing of document metadata directly from the interface of Microsoft Office or AutoCAD applications;

The solution must allow metadata information (indexing fields) to be automatically copied to the document when a new document is created after a template;

The solution must allow automatic saving of email files and attachments in the document repository; the automatic placement of indexing fields (metadata) with email-specific data (who has sent, who has received, message content, subject, attachments) must also be saved;

### **Solution security requirements**

The solution must allow for the definition of permissions at warehouse storage level, type of look, document / record typology, document and metadata level.

The solution must allow automatic calculation of permissions on a document / record based on metadata values and their dynamic change when changing that value;

### **Requirements for solution administration**

The solution must provide a user administration section

The solution must provide a section defining storage storages, object types, document / record typologies

The solution must provide a section defining metadata and nomenclatures to be used;

The solution must offer maintenance and optimization capabilities of the document / record base

### **Application interface requirements - the desktop client component**

It must be available at least in Romanian and English;

As application users are accustomed to using the Microsoft Windows operating system, the solution must offer integration features with Windows Explorer;

The solution must allow exploration of the document store directly from Windows Explorer through a tree structure;

The solution must include an integrated viewer for the most common types of documents (images, office documents), providing a preview of the document;

The solution must allow viewing of the document and indexing metadata in the same screen;

The solution should allow the user to add one or more documents to a special area, called "favourite documents", the area specific to each user and easily accessible by the user;

The solution should allow the user to specify for each document whether he / she wants to track his / her evolution and thus be informed about the changes that occurred, at least for the following situations:

Contents of the document have been modified;

The document was deleted;

The solution must allow the user, for each document, to be able to add a comment (note) visible to any user; comments will be ordered in descending order and will not be deleted; comments will include: the user who made the comment, the date and time of the comment;

The solution must provide at least the following general features: adding new document, searching and retrieving, check out / check-in, versioning, document viewing, metadata modification, participation in workflows;

### **Application interface requirements - the "web" client component**

The solution must offer the same "web" client interface the same functionality as the desktop interface

### **Application interface requirements - the "mobile" client component**

The solution must offer at least the following general functionalities from the "mobile" client interface: document / record creation, search and retrieval, document / metadata view, metadata modification, workflow participation;

### **Requirements for collaborative workflow functionalities**

The solution must provide collaborative workflows - workflow, by modelling the life cycle of the document and its movement within the institution;

The solution must allow a user who is unavailable for a period of time, to choose one or more users to substitute; The user who replace you will be entitled to perform all the initial user's tasks;

The solution must allow the definition of the stages through which a document passes throughout the life cycle, at least for the following stages: draft, approved / rejected, archived,

### **Requirements for information sharing and assignment functionality**

The solution must provide assignment functionality by defining one or more recipients, one or more of the documents that are the subject of the task, the deadlines, and the persons who have to monitor the task's solving;

The solution must provide functionality for transmitting documents between users, sending by email; The solution must allow the document to be transmitted as an attachment or to be sent only a link to it;

### **Requirements for notification features:**

The solution must allow users to graphically configure their notifications when changes occur to the documents they are interested in, or in the case of other events such as: a check-out / check-in document, status the document was changed, a new version appeared, the document was deleted;

The solution must allow the user to configure the mode of transmission of the notifications when they occur, or to send a single notification, daily, containing all the notifications of that day;

### ***The portal suite must meet the following minimum requirements:***

#### ***General requirements***

The solution must be an integrated visual environment for creating and managing web applications and portals for businesses, customers and services;

The proposed solution must be a modern, efficient, flexible, scalable computerized solution, made up of mature COTS software products, to provide superior performance and rapid processing of information;

The proposed solution must be designed in a client-server architecture;

The Server component will have the role of controlling the portal and its database;

The Server component must be a platform-independent application server and must run on any of the following platforms: Microsoft Windows, Linux, Mac OS, or equivalent;

The Component Server must be run on any of the following application servers: Apache Tomcat 8+ version, Microsoft Internet Information Server (IIS) or equivalent

The proposed solution must be able to use as a persistence any of the following databases: Oracle, Microsoft SQL Server, PostgreSQL, IBM DB2, Apache Derby, or equivalent;

The proposed solution must provide a dedicated administration tool for the development and administration of portals;

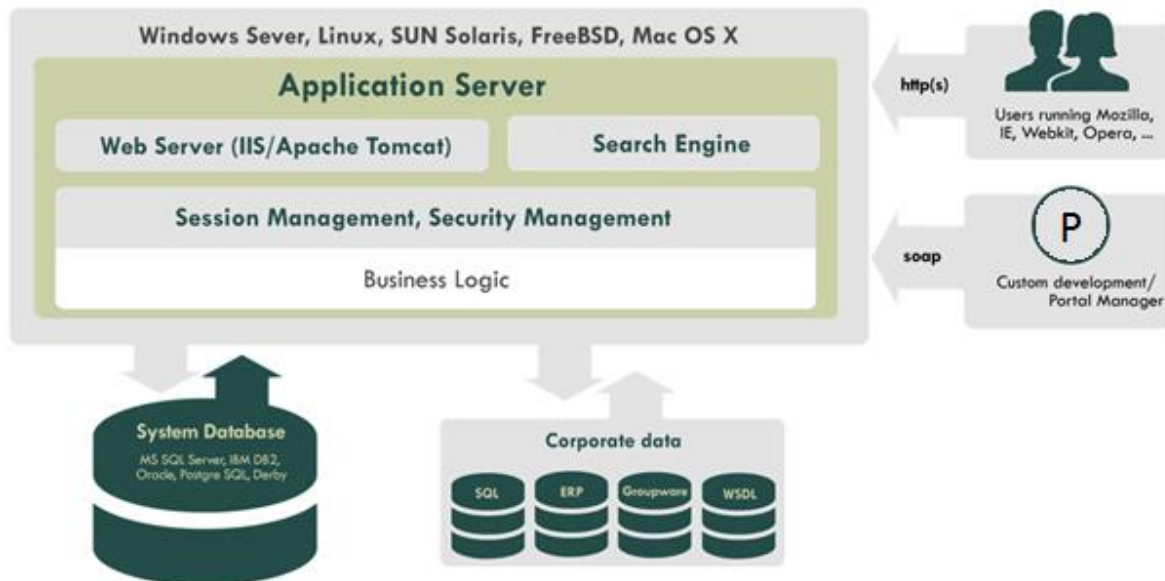
The administration component must be a platform independent application and must run on any of the following operating systems: Microsoft Windows, Linux, UNIX or equivalent;

The client must be platform independent to work on the following desktop web browser: Internet Explorer, Mozilla Firefox, Google Chrome, Safari, Opera etc.

The client must be functional on the next mobile web browser: Android Browser, Chrome for Android, iOS Safari, Chrome IE Mobile, BlackBerry Webkit Browser;

The solution must provide an orchestration engine to ensure the automation and integration of work processes;

The high-level architecture must follow the below architecture



### **Administration component**

This component will be installed on any client or server infrastructure in the internal infrastructure that meets the hardware / software requirements;

The component must include specific modules to configure and operate an advanced business portal;

The component must include all the modules needed to develop and control the application, layout and system menu;

This component will also allow you to configure user accounts and access permissions for Portal-related applications;

The solution must include dedicated module templates for managing web applications, data-level relationships, business processes, users and the design of a portal;

## ***Application component***

With this module you can develop applications and create electronic forms without the need for advanced programming knowledge;

The solution must provide a complete catalog of application development templates;

The module must provide drag & drop functionality to quickly and easily create web-specific web elements from applications such as buttons, text fields, radio, select, etc. from the graphical interface;

The solution has to offer a number of practical applications and templates that can be integrated directly into the portal or that can be tailored to their own requirements with just a few clicks of the mouse;

The solution must offer ready-to-use applications such as phone book, vendors, polls, image gallery, bulletin board, organizer call, personal calendar, blog, wiki, documents, contracts, urgency, helpdesk, purchases, meeting room, work schedule, car park, holiday request, investment proposal, user administration, security policies, statistics, and not limited to;

The solution must provide a quick and easy way to create desktop or mobile web applications;

In order to create services for mobile applications, the solution must have all the functionality specific to the management modules: filters, processes, data integration, etc.;

The creation of a mobile application must be done in no more than 3 easy steps:

1.Design, by building the desired application, with menu, input and display data (lists) - all with a mouse click;

2.Select device - by selecting the desired terminal (Android or iOS), the solution will automatically generate an application that is adapted to the specific requirements of the chosen terminal;

3.Integration - which will set up the app on the home screen of the mobile device so that we can easily access the application;

## ***Relationship and work-process component***

This module will allow interdependent information to be very easy and transparent displayed in the portal;

In this module, links between individual data records of different data groups will be displayed in a relationship type chart;

With this module, workflows can be automated. A configured process will always respond to database changes made by portal or third-party applications;

It can be used to modify an application's data by using the configured interface conditions;

This module will provide time-controlled actions that can trigger reminders when a deadline is reached, or jobs are created to be assigned to a particular employee automatically;

## ***User component***

This module will define and manage user accounts, groups, organizational units, and roles to be used in applications to control permissions.

The solution will be able to import existing users;

The solution will have a dedicated management module for all user accounts;

A user will be an object within the system and can be saved in a hierarchical tree structure representing the organizational chart or internal organization;

In a newly created portal, it will be possible to define classes of objects that will have associated metadata automatically, such as the user object class with the mandatory name and surname attributes;

The User Object Class will contain a number of attributes that can be used to describe a user;

There will be fields in the database for each attribute in which the values we enter for an object instance will be saved;

The solution will allow you to define an unlimited number of additional attributes for a class of objects;

The binding attributes of a class will not be modified;

The solution will provide a schema management tool with which we can view all the default object classes but also manually defined classes;

The solution must offer several methods for importing users from existing IT infrastructure.

The Users module must provide an import utility when importing data from LDAP directories (such as Windows Active Directory), JDBC sources or ASCII files (such as Linux / Unix passwd files);

The LDAP import option must allow import of all compliant LDAP sources, such as Microsoft Active Directory or Open LDAP;

The solution must have at least the following import profiles available: Microsoft Active Directory, Sun ONE Directory Server, Novell Netware;

The solution must provide tools for importing users from JDBC data sources or text files;

The module will allow you to configure the authentication system settings;

The solution must ensure at least the following types of authentication that can be set for the system: Windows, LDAP, Portal, and Generic Authentication.

The solution will allow the development of other authentication modules, such as: X509 certificate authentication or third-party system authentication;

The user module must provide a management area for all password management policies, security settings as well as password features;

## ***Design component***

The solution must present a module that will provide all the tools needed to adapt the applications and the portal to the company / organization identity;

With this module, we can define html container style styles and commands (such as buttons, links, and tables) and define the html container set and menu structure in the portal;

Layout must be based on XML and CSS files and contain all defining and identifying information;

The solution must also offer design templates that can be modified and edited according to the organization's specific needs;

This module will need to offer a variety of useful tools such as email SMTP service configuration, system monitoring or a platform maintenance system;

## ***Integration component***

With this module, external data can be integrated into the portal.

The solution must provide tools for importing and exporting data;

The solution must be able to consume and provide data through web services;

The solution must read and write directly into existing databases. For this purpose, the solution must include a comprehensive set of software adapters;

All adapters must include wizards with clear and easy-to-understand instructions to guide the configuration of connections;

The solution must allow the following types of adapters:

- JDBC data sources
- SAP Business Suite
- SAP NetWeaver Gateway
- SAP Business One
- Microsoft Exchange
- Microsoft Office
- Microsoft Dynamics CRM,
- Microsoft SharePoint
- Microsoft Azure
- Microsoft SQL Server
- IBM Lotus Notes
- IBM WebSphere
- M-Files

### ***Microsoft Office Integration component***

The solution must provide integration with the Microsoft Office Suite to access all unprotected documents that exist as attachments within a portal;

Documents can be opened directly in Microsoft Office, edited and saved directly into the portal, without the need for an extra step in the browser;

New documents created in the Office suite can be saved directly into the portal;

The solution must integrate with the following Microsoft Office products: MS Word 2003/2007/2010/2013, MS Excel 2003/2007/2010/2013, MS PowerPoint 2003/2007/2010/2013;

Integration with MS Office can be enabled and deployed in any application available at the Portal level;

Functions and menus of MS Office integration with the portal must be the same in all MS Office Word, Excel and PowerPoint products;

Document management in the portal can be hierarchically structured with subordinate data groups;

### ***Search capabilities***

The solution must provide a powerful search and localization module that will act both within the portal and at the individual database level and will respond to individual user requests made by users;

With the search module it will be possible to retrieve the data that the current user is allowed to access. The portal rights management system will be considered before any list of results is listed;

In all applications within the portal, a dedicated page will be available for users to use for simple or advanced searches within the application;

Search results will be returned in the form of links and will lead to the relevant information when clicking on a specific result;

The search will allow the use of wildcards and the results in the resulting list will be optically highlighted;

The solution will suggest the search term when entering text in the search field. While typing a term, a list of already existing search terms will be displayed, from which a user can select an appropriate search term and apply it in the search field;

### ***Permissions granularity***

The solution will have a dedicated module to control access permissions;

The solution will include two types of connections: administration type, with access to all portals and a portal with access rights valid for a single portal;

An administration login will have the rights to: create, delete and import portals, manage licensing details, and manage administrator accounts;

Portal login will allow specific portals to be configured and portal pages can be managed;

Portal account users will be able to configure all integration options, such as: JDBC data sources management, web services, and management of connections to other internal systems in the organization;

The solution will also have configuration options for users, applications, and permissions on network resources;

### ***Multilingual***

In our particular case, the ability to create multi-language applications to give users the choice of their preferred language is a must. Multilingualism is not only relevant to the tags and titles of the portal, but also to its content.

The solution must show drop-down lists to control a multilingual selection, display the text in the tables, and view the pages accordingly when the language changes;

The solution must provide a time zone feature so that all news and schedules can be entered and displayed considering the global time zone;

In the solution, all date / time entries will be saved in the Coordinated Universal Time (UTC) format. All data will be converted into the user-specific time zone to be displayed in the browser;

Within the solution, the country-specific date format can be set in various ways;

In the system, the decimal format can be adjusted for different regions;

The solution must provide multi-client capabilities for multiple-site access;

### ***Training requirements***

SIRAT training for end-users.

We require, after the implementation, 3 training sessions with use-cases and hands-on materials as the following:

- 1 day (4-6 hours) training for National Focal Points (approx. 11 people)
- 1 day (4-6 hours) training for Liaison Officers (approx. 18 people)
- 1 day (4-6 hours) training for SELEC staff and management (approx. 15 people)

SIRAT training for administrators:

We require, after the implementation, one training session with use-cases and hands-on materials, for advanced SIRAT users, designers and administrators, as the following:

- 2 days (4-6 hours per day) for advanced SIRAT users, designers and administrators

All training sessions will be hosted on our premises and we'll provide all the necessary equipment (laptop, projector, pen and paper, etc.)

Among the list of deliverables, the awarded tenderer must provide:

- User Guide for SIRAT. The manual (digital format) should contain all essential information (including photos/print screens) for the user to be able to make use of SIRAT, including its capabilities, step-by-step procedures for access and use.
- Designer Guide for SIRAT. The manual (digital format) should contain all essential information (including photos/print screens) for the advanced user to be able to create/extend various features (create/change/adapt forms, reports, dashboards, etc.), including its design capabilities and step-by-step procedures.

## **I. Mobile Device Management Software**

This software must meet the following minimum requirements:

Configure devices with bulk provisioning programs such as the Apple Device Enrolment Program (DEP), Knox Mobile Enrolment and Android zero-touch enrolment

Enable users to self-activate devices by entering their corporate credentials in a simple MDM onboarding workflow

Configure MDM policies for device restrictions, layout, settings access, notifications and more and assign based on OS or ownership type (BYO or corporate-owned)

Deploy public, internal or bulk-purchased apps to devices automatically or to an enterprise app catalogue for on-demand install

Connect to enterprise email, VPN, Wi-Fi, content, intranet sites and other backend resources

Enable device-level encryption, data encryption and hardware security policies (TPM, biometrics, etc.)

Enforce a device- and/or app-level passcode with complexity and history requirements

Configure policies, including app blacklists, device pairing, Wi-Fi security, TLS enforcement and others

Prevent data loss with app sharing permissions, copy/paste restrictions, geo-fencing policies, and more

Monitor for malware threats or jailbroken devices and automatically remediate with a remote lock, device wipe or customizable device quarantine controls

Gain visibility into all endpoints across BYO, corporate-owned and line of business ownership models in a single admin console

Delegate management across divisions, regions and departments with a multitenant architecture and role-based access controls

Get real-time MDM deployment analytics from modular and role-based dashboards by devices, apps, email, security, telecom and more

Capture detailed analytics with report templates and granular device, app and console event logging

Export deployment analytics to third-party business intelligence (BI) solutions with DataMart integration

Request device information and perform remote commands such as clear passcode, send message, lock device, or perform an enterprise or device wipe

Troubleshoot devices using remote control to view the device screen and gain access to the file manager, command prompts and more

Enable users with self-service access to basic management capabilities, such as resetting a passcode, to alleviate IT ticket requests

## J. Management and Monitoring solution for the entire infrastructure

Management and monitoring solution for infrastructure, servers, applications, databases, storage and networking.

In our system, service delivery is always considered as the tip of the iceberg. There are various underlying heterogeneous systems that help us to deliver business services to the end users. These systems include Routers, Firewalls, Switches, WAN accelerators, Servers (Physical/ Virtual), Applications/ services, Load Balancer, Racks, Sensors, Cooling systems & much more.

Delivering streamlined services depends on the performance of these systems. This mandates that each system should be strategically planned, deployed, and maintained throughout its lifecycle.

For most of its tenure, the systems remain in the operations and maintenance stage where they are monitored for health and performance, and the resources are optimized.

For this we need a comprehensive management solution that helps to resolve any issues before impacting the end users. We require a unified end-to-end management and monitoring platform consisting of several integrated modules to help us mitigate any risks and reduce or even eliminate any service disruptions.

We require all the components to be integrated in a single platform from the same producer and to have the minimum following requirements:

COMPONENT	MINIMAL REQUIREMENTS
<b>General requirements</b>	The solution must provide visibility of all monitored elements and critical services. The solution must provide several integrated modules in a single platform, from a single vendor to have a correlated and integrated view across the environment. The solution must have a web console for administering and operating and provide the ability to change the visual elements, colors and logos. It must provide several authentication methods: <ul style="list-style-type: none"><li>- Local authentication</li><li>- LDAP (Active Directory for example)</li></ul>

	<ul style="list-style-type: none"> <li>- Single Sign-On type (SAML v2 protocol)</li> </ul> <p>You should have the ability to customize the web console, define custom menus and dashboards or personalized views without any advanced programming skills by simply choosing from predefined list of elements.</p> <p>The solution must allow you to display the monitored elements on a map (included) and must have the ability to define new custom maps. The solution must provide role-based access to menus, dashboards, reports and alerts for the authenticated users</p> <p>The solution must be able to generate alerts for any of the monitored objects. The alert rules should be configurable by the users. The solution must send notifications to different people based on alert type, severity and duration.</p> <p>Notifications must be:</p> <ul style="list-style-type: none"> <li>- Mail</li> <li>- Script or application execution</li> <li>- SNMP trap</li> <li>- POST or GET request</li> <li>- Syslog message</li> <li>- Sound</li> </ul> <p>The solution must have predefined reports and a tool or a method to modify them or create new ones.</p> <p>Reports must be executed manually, or automatically based on a schedule and must be exported in at least XML format.</p> <p>The solution must scale and have built-in HA mechanisms. It must allow multiple collectors, so the metric collection can be distributed based on workload or based on the network topology.</p> <p>These remote collectors must be aware if there is a strong or weak network connection to the central node.</p> <p>The solution must scale also by installing multiple web consoles.</p>
<b>Network monitoring</b>	<p>The module must allow monitoring for network devices and network interfaces.</p> <p>It must allow troubleshooting, increase service levels, and reduce downtime for any multi-vendor network monitoring</p> <p>It must view performance, traffic, and configuration details of devices and applications that are on-prem, in the cloud, or across hybrid environments</p> <p>It must accelerate identification of root cause by dragging and dropping network performance metrics on a common timeline for immediate visual correlation across all of your network data.</p> <p>It must automatically discover and map devices, performance metrics, link utilization, and wireless coverage.</p> <p>It must dynamically calculate baseline thresholds from historical network performance data.</p> <p>It must permit capacity forecasting, alerting, and reporting and automatically calculate exhaustion dates using customizable thresholds based on peak and average usage.</p> <p>It must capture data from continuous streams of network traffic, and convert those raw numbers into easy-to-interpret charts and tables that quantify how much traffic is on the corporate network and which</p>

	<p>applications are being used.</p> <p>It must support collection and analysis of flow data from multiple vendors, including NetFlow v5 and v9, Juniper J-Flow, sFlow, Huawei NetStream, IPFIX.</p> <p>It must fire alerts when there are changes in application traffic or if a device stops sending flow data.</p> <p>It must help you identify malicious or malformed traffic.</p> <p>It must alert and provide a list of top talkers (applications, Ips or group of IPs) when an interface exceeds its bandwidth utilization threshold.</p> <p>It must enable you to drill down into any element's traffic using multiple views to get the perspective you're looking for, in order to investigate and isolate excessive network bandwidth utilization and unexpected application traffic.</p>
<b>System monitoring</b>	<p>This module must monitor your applications and their supporting infrastructure, whether running on-premise, in the cloud, or in a hybrid environment.</p> <p>It must automatically discover your application's environment.</p> <p>It must help accelerate problem identification and resolution with cross-stack IT data correlation.</p> <p>It must isolate root cause of issues by visualizing application relationship with underlying infrastructure layers.</p> <p>It must visualize and map the dynamic communication-based relationships between applications and servers so you can discover network issues that slow down your applications.</p> <p>It must provide a contextual view of how applications are linked to other components within the IT infrastructure, including servers, virtual machines, and storage systems.</p> <p>It must automatically discover the relationships between applications and servers, based on active application communication, and must collect network connection statistics, such as packet loss and latency.</p> <p>It must monitor the flow of data between applications, processes, and nodes, and discover any network-related issue before it escalates and influences your end-users.</p> <p>It must monitor availability, response time, and hardware health of multi-vendor physical and virtual servers.</p> <p>It must track CPU, memory, and disk usage, and forecast when capacity will run out.</p> <p>It must monitor server storage volumes, disk usage, and capacity metrics.</p> <p>It must allow remote remediation for server issues, including terminating runaway processes, starting/stopping services, or rebooting servers.</p> <p>It must provide a centralized view of current hardware and software asset inventory to include server warranty status, driver software, hard drive inventory, and other custom properties.</p>
<b>Database monitoring</b>	<p>The module must support at least SQL Server, Oracle, MySQL, MariaDB, SAP ASE, or DB2, on-premise, or in cloud.</p> <p>It must allow easy, and reliable performance troubleshooting tracked in real time and historically.</p> <p>It must provide response-time analysis to show exactly what is the problem.</p>

	<p>It must place less than 1% overhead on monitored instances.</p> <p>It must provide dynamic baselines to compare historic performance to identify issues.</p> <p>It must provide a blocking hierarchy (who is blocking whom), as well as the overall impact to your performance caused by database blocking.</p> <p>It must have database index and query optimization advisories.</p> <p>It must provide I/O activity tracking at the drive/mount and file level.</p>
<b>Virtualization monitoring</b>	<p>The module must provide Complete visibility across virtual environment and how your virtualization is connected to applications, servers, and storage infrastructure.</p> <p>It must support at least Vmware and HyperV</p> <p>It must reclaim virtual resources with VM sprawl alerts and recommendations in order to free up processing resources, which can help improve overall performance.</p> <p>It must predict CPU, memory, network, and storage needs.</p> <p>It must automatically find idle, stale, and zombie VMs as well as orphaned virtual disks to help free up storage space and improve overall performance.</p> <p>It must allow you to execute a variety of management actions, including power on/off, suspend, and reboot a VM, or take and delete snapshots.</p> <p>It must allow you to migrate VMs to a different host, and VM disks to a different data store or shared cluster volume.</p> <p>These actions can be triggered manually or through customized alerts or scripts, which can help you to optimize your resources without jumping to a separate tool.</p>
<b>Storage monitoring</b>	<p>The module must allow a unified view of storage system performance, volumes, RAID matrices, storage pools, and individual drives.</p> <p>The module must allow the growth rate visualization and capacity prediction support to avoid errors caused by disk filling.</p> <p>The module must participate along with the other components in the end-to-end image of the entire infrastructure</p> <p>The module must support known storage system providers such as: IBM / NetApp / EMC / Dell / Hitachi / HP / and others</p>
<b>Log management</b>	<p>This module must allow you to collect syslog and SNMP trap data generated by your infrastructure to help you gain deeper insight and help with troubleshooting.</p> <p>It must also provide a mechanism to extract Windows event logs.</p> <p>The retention period must be easily configurated.</p> <p>It must help you to refine your log data via intuitive out-of-the box filters, and help you find relevant log entries instantly via a powerful search engine.</p> <p>It must allow you to perform searches and apply filters to refine your results.</p> <p>It must allow you to easily apply color-coded tags to your log data to aid with filtering, searching, and identifying performance issues.</p> <p>It must provide an interactive real-time log stream to allow troubleshooting by watching the log data to identify potential issues as they occur, and filter for keywords like event IDs or error codes.</p>

<b>Synthetic monitoring</b>	<p>The module must record complex transactions with multiple steps, without any advanced knowledge of programming and scripting. It must be able to detect web application performance issues based on location, transaction, and page element, and monitor the load times. It must use the TCP waterfall, or similar charts to quickly identify what page elements are taking the most time to load. It must monitor web-application elements such as HTML, CSS, JavaScript, images, etc., as well as their overall performance and load metrics.</p> <p>It must alert if images are not matching and for incomplete or slow transactions that affect app performance.</p> <p>It must allow to set warnings and custom timing thresholds for individual steps and entire transactions.</p> <p>It must allow mapping between transactions or individual steps with applications, servers or network elements to have a clear view of entire application stack.</p> <p>It must provide dashboards to help you quickly drill down to the root cause of a web-application issue.</p>
<b>Support and Warranty</b>	<p>All licenses must be perpetual.</p> <p>All licenses will have minimum 1 year of maintenance, including:</p> <ul style="list-style-type: none"> <li>Access to patches and upgrades</li> <li>Knowledgebase access</li> <li>Platform to report bugs and incidents</li> </ul>

## K. Advanced Security Solutions

For secure communication, we require an Identity Application. The Identity Application is the one solution to streamline security policy management and reduce the operating costs.

With the Identity Application, we plan to see users and devices and control access across wired, wireless, and VPN connections to the corporate network.

The solution must meet the following minimum following requirements:

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
General description	<p>The solution needs to perform at least the following functions:</p> <ul style="list-style-type: none"> <li>• controll access across wired, wireless, and VPN connections to the corporate network</li> <li>• be deployed in a virtualized environment or appliance mode</li> <li>• support a high availability deployment</li> </ul>
Deployment	Virtualized (Vmware) in high availability mode
Centralized management	Centrally configure and manage profiler, posture, guest, authentication, and authorization services in a single web-based GUI console.
AAA services	Standard RADIUS protocol for Authentication, Authorization, and Accounting (AAA).

	Support for a wide range of authentication protocols, including, but not limited to PAP, MS-CHAP, Extensible Authentication Protocol (EAP)-MD5, Protected EAP (PEAP), EAP-Flexible Authentication via Secure Tunneling (FAST), EAP-Transport Layer Security (TLS), and EAP-Tunneled Transport Layer Security (TTLS)
Onboarding	Wired and WiFi portal for guest users Provides a streamlined experience for implementing and customizing guest network access. Offers access across the network for security, compliance, and full guest auditing. Time limits, account expirations, and SMS verification for additional security controls.
Device profiling	Predefined device templates for endpoints, such as IP phones, printers, IP cameras, smartphones, and tablets. Custom device templates to automatically detect, classify, and associate administration-defined identities when endpoints connect to the network. Associates endpoint-specific authorization policies based on device type. Collects endpoint attribute data with passive network monitoring and telemetry.
Remediation	Performs posture assessments to endpoints connected to the network. Enforces the appropriate compliance policies for endpoints through a persistent client-based agent, a temporal agent, or a query to an external MDM/EMM. Support for automatic remediation of PC clients as well as periodic reassessments alongside leading enterprise patch-management systems to make sure the endpoint is not in violation of company policies. Provides hardware inventory for full network visibility.
Integration	Integrates with multiple external identity repositories such as Microsoft Active Directory, Lightweight Directory Access Protocol (LDAP), RADIUS, RSA One-Time Password (OTP), certificate authorities for both authentication and authorization, Open Database Connectivity (ODBC) and SAML providers. The application will be integrated with infrastructure (switches) which will act as proxy for user authentication.
Internal CA	Support for internal certificate authority. Single console to manage endpoints and certificates. Certificate has to checked through the standards-based Online Certificate Status Protocol (OCSP). Automatic certificate revocation.
Licensing	The application will be licensed for full functionalities for 100 users for a minimum of 3 years.  The application will also include license for network device AAA with granularity to the level of command-line interface (CLI).

For perimeter protection, we require a system for total visibility into everything in the network, including physical and virtual hosts, operating systems, applications, services, protocols, users, geolocation information, content, network behavior, network attacks. This security management console is the centralized point of event and policy management for the intrusion prevention security operations.

This next-generation firewall (NGFW) must be designed for a new era of threat and advanced malware protection and must deliver integrated threat defense for the entire attack continuum - before, during, and after an attack.

The solution must meet the following minimum requirements:

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
General description	<p>The solution must offer 2(two) identical appliances, configured identically from both software and hardware perspective with a dedicated interface for monitoring in order to offer high availability</p> <p>Both appliances must be able to process traffic and the deployment will be in active-passive mode.</p> <p>In any moment one of the appliances must be able to take full responsibility of the other one if there is a failure without losing the state of the active connections</p> <p>The system must support both transparent and gateway configuration mode.</p> <p>The operating system must be dedicated and not a general purpose operating system with digitally signed files which will be verified at every restart</p> <p>The appliance must be max 1 RU and will be delivered with rack mount kit</p>
Centralized management and event correlation	<p>The solution will offer a separate management application with the following functionalities:</p> <p>Configure firewall access, application control, threat prevention, URL filtering, and advanced malware protection settings in a single policy</p> <p>Policy administration and a single policy deployed to multiple security appliances</p> <p>Creates firewall rules</p> <p>Define the intrusion prevention levels, URL reputation rules, and advanced malware protection pieces to be put in place</p> <p>Create a custom rule to stop a certain attack from advancing</p> <p>Graphical representation of all the devices a certain attack has infected</p> <p>Integrates security, threat, and vulnerability intelligence for up-to-minute threat protection</p> <p>Addresses new attack methods with both IP-based and URL-based security intelligence</p> <p>Enables ingestion and correlation of threat intelligence from third-party threat feeds and threat intelligence platforms in STIX/TAXII or flat file formats</p> <p>Automatically correlates new attack events with network's vulnerabilities to alert the attacks that may have been successful.</p> <p>Must be able to analyze network's vulnerabilities and automatically recommend the appropriate security policies to put in place.</p> <p>Correlates specific events from network, endpoint, intrusion, and security intelligence sources.</p> <p>Applies file policy criteria. If those are met, it automatically analyzes the file to identify known malware and/or can send the file to an integrated sandbox to identify unknown malware</p> <p>Integration with the network access solution (Identity Application)</p> <p>Open-source standard Open App ID for identification and control over custom applications</p> <p>Customizable dashboards with custom and template-based reports</p> <p>Comprehensive alerts and reports for both general and focused information</p> <p>Mechanism to validate the integrity of the software running on the hardware appliance as the system boots</p>

	Must support minimum 2 IPS appliances
Hardware requirement - per appliance	8 GB RAM 8 GB Flash 80GB SSD
Interfaces- per appliance	8 x 10/100/1000 interfaces 1 x Management port OOB (out of band) 1 x USB port 50 VLANs
Performances	Firewall stateful inspection 1Gbps Application Control (AVC) 450 Mbps. Triple Data Encryption Standard/Advanced Encryption Standard 175 Mbps 100 VPN connections : remote-access VPN or site-to-site VPN Application Control (AVC) and IPS 250 Mbps with both functions simultaneous activated 100.000 concurrent sessions and 10.000 new connections per second
NGF functionalities	Hardware IPSEC crypto for IPv4 and IPv6 Context-aware firewall și identity-based firewall IKEv2 support with suite B crypto: AES-GCM, AES-GMAC 256 bit key, hashing SHA-384, SHA-512 and key exchange with ECDH-256; IPS functionalities (min for : HTTP, FTP, ESMTTP, DNS, SNMP, ICMP, SQL*Net, NFS, H.323 Versions 1-4, SIP, SCCP, MGCP, RTSP, TAPI, JTAPI, CTIQBE, GTP, LDAP, ILS, RPC) and support for open-source IPS Snort Detection, blocking, tracking, analysis, and remediation to protect against targeted and persistent malware attacks Application-layer control (over applications, geolocations, users, websites) and ability to enforce usage and tailor detection policies based on custom applications and URLs Policy enforcement based on complete visibility of users, mobile devices, client-side applications, communication between virtual machines, vulnerabilities, threats, and URLs
L3 functionalities	Support for QoS Routing support with RIPv2, OSPF, BGP IPv6 with IPv4-to-IPv6 translation, DHCPv6 relay, OSPFv3, Unified access-list for IPv4 and IPv6 Multicast routing (PIMv2 and Bidirectional PIM)
Integration	LDAP, RADIUS, AD
Licenses and subscriptions	Unlimited number of users Active/Active or Active/Standby deployment DES, 3DES și AES-256, Suite B crypto IPS and anti-malware for 3 years

Because spam and malware are part of a complex email security picture that includes inbound threats and outbound risks, we require an all-in-one Email Security Appliance to get simple, fast deployment, with few maintenance requirements, low latency, and low operating costs.

Threat intelligence data must be refreshed in the email appliance every 3 to 5 minutes, providing with an up-to-date threat defense response hours or days before other vendors. Flexible deployment options and smooth integration with existing infrastructure are crucial for such a solution and represent a must.

The solution must meet the following minimum requirements:

TECHNICAL CHARACTERISTICS	MINIMUM TECHNICAL REQUIREMENT
General description	Antispam solution for preliminary email content filtering. The deployment must be flexible in a proxy architecture and must capture, filter and deliver the messages to the users. The solution must be a virtual-appliance with

	Vmware support and must be installed on the hardware delivered in the project. The system will be licensed for 100 users.
Message filtering	The solution must be based on a multilayered defense that combines an outer layer of filtering based on the reputation of the sender and an inner layer of filtering that performs a deep analysis of the message. The solution must include contextual analysis and enhanced automation, as well as autoclassification, to provide a strong defense against snowshoe campaigns (spam is propagated over several domains and IP addresses to weaken reputation metrics and avoid filters)
Advanced Malware Protection	The solution must offer reputation scoring and blocking, static and dynamic file analysis (sandboxing), and file retrospection for the continuous analysis of threats, even after they have traversed the email gateway (it can be licensed in the future)
Outbreak filters	Issue rules on any combination of six parameters, including file type, file name, file size, and URLs in a message. Outbreak filters can also rewrite URLs linked in suspicious messages
Signed messages	Security services as described in S/MIME
Encryption	Support for secure SMTP over TLS
Other functionalities	Email detection against spoofing attacks Support for DLP engine integration Track end users who click URLs that have been rewritten by the appliance Support for forged email detection and for graymail detection (marketing, social networking, bulk) Centralized reporting
Integration	LDAP, ActiveDirectory
Licenses and subscriptions	The solution will be licensed minimum for the following subset of functionalities : e-mail protection, antispam, greymail, antivirus, forged e-mail and clustering.

To assure the appropriate security level required for this project, we require a solution that delivers security for all layers of network infrastructure, with the strong protection and complete control.

It must have a broad set of web security deployment options, along with threat intelligence. This solution must simplify security with a high performance, dedicated appliance with a “set and forget” technology that automates policy setting.

Automatic security updates must be pushed to network devices every 3 to 5 minutes.

The solution must meet the following minimum requirements:

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
General description	Dedicated web security solution for preliminary web content filtering. The deployment must be flexible in a proxy transparent or proxy explicit using WCCP. The solution must be a virtual-appliance with Vmware support and must be installed on the hardware delivered in the project. The system will be licensed for 100 users.
URL filtering	The solution must offer URL filtering with dynamic content analysis to mitigate compliance, liability, and productivity risks.
Advanced Malware Protection	The solution must offer malware detection and blocking, continuous analysis, and retrospective alerting. Track all network applications and Layer 4 Traffic Monitor for malware. Dynamically add IP addresses of known malware domains to its list of malicious entities to block (it can be licensed in the

	future) The solution should offer the capability to block know malicious files
Cognitive Threat Analytics	Issue rules on any combination of six parameters, including file type, file name, file size, and URLs in a message. Outbreak filters can also rewrite URLs linked in suspicious messages (it can be licensed in the future)
Application Visibility and Control (AVC)	Granular policy control to allows administrators to permit the use of applications such as Dropbox or Facebook while blocking users from activities such as uploading documents or clicking the "Like" button. Support for visibility of activity across an entire network Customized bandwidth and time quotas per user, per group, and per policy.
Centralized Management and Reporting	Directory-Group-Based Reporting Detailed Layer 4 Traffic Monitor Visibility Advanced Malware Protection Reporting
Encryption	Capability to inspect HTTPS and SSL sessions
Other functionalities	Detect malicious code inside legitimate web pages that passed the reputation filter Allow installation of multiple vendor detection engines against malicious content Multiprotocol protection (for both IPv4 and IPv6) Internet bandwidth user management Detect command & control centers Inline sandboxing with following extension : Windows .exe, .dll, .sys, and .scr; Adobe Portable Document Format (PDF), Microsoft Office 2007+ (Open XML), Microsoft Office 97-2004 (OLE), Microsoft Windows / DOS Executable; Microsoft Office files with the following extensions saved in XML or MHTML format: ade, adp, adn, accdb, accdr, accdt, accda, mdb, cdb, mda, mdn, mdt, mdw, mdf, mde, accde, mam, maq, mar, mat, maf, ldb, laccdb, doc, dot, docx, docm, dotx, dotm, docb, xls, xlt, xlm, xlsx, xlsx, xltm, xlsm, xltx, xltm, xlsb, xla, xlam, xll, xlw, ppt, pot, pps, pptx, pptm, potx, potm, ppam, ppsx, ppsm, sldx, sldm, mht, mhtm, mhtml, and xml.
Integration	LDAP, ActiveDirectory
Licenses and subscriptions	The solution will be licensed minimum for the following subset of functionalities : L4 traffic monitoring, application control and visibility, URL filtering, DLP integration via ICAP

All the security applications will be installed on virtual machines and will use hardware resources from the server. The server must be dimensioned in order to support all the proposed applications.

This server must meet the following minimum requirements:

TECHNICAL CHARACTERISTICS	MINIMUM TECHNICAL REQUIREMENT
CPU	2 CPU Intel Xeon E5 (or similar) with at least 10 cores at 2.4 Ghz and 13 MB Cache L3
Memory	192 GB RAM DDR4
Local storage - SD/Flash	2x 32GB SD/Flash
Interfaces	2x 10Gbps CNA, with DAC/ Twinax cables, at least 3m length. The interfaces will support VXLAN and NVGRE hardware processing must offer virtualization features with at least 128 LAN/SAN virtual interfaces which can be crated dynamically and directly allocated to the virtual machines

RAID	SAS controller with 12 Gbps per channel. RAID 0,1,5,60
Disk	2 SSD disk 480 GB SAS enterprise performance and at least 6 x HDD x 1.2 TB SAS 10k.
Power	Redundant power supply
Accessories	Rack mount kit
Licenses and subscriptions	VMware standard for 2 CPUs

## L. Audio and Video Conference system

### *General requirements*

The audio and videoconferencing system will be integrated and will have the following functionalities:

1. The system will provide telephone communications for all users in different physical locations, ensuring simple communication between them based on a common numbering plan. A centralized, unitary management system will be implemented.
2. The system will initially support a number of 50 telephony users, as well as all video conferencing systems, with the possibility of easy expansion only by acquiring licenses, without hardware modifications.
3. The system will be distributed, based on IP technology, allowing the installation of terminals wherever there is internal network connectivity.
4. Multiple types of connections to the public telephone network and to the existing telephone systems: ISDN, analogue, SIP trunk, etc. will be supported using appropriate gateways.
5. The number of gateways and their location will be determined only by the communication requirements of the institutions, without any limitations imposed by the system.
6. For conference functionality, full HD conferencing with all locations as well as mobile participants will be possible, using specialized terminals as well as PC / tablet / mobile client software.
7. At least 15 participants, at full HD resolution, will be able to attend the conference at the same time.
8. The possibility of streaming videoconferencing sessions.
9. Confidentiality of video conferencing and videoconference sessions through standard technology encryption.
10. Enrolling customers in the centralized system regardless of their physical location.
11. A unified numbering and addressing plan, which allows the use of both numeric and Uniform Resource Identifier (URI).
12. The possibility of creating an ad hoc or scheduled videoconference session.
13. Connecting occasional users to videoconferencing sessions using a web browser or smartphone without having to define these users in the system.
14. Provides the possibility of connecting the external partners (B2B) to the videoconference without having to create a VPN connection with the partner.
15. Schedule a videoconference session directly from email clients.

Possibility to participate in videoconferencing sessions of standard audio / video equipment: H323 and SIP

## ***Engine for call-processing***

The engine for call-processing must extend voice and video features to network devices such as IP phones, telepresence endpoints, media-processing devices, gateways, and multimedia applications. The application must be equipped for use with the Instant Messaging (IM) and Presence Service. In addition, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems must be possible through its open telephony APIs.

<b>Engine for call-processing</b>	
<b>Category</b>	<b>Technical Specifications</b>
General functionalities	The system will provide audio and video communications for all users in different physical locations, ensuring simple communication between them based on a common numbering plan
	The system will be distributed, based on IP technology, allowing the installation of terminals wherever network connectivity exists in the internal network
	Provides signaling and enrollment functions for all telephone and videoconferencing terminals
	Ensure participation in video conferencing sessions of standard audio / video equipment: H323 and SIP
	Ensure bandwidth management and maintain the quality of audio / video calls
	To bear a logical partitioning of the numbering plan
	Allow digits to be dialed and processed (insert, delete, add access codes)
	Allow certain destinations to be blocked
	Ensure the use of both EMR (E.164) and Uniform Resource Identifier (URI) addresses
	Ensure that calls are distributed according to the time / date of the call
	Provide detailed information on all calls made to the system
	Ensure a minimum of 5 simultaneous audio / video calls with Microsoft Lync clients, extendable by subsequent additional licensing
	Ensure a minimum of 5 simultaneous audio / video calls to occasional external users, undefined in the system, using a web browser or smartphone / tablet
Ensure call security, both by securing signaling and media streaming: SIP / TLS, SRTP	
User-level/ Terminal functions	Support call forwarding in case of busy, unanswered calls and any call
	Ensure users can view dialed, received, missed calls

	Provide users with transfer, hold call and call forwarding functionality
	Provide users with automatic response, standby and intercom
	Provide users with speed dial
Functional architecture	The setup will be implemented in a redundant active-active architecture to ensure continuity of services, including the possibility of geographic redundancy if it is the case in the future
Licensing	The necessary licenses for 50 users who can use a PC-based software / tablet or smartphone and also have voice messaging will be provided. Also 18 videoconferencing terminals licenses will be provided
System management	Manage the system via the integrated web interface which can be accessed in a secure way by using the HTTPS protocol
	Provides multiple levels of access to the application management interface depending on the role of the user
	Can be monitored using the SNMP protocol

### ***Video-centric call control***

This component must provide a video-centric call control and firewall traversal solution to support registration of video endpoints.

It must meet the following minimum requirements:

<b>Video-centric call control</b>	
<b>Category</b>	<b>Description of the requirements</b>
General functionalities	It integrates functionally with the <b>Engine for call-processing</b>
	Ensures the connection of the external partners to the videoconference without the need to create a VPN connection with them
	Ensures transparent access for all customers defined in the audio and video communications system, regardless of their physical location, without the need to create a VPN connection using other specialized equipment
	Ensure that audio / video calls are made between LAN clients and Internet clients, without the need to create a VPN connection using specialized equipment
Capabilities	To support STUN, discovery and relay communications protocols
	Support firewall traversal using STUN compatible methods
	Support communication protocols H.460.18 and H.460.19
	Support SIP, RTP, BFCP communications protocols
	To support IPv4 and IPv6 communications protocols

	Ensure secure access to application management by using HTTPS, SSH, and SCP protocols
	The minimum number of clients that can connect at the same time: 1000
	The minimum number of audio calls to be made across the server: 200
	The minimum number of video calls to be made across the server: 100
Licensing	The necessary licensing for at least 5 simultaneous B2B calls will be ensured
System management	Administration of the system through the integrated web interface
	Can be monitored using the SNMP protocol

### ***Virtualized server platform for support the collaboration applications***

The infrastructure is required to support collaboration applications options plus one for provisioning in a single virtualized server platform; maximum capacity of 1000 users, 1200 devices, and 100 contact center agents. It must be tailored for medium-scale end-to-end collaboration deployments. The platform must be ready for use, with a preinstalled virtualization hypervisor and preloaded software, ready to install.

The platform must meet the following minimum requirements:

<b>Virtualized server platform</b>	
<b>Category</b>	<b>Description of the requirements</b>
Hardware Requirements	<p>Technology: 64-bit CISC Processor, 10 Core, 2.2 GHz Frequency, 13 MB DDR4 2400 MHZ Cache;</p> <p>Number of processors installed: 1;</p> <p>Number of installable processors: 2;</p> <p>Installed memory: 3x16 GB DDR4-2666-MHz RDIMM / PC4-21300 / single rank / x4 / 1.2v</p> <p>Internal hard drives supported: SAS and SATA;</p> <p>Installed storage capacity: 6x300 GB SAS @ 10k rpm hot swap;</p> <p>RAID Controller: RAID levels: 0,1,5,6,10,50,60 with 2GB cache memory</p> <p>Ports and interfaces: KVM console; USB x 2 (two); Serial x 1 (one); Video x 1 (one); Dedicated 10/100/1000 Base-T x 1 (one) remote management interface, 4 LAN 10/100/1000 Base-TX interfaces integrated on the motherboard</p>
Requirements for the integrated controller	<p>The server must be equipped with an integrated controller for its management, configuration and monitoring through a graphical interface (GUI), command line (CLI) and Intelligent Platform Management Interface (IPMI)</p> <p>The integrated controller must work independently of the operating system installed on the server so that if the operating system is turned off, access</p>

	<p>to the controller is functional and operational</p> <p>The integrated controller must be remotely accessible via an IP address through any of the three types of interfaces available: Gigabit Ethernet interface dedicated to out-of-band management; Gigabit Ethernet interfaces on the motherboard; CNA interfaces</p> <p>Integrated controller access control is done through user-login and password authentication, based on customized groups and roles</p> <p>The integrated controller can ensure integration with Active Directory</p> <p>The integrated controller can ensure the ability to configure VLANs on its communication interface.</p> <p>The integrated controller can provide information about the identity and inventory of the components of the server that manages it (serial number for each component, which software runs on each component, what BIOS version and the date it was made)</p> <p>The integrated controller can monitor and view information about the processors installed on the server (type, CPU model, CPU manufacturer, frequency at which it works, number of cores)</p> <p>The integrated controller must ensure the configuration of the server BIOS, change the boot priorities, recover the failing BIOS, and reset the BIOS</p> <p>Integrated controller can directly configure RAID functionality without auxiliary applications</p>
Operating system requirements	<p>The server must be shipped with ESXi operating system</p> <p>The server must be supported by the PBX manufacturer</p>
Construction requirements	<p>The server must be mounted in standard 19" (inch) racks</p> <p>The maximum height of the Server is 1 RU (rack unit)</p> <p>Must be supplied with a kit with rack fasteners/ mounts (supports, screws)</p>

## **Voice Gateway**

The architecture must provide public-switched-telephone-network (PSTN), private-branch-exchange (PBX), and service-provider Session Initiation Protocol (SIP) trunk-gateway and interconnect capabilities. We plan to deploy these gateways to effectively meet today's unified communications networking needs and take advantage of emerging new applications.

The voice gateway must meet the following minimum requirements:

<b>Voice Gateway</b>	
<b>Category</b>	<b>Description of the requirements</b>
Configuration requirements	The equipment must be a router type and allow interconnection with the outside world at both IP and TDM (E1) level. The equipment must provide secure connectivity through encryption (3DES, AES).
Minimal hardware requirements	The digital voice / video processing module must be able to process 32 G.711 voice channels simultaneously.

Licensing requirements	<p>Licenses must be pre-installed on the operating system</p> <p>Licenses for basic IP routing protocols such as: OSPF, BGP, EIGRP or equivalent must exist</p> <p>Licenses for 10 simultaneous calls using SIP technology (IP-IP gateway function) must be provided</p> <p>Security and encryption licenses (minimum using 3DES,AES) must be provided</p>
Minimal hardware requirements for the motherboard	<p>The motherboard must have at least 2 Gigabit 10/100/1000 Base interfaces and at least one of the interfaces can be used in dual RJ45 / SFP mode.</p> <p>Minimum 2 (two) expansive interfaces. Expansion interfaces must support both IP modules and TDM modules. The router will be equipped with at least an E1 type interface for interconnecting with the outside world for voice services</p> <p>Memory on the motherboard must be:</p> <p>Minimum 4GB external flash memory, expandable to 8GB</p> <p>Minimum 4GB DRAM, expandable to 8GB</p> <p>Minimum 1 (one) serial port for the console.</p>
Performance requirements	<p>P packet routing performance must be at least 50Mbps and scalable through future licensing up to 2Gbps.</p> <p>The router must support the following standards:</p> <ul style="list-style-type: none"> <li>a. 802.1Q</li> <li>b. 802.3af</li> <li>c. 802.3ah</li> <li>d. 802.1ag</li> </ul> <p>The router must have at least the following data link protocols implemented: Ethernet, Fast Ethernet, Gigabit Ethernet</p> <p>The router must accept remote management commands using SNMP, RMON, syslog, and NetFlow</p> <p>The router must include the following features and protocols: IPv4, IPv6, static routing, OSPF, EIGRP or equivalent, IS-IS, BGP, PIM, IGMPv3</p> <p>The router must support QoS service quality management</p>
Operating system requirements	<p>The router must have a universal operating system</p>

### ***Meeting Server, App and Management***

The Meeting Server must bring video, audio, and web communication together to meet the collaboration needs of the modern workplace. The Meeting App must allow anyone to create, join, and run meetings easily, from room or desktop video systems, mobile clients, or browsers. The Meeting Management must allow operators to monitor and control meetings, providing a white glove service.

They must meet the following minimum requirements:

<b>Meeting Server, App and Management - Software and Hardware</b>	
<b>Category</b>	<b>Description of the requirements</b>
General functionalities	It integrates functionally with the Engine for call-processing and the Conference Management Platform (below)
	Provide different and optimized layouts for different types of terminals
	Ensure Videoconference sessions at Full HD quality (1080p)
	Ensure videoconference sessions at HD quality (720p)
	Ensure videoconferencing sessions at SD quality (480p) video for mobile and remote customers, where bandwidth is limited
	The capacity of the videoconferencing server will be dimensioned to support the following scenario:  - 48 users at Full HD (1080p) resolution
	The application must be licensed for a minimum of 2 simultaneous conferences and contain any virtualization license if this is required.
	Allows dynamic resource allocation in a conference based on audio / video features of the connected terminals
	Allows you to connect to a conference using a browser
	Offers the ability to view a list of participants in a videoconference
	Participants in a conference can be added by both manual and automatic dialing
	Supports H.323 and SIP communications protocols
	Supports TLS, SRTP, and AES
	Ensures the quality of video services by marking IP packages so that they can be treated with a specific priority by the network equipment
	Allows on-screen messages to be sent to the participant
Notify users when/ if a conference is registered	
Displays the total number of participants in the conference	
Video capabilities	Supports H.263 and H.264 video codecs
	Supports H.239 and BFCP standards for document sharing
	Supports resolutions from 360p to 1080p with 60fps refresh rate

	Supports bandwidths up to 6 Mbps for each screen of each terminal in all conference types, using both H.263 and H.264
Audio capabilities	Supports G.711, G.722, G.722.1, G.728, G.729, MPEG-4 AAC-LC, MPEG-4 AAC-LD audio codecs
System management	Administration of the system through the integrated web interface
	Possible configuration via a functions library (API)

<b>Conference management platform</b>	
<b>Category</b>	<b>Description of the requirements</b>
General functionalities	It integrates functionally with the Engine for call-processing and the Meeting Server
Programming and managing conferences	Ensures the creation of a videoconference session in ad hoc, scheduled or meet-me mode
	Ensures the creation of a permanent videoconferencing room for each user, the rooms are protected by using a PIN
	Ensures a videoconference session can be scheduled directly from email clients: Microsoft Exchange / Outlook and IBM Lotus Notes
	Ensures the management of conference sessions
	Enables sending notifications by e-mail, individually or to groups
	Allows audio, video, and network settings for videoconferencing in a centralized manner
	Allows graphical representation of the operational status of managed equipment through real-time monitoring maps with customizable layouts
	Allows creation, configuring, password protection, editing and deleting video conferencing sessions
	Allows you to connect / disconnect the participating video terminals to an ongoing videoconference session
System management	Administration of the system through the integrated web interface
	Allows flexible configuration of access rights to the integrated management platform
	Allow user grouping by access levels (profiles / roles)
Reporting	Provides reports containing information about videoconference meetings and about the use of videoconferencing equipment

## **Video Screen**

Video endpoint (encoder + camera + display) for Video Conference

We require All-in-one display and video conference system that must provide:

- A dedicated, always-on HD video communication system
- An IP phone that provides essential features for knowledge workers
- A high-quality audio system for speakerphone
- A 23-inch 16:9 screen that provides an engaging experience for video calls
- A multitouch capacitive touchscreen that provides an elegant and powerful user interface
- A self-provisioning device that is simple for users to take out of the box and start using quickly
- Easy “One-Button-To-Push” (OBTP) calling that integrates with common calendaring programs

This must meet the following minimum requirements:

Video Screen	
Category	Description of the requirements
General functionalities	Personal videoconferencing desktop terminal
	Supplied with all the accessories required for proper operation
	Ensures optimal image and sound quality by real-time matching of audio / video transmission parameters related to IP infrastructure bandwidth quality and size
	Integrated with the Software Infrastructure Server
	Can be used as a monitor for PC or Mac devices
	Ensure quality of video services by marking IP packages so that they can be treated with the according priority by network equipment
	Ensures switching between different conference layouts through a touchscreen system
	Has a minimum 23' (inch) display screen
Audio/ video communication protocols	SIP
Supported video resolutions	From CIF to 1080p
Video standards	H.264
Bandwidth	Supports up to 6Mbps
Audio Standards	G.711, G.722, G.729A, AAC-LD
Audio characteristics	Allows the transmission and reception of audio signals at a 20kHz quality
	Provides automatic gain control (AGC – Automatic Gain Control)
	Ensures automatic noise reduction
	Ensures that the sound is synchronized with the image

	Ensures echo cancellation by using hardware elements
Content sharing channel	Supports the BFCP standard
	Supports resolutions up to 1080p on the content sharing channel
Network interfaces	1 (one) 10/100/1000Mbps network interface with an RJ-45 connector for network connection
Video input/ output	HDMI interface used as input for PC or Mac video signal
Security characteristics	Supports configuration using HTTP and HTTPS protocol
	Secures access to the administration menu by using passwords
Monitor features	Has a minimum 23' (inch) display screen
	Minimum resolution 1080p
	Viewing Angle +/- 178 degrees
	Contrast 1000:1
	Response time: 5ms
	Brightness: 215cd/m2
Video camera features	Supports 1080p minimum resolution, with a 30fps image refresh rate
	Horizontal viewing angle of at least 60 degrees
System controller features	Interaction with the equipment is achieved through a touchscreen.

### **Camera for Video Conference**

We require a Room Kit– comprising a powerful codec and a quad-camera bar with integrated speakers and microphones – ideal for rooms that seat up to 14 people. It must offer sophisticated camera technologies that bring speaker-tracking and auto-framing capabilities to medium to large-sized rooms. The product must be rich in functionality and experience but it must be easily scalable to all of our conference rooms and spaces.

The camera must meet the following minimum requirements:

<b>Camera for Video Conference</b>	
<b>Category</b>	<b>Description of the requirements</b>
General functionalities	Modular videoconferencing terminal composed of codec, video camera system, system controller and microphones (minimum 1 table microphone included)
	Supplied with all the accessories required for proper operation

	Ensures optimal image and sound quality by real-time matching of audio/ video transmission parameters related to IP infrastructure bandwidth quality and size
	Integrated with the Software Infrastructure Server
	The possibility to upgrade to a 3+1 multipoint setup, which allows videoconferencing with at least 3 remote terminals
	Ensure quality of video services by marking IP packages so that they can be treated with the according priority by network equipment
	Supports connection of at least 2 displays
	Ensures speaker tracking option
Audio/ video communication protocols	H.323 si SIP
Supported video resolutions	Up to 4kp60
Video standards	H.264, H.265
Bandwidth	Supports a minimum bandwidth of 6 Mbps
Audio standards	G.711, G.722, G.722.1, AAC-LD, Opus
Audio characteristics	Allows the transmission and reception of audio signals at a 20kHz quality
	Provides automatic gain control (AGC – Automatic Gain Control)
	Ensures automatic noise reduction
	Ensures that the sound is synchronized with the image
	Ensures echo cancellation by using hardware elements
Content sharing channel	Supports H.239 and BFCP standards
	Supports resolutions up to 3840x2160p5 on the content sharing channel
Network interfaces	1 (one) 10/100/1000Mbps network interface with an RJ-45 connector for network connection  Wi-Fi 802.11a /b/g/n/ac 2.4 GHz/5 GHz, 2x2 MIMO  Bluetooth 4.0 LE
Video input/ output	Minim 2 interfete HDMI pentru iesire ce suporta pana la 4K (3840 x 2160) la 30 fps inclusiv HD1080p60
	Minimum 2 HDMI output ports supporting up to 4K (3840 x 2160) at 30 fps including HD1080p60
Security characteristics	Supports configuration using HTTP, HTTPS and SSH
	Secures access to the administration menu by using passwords

Video camera features	Zoom : 3x
	5K UltraHD camera; up to 60fps and up to 30fps with speaker tracking
	Horizontal viewing angle of 83 degrees
	Allows automatic focus settings, white level and brilliance
System controller features	Touchscreen control interface of minimum 7" (inch)
	It offers the possibility of changing the call layout (point-to-point and multipoint) directly from the controller

## M. Data Centre Servers and Network Equipment

### Switches – 2 Pcs.

Enterprise switching platform built for security, IoT, mobility, and cloud. We require the next generation of the industry's most widely deployed switching platform. We require switches also ready for the future, with an x86 CPU architecture and more memory, enabling them to host containers and run third-party applications and scripts natively within the switch.

The access switch system must contain at least two Layer 3 modular switch devices, each with at least 48 RJ45 1G ports, having the same interconnected chassis to provide a bidirectional connection capacity of at least 256 Gbps.

The access switch system must provide a total of minimum 96 x 1G RJ45 access ports with POE + functionality and, additionally, 16 x 10G SFP+ ports for uplink, excluding interconnection ports.

Equipments should be managed as a single equipment, allowing centralized management and will offer the possibility to create single logical links, composed of multiple ports, whatever the equipments belong, to ensure redundancy. Also, each equipment will be equipped with 4 optical 10G multimode from the same manufacturer.

TECHNICAL CHARACTERISTICS	MINIMUM TECHNICAL REQUIREMENT
General description	Each switch must be integrated into the Centralized Network Policy Access Management solution, and can automatically receive port authorization rules, dynamic authorization changes, and access policies for customers connected to terminal equipment on the device automatically from this solution. The equipment must contain mechanisms for hardware and software protection to check integrity and prevent starting up the operating system if it has been corrupted by the manufacturer. These mechanisms should include: cryptographic signature of software images from the manufacturer and a trusted platform module type installed in the factory, whereby the hardware platform is uniquely identified and authenticated.
Bandwidth	Minimum 256 Gbps
Forwarding rate of switch	190 Mpps
PoE per switch	Minimum 1100W
MAC Addresses	32000

Layer 2 capability	VLAN (min 4000 IDs), RSTP, MSTP, PVRSTP, LACP,
Layer 3 capability	Ipv4 routing, Ipv6 routing, static routing, RIPv2, RIPv6, VRF-Lite, OSPF, OSPFv3, IS-IS, BGP and PIM multicast routing (SM, SSM, Bidir), MPLS L3VPN, SVI-uri, VXLAN,
Routes	32,000 (Ipv4)
Jumbo frame	9,198 bytes
Security	Support for AES-256 with the powerful MACsec 256-bit encryption algorithm, SSHv2 Authentication, authorization, and traceability of user actions through an external AAA server, but also authentication, authorization, and traceability of locally performed actions.
QoS	Eight egress queues per port, QoS scale entries minimum 5,000.
Management	CLI (console), Web, SSHv2, Telnet
Power supply	700W redundant power supply
Included Accessories	Power cord Rack mount kit Console cable Stacking cable (at least 50cm)
Licensing	The switch must be licensed to provide at least Layer 2, basic routing protocols (RIP, EIGRP Stub, OSPF - 1000 routes), and MACSEC128 encryption

### ***Routers with traffic encryption capabilities***

We require 2 routers for the central infrastructure and 12 small routers with traffic encryption for the National Focal Points.

For the central infrastructure, we require Integrated Services Routers (ISRs) from a Software Defined WAN platform that delivers the performance, security, and convergence capabilities that our central infrastructure need.

The central routers must have new levels of built-in intelligent network capabilities and convergence in order to specifically address the growing need for application-aware networking in our distributed enterprise sites.

The minimum requirements are:

2 Pcs

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
General description	Modular Router, minimum 3 slots, with hardware accelerated encryption The equipment must contain mechanisms for hardware and software protection to check integrity and prevent starting up the operating system if it has been corrupted by the manufacturer. These mechanisms should include: cryptographic signature of software images from the manufacturer and a trusted platform module type installed in the factory, whereby the hardware platform is uniquely identified and authenticated.
Dimensions	Rack mount, 19", 1U.

Interfaces	1 management port 4 active GE RJ4 ports, 4 SFP-based (SFP must be included) The available slots must allow the addition of E1 type interfaces and x86 server processing modules
Performance	Throughput: min. 4 Gbps IPSec encrypted transfer capacity: 900 Mbps Firewall Sessions: 500,000 Number of IPSEC tunnels: 2,000 (using IKEv2)
Memory and processor	Multicore processor RAM - 4GB Flash memory – 8GB
Software features	Virtual routing instances Ipssec, 3DES, AES, GRE, DMVPN, L2TPV3, BFD, EoMPLS, VRRP / HSRP IPv4 Routing Protocols: RIP v1 / v2, OSPF, BGP, PBR, EIGRP IPv6 Routing Protocols: RIP, OSPFv3, BGP, BGP-RR, PBR Hierarchical QoS MPLS, VPLS, MPLS L3VPN, EoMPLS Mechanisms for detecting and controlling applications in traffic through the equipment. Features for Firewall with zone definitions for ipv4 and ipv6. Support for Voice-Gateway functionality. The equipment must allow a maximum of 3000 simultaneous SIP trunk sessions only through further licensing.
Management	CLI, telnet, console, SSH Authentication, authorization, and traceability of user actions through an external AAA server, but also authentication, authorization, and traceability of locally performed actions.
Power	2 internal power supplies providing support romanian standards: 230 VAC / 50 Hz

For the National Focal Points, we require 12 smaller Integrated Services Routers which combine Internet access, comprehensive security, and wireless services (LTE Advanced 3.0 wireless WAN and 802.11ac wireless LAN) in a single, high-performance device. The routers must be easy to deploy and manage, with cutting-edge, scalable, multicore separate data and control plane capabilities.

They must meet the following minimum requirements:

12 Pcs.

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
General description	Router with encryption The equipment must contain mechanisms for hardware and software protection to check integrity and prevent starting up the operating system if it has been corrupted by the manufacturer. These mechanisms should include: cryptographic signature of software images from the manufacturer and a trusted platform module type installed in the factory, whereby the hardware platform is uniquely identified and authenticated.
Dimensions	Rack mount, included rack mount kit, 19", 1U.
Interfaces	1 management port 2 active GE RJ4 ports of which GE/SFP combo (SFP MMF or SSF LX/LH) 8 GE RJ45, from which 4 PoE ports and 2 PoE+ ports

Performance	encrypted traffic performance: 350 Mbp
Memory and processor	Multicore processor RAM – 4 GB Flash card– 4 GB
Software features	Virtual routing instances Ipsec, 3DES, AES, GRE, DMVPN, L2TPV3, BFD, EoMPLS, VRRP / HSRP IPv4 Routing Protocols: RIP v1 / v2, OSPF, BGP, PBR, EIGRP IPv6 Routing Protocols: RIP, OSPFv3, BGP, BGP-RR, PBR Hierarchical QoS MPLS, VPLS, MPLS L3VPN, EoMPLS Mechanisms for detecting and controlling applications in traffic through the equipment. Features for Firewall with zone definitions for ipv4 and ipv6. Support for Voice-Gateway functionality. The equipment must allow a maximum of 3000 simultaneous SIP trunk sessions only through further licensing.
License	The equipment has to be licensed for min 50Mbps encrypted IMIX traffic and will offer support for Ipsec, 3DES, AES. The equipment has to be licensed for exporting traffic statistics Netflow/IPFIX
Management	CLI, telnet, console, SSH Authentication, authorization, and traceability of user actions through an external AAA server, but also authentication, authorization, and traceability of locally performed actions.
Power	1 internal power supply providing support Romanian standards: 230 VAC / 50 Hz
Included Accessories	Power cord Rack mount kit Console cable

## Servers

For the I2 database, there are 2 servers required having the following minimum capabilities:

TECHNICAL CHARACTERISTICS	MINIMUM TECHNICAL REQUIREMENT
BASE UNIT	Rackmount, 2U
CHIPSET	Intel C624 or equivalent
MEMORY SLOTS	Minimum 24 slots
INSTALLED MEMORY	Minimum 64 GB RAM DDR4 2666 MHz
MAXIMUM MEMORY CAPACITY	3 TB
MAXIMUM NUMBER OF PROCESSORS/INSTALLED	2/2
PROCESSOR TYPE	Intel Xeon Gold 5115 or equivalent/superior Processor Base Frequency: minimum 2.40 GHz, Number of Cores: 10

<b>DRIVE BAYS (BASE UNIT SPECIFIC)</b>	Minimum 8 x 2.5-inch
<b>OPTICAL DRIVES</b>	Integrated, type DVD+/-RW
<b>SUPPORTED HDD</b>	SAS, SATA, SSD
<b>INSTALLED HDD</b>	2 x HDD SAS, 12G/s, 300GB, 15.000rpm 6 x HDD SAS, 12G/s, 1 TB, 7.200rpm
<b>RAID CONTROLLER</b>	Internal with 8 ports, supported RAID levels 0, 1, 10, 5, 50, 6, 2 GB cache memory
<b>FIBRE CHANNEL CONTROLLER</b>	1 x Fibre Channel controller (HBA) with 2 x 16 Gbit/s ports
<b>SLOTS</b>	Minimum 6 x PCIe 3.0
<b>INTERFACES</b>	4 x RJ-45 10/100/1000 1 x serial 5 x USB 3.0 1 x VGA 1 x dedicated management LAN
<b>ERGONOMIC CHARACTERISTICS</b>	The server will be provided with telescope rails.
<b>POWER SUPPLY</b>	Minimum 800 W, Redundant, hot-plug
<b>SECURITY</b>	Integrated TPM on mainboard
<b>INTEGRATED MANAGEMENT</b>	Operational management application developed by the system manufacturer with the following functions: <ul style="list-style-type: none"> <li>• System status monitoring,</li> <li>• Event and alarm management,</li> <li>• Components inventory,</li> <li>• Inventory and installation of updates and patches, performance analysis,</li> <li>• Online diagnostics,</li> <li>• Video redirection,</li> <li>• Automatic restore and reconfiguration of server, Prefailure Analysis (PFA)</li> </ul>
<b>WARRANTY</b>	36 months provided by the equipment manufacturer.  HDDs that will experience hardware failures during the warranty period will be replaced with other HDDs (with identical or higher performance) without being returned to the Provider (regardless of the nature of the defect). Both HDDs replacing defective and defective HDDs remain the property of the Beneficiary.
<b>NOTE</b>	The delivered equipment will be new. Remanufactured equipment and/ or equipment containing elements which were previously used is not accepted.

## Storage

The required storage must have the following minimum capabilities:

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
<b>GENERAL SYSTEM INFORMATION</b>	Centralized storage system with at least 2 active-active redundant controllers with automatic failover.
<b>HOST INTERFACES</b>	The system must internally support FC, iSCSI, NFS, CIFS protocols, and interfacing these access protocols at the controller level.
<b>ACCESS PORTS</b>	2 x 16Gbps FC ports per controller (4 ports per system), installed, included SFPs, The system must support the following ports at the controller level: 10Gbps iSCSI, 10Gbps Ethernet, 32Gbit/s Fiber Channel, 12Gbit/s SAS
<b>CACHE MEMORY INSTALLED</b>	Minimum 16 GB per controller (32 GB per system). Cache memory must be protected by an error check code mechanism.
<b>INSTALLED STORAGE</b>	3 x SSD 400 GB; 7 x HDD 1,8 TB 10.000 rpm, SAS interface; 6 x HDD 600 GB 15.000 rpm, SAS interface; The system must allow data encryption for the entire bid capacity. Drive interface: SAS 12Gbps
<b>DIMENSIONS</b>	2U maximum for controller enclosure, 2U maximum for drive enclosure, and 4U maximum for high-density drive enclosure.
<b>DRIVE DATA PROTECTION</b>	The storage system must allow implement of RAID level 0, 1, 10, 5, 50, 6 dedicated and global hot-spare drives. The system must ensure two path, redundant connections to each hard disk drive with automatically fail over.
<b>SYSTEM REDUNDANCY</b>	The system must include redundant controllers with automatic failover, the power supply must be redundant - at least 2 power supplies. The system must include controllers, power supplies and drives in HotSwap technology - their extraction, completion or replacement can be done on line without interrupting connections with the installed expansion units.
<b>CONNECTIVITY (HOSTS)</b>	Minimum number of LUNs: 8.000 Minimum LUN capacity: 120 TB
<b>SUPPORTED AND CERTIFIED OPERATING SYSTEMS (HOST)</b>	The certified operating systems must be: Microsoft Windows, RedHat Linux, Suse Linux, Oracle Linux, IBM AIX, HP-UX, Sun Solaris, VMware ESX, XenServer. The storage system must be shipped with the multipath and load balancing drivers included in the proposed configuration.
<b>DRIVE EXPANSION UNITS</b>	The storage system must support at least the following types of drives both in 2.5 inches and 3.5 inches: SSD, SAS, NL-SAS / SATA. The system must allow self-encryption drives. The system must allow SSD, SAS and NL-SAS / SATA drives to be mixed in

	<p>the same expansion unit.</p> <p>The system must allow expansion units with 2.5 inch and 3.5 inch disks to be mixed.</p>
<b>SCALABILITY</b>	<p>The system must allow internal scalability to a minimum of 260 HDDs by adding expansion drives.</p>
<b>SOFTWARE FUNCTIONALITY FOR COPYING AT CONTROLLER LEVEL</b>	<p>The system must provide support for local copies - the Snapshot type, at least 2,000 snapshot sessions.</p> <p>The system must provide support for making local copies - the Clone type.</p> <p>The system must provide support for remote copies both synchronously and asynchronously - Remote Replication type.</p> <p>The system must provide support for active cluster at controller level, in conjunction with a secondary storage system, support for four active controller units – storage cluster type.</p> <p>The device must provide support for snapshot, backup, and restore capabilities to ensure consistent data protection for at least the applications: MS Windows, Linux, Exchange, SQL Server, SharePoint, Oracle, SAP, VMware and Hyper-V. Data saving operation must be done without service or application shutdown, restore operation must be done in a granular way at the individual file level.</p> <p>The system must allow integration with virtualization environments, and perform backup (Clone type) without impact for processing or storage resources.</p>
<b>SOFTWARE EFFICIENCY</b>	<p>The equipment must include mechanisms for virtual allocation of storage capacity – Thin Provisioning.</p> <p>The equipment must include mechanisms for energy efficiency and supports stop disk rotation at set times based on customer's usage patterns.</p> <p>The equipment must include the ability to encrypt stored data.</p> <p>The system must provide support for performance optimization by automatically moving data between different types of HDDs according to the need for performance in a transparent way for host servers - Automated Storage Tiering.</p> <p>The equipment must provide performance optimization support through prioritization policies for hosts' data access.</p> <p>The equipment must provide performance optimization support through prioritization policies for data access from host.</p> <p>The equipment must support a mechanism for speeding up data volume performance by expanding cache memory to SSDs.</p>
<b>MANAGEMENT</b>	<p>The equipment must have the Ethernet interface, WEB console, CLI, SNMP, HTTPS, RADIUS.</p> <p>The management interface must allow viewing of system status information.</p> <p>The management interface must allow for system performance monitoring and historical logging.</p> <p>The equipment must allow the definition of multiple user roles with different administration rights.</p>

<b>WARRANTY</b>	36 months provided by the equipment manufacturer.  HDDs that will experience hardware failures during the warranty period will be replaced with other HDDs (with identical or higher performance) without being returned to the Provider (regardless of the nature of the defect). Both HDDs replacing defective and defective HDDs remain the property of the Beneficiary.
<b>NOTE</b>	The delivered equipment will be new. Remanufactured equipment and/ or equipment containing elements which were previously used is not accepted.

## ***Backup appliance***

For data protection, we require a hardware/software appliance with the following minimum capabilities:

<b>GENERAL REQUIREMENTS</b>	Will integrate a complete solution for backup and restore data, including hardware, backup software and licenses, into a single appliance.
	Will allow the protection, saving and restore of disk data, as well as the efficient management of the data archiving cycle.
	Will include backup and restore licenses at the file level for an unlimited file clients.
	Will include licenses to backup and restore an unlimited number of Network Attached Storage (NAS) clients.
	Will include licenses for archiving and management data lifecycle.
	Will include backup and restore licenses for an unlimited number of virtual machines.
	Will allow and will include licenses for archiving and management of virtual machines lifecycle.
	Will allow and will include licenses for data deduplication.
	Will allow and will include licenses for primary data and secondary copies encryption.
	Will allow and will include backup and restore functions with application-level data consistency at least for MS SharePoint, MS Exchange, MS SQL, MS Hyper-V, SAP, Oracle, VMware, Unix, Windows.
	Will allow expanding with data backup and recovery functions through snapshot, exclusively through software licensing.
	Will allow expanding with copy functions of remote replication data, exclusively through software licensing.
	Will allow expanding with copy functions of data to tape, exclusively through software licensing.
<b>FUNCTIONAL FEATURES</b>	Will include in the offered configuration a minimum of 16 TB Net Storage Capacity, after configuring RAID matrices and eventual reserves for operating system and management system.
	Will include at least the following connectivity interfaces:

	<ul style="list-style-type: none"> <li>• 3 x 1Gbps Eth</li> <li>• 4 x 10Gbps Eth,</li> <li>• 8 x 12Gbps SAS</li> </ul>
	Will include hot-swappable, server class drives, grouped into dual-parity RAID arrays.
	will allow web console and its own service to recover users data.
	will support the functionalities required for MS Windows, MS Windows, Linux, Unix, VMware, Hyper-V clients.
	The system will include all accessories required for installation in the rack, network connection, and power supply.
	The supplier will deliver the installation and configuration services as specified by the equipment manufacturer.
<b>WARRANTY</b>	<p>36 months provided by the equipment manufacturer.</p> <p>HDDs that will experience hardware failures during the warranty period will be replaced with other HDDs (with identical or higher performance) without being returned to the Provider (regardless of the nature of the defect).</p> <p>Both HDDs replacing defective and defective HDDs remain the property of the Beneficiary.</p>
The delivered equipment will be new. Remanufactured equipment and/ or equipment containing elements which were previously used is not accepted.	

### ***Multifunctional Printer***

The required multifunctional printer must have the following capabilities:

<b>TECHNICAL CHARACTERISTICS</b>	<b>MINIMUM TECHNICAL REQUIREMENT</b>
<b>FUNCTIONS</b>	Print, copy, scan, fax
<b>CONTROL PANEL</b>	20,3 cm colour LCD with capacitive touchscreen; rotating (adjustable angle) display; illuminated capacitive Home button (for quick return to the Home menu); Easy Access USB;
<b>PRINT</b>	
<b>PRINT TECHNOLOGY</b>	Laser
<b>PRINT SPEED</b>	Black (A4, normal) : Up to 46 ppm; Colour (A4, normal): Up to 46 ppm; Black (A4, duplex): Up to 43 ipm; Black (A3, normal): Up to 22 ppm; Colour(A3, normal): Up to 22 ppm

<b>FIRST PAGE OUT</b>	Black (A4, ready): As fast as 11 sec; Colour (A4, ready): As fast as 11 sec
<b>PRINT RESOLUTION</b>	Black (best): Up to 1200 x 1200 dpi; Colour (best): Up to 1200 x 1200 dpi;
<b>STANDARD PRINT LANGUAGES</b>	HP PCL 6, HP PCL 5e, HP Postscript Level 3 emulation, PDF
<b>DUPLEX PRINTING</b>	Automatic (standard)
<b>COPY</b>	
<b>COPY SPEED</b>	Black (A4): Up to 46 cpm; Colour (A4): Up to 46 cpm
<b>SCAN</b>	
<b>SCAN SPEED</b>	Normal (A4) : Up to 70 ppm (black & white), up to 68 ppm (colour); Duplex (A4): Up to 85 ipm (black & white), up to 63 ipm (colour)
<b>SCAN FILE FORMAT</b>	PDF, JPEG, TIFF, MTIFF, XPS, PDF/A
<b>FAX</b>	
<b>FAX SPECIFICATIONS</b>	33.6 kbps
	Fax resolution: Standard: 100 x 100 dpi;
	Quick dialing: Up to 100 (each can contain 100 numbers);
<b>PROCESSOR SPEED</b>	800 MHz
<b>CONNECTIVITY</b>	2 x USB 2.0 1 x Gigabit Ethernet 10/100/1000T Network;
<b>HARD DISK</b>	minimum 320 GB HP High-Performance Secure Hard Disk
<b>MEMORY</b>	Minimum 2.5 GB (system memory);
<b>NUMBER OF PAPER TRAYS</b>	4
<b>MEDIA HANDLING</b>	Standard input : 100-sheet multipurpose tray, 500-sheet input tray, 1500-sheet input tray, 2000-sheet input tray Standard output: 500-sheet face-down bin ADF: Standard, 200 sheets (75 g/m <sup>2</sup> )
<b>INPUT CAPACITY</b>	Tray 1: sheets: 100; envelopes: 10 Tray 2: sheets: 500 Tray 3: Tray 3: sheets: 1500; Tray 4: sheets: 2000 Maximum: Up to 4100 sheets (75 g/m <sup>2</sup> media) ADF: Standard, 200 sheets (75 g/m <sup>2</sup> )
<b>MINIMUM SYSTEM REQUIREMENTS</b>	<b>Windows:</b> Windows 10, Windows 8, Windows 7 (SP1 or higher), Windows Server 2012 (64-bit), Windows Server 2008, Windows Server 2008 R2 (64-bit), <b>Mac:</b> Mac OS X v10.6.8, OS X 10.7.5 Lion, OS X 10.8 Mountain Lion;

<b>WARRANTY</b>	<p>36 months provided by the equipment manufacturer.</p> <p>HDDs that will experience hardware failures during the warranty period will be replaced with other HDDs (with identical or higher performance) without being returned to the Provider (regardless of the nature of the defect).</p> <p>Both HDDs replacing defective and defective HDDs remain the property of the Beneficiary.</p>
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## Expert Profiles

### i. Security expert

#### Requirements:

- general experience of 1 year
- certification to prove knowledge in system or network security
- experience in at least one similar project

### ii. Hardware infrastructure expert

#### Requirements:

- general experience of 1 year
- certification to prove knowledge in server, storage and virtualization systems
- experience in at least one similar project

### iii. Networking expert

#### Requirements:

- general experience of 1 year
- certification to prove knowledge in network systems
- experience in at least one similar project

### iv. Document Management expert

#### Requirements:

- general experience of 1 years
- certification to prove knowledge in document management systems
- experience in at least one similar project

### v. Collaboration platform expert

#### Requirements:

- general experience of 1 year
- certification to prove knowledge in portal or collaboration systems
- experience in at least one similar project

## **DEMO Session**

After all bids are placed and the tender due date expires, we will create an intermediary ranking based on the "Best Value for Money" rule described in the ANNEX.

First place will be invited on our premises for a Demo Session when we expect to see some of the features described in the present tender book. We'll do this to make sure that the winner has the strength, expertise and experience to implement the project.

The bidders will have one-week time to prepare the demo environment and must bring all the necessary equipment they see fit in order to perform the Demo session.

During the Demo session, the bidders can show us any feature required in the present tender book, but they must present at least the following mandatory features:

- Features described for the "Collaborative suite"
- Features described in the "Portal suite"
- GIS platform capabilities as described in the "GIS Platform" section
- Analysis and business intelligence capabilities, capacity to generate reports, statistics, charts
- Optional - Any other feature the bidder finds to be in his advantage

If the bidder placed on rank 1 in the intermediary list, fails any of the mandatory features, will be disqualified and the rank 2 bidder will be invited to the Demo session.

We'll repeat this process until one bidder passes the Demo session and it will be declared winner of the tender.

## Annex: Best value for money rules

The winning bid will be decided according to the “best value for money” approach.

Price counts 80%

Warranty in minimum 2 years, maximum 5 years (exceeding 5 years of warranty doesn't grant any additional points) – counts 10%

Similar past experience (minimum 1 similar contract, maximum 5 similar contracts in the past 5 years) having total amount of minimum 1,000,000 USD and maximum 2,000,000 (exceeding 2,000,000 USD doesn't grant any additional points) – counts 5%

Experts. In the tender book there are minimum 10 experts required:

- For “Chapter A - FITTING, FURNITURE, ELECTRIC AND STRUCTURED CABLING” - 2 engineers / technicians certified ANRE for Electrical installations
- For “Chapter B - Development Services for Multimedia Educational Content and Content for VR”- 3 experts described in the tender book
- For “Chapter C - IT Infrastructure and Application” - 5 experts described in the tender book

For each additional expert (maximum 5 additional experts) we grant 1 point as described in the below table.

Criteria	Percentage	Calculation method
Price	80	Calculation = minimum price / current price * 80 (2 decimals)
Warranty (minimum 2 years)	10	Calculation = 2 points for each year of warranty
Similar past experience (minimum 1,000,000 USD)	5	Calculation = current experience / maximum experience * 5 (2 decimals)
Experts (minimum 10)	5	Calculation = 1 point for each additional expert