

# **TERMS OF REFERENCE**

**For developing the Information System “Recruitment and  
Evaluation of Human Resources”**

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# Introduction

*The Recruitment and Evaluation Center of MIA* is a newly established institution empowered with assessing the MIA human resources in the context of recruitment and periodical evaluation specific to held positions and functions.

To ensure the efficient activity of the *REC*, it is appropriate to implement an IT solution that would be able to inform the business processes specific for human resources' planning and evaluation and would provide possibilities to set up and adjust methodological and legal changes to assist in all types of evaluations:

- Evaluation of professional qualification;
- Psychological evaluation;
- Medical evaluation;
- Evaluation of sport skills.

For this purpose, the *UNDP Project "Strengthening of the Ministry of Internal Affairs"* provides financing for developing and implementing the Information System "*Recruitment and Evaluation of Human Resources*" which will be procured for the *Ministry of Internal Affairs* for the purpose of ensuring efficient information support for *REC* to implement an efficient methodology for evaluating the MIA personnel and to provide the following expected benefits:

## **1. Benefits for citizens in the Republic of Moldova:**

- public access to depersonalized statistical information regarding the use of the IS "*REHR*";
- ensuring trust regarding the transparency and legality of MIA human resources' evaluation during the recruitment and certification of human resources;
- decreasing the risk for cheating and abuse during the human resources' evaluation processes.

## **2. Benefits for Ministry of Internal Affairs:**

- ensuring the setup of information resource in the area of HR evaluation;
- ensuring information interaction and inter-institutional collaboration in HR evaluation processes;
- ensuring rapid communication among stakeholders involved in HR recruitment and evaluation, using exclusively protected communication channels;
- standardizing business processes within all MIA institutions and subdivisions and increasing transparency in HR recruitment and evaluation activity;
- upgrading *REC* activity by transferring the business processes into the area of modern technologies, hence leading to optimization of working processes and reduction of operational costs;
- improving MIA image.

## **3. Benefits for the Republic of Moldova:**

- decreasing corruption risks within evaluation of candidates aspiring to get important positions in MIA and its subdivisions;
- ensuring efficient and transparent service for selecting MIA employees;
- the possibility to extend the information solution to cover other law enforcement bodies so as to use a single and standardized mechanism for evaluation of human resources from law enforcement;
- optimization of work processes and reducing operational costs.

The present document provides a conceptual vision for setting up and operating an information system meant to evaluate human resources within MIA, including aspects related goal and objectives, principles, main characteristics, functionality and conceptual architecture, functional and non-functional requirements of the information system.

In this regard, a brief description is provided for the basic components of the future solution, pointing out the principles and functionalities to be taken into consideration when developing every component.



# 1. General information

## 1.1. Terms used in technical specifications

The main acronyms and abbreviations used in the present document are provided in Table 1.1.

**Table 1.1. Abbreviations and acronyms used in the document**

No.	Abbreviation/Acronym	Description
1.	PSA	Public Services Agency
2.	DB	Database
3.	COTS	Commercial off-the-shelf
	PEPD	Personnel and Education Policies Division
4.	ESB	Enterprise Service Bus. Line of corporate services meant to orchestrate information exchange among applications.
5.	KPI	Key Performance Indicators
6.	MIA	Ministry of Internal Affairs
7.	QBE	Query by Example represents a method of interpellation to the database using a native text syntax. The main advantage is lack of some specific requirements for the information demand structure
8.	RCFI	Register of Criminal and Forensic Information
9.	SRP	State Register of Population
10.	SDD	Software design document.
11.	DMS	Database management system
12.	IS	Information System
13.	AIS MAO	Automated Information System "Management of Administrative Offences"
14.	IS "PAPIR"	Information System "Public Agents' Professional Integrity Record"
15.	IS „REHR"	Information System "Recruitment and Evaluation of Human Resources of Ministry of Internal Affairs"
16.	SLA	Service Level Agreement
17.	SPOF	Single Point of Failure
18.	ISS	Information Subsystem
19.	ITS	Information Technologies Service
20.	TOGAF	The Open Group Architecture Framework (methodology for developing complex architectures providing design visions, planning, implementation and governance of ICT architectures under corporate information solutions)
21.	SRS	Software Requirements Specification
22.	SPOF	Single Point of Failure
23.	IT	Information Technology
24.	ICT	Information and Communications Technology
25.	TLS/SSL	TLS Protocol or its predecessor, SSL Protocol, are cryptographic protocols which ensure safe communication between nodes of computer network for such actions as visiting web pages, e-mail, internet-fax, exchange of instant messages, and other data transfers.

The definitions of the frequently used terms in this document are provided in Table 1.2.

**Table 1.2. Definitions and terms used in the document**

No.	Abbreviation/Acronym	Description
1.	Database	Set of organized data according to a conceptual structure which describes the basic characteristics and the relation between entities
2.	Credentials	Set of attributes which establish the identity and authentication of users and systems within information systems.
3.	Data	Elementary information units about persons, subjects, facts, events, phenomena, processes, objects, situations, etc. presented in a form that would allow their notification, comments and processing.
4.	Personal data	Any information regarding the identified or identifiable natural person (subject of personal data). In this respect, an identifiable person is a person which may be identified, directly or indirectly, especially by referring to an identification number or to one or more specific events related to its physical, physiological, psychological, economic, cultural or social identity
5.	Data integrity	State of data, when they preserve their content and are interpreted univocally in case of random actions. Integrity is considered to be preserved, if data are accurate and reliable.
6.	Logging	A function of registering information about events. The logs about events within information systems include details about date and hour, user, identified personal data, undertaken action.
7.	Metadata	Modality of attributing semantic value to data stored in the database (data about data).
8.	Information object	Virtual representation of existing material and nonmaterial entities.
9.	Information resource	Set of information documented in the information system, maintained in line with the requirements and legislation in force
10.	Human resource	In the context of these technical specifications, human resources mean the totality of MIA's own human resources covering the recruited personnel, as well as the resources for the subsequent needs of the MIA, who are to become personnel by being recruited in the near future, as well as the own personnel who may be temporarily or definitely, partially or totally laid off.
11.	IS „REHR“	Information solution meant to automatize the work flows, on recruitment and evaluation of human resources of the Ministry of Internal Affairs meant for Recruitment and Evaluation Center of MIA.
12.	Computer/ IT system	Set of programs and equipment ensuring automated processing of data (automated component of the information system).
13.	Information system	System for processing information, together with the related organization resources, such as human and technical resources, which supply and distribute information.
14.	Software design document	Directory document of the information system, which covers the detailed description of the following vision: data structures and their constraints, information system architecture, which provides all the conceptual sections of the information system, the interface of the information system covering the conceptualization of all components of user interface of the information system, functionalities of the information system, which covers the detailed description of all the information system implementation scenarios.
15.	Software Requirements Specification	Document that contains the detailed description of all scenarios of interaction between users and information application.

No.	Abbreviation/Acronym	Description
16.	Information subsystem	Component part (with the possibility of functional decoupling) of a complex information system.
17.	Information and Communications Technology	Common term which includes all the technologies used for exchange and manipulation of information.
18.	Data accuracy	The level of data (which are stored in computer memory or in documents) compliance with the real condition of items in the respective area of the system, reflected by these data.

## 1.2. References and legal aspects for developing the information system

Analyzing the normative-legislative framework in force in the Republic of Moldova, a number of acts may be pointed out, the provisions of which should be taken into consideration when developing the IS „REHR”. To develop, implement and operate the IS „REHR”, a set of 44 legal and normative acts was identified, being grouped depending on the applicability level, as follows:

- acts which regulate business processes related to the activity of the *Recruitment and Evaluation Center*;
- acts which regulate ICT initiatives and technologies promoted by the Republic of Moldova, to be considered when implementing the information system;
- general acts related to design, implementation and operation of an information system.

### I. Acts regulating business processes in the REC activity:

The following legislative, normative and departmental acts may be delimited according to the performed analysis, which will serve as basis for modelling and implementing the business processes of the *Recruitment and Evaluation Center* in the IS “REHR”:

1. *Labor Code of the Republic of Moldova No. 154 of 28.03.2003*, Official Gazette no. 159-162 of 29.07.2003.
2. *Law no. 158 of 04.07.2008 on Public Office and Status of Civil Servants*, Official Gazette No. 230-232 of 23.12.2008.
3. *MIA Order No. 61 of 11.02.2009 approving the Regulation on medical-military expertise in internal affairs bodies and Center for Combating Economic Crimes and Corruption*.
4. *Law No. 320 of 27.12.2012 on Police Activity and the Policeman Status*, Official Gazette No. 42-47 of 01.03.2013.
5. *MIA Order No. 107 of 25.03.2013 approving the Regulation on filling in vacant police positions*.
6. *MIA Order No. 178 of 16.06.2014 approving the Regulation on Psychology Activity*.
7. *Law No. 288 of 16.12.2016 on Civil Servants with Special Status within the Ministry of Internal Affairs*, Official Gazette No. 40-49 of 10.02.2017.
8. *Government Decision No. 460 of 22.06.2017 to enforce the provisions of the Law No. 288 of 16 December 2016 on Civil Servants with Special Status within the Ministry of Internal Affairs*, Official Gazette No. 214-215 of 23.06.2017.
9. *Government Decision No. 429 of 24.06.2020 on organization and operation of some public education institutions under the subordination of the MIA*, Official Gazette No. 165-176 of 10.07.2020.
10. *Law No. 82 of 25.05.2017 on Integrity*, Official Gazette No. 229-243 of 07.07.2017.
11. *MIA Order No. 201 of 30.06.2017 approving the Guideline on Police Career*.

## II. Acts regulating the ICT initiatives of the Republic of Moldova:

While developing the IS „REHR”, we consider it appropriate to take into consideration and to implement the requirements and recommendations covered in the normative-legislative acts on ICT initiatives of the Republic of Moldova. The following acts should be taken into consideration to observe the electronic governance framework in force:

12. *Government Decision No. 945 of 05.09.2005 on public keys' certification centers*, Official Gazette No. 123-125 of 16.09.2005.
13. *Government Decision No. 320 of 28.03.2006 approving the Regulation on how to apply digital signature on electronic documents of public authorities*, Official Gazette No. 51-54 of 31.03.2006.
14. *Government Decision No. 7104 of 20.09.2011 approving the Strategic Program for governance technological modernization (e-Transformation)*, Official Gazette No. 156-159 of 23.09.2011.
15. *Government Decision No. 188 of 03.04.2012 on official pages of public administration authorities on Internet*, Official Gazette No. 70-71 of 06.04.2012.
16. *Government Decision No. 656 of 05.09.2012 approving the Program on Interoperability Framework*, Official Gazette No. 186-189 of 07.09.2012.
17. *Government Decision No. 1090 of 31.12.2013 on electronic governmental service of access authentication and control (MPass)*, Official Gazette No. 4-8 of 10.01.2014.
18. *Government Decision No. 128 of 20.02.2014 on common governmental technological platform (MCloud)*, Official Gazette No. 47-48 of 25.02.2014.
19. *Government Decision No. 405 of 02.06.2014 on integrated electronic governmental service of digital signature (MSign)*, Official Gazette No. 147-151 of 06.06.2014.
20. *Law No. 91 of 29.05.2014 on electronic signature and electronic document*, Official Gazette No. 174-177 of 04.07.2014.
21. *Government Decision No. 700 of 25.08.2014 on open governmental data*, Official Gazette No. 256-260, of 29.08.2014.
22. *Government Decision No. 701 of 25.08.2014 approving the methodology for publishing open governmental data* No. 256-260 of 29.08.2014.
23. *Government Decision No. 708 of 28.08.2014 on logging governmental electronic service (MLog)*, Official Gazette No. 261-267 of 05.09.2014.
24. *Law No. 142 of 19.07.2018 on exchange of data and interoperability*, Official Gazette No. 295-308 of 10.08.2018.
25. *Government Decision No. 211 of 03.04.2019 on interoperability platform (MConnect)*, Official Gazette No. 132-138 of 12.04.2019.
26. *Government Decision No. 375 of 10.06.2020 approving the Concept of Automated Information System "Register of representation powers based on electronic signature" (MPower) and of the Regulation on how to keep the Register of representation powers based on electronic signature*, Official Gazette No. 153-158 of 26-06-2020.

The conceptualization, development and implementation of the IS „REHR” should be carried out in line with the national standards and methodology, and the recommendations and requirements set forth in the ICT sector. Hence, the following regulations and standards should be considered:

27. *Republic of Moldova Standard MR ISO/CEI/IEEE 15288:2015, "Systems and software engineering. System life cycle processes"*.
28. *The Handbook on "Information and Communication Technologies in Parliamentary Libraries"*, Global Centre for Information and Communication Technologies in Parliament, July, 2012), [https://www.usability.gov/sites/default/files/documents/guidelines\\_book.pdf](https://www.usability.gov/sites/default/files/documents/guidelines_book.pdf)
29. Michael O. Leavitt, Ben Shneiderman, *Research-Based Web Design & Usability Guidelines*, [https://www.usability.gov/sites/default/files/documents/guidelines\\_book.pdf](https://www.usability.gov/sites/default/files/documents/guidelines_book.pdf)

30. *World Wide Web Consortium (W3C) Recommendations* (<http://www.w3c.org>) on quality of web pages' content, possibilities to view correctly the information, using widely used Internet explorers and compatibility with different information platforms.
31. *WAI (Web Accessibility Initiative) Recommendations* (<http://www.w3c.org/WAI>) on ensuring the possibility to use sites' resources by persons with disabilities.
32. *WCAG (Web Content Accessibility Guidelines) Recommendations* <http://www.w3.org/TR/WCAG21/>
33. *W3C Recommendations* (<http://validator.w3.org>) on testing WEB pages. All the WEB pages generated by the IS „REHR” will be tested in line with these recommendations.

The IS „REHR” will not be isolated, but will interact with the information systems of other central public authorities of the Republic of Moldova. Hence, it is appropriate to use the governmental interoperability platform/ governmental service to perform data exchange with third information systems.

Additionally, the interoperability *MConnect* governmental service allows performing system-system type interaction not only among the information solutions hosted in *MCloud*, but also with information services providers hosted outside *MCloud*. In context with IS „REHR”, *MConnect* will serve as a platform/ governmental service through which the interaction will be carried out with the existing information systems so as to take over, verify and insert automatically data in the business processes of the REC.

### **III. General acts related to developing, producing and operating information systems:**

Besides the legal and normative acts to be used as basis for developing and implementing the information solution meant for implementing the IS „REHR”, a set of normative-legislative acts should be taken into consideration, which impose organizational measures and external constraints for the operation of the information system. The following may be mentioned under this category of acts:

34. *Law No. 982 of 11.05.2000 on Access to information*, Official Gazette No. 88 art. No. 664 of 28.07.2000.
35. *Law No. 1069 of 22.06.2000 on Informatics*, Official Gazette No. 073 of 05.07.2001.
36. *Government Decision No. 735 of 11.06.2002 on special telecommunication systems of the Republic of Moldova*, Official Gazette No. 79-81 of 20.06.2002.
37. *Law No. 467 of 21.11.2003 on computerization and state information resources*, Official Gazette No. 6-12/44 of 01/01/2004.
38. *Government Decision No. 840 of 26.07.2004 on creating the telecommunication system of public administration authorities*, Official Gazette No. 130 of 30.07.2004.
39. *Technical Regulation “Software life cycle processes” RT 38370656-002:2006*; Official Gazette No. 95-97/335 of 23/06/2006.
40. *Law No. 71 of 22.03.2007 on Registers*, Official Gazette No. 70-73 of 25.05.2007.
41. *Law No. 241 of 15.11.2007 on Telecommunications*, Official Gazette No. 51-54 of 14.03.2008.
42. *Order No. 94 of 17.09.2009 of the Ministry of Information Development approving some technical regulations (the record keeping of electronic public services, provision of electronic public services, ensuring information security when providing electronic public services, determination of costs for developing and implementing automated information systems)*, Official Gazette No. 58-60 of 23.04.2010.
43. *Law No. 133 of 08.07.2011 on protection of personal data*, Official Gazette No. 171-175 of 14.10.2011.
44. *Government Decision No. 1123 of 14.12.2010 approving the requirements for ensuring personal data security when processing them within information systems of personal data*, Official Gazette No. 254-256 of 24.12.2010.

An important legal restriction to be observed is ensuring security of personal data managed via the IS „REHR”. The *Law No. 133 of 08.07.2011 on protection of personal data* stipulates the binding nature of ensuring confidentiality of personal data. In case of the IS „REHR”, this would be personal data of special category, which need the implementation of tougher protection measures.

Moreover, in line with this law, the owner of the IS „REHR” is obliged to register the IS „REHR” in the *State Register of Personal Data Operators* which is managed by the *National Center for Personal Data Protection*.

### 1.3. Principles for developing an information system

For the purpose of ensuring the objectives set for the *IS „REHR“*, the following general principles should be considered when designing, producing and implementing it:

- **Principle of legality:** implies setting up and operating the information system in line with the national legislation and international norms and standards recognized in the area.
- **Principle of focusing on stakeholders' needs** which implies that the information solution will supply complete functional capabilities to meet the needs of all stakeholders interested in human resources' evaluation processes.
- **Principle of decoupling the technological platform** which ensures that *IS „REHR“* will not be conditioned by selection of the technological platform based on which it will be implemented. The independence of the technological platform implies that the *IS „REHR“* will be able to be implemented and operated on a variety of technologies accessible for MIA, selecting the best technological option. Thus ensuring the rational use of available ICT resources and intelligent investments in ICT.
- **Principle of dividing the architecture by levels:** implies designing and implementing the functional components of the *IS „REHR“* in line with the interface standards between levels;
- **Principle of service oriented architecture (SOA)** which implies distribution of functional components of the information system into smaller, distinct components – called services – which may be distributed into a network and may be used together to create applications meant to implement the business functions of the information system. These components will be able to be implemented without rigid mutual dependencies and will interact through external interfaces implemented based on open and independent standards of technology. This fact provides flexibility to choosing technologies and independent life cycles for components of the *IS „REHR“*. It will also allow the stakeholders to select alternative technological options for capabilities to introduce and access data.
- **Principle of reusing existing capabilities** which implies that the *IS „REHR“* will be implemented by reusing at the level of its components the current ICT capabilities to which MIA has access. The development of new capabilities specific for the *IS „REHR“* will be performed only in case when they are missing in the current ICT architecture of MIA (preserving the SOA architecture and ensuring the possibility of reusing these capabilities by other systems, where possible). This fact implies the use of governmental platform services or of platform solutions implemented within MIA, for developing the components which are setting the *IS „REHR“*.
- **Principle of aligning to the wide-scale of ICT architecture of MIA** which implies that the place of the *IS „REHR“* in wide-scale ICT architecture is explicitly delimited from other systems. The *IS „REHR“* should be implemented applying the principle of ICT architecture established by MIA and should be able to interact with other components of the ICT architecture. At their turn, the ICT architecture principles are aligned to the principles of governmental architecture.
- **Principle of open and interoperable data model** which implies that the data model supported by the *IS „REHR“* is documented and communicated to all stakeholders. The *IS „REHR“* should be developed based on the good standards in the area and aligned to the governmental and departmental data model (adoption of already existing taxonomy and semantics at the national and departmental levels and their enrichment to meet the specific needs in the area of HR evaluation).
- **Principle of security through design** which implies the design of the *IS „REHR“* with knowledge regarding the information security risks that may impact the good functional of the information system. The legal requirements applicable for personal data protection shall be considered when designing the *IS „REHR“* and implemented at the development stage. The *IS „REHR“* will ensure the controlled, transparent and responsible access to information.
- **Principle of integrity, completeness and accuracy of data:** implies the implementation of mechanisms which would allow preserving the content and the univocal interpretation of data in conditions of accidental influences and elimination of phenomena that would distort or liquidate them accidentally, supply of a volume of sufficient data for carrying out business functions of the information system and ensuring a high level of data compliance with the real condition of objects they represent and which are part of the Integrated Management System.

- **Principle of accessibility of public information:** which implies the implementation of procedures to ensure access of applicants to public information provided by the information solution.
- **Principle of expansibility:** stipulates the possibility of extending and completing the information system with new functions or improving the existing ones;
- **Principle of the first persons/single center priority:** implies the existence of a responsible person of high level, with sufficient rights to take decisions and coordinate activities for setting up and operating the information system;
- **Principle of scalability:** implies ensuring constant performance of the information solution when the volume of data increases and the demand for the information system goes up;
- **Principle of simplicity and convenience in use:** implies the design and implementation of all applications, technical means and program means accessible to users of the IS „REHR“, based on exclusive visual, ergonomic and logical principles of conception.

#### **1.4. Destination, objectives and tasks of the information system**

The information system is meant to automate the business processes for evaluating professional competences, psychological profile, etc. of the candidates to be recruited in the MIA and of the employees of MIA. Based on the existing legislative basis and objective needs of the MIA, the following objectives may be determined for be achieved after implementation of the IS „REHR“:

- development of a secure and reliable collaboration environment, which provides collaboration means to MIA employees (involved in HR evaluation processes), wherever they would be, as well as means of informational integration for external systems;
- elimination of direct human factor in the testing and assessing MIA human resources in recruitment contests or in the periodical evaluation of MIA employees;
- standardizing and unifying the processes for planning and evaluating HR within all the institutions and subdivisions of MIA;
- supply of accurate and operative information regarding the skills of human resources to be recruited in different positions within MIA;
- implementation of a reliable and efficient system of electronic management of documents, extended by a set of procedures for automation of work flows, which would ensure rapid delivery of documents and monitoring the observance of execution deadlines;
- reducing the image risks caused by delays, contradictory messages or actions due to deficit of information from decision makers;
- increase of transparency in the activity and quality of the decision-making process in the evaluation of MIA human resources;
- supply of authentic, accurate, current and consistent information to all stakeholders involved in the relevant business processes of the IS „REHR“;
- reducing the response time and ensuring the information support for decision-making process;
- rapid and guaranteed access to data regardless of the location of the authorized user;
- continuous and prompt information of population regarding the business processes carried out in the IS „REHR“ (appropriate supply of open data extracted based on the business processes automated by the IS „REHR“);
- standardization of data, messages and actions in institutions, subdivisions and representations with authorized access to the IS „REHR“;
- reducing operational costs, increasing quality and diversity of communication means.

The primary goal of the IS „REHR“ is to develop a platform through which it would be possible to unify and centralize the recruitment and evaluation of MIA human resources. At the same time, the information system will implement the work flows meant to conclude and process all the documents related to business events specific for human resources' evaluation.

The main advantage of the *IS „REHR“* is the fact that in future, all the business processes related to evaluation of MIA human resources will be carried out through electronic work flows of the *IS „REHR“* hence eliminating the need to conclude traditional hardcopy documents. All the interactions among stakeholders, including among the relevant institutions will be carried out electronically.

For anonymous users, the *IS „REHR“* will generate sets of depersonalized public data (aggregated statistics, performance indicators, etc.) which will periodically publish in an automated way in the *Open Data Portal*.



## 2. Architecture of the information system

The IS „REHR” should supply a web interface, accessible through an Internet explorer of wide use (MS Internet Explorer/MS Edge, Mozilla FireFox, Opera, Google Chrome or Safari). From functional point of view, a reliable solution will be developed to be scalable both, in case of increasing number of concurrent users, or in case of increasing volume of information managed by the system.

Because the IS „REHR” is not an isolated computing solution, but will interact with other information systems of different public authorities of the Republic of Moldova, the development information system should provide support for integration with third-parties’ information systems.

The basis of the IS „REHR” will be a client-server architecture of minimum 3 levels (which excludes direct interaction of the application with the database) based on adequate WEB technologies from time point of view. To ensure an adequate level of information security, the respective information system should allow a secured connection between the client spaces and application server to ensure a safety level for sent information (through VPN channels and TLS/SSL sessions).

The IS „REHR” will be installed and will function within the governmental service *MCloud*. To ensure the objectives set for the computing solution, the architecture described in Figure 2.1. should be considered when designing, developing and implementing the IS „REHR”.

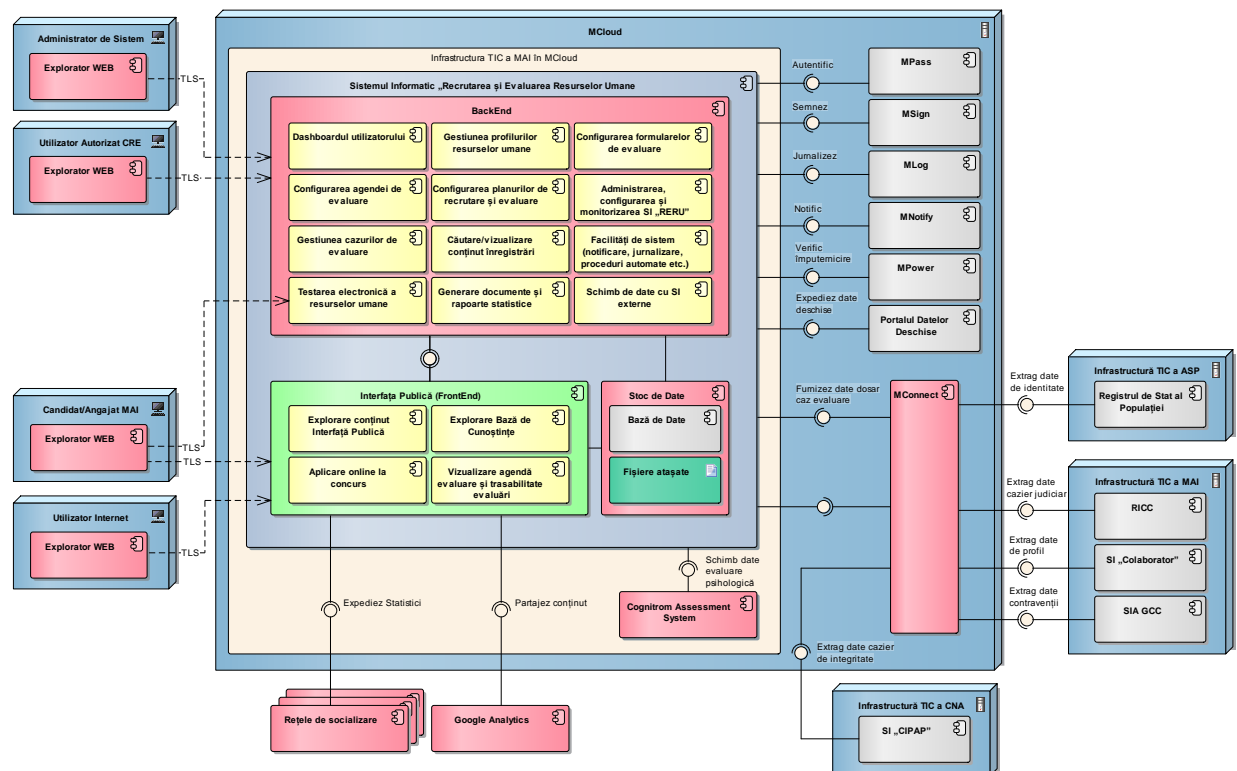


Figure 2.1. Architecture of IS „REHR”.

As it is noticed in figure 2.1, the solution of cooperating the resources for ensuring the functionality of the IS „REHR” covers 5 categories of distinct nodes:

- **MCloud** – ICT infrastructure of the common governmental technological platform, which sets up the governmental cloud (*MCloud*), which is usually hosting all the information systems of the PA in the Republic of Moldova, and where the IS „REHR” will be hosted. It should be mentioned that the IS „REHR” will consume *MCloud* governmental service. All the connections with external information systems will be mainly carried out through *MConnect* governmental interoperability platform.
- **MIA ICT Infrastructure** – the ICT infrastructure of the *Ministry of Internal Affairs* (located outside *MCloud*), where the *RCFI*, *IS „Collaborator”* and *AIS MAO* are hosted. The IS „REHR” will not interact directly with these information systems. The interaction will be carried out through *MConnect* interoperability platform/ governmental service.

- **ICT infrastructure of PSA** – the ICT infrastructure of the *Public Services Agency* hosting the *State Register of Population*. The IS „REHR” will not interact directly with this information system. The interaction will be carried out through *MConnect* interoperability governmental service.
- **ICT infrastructure of NAC** – the ICT infrastructure of the *National Anticorruption Center* hosting the *IS „PAPIR”*. The IS „REHR” will not interact directly with this information system. The interaction will be carried out through *MConnect* interoperability governmental service.
- **Client computers** – computers from which the authorized and anonymous users (depending on their rights and roles) will access the functionalities of the IS „REHR”.

According to the flow chart and the components from figure 2.1, the IS „REHR” has 3 main components:

- **Electronic testing Component of MIA candidates/ employees** - user interface used by the human resources evaluated for the electronic completion of the test forms -
- **REC tools** - the user interface available to the authorized users within REC and MIA who provide the basic tools necessary for their operation within IS "REHR".
- **REC configuration and administration** - user interface provided to the specialists within the REC and the REC System Administrator who provide the functionalities necessary for the configuration and administration of the IS "REHR".
- **System facilities** - important component of the IS „REHR” which provides system functionalities meant for the proper functioning of the IT system or to assist the business processes implemented =
- **Data stock** – component of the IS „REHR” responsible for storing data and files related to HR evaluation cases managed through the IS „REHR”.

To implement a number of functionalities, the IS „REHR” will consume a number of governmental services and APIs provided by governmental and external information systems, as follows:

1. **Authenticate** provided by *MPass* governmental service for authenticating users through electronic or mobile signature.
2. **Sign** provided by *MSign* governmental service for applying the electronic or mobile signature on documents and forms concluded within business processes of HR evaluation cases.
3. **Notify** provided by *MNotify* governmental service for implementing an universal and centralized system for notifying the users of the IS „REHR”.
4. **Log** provided by *MLog* governmental service to log sensitive business events produced after the operation of the IS „REHR”.
5. **Send open data** which interacts with *Open Data Portal* (<https://date.gov.md>) for the purpose of publishing the sets of public data produced in business processes of the IS „REHR”.
6. **Extract identity data** provided by the *PSR* to complete the human resources profile with official identification and documentation data.
7. **Extract profile data** provided by the *IS „Collaborator”* to complete the human resources profile with personal record data of employees from MIA.
8. **Extract criminal record data** provided by *RCFI* for extracting data regarding the previous criminal record of the person.
9. **Extract administrative offence data** provided by *AIS MAO* for extracting data regarding the previous administrative offences of the person.
10. **Extract integrity record data** provided by the *IS „PAPIR”* for extracting data related to person’s integrity record.
11. **Exchange psychological evaluation data** provided by the platform of psychological evaluation *Cognitrom Assessment System (CAS++)* used for taking electronically the psychological tests by the MIA candidate/employees.

In its activity, the IS „REHR” will expose 1 interaction interface with external information systems, as follows:

1. **Supply evaluation case file data** which is provided by the IS „REHR” for the purpose of interaction with third information systems (for interaction with the IS „Collaborator” or the information systems

meant to manage human resources) to supply documents and content data to the evaluation case file, if they the object of interest of the respective third information systems.

### 3. Stakeholders involved and roles of the IS „REHR”

#### 3.1. Business roles of the information system

In line with the legislation in force, the following entities of the Republic of Moldova are interested or should be involved in the development and good functioning of the IS „REHR”:

- **Ministry of Internal Affairs** – as the entity responsible for implementing and ensuring the good operation of the IS „REHR”. *Recruitment and Evaluation Center* of the MIA is the direct beneficiary of the IS „REHR”, and the *Ministry of Internal Affairs* together with UNDP is the co-financer of the project which will take an active part at all the stages of design, development, production and operation of the information system.
- **National Anticorruption Center** – as the public authority responsible for evaluation of institution integrity, evaluation of public agents’ integrity and issuance of integrity records requested during the recruitment of MIA employees.
- **Public Services Agency** – as provider of data related to identity, identity acts and biometric data related to the candidates and employees of the MIA stored in the *State Register of Population*.
- **Electronic Governance Agency** – as the body empowered with *e-Transformation* activities. *The Electronic Governance Agency* will ensure access to the interoperability governmental service *MConnect* and access to governmental service of *MCloud* (*MPass*, *MSign*, *MLog*, *MNotify*) and *Open Data Portal*. As well, the *Electronic Governance Agency* will provide the infrastructure for hosting the IS „REHR” within the common governmental technological governmental service *MCloud*.
- **Information Technology and Cyber Security Service** as an entity which manages the common governmental service *MCloud* hosting the IS „REHR”, as well as hosting the platform services with which the IS „REHR” will have to get integrated.

#### 3.2. Owner of the information system

The owner of the IS „REHR” is the *Ministry of Internal Affairs*. As the owner of the IS „REHR”, the MIA will be able to attribute roles and rights to authorized persons, to operate the information system depending on their service duties. As well, the *Ministry of Internal Affairs* through the *IT Service of the MIA* will ensure the totality of support activities, maintenance and continuous development of the IS „REHR”.

#### 3.3. Holder of the information system

The holder of the IS „REHR” is the *Information Technology and Cyber Security Service*, because it holds the common governmental technological governmental service *MCloud* which will host the information system. The *ITCSS* will be responsible, as well, for solving the totality of technical problems related to operation of the IS „REHR”.

#### 3.4. Administrator of the information system

The administrator of the IS „REHR” is one or more persons appointed by the *Ministry of Internal Affairs* (as a rule, employees of the *ITS*). The whole administration of the content in the IS „REHR” will be carried out by specialists from the *Recruitment and Evaluation Center*. As well, at the level of the technical infrastructure of hosting the IS „REHR”, the administration functions will be exercised by the *ITCSS*.

#### 3.5. Registrar of the information system

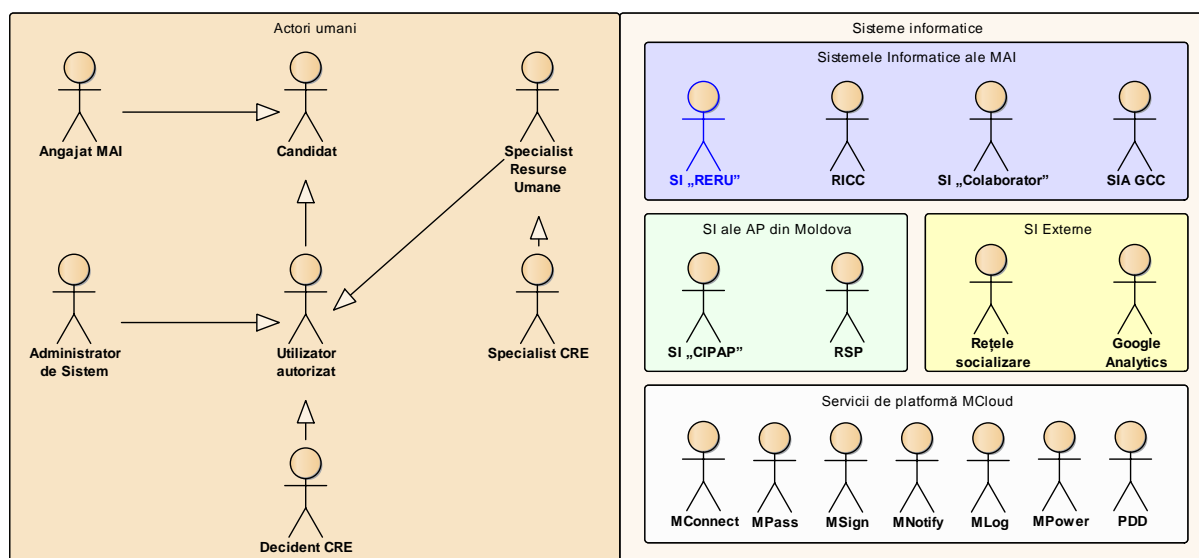
The registrars of the IS „REHR” shall be the employees of the *Recruitment and Evaluation Center*, as well as the specialists managing human resources of central and territorial subdivisions of the MIA. A part from the information related to the IS „REHR” will be registered through the electronic forms filled in by the MIA candidates and employees (in case of contest participation applications, professional competence tests or psychological evaluation tests carried out by them in electronic form through IS „REHR”).

#### 3.6. Purchaser of the information system

The purchaser of the information system IS „REHR” is the UNDP Project „Strengthening Capacities of the Ministry of Internal Affairs” and the Ministry of Internal Affairs.

### 3.7. Users and their role in the information system

The human roles or information system which interact with the IS „REHR” are presented in figure 4.1. As it may be noted in this figure, 7 categories of human stakeholders, 6 information systems and MCloud governmental services, 2 information systems of the PSA and NAC, and 2 external information systems will interact in the application, all of them being described subsequently.



**Figure 4.3.1. Stakeholder of the IS „REHR”.**

**Candidate** – human actor with the role of candidate to be recruited in the MIA subdivisions. This category of users will have access to the IS „REHR” through the public interface that will provide the following functionalities:

- receiving notifications related to business events of the Candidate;
- taking electronically the professional competences’ evaluation tests;
- taking electronically the psychological evaluation test;

**MIA employee** – human actor, current employee of the *Ministry of Internal Affairs* to be evaluated periodically by REC according to held position or to be evaluated in case of transfer/promotion. This role will have access to the following functionalities:

- access to all functionalities accessible to the Candidate.

**Authorized user**- human actor, who represents the totality of authorized users under the REC and MIA (this category of actors includes: REC Specialist, REC Decision-maker, Human Resources Specialist, System Administrator). These actors have access to the following functionalities:

- access to all functionalities available to the Candidates;
- management of profiles of Candidates/MIA Employees under the area of competence;
- use of *Dashboard* to access notifications and rapid access of electronic forms specific to business events related to recruitment and evaluation of human resources of the MIA;
- searching/viewing the data stored in the database of the IS „REHR”;
- generation of documents and statistical reports.

**Human Resources Specialist** – human actor, who represents the totality of users authorized with the role of managing human resources in central and territorial subdivisions of the MIA. These actors have access to the following functionalities:

- have access to all the functionalities available for Authorized Users;
- manage the organigram of the institution subordinated to the MIA;
- setting the plans for personnel recruitment and evaluation.

**REC Specialist** – human actor, who represents the employees of the *REC* involved in recruiting and evaluating human resources of the *MIA*. Depending on the specific rights set for every REC Specialist will be differentiated in relation to access to data and performed actions. This role will have access to the following functionalities:

- access to all functionalities available to Authorized Users;
- access to all functionalities available to Human Resources Specialist;
- viewing and managing the profile data for Candidates and Employees of *MIA*;
- managing the evaluation agenda for Candidates and Employees of *MIA*;
- managing the evaluation cases for Candidates and Employees of *MIA*.

**REC Decision Maker** – human actor, who represents all the authorized users with a decision-making role in the REC activity. These actors have access to the following functionalities:

- access to all functionalities available to Authorized Users;
- approves/rejects draft documents related to recruitment and evaluation of Candidates and Employees of *MIA*.

**System Administrator** – human actor, empowered with administration of system users, setting the information system, as well as starting/stopping /restarting the information system components. If the technological environment includes sufficient capabilities to fulfil the administration works, the implementation of such works in the system is optional. This category of actors has the following distinct roles:

- has access to functionalities of the users with the role of Authorized User;
- manages the profiles of users, and their roles;
- manages the system of nomenclatures and system metadata;
- sets the flows- and templates of documents/ statistical reports;
- sets the functional parameters of the *IS „REHR“*;
- manages the applications' server;
- manages the database in production;
- generates the reports related to the information system audit and the information content of the information system database;
- makes backup copies and recovery of functionalities of the *IS „REHR“* in case of disaster.

#### **Information Systems of the *MIA*:**

- **IS „REHR“** (*Information System „Recruitment and Evaluation of Human Resources“*) – information system meant to computerize the business processes related to recruitment and evaluation of human resources of the *MIA* (the goal of the given technical specifications).
- **Cognitrom Assessment System** (CAS++) – platform for psychological evaluation through which some psychological evaluations of human resources are to be carried out.
- **RCFI** (*Register of Criminal and Forensic Information*) – information system of the *Ministry of Internal Affairs* with which the *IS „REHR“* will interact to receive automatically the data related to the criminal record of evaluated persons (form F-246).
- **IS „Collaborator“** – information system through which the personal records of the *MIA* employees are managed (information solution providing a number of functionalities related to human resources' management processes) and which will receive specific data for testing and evaluating the *MIA* employees and candidates to be recruited in the *MIA*.
- **AIS MAO** (*Automated Information System „Management of Administrative Offences“*) – information system of the *Ministry of Internal Affairs* with which the *IS „REHR“* will interact for receiving automated data regarding the administrative offences perpetrated by the evaluated human resources.

#### **Information systems of public authorities in the Republic of Moldova:**

- **SRP** (*State Register of Population*) – information system managed by the *PSA*, the integration with which would allow taking over and entering automatically identity data, identity acts and biometric

data stored in the SRP in the individuals' profiles (including photos, specimen of handwritten signature, etc.).

- **IS „PAPIR”** (*Information System „Public Agent's Professional Integrity Record*) – information system of the National Anticorruption Center through which business processes are implemented in relation to evaluating the institutional integrity and public agents' integrity, which will provide to the IS „REHR” professional integrity records for the candidates and employees of the MIA.

#### **Information systems and MCloud governmental services:**

- **MConnect** – represents governmental service of interoperability and data exchange. The IS „REHR” will use the given platform for data exchange with the information systems of other public authorities (example: SRP and IS „PAPIR”).
- **ODP** (*Open Data Portal* <https://date.gov.md>) – portal of open governmental data through which the IS „RAHU” will publish KPI indicators, statistics and public reports produced within the business processes meant for recruiting and evaluating human resources of the MIA.
- **MPass** – governmental service used for access control to information systems and ensuring authentication procedures through electronic or mobile signatures.
- **MSign** – governmental service used to apply and validate the electronic signature, including mobile signature.
- **MNotify** – governmental service used to notify the authorized users of the IS „REHR”, candidates and employees of MIA.
- **MLog** – governmental service used for logging all critical business events related to the information systems of the PA in the Republic of Moldova.
- **MPower** – register of representation empowerments, supplying data regarding the held mandate of authorized users to perform specific actions in the IS „REHR”.

## 4. Functional model of the information system

### 4.1. Data model of the information system

Analyzing the modelled area, it is possible to delimit the totality of information items to be taken into account when developing the *IS „REHR“*. Figure 4.1 presents the key information items which will serve as basis for designing and developing the *IS „REHR“* (used directly in implementing the business processes related to evaluating human resources). Hence, the central element of the data architecture of the *IS „REHR“* will be the file of the human resource evaluation case.

To ensure good operation of the *IS „REHR“*, it is necessary to implement the functionalities necessary for managing the following groups of information items:

- human resource evaluation case;
- human resource evaluation case setup;
- profiles.

#### 1. Human resource evaluation case

It is a key complex information item, which contains all the data necessary for human resources' evaluation processes within MIA. A human resource evaluation case is defined through the following information items:

- A. **Human resource evaluation case electronic file.** It is an element for grouping data, and not a modality for concluding business events related to human resources' evaluations, which are carried out through specialized forms to be attached to the evaluation case file. A human resource evaluation case file manages and groups the following categories of data:
  - a) Case number (file identifier);
  - b) Opening date;
  - c) Opening hour, minute;
  - d) Closing date;
  - e) Closing hour, minute;
  - f) Evaluation case current status;
  - g) Evaluated human resource;
  - h) Case authorized users;
  - i) References to file content information.
- B. **Evaluation case opening/closing event.** A human resource evaluation case may be opened/closed, depending on the circumstances related to the case. This information item registers the event of opening and closing the case, managing the following data categories:
  - a) Event occurrence date;
  - b) Event occurrence hour and minute;
  - c) Event type (opening/closing);
  - d) Event registration reason.



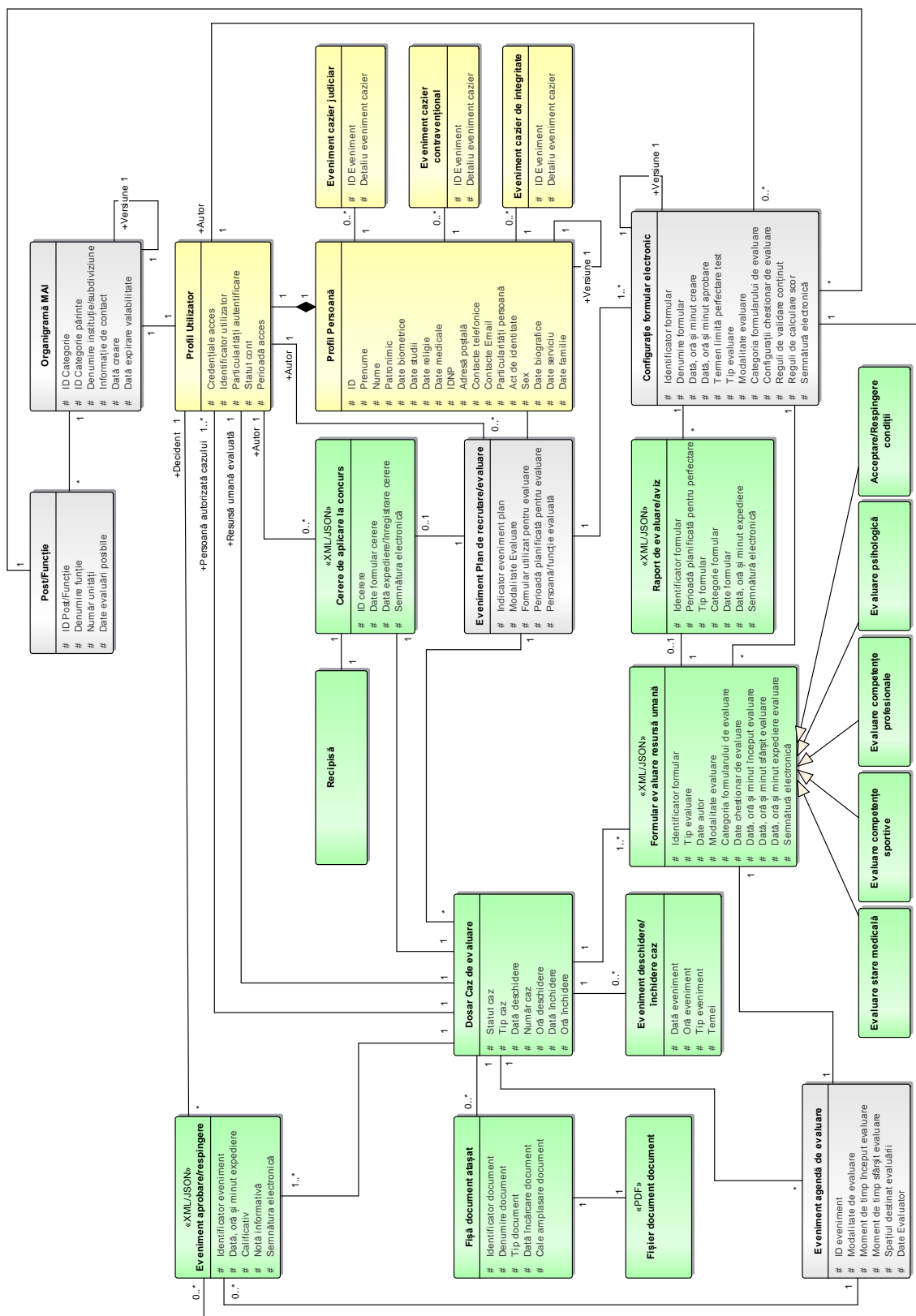


Figure 4.1. Data model of the IS „REHR”.

- C. **Contest application form.** Represents an information item through which the data related to contest application forms are stored. These applications are concluded based on some specialized forms which cover the following categories of data:

- a) Application identifier;

- b) Date the application was sent;
  - c) Recruitment plan based on which the application is concluded event;
  - d) Content of the application questionnaire;
  - e) Documents annexed to the application;
  - f) Testing/evaluating forms related to the application;
- D. **Receipt.** Represents an information item through which the data related to the receipts delivered to contest participants - confirming receipt of the request to participate in the competition.
- E. **Document attached to human resource evaluation case file.** Represents an information item through which the data related to the electronic copies of the documents attached to the human resource evaluation case file are stored. The following categories of data are characterizing this information item:
- a) Document identifier;
  - b) Document name;
  - c) Document type;
  - d) Evaluation case file;
  - e) Document loading date;
  - f) Document location route;
  - g) Document related file.
- F. **Human resource evaluation form.** Represents an information item through which the data related to the electronic forms through which MIA human resources are evaluated or testes are stored. The following data categories are characterizing this information item:
- a) Form identifier;
  - b) Evaluation type;
  - c) Evaluation modality;
  - d) Evaluated person data;
  - e) Evaluation case file;
  - f) Form category (according to the classifier of electronic forms set up in the IS „REHR“);
  - g) Evaluation questionnaire content data;
  - h) Timetable envisaged for evaluation;
  - i) Evaluation start date, hour, minute;
  - j) Evaluation end date, hour, minute;
  - k) Form sending date, hour, minute;
  - l) Electronic signature (if it is the case).

Depending on the category of evaluation form and its setup, the following evaluations are to be implemented:

- *Health status evaluation* – electronic forms meant to register the health checkup results for the evaluate human resource.
- *Sport skills' evaluation* – electronic forms meant to register the results of sport tests undertaken by the evaluated human resource.
- *Professional skills' evaluation* – electronic forms meant to register the results of professional skills' tests undertaken by the evaluated human resource.
- *Psychological evaluation* – electronic forms meant to register the results of psychological tests undertaken by the evaluated human resource.
- *Accepting conditions* – electronic forms meant to collect the human resource's acceptance of recruitment contest conditions or evaluation conditions.

- G. **Evaluation report form / endorsement.** Represents an information item through which the data related to the electronic forms of Evaluation Reports/Endorsements concluded by REC Specialists after evaluating MIA human resources are stored. The following data categories are characterizing this information item:
- a) Form identifier;
  - b) Period planned for conclusion;
  - c) Form type;
  - d) Form category (according to the classifier of electronic forms set up in the IS „REHR“);
  - e) Form data;
  - f) Electronic evaluation form related to the Evaluation Report/Endorsement;
  - g) Form sending date, our, minute;
  - h) Electronic signature (if it is the case).
- H. **Approval/rejection form.** Represents an information item through which the approval/rejection events are registered by the decision-making roles of different form drafts concluded in MIA human resources' evaluation processes. The following data categories characterize this information item:
- a) Event identifier;
  - b) Sending date, hour, minute;
  - c) Qualifier (approval/rejection; fit/not fit; promoted/not promoted, etc.);
  - d) Informative note;
  - e) Relevant electronic form draft;
  - f) Electronic signature.

## 2. Human resource evaluation case setup

It is a category of information items providing the necessary data for setting out MIA human resources' evaluation cases. In this respect, the following setting facilities may be identified:

- A. **MIA organigram.** Information item defining the MIA organigram (organizational structure of the central apparatus and subordinated institutions of the MIA necessary for planning and managing the processes of MIA human resources' evaluation). It is a hierarchical classifier defined by the following data categories:
- a) Classifier category identifier;
  - b) Parent category identifier (in case of subordinated categories);
  - c) Institution/subdivision name;
  - d) Contact information;
  - e) Category creation date;
  - f) Category validity expiry date;
  - g) Reference to the previous version of the category (if it exists).
- B. **Position/function.** Information unit through which the data regarding the staffing plans of the MIA subdivisions are managed. This information item is managed through the following data categories:
- a) Position/Function identifier;
  - b) MIA subdivision identifier;
  - c) Position/Function name;
  - d) Number of units;
  - e) Setting evaluations related to the position.
- C. **Recruiting/evaluation plan event.** Represents an information item through which the MIA human resources' recruitment and evaluation plan is set up. The recruitment and evaluation plan events are concluded based on specialized formula which contain the following data categories:

- a) Recruitment/evaluation plan event identifier;
  - b) Evaluation modality;
  - c) Electronic form used for evaluation;
  - d) Period planned for evaluation;
  - e) Evaluated person/function.
- D. **Evaluation agenda event.** Represents an information item through which the timetable of MIA human resources' evaluation activities is set up. The evaluation timetable events are concluded based on specialized forms which contain the following data categories:
- a) Evaluation event identifier;
  - b) Evaluation case identifier;
  - c) Evaluation modality;
  - d) Evaluation start point in time;
  - e) Evaluation end point in time;
  - f) Space where evaluation will be performed;
  - g) Form used for evaluation;
  - h) Evaluator data;
  - i) Evaluation event approval.
- E. **Electronic form setup.** Represents an information item through which the electronic forms used to register all business events related to MIA human resource evaluation case are set up. The following categories of data are characterizing this information item:
- a) Form identifier;
  - b) Form author;
  - c) Form name;
  - d) Creation date, hour and minute;
  - e) Approval date, hour and minute;
  - f) Withdrawal date, hour and minute;
  - g) Test taking deadline;
  - h) Evaluation type;
  - i) Electronic form category;
  - j) Electronic form setup;
  - k) Content validation rules;
  - l) Rules for calculating the score and qualifier;
  - m) Author's electronic signature;
  - n) Reference to the previous version (if it exists).

### 3. Profile

Complex information item, which defines the totality of profile information which is necessary for operating the *IS „REHR“*. The profiles of the information system are defined by the following categories of information items:

- A. **Individual person's profile.** Represents registration data of any individual which is the object of an evaluation case (evaluated human resource and case authorized users). As a rule, the completeness level of an individual's profile depends on his/her role and contains the following categories of data:
- a) IDNP;
  - b) Name;
  - c) Surname;

- d) Patronymic;
- e) Sex;
- f) Post address (domicile/residence);
- g) Telephone contacts;
- h) Email contacts;
- i) Held identity acts' data;
- j) Family composition data;
- k) Biometrical data;
- l) Biographic data;
- m) Person's private data;
- n) Religious peculiarities' data;
- o) Education data;
- p) Employment data;
- q) Criminal record data;
- r) Administrative record data;
- s) Integrity record data.

**B. Authorized person profile.** Represents profiles of authorized users of the information system, who will be involved in the business processes of the *IS „REHR“* or will need access to evaluation case file details (represents case authorized persons). The following data should be able to be managed for the profile of the authorized person:

- a) Access credentials;
- b) Reference to individual person's profile (personal and contact data);
- c) Authentication strategy/restriction (user + password, electronic/mobile signature, PI access address, etc.);
- d) Access validity period;
- e) Held roles;
- f) Profile status.

## 4.2. Functionalities of the information system

The functionalities provided by the *IS „REHR“* are presented in the diagram from figure 4.2.

### CU01: Take evaluation test

Use case which provides facilities for electronic testing of human resources. Depending on the setup defined through, CU04, CU05, CU07 and CU19 *IS „REHR“* will provide electronic test forms to be fulfilled electronically by the *Candidates* or *Employees of MIA*. It should be mentioned that this type of forms will be possible to be taken in specially authorized spaces of *MIA*.

*MIA* human resources will be able to take 2 categories of tests in electronic format, as follows:

- tests to evaluate the professional skills of human resources;
- tests for psychological evaluation of human resources.

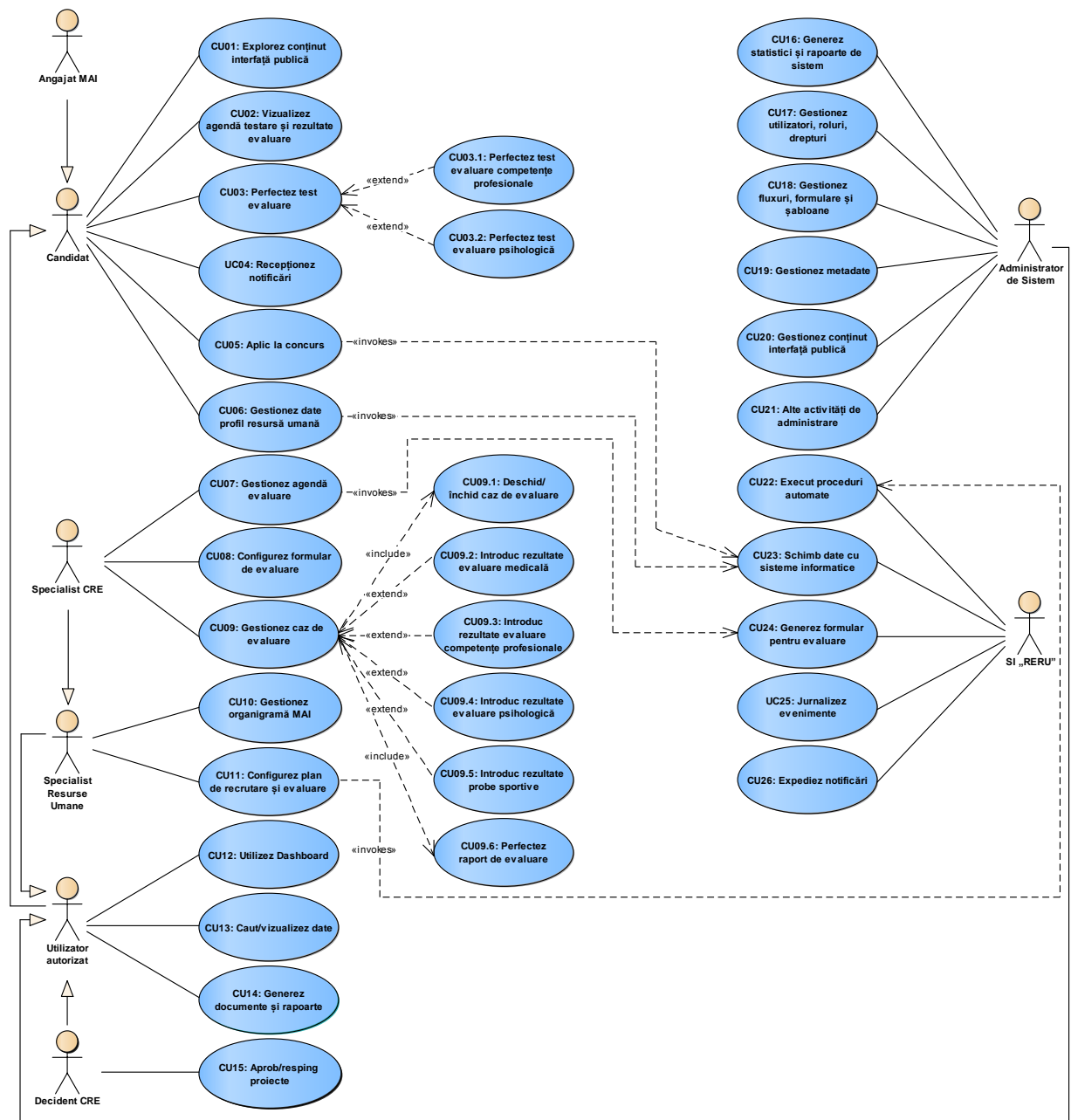


Figure 4.2. Use cases provided by the IS „REHR”.

#### CU02: Receive notifications

Use case through which the users of the IS „REHR”, regardless of their role, will receive the notifications sent by the IS „REHR” in relation to the business events in which they are involved.

The IS „REHR” will ensure the generation of notification in the requested format and its dispatch. The users with the role of REC Specialist, REC Decision-maker, Human Resources Specialist and System Administrator will be able to set up individual preferences to receive notifications through the personal Dashboard.

#### CU03: Manage evaluation agenda

Use case which providing all the functionalities which are necessary for the setup of the human resources’ evaluation agenda in the REC. The IS „REHR” will provide through CU03 facilities to set up the agenda for human resources’ evaluation, taking as basis the primary data provided by CU08 and CU05.1 and the infrastructure held by REC.

#### **CU04: Set up of evaluation form**

Complex use case providing functionalities which are necessary to set up electronic forms which are necessary to evaluate human resource, and which are concluded through CU01 and CU05. The *IS „REHR“* will provide sufficient facilities so as to set up the entire range, which is necessary for human resources' evaluation forms.

The following categories of human resources' evaluation electronic forms will be possible to be set up through CU04:

- electronic forms for human resource medical evaluation;
- electronic forms for human resource professional skills' evaluation;
- electronic forms for human resources psychological evaluation;
- electronic forms for human resources sport skills' evaluation;
- forms for taking psychological Reports/Endorsements for human resource evaluation;
- forms for filling in the application for participation in the contest (questionnaires related to the application for participation in the contest);
- forms for concluding human resource agreement with the evaluation conditions.

As well, CU04 will supply facilities to define the automated rules for validating the electronic content of the form, calculating the score and establishing the evaluation qualification.

#### **CU05: Manage evaluation case**

One of the most complex evaluation cases, which provides key functionalities for the *REC* activity: concluding the results of human resources' tests and evaluation of *REC* specialists. It should be mentioned that this use case provide facilities to conclude electronic forms when evaluating human resources, as well as post-factum (when the human resource is evaluated through hardcopy questionnaires).

All the electronic forms concluded through CU05 will be generated individually for every electronic file of human resource evaluation case (based on CU04, CU08 and CU19). A human resource evaluation case file may contain more electronic forms for human resource evaluation (including more forms of the same type).

It will be possible to manage the human resource evaluation case through the following categories of electronic forms:

- electronic form for opening/closing an evaluation case;
- electronic form meant to enter data of human resource medical evaluation;
- electronic form meant to enter data of human resource professional skills' evaluation;
- electronic form meant to enter data of human resource psychological evaluation;
- electronic form meant to enter data of human resource sport skills' evaluation;
- electronic form meant to enter the evaluation Report/Endorsement of the *REC* Specialist.

The use case CU05 will have facilities to validate the accuracy of concluded electronic forms, as well as automated calculation of the score and providing the evaluation qualification.

#### **CU06: Manage human resource profile data**

In case of complex use, the data related to the human resource profile contained in *IS „REHR “* will be collected and consolidated. Mostly, the profile data is to be received automatically through the use case CU22 from third party computer systems (*SRP, IS “Collaborator”, RCFI, AIS MAO, IS “PAPIR” etc.*). It will also provide facilities for inserting and updating profile data manually.

The use case will be accessible to all users authenticated in *IS „REHR“* (including through the Public Interface) to manage their own profile data. Users with the role of *Human Resources Specialist* through the use case CU06 will be able to manage the profile data of all MIA employees related to the institution represented by them.

#### **CU07: Manage MIA organigram**

Use case which will ensure the functionalities for managing the MIA organigram, which will include the organigram of the MIA central apparatus and the organigrams of all MIA subordinated institutions. Additionally, the organigram will contain staffing plans separately for every subdivision.

These data will be used to set up the profile of the MIA employee within the *IS „REHR“*, to set up the processes of periodical evaluation of MIA employees and processes of involving new persons in the MIA activity.

#### **CU08: Configure a recruitment and evaluation plan**

It is a use case that provides the necessary functionalities for planning events for the recruitment and evaluation of human resources of the MIA. *IS „REHR“*, will provide to the users with the role of Human Resources Specialist facilities for automation of the identification process of the MIA Employees liable to be evaluated periodically. It should be noted that a case of recruitment or evaluation of human resources can only be initiated if it has been registered in a recruitment / evaluation plan.

#### **CU09: Use Dashboard**

Represents a functionality through which the authorized user of the *IS „REHR“* will be made aware, will be able to view and to access rapidly the totality of business events related to its interactions with the *IS „REHR“* and service duties (system notifications, work flows' events, etc.).

The personal *Dashboard* will be also used by the authorized user to have direct access to the functionalities related to notified business events (direct access to the evaluation case file, the electronic form related to the evaluation or other categories of concluded or managed forms and documents).

The main page of authorized user interface in the *IS „REHR“* will serve as *Dashboard*, where all the elements and notifications related to the user will be placed.

*Dashboard* will contain as well an area (Favorite) dedicated to displaying the list of evaluation case files, electronic forms and current documents, which are processed or imported for the current activity of the authorized user.

#### **CU10: Search/view data**

Use case provided by the *IS „REHR“* through which the authorized users will be able to explore the stock of data to which they have access based on the role held in the information system and service duties.

In this respect, the *IS „REHR“* will provide a mechanism for searching evaluation case files and their content, using different criteria, such as:

- person's identification data;
- data related to the users authorized for the case;
- data for identifying the evaluation case;
- calendar data related to the evaluation case files;
- calendar data related to the business events' forms of evaluation case files;
- data related to the MIA subdivision;
- data related to business events related to the evaluation case;
- person status;
- evaluation case status;
- etc.

*SI „REHR“* will display as found results:

- persons;
- recruitment/evaluation plans;
- evaluation case files;
- business events of evaluation cases;
- documents attached to evaluation cases.

For every result category, the *IS „REHR“* will allow performing the following manipulations:

- for found persons: viewing person's profile, viewing evaluation cases related to the person, viewing business events' documents which are related to the evaluation case, generation of human resource file;
- for evaluation cases' files: accessing the content of the evaluation case file, generation of case file;



- for business events of evaluation cases: viewing the document related to the event, accessing the electronic form of concluding a business event, approving/rejecting the form, generating the document related to the business event;
- for recruitment/evaluation plans: viewing plan, approving/rejecting the plan, generating the document related to the plan.

It is appropriate for the *IS „REHR“* to provide a mechanism for indexed search of data and presentation of results depending on the relevance of the results of the formulated query.

#### **CU11: Generate documents and reports**

Functionality accessible for authorized users of the *IS „REHR“* which allows generating pre-established and ad-hoc reports regarding the information content of the information system and activity of authorized users.

These reports are useful for producing documents and reports specific for the REC activity, analysis of the information basis of the information system, performance of authorized users' activity, in particular, and of the entities they represent, in general, hence allowing extracting some performance indicators meant to analyze business processes of human resources evaluation cases.

It is appropriate for the information system to integrate a solution dedicated to setup and generation of reports (reports' generator), which would be reused, as well, for setting up and extracting the standardized documents specific for business processes of the *IS „REHR“*. The documents may be generated, as well, based on some configurable templates.

#### **CU12: Approve/reject projects**

Use case available to users with decision-making role in the *IS „REHR“* through which he/she will be able to approve or reject draft electronic forms and documents specific for business events related to human resources evaluation cases.

The approval or rejection of the electronic form implies the conclusion of an endorsement/comment, selection of approving/rejection options and applying electronic signature of the user with decision-making role.

It should be mentioned that human resource recruitment or evaluation case may be initiated only a recruitment/evaluation plan was registered.

#### **CU13: Generate statistics and system reports**

It is a use case providing functionalities which are necessary for users at the level of *System Administrator* to generate predefined and ad-hoc statistical reports regarding the events for operating the *IS „REHR“*.

These reports are useful for analyzing the carried out processes, information basis of the information system, performance of authorized users' activities, allowing to anticipate information security problems. Unlike CU11, the use case CU13 is meant for information audit processes for assisting the mechanisms for ensuring information security.

#### **CU14: Manage users, roles, rights**

Use case providing functionalities for managing users and their credentials (including specification of users' authentication strategy). As well, the *IS „REHR“* will allow the authentication and authorization of users through the *MPass* governmental service.

The information system will provide functionalities, through which the roles and rights associated to them are managed, and which subsequently will be attributed to the authorized users of the *IS „REHR“*. The access rights to the user interface and database entries will be defined depending on the user-related role or explicitly for every separate user.

For specific roles, the access rights to human resources evaluation case files will be attributed explicitly through business events' forms or by users with administrator role.

#### **CU15: Manage flows and document templates/ reports**

Represents a use case meant for *System Administrator* that provides the totality of functionalities available for configuring work flows, and models of standardized documents/ statistical reports necessary for printing out entry or exit documents (setting the area letterhead, footnotes, static and dynamic content, formatting, graphic aspect, etc.) and of statistical reports

A document template/ statistical reports will contain, if a reports' generating platform is not used, poles through which it will be possible to populate it with content information extracted from the human resources' evaluation

case file. Hence, it will be possible to unify and standardize the set of documents/ statistical reports issued and processes during the human resources' recruitment and evaluation processes.

#### **CU16: Manage metadata**

Use case that provides to users with the role of *System Administrator* access to functionalities which are meant to manage metadata which are necessary to set up the functioning parameters of the *IS „REHR”* (classifiers, nomenclatures, constants, parameters for setting and operating the information system). The developer will use on priority basis the official classifiers of the Republic of Moldova, when necessary.

#### **CU17: Other administration activities**

Represents a use case meant for the *System Administrator*, which describes the totality of functionalities meant to manage and audit the *IS „REHR”*: configuration of operating parameters of the *IS „REHR”*, configuration of parameters to integrate with the APIs exposed by third information systems, exploration of logged events, extraction of reports from system registers to analyze and identify eventual logical or physical security problems in the *IS „REHR”* etc.

The use case for administration of the *IS „REHR”* will implement the totality of functionalities to ensure the viability and integrity of the information system.

#### **CU18: Execute automated procedures**

Represents a use case through which the *IS „REHR”* will execute automated procedures with a certain periodicity or upon occurrence of a business event. *System Administrators* will have facilities to set up parameters for initiating and operating automated procedures.

The following can be mentioned under these procedures:

- generation of backup copies;
- data archiving;
- initiation of evaluation cases;
- erasing forms which exceeded the deadline of being under the status „Draft”;
- calculation of complex KPI necessary for generating complex statistical reports;
- identification of MIA employees subject to re-evaluation;
- other categories of automated procedures.

#### **CU19: Generate form for evaluation**

Represents a use case which will provide functionalities to generate all electronic evaluation forms for the *Candidate/Employee of MIA* specific for every evaluation case. Hence, since the moment of the evaluation case file's launch, it will contain all the electronic forms necessary for evaluation (these forms will be pre-filled in advance based on the rules defined through CU03 and CU04).

It should be mentioned that the *IS „REHR”* will generate personalized tests for every evaluation case, using means for random ordering and filling in of the test, as specified in its setup (concluded through CU04).

#### **CU20: Log events**

Use case through which the logging of business events generated by the functional components of the *IS „REHR”* will be performed. Any event generated within the business processes implemented in the *IS „REHR”* will be logged and saved in the corresponding tables of the Database.

The logging mechanism will be developed based on standards and good practices implemented in the industry. The information system will provide functionalities to set up the strategy to log business events, including: business events' categories subject to logging, calendar period (determined or undetermined) for logging) etc.

For critical or sensitive business events, the logging will be carried out in parallel using the governmental service *MLog* (example: import of data from the SRP, accessing data in the profile of *Candidate/Employee of MIA*, receiving the candidate's file, etc.).

#### **CU21: Send notifications**

Use case which provides functionalities for notifying the authorized users of the *IS „REHR”*. Notifications will be stored in the Dashboard of authorized users, ensuring direct access to the electronic form, whose business event has generated the notification.

The *IS „REHR“* will generate and send automatically the notifications related to any business event generated by the evaluation case of the Candidate/Employee of MIA. As well, the *IS „REHR“* will generate and send automatically to users notifications about any business event which needs their involvement.

The systems will provide both, mechanisms of internal notification (integrated in the *IS „REHR“*), and integration of mechanisms for external notifications through the governmental service *MNotify*, as needed.

#### **CU22: Data exchange between computer systems**

Use case which provides the necessary functionalities *IS „REHR“* for the exchange of data with external computer systems.

This synchronization refers to the exposure or consumption of interfaces designed for the reciprocal exchange of data (reception of data from external sources, sending of data to external computer systems and bidirectional exchange of data).

Part of the integrations with external IT systems (*IS „PAPIR“* and *SRP*) are to be implemented through the *MConnect* interoperability governmental service. Governmental services (*MPass*, *MSign*, *MLog*, *MNotify*, *MPower*, *PDD*) are to be integrated directly through the APIs exposed by them.

The integration of *IS „REHR“* with the internal IT systems of the MIA is to be carried out largely through a microservices infrastructure.

### **4.3. Key work flows of the information system**

The work flows to be implemented within the *ISS „LSE“* have different complexity defined by the nature of implemented business processes and configuration and adaptability mechanisms, which are to be implemented within the *IS „REHR“*.

Roughly, the following work flows should be implemented:

- **Configuration of human resource evaluation form** – work flow through which the following actions are performed: adding/setting/producing/withdrawing electronic forms meant for human resources' evaluation processes.
- **Configuration of human resources' recruitment or evaluation plan** – work flow through which the *Human Resources Specialists* will plan MIA human resources' recruitment and evaluation activities.
- **Configuration of human resources' evaluation agenda** – work flow through which the *REC Specialists* will define the timetable of human resources' evaluation activities by *REC*.
- **Electronic testing of human resources** – work flow through which the evaluated persons will perform electronically the evaluation tests related to the evaluation case.
- **Filling in the electronic forms for human resources' evaluation** – work flow meant for *REC Specialists* through which the electronic forms related to business events and evaluations specific for human resources' evaluation cases will be concluded.

### **4.4. User interface of the information system**

The *SI „REHR“* should provide an ergonomic and intuitive user interface, accessible to all types of users. The user interface of the information system will be accessed through an Internet browser. The *IS „REHR“* should have an intuitive, acceptable, balanced, distinct and optimized graphic design for the minimum work resolution 1360x468 for PC type computers. As well, the user interface should be responsive to resolutions for such devices as smartphones and tablets, and optimized for tactile screens.

For users' easiness, the information solution will have a system of online contextual assistance, at the level of every user interface.

Depending on the users' categories (their rights and roles), the information system will provide a personalized interface for every user category.

The *SI „REHR“* will provide a user interface in Romanian language. The procedures for finding information and entries will be carried out through a simple search (specifying search ranges) or some higher complexity searches, through which a more accurate filtering of information may be carried out (QBE forms). Regardless of the nature of searched for information, the user will use the same method of interrogation and finding information for any compartment of the information product.

Additionally to the search module based on QBE principle, which will give the possibility to define visually sophisticated interrogations, the interface should provide the possibility to deepen the search results by ensuring the possibility of filtering the data in the list with search results.

The user interface of the information system should ensure the filtering of entries which meet the search criteria presented to users depending on their access rights.

There should be a possibility to filter indexed measures (classifier values, nomenclatures), by choosing the value from predefined lists. For numerical or calendar date type fields, there should be a possibility to filter by exact value of the searcher for characteristic or by search mask.

The content of any table with results or electronic form, depending in the nature of the contained information, there should be a possibility to export them in the following formats CSV, XLS/XSLX and PDF. The data export should be strictly delimited by roles. All the data export actions will be logged.

#### **4.5. Reporting, audit and statistical system of the information system**

The IS „REHR“ will have functionalities meant for audit/logging widely used in industry. It should be setup to log technical and business events. The information system will provide a mechanism to generate predefined and ad-hoc reports able to ensure an analysis or evaluation pertinent to the processes of assessment of human resources skills.

The reporting system of the IS „REHR“ will delimit 4 categories of reports:

- **Documents generated based on predefined template** – a template will be created for every type, which will be populated with document relevant information (*example: Receipt, Profile of Candidate / Employee of MIA, Psychological endorsement, etc.*);
- **Performance indicators** – represents a set of KPI based on which the process of recruiting and evaluating the MIA personnel may be assessed, as well as the performance of information system operation, performance of REC personnel activity, etc.;
- **Monitoring reports** – represents a category of reports meant for decision-makers from the MIA used to assess the modality for authorized users' interaction with the IS „REHR“. This category of reports will allow anticipating performance problems in the activity of REC or security and vulnerability problems of the information system;
- **Performance reports** – represents a category of statistical reports (usually physically implemented in the content of the information system) focused on audit and analysis of the information content of the IS „REHR“ (*example: authorized user's performance report, territorial subdivisions' performance reports, REC performance report, etc.*).

The peculiarities of the reporting mechanism are described in a number of compartments of the present document, such as:

- compartment 5.12. (functional requirements for the use case *CU11: Generate documents and reports*);
- compartment 5.13. (functional requirements for the use case *CU12: Generate system statistics and reports*);
- compartment 5.16. (functional requirements for the use case *CU15: Manager flows, forms, and templates*).

## 5. Functional requirements of the information system

### 5.1. Agreements on formulation of functional requirements

The requirements set in this document are marked using the following conventions:

- all the requirements are indexed with 3 values **C.X.Y**, where **C** represents the category of the requirement (CF – functional requirement) **X** represents the use case for which the functional requirement is formulated, and **Y** is the single identifier of the requirement in the use case of which it is a part.
- the binding nature is mentioned for every functional requirement: **M** – mandatory requirement, **D** – desirable to be implemented, optional requirement.

The offer provided by the *Provider* should meet all the requirements indicated as mandatory.

The offer provided by the *Provider* will obtain competitive advantage for each optional requirement assumed to be implemented.

The informative requirements are mean to provide more support information, to understand better the context of other requirements.

### 5.2. CU01: Take evaluation test

The functional requirements related to the component of online testing of Candidates and MIA Employees are provided in table 5.1.

**Table 5.1. Functional requirements for use case CU01**

Identifier	Binding nature	Description of functional requirement
CF 01.01.	M	IS „REHR“ will provide e mechanism for electronic testing of Candidates and MIA Employees.
CF 01.02.	M	It will be possible to carry out the electronic testing both in the specialized premises of the MIA.
CF 01.03.	M	To have access to tests to be taken, the Candidate will be able to log in through the credentials provided by REC (username + password or through the MPass governmental service.
CF 01.04.	M	Two categories of tests will be accessible for human resources' electronic testing: <ul style="list-style-type: none"><li>• Tests to evaluate human resources' professional skills;</li><li>• Tests for human resources' psychological evaluation.</li></ul>
CF 01.05.	M	The Candidate/MIA Employee will be able to take the evaluation test (test will be visible and accessible) only when the recruitment announcement or the evaluation agenda were concluded by the REC Decision-maker and the moment of testing corresponds to the time period planned for test.
CF 01.06.	M	Before taking the test, the Candidate/Employee of the MIA will have to accept the test conditions (will fill in the form for accepting the test modality).
CF 01.07.	M	If in the same period of time, the evaluated human resource has to take more evaluation tests, the IS „REHR“ will display the list of available tests, and the human resource will select from the list the test to be filled in.
CF 01.08	M	The evaluation test will be displayed separately for every evaluated human resource based on the form generated by CU19 using the setups concluded through CU04.

Identifier	Binding nature	Description of functional requirement
CF 01.09.	M	IS „REHR“ will be able to display all the categories of content information of the test taken through CU04: <ul style="list-style-type: none"> <li>• Text;</li> <li>• Images;</li> <li>• Video;</li> <li>• Audio;</li> <li>• Selection lists;</li> <li>• Selection intervals;</li> <li>• Fields to fill in text data;</li> <li>• Fields to fill in numerical data.</li> </ul>
CF 01.10.	M	The answers to the evaluation tests can be: <ul style="list-style-type: none"> <li>• List to select true or false option;</li> <li>• Selection intervals for the option value;</li> <li>• Fields to be filled in with text values;</li> <li>• Fields to be filled in with numeral values.</li> </ul>
CF 01.11.	M	IS „REHR“ will validate the option filled in by the evaluated human resource and if it does not meet the rules ( <i>example: instead of numerical value, a text was entered, instead of full numerical value, a fraction was entered, etc.</i> ) an error message will be displayed and the answer will not be saved.
CF 01.12.	M	The interface for taking the evaluation test will have a bidirectional mechanism of navigation between the questions of the test.
CF 01.13.	M	The evaluated human resource will be able to switch to the next/previous question without filling in the answer for the current question (the evaluated person will be able to return later to fill in the answer to questions for which he/she needs more time). As well, until the expiry of the time for taking the evaluation test or sending the test, the evaluated person will be able to modify the answer options provided to the previous/subsequent questions).
CF 01.14.	M	IS „REHR“ will display immediately the statistics of filling in the evaluation test and will provide a mechanism of direct browsing to the questions for which an answer was not provided.
CF 01.15.	M	When comparing any answer of the evaluation test, the IS „REHR“ will save the answer options on the server.
CF 01.16.	M	IS „REHR“ will take into account the time restrictions during which the test should be taken (this time is calculated from the moment of opening the test form) and will warn the person about the expiration of available time (the warning moment is a configurable measure).
CF 01.17.	M	Upon the expiry of the time reserved for the test, the electronic test form will switch automatically in its final status and will not be editable anymore.
CF 01.18.	M	If the evaluated human resource will take the evaluation test before the deadline, he/she will use a special option meant for finishing and sending the concluded evaluation test.
CF 01.19.	M	After sending the test form, the IS „REHR“ will calculate the evaluation score (according to the rules defined in the form setup - CU04), the evaluation qualifier and will notify the relevant REC Specialist (evaluator) regarding the need to conclude the Evaluation Report/Endorsement, if necessary.

Identifier	Binding nature	Description of functional requirement
CF 01.20.	M	MNotify governmental service will be used as a mechanism for notification.
CF 01.21.	M	The business events, which are critical for testing human resource (beginning moment, finishing moment, calculated score, test qualifier, etc.) will be logged through the MLog governmental service.

### 5.3. CU02: Receive notifications

The functional requirements of the mechanism meant to receive notification sent by the IS „REHR” to authorized users are provided in Table 5.2.

**Table 5.2. Functional requirements for use case CU02**

Identifier	Binding nature	Description of functional requirements
CF 02..01.	M	IS „REHR” will notify automatically any authorized user in case of registering a business event which implies any actions from the user or which modifies the status of processes which are managed, monitored by him/her or refer to him/her.
CF 02.02.	M	Authorized users will receive notifications at the email address indicated in their profile in the IS „REHR”.
CF 02.03.	M	A copy of the notification will be displayed in the Dashboard of the authorized user in the IS „REHR” (if applicable).
CF 02.04.	M	The authorized user IS „REHR” will have the functionality to set up preferences for receiving notifications (on email or in Dashboard).
CF 02.05.	M	IS „REHR” will send the entire range of notifications meant for authorized users: <ul style="list-style-type: none"> <li>• notification about opening/closing human resources’ evaluation cases;</li> <li>• notification about the need of involving the work flows of the IS „REHR”;</li> <li>• notification about the delay in user’s action (exceeding the deadline for approving/rejecting the draft form, concluding the Evaluation Report/Endorsement, etc.);</li> <li>• notification about acceptance/rejection draft electronic forms by decision-making roles;</li> <li>• notification about the update of the human resource evaluation case file content;</li> <li>• notification about inclusion in the evaluation agenda;</li> <li>• notification about operational problems in the IS „REHR”;</li> <li>• other relevant notifications.</li> </ul>
CF 02.06.	M	A notification sent through Email may contain an attached file ( <i>example: receipt.</i> ).
CF 02.07.	M	Users of the IS „REHR” will receive notifications through Email in HTML format or enriched Text Format.

### 5.4. CU03: Manage evaluation agenda

The functional requirements specifying the setup peculiarities of the timetable for human resources’ evaluation are provided in table 5.3.

**Table 5.3. Functional requirements for use case UC03**

Identifier	Binding nature	Description of functional requirement
CF 03.01.	M	IS „REHR“ will supply a flexible and automated mechanism meant for planning the process of evaluating human resources (drafting the evaluation timetable) which envisages: <ul style="list-style-type: none"> <li>• adding agenda events;</li> <li>• modifying agenda events;</li> <li>• cancelling agenda events.</li> </ul>
CF 03.02.	M	IS „REHR“ will allow setting up the human resources' evaluation agenda for 2 evaluation modalities: <ul style="list-style-type: none"> <li>• electronic testing on computer;</li> <li>• traditional testing with hardcopy tests.</li> </ul>
CF 03.03.	M	IS „REHR“ will provide functionalities to manage the spaces where the persons will be evaluated, by defining the corresponding parameters: <ul style="list-style-type: none"> <li>• number of available computers (for the premises meant for electronic tests);</li> <li>• number of available places (for the premises meant for traditional testing with hardcopies).</li> </ul>
CF 03.04.	M	The management of the evaluation agenda implies defining for every evaluated person of the following: <ul style="list-style-type: none"> <li>• space where the person will be evaluated;</li> <li>• data when the evaluation will be carried out;</li> <li>• time interval when the evaluation will be carried out;</li> <li>• types of evaluations (electronic forms from the evaluation case of the human resource, which are to be taken);</li> <li>• special notes (if any).</li> </ul>
CF 03.05.	M	One person can have more planned evaluations within an interval of time, if the total duration of evaluations does not exceed the time interval planned for evaluation.
CF 03.06.	M	IS „REHR“ will provide the mechanism for automating the process to set up the agenda for human resources' evaluation using exclusively visual means for: <ul style="list-style-type: none"> <li>• identifying the undistributed evaluation cases;</li> <li>• grouping the evaluation cases by institution/subdivision/evaluation type;</li> <li>• multiple selection of evaluation from the undistributed evaluation cases and placing them in the calendar etc.</li> </ul>
CF 03.07.	M	A distinct weekly agenda will be defined For every space where an evaluation should be hold.
CF 03.08.	M	Regardless of the evaluation modality, when distributing the persons to be evaluated, the capacity of the spaces where the persons will be evaluated will be taken into consideration (number of available computers / number of available places).
CF 03.09.	M	IS „REHR“ will generate a generalized agenda of evaluations in which all the used evaluation spaces will be placed, providing facilities to filter the data.
CF 03.10.	M	The weekly agenda of the evaluation space will have 4 possible conditions: <ul style="list-style-type: none"> <li>• draft;</li> </ul>



Identifier	Binding nature	Description of functional requirement
		<ul style="list-style-type: none"> <li>• sent for approval;</li> <li>• approved;</li> <li>• rejected.</li> </ul>
CF 03.11.	M	To make operational the weekly agenda, it should be sent for approval to the REC decision-maker.
CF 03.12.	M	If the agenda is approved, the IS „REHR“ will initiate all the evaluation case files ( in „Draft“ status), will generate and attach to the initiated use case files the relevant evaluation forms and will notify the Candidates/MIA Employees and the relevant Human Resources Specialists about the approved timetable of evaluations.
CF 03.13.	M	The notification regarding the evaluation timetable sent to the Candidates/Employee of MIA should allow importing agenda events in the agenda of their mobile devices.
CF 03.14.	M	MNotify government service will be used as notification mechanism.
CF 03.15.	M	The electronic forms meant for electronic testing of professional skills and psychological test will be accessible for all the roles since the moment when the planned test has started.

### 5.5. CU04: Set up evaluation form

The functional requirements which specify the setup and implementation peculiarities for electronic forms meant for human resources' evaluation are provided in table 5.4.

**Table 5.4. Functional requirements for use case CU04**

Identifier	Binding nature	Description of functional requirement
CF 04.01.	M	IS „REHR“ will provide functionalities for dynamic setup and implementation of electronic forms meant for evaluating human resources (adding, configuring/modifying, placing under production and withdrawing electronic evaluation forms).
CF 04.02.	M	The forms for evaluation of human resources may be concluded exclusively through CU04.
CF 04.03.	M	<p>The following categories of electronic forms meant for evaluation of human resources and concluded through CU04 may be mentioned:</p> <ul style="list-style-type: none"> <li>• electronic form for human resource medical evaluation;</li> <li>• electronic form for human resource professional skills' evaluation;</li> <li>• electronic form for human resource psychological evaluation;</li> <li>• electronic form for human resource sport skills' evaluation;</li> <li>• forms for concluding human resources 'Evaluation Report/Endorsement;</li> <li>• forms for concluding the application for participation in the contest (questionnaires related to the application for participation in the contest);</li> <li>• forms for concluding the human resource's agreement with the evaluation conditions.</li> </ul>
CF 04.04.	M	IS „REHR“ should be able to set up electronic forms meant for human resources' psychological evaluation using 2 methods:

Identifier	Binding nature	Description of functional requirement
		<ul style="list-style-type: none"> <li>• „screening out“ (identification and exclusion), which provides for triage of counter-indicated candidates;</li> <li>• “screening in”, which implies the identification of adequate positions/functions for the candidate; it gets away from meaning/rationale of the primary psychological selection and it is a problem of classification/distribution/placement by functions, which should be solved subsequently, according to a distinct methodology.</li> </ul>
CF 04.05.	M	<p>For electronic forms meant for psychological evaluation of human resources, there should be a possibility to define the following triage criteria for Candidates/Employees of MIA:</p> <ul style="list-style-type: none"> <li>• Criterion of intellectual and cognitive-aptness potential;</li> <li>• Criterion of personality’s structure and dynamics.</li> </ul>
CF 04.06.	M	<p>The electronic forms implemented through CU04 may have the following statuses:</p> <ul style="list-style-type: none"> <li>• draft (for to-be-developed forms);</li> <li>• for approval (for forms waiting to be approved by those with decision-making roles before launched into production);</li> <li>• in production (for electronic forms which are currently used to evaluate human resources);</li> <li>• withdrawn (for electronic forms which cannot be used anymore).</li> </ul>
CF 04.07.	M	<p>Within a certain time moment, there might be more electronic forms of the same category (mentioned in CF 04.03) with “in production” status.</p>
CF 04.08.	M	<p>IS „REHR“ will provide the functionality for managing a classifier through which the electronic forms meant for human resources’ evaluation may be classified (only categories – leaves of the structure tree will be used for classification).</p>
CF 04.09.	M	<p>The setup of an electronic evaluation form implies concluding the following actions:</p> <ul style="list-style-type: none"> <li>• defining the general configurations of the form;</li> <li>• defining the questions of the evaluation form;</li> <li>• defining the answer options for questions;</li> <li>• defining the peculiarities of calculating the score.</li> </ul>
CF 04.10.	M	<p>Defining the general configurations of the form implies the specification of the following parameters:</p> <ul style="list-style-type: none"> <li>• name of the form;</li> <li>• data about the author and history of performed editing;</li> <li>• form status (according to CF 04.06)</li> <li>• evaluation type (according to CF 04.03);</li> <li>• form’s thematic category (according to the classifier defined in CF 04.08);</li> <li>• time restrictions for the evaluation process (YES/NO, if yes – deadline in minutes for filling in the form);</li> <li>• rules for generating the evaluation form (full generation, partial generation by random selection of a specified number of questions, random ordering of questions’ sequence, random ordering of answer options for questions, etc.);</li> <li>• modality to select the options (indicating only the correct options/indicating explicitly the correct and incorrect options);</li> </ul>

Identifier	Binding nature	Description of functional requirement
		<ul style="list-style-type: none"> <li>modality to calculate the score (with punishments for wrong answers, without punishments, etc.);</li> <li>test qualifiers (according to the accumulated score);</li> <li>other general configuration options.</li> </ul>
CF 04.11.	M	<p>Defining the questions implies the following parameters:</p> <ul style="list-style-type: none"> <li>question name;</li> <li>image related to the question (if there is any);</li> <li>video related to the question (if there is any);</li> <li>audio related to the question (if there is any);</li> <li>other relevant options for setting up the question.</li> </ul>
CF 04.12.	M	<p>Defining answer options for question:</p> <ul style="list-style-type: none"> <li>option type (true/false);</li> <li>option name (field with free text to be entered (for questions with open answers), field with numerical value to be entered, name/image as answer option, interval for selecting the value for the answer option out of more alternatives, etc.);</li> <li>score or qualifier for correction options;</li> <li>penalty for wrong answer (if applicable).</li> </ul>
CF 04.13.	M	For forms meant to conclude Evaluation Reports/Endorsements, there should be the possibility to define the link with the relevant evaluation forms.
CF 04.14.	M	An electronic form meant to conclude the Evaluation Report/Endorsement may be linked with more evaluation forms simultaneously.
CF 04.15.	M	All the electronic forms set up through CU04 will have an associated document template based on which the Evaluation file will be generated (through CU11).
CF 04.16.	M	An electronic form concluded through CU04 may be launched into production/withdrawn with the approval of the user having decision-making role (through CU12).
CF 04.17.	M	IS „REHR“ will provide a functionality to verify the electronic evaluation form until its launch into production (a simulation on how the electronic evaluation form is filled in by the Candidate/Employee of MIA and calculation of the evaluation score and qualifier).
CF 04.18.	M	It will be possible to launch the mechanism for verifying the electronic evaluation form for the entire human resource evaluation test, as well as for certain of its compartments.
CF 04.19.	M	Before sending to the decision-maker the launch into production or withdrawal of the electronic form concluded through CU04, it will pass through a completeness and correctness validation procedure (automated procedure provided by the IS „REHR“).
CF 04.20.	M	A valid electronic form should be signed electronically by the REC Specialist who has concluded it and sent it for approval to the decision-maker.
CF 04.21.	M	MSign governmental service should be integrated as a mechanism for electronic signature.

Identifier	Binding nature	Description of functional requirement
CF 04.22.	M	When the electronic form is signed and sent for approval, the IS „REHR“ will notify the REC decision-maker about the need to approve the decision to launch into production/withdraw an electronic form.

## 5.6. CU05: Manage evaluation case

The functional requirements specifying the peculiarities for managing the MIA human resources' evaluation case and concluding the electronic forms meant for documenting business events of evaluation cases are provided in table 5.5.

**Table 5.5. Functional requirements for use case CU05**

Identifier	Binding nature	Description of functional requirement
CF 05.01.	M	SI „REHR“ will provide functionalities necessary for managing the evaluation cases.
CF 05.02.	M	The management of an evaluation case implies the carrying out of the following actions: <ul style="list-style-type: none"> <li>• opening/closing/re-opening an evaluation case;</li> <li>• filling in the results of the medical evaluation (if applicable);</li> <li>• filling in the results of the professional skills' evaluation (if applicable);</li> <li>• filling in the results of the psychological evaluation (if applicable);</li> <li>• filling in the results of sport skills' evaluation;</li> <li>• concluding the evaluation reports/endorsements as a result of performed tests.</li> </ul>
CF 05.03.	M	IS „REHR“ will allow to fill in electronically the tests by the Candidate/Employee of MIA, REC Specialist and to enter retroactively the results of the evaluation tests taken on hardcopies.
CF 05.04.	M	IS „REHR“ will take over through CU22 the results of the psychological evaluation tests taken by Candidates/Employees of MIA through the platform of psychological evaluation Cognitrom Assessment System.
CF 05.05.	M	The evaluation forms filled in within the evaluation case file will be displayed based on the setup defined through CU04.
CF 05.06.	M	The status and transition through which an electronic form meant for human resource evaluation goes through are set up through the use case CU15.
CF 05.07.	M	Any electronic form meant to evaluate the human resource will have an associated document template, which will be set up through CU15 and extracted through CU11 based on data entered in the form.
CF 05.08.	M	The electronic form meant to evaluate the human resource may be accessed explicitly from the menu options, taken from the human resource evaluation case file (with automated pre-filling in of data which may be extracted from the evaluation case file content) or from the list of results provided by CU10.
CF 05.09.	M	The electronic form meant for human resource evaluation will be accessible to be accessed or filled in since the date and hour included in the evaluation agenda (specified through CU03)

Identifier	Binding nature	Description of functional requirement
CF 05.10.	M	SI „REHR“ will ensure the access of authorized users to the list of electronic forms meant for human resources' evaluation depending on the roles held by them or powers provided by MPower.
CF 05.11.	M	The filling in of the electronic form meant for human resources' evaluation is carried out through some exclusively visual mechanisms.
CF 05.12.	M	The electronic form meant for human resource evaluation will have content constraints and restrictions to limit mechanic errors.
CF 05.13.	M	IS „REHR“ will calculate the final score and will register the evaluation qualifier based on the content data of the electronic form meant for concluding the business event related to human resource evaluation case.
CF 05.14.	M	IS „REHR“ will allow attaching electronic copies of relevant documents to the human resource evaluation electronic form or to the human resource evaluation case file (in some cases the human resource form may represent an attached file and metadata annexed to it).
CF 05.15.	M	IS „REHR“ will provide mechanism for verifying the completeness or correctness of filling in the electronic form for human resource evaluation (mandatory data content, correctness of entered data type, integrity of entered data, etc.).
CF 05.16.	M	Only an electronic form for human resource evaluation that has successfully passed the procedure for verification of accuracy will be able to get to the final status or sent for approval to the <i>REC decision-maker</i> (when the form needs approval).
CF 05.17.	M	IS „REHR“ will ensure traceability mechanism (keeping the history) when making changes in the human resource evaluation case (all the events for adding, changing, deleting data, as well as the view of file content will be accessible for view).
CF 05.18.	M	IS „REHR“ will not allow deleting any form/document in the final, approved status or electronically signed, but only its cancellation.
CF 05.1.01.	M	IS „REHR“ will provide the functionality for opening a human resource evaluation case based on: <ul style="list-style-type: none"> <li>• contest participation files submitted from the Candidates;</li> <li>• drafts for initiating evaluation cases generated automatically by CU18;</li> <li>• plans/applications for evaluation of MIA employees (completed by CU08).</li> </ul>
CF 05.1.02.	M	To open a human resource evaluation case, it is necessary to: <ul style="list-style-type: none"> <li>• fill in the metadata related to the human resources evaluation case;</li> <li>• complete/update the profile data for the evaluated human resource (including by using CU22);</li> <li>• select the evaluation forms and the REC responsible for evaluation (authorized users who will have access to the file and will be able to conclude electronic forms of business events related to human resource evaluation) and to define the forms which should be included in the evaluation agenda (defined through CU03);</li> <li>• attach electronic copies and associated metadata of the documents specific for opening a human resource evaluation case;</li> <li>• complete/update the profile data of evaluated human resource (extracting based on specific of evacuation: identity data from the SRP, profile data of the MIA employee from the IS „Collaborator“, criminal record data from the RCFI, integrity record data from the IS</li> </ul>

Identifier	Binding nature	Description of functional requirement
		PAPIR and data regarding administrative offences from the AIS MAO).
CF 05.1.03.	M	IS „REHR“ will verify the completeness of the file and the correctness of data entered before opening the human resource evaluation case.
CF 05.1.04.	M	REC Specialist will activate a specialized button for opening the case and if the validation of CF 05.1.03 was successfully done. Additionally, the IS „REHR“ will perform data import activities from external sources through CU22 to take over relevant data for human resource.
CF 05.1.05.	M	After opening the evaluation case, the IS „REHR“ will notify all the case authorized users and affected human resource (if there is an email address in his/her profile) regarding the opening of a new case for human resource evaluation.
CF 05.1.06.	M	A human resource evaluation case may pass to “Closed” status if the deadline set for human resource evaluation has been exceeded or all the evaluation processes and documentation of evaluation results were finished.
CF 05.1.07.	M	The REC specialist will have the functionality of closing the human resource evaluation (specialized button for changing the status).
CF 05.1.09.	M	IS „REHR“ will verify the completeness of human resources’ evaluation and only in this situation the use case may be closed.
CF 05.1.10.	M	Incomplete evaluation cases or those that have exceeded the processing deadline will be closed with a special status and mentioning the reason for closing the evaluation case.
CF 05.1.10.	M	After closing the human resource evaluation case, the IS „REHR“ will notify all the case authorized users and the evaluated human resource (if there is a contact email in his/her profile).
CF 05.1.11.	M	All business events related to the human resource evaluation case file should be logged exhaustively through the own means of the IS „REHR“ and in parallel through MLog government service.
CF 05.2.01.	M	IS „REHR“ will provide a form for registering the results of human resource’s medical evaluation.
CF 05.2.02.	M	The content of the medical evaluation form will be set through CU04 and generated through CU19.
CF 05.2.03.	M	A number of medical evaluation forms may be concluded for one case of human resource evaluation (specific to different categories of medical evaluation).
CF 05.2.04.	M	The form of human resource medical evaluation will have the possibility to attach electronic copies of documents ( <i>example: results of medical investigations and tests</i> ).
CF 05.2.05.	M	A form of medical evaluation is considered to be finished if it is signed by the REC Specialist who has filled it in.
CF 05.2.06.	M	MSign governmental service will be used as a mechanism for electronic signing.
CF 05.2.07.	M	It will be possible to sign electronically the medical evaluation form only after its content successful validation through the means provided by the IS „REHR“.
CF 05.3.01.	M	IS „REHR“ will provide a form for registering the results of human resource professional skills’ evaluation.

Identifier	Binding nature	Description of functional requirement
CF 05.3.02.	M	The content of the human resource professional skills' evaluation form will be set through CU04 and generated through CU19.
CF 05.3.03.	M	The REC Specialist will introduce only the results of the human resource professional skills' evaluation tests taken traditionally on hardcopies (case when the Candidate or MIA Employee takes a hardcopy test).
CF 05.3.04.	M	The REC Specialist will attach the scanned copy of the professional skills' test taken by the human resource in traditional hard copy format.
CF 05.3.05.	M	A number of evaluation forms may be concluded for one case of human resource professional skills' evaluation (specific to different categories of skills and knowledge).
CF 05.3.06.	M	A form of human resource skills' evaluation is considered to be finished if it is signed by the REC Specialists who has filled it in.
CF 05.3.07.	M	MSign governmental service will be used as a mechanism for electronic signing .
CF 05.3.08.	M	It will be possible to sign electronically a form of human resource professional skills' evaluation only after its content successful validation through means provided by the IS „REHR“.
CF 05.4.01.	M	IS „REHR“ will provide a form for registering the results of human resource psychological evaluation.
CF 05.4.02.	M	The content of the human resource psychological evaluation form will be set through CU04and generated through CU19.
CF 05.4.03.	M	The REC Specialist will conclude only the results of the human resource psychological evaluation tests taken traditionally on hardcopies (when the Candidate or MIA Employee takes a hardcopy test).
CF 05.4.04.	M	IS „REHR“ will receive and save in the relevant evaluation case file the results of the psychological evaluation concluded through the psychological evaluation platform Cognitrom Assessment System (including the documents provided by this platform).
CF 05.4.05.	M	The REC Specialist will attach to the form a scanned copy of the psychological test taken by the human resource.
CF 05.4.06.	M	A number of psychological evaluation forms may be concluded for ne case of human resource psychological evaluation (specific for different evaluation categories).
CF 05.4.07.	M	A human resource psychological evaluation form is considered finished if it is signed by the REC Specialist who has filled it in.
CF 05.4.08.	M	MSign governmental service will be used as a mechanism for electronic signing.
CF 05.4.09.	M	It will be possible to sign electronically a form of human resource professional skills' evaluation only after its content successful validation through the means provided by the IS „REHR“.
CF 05.5.01.	M	IS „REHR“ will provide a form for registering the results of human resource sport tests' results.
CF 05.5.02.	M	The content of the form for sport evaluation will be set through CU04 and generated through CU19.
CF 05.5.03.	M	The form of human resource sport evaluation will have the possibility to attach documents' electronic copies ( <i>example: specific photos</i> ).



Identifier	Binding nature	Description of functional requirement
CF 05.5.04.	M	A form for sport evaluation is considered to be finished if it is signed by the REC Specialist who has filled it in.
CF 05.5.05.	M	MSign governmental service will be used as mechanism for electronic signing.
CF 05.5.06.	M	It will be possible to sign electronically a form for sport evaluation only after its content successful validation through the means provided by the IS „REHR“.
CF 05.6.01.	M	IS „REHR“ will provide form a form for concluding the Evaluation Report/ Endorsement of the REC Specialist.
CF 05.6.02.	M	The content of the form for concluding the Evaluation Report/ Endorsement of the REC Specialist will be set through CU04and generated through CU19.
CF 05.6.03.	M	A number of Evaluation Reports/Endorsements may be concluded for one evaluation case (depending on the number of tests and interviews taken by the human resource).
CF 05.2.04.	M	IS „REHR“ will allow defining the link between the human resource evaluation form and the Evaluation Report/Endorsement, when generating the electronic forms related to the human resource evaluation case (through CU19 the IS „REHR“ will define automatically this link).
CF 05.2.05.	M	The form of the Evaluation Report/Endorsement will have the possibility to attach electronic copies of traditional and multimedia documents (example: audio recording of the interview).
CF 05.2.06.	M	A form of the Evaluation Report/Endorsement is considered to be finished if it is signed by the REC Specialist who has filled it in and approved by the REC decision-maker (through CU12).
CF 05.2.07.	M	It will be possible to sign electronically a form of medical evaluation only after its content successful validation through means provided the IS „REHR“.
CF 05.2.08.	M	MSign governmental service will be used as a mechanism for electronic signing.

### 5.7. CU06: Manage human resource profile data

The functional requirements necessary for implementing the functionalities to manage the human resources' profiles are provided in table 5.6.

**Table 5.1. Functional requirements for use case CU06**

Identifier	Binding nature	Description of functional requirements
CF 06.01.	M	IS „REHR“ will use the functionality meant for managing the profile data of evaluated human resources.
CF 06.02.	M	<p>The profile data of human resources should contain the following data categories:</p> <ul style="list-style-type: none"> <li>human resource's identity data (taken from the SRP);</li> <li>biometrical data regarding the human recourse (partially taken from the SRP, partially entered manually or taken from the IS „Collaborator“ if they exist);</li> </ul>



Identifier	Binding nature	Description of functional requirements
		<ul style="list-style-type: none"> <li>data regarding identity acts held by the human resource (taken from the SRP and IS „Collaborator“, if there are data about held service cards);</li> <li>data regarding the peculiarities of human resource's employment in the MIA (taken over from the IS „Collaborator“);</li> <li>data regarding human resource's domicile address/residence (taken over from the SRP);</li> <li>data regarding the criminal record (taken over from the RCFI)</li> <li>data regarding the administrative offences' record (taken over from AIS AOM);</li> <li>data regarding the integrity record (taken from the IS „PAPIR“);</li> <li>other relevant data.</li> </ul>
CF 06.03.	M	IS „REHR“ should ensure the functionality of manual editing of all categories of data specified in CF 06.02 if the interoperability facilities will not be accessible.
CF 06.04.	M	Any human resource authorized in the IS „REHR“, regardless of the held role, will have access to the data of his/her own profile and will be able to update a part of data (identified in the business analysis activity).
CF 06.05.	M	The electronic form designed for the initiation of the evaluation case (concluded through CU05) will have a compartment meant for managing the profile of the Candidate (case of the person who does not have a profile within IS „REHR“). In case of a Candidate who is not registered in the IS „REHR“, when concluding the form for initiation of the evaluation case, the corresponding profile data will be introduced.
CF 06.06.	M	Users with the role of Human Resources Specialist will have access only to the employees' profiles of the institution he/she represents.
CF 06.07.	M	The human resource profile will have an associated document template, possible to be generated (in PDF format) and printed through CU11.
CF 06.08.	M	All the events for accessing human resource's profile data, updating the profile data from external data sources and generation the profile file will be logged through internal mechanisms of the IS „REHR“ (through CU20) and in parallel through MLog government service.
CF 06.09.	M	The access to profile data of the human resource, as well as amending these data will be possible only in case if the authorized user has such a right.
CF 06.10.	M	The rights of the authorized user should be verified through MPower government service.

### 5.8. CU07: Manage MIA organigram

The functional requirements of the component meant to managing the MIA organigram are provided in table 5.7.

**Table 5.7. Functional requirements for the use case CU07**

Identifier	Binding nature	Description of functional requirement
CF 07.01.	M	IS „REHR“ will provide a mechanism meant to set up the MIA organigram (totality of institutions subordinated to the MIA and its subdivisions).

Identifier	Binding nature	Description of functional requirement
CF 07.02.	M	IS „REHR“ will provide a mechanism for managing the positions related to the MIA employees and their evaluation peculiarities (evaluation type and periodicity per each function separately).
CF 07.03.	M	IS „REHR“ will provide a mechanism for managing the staffing plan of MIA subordinated institutions. The staffing plan will contain information at the level of MIA subdivision, positions and number of employees in positions for every subdivision)
CF 07.04.	M	It should be possible to define evaluations/tests for every position of the staffing plan, which are to be carried out upon recruitment and during the activity.
CF 07.05.	M	Every institution subordinated to the MIA will have an authorized user having the obligation to manage the institution organigram.
CF 07.06.	M	The system of metadata of the MIA organigram to be managed through the facilities exposed by the IS „REHR“ implies the management of: <ul style="list-style-type: none"> <li>• data about the institution (name, address, persons, contact telephone and email, etc.);</li> <li>• data about the institution subdivision (subordination level, name, address, contact person, functions and their number, etc.);</li> <li>• data about the function (name, necessary evaluations upon recruitment, periodical evaluations, frequency of evaluation);</li> <li>• other relevant data of the MIA organigram.</li> </ul>
CF 07.07.	M	IS „REHR“ will not allow deleting any element of the MIA organigram (institution, subdivision, function), if it is used at least in one database entry.
CF 07.08.	M	For the elements to be excluded from the MIA organigram and which have been used in the entries of the IS „REHR“ – there will be only the possibility to deactivate the entry mentioning the validity period of the entry (to be used in reports, where historical data are used).

### 5.9. CU08: Set up recruitment and evaluation plan

The functional requirements of the component for managing the human resources' recruitment and evaluation plan are provided in table 5.8.

**Table 5.8. Functional requirements for the use case CU08**

Identifier	Binding nature	Description of functional requirement
CF 08.01.	M	IS „REHR“ will provide the necessary functionalities for defining and setting up human resources' recruitment or evaluation plans.
CF 08.02.	M	A case of human resource evaluation cannot be initiated if it was not included preliminary in a human resources' recruitment or evaluation plan.
CF 08.03.	M	The personnel recruitment or evaluation plan is concluded and approved in the IS „REHR“, as a rule, by HR specialists of the MIA subdivisions.
CF 08.04.	M	Both, the recruitment plan and the periodical evaluation plan for the MIA employees should contain the preferred period for carrying out the evaluation (as a rule, indicating the month or quarter).
CF 08.05.	M	The setup of an evaluation plan implies concluding an electronic form which contains MIA employees to be evaluated, type and period of

Identifier	Binding nature	Description of functional requirement
		evaluation. This form should provide all the information necessary for opening and setting up an evaluation case.
CF 08.06.	M	MIA employees to be included in the evaluation case will be inserted through the lists suggested by the IS „REHR“ (through CU18) or explicitly for every MIA Employee separately.
CF 08.07.	M	Before registering the plan for recruitment or evaluation of MIA employees, the concluded form should pass through a content validation procedure (verification according to type of entered data, range of admissible values, the binding nature of entered data, etc.).
CF 08.08.	M	For the validated plans for evaluation of MIA employees, the IS „REHR“ will update the profile of MIA employees using the facilities provided by CU22.
CF 08.09.	M	If the IS „REHR“ does not contain the profiles of MIA employees to be evaluated (employees who have never evaluated through the IS „REHR“), the IS „REHR“ will create automatically new profiles and will fill them in with data provided from external sources (through CU22).
CF 08.10.	M	It will be possible to send a validated and updated form for recruitment or evaluation only if the Human Resource Specialist applies the electronic signature.
CF 08.11.	M	MSign governmental service will be used as mechanism for electronic signing .
CF 08.12.	M	Once the recruitment and evaluation plan of the human resources form is signed and sent, the IS „REHR“ will notify the relevant REC Specialists about sending a recruitment and evaluation plan for which the evaluation agenda must be configured.

### 5.10 CU09: Use Dashboard

The functional requirements meant for the operation of the Dashboard meant for authorized users of the IS „REHR“ are provided in table 5.9.

**Table 5.9. Functional requirements for use case CU09**

Identifier	Binding nature	Description of functional requirement
CF 09.01.	M	IS „REHR“ will provide the authorized users a Dashboard through which they will be notified about important business events and will provide rapid access to their details.
CF 09.02.	M	The following business events displayed on the Dashboard may be listed: <ul style="list-style-type: none"> <li>• system notifications;</li> <li>• notifications regarding the need to involve the user in the activities of the work flows of the IS „REHR“ (including delay alerts);</li> <li>• notification regarding the forms or documents waiting to be approved by decision-making roles (including delay alerts);</li> <li>• notification about filling in the evaluation case file with new documents or electronic forms;</li> <li>• notifications on acceptance/rejection of electronic forms' drafts;</li> <li>• other relevant events.</li> </ul>
CF 09.03.	M	The dashboard of the US „REHR“ user will display only business events relevant for the roles and data available for the authorized user.

Identifier	Binding nature	Description of functional requirement
CF 09.04.	M	The dashboard of the user with the role of System Administrator will display all business events related to the functionalities of the IS „REHR” (totality of notifications displayed in the Dashboard of all the users of the IS „REHR” and notifications dedicated exclusively to the user with role of System Administrator).
CF 09.05.	M	The dashboard will group business events displaying them in the form of indicators with aggregated values ( <i>example: Unread system notifications - 20; Open evaluation cases – 20; Forms under work – 10; Forms sent for approval – 2; etc.</i> ) which will content hypertext reference to access details.
CF 09.06.	M	IS „REHR” will display detailed entries of the Dashboard in specialized windows or fields on the main page of the user’s interface, which will have hypertext reference for accessing details ( <i>example: opening the form which has generated the notification</i> ).
CF 09.07.	M	When accessing the hypertext reference related to the aggregated value or detailed entry of the Dashboard, the IS „REHR” will ensure access to detail information related to it or requested functionality ( <i>example: content of the psychological evaluation test, direct approval/rejection of the forms sent for review and approval, etc.</i> ).
CF 09.08.	M	The dashboard of the IS „REHR” will have a specialized field (favorite) where the user will place references to the content information on which he/she works. They can be of 3 types: <ul style="list-style-type: none"> <li>• open/closed evaluation cases;</li> <li>• performed electronic forms (business events related to currently performed evaluation cases);</li> <li>• reviewed electronic forms (agenda or business events related to reviewed evaluation cases).</li> </ul>
CF 09.09.	D	IS „REHR” will provide to every user the functionality of individual setup of the Dashboard aspect and content.

### 5.11. CU10: Search/view data

The functional requirements related to the mechanism of searching for data stored in the database of the IS „REHR” are provided in table 5.10.

**Table 5.2. Functional requirements for use case CU10**

Identifier	Binding nature	Description of functional requirement
CF 10.01.	M	IS „REHR” will provide a mechanism to search for data and documents in the stored data content.
CF 10.02.	M	IS „REHR” will provide a mechanism for indexed search of data. The search mechanism will use morphological means.
CF 10.03.	M	IS „REHR” will allow defining the following search targets (the search result will display the list of): <ul style="list-style-type: none"> <li>• recruitment/evaluation plans;</li> <li>• evaluation case files;</li> <li>• documents contained in the evaluation case files or human resources’ profiles;</li> <li>• human resources’ profiles;</li> <li>• concluded electronic forms concluded and contained in the evaluation case files.</li> </ul>

Identifier	Binding nature	Description of functional requirement
CF 10.04.	M	IS „REHR“ will provide a flexible and efficient mechanism to define search criteria.
CF 10.05.	M	In case of formulating too wide search criteria, or criteria which need too much time and resources for execution, the IS „REHR“ will not execute these queries, but will request the user to narrow the area of searched for values.
CF 10.06.	M	The search results will be ordered depending on the relevance of the search query result, alphabetically or creation date/last update.
CF 10.07.	M	The user will be able to define criteria for ordering or grouping the content of the list with search results.
CF 10.08.	M	IS „REHR“ will provide a mechanism for paging the search results meant to avoid the overloading of web explorer and data transportation channels.
CF 10.09.	D	The search results' entries will be marked (specific color or icon) depending on the nature or status of found informational item.
CF 10.10.	M	IS „REHR“ will provide the functionality of refining the search in found results.
CF 10.11.	M	IS „REHR“ will allow initiating some processes regarding the found results or a group of found and marked results, such as: <ul style="list-style-type: none"> <li>• selecting the entries of search results;</li> <li>• initiating the creation of business event form including the results in the form or in the base of selected entries (<i>example: including a group of human resources' profiled in an evaluation plan</i>);</li> <li>• changing the entry's status;</li> <li>• multiple deletion;</li> <li>• multiple electronic signing;</li> <li>• other relevant actions.</li> </ul>
CF 10.12.	M	IS „REHR“ will display in the search results only the data which correspond to the area of user's competence and rights defined in the profile of the authorized user of IS „REHR“ (by MIA subdivisions, file status, empowerments provided by MPower etc.).
CF 10.13.	M	IS „REHR“ will restrict the access to found results' details when the user who has initiated the search process does not have access to the information items requested to be accessed.
CF 10.14.	M	IS „REHR“ will allow exporting the table with the search results in CSV or PDF formats.

### 5.12 CU11: Generate documents and reports

The functional requirements of the mechanism to extract documents and reports to be presented in a user-convenient form or for assisting the work flows and the decision-making process are provided in table 5.11.

**Table 5.3. Functional requirements for use case CU11**

Identifier	Binding nature	Description of functional requirement
CF 11.01.	M	IS „REHR“ should be able to provide a number of statistical and ad-hoc reports, for the decision-makers of MIA and REC to be able to monitor the activity of human resources' evaluation.

Identifier	Binding nature	Description of functional requirement
CF 11.02.	D	It is appropriate for the basis to generate reports to be a dedicated platform meant to set up dynamic generation of reports ( <i>example: JasperReport</i> ).
CF 11.03.	M	IS „REHR“ should provide to REC and MIA decision-makers a predefined number of documents/reports which may be configurable and upon request, so as to ensure the production of ad-hoc reports, if needed.
CF 11.04.	M	<p>IS „REHR“ will provide a set of documents to be generated based on data stored in the database of the information system, as follows:</p> <ul style="list-style-type: none"> <li>• application for participation in the contest;</li> <li>• agreement of the Candidate/MIA Employee with conditions for carrying out the evaluation, and admissibility of processing personal data;</li> <li>• file of the evaluation test for human resource professional skills;</li> <li>• file of the psychological evaluation test for human resource;</li> <li>• file of human resource's medical evaluation;</li> <li>• file of human resource's sport skills evaluation;</li> <li>• evaluation report/endorsement by the REC Specialist for human resource;</li> <li>• receipt of receiving the application of participation in the contest;</li> <li>• own responsibility declaration;</li> <li>• criminal record;</li> <li>• integrity record;</li> <li>• administrative offence record;</li> <li>• announcement for announcing the contest;</li> <li>• plan for recruiting human resources;</li> <li>• plan for human resources' evaluation;</li> <li>• system notification;</li> <li>• other relevant documents.</li> </ul>
CF 11.05.	M	IS „REHR“ will have predefined (editable) templates for every type of generated document necessary for the eventual update of generation rules.
CF 11.06.	D	IS „REHR“ will allow drafting documents in electronic format, in relation to the process of human resources' recruitment and evaluation in electronic format, applying the digital signature of REC or MIA.
CF 11.07.	M	Developer will implement up to 25 documents to be generated by the IS „REHR“, including the ones mentioned in CF 11.04. The complete list of documents will be identified during business analysis.
CF 11.08.	M	<p>IS „REHR“ will provide a set of reports to be generated based on the data stored in the database of the information system, as follows:</p> <ul style="list-style-type: none"> <li>• Performance report of the IS „REHR“ (statistical data regarding the current content of IS „REHR“) with different principles of aggregation (according to the MIA subdivision, according to human resource profile, according to types of performed evaluations, according the evaluation results etc.);</li> <li>• The performance report of the authorized user, containing statistical data and details regarding newly-opened evaluation cases, under operation cases and closed cases for a determined period of time with a different level of aggregation;</li> </ul>

Identifier	Binding nature	Description of functional requirement
		<ul style="list-style-type: none"> <li>• The human resource personal file (a synthesis of data from all business events' forms of the evaluation case file, profile data and system logs);</li> <li>• Form of evaluation case file (a synthesis of data from all business events' forms of the evaluation case file);</li> <li>• Report on evaluation cases (according to subdivisions, according to time periods, according to type of evaluation, according to evaluation result);</li> <li>• Evaluation tally sheet;</li> <li>• Evaluation report/endorsement;</li> <li>• Extract from the Evaluation Register;</li> <li>• Extract from human resource evaluation agenda;</li> <li>• Performance indicators;</li> <li>• Other relevant reports.</li> </ul>
CF 11.09.	M	IS „REHR” will have a mechanism for defining the set of reports and data available for every category of users, depending on their roles and rights.
CF 11.10.	M	A user viewing a report in the system, should be able to export it to an external editable file (XLS/XLSX și DOCX).
CF 11.11.	M	Implicitly, the reports will be extracted in PDF format.
CF 11.12.	M	The developer should implement up to 25 categories of predefined reports requested by the beneficiary, including the ones specified in CF 11.08.
CF 11.13.	M	IS „REHR” will log all the events for generating and printing out reports and documents.

### 5.13.CU12: Approve/reject projects

The functional requirements of the component meant for REC decision-making roles to approve or reject the electronic forms concluded through the IS „REHR” are provided in table 5.12.

**Table 5.12. Functional requirements for use case CU12**

Identifier	Binding nature	Description of functional requirement
CF 12.01.	M	IS „REHR” will provide the authorized stakeholders (REC decision-makers) a mechanism to approve or reject the drafts concluded by REC Specialists which need approval before being saved or processed.
CF 12.02.	M	Preventively, the following draft documents (electronic forms concluded by REC Specialists) shall be approved by decision-making roles in IS „REHR”: <ul style="list-style-type: none"> <li>• human resources' evaluation agenda;</li> <li>• new/modified test to be launched in production;</li> <li>• test to be extracted from production;</li> <li>• human resource evaluation reports.</li> </ul>
CF 12.03.	M	The complete list of electronic forms needing approvals from the decision-making roles will be identified in the business analysis process.
CF 12.04.	M	Approval or rejection implies providing a grade, selecting a status (approved or rejected), its conformation and applying the electronic signature by the user with decision-making role.



Identifier	Binding nature	Description of functional requirement
CF 12.05.	M	Access to the functionality for approving/rejecting the draft will be possible if the user with REC decision-making role also has empowerment (verification is done through MPower).
CF 12.06.	M	IS „REHR“ will use the MSign governmental service for applying the electronic signature for approving/rejecting the electronic form.
CF 12.07.	M	If the electronic form is approved, the IS „REHR“ will notify all relevant users regarding the approval/rejection event.
CF 12.08.	M	If the electronic form is rejected, the work flow will switch automatically to the previous stage (will return to concluding the form of the user who has sent it for approval) and will notify all the relevant users.
CF 12.09.	M	When a form is sent for approval, it can be modified only by the decision-maker who has to approve it, by repeated application of the electronic signature.
CF 12.10.	M	IS „REHR“ will log all the events for approving/rejecting the draft electronic forms.

#### 5.14. CU13: Generate statistics and system reports

The functional requirements for the component of extracting reports for the purpose of IT audit of the IS „REHR“ are provided in table 5.13.

**Table 5.4. Functional requirement for use case CU13**

Identifier	Binding nature	Description of functional requirement
CF 13.01.	M	IS „REHR“ should provide a number of management, statistical, and ad-hoc reports for the administrative roles to have the possibility to monitor the activity and the status of the system.
CF 13.02.	I	The reports managed through CU13 are meant for IT audit functions and do not include reports related to business event related to human resources' evaluation cases.
CF 13.03.	M	This reporting is necessary within the entire system, including: <ul style="list-style-type: none"> <li>• nomenclatures and classifiers;</li> <li>• database entries;</li> <li>• user's activity;</li> <li>• access and security permissions.</li> </ul>
CF 13.04.	M	Reports will be generated based on the following categories of logged events: <ul style="list-style-type: none"> <li>• successful login of users;</li> <li>• unsuccessful login of users;</li> <li>• sent notifications;</li> <li>• actions on data (accessing, adding, modifying, eliminating).</li> </ul>
CF 13.05.	M	IS „REHR“ will allow extracting reports in an aggregate way or detailing them per specific user, central or territorial subdivision of MIA or some groups of users.
CF 13.06.	M	A user who views a report within the system, should be able to export it in PDF format or external editable file (XLS/XLSX, CSV, DOC/DOCX).



Identifier	Binding nature	Description of functional requirement
CF 13.07.	M	The developer will implement up to 10 predefined reports got IT audit, requested by MIA. The audit reports that may be generated through system means will not be implemented in the user interface of the IS „REHR“.
CF 13.08.	D	To extract reports and statistics from the system, which are relevant for UC16, it is welcome to use platform dedicated to setting up and generating reports.

### 5.15. CU14: Manage users, roles, rights

The functional requirements of the component related to managing users and setting up access to user interface and database content of the IS „REHR“ are provided in table 5.14.

**Table 5.5. Functional requirements for use case CU14**

Identifier	Binding nature	Description of functional requirement
CF 14.01.	M	IS „REHR“ will have a mechanism to define and manage dynamically the users, their roles and rights.
CF 14.02.	M	IS „REHR“ will include a default category of users created by the developer and the credentials will be provided upon delivery for the category of <b>super-administrator</b> .
CF 14.03.	M	IS „REHR“ will allow blocking/unblocking the user's access.
CF 14.04.	M	IS „REHR“ will provide its own solution for login through the mechanism of user_name+password, LDAP, authentication in 2 levels (2FA) and will use alternatively the MPass governmental service for authentication of users through electronic or mobile signature.
CF 14.05.	M	IS „REHR“ will allow specifying the modality for user to get connected to the system (electronic/mobile signature, user name + password, IP address or a combination of these).
CF 14.06.	M	The following categories of data will be able to be managed within users' profiles: <ul style="list-style-type: none"> <li>• user name;</li> <li>• user surname;</li> <li>• email of contact;</li> <li>• telephone of contact;</li> <li>• access login;</li> <li>• access password;</li> <li>• authentication strategy (user + password, electronic signature /mobile signature, authentication in 2 levels (2FA), LDAP etc.);</li> <li>• activated/inactivated account;</li> <li>• access validity period;</li> <li>• users' roles;</li> <li>• users whom I temporarily replace;</li> <li>• users who temporarily replace me;</li> <li>• other relevant data.</li> </ul>
CF 14.07.	M	IS „REHR“ will provide a mechanism to define the users' rights to access data depending in the categories or types of concluded electronic forms

Identifier	Binding nature	Description of functional requirement
		and human resources' evaluation cases in which the authorized user is involved.
CF 14.08.	M	A profile of authorized user may be deleted physically from the IS „REHR“ only if there are no logged events or entries related to it.
CF 14.09.	M	The mechanism of managing users' rights and roles will allow formulating the principles of access to the components of the user interface and the information content of the information system for every user, separately, or group of users.
CF 14.10.	M	IS „REHR“ will provide user interface and information content only based on the rights and roles held by users.
CF 14.11.	M	The information system will allow setting up an unlimited number of roles.
CF 14.12.	M	One role is defined through generic name, brief description and active/inactive status. Inactivated roles will not be displayed when setting up the access rights to the application resource or users' rights.
CF 14.13.	M	After being introduced and activated, the role will be available to be used in the modules for users' management (attributing users' roles) and components' management in IS „REHR“ (attributing roles that have access to components of user's interface and setting up their access modalities).
CF 14.14.	M	It will not be possible to delete a role, if it is attributed at least to one user or to one component of the user interface of IS „REHR“.
CF 14.15.	M	IS „REHR“ will provide a mechanism for registering the components of user interface (resources) for the purpose of ensuring a mechanism to define users' access rights to user interface.  A component means any modular entity of the application (form, menu, menu option, field, etc.), whose detail level is enough to set up the access rights, transition of workflows or actions accessible to users.
CF 14.16.	M	IS „REHR“ will allow setting up the hierarchy of user interface components, having at the root level the basic modules of the application, and the subordinated levels will not be limited in depth, with the hierarchy determined by their architecture.
CF 14.17.	M	Any component of the user interface in IS „REHR“ will contain data regarding the generic name, brief description, actions available to users (business events they can generate), roles that have access to the user interface or actions that may be undertaken.
CF 14.18.	M	Any component of the user interface in IS „REHR“ will contain data regarding the status through which the data pass when managed through the component, transitions for going through the component status (setting up workflows).
CF 14.19.	M	IS „REHR“ will allow defining permissions related to actions a (business events) available to users with access to user interface components. The following categories of actions available to users will be set up: <ul style="list-style-type: none"> <li>• viewing the entry;</li> <li>• adding an entry;</li> <li>• changing an entry;</li> <li>• deleting an entry;</li> <li>• workflow transition;</li> <li>• other relevant actions.</li> </ul>
CF 14.20.	M	IS „REHR“ will allow setting up the log strategy for business events generated by each component of user interface.

### 5.16. CU15: Configure flows and document templates /reports

The functional requirements of the component for setting up workflows, electronic forms meant to insert data and templates of documents, which will be populated with data and generated in the IS „REHR“ are provided in table 5.15.

**Table 5.6. Functional requirements for use case CU15**

Identifier	Binding nature	Description of functional requirement
CF 15.01.	M	IS „REHR“ will have a mechanism to manage program resources (modules, electronic forms, menu options, buttons, etc.) to set up workflows and define processing rules for all scenarios related to processes of concluding and processing electronic forms related to human resources' evaluation cases.
CF 15.02.	M	It should be possible to manage the workflows using the graphic interface of the information system in which the user works in a usual way.
CF 15.03.	M	The workflows will be defined by specifying the statuses through which an electronic file can pass through and the processing steps (development stages or transitions of the workflow which may be carried out in a specific status of the form) carried out by users with specific roles.
CF 15.04.	M	A workflow will be implemented as a collection of activities through which would pass an electronic form concluded within business processes which are carried out sequentially.
CF 15.05.	M	The number of steps that may be include in a flow should not be limited. In this way, the computing solution will be adjustable to the changes in the working methodology with the documents processed within the human resource evaluation case file's procedures.
CF 15.06.	M	A workflow should be able to have an associated coordinator (supervisor). The coordinator should be able to receive warning messages (notifications) generated by the respecting flow rolling. The user who launches a processing form for a workflow should be able to specify who the flow supervisor is.
CF 15.07.	M	The developer will set up the processing flows of the electronic forms meant for concluding all the business events related to human resources' evaluation cases.
CF 15.08.	M	IS „REHR“ will provide mechanisms for configuring the document templates (and reports) related to the generated documents, based on the completed electronic forms (the templates will have a well-defined structure that will allow changing the appearance and content of the extracted document).
CF 15.09.	M	Document templates are welcome to be configured through a reporting and configuration platform (Example: JasperReports).
CF 15.10.	D	All the templates of documents set up through CF 15.09 - CF 15.10 will be used when generating documents through CU11.
CF 15.11.	M	Upon the request of the Beneficiary, the developer will set up to 20 templates of documents to be generated by the IS „REHR“.

### 5.17. CU16: Manage metadata

The functional requirements necessary for managing the metadata of the IS „REHR“ are included in table 5.16.

**Table 5.16. Functional requirements for use case CU16**

Identifier	Binding nature	Description of functional requirement
CF 16.01.	M	IS „REHR” will have a mechanism for managing the nomenclatures, classifiers which contain the totality of metadata meant for setting up the system and managing the processes for registering human resources events.
CF 16.02.	M	The classifiers relevant for the REC activity manager by the MIA will be taken integrally over through the information systems with which the IS „REHR” will get integrated, as well as the classifiers/nomenclatures specific for human resources’ recruitment/evaluation processes. As well, if needed, the official classifiers of the Republic of Moldova will be taken over (e.g. CUATM) and the metadata which are necessary for getting integrated with the information systems of the PA from the Republic of Moldova.
CF 16.03.	M	For official classifiers, as well as those provided by third information systems with which there will be mutual exchange of data with the IS „REHR”- the rights for performing changes will be limited.
CF 16.04.	M	For the systems of internal nomenclatures and metadata, the IS „REHR” will provide a mechanism to define and dynamically manage them (it should be possible to add dynamically categories of nomenclatures / classifiers and their content.
CF 16.05.	M	IS „REHR” will not allow eliminating a category of metadata, if it is used at least in one entry of the database.
CF 16.06.	M	IS „REHR” will provide a mechanism for having versions for the metadata values and establishing the time interval related to validity of metadata values.
CF 16.07.	M	The developer will ensure the update of the classifiers in automated regime, if such facilities are provided by the information systems with which the IS „REHR” is getting integrated ( <i>example: State Register of Population</i> ).
CF 16.08.	M	IS „REHR” will allow setting up linear and hierarchical classifiers (in which some values may have parent categories).
CF 16.09.	M	IS „REHR” will provide a mechanism to export and import classifiers from the user interface in XML or CSV format. The import and export rights will be attributed to users with the role of System Administrator.
CF 16.10.	M	IS „REHR” will provide a mechanism from the user interface with the role of System Administrator to set up variables of general configuration of the system ( <i>example: validity test, periodicity of testing MIA employees depending on held position, etc.</i> )

### 5.18. CU17: Other administration activities

The functional requirements regarding other categories of activities to manage the IS „REHR” are provided in table 5.17.

**Table 5.17. Functional requirements for case use CU17**

Identifier	Binding nature	Description of functional requirement
CF 17.01.	M	IS „REHR” should allow administrative roles to take over, display and reconfigure the operational parameters and the general system settings.

Identifier	Binding nature	Description of functional requirement
CF 17.02.	M	IS „REHR“ will allow the users with System Administrator role to set up access to APIs provided by external information systems with which IS „REHR“ interacts.
CF 17.03.	M	System Administrator will have a specialized interface to access and analyze systems logs of the IS „REHR“.
CF 17.04.	M	IS „REHR“ will provide an interface meant to monitor the current functioning of the information system and analyze the loading level or identify the possible operational problems.
CF 17.05.	M	System Administrator will be able to generate, upon request, backup copies of the IS „REHR“ and to establish the functionality of the information system based on the backup copies generated manually or automatically.
CF 17.06.	M	IS „REHR“ will provide the functionality of archiving and excluding historical data to be deleted according to the legislation in force.
CF 17.07.	M	IS „REHR“ will provide the System Administrator with all functional facilities necessary to ensure the functionality of the information solution in good conditions.

### 5.19. CU18: Execute automated procedures

The functional requirements of the mechanism for executing the automated tasks necessary for operation of the IS „RAHR“ are described in table 5.18.

**Table 5.18. Functional requirements for the use case CU18**

Identifier	Binding nature	Description of functional requirement
CF 18.01.	M	IS „REHR“ will have a component of executing automated procedures (jobs) launched with a certain periodicity and at a certain point in time.
CF 18.02.	D	IS „REHR“ will have the functionality of setting up the automated procedures (performed action, periodicity and the moment of launching the automated procedure etc.).
CF 18.03.	M	IS „REHR“ will provide the mechanism for automated generation of backup copies (according to some pre-established rules) based on which it will be possible to re-establish the functionality of the information system if any security incidents occur.
CF 18.04.	M	IS „REHR“ will provide the mechanism for archiving old data, which are useless for current business processes of the REC and removing them from the production platform.
CF 18.05.	M	IS „REHR“ will initiate automatically human resources evaluation case files (in „Draft“ status) based on the human resources' recruitment and evaluation plans concluded through CU08.
CF 18.06.	I	A recruitment/evaluation case will represent a file with general profile data (valid as of the date the file is initiated) and the totality of electronic forms which are to be performed during the recruitment/evaluation process.
CF 18.07.	M	IS „REHR“ will automatically trigger, if necessary, the procedures of mutual data exchange with external information systems defined through CU22.
CF 18.08.	M	IS „REHR“ will delete automatically the electronic forms in „Draft“ status, which have exceeded the deadline of being in this status set up through CU15.

Identifier	Binding nature	Description of functional requirement
CF 18.09.	M	IS „REHR“ will be able to perform periodically and in a planned manner (in hours of minimum demand for the IS „REHR“) the preliminary calculation of the indicators which are necessary to generate in useful time complex statistical reports.
CF 18.10.	M	IS „REHR“ will publish periodically within the Data Portal public reports and KPI produced during the implemented business processes.
CF 18.12.	M	IS „REHR“ will identify automatically the MIA employees to be re-evaluated (whose validity period of the previous evaluation specific for held position has expired) and will generate for the Human Resources Specialists of the MIA subdivisions draft plans for evaluating MIA employees.

## 5.20. CU19: Generate forms for evaluation

The functional requirements of the component on generating electronic forms meant to test Candidates/MIA Employees are provided in table 5.19.

**Table 5.19. Functional requirements of the use case CU19**

Identifier	Binding nature	Description of functional requirement
CF 19.01.	M	IS „REHR“ will provide the functionality to generate electronic forms for evaluation of the Candidate/Employee of MIA based on the profile data of the Candidate/Employee of MIA, recruitment and evaluation plan for MIA employees (concluded through CU08) and evaluation agenda (concluded through CU03) and parameters for setting the evaluation test (concluded through CU04).
CF 19.02.	M	IS „REHR“ will generate all categories of electronic evaluation forms specific for the evaluation case: <ul style="list-style-type: none"> <li>• forms meant for professional skills' evaluation;</li> <li>• forms meant for psychological evaluation;</li> <li>• forms meant for medical evaluation;</li> <li>• forms meant for sport evaluation;</li> <li>• forms meant for concluding REC Specialists' endorsements.</li> </ul>
CF 19.03.	M	The electronic forms meant for the evaluation case of the Candidate/MIA Employee will be generated upon approval by the REC decision-maker of the evaluation agenda concluded by the REC Specialist
CF 19.04.	M	The electronic evaluation forms to be filled in directly by the Candidate/MIA Employee will be generated personalized for every evaluation case separately. Personalization of data implies that the evaluation test for every Candidate/MIA Employee will be generated based on the following principles: <ul style="list-style-type: none"> <li>• order for displaying the questions will be random for every generated test;</li> <li>• order for displaying the answer alternatives will be random;</li> <li>• IS „REHR“ could use only a part of the battery of tests for the generated testing form (the battery of tests could be sufficiently big to be able to generate randomly forms of personalized tests for every Candidate/MIA Employee).</li> </ul>
CF 19.05.	M	Electronic forms to be filled in by the Candidate/MIA Employee (meant to evaluate professional skills or for psychological evaluation) will be

Identifier	Binding nature	Description of functional requirement
		accessible in the user interface only since the moment which is planned for stating the evaluation (defined in the evaluation agenda).
CF 19.06.	M	All the generated electronic forms will have an attached structure document (e.g. in XML or JSON format) which support the application of electronic signature and allows automated processing of contained data (the content of forms should be stored in attached structured documents).

### 5.21. CU20: Log events

The functional requirements of logging the business events produced during the operation of the *IS „REHR“* are provided in table 5.20.

**Table 5.7. Functional requirements of the use case CU20**

Identifier	Binding nature	Description of functional requirement
CF 20.01.	M	IS „REHR“ will contain a mechanism to log all the business events related to its use.
CF 20.02.	M	<i>System Administrator</i> will be able to set the totality of log strategies related to the business events through the use case <i>CU14</i> .
CF 20.03.	M	<i>SI „REHR“</i> will provide to System Administrators a mechanism to search, filter and view the details of logged events
CF 20.04.	M	The following categories of events will be logged: <ul style="list-style-type: none"> <li>• user login;</li> <li>• user logout;</li> <li>• adding/changing/removing/accessing the entry;</li> <li>• business events specific to workflows of the <i>IS „REHR“</i>;</li> <li>• synchronization with external information systems;</li> <li>• generating/accessing report;</li> <li>• queries to database;</li> <li>• other specific business events.</li> </ul>
CF 20.05.	M	The logged events will save the following categories of data (depending on the nature of logged events): <ul style="list-style-type: none"> <li>• identifier of the user who has generated the event;</li> <li>• category of the logged event;</li> <li>• moment of logging the event;</li> <li>• module of <i>IS „REHR“</i> which has generated the business event;</li> <li>• entry related to the business event;</li> <li>• action performed by the user.</li> </ul>
CF 25.06.	M	IS „REHR“ will log exhaustively all the produced business events.
CF 25.07.	M	IS „REHR“ will log in parallel the critical business events through the logging governmental service MLog.
CF 25.08.	M	IS „REHR“ will provide the functionality of defining the critical business events to be logged in parallel through the MLog government service.



## 5.22. CU21: Send notifications

The functional requirements of the component related to notifying the stakeholders of the IS „REHR“ are provided in table 5.21.

**Table 5.8. Functional requirements for the use case CU21**

Identifier	Binding nature	Description of functional requirement
CF 21.01.	M	Depending on the user (the data for setting its profile), the functionality for notifying the users will apply one of the 3 notification strategies: <ul style="list-style-type: none"><li>• notification via Email;</li><li>• notification via Dashboard of the authorized user;</li><li>• both categories from above.</li></ul>
CF 21.02.	M	Depending on the configurations of the resources in the IS „REHR“, the functional component for notification will send notifications to the relevant users upon occurrence of a business event specific for the program resource.
CF 21.03.	M	Notification will contain reference of accessing the resource/form relevant to the business event which has generated the notification (valid for notifications stored in the user's Dashboard).
CF 21.04.	M	Authorized users (regardless of the roles that they have) will be able to set up the preferences of the notification means.
CF 21.05.	M	All the categories of Authorized Users will receive notifications regarding the business events related to their duties (the need to approve the form, reception of the MIA employees' evaluation plan, reception of the filled in evaluation form, etc.).
CF 21.06.	M	<i>The System Administrator</i> will have the functionality of concluding and sending notifications to explicit users or groups of users.
CF 21.07.	M	The Candidates of MIA Employees will receive notifications to the email address specified in their profile in the IS „REHR“ in case of some business events related to their cases of evaluation or of notifications concluded by the <i>System Administrator</i> and sent to their address. Also, these categories of users can benefit from other notification strategies implemented within the MNotify government service.
CF 21.08.	M	IS „REHR“ will notify the System Administrator about any problems related to the performance and availability of the information system.
CF 21.09.	M	IS „REHR“ will notify the external users through the governmental system of notification MNotify.

## 5.23. CU22: Exchange data with information systems

The functional requirements of the procedures for synchronizing the data processed by the IS „REHR“ with the databases of external information systems are provided in table 5.22.

**Table 5.9. Functional requirements for use case CU22**

Identifier	Binding nature	Description of functional requirement
CF 22.01.	M	IS „REHR“ will interact with external information systems to receive/supply data through APIs exposed by them (in case of nongovernmental information systems) and the interoperability governmental service MConnect (in case of information systems of PA).



Identifier	Binding nature	Description of functional requirement
CF 22.02.	M	The interactions among MIA internal information systems in case when the data supply/reception services are not requested by the information systems of other PA from the Republic of Moldova will be implemented through micro-services.
CF 22.03.	M	IS „REHR” will have a mechanism meant for mutual exchange of data between the public interface and the BackEnd component so as to provide electronic services through the public interface of IS „REHR” and to send to the public interface the recruitment announcements and public reports.
CF 22.04.	M	IS „REHR” will get integrated with the RCFI so as to extract criminal record of the Candidate/MIA Employee (form F-246).
CF 22.05.	M	IS „REHR” will get integrated with the IS „Collaborator” to exchange mutually the data related to the profile of the Candidate/MIA Employee. In case if the interaction is not possible, IS „REHR” will have the functionality to import data based on a standard file extracted from IS "Collaborator".
CF 22.06.	M	IS „REHR” will get integrated with the psychological evaluation platform Cognitrom Assessment System to send the necessary data for human recourse psychological evaluation through this platform and to receive the detailed results of the evaluation. In the case the interaction will not be possible IS the IS „REHR” will implement an import / export mechanism based on standardized files.
CF 22.07.	M	IS „REHR” will get integrated through the interoperability governmental service MConnect with the State Register of Population to receive specific metadata, data about persons’ identity, held identity documents, specific biometrical data, photos and specimen of handwritten signature in the process of managing the profiles of Candidates/MIA Employees.
CF 22.08.	M	IS „REHR” will get integrated through the interoperability governmental service MConnect with the IS „PAPIR” to send request for getting integrity records and to receive the integrity records of the Candidates.
CF 22.09.	M	IS „REHR” will get integrated with the governmental service MPass for the purpose of implementing the user authentication procedures through the electronic signature and mobile signature.
CF 22.10.	M	IS „REHR” will get integrated with the governmental service MSign to implement the procedure of electronic signature of electronic forms/documents.
CF 22.11.	M	IS „REHR” will get integrated with the governmental service MLog to log critical business events.
CF 23.12.	M	IS „REHR” will get integrated with the governmental service MNotify to implement the mechanism of users’ notification.
CF 22.13.	M	IS „REHR” will get integrated with the governmental service MPower to verify the empowerments of authorized users.
CF 22.14.	M	IS „REHR” will get integrated with the Open Data Portal to publish public statistical data produced in the implemented workflows.
CF 22.15.	M	All synchronization events and in particular access to personal data through the procedures described by the functional requirements CF 23.03 - CF 23.14 will be logged through the internal logging mechanism of IS „REHR” and the MLog governmental service.

## 6. Nonfunctional requirements of the information system

This compartment of the Terms of Reference sets forth the requirements regarding the nonfunctional characteristics that should be held by the IS „REHR”. The computing solution which is the object of the respective procurement should meet the set nonfunctional requirements mentioned below.

### 6.1. Conventions on formulation of nonfunctional requirements

The nonfunctional requirements set forth in this document are marked using the following conventions:

- all requirements are indexed with two values **X.Y**, where **X** represents the category of requirements described in table 6.1 and **Y** is the single identifier of the requirement in the category of which it is a part.
- there is a binding level for every requirement: **M** – mandatory requirement to be implemented, **D** – desirable requirement to be implemented, optional, and **I** – requirement of informational nature.

**Table 6.1. Categories of requirements in technical specifications**

	Meaning	Interpretation
DEL	Deliverable requirement	Requirement refers to deliverables to be submitted by the developer of the IS „REHR”.
DOC	Document requirement	Requirement refers to the IS „REHR” related documentation to be delivered by the Provider.
GEN	General requirement	General requirements of IS „REHR” implementation.
GMS	Guarantee, maintenance and post-implementation support requirement	Requirement refers to characteristics of the services for operational maintenance and post-implementation development of the IS „REHR”, requested within the procurement.
INT	Interoperability requirement	Requirement refers to the interoperability framework of the IS „REHR”.
LIPR	Licensing and intellectual property requirements	Requirements refer to intellectual property rights related to the IS „REHR” and soft components necessary for the operation of the SI „REHR”.
PERF	Performance requirement	Requirement refers to operation performance of the IS „REHR”.
SEC	Security requirement	Requirement refers to aspects of ensuring information security to be met by the IS „REHR”.
SHC	Platform requirement	Requirements for the software platform, hardware and communication channels necessary for the operation of the IS „REHR”.
SR	Scalability requirement	Requirement refers to the scalability properties of the IS „REHR” to increase the number of users, transactions or volume of processed data.

The proposal submitted by the *Provider* should meet on binding basis all the requirements indicated as mandatory.

The bidders' proposals will obtain competitive advantage for every optional requirement assumed by the *Provider*.

The informative requirements are meant to provide more information, for a better understanding of the context of other requirements.

### 6.2. General requirements of the computer system

The general system requirements are defined by the policies and strategies developed and adopted in the Republic of Moldova. It is important to mention that these acts are based on good industry practices and include

many organizational measures but also a series of technical measures. The general system requirements specific to IS „REHR” are set out in Table 6.2.

**Table 6.2. Categories of specification requirements**

ID	Binding nature	Requirement
GEN 001	M	IS „REHR” must be developed based on the Agile methodology.
GEN 002	M	All user interfaces and the content of the database will be configured in Romanian language, with the use of Romanian diacritics.
GEN 003	D	The information system must be able to configure the Russian version of the user interface.
GEN 004	M	IS „REHR” database data is to be stored in unicode format (example: using UTF-8).
GEN 005	M	User interface elements must comply with Level A with the requirements of Web Content Accessibility Guidelines (WCAG) 2.0.
GEN 006	M	The user interface for authorized users of IS „REHR” will be optimized to 1360x768 resolution by avoiding the appearance of scroll bars for user interfaces presented by the IT solution.
GEN 007	M	IS „REHR” will provide adaptive user interface (will deliver responsive interface) depending on the device used by it (notebook, netbook, desktop computer, smartphone, tablet, etc.) optimized for touch screens.
GEN 008	M	Data search procedures will be implemented through simple searches (specifying search strings) or more complex searches, through which more accurate filtering of information can be performed (QBE forms). Regardless of the nature of the information sought, the user will use the same method of querying and retrieving data for any compartment of the user interface of the IT product.
GEN 009	M	The user interface of the computer system must ensure the search, filtering and viewing of records that correspond to the search criteria presented to users according to their access rights.
GEN 010	M	The contents of any search results table must be able to be exported in either XLS, CSV and PDF format.
GEN 011	M	The IS „REHR” architecture will be designed in an integrated way, developed with the application of the best practices in the field (example: architectural principles and reference architectures aligned TOGAF 9.1).
GEN 012	M	The IS „REHR” architecture must have a high level of resistance to falls, not contain single points of fall (SPOF).
GEN 013	M	The IS „REHR” architecture must ensure the rational and balanced use of processing resources.
GEN 014	M	The IS „REHR” will be developed based on a multilevel SOA architecture (at least 3 architectural levels (example: presentation level, business logic level and data level).
GEN 015	M	The IS „REHR” must provide web interfaces for interaction with computer systems of the MIA and other public authorities of the Republic of Moldova through microservices and MCloud.
GEN 016	M	The IS „REHR” will be optimized in the minimum data transfer between the client and server computer, focusing on avoiding unnecessary requests as much as possible, implementing AJAX with JSON, minimizing the server resources required for authentication, authorization and logging procedures.
GEN 017	M	The potentially variable information (example: different parameters, data storage paths, connection paths with external services, classifiers, etc.) will be

ID	Binding nature	Requirement
		configurable and will NOT require the recompilation of the solution or direct interventions in the database.

### 6.3. Performance requirements

IS „REHR“ should have the capacity to process in useful time the transactions performed by the users of the information system, according to the volumetric analysis of the results from the activity of the Recruitment and Evaluation Center of MIA and its territorial services. Table 6.3 provides the performance requirements to be met by the IS „REHR“.

**Table 6.2. Performance requirements of the information system**

ID	Binding nature	Requirement
PERF 001	M	The response time to a transactional query of the externa user/service should not exceed 3 seconds (it does not refer to generation of reports).
PERF 002	M	IS „REHR“ should be able to manage up to 300 concurrent sessions (connections of authorized users and external systems) with the possibility of scalability up to 1000 concurrent sessions during the extension of the information system.
PERF 003	M	The Provider will include in the guideline for administration and operation of the IS „REHR“ information regarding the processes that may decrease the performance of the IS „REHR“ and its recommendations regarding the concurrent carrying out of these processes (example: it is not recommended to roll out the process X of generating daily reports, simultaneously with the process Y of generating the backup copies).
PERF 004	M	Generation of reports and accessing information for the purpose of business analyses should not influence the operational performance of the information system at the level of transactions' processing. In the documentation of the information system, there will be identified the reports with significant impact on performance and Provider will formulate recommendations for generation of the respective reports, so as not to influence the performance indicators of the IS „REHR“.
PERF 005	M	The Provider will indicate in its bid the minimum values guaranteed for performance characteristics of the IS „REHR“, referring to the recommended technological platform.
PERF 006	M	IS „REHR“ should have the capacity to process at least 5 000 transactions per day.

During the use of IS „REHR“, it is possible that the number of processed transactions and competing users will increase or decrease significantly from one period to another. In order to have a rational use of processing resources, the information system must be easily scalable (up and down). Table 6.4 contains requirements on the scalability characteristics related to IS „REHR“.

**Table 6.4. Information system scalability requirements**

ID	Binding nature	Requirement
SR 001	M	IS „REHR“ will allow the processing capacity to be increased without interrupting its operation. To this end, the system will support the horizontal expansion of processing capacity (example: adding new server nodes and balancing the load).

ID	Binding nature	Requirement
SR 002	D	IS „REHR“ can be configured for automatic scaling of key components (lag sensitive). The scaling of the system will be done both up and down.
SR 003	M	IS „REHR“ must be able to serve an unlimited number of transactions, with the condition that the appropriate allocation of data processing and storage resources is provided. Resources will be allocated horizontally (allocation of new servers, without increasing performance on existing servers).

#### 6.4. Software, hardware and communication channel requirements

Table 6.5 contains the software, hardware and communication technology insurance requirements for the implementation of IS "REHR".

**Table 6.5. Categories of specification requirements**

ID	Binding nature	Requirement
SHC 001	M	IS "REHR" must be able to be installed on both dedicated servers and virtualization solutions (IS "REHR" must be in accordance with the requirements for the deployment of information systems on the common government technology governmental service MCloud).
SHC 002	M	It is necessary to demonstrate the virtualization capability by delivering to MIA an image of the system that can be uploaded and becomes functional with minimal configurations on one of the existing virtualization solutions available on the market.
SHC 003	M	The provider will demonstrate the possibility of installing and operating IS "REHR" within the MCloud infrastructure.
SHC 004	M	IS "REHR" must be accessible on communication channels of at least 512Kbps.
SHC 005	D	For the development and operation of IS "REHR" it is welcome to use portable FOSS (free open source software) platforms on UNIX and WINDOWS operating systems.
SHC 006	M	The Provider will explicitly indicate in the offer the software platform on the basis of which IS "REHR" is to be developed and the software platform necessary for its operation.
SHC 007	M	The technologies proposed by the Provider must be accessible for at least 3 companies specialized in the development of software solutions operating on the local market of the Republic of Moldova.
SHC 008	M	If the software platform for the development and operation of IS "REHR" is based on commercial IT solutions that require licensing, the Provider will include in the price offer the cost of all licenses necessary for the development and operation of IS "REHR" (the Provider must purchase on behalf of MIA all the licenses necessary for the development and operation of the IT system).
SHC 009	M	If the software platform for the development and operation of IS "REHR" is based on commercial IT solutions that require licensing, the Provider will include in the price offer the delta of licensing costs in case of: <ul style="list-style-type: none"> <li>• doubling the number of users;</li> <li>• doubling the number of processing units (CPU or CPU cores);</li> <li>• doubling the number of application server nodes/ database.</li> </ul>
SHC 010	M	IS "REHR" will use open standards for formats and communication protocols.

ID	Binding nature	Requirement
SHC 011	M	The services exposed to the public by IS "REHR" will be technologically neutral (Operating System, Internet explorer, etc.).
SHC 012	M	The recommended generic program product for operation and interaction with IS "REHR" is the WEB explorer.
SHC 013	M	The system will be compatible with at least 2 of the latest versions of the following web browsers: MS Internet Explorer / MS Edge, Mozilla Firefox, Google Chrome, Safari and Opera.
SHC 014	M	Compatibility with MS Internet Explorer / MS Edge WEB Explorer is compulsory.
SHC 015	D	IS "REHR" will incorporate a Heart-beat service that will periodically communicate the normal working state of the system.
SHC 016	M	IS "REHR" will include configurable means of technical logging.
SHC 017	M	The system must be able to produce at least the following levels of technical logging: info; warning; critical; error.
SHC 018	M	The Provider will enumerate the means that will be used for the technical troubleshooting of the system.
SHC 019	M	The Provider will prepare means to facilitate the administration of the system: <ul style="list-style-type: none"> <li>starting of the system components;</li> <li>stopping of the system components;</li> <li>restarting the system components;</li> <li>creating the database backup copy;</li> <li>restore the data from the indicated backup copy;</li> <li>refreshing the operational memory of the system.</li> </ul>
SHC 020	M	IS "REHR" will operate in TCP / IP networks and especially HTTPS.
SHC 021	M	Communication between all IS "REHR" components will be secured, using the internal interfaces of the system components for this purpose.
SHC 022	M	The Provider will suggest other network services and utilities required to operate the system.

### 6.5. Licensing and intellectual property requirements

MIA will hold all the necessary rights for using for undetermined period of time the information system IS „REHR” and of all soft components necessary for the good functioning of the IS „REHR”.

Table 6.6. contains the specification of requirements related to licensing and intellectual property rights related to the IS „REHR” and soft components necessary for the system operation.

**Table 6.6. Requirements for licensing and intellectual property**

ID	Binding nature	Requirement
LIPR 001	I	MIA ensures the following operation environments for the IS „REHR”: <ul style="list-style-type: none"> <li>Production environment;</li> <li>Testing/training environment;</li> <li>Development environment.</li> </ul>



ID	Binding nature	Requirement
LIPR 002	M	<i>The Provider</i> will include in its financial offer the licenses for all soft products of COTS type, which are necessary for implementation and use of the <i>IS „REHR”</i> in those three environments provided to MIA. The following are included here: operation systems, database management systems, software libraries, utilities and other system soft.
LIPR 003	M	The quantity of provided licenses should allow accessing and using <i>IS „REHR”</i> (in any environment in which it operates) of at least 20000 nominal users, as well as unlimited by external systems. There will be no restrictions regarding the number of documents, transactions or accessing modality for the <i>IS „REHR”</i> (e.g. limitations in concurrent accessing).
LIPR 004	M	Quantity of provided licenses should allow accessing the APIs exposed by <i>SI „REHR”</i> by any application and external system.
LIPR 005	M	<i>The Provider</i> will transfer to MIA all the rights for developments, adjustments, setups and customizations carried out for implementing the <i>IS „REHR”</i> according to requirements. They may refer to third licensed soft products or may be components developed within the project.
LIPR 006	M	Any data stored in the database related to the <i>IS „REHR”</i> represent the property of the MIA. Access to these data over the entire provider's contacting period, as well as afterwards, is subject to information confidentiality requirements and clauses.
LIPR 007	M	<i>The Provider</i> will present its licensing model suggested for the <i>IS „REHR”</i> which should be in line with the requirements LIPR 001 – LIPR 006. The <i>Provider</i> will describe the suggested licensing model, reasoning why it is the most optimal one for the MIA. Will present a comparative analysis with other licensing models provided usually for the tendered solution.

## 6.6. Interoperability requirements

The interoperability of the *IS „REHR”* represents the characteristic of the information system to communicate with other information applications. The system architecture sets interfaces which should exist between the *IS „REHR”* and other systems of the MIA or of public authorities from the Republic of Moldova. Table 6.7 defines the requirements regarding the interoperability characteristics of the *IS „REHR”* requested by MIA.

**Table 6.7. Requirements of the interoperability framework of the information system**

ID	Binding nature	Requirement
INT 001	M	All the interfaces exposed by the <i>IS „REHR”</i> should be based on open standards. All the flows of messages between the <i>IS „REHR”</i> and external entities shall be carried out using open standards.
INT 002	M	<i>IS „REHR”</i> will have the capabilities to implement the interfaces through <i>MConnect</i> .
INT 003	M	<i>IS „REHR”</i> will be integrated at the implementation with the following internal systems: <ul style="list-style-type: none"> <li>• RCFI;</li> <li>• <i>IS „Collaborator”</i>;</li> <li>• <i>IS „MAO”</i>;</li> <li>• Cognitrom Assessment System.</li> </ul>
INT 004	M	<i>IS „REHR”</i> will be integrated at the implementation with the following external systems: <ul style="list-style-type: none"> <li>• MPass;</li> </ul>

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> <li>• MSign;</li> <li>• MNotify;</li> <li>• MLog;</li> <li>• MPower;</li> <li>• Open Data Portal;</li> <li>• State Register of Population;</li> <li>• IS „PAPIR“.</li> </ul>
INT 005	M	All the interfaces provided by the IS „REHR“ will interact with external applications instantly or in a programmed way through specialized jobs.
INT 006	M	<p>IS „REHR“ will have the capability to define new standard interfaces to access all the key business functions of the system (example: generation of documents, generation of transactions, accessing information about business entities stored in the IS „REHR“).</p> <p>The respective interfaces should allow managing business entities by applying all the relevant business rules and using all the characteristics related to business entities.</p>
INT 007	M	IS „REHR“ will have capabilities to define new interfaces to access external systems with use of open standards. These interfaces will be accessible under the functions of the system, when implementing the functionalities of the IS „REHR“.
INT 008	D	IS „REHR“ will have standard interfaces to export data within the tools of <i>Data Warehouse</i> type.
INT 009	M	All the interfaces of the system should be adequately documented (example: applying model <i>Web Services Description Language</i> ).

IS „REHR“ should take into account the related aspects regarding the used information technologies and initiatives in the area which are in force on the territory of the Republic of Moldova. The requirements relevant in this respect are specified in table 6.8.

**Table 6.8. Requirements related to ICT related aspects and initiatives in the area**

ID	Binding nature	Requirement
INT 010	M	IS „REHR“ will integrate with the interoperability governmental service <i>MConnect</i> to consume data from external information systems (example: extracting data from state registers).
INT 011	M	IS „REHR“ will use <i>MPass</i> governmental service as a mechanism for users to log in through electronic or mobile signature.
INT 012	M	IS „REHR“ will use <i>MSign</i> governmental service as infrastructure to use the electronic signature.
INT 013	M	IS „REHR“ will use <i>MLog</i> governmental service as a mechanism to log critical business events.
INT 014	M	IS „REHR“ will use <i>MNotify</i> governmental service as mechanism to notify users.
INT 015	M	IS „REHR“ will use <i>MPower</i> governmental service as mechanism to verify authorized users' powers to perform specific actions in user's interface.
INT 016	M	IS „REHR“ will integrated with Open Data Portal ( <a href="https://date.gov.md">https://date.gov.md</a> ) for the purpose of publishing open data produced within implemented workflows.



## 6.7. Data migration and popular requirements

Table 6.9. contains the migration and popular data requirements in IS „REHR“. It should be mentioned that the acceptance of the IT system will be achieved after populating the database with the data sets provided by the MIA.

**Table 6.9. Data migration and popular requirements**

ID	Binding nature	Requirement
MIG 001	M	MIA will prepare and deliver the necessary data and metadata sets to the population with primary data of IS „REHR“. The format of the migrated data will be agreed with the Provider.
MIG 002	M	The Provider will need to convert specific values of the metadata related to the external data sets according to the MIA metadata system.
MIG 003	M	The Provider will include in the technical offer its approach on the procedure for implementing the initial migration and popular procedure of the database.
MIG 004	M	The Provider must provide a mechanism that will ensure the automated population of the IS „REHR“ database with relevant metadata (nomenclatures, classifiers, variables of various kinds, etc.) and the primary data sets provided by the MIA in order to consolidate the initial data stock of IS „REHR“.
MIG 005	M	<p>During the implementation of the migration and popular data procedure the Provider is responsible for:</p> <ul style="list-style-type: none"> <li>• defining the methodology used in the migration and popular data process;</li> <li>• elaboration of detailed migration and popular data plans;</li> <li>• providing software mechanisms for data migration and population;</li> <li>• defining the quality requirements for the migration / population data sets and processing them through the developed migration and population mechanisms;</li> <li>• mapping the value of metadata received from external sources (in case of divergences);</li> <li>• defining the criteria for reconciling migrated and populated data;</li> <li>• participation in the process of data cleansing and enrichment;</li> <li>• checking and validating the quality of the data sets to be migrated and populated;</li> <li>• the primary population of the IS „REHR“ database based on the data sets provided by the MIA;</li> <li>• identifying and resolving exceptions / errors during the migration and popular data process.</li> </ul>
MIG 006	M	<p>The Provider must propose to the MIA the data migration and population methodology. The methodology must contain the following elements:</p> <ul style="list-style-type: none"> <li>• methodology for preparing of the data to be migrated and populated;</li> <li>• methodology for mapping of the migrated and populated data;</li> <li>• methodology for cleansing and enriching migrated / populated data and ensuring their quality;</li> <li>• methodology for completing the value of the data required by IS „REHR“ but which are missing in the data sets provided;</li> <li>• automated migration and population data procedure;</li> <li>• principles of reconciling migrated and populated data;</li> <li>• recovery plan in case of failure (for each stage of the migration and popular data process);</li> </ul>

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> <li>delivery plan of the data migration and population mechanism.</li> </ul>
MIG 007	M	The Provider must prepare and deliver the detailed migration plan and initial population with data of IS „REHR" (migration and data conversion strategy). This plan must be aligned with the IS „REHR" implementation plan.
MIG 008	M	The Provider must deliver to the MIA a software solution designed to automate the initial migration and population processes with IS „REHR" data.
MIG 009	M	All migration and initial population activities of IS „REHR" with primary data must be performed in the operating environment controlled by the MIA. The data will never leave the MIA's ICT infrastructure.
MIG 010	M	In the migration process, the Provider will conform the security policy of the MIA.
MIG 011	M	The Provider will demonstrate the correctness of the initial migration and population instrumentation with IS „REHR" data to the MIA specialists (an act of acceptance of the migration and initial population with IS „REHR" data is to be signed between the Provider and the MIA).

## 6.8. Requirements for security assurance

IS „REHR" should allow adequate control over the security risks of the information to be used. The implemented security measures should be aligned to security policies approved in the MIA and shall ensure the prevention, identification, and adequate reaction to security incidents.

IS „REHR" should implement an approach of „Multi-layered security" type at the level of the system and to have the capacity to get integrated in the institutional model of the MIA for information security management (based on standard family ISO 27000).

This compartment (Table 6.10-6.16) provides the requirements for the security characteristics related to the system, related to IS „REHR".

**Table 6.3. Requirements for security architecture**

ID	Binding nature	Requirement
SEC 001	M	The architecture of the IS „REHR" should be established by applying an approach of the type „Secure by design".
SEC 002	M	The security architecture of the IS „REHR" should be documented at the technical level.
SEC 003	M	The documentation will contain the description of the implemented security model, present components and the role of every component from security point of view.
SEC 004	M	The documentation will contain the peculiarities for placing at the network level the components of the IS „REHR" and the recommendations of the Provider regarding the access rules to the network, to be set by MIA for secured access to all the system components (example: communication between services matrix).
SEC 005	M	All the system processes related to the components of the IS „REHR" will roll out with minimum privileges necessary for carrying out the attributed tasks.
SEC 006	M	All the access credentials used by the information system should be set in administrative interfaces. IS „REHR" will not contain hard-coded access credentials.

ID	Binding nature	Requirement
SEC 007	M	IS „REHR“ will not contain open access credentials at the level of its components (based on data, configuration files).
SEC 008	M	All the interfaces of the IS „REHR“ will be accessed applying safe login methods (example: X.509 certificate).
SEC 009	M	The access to functions provided to unauthenticated users (public interface provided by IS „REHR“) should be controlled with protection means against the over-demand of the service by one or several nodes of the network.
SEC 010	M	The field content in the forms filled in by the users should be valid on binding basis on the client computers and on the server.
SEC 011	M	IS „REHR“ will be secured for OWASP Top 10 vulnerabilities (2017).
SEC 012	M	IS „REHR“ will ensure confidentiality of data which are sent-received on communication channels.
SEC 013	M	Users' actions should be registered in electronic logs.
SEC 014	D	IS „REHR“ will issue a periodical signal, which indicated its functional status.

**Table 6.4. Requirements for the authentication mechanism**

ID	Binding nature	Requirement
SEC 015	M	IS „REHR“ will allow accessing its functions only after the successful authentication of the user. IS „REHR“ will provide support for at least the following authentication methods: based on login and password, Windows authentication (integration with Active Directory), two step authentication (2FA) and authentication through electronic or mobile signature (MPass). IS „REHR“ will allow the users to change individual passwords.
SEC 016	M	IS „REHR“ will allow registering users and profile information related to them (example: login, password, name, surname, IDNP, Email etc.).
SEC 017	M	Users' passwords should be protected. Protection method for passwords should ensure the impossibility of their wiretapping, deduction or recovery.
SEC 018	D	IS „REHR“ will allow differentiated application of policies to use passwords for different groups of users.
SEC 019	M	IS „REHR“ will allow blocking, deactivating or suspending users' accounts at the application level.
SEC 020	M	IS „REHR“ will be integrated with the LDAP solution implemented in the MIA for internal users. When creating a new user account, the IS „REHR“ will have the option to select from the list of users available in the directory service.
SEC 021	M	IS „REHR“ will be able to be integrated with external services of Identity Services Providers type. For this purpose, standards and open protocols in the area will be used (example: SAML). Authentication methods to be supported with the involvement of an external ISP are: <ul style="list-style-type: none"> <li>• login and password;</li> <li>• Certificate X.509;</li> <li>• OTP (One Time Password).</li> <li>• MPass government service must be used as a ISP solution.</li> </ul>

ID	Binding nature	Requirement
SEC 022	M	When using mobile applications, the access will be carried out based on access credentials of an user and a unique key set in the client application configuration. Communication with the IS „REHR” served will be encrypted.
SEC 023	D	IS „REHR” will allow the differentiated application of authentication methods, depending on accessed resources (example: implicit electronic or mobile signature for authentication of candidates, login and password for the employees of the REC, OTP for the administrative interface).
SEC 024	M	IS „REHR” will allow setting the number of simultaneous connections to be initiated by one user.
SEC 025	M	IS „REHR” will allow setting the time for expiration of users’ sessions in case of inactivity.
SEC 026	M	IS „REHR” will have efficient mechanisms to prevent the unauthorized taking over of active sessions initiated by authorized users.
SEC 027	M	The working session in the IS „REHR” will be blocked upon the user’s request or automatically, upon the expiry of the time set for the session.

**Table 6.5. Requirements for the authorization mechanism**

ID	Binding nature	Requirement
SEC 028	M	IS „REHR” will allow the granular management of the access rights to all its objects and possible actions for them (example: electronic forms, menus, reports, actions to create/view/update/remove etc.).
SEC 029	M	The authorization method within the system will be based on the principle „everything which is not explicitly allowed is prohibited”.
SEC 030	M	IS „REHR” will allow defining the groups of users, roles and association of users to these groups and roles.
SEC 031	M	IS „REHR” will allow providing access rights at the level of explicit user, group and role. A group of users will be able to contain more subgroups/roles. One user may be associated to one or more groups and roles, its access rights being determined cumulatively.
SEC 032	M	IS „REHR” will allow providing access rights based on business rules (example: modification of the document only if the user is author or if the operation is performed within a certain time interval, condition or context).
SEC 033	M	IS „REHR” will allow attributing temporarily the rights held by one user towards another user. This attribution will be able to be performed by keeping or suspending the rights held by users to whom these rights are delegated.
SEC 034	D	IS „REHR” will allow segregating the administrative activities (example: Administrator 1 modifies, Administrator 2 confirms).
SEC 035	M	IS „REHR” will provide views and reports regarding the set access rights. It will be possible to set parameters for them depending at least on the following criteria: group of users/roles, user login, admitted actions, etc.
SEC 036	M	IS „REHR” will have the capabilities to authenticate and authorize users through internal mechanisms, as well as through MPass governmental service.
SEC 037	M	IS „REHR” will authorize authorized users’ access to sensitive compartments of the interface and data after verifying their rights through MPower.

**Table 6.16. Requirements for the mechanism of validating the entry/exit data**

ID	Binding nature	Requirement
SEC 038	M	IS „REHR“ will have an adequate mechanism for preventing the manipulation of entry data (entry data coming from authorized users, entry data coming from external applications).
SEC 039	M	All the actions for modifying critical and sensitive data in the IS „REHR“ will be carried out through specialized forms and documents, according to the workflow set for these categories of documents (example: correcting data in the filled in and signed questionnaire).
SEC 040	M	IS „REHR“ will carry out the complete and independent validation of data at the level of presentation, level of business logic, level of data, so as to ensure integrity, completeness and correctness of data.
SEC 041	M	All the displays of data within the IS „REHR“ should be accompanied with security mark, according to a classifier set for this purpose in the IS „REHR“.
SEC 042	M	Confidential data will not be stored and accessed in unsecured way in the IS „REHR“ (example: log files, caching etc.).
SEC 043	M	IS „REHR“ will have mechanisms for additional protection of especially confidential data (example: concealed display of data, storage of data in encrypted form, repeated authentication or use of additional means by user, etc.).
SEC 044	M	IS „REHR“ will have routine procedures to verify and detect possible corruption of data integrity relations.
SEC 045	M	IS „REHR“ will have adequate mechanisms to prevent manipulation of data stored in the application.

**Table 6.7. Requirements for the log and audit mechanism**

ID	Binding nature	Requirement
SEC 046	M	IS „REHR“ will have audit components which will collect and managed in a centralized way the audit entries at the level of every information system module.
SEC 047	M	The audit component will allow granular setting of audit policies.
SEC 048	M	IS „REHR“ will allow establishing audit policies at the level of functional component/user interface compartment, categories of data and level of logged event.
SEC 049	M	IS „REHR“ will allow establishing characteristics which are specific for events to be logged (example: produced within a certain time interval, which are in a specific status or which transit a certain status, etc.).
SEC 050	M	IS „REHR“ will allow auditing any event, at the level of any object or business entity from the information system.
SEC 051	M	Every audit entry will contain at least: <ul style="list-style-type: none"> <li>• time when the event was produced;</li> <li>• event's subject (user identifier);</li> <li>• impacted object or entity;</li> <li>• occurred event;</li> <li>• IP address from where the event was initiated.</li> </ul>
SEC 052	M	Audit entries will not contain confidential data (example: passwords entered for failed authentication attempts).

ID	Binding nature	Requirement
SEC 053	M	Errors which may occur when logging audit entries should not influence the normal functioning of the information system.
SEC 054	M	The audit component will use the system clock set at the level of the operation system of the application server in which the component operates.
SEC 055	M	The audit component will have a mechanism for archiving past audit entries. Parameters can be set for the archiving process (frequency, length of data, archiving format, destination, etc.).
SEC 056	D	IS „REHR“ will be able to generate automatically notifications to persons responsible for producing certain security events, according to set configurations.
SEC 057	D	It will be possible to integrate the audit component in the basis of open standards with solutions of SIEM type (Security Incident and Event Management) so as to take over the audit entries produced within the system, by the respective solutions.
SEC 058	M	IS „REHR“ will allow fixing the historical versions of data, which will be considered to be very sensitive.
SEC 059	M	The activities for changing entries' status and responsible will be logged.
SEC 060	M	IS „REHR“ will have convenient tools to access and process logged events, including filtering the audit entries according to held fields and to export them in usual format. The audit tools of the information system will be used also for the purpose of importing archives with audit files for occasional analysis activities.
SEC 061	M	IS „REHR“ will have safe mechanisms for protecting entered audit information integrity.
SEC 062	M	Critical business events should be logged in parallel through MLog log service.
SEC 063	M	IS „REHR“ will provide a mechanism to set business events which will be logged in parallel through the MLog governmental service.

**Table 6.8. Requirements for the mechanism to manage exceptions and errors**

ID	Binding nature	Requirement
SEC 064	M	IS „REHR“ will register in a centralized way all the exceptions and errors generated by its components.
SEC 065	M	When an error occurs, the IS „REHR“ will display a generic error message for the user. It may contain an error code and a single identifier of the error, to facilitate the involvement of support services.
SEC 066	M	IS „REHR“ will have the necessary tools for analysis and processing of entries related to exceptions and errors.
SEC 067	M	IS „REHR“ will be able to generate automatically notifications to persons responsible for producing certain errors in the operation of its components.

**Table 6.16. Requirements for the resilience capabilities and continuity of the IT system**

ID	Binding nature	Requirement
SEC 068	M	IS „REHR“ will have implemented tools for executing the procedures for automatic backup generation and historical backup management.
SEC 069	M	IS „REHR“ must have mechanisms to ensure the integrity of the data in the event of any component failures.

ID	Binding nature	Requirement
SEC 070	M	IS „REHR” must have mechanisms to operatively restore availability and accessibility in the event of continuity incidents.
SEC 071	M	IS „REHR” architecture must be resistant to component failures and not have single points of failure (SPOF).
SEC 072	M	IS „REHR” must have mechanisms to ensure data integrity in the event of accidental drops in any of its components.
SEC 073	M	IS „REHR” must have mechanisms to operatively restore the availability and accessibility in the event of continuity incidents.

## 6.9. Requirements for the deployment of the IT system

Table 6.17 contains the requirements regarding the deployment mechanisms of the IS „REHR” to be implemented by the Provider. These correspond to the recent requirements for the IT systems of the central public authorities of the Republic of Moldova.

**Table 6.17. Requirements for the deployment of the IT system**

ID	Binding nature	Requirement
DEP 001	M	IS „REHR” must be able to be installed on dedicated servers and in virtualized media.
DEP 002	M	IS „REHR” must be able to provide a containerized infrastructure for deployment on relevant media (example: Docker Engine, Kubernetes).
DEP 003	M	IS „REHR” must be able to initiate deployment on several media simultaneously (example: development, testing, production) initiated from scratch.
DEP 004	M	The deployment of the IS „REHR” must be carried out through specialized instruments.
DEP 005	M	The deployment mechanism of the IS „REHR” must be able to define the component of the container to be updated (example: new version of the platform software, updated functional mode, etc.).
DEP 006	M	The deployment mechanism of the IS „REHR” must be able to manage the contents of the container.
DEP 007	M	The deployment mechanism of the IS „REHR” must be able to add new components to the contents of the container.
DEP 008	M	For the deployment of the IS „REHR” it is necessary that the deployment mechanism can specify in which cluster (dedicated server or cloud) the deployment must be performed.
DEP 009	M	For the deployment of the IS „REHR” it is necessary that the deployment mechanism provides workflow for compiling the code or registers.
DEP 010	M	The deployment mechanism of the IS „REHR” should provide functionalities for the delivery of the IT solution and performance of third party actions (example: installation of additional packages, configuration of notifications, etc.) using existing tools.
DEP 011	M	The production environment of the IS „REHR” must be able to be automatically updated with the possibility of manual intervention (manual build approval).
DEP 012	M	The developer will deliver to the MIA all the tools and scripts necessary for the automated deployment of IS „REHR”.



## 6.10. Requirements for the documentation

IS „REHR” will be accompanied by a complete set of technical documentation comprising the compartments included in table 6.18.

**Table 6.18. Requirements for the documentation of the IT system**

ID	Binding nature	Requirement
DOC 001	M	The Provider will prepare and publish interactive guidance materials included in the user interface of IS „REHR”.
DOC 002	M	The Provider will prepare and deliver the user manual in Romanian language.
DOC 003	M	The Provider will prepare and deliver the administrator guide in Romanian language.
DOC 004	M	The Provider will prepare and deliver the system installation and configuration guide (which includes at least code compilation, application installation, hardware and software requirements, platform description and configuration, application configuration, disaster recovery procedures).
DOC 005	M	The Provider will prepare and deliver the technical project of the delivered IT system based on which all the development / acceptance activities of the IT system (SRS and SDD) will be performed.
DOC 006	M	The Provider will prepare and deliver the System Architecture documentation with the description of the models in UML language, including a sufficient level of detail of the architecture in several sections (including the logical and physical model of the data).
DOC 007	M	The Provider will prepare and deliver the documentation of the consumed and exposed APIs for integration with external IT systems.
DOC 008	M	The Provider will deliver all the instructions necessary for the proper operation of IS „REHR” and solution of any technical problems/
DOC 009	M	The Provider will deliver the source code for the applications and components developed within the project with the necessary comments to understand the program code.
DOC 010	M	The Provider will deliver the training documentation for all roles of users of IS „REHR”.

## 6.11. Requirements for warranty, maintenance and technical support of the IT system

The Provider will provide post-implementation warranty and technical support that includes the compartments included in table 6.19.

**Table 6.19. Requirements for the maintenance of the IT system**

ID	Binding nature	Requirement
GMS 001	M	The developer will provide warranty and technical support for 12 months after the final acceptance of IS „REHR”.
GMS 002	M	The guarantee and technical support will correspond to the national standard SM ISO /IEC 14764: 2015 - Software engineering. Software life cycle processes. Maintenance.



ID	Binding nature	Requirement
GMS 003	M	The developer will provide MAI with a Help Desk service available on all the working days of the year.
GMS 004	M	MIA users will be able to call the Help Desk service at a national telephone number (which corresponds to the telephone number of the Republic of Moldova).
GMS 005	M	Language of communication with the Help Desk service - Romanian or Russian.
GMS 006	M	MIA users will be able to alternatively report technical problems caused by ticketing mechanism, Email or instant messages.
GMS 007	M	The Provider will provide documentation support for technical issues and their traceability to the MIA.
GMS 008	M	The deadline for responding and remedying the reported technical problems will not exceed 8 hours from their reporting.
GMS 009	M	In case of problems of major complexity, the term for their solving will not exceed 72 hours.
GMS 010	M	Support services will be provided remotely. If necessary, the Provider's specialists will travel to the MIA headquarters.
GMS 011	M	For the provision of post-implementation support and maintenance services, the Provider will provide the MIA with an application platform, available for users of the IT system through the Internet.
GMS 012	M	The application platform will be adequately secured. All interactions between the Provider and the MIA in the provision of support and post-implementation maintenance services will be performed through the respective platform.
GMS 013	M	The Provider will monitor the quality of post-implementation support and maintenance services and will react to the allowed deviations in order to prevent them.
GMS 014	M	The Provider will submit monthly reports to the MIA on the services provided and their level. The reports will also contain information on the actions taken by the Provider or planned, in order to improve the quality of services.
GMS 015	M	The Developer will demonstrate the ability to provide post-delivery technical support in accordance with GMS 001-GMS 014 requirements.
GMS 016	M	Any program errors detected during the warranty period will be remedied by the Developer free of charge and in a timely manner.
GMS 017	M	In case of additional implementation requests, they will be subject to an amendment to the contract and payment of the value of the services.
GMS 018	M	The Provider and the MIA will sign an SLA that will specify in detail the principles of providing warranty, maintenance and support services.

## 7. Final product and delivered components

The final product (IS „REHR“) consists of software artifacts and system documentation as well as the transfer of knowledge to the owner, holder and administrator of the software solution. The artifacts related to the IS „REHR“ deliverables are specified in table 7.1.

**Table 7.1. List of project deliverables**

ID	Binding nature	Requirement
DEL 001	M	The complete source code of the modules and components required to compile the delivered program product.
DEL 002	M	Software solution of the primary data migration and population in IS „REHR“.
DEL 003	M	The final product packaged for easy installation into the proposed technological environment (including automated deployment scripts).
DEL 004	M	Documents and reports related to the project management processes for the design, development and implementation of IS „REHR“.
DEL 005	M	Technical Project (SRS+SDD).
DEL 006	M	Document on the deployment and configuration of IS „REHR“.
DEL 007	M	User Manual
DEL 008	M	Administrator's Manual (including contingency plan).
DEL 009	M	Guide for the removal of faults and current maintenance activities of IS „REHR“..
DEL 010	M	All materials related to IS „REHR“ users' training.
DEL 011	M	Technical specifications for interfaces consumed and published by IS „REHR“ .
DEL 012	M	Test plan and internal test results (functional, integration, performance, loading, security).
DEL 013	M	SLA agreement signed with the MIA for the period of maintenance, warranty and support.
DEL 014	M	All artifacts are to be delivered electronically (DVD + -R).

In addition to the artifacts related to the deliverables will be provided a series of services necessary for the transfer of knowledge to the MIA contained in table 7.2.

**Table 7.2. Knowledge transfer services related to the delivered artifacts**

ID	Binding nature	Requirement
DEL 015	M	The Provider will develop and deliver training programs for all relevant categories of MIA users.
DEL 016	M	The Provider will establish in agreement with the MIA the <b>Plan for organizing the training sessions.</b>
DEL 017	M	The Provider will perform user training according to the training plan and programs agreed jointly with the MIA. The training will be conducted in Romanian.
DEL 018	M	The Provider will train a target group of users - trainers who will provide support and continue the trainings after the production of IS „REHR“.
DEL 019	M	The Provider is to perform training activities for all categories of authorized users and system administrators.
DEL 020	M	The training and documentation phase involves ensuring the following categories of deliverables:

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> <li>• training on the business use of IS „REHR“ (users with non-administrator role); training for administration and configuration IS „REHR“ (users with administrator role);</li> <li>• complete guides for all categories of IS „REHR“ users intended for the operation and administration of the IS „REHR“ IT system.</li> </ul>
DEL021	M	The Provider is to provide technical assistance services during the pilot period of IS „REHR“ (period of stabilization of the IT system).
DEL 022	M	The Provider will assist the MIA in the acceptance testing activities of IS „REHR“.
DEL 023	M	The Provider is to provide services to assist the MIA in the processes of putting IS „REHR“ into production.
DEL 024	M	The Provider is to eliminate all deficiencies and errors of the IS „REHR“ identified during the stabilization period and in the acceptance test.
DEL 025	M	The Provider is to provide post-implementation technical support (after putting the system into production) for a period of 12 months, including corrective, adaptive and preventive maintenance, in accordance with MS ISO / IEC 14764: 2015 - Software engineering. Software life cycle processes. Maintenance.

## 8. Stages of implementing the IT system

The activities of design, development, testing and implementation of IS „REHR“ must be performed by enterprises and specialized institutions that have the necessary experience to perform the appropriate work and will include the following stages:

1. **The stage of elaboration of the IT system** - which will be divided into phases coordinated with the MIA and UNDP as follows:
  - a. The Provider analyzes the terms of reference, performs the business analysis and with the approval of the Direct Beneficiary (MIA), proposes its vision for the development of the IT system through a Technical Project (SRS and SDD) developed within 1.5 calendar months;
  - b. The Provider develops the program code and integrates the modules developed in a prototype version of IS „REHR“ (a first presentation will be made to the parties demonstrating the existence of all functionalities described in this specification) which will then be refined until the final acceptance is signed. The stage in question will not exceed 7 months;
  - c. The Provider performs the initial migration and population activities with data of IS „REHR“ (1 calendar month);
  - d. The Provider tests the system in laboratory mode (internal testing) and prepares the accompanying documentation (presents the functionalities of the system with corrections and adjustments to the objections made in the previous sub-stage, presents the set of technical documentation, etc.). The stage in question will last 3 weeks. Testing must include the following steps:
    - the totality of the test scenarios regarding the satisfaction of all the functional requirements of the computer system (*functional testing, unit testing, integration testing*) will be jointly verified;
    - *stress testing, load testing* and *security testing* scenarios are applied to the system in order to verify the degree of its compliance with the MIA expectations and the provisions of this specification;
    - based on the test results, in case of need, the required adjustments and modifications will be operated, preparing an improved version of the IT system.
  - e. The Provider performs the activities of deployment and configuration of the 3 environments of IS „REHR“ (Production environment, Testing / training environment, Development environment). The given activity will last up to 1 week.
2. **Training stage** will begin with the completion of the acceptance tests and will include the training of 2 users with the role of System Administrator, 2 trainers for the subsequent training of authorized users and up to 30 authorized users with all configured roles.
3. **Stabilization stage of IS „REHR“** will begin with the approval of the minutes of acceptance by the MIA in the presented version and the signing of the act of putting into production of the IT system. This stage will last 3 months during which the Provider will assist the MIA in the operation of IS „REHR“ and will perform activities to eliminate errors / deficiencies detected as well as optimizations in the operating parameters of IS „REHR“.
4. **Commissioning of the system** shall begin with the signing of the act of commissioning of the IT system and the beginning of its operation.
5. **Maintenance and support guarantee stage** is the period in which the Provider assumes the obligation towards the MIA to assist it in maintaining the capacity of the IT system to provide services, as well as the modification of the product (elimination of errors and optimization of operating parameters), preserving its integrity. In the case of IS „REHR“, 12 calendar months of warranty, maintenance and technical support are required.

## 9. Requirements for completing offers

### 9.1. Requirements regarding the institutional power of Providers

The competition is open to companies specialized in providing IT services residents of the Republic of Moldova (or which have permanent branches in the Republic of Moldova), with at least 5 years of experience in the field. It is preferable to have the experience of the bidder in developing and implementing complex solutions for CPA and LPA in accordance with e-Government initiatives in the Republic of Moldova.

Interested entities must submit a technical and price offer containing:

- Detailed description of the enterprise (experience, human resources, managerial and technical capacities in the field, etc.);
- Copies of registration documents;
- Certificate confirming the absence of debts to the Budget;
- The company's portfolio with the indication of similar implemented projects;
- References of the company's beneficiaries for the last 4 years
- CVs of key staff involved in the project;
- Description of the non-key staff involved in the project;
- Brief description of similar IT solutions;
- The proposed detailed technical offer, including hardware operating restrictions, estimated activities and their durations;
- Methodology for providing warranty, maintenance and support services (including owned facilities);
- Detailed financial offer;
- Other relevant documents.

### 9.2. Requirements regarding the institutional power of Provider

All discussions with the MIA representatives will be conducted in Romanian language. All related documentation, training and technical support will be done in Romanian language. All collaborators involved in the project who interact directly with the representatives of the MIA must have a perfect command of the Romanian language.

In the technical offer, the Provider will present the summary data regarding the personnel involved in the project and their qualification. The involvement of qualified personnel with experience in the development and implementation of information systems of similar complexity within the CPA of the Republic of Moldova is welcome.

- The persons employed in the following key positions will be explicitly presented: Project Manager;
- System Architect / Business Analyst;
- Lead Developer;
- Quality assurance engineer.

For these positions, the CVs of the trained persons will be presented, considering that the experience of the team members should include:

#### 1. Project Manager.

Master's degree in information technology or other relevant fields (for studies in accordance with the Bologna Process) or a degree in information technology or other relevant fields (for studies in accordance with the Bologna Process) with the following experience:

- at least 5 years experience in software development;
- at least 2 years of proven experience in managing projects of similar complexity (preferably for the government sector) using the project management methodology proposed in at least 2 similar projects implemented during the last 3 years;

- knowledge of the software life cycle;
- relevant experience in business process analysis;
- ability to communicate in Romanian and English languages;
- having an internationally recognized certification in the field of project management, ICT audit and software architecture is an advantage (example: PRINCE2, PMP, CISA, TOGAF).

## **2. System Architect/Business Analyst.**

Bachelor of Information Technology or other fields with the following experience:

- at least 4 years experience in designing and conceptualizing software solutions and documenting business processes;
- experience developed in the use of modern methodologies and approaches for information systems design and application of ICT standards and initiatives specific to the government sector of the Republic of Moldova;
- participation in the given position in the implementation of at least 1 similar project during the last 3 years (explicitly indicated in the submitted CV);
- knowledge of the software life cycle and certification in software architecture and business analysis processes (example: TOGAF 9, CTA, CISA, CBAP, AAC, etc.) will be a significant advantage;
- ability to communicate in Romanian or Russian language.

## **3. Lead Developer.**

Bachelor of Information Technology or other fields with the following experience:

- at least 3 years work experience in the mentioned position;
- participation in the given position in the implementation of at least 1 similar project during the last 3 years (explicitly indicated in the submitted CV);
- recognized experience / certification related to the technological stack proposed for IS „REHR”;
- ability to communicate in Romanian or Russian languages.

## **4. Quality assurance engineer.**

Bachelor of Information Technology or other fields with the following experience:

- at least 2 years work experience in the mentioned position;
- participation in the given position in the implementation of at least 1 similar project during the last 3 years (explicitly indicated in the submitted CV);
- recognized certification in the field (example: ISTQB) will be an essential advantage.