

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 form 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 e 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

No.	Abbreviation/Acronym	Description
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

No.	Abbreviation/Acronym	Description
		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 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.
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
29. Michael O. Leavitt, Ben Shneiderman, *Research-Based Web Design & Usability Guidelines*, 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 US „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 to perform data exchange with third information systems.

Additionally, the interoperability platform *MConnect* 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 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, transparency 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 platform *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”.

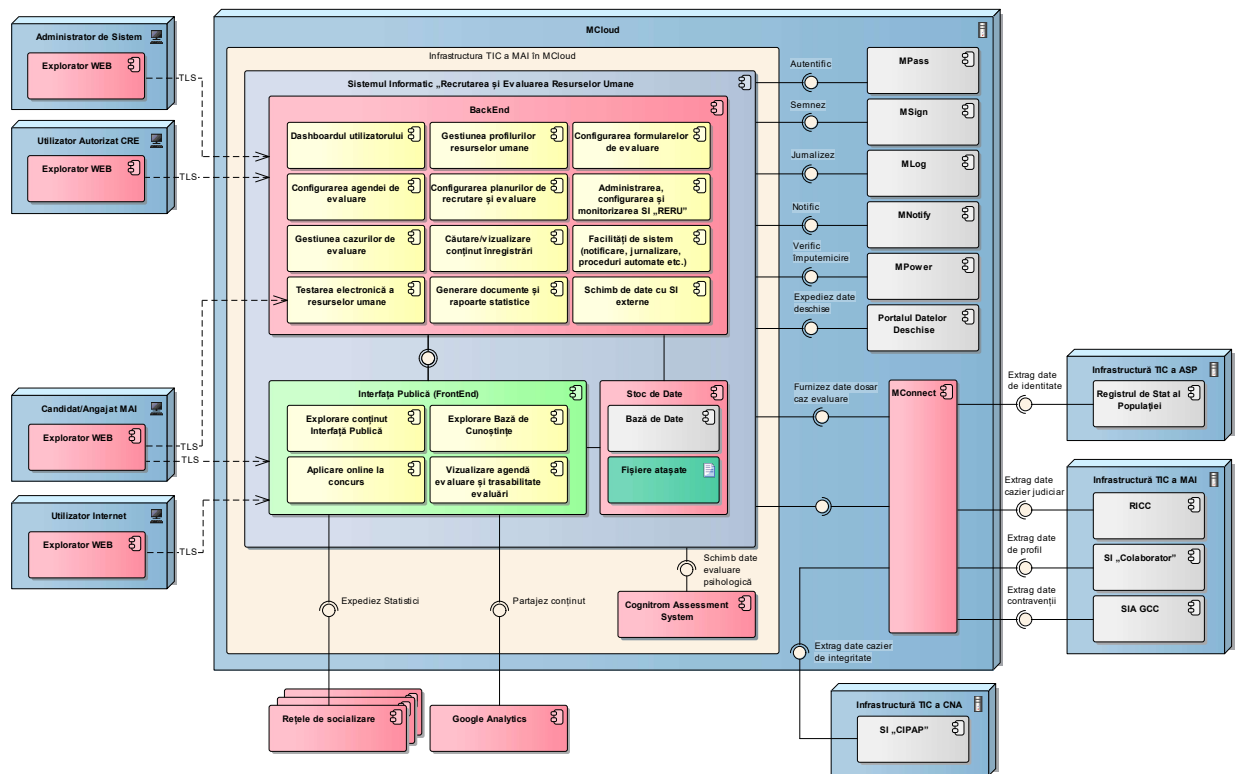


Figure 2.1. Architecture of IS „REHR”.

As it is noticed in figure 2.1, the solution of cooperating the resources for ensuring the functionality of the IS „REHR” covers 7 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* platform services. 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.
- **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 platform.
- **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 platform.
- **Google Analytics Infrastructure** – the ICT infrastructure of Google service meant to collect data about social media users' behavior and generating statistical reports related to the use of the public interface of the *IS „REHR”*.
- **Social media infrastructure** – ICT infrastructures of social media (*Facebook, Twitter, LinkedIn*) through which the content information of the public interface of *IS „REHR”* will be shared.
- **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:

- **FrontEnd Component** (public interface of the *IS „REHR”*) – interface accessible to anonymous and authorized users of the *IS „REHR”* supplying access to public information and electronic services provided by the *IS „REHR”* (example: *accessing the evaluation agenda, viewing the traceability events for HR evaluation cases, concluding and sending online applications for participating in recruitment contest*).
- **BackEnd Component** – important component of the *IS „REHR”* meant for activity of the employees from *REC* and *MIA* institutions through which key business processes will be implemented, meant to plan and manage HR recruitment and evaluation processes within *MIA* (example: *planning HR recruitment/evaluation, configuration of HR evaluation questionnaires, management of HR evaluation case files, electronic testing of human resources, etc.*).
- **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 platform services and *APIs* provided by governmental and external information systems, as follows:

1. **Authenticate** provided by *MPass* platform service for authenticating users through electronic or mobile signature.
2. **Sign** provided by *MSign* platform 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* platform service for implementing an universal and centralized system for notifying the users of the *IS „REHR”*.
4. **Log** provided by *MLog* platform 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.
12. **Send statistics** provided by *Google Analytics* for providing social media users’ behavioral data in the public interface of the IS „*REHR*”.
13. **Share content** provided by social media for exchanging the content of the public interface of the IS „*REHR*”.

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 platform *MConnect* and access to platform services 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 platform *MCloud*.
- **Information Technology and Cyber Security Service** as an entity which manages the common governmental platform *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 platform *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 platform 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.

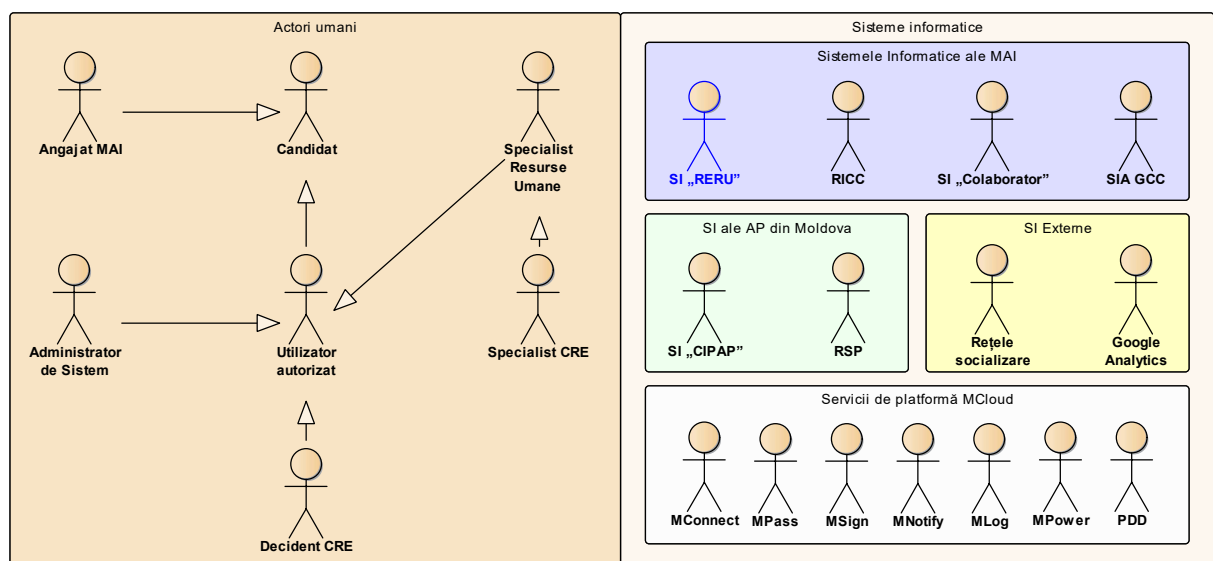


Figure 4.3.1. Stakeholder of the IS „REHR”.

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:

- exploring the public interface content;
- exploring the Knowledge Base content (relevant legislation, guidelines, skills’ tests, etc.);
- filling in the recruitment form;
- viewing/editing profile data;
- receiving notifications related to business events of the Candidate;
- taking electronically the professional competences’ evaluation tests;
- taking electronically the psychological evaluation test;
- managing the data related to his/her profile;
- viewing the data related to testing agenda and tests’ results.

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*.

IDP 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 fulfill 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, forms, and templates of documents;
- manages the content of the public interface of the IS „REHR“;
- 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 manager (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 platform services:

- **MConnect** – represents governmental platform of interoperability and data exchange. The IS „REHR“ will use the given platform for data exchange with the information systems of other public authorities (*exemple: 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** – platform service used for access control to information systems and ensuring authentication procedures through electronic or mobile signatures.

- **MSign** – platform service used to apply and validate the electronic signature, including mobile signature.
- **MNotify** – platform service used to notify the authorized users of the IS „REHR”, candidates and employees of MIA;
- **MLog** – platform 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”.

External information systems:

- **Google Analytics** – external information system used to collect statistics and generate reports and KPI on use of the public interface of the IS „REHR”.
- **Social Media** – external information systems used for dissemination of content information of the public interface related to the IS „REHR” through the MIA profile page.

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.

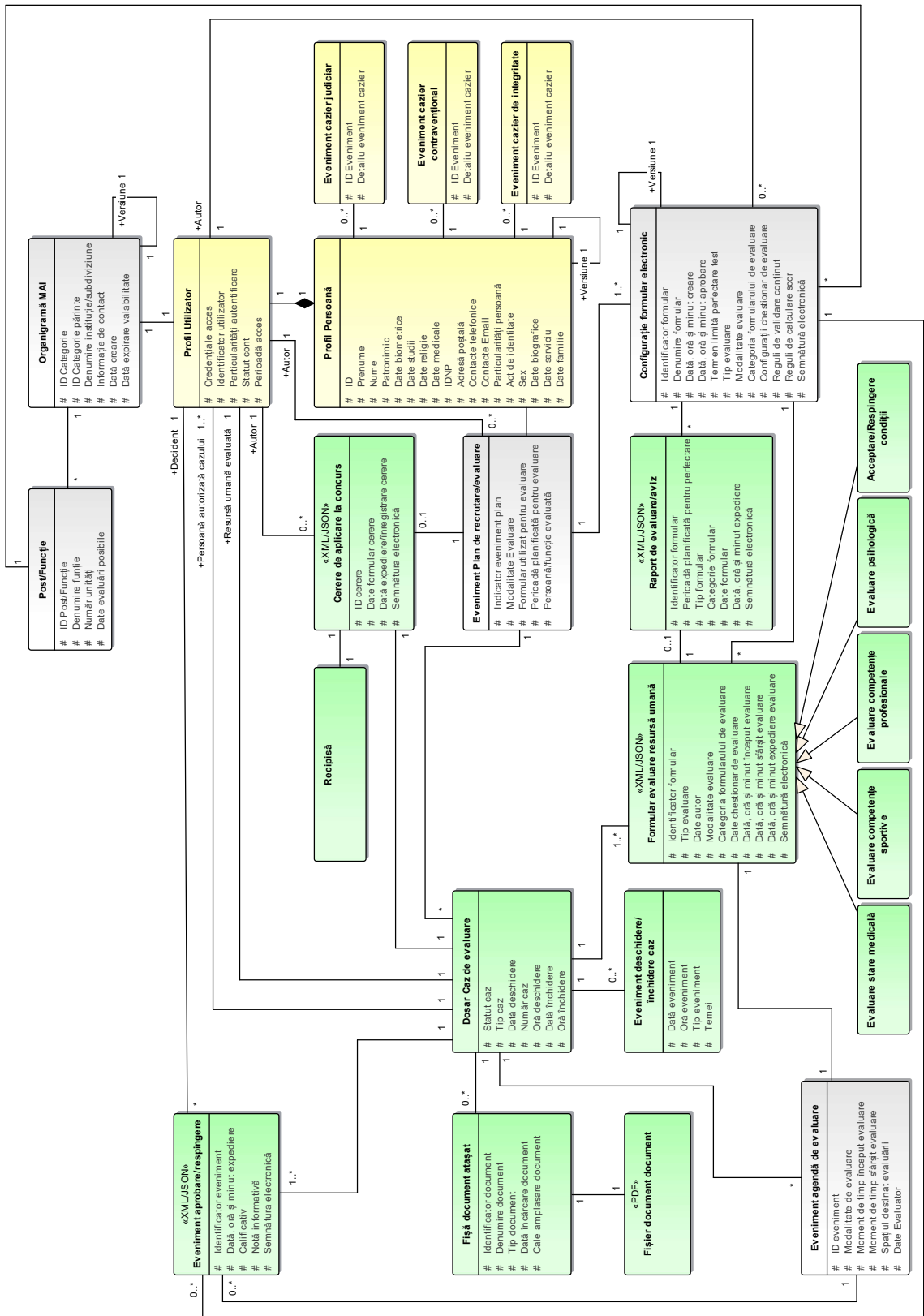


Figure 4.1. Data model of the IS „REHR”.

- 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;
 - g) Contest participant's electronic signature.
- D. **Receipt**. Represents an information item through which the data related to the receipts sent to contest participants who have sent online applications to participate in the contest are stored.
- 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.

UC01: Explore content single interface

Use case provided by the public interface of the IS „REHR” available for anonymous users which provides the totality of functionalities to browse through the content of the public interface of the IS „REHR”, viewing and downloading the relevant information for the *Social Media Users* and accessing the services provided to anonymous and authorized users (Candidates and Employees of MIA).

CU02: View testing agenda and evaluation results

Use case through which the *Candidates and Employees of MIA* will be able to monitor the traceability events for the evaluation cases in which they are involved. Accessing this functionality implies the need to authenticate the *Candidates/Employees of MIA* through the *MPass* platform service, and afterwards will be able to access:

- data regarding the evaluation agenda of the *Candidate/Employee of MIA* (timetable for evaluating the *Candidate / Employee of MIA*);
- data regarding the status of evaluation cases regarding the *Candidate/Employee of MIA*;
- data regarding the results of tests taken by the *Candidate/Employee of MIA*;
- data regarding the results of evaluation of the *Candidate/Employee of MIA* by the *REC Specialists* (evaluation endorsements and reports concluded by them).

CU03: Take evaluation test

Use case which provides facilities for electronic testing of human resources. Depending on the setup defined through CU08, CU11, CU07 and CU24, 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 reserved spaces of *MIA* or online when submitting the online application for participation in the contest.

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.

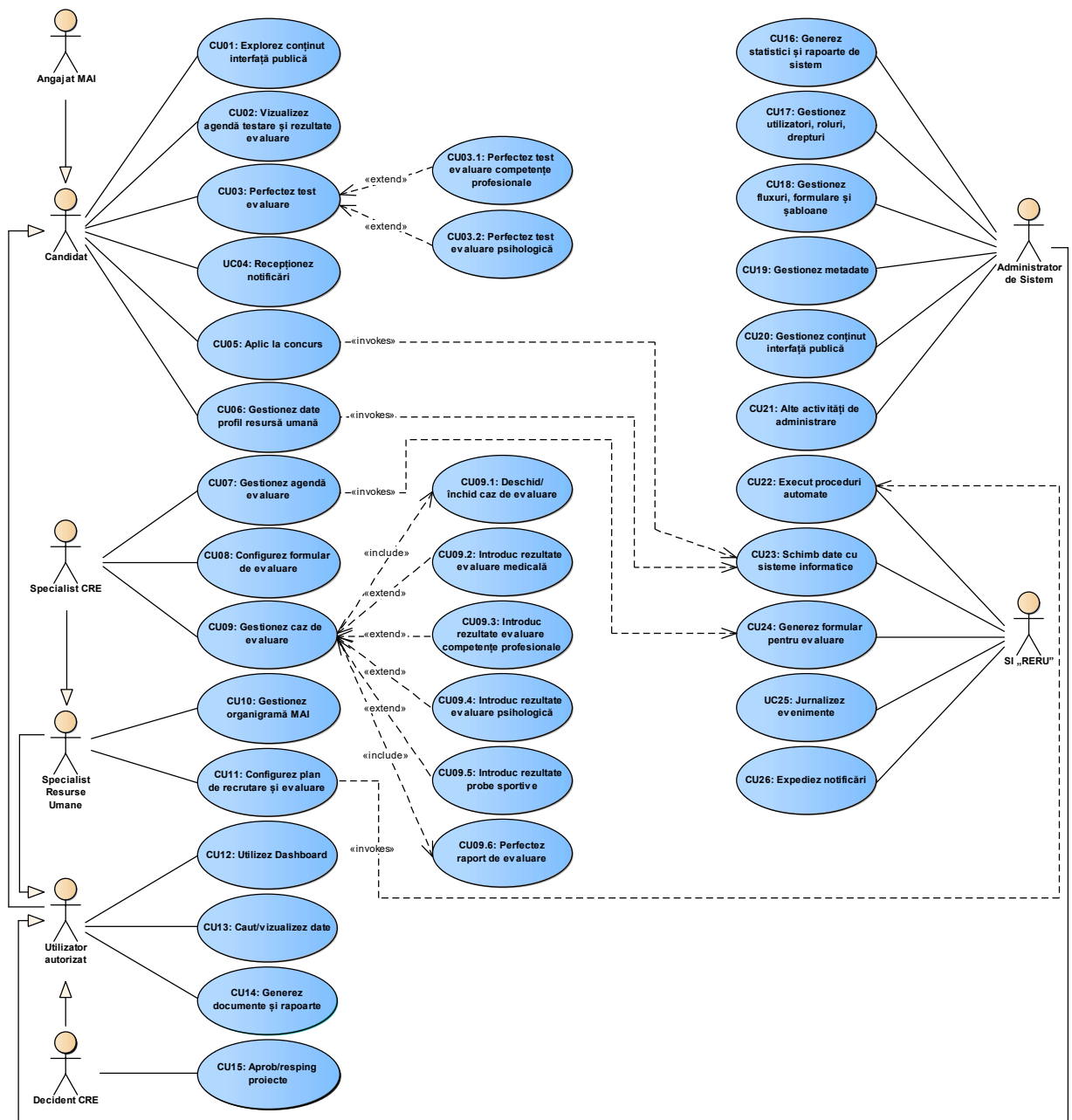


Figure 4.2. Use cases provided by the IS „REHR”.

UC04: 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*.

CU05: Apply to the contest

Complex use case through which the functional facilities will be ensured as needed for concluding online the application for participation in the contest to fill in the vacancies in MIA institutions and subdivisions. This form is displayed depending in the data and setups provided by the use cases CU11, CU08, CU24 and CU18.

Depending on the peculiarities of the contest, the online application to participate in the contest will imply concluding the application, accepting the contest participation conditions, filling in the profile data of the human resource, attaching relevant confirmative documents and taking some online tests (if needed).

The use case CU05 will integrate platform services *MPass* and *MSign* for authentication through electronic/mobile signature and respectively by signing the application for participation in the contest and will receive the relevant data from third information systems.

CU06: Manage human resource profile data

Complex use case through which the data will be collected and consolidated regarding the human resource profile covered in the *IS „REHR”*. To a big extent, the profile data are to be received automatically through the use case CU23 from third information systems (*SRP, IS „Collaborator”, RCFI, AIS MAO, IS „PAPIR”* etc.). As well, facilities will be provided to insert and update profile data manually.

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

CU07: 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 CU07 solid facilities to set up the agenda for human resources' evaluation, taking as basis the primary data provided by CU11 and CU09.1 and the infrastructure held by *REC*.

CU08: 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 CU03, CU05 and CU09. 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 CU08:

- 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, CU08 will supply facilities to define the automated rules for validating the electronic content of the form, calculating the score and establishing the evaluation qualification.

CU09: 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 CU09 will be generated individually for every electronic file of human resource evaluation case (based on CU11, CU08 and CU24). 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 manager 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 CU09 will have facilities to validate the accuracy of concluded electronic forms, as well as automated calculation of the score and providing the evaluation qualification.

CU10: 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.

CU11: 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. SI „RERU“ 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.

CU12: Use Dashboard

Represents a functionality though 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.

CU13: 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.

CU14: 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.

CU15: 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.

CU16: 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 CU13, the use case CU16 is meant for information audit processes for assisting the mechanisms for ensuring information security.

CU17: 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* platform 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.

CU18: Manage flows, forms and templates

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

A document template 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 issued and processes during the human resources' recruitment and evaluation processes.

CU19: 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.

CU20: Manage public interface content

Use case which will provide functional means meant for managing the aspect and content of the public interface of the *IS „REHR”*. Based on the functionalities provided by this use case, the *System Administrator* will be able to:

- set up the structure and aspect of the public interface (browsing menu, information compartments, main page appearance, etc.);
- place documents of different nature related to recruitment and evaluation process;
- manage the training-methodological materials related to recruitment and evaluation processes meant for *MIA Candidates and Employees* to understand the peculiarities of the evaluation process;
- set up the forms for requesting electronic services provided by the *IS „REHR”*.

CU21: 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.

CU22: 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 reevaluation;
- other categories of automated procedures.

CU23: Exchange of data with information systems

Represents a use case which will provide necessary functionalities for the *IS „REHR”* to exchange data with external information systems.

This synchronization refers to exposing or consuming the interfaces meant for mutual exchange of data (reception of data from external sources, sending data to external information systems and bidirectional exchange of data).

A part of integrations with external information systems (*IS „PAPIR”* and *SRP*) are to be implemented through interoperability platform *MConnect*. The platform services (*MPass*, *MSign*, *MLog*, *MNotify*, *MPower*, *PDD*) are to be integrated directly through the APIs exposed by them. The same strategy will be used to integrate the existing information systems (*Google Analytics* and *Social Media*).

The integration of the *IS „REHR”* with the internal information systems of the MIA will be mainly performed through an infrastructure of micro-services.

CU24: 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 CU07 and CU08).

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 CU08).

UC25: 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 platform 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.).

CU26: 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 platform service *MNotify*, as needed.

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.

- **Online application to the contest** – work flow through which it is possible to send the online application for participation in the recruitment contest.
- **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 anticorruption expertise for legislative/normative acts.

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 6.14 (functional requirements for the use case *CU13: Generate documents and reports*);
- compartment 6.17 (functional requirements for the use case *CU16: Generate system statistics and reports*);
- compartment 6.19 (functional requirements for the use case *CU18: 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: Explore public interface content

The functional requirements of the facilities to explore the public interface of the IS „REHR” are provided in Table 5.1.

Table 5.1. Functional requirements for use case CU01

Identifier	Binding nature	Description of functional requirements
CF 01.01.	M	The public interface will provide a mechanism to browse through structure categories to find quickly the relevant information.
CF 01.02.	M	The browsing will be performed through the main browsing menu and the elements if the Main Page.
CF 01.03.	M	When accessing the browsing mechanism in the structure categories, the Public Interface type will provide a browsing mechanism similarly to the principles of using a search directory (where the structure tree corresponds to the structure of the WEB page).
CF 01.04.	M	The content documents will be located in the categories – leaves of the structure tree of the Public Interface.
CF 01.05.	M	The public interface will display level references to show the hierarchical level of the current compartment of the Public Interface.
CF 01.06.	M	The structure references will have hypertext references, which will allow navigating to hierarchically higher levels than that of the current category.
CF 01.07.	M	The Public Interface should provide a mechanism for generating textual content in format A4 (optimized for printing) and downloading documents placed in the content.

Identifier	Binding nature	Description of functional requirements
CF 01.08.	M	The Public Interface will ensure access to a base of knowledge through which the following categories of data and functional facilities will be accessed: <ul style="list-style-type: none"> documents in HTML format (editing with the help of editors WYSIWYG); guidelines/instructions loaded in format of PDF, DOC/DOCX, PPT/PPTX etc. references to legal framework in force, contained in the State Register of Legal Acts (https://www.legis.md); multimedia information loaded directly in the IS „REHR” or published through external resources (<i>example: Youtube, Social Media etc.</i>); demo tests batteries to familiarize the potential Candidates or MIA Employees with human resources’ testing principles implemented in the IS „REHR”.
CF 01.09.	M	The Public Interface will ensure access to KPI and statistical reports with general public nature based on the data produced within the work flows related to MIA human resources’ evaluation processes.
CF 01.10.	M	The Public Interface of the IS „REHR” will provide facilities to share the content on the most popular social media networks (Facebook, Twitter, LinkedIn).
CF 01.11.	M	The Public Interface will provide the feedback mechanism and the contact through which the social media users will be able to interact with REC.
CF 01.12.	M	The entire statistical information of social media user’s interaction with the public interface of the IS „REHR” will be collected through the API exposed by <i>Google Analytics</i> .

5.3. CU02: View test agenda and evaluation results

The functional requirements meant to ensure access of the evaluated human resource to business events specific for the evaluation process are provided in table 5.2.

Table 5.2. Functional requirements for use case CU02

Identifier	Binding nature	Description of functional requirement
CF 02.01.	M	IS „REHR” will provide through public interface the functionality for the Candidates/Employees of MIA to access the data related to the business events of the valuation cases in which they have been or are involved.
CF 02.02.	M	Once logged in through MPass platform service in the public interface, the Candidate/Employee of MIA will have a specialized area where he/she will be able to access:

Identifier	Binding nature	Description of functional requirement
		<ul style="list-style-type: none"> the agenda of testing events; files of his/her evaluation cases.
CF 02.03.	M	When accessing the agenda of the testing events, the IS „REHR” will display the totality of testing events of the Candidate/Employee of MIA, pointing out the near-by events and the future events, and ensuring access to archive events.
CF 02.04.	M	Accessing one agenda event, the details of the respective event will be provided: <ul style="list-style-type: none"> evaluation date; time period meant for evaluation; type of evaluation; location where the evaluation can take place.
CF 02.05.	M	The IS „REHR” will provide the functionality of exporting agenda events and synchronizing them with the telephone or computer agenda.
CF 02.06.	M	When accessing the evaluation case file, the Candidate/Employee of MIA will be able to view the general data of file registration and the list of planned/performed evaluations.
CF 02.07.	M	For performed evaluations, the IS „REHR” will display the score and the qualification of the evaluation, as well as certain evaluation details, which will be defined over the business analysis.
CF 02.08.	M	All the events for accessing the evaluation agenda and evaluation results will be logged through the MLog platform service.

5.4. CU03: Take evaluation test

The functional requirements related to the component of online testing of Candidates and MIA Employees are provided in table 5.3.

Table 5.3. Functional requirements for use case CU03

Identifier	Binding nature	Description of functional requirement
CF 03.01.	M	IS „REHR” will provide a mechanism for electronic testing of Candidates and MIA Employees.
CF 03.02.	M	It will be possible to carry out the electronic testing both in the specialized premises of the MIA, as well as remotely (when the filling in of the application form to participate in the contest implies taking some tests to evaluate the Candidate’s capacities).
CF 03.03.	M	To have access to tests to be taken remotely, the Candidate will be able to log in exclusively through the MPass platform service.
CF 03.04.	M	The evaluation tests taken in the specialized premises of the MIA will be able to be accessed after the traditional authentication of the

Identifier	Binding nature	Description of functional requirement
		Candidate/ Employee of MIA (through the user name + password) or through MPass service.
CF 03.05.	M	The evaluation tests will be accessible from the public interface of the IS „REHR” (case of filling in the electronic form of the application to take part in the contest) or BackEnd component.
CF 03.06.	M	Two categories of tests will be accessible for human resources’ electronic testing: <ul style="list-style-type: none"> • Tests to evaluate human resources’ professional skills; • Tests for human resources’ psychological evaluation.
CF 03.07.	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 03.08.	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 03.09.	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 03.10.	M	The evaluation test will be displayed separately for every evaluated human resource based on the form generated by CU24 using the setups concluded through CU08.
CF 03.11.	M	IS „REHR” will be able to display all the categories of content information of the test taken through CU08: <ul style="list-style-type: none"> • Text; • Images; • Video; • Audio; • Selection lists; • Selection intervals; • Fields to fill in text data; • Fields to fill in numerical data.
CF 03.12.	M	The answers to the evaluation tests can be: <ul style="list-style-type: none"> • List to select true or false option; • Selection intervals for the option value; • Fields to be filled in with text values; • Fields to be filled in with numeral values.
CF 03.13.	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</i>

Identifier	Binding nature	Description of functional requirement
		<i>fraction was entered, etc.)</i> an error message will be displayed and the answer will not be saved.
CF 03.14.	M	The interface for taking the evaluation test will have a bidirectional mechanism of navigation between the questions of the test.
CF 03.15.	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 fill in later 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 03.16.	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 03.17.	M	When comparing any answer of the evaluation test, the IS „REHR” will save the answer options on the server.
CF 03.18.	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 03.19.	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 03.20.	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 03.20.	M	After sending the test form, the IS „REHR” will calculate the evaluation score (according to the rules defined in the form setup - CU08), the evaluation qualifier and will notify the relevant REC Specialist (evaluator) regarding the need to conclude the Evaluation Report/Endorsement, if necessary.
CF 03.21.	M	MNotify platform service will be used as a mechanism for notification.
CF 03.22.	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 platform service.

5.5. UC04: Receive notifications

The functional requirements of the mechanism meant to receive notification sent by the IS „REHR” to authorized users are provided in Table 5.4.

Table 5.4. Functional requirements for use case CU04

Identifier	Binding nature	Description of functional requirements
CF 04.01.	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 04.02.	M	Authorized users will receive notifications at the email address indicated in their profile in the IS „REHR”.
CF 04.03.	M	A copy of the notification will be displayed in the Dashboard of the authorized user in the IS „REHR” (if applicable).
CF 04.04.	M	The authorized user IS „REHR” will have the functionality to set up preferences for receiving notifications (on email or in Dashboard).
CF 04.05.	M	<p>IS „REHR” will send the entire range of notifications meant for authorized users:</p> <ul style="list-style-type: none"> • notification about opening/closing human resources’ evaluation cases; • notification about the need of involving the work flows of the IS „REHR”; • notification about the delay in user’s action (exceeding the deadline for approving/rejecting the draft form, concluding the Evaluation Report/Endorsement, etc.); • notification about acceptance/rejection draft electronic forms by decision-making roles; • notification about the update of the human resource evaluation case file content; • notification about inclusion in the evaluation agenda; • notification about operational problems in the IS „REHR”; • other relevant notifications.
CF 04.06.	M	A notification sent through Email may contain an attached file (<i>example: receipt.</i>).
CF 04.08.	M	Users of the IS „REHR” will receive notifications through Email in HTML format or enriched Text Format

5.6. CU05: Apply to contest

The functional requirements for online application to participate in the MIA recruitment contest 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	The public interface of the IS „REHR” will provide a functionality for online application to the MIA recruitment contest.

Identifier	Binding nature	Description of functional requirement
CF 05.02.	M	The candidate will access the form to fill in the application file for participating in the contest mentioned in the recruitment announcement (located in the corresponding compartment of the public interface through CU22).
CF 05.03.	M	The IS „REHR” will ensure access to the form for filling in the application file to participated in the contest, only for the Candidates logged in through MPass platform service.
CF 05.04.	M	The IS „REHR” will allow concluding an inline application to participate in the contest only when the Candidate has in his/her profile a valid Email (a procedure for verifying the Candidate’s contact email address validity should be implemented in the IS „REHR”).
CF 05.05.	M	<p>The form for concluding the application to participate in the contest will include:</p> <ul style="list-style-type: none"> • data necessary to set up the candidate’s profile; • form of contest application (questionnaires to be filled in to participate in the contest); • forms of Candidate’s agreement with the contest conditions; • electronic copies of specified documents, which should be attached to the application for participating in the contest (in PDF format); • forms for candidate’s online evaluation (if applicable).
CF 05.06.	M	Concluding the application for participation in the contest, implies interaction with third information systems to verify or receive data related to Candidate’s profile (SRP, IS „Collaborator”, RCFI, IS „PAPIR”, AIS MAO etc.).
CF 05.07.	M	For the Candidates who have been previously evaluated through the IS „REHR” the profile data and documents will be taken from the IS „REHR”. If the IS „REHR” has previous evaluations, which are valid and relevant for the contest – they will be also taken over automatically.
CF 05.08.	M	The Candidate will be able to see only a part of data received from external sources (the set of available data will be defined during the period of business analysis) and the status that data have been successfully received (for each category of external source)
CF 05.09.	M	In case if technical reasons, the information relevant for the Candidate’s profile will be inserted manually by the candidate.
CF 05.10.	M	If the participation in the contest implies a preliminary online evaluation of the Candidate, the form of the application for participation in the contest will provide access to these evaluation forms (which will be concluded through CU03.
CF 05.11.	M	Before sending the online application to participate in the contest, the content of the application form should be validated by the IS „REHR” (example: verification of completeness, verification of admissible values for provided data, logical verification of inserted data, etc.).

Identifier	Binding nature	Description of functional requirement
CF 05.12.	M	An electronic form of the application for participation in the contest may be sent only if it is signed electronically.
CF 05.13.	M	MSign platform service will be used as a signing mechanism.
CF 05.14.	M	The signature will be applied on the application form (structured document compatible with MSign) which should contain the HASH value of all documents and forms attached to the application.
CF 05.15.	M	The use case CU05 will be used by REC specialists to conclude the contest participation files submitted traditionally, on hardcopies.
CF 05.16.	M	When receiving the application, the IS „REHR” will notify the Candidate by sending a receipt with details of received application.
CF 05.17.	M	MNotify platform service will be used as mechanism for notification.

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 5.6. 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"> • human resource's identity data (taken from the SRP); • biometrical data regarding the human recourse (partially taken from the SRP, partially entered manually or taken from the IS „Collaborator” if they exist); • data regarding identity acts held by the human resource (taken from the SRP and IS „Collaborator”, if there are data about held service cards); • data regarding the peculiarities of human resource's employment in the MIA (taken over from the IS „Collaborator”); • data regarding human resource's domicile address/residence (taken over from the SRP); • data regarding the criminal record (taken over from the RCFI) • data regarding the administrative offences' record (taken over from AIS AOM); • data regarding the integrity record (taken from the IS „PAPIR”); • other relevant data.

Identifier	Binding nature	Description of functional requirements
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 for applying to the contest (concluded through CU05) will have a compartment meant for managing the profile of the Candidate. In case of a Candidate who is not registered in the IS „REHR”, when concluding the form for applying to the contest, the corresponding profile data will be created.
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 CU14.
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 CU25) and in parallel through MLog platform 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 service

5.8. CU07: Manage evaluation agenda

The functional requirements specifying the setup peculiarities of the timetable for human resources’ evaluation are provided in table 5.7.

Table 5.7. Functional requirements for use case UC08

Identifier	Binding nature	Description of functional requirement
CF 07.01.	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"> • adding agenda events; • modifying agenda events; • cancelling agenda events.
CF 07.02.	M	IS „REHR” will allow setting up the human resources’ evaluation agenda for 2 evaluation modalities:

Identifier	Binding nature	Description of functional requirement
		<ul style="list-style-type: none"> • electronic testing on computer; • traditional testing with hardcopy tests.
CF 07.03.	M	<p>IS „REHR” will provide functionalities to manage the spaces where the persons will be evaluated, by defining the corresponding parameters:</p> <ul style="list-style-type: none"> • number of available computers (for the premises meant for electronic tests); • number of available places (for the premises meant for traditional testing with hardcopies).
CF 07.04.	M	<p>The management of the evaluation agenda implies defining for every evaluated person of the following:</p> <ul style="list-style-type: none"> • space where the person will be evaluated; • data when the evaluation will be carried out; • time interval when the evaluation will be carried out; • types of evaluations (electronic forms from the evaluation case of the human resource, which are to be taken); • special notes (if any).
CF 07.05.	M	<p>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.</p>
CF 07.06.	M	<p>IS „REHR” will provide the mechanism for automating the process to set up the agenda for human resources’ evaluation using exclusively visual means for:</p> <ul style="list-style-type: none"> • identifying the undistributed evaluation cases, • grouping the evaluation cases by institution/subdivision/evaluation type • multiple selection of evaluation from the undistributed evaluation cases and placing them in the calendar etc.
CF 07.07.	M	<p>A distinct weekly agenda will be defined For every space where an evaluation should be hold.</p>
CF 07.08.	M	<p>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).</p>
CF 07.09.	M	<p>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.</p>
CF 07.10.	M	<p>The weekly agenda of the evaluation space will have 4 possible conditions:</p> <ul style="list-style-type: none"> • draft; • sent for approval; • approved; • rejected.

Identifier	Binding nature	Description of functional requirement
CF 07.11.	M	To make operational the weekly agenda, it should be sent for approval to the REC decision-maker.
CF 07.12.	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 07.13.	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 07.14.	M	MNotify platform service will be used as notification mechanism.
CF 07.15.	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.

5.9. CU08: 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 5.8.

Table 5.8. Functional requirements for use case CU08

Identifier	Binding nature	Description of functional requirement
CF 08.01.	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 08.02.	M	The forms for evaluation of human resources may be concluded exclusively through CU08.
CF 08.03.	M	The following categories of electronic forms meant for evaluation of human resources and concluded through CU08 may be mentioned: <ul style="list-style-type: none"> • electronic form for human resource medical evaluation; • electronic form for human resource professional skills' evaluation; • electronic form for human resource psychological evaluation; • electronic form for human resource sport skills' evaluation; • forms for concluding human resources 'Evaluation Report/Endorsement; • forms for concluding the application for participation in the contest (questionnaires related to the application for participation in the contest); • forms for concluding the human resource's agreement with the evaluation conditions.

Identifier	Binding nature	Description of functional requirement
CF 08.04.	M	<p>IS „REHR” should be able to set up electronic forms meant for human resources’ psychological evaluation using 2 methods:</p> <ul style="list-style-type: none"> • „screening out” (identification and exclusion), which provides for triage of counter-indicated candidates; • “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.
CF 08.05.	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"> • Criterion of intellectual and cognitive-aptitude potential; • Criterion of personality’s structure and dynamics.
CF 08.06.	M	<p>The electronic forms implemented through CU08 may have the following statuses:</p> <ul style="list-style-type: none"> • draft (for to-be-developed forms); • for approval (for forms waiting to be approved by those with decision-making roles before launched into production); • in production (for electronic forms which are currently used to evaluate human resources); • in demo production (for electronic forms that are currently used for the public interface of the IS „REHR” within the knowledge base); • withdrawn (for electronic forms which cannot be used anymore).
CF 08.07.	M	<p>Within a certain time moment, there might be more electronic forms of the same category (mentioned in CF 08.03) with “in production” status.</p>
CF 08.08.	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 08.09.	M	<p>The setup of an electronic evaluation form implies concluding the following actions:</p> <ul style="list-style-type: none"> • defining the general configurations of the form; • defining the questions of the evaluation form; • defining the answer options for questions.
CF 08.10.	M	<p>Defining the general configurations of the form implies the specification of the following parameters:</p> <ul style="list-style-type: none"> • name of the form; • data about the author and history of performed editing;

Identifier	Binding nature	Description of functional requirement
		<ul style="list-style-type: none"> • form status (according to CF 08.06) • evaluation type (according to CF 08.03); • form's thematic category (according to the classifier defined in CF 08.08); • time restrictions for the evaluation process (YES/NO, if yes – deadline in minutes for filling in the form); • 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.); • modality to select the options (indicating only the correct options/indicating explicitly the correct and incorrect options); • modality to calculate the score (with punishments for wrong answers, without punishments, etc.); • test qualifiers (according to the accumulated score); • other general configuration options.
CF 08.11.	M	Defining the questions implies the following parameters: <ul style="list-style-type: none"> • question name; • image related to the question (if there is any); • video related to the question (if there is any); • audio related to the question (if there is any); • other relevant options for setting up the question.
CF 08.12.	M	Defining answer options for question: <ul style="list-style-type: none"> • option type (true/false); • 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.); • score or qualifier for correction options; • penalty for wrong answer (if applicable).
CF 08.13.	M	For forms meant to conclude Evaluation Reports/Endorsements, there should be the possibility to define the link with the relevant evaluation forms.
CF 08.14.	M	An electronic form meant to conclude the Evaluation Report/Endorsement may be linked with more evaluation forms simultaneously.
CF 08.15.	M	All the electronic forms set up through CU08 will have an associated document template based on which the Evaluation file will be generated (through CU14).
CF 08.16.	M	An electronic form concluded through CU08 may be launched into production/withdrawn with the approval of the user having decision-making role (through CU15).

Identifier	Binding nature	Description of functional requirement
CF 08.17.	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 08.18.	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 options.
CF 08.19.	M	Before sending to the decision-maker the launch into production or withdrawal of the electronic form concluded through CU08, it will pass through a completeness and correctness validation procedure (automated procedure provided by the IS „REHR”).
CF 08.20.	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 08.21.	M	MSign service should be integrated as a mechanism for electronic signature.
CF 08.22.	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.

5.10. CU09: 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 5.9.

Table 5.9. Functional requirements for use case CU09

Identifier	Binding nature	Description of functional requirement
CF 09.01.	M	SI „REHR” will provide functionalities necessary for managing the evaluation cases.
CF 09.02.	M	The management of an evaluation case implies the carrying out of the following actions: <ul style="list-style-type: none"> • opening/closing/re-opening an evaluation case; • filling in the results of the medical evaluation (if applicable); • filling in the results of the professional skills' evaluation (if applicable); • filling in the results of the psychological evaluation (if applicable); • filling in the results of sport skills' evaluation; • concluding the evaluation reports/endorsements as a result of performed tests.

Identifier	Binding nature	Description of functional requirement
CF 09.03.	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 09.04.	M	IS „REHR” will take over through CU23 the results of the psychological evaluation tests taken by Candidates/Employees of MIA through the platform of psychological evaluation Cognitrom Assessment System.
CF 09.05.	M	The evaluation forms filled in within the evaluation case file will be displayed based on the setup defined through CU08.
CF 09.06.	M	The status and transition through which an electronic form meant for human resource evaluation goes through are set up through the use case CU18.
CF 09.07.	M	Any electronic form meant to evaluate the human resource will have an associated document template, which will be set up through CU18 and extracted through CU14 based on data entered in the form.
CF 09.08.	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 CU13.
CF 09.09.	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 CU07)
CF 09.10.	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 and powers provided by MPower.
CF 09.11.	M	The filling in of the electronic form meant for human resources’ evaluation is carried out through some exclusively visual mechanisms.
CF 09.12.	M	The electronic form meant for human resource evaluation will have content constraints and restrictions to limit mechanic errors.
CF 09.13.	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 09.14.	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 09.15.	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 09.16.	M	Only an electronic form for human resource evaluation that has successfully passed the procedure for verification of accuracy will be

Identifier	Binding nature	Description of functional requirement
		able to get to the final status or sent for approval to the <i>REC decision-maker</i> (when the form needs approval).
CF 09.17.	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 09.18.	M	IS „REHR” will not allow deleting any form/document in the final, approved status or electronically signed, but only its cancellation.
CF 09.1.01.	M	<p>IS „REHR” will provide the functionality for opening a human resource evaluation case based on:</p> <ul style="list-style-type: none"> • applications for participation in the contest, sent electronically through CU05; • contest participation files submitted traditionally on hardcopies; • drafts for initiating evaluation cases generated automatically by CU22; • plans/applications for evaluation of MIA employees, submitted traditionally on hardcopies.
CF 09.1.02.	M	<p>To open a human resource evaluation case, it is necessary to:</p> <ul style="list-style-type: none"> • fill in the metadata related to the human resources evaluation case; • complete/update the profile data for the evaluated human resource (including by using CU23); • 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 CU07); • attach electronic copies and associated metadata of the documents specific for opening a human resource evaluation case; • complete/update the profile data of evaluated human resource (extracting based on specific case 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 PAPIR and data regarding administrative offences from the AIS MAO).
CF 09.1.03.	M	IS „REHR” will verify the completeness of the file and the correctness of data entered before opening the human resource evaluation case.
CF 09.1.04.	M	REC Specialist will activate a specialized button for opening the case and if the validation of CF 09.1.03 was successfully done. In parallel the IS „REHR” will perform data import activities from external sources through CU23 to take over relevant data for human resource.

Identifier	Binding nature	Description of functional requirement
CF 09.1.05.	M	After opening the 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 09.1.06.	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 09.1.07.	M	The REC specialist will have the functionality of closing the human resource evaluation (specialized button for changing the status).
CF 09.1.09.	M	IS „REHR” will verify the completeness of human resources’ evaluation and only in this situation the use case may be closed.
CF 09.1.10.	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 case.
CF 09.1.10.	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 09.1.11.	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 platform service.
CF 09.2.01.	M	IS „REHR” will provide a form for registering the results of human resource’s medical evaluation.
CF 09.2.02.	M	The content of the medical evaluation form will be set through CU08 and generated through CU24.
CF 09.2.03.	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 09.2.04.	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 09.2.05.	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 09.2.06.	M	MSign platform service will be used as a mechanism for electronic signing.
CF 09.2.07.	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 09.3.01.	M	IS „REHR” will provide a form for registering the results of human resource professional skills’ evaluation.
CF 09.3.02.	M	The content of the human resource professional skills’ evaluation form will be set through CU08 and generated through CU24.

Identifier	Binding nature	Description of functional requirement
CF 09.3.03.	M	The REC Specialist will conclude only the results of the human resource professional skills' evaluation tests taken traditionally on hardcopies (when the Candidate or MIA Employee takes a hardcopy test).
CF 09.3.04.	M	The REC Specialist will attach the scanned copy of the professional skills' test taken by the human resource.
CF 09.3.05.	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 09.3.06.	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 09.3.07.	M	MSign platform service will be used as a mechanism for electronic signing .
CF 09.3.08.	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 09.4.01.	M	IS „REHR” will provide a form for registering the results of human resource psychological evaluation.
CF 09.4.02.	M	The content of the human resource psychological evaluation form will be set through CU08 and generated through CU24.
CF 09.4.03.	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 09.4.04.	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 09.4.05.	M	The REC Specialist will attach to the form a scanned copy of the psychological test taken by the human resource.
CF 09.4.06.	M	A number of psychological evaluation forms may be concluded for ne case of human resource psychological evaluation (specific for different evaluation categories).
CF 09.4.07.	M	A human resource psychological evaluation form is considered finished if it is signed by the REC Specialist who has filled it in.
CF 09.4.08.	M	MSign platform service will be used as a mechanism for electronic signing.
CF 09.4.09.	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 09.5.01.	M	IS „REHR” will provide a form for registering the results of human resource sport tests' results.

Identifier	Binding nature	Description of functional requirement
CF 09.5.02.	M	The content of the form for sport evaluation will be set through CU08 and generated through CU24.
CF 09.5.03.	M	The form of human resource sport evaluation will have the possibility to attach documents' electronic copies (<i>example: specific photos</i>).
CF 09.5.04.	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 09.5.05.	M	MSign platform service will be used as mechanism for electronic signing.
CF 09.5.06.	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 09.6.01.	M	IS „REHR” will provide form a form for concluding the Evaluation Report/ Endorsement of the REC Specialist.
CF 09.6.02.	M	The content of the form for concluding the Evaluation Report/ Endorsement of the REC Specialist will be set through CU08 and generated through CU24.
CF 09.6.03.	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 09.2.04.	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 CU24 the IS „REHR” will define automatically this link).
CF 09.2.05.	M	The form of the Evaluation Report/Endorsement will have the possibility to attach electronic copies of traditional and multimedia documents (<i>example: audio recording of the interview</i>).
CF 09.2.06.	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 CU15).
CF 09.2.07.	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 09.2.08.	M	MSign platform service will be used as a mechanism for electronic signing.

5.11. CU10: Manage MIA organigram

The functional requirements of the component meant to managing the MIA organigram are provided in table 5.10.

Table 5.10. Functional requirements for the use case CU10

Identifier	Binding nature	Description of functional requirement
CF 10.01.	M	IS „REHR” will provide a mechanism meant to set up the MIA organigram (totality of institutions subordinated to the MIA and its subdivisions).
CF 10.02.	M	IS „REHR” will provide e mechanism for managing the positions related to the MIA employees and their evaluation peculiarities (evaluation type and periodicity).
CF 10.03.	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 subdivision, positions and number of employees in positions for every subdivision)
CF 10.04.	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 10.05.	M	Every institution subordinated to the MIA will have an authorized user having the obligation to manage the institution organigram.
CF 10.06.	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"> • data about the institution (name, address, persons, contact telephone and email, etc.). • data about the institution subdivision (subordination level, name, address, contact person, functions and their number, etc.); • data about the function (name, necessary evaluations upon recruitment, periodical evaluations, frequency of evaluation); • other relevant data of the MIA organigram.
CF 10.07.	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 10.08.	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).

5.12. CU11: 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 5.11.

Table 5.11. Functional requirements for the use case CU11

Identifier	Binding nature	Description of functional requirement
CF 11.01.	M	IS „REHR” will provide the necessary functionalities for defining and setting up human resources’ recruitment or evaluation plans.
CF 11.02.	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 11.03.	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 11.04.	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 11.05.	M	The setup of a recruitment plan implies concluding an electronic form which contains all the data necessary for placing the recruitment announcements on the public interface of the IS „REHR” or official web page of the MIA and the setup of Candidates’ evaluation cases which meet the recruitment requirements (types of evaluations to be carried out).
CF 11.06.	M	The setup of an evaluation plan implies concluding an electronic form which contains MIA employees to be evaluated, type and period of evaluation. This form should provide all the information necessary for opening and setting up an evaluation case.
CF 11.07.	M	MIA employees to be included in the evaluation case will be inserted through the lists suggested by the IS „REHR” (through CU22) or explicitly for every MIA Employee separately.
CF 11.08.	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 11.09.	M	For the validated plans for evaluation of MIA employees, the IS „REHR” will update the profiled of MIA employees using the facilities provided by CU23.
CF 11.10.	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 CU23).
CF 11.11.	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 11.12.	M	MSign platform service will be used as mechanism for electronic signing .
CF 11.13.	M	After the recruitment form is signed and sent, the IS „REHR” will generate and publish on the public interface the recruitment

Identifier	Binding nature	Description of functional requirement
		announcements (using CU23) and will notify the relevant REC Specialists about sending a recruitment plan.
CF 11.14.	M	After signing and sending the evaluation form of MIA employees, the IS „REHR” will notify the relevant REC Specialists regarding the reception of an evaluation plan for which an evaluation agenda should be set up.

5.13. CU12: Use Dashboard

The functional requirements meant for the operation of the Dashboard meant for authorized users of the IS „REHR” are provided in table 5.12.

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 users a Dashboard through which they will be notified about important business events and will provide rapid access to their details.
CF 12.02.	M	The following business events displayed on the Dashboard may be listed: <ul style="list-style-type: none"> • system notifications; • notifications regarding the need to involve the user in the activities of the work flows of the IS „REHR” (including delay alerts); • notification regarding the forms or documents waiting to be approved by decision-making roles (including delay alerts); • notification about filling in the evaluation case file with new documents or electronic forms; • notifications on acceptance/rejection of electronic forms’ drafts; • other relevant events.
CF 12.03.	M	The dashboard of the US „REHR” user will display only business events relevant for the roles and data available for the authorized user.
CF 12.04.	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 12.05.	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.

Identifier	Binding nature	Description of functional requirement
CF 12.06.	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 (opening the form which has generated the notification).
CF 12.07.	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 12.08.	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"> • open/closed evaluation cases; • performed electronic forms (business events related to currently performed evaluation cases); • reviewed electronic forms (agenda or business events related to reviewed evaluation cases)
CF 12.09.	D	IS „REHR” will provide to every user the functionality of individual setup of the Dashboard aspect and content.

5.14. CU13: 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 5.13.

Table 5.13. Functional requirements for use case CU13

Identifier	Binding nature	Description of functional requirement
CF 13.01.	M	IS „REHR” will provide a mechanism to search for data and documents in the stored data content.
CF 13.02.	M	IS „REHR” will provide a mechanism for indexed search of data. The search mechanism will use morphological means.
CF 13.03.	M	IS „REHR” will allow defining the following search targets (the search result will display the list of): <ul style="list-style-type: none"> • recruitment/evaluation plans; • evaluation case files; • documents contained in the evaluation case files or human resources’ profiles; • human resources’ profiles; • concluded electronic forms concluded and contained in the evaluation case files.

Identifier	Binding nature	Description of functional requirement
CF 13.04.	M	IS REHR" will provide a flexible and efficient mechanism to define search criteria.
CF 13.05.	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 the narrow the area of searched for values.
CF 13.06.	M	The search results will be ordered depending in the relevance of the search query result, alphabetically or creation date/last update.
CF 13.07.	M	The user will be able to define criteria for ordering or grouping the content of the list with search results.
CF 13.08.	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 13.09.	D	The search results' entries will be marked (specific color or icon) depending in the nature or status of found informational item.
CF 13.10.	M	IS „REHR" will provide the functionality of refining the search in found results.
CF 13.11.	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"> • selecting the entries of search results; • 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>); • changing the entry's status; • multiple deletion; • multiple electronic signing; • other relevant actions.
CF 13.12.	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 13.13.	M	IS „REHR" will restrict the access to found results' details when the use who has initiated the search process does not have access to the information items requested to be accessed.
CF 13.14.	M	IS „REHR" will allow exporting the table with the search results in CSV or PDF formats.

5.15. CU14: 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 5.14.

Table 5.14. Functional requirements for use case CU14

Identifier	Binding nature	Description of functional requirement
CF 14.01.	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.
CF 14.02.	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 14.03.	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 14.04.	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"> • application for participation in the contest; • agreement of the Candidate/MIA Employee with conditions for carrying out the evaluation, and admissibility of processing personal data; • file of the evaluation test for human resource professional skills; • file of the psychological evaluation test for human resource; • file of human resource’s medical evaluation; • file of human resource’s sport skills evaluation; • evaluation report/endorsement by the REC Specialist for human resource; • receipt of receiving the application of participation in the contest; • own responsibility declaration; • criminal record; • integrity record; • administrative offence record; • announcement for announcing the contest; • plan for recruiting human resources; • plan for human resources’ evaluation; • system notification; • other relevant documents.
CF 14.05.	M	IS „REHR” will have predefined (editable) templates for every type of generated document necessary for the eventual update of generation rules.
CF 14.06.	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.

Identifier	Binding nature	Description of functional requirement
CF 14.07.	M	Developer will implement up to 25 documents to be generated by the IS „REHR”, including the ones mentioned in CF 14.04. The complete list of documents will be identified during business analysis.
CF 14.08.	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"> • 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.); • 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; • The human resource personal file (a synthesis of data from all business events’ forms of the evaluation case file, profile data and system logs); • Form of evaluation case file (a synthesis of data from all business events’ forms of the evaluation case file); • Report on evaluation cases (according to subdivisions, according to time periods, according to type of evaluation, according to evaluation result); • Evaluation tally sheet; • Evaluation report/endorsement; • Extract from the Evaluation Register; • Extract from human resource evaluation agenda; • Performance indicators; • Other relevant reports.
CF 14.09.	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 14.10.	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 14.11.	M	Implicitly, the reports will be extracted in PDF format.
CF 14.12.	M	The developer should implement up to 25 categories of predefined reports requested by the beneficiary, including the ones specified in CF 14.08.
CF 14.13.	M	IS „REHR” will log all the events for generating and printing out reports and documents.

5.16. CU15: 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 5.15.

Table 5.15. Functional requirements for use case CU15

Identifier	Binding nature	Description of functional requirement
CF 15.01.	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 15.02.	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"> • human resources’ evaluation agenda; • new/modified test to be launched in production; • test to be extracted from production; • demo test to be published on the public interface of the IS „REHR”; • human resource evaluation reports.
CF 15.03.	M	The complete list of electronic forms needing approvals from the decision-making roles will be identified in the business analysis process.
CF 15.04.	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.
CF 15.05.	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 15.06.	M	IS „REHR” will use the MSign platform service for applying the electronic signature for approving/rejecting the electronic form.
CF 15.07.	M	If the electronic form is approved, the IS „REHR” will notify all relevant users regarding the approval/rejection event.
CF 15.08.	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 15.09.	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 15.10.	M	IS „REHR” will log all the events for approving/rejecting the draft electronic forms.

5.17. CU16: 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 5.16.

Table 5.16. Functional requirement for use case CU16

Identifier	Binding nature	Description of functional requirement
CF 16.01.	M	<i>IS „REHR”</i> 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 16.02.	I	The reports managed through <i>CU16</i> are meant for IT audit functions and do not include reports related to business event related to human resources' evaluation cases.
CF 16.03.	M	This reporting is necessary within the entire system, including: <ul style="list-style-type: none"> • nomenclatures and classifiers; • database entries; • user's activity; • access and security permissions.
CF 16.04.	M	Reports will be generated based on the following categories of logged events: <ul style="list-style-type: none"> • successful login of users; • unsuccessful login of users; • sent notifications; • actions on data (accessing, adding, modifying, eliminating).
CF 16.05.	M	<i>IS „REHR”</i> 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 16.06.	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).
CF 16.07.	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 <i>IS „REHR”</i> .
CF 16.08.	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.

5.18. CU17: 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 5.17.

Table 5.17. Functional requirements for use case CU17

Identifier	Binding nature	Description of functional requirement
CF 17.01.	M	IS „REHR” will have a mechanism to define and manage dynamically the users, their roles and rights.
CF 17.02.	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 super-administrator .
CF 17.03.	M	IS „REHR” will allow blocking/unblocking the user’s access.
CF 17.04.	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 platform service for authentication of users through electronic or mobile signature.
CF 17.05.	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 17.06.	M	<p>The following categories of data will be able to be managed within users’ profiles:</p> <ul style="list-style-type: none"> • user name; • user surname; • email of contact; • telephone of contact; • access login; • access password; • authentication strategy (user + password, electronic signature /mobile signature, authentication in 2 levels (2FA), LDAP etc.); • activated/inactivated account; • access validity period; • users’ roles; • users whom I temporarily replace; • users who temporarily replace me; • other relevant data.
CF 17.07.	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 and human resources’ evaluation cases in which the authorized user is involved.
CF 17.08.	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 17.09.	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.

Identifier	Binding nature	Description of functional requirement
CF 17.10.	M	IS „REHR” will provide user interface and information content only based on the rights and roles held by users.
CF 17.11.	M	The information system will allow setting up an unlimited number of roles.
CF 17.12.	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 17.13.	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 17.14.	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 17.15.	M	<p>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.</p> <p>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.</p>
CF 17.16.	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 17.17.	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 17.18.	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 17.19.	M	<p>IS „REHR” will allow defining permissions related to actions a (business events) available to users with access to user interface components.</p> <p>The following categories of actions available to users will be set up:</p> <ul style="list-style-type: none"> • viewing the entry; • adding an entry; • changing an entry; • deleting an entry; • workflow transition; • other relevant actions.

Identifier	Binding nature	Description of functional requirement
CF 17.20.	M	IS „REHR” will allow setting up the log strategy for business events generated by each component of user interface.

5.19. CU18: Manage flows, forms and templates

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 5.18.

Table 5.18. Functional requirements for use case CU18

Identifier	Binding nature	Description of functional requirement
CF 18.01.	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 18.02.	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 18.03.	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 18.04.	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 18.05.	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 18.06.	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 18.07.	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 18.08.	M	IS „REHR” will provide a mechanism to set up electronic forms used in the user interface, except for the forms set up through CU08.

Identifier	Binding nature	Description of functional requirement
CF 18.09.	M	IS „REHR” will provide mechanisms to set up templates for documents (and reports) related to the acts generated based on concluded electronic forms (the templates will have a well-defined structure, which will allow modifying the aspect and the content of the extracted document).
CF 18.10.	D	It is appropriate for the document templates to be set up through a platform for setting up and generating reports (<i>Example: JasperReports</i> ,
CF 18.11.	M	All the templates of documents set up through CF 18.09 – CF 18.10 will be used when generating the documents through CU13.
CF 18.12.	M	Upon the request of the Beneficiary, the developer will set up to 20 templates of documents to be generated by the IS „REHR”.

5.20. CU19: Manage metadata

The functional requirements necessary for managing the metadata of the IS „REHR” are included in table 5.19.

Table 5.19. Functional requirements for use case CU19

Identifier	Binding nature	Description of functional requirement
CF 19.01.	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 civil status events.
CF 19.02.	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 19.03.	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 19.04.	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 19.05.	M	IS „REHR” will not allow eliminating a category of metadata, if it is used at least in one entry of the database.

Identifier	Binding nature	Description of functional requirement
CF 19.06.	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 19.07.	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 19.08.	M	IS „REHR” will allow setting up linear and hierarchical classifiers (in which some values may have parent values).
CF 19.09.	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 19.10.	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>)

5.21. CU20: Manage public interface content

The functional requirements necessary for managing the content of the public interface of the IS „REHR” are included in table 5.20.

Table 5.20. Functional requirements for use case CU20

Identifier	Binding nature	Description of functional requirement
CF 20.01.	M	IS „REHR” will provide a mechanism for managing the public interface meant to be accessed by anonymous users and candidates.
CF 20.02.	I	The mechanism for managing the public interface meant to be accessed by anonymous users and candidates should provide the following functionalities: <ul style="list-style-type: none"> • management of the browsing menu; • configuration of the main page; • configuration of electronic services provided through the public interface; • management content information (news, publications, multimedia information); • management of training-methodological materials.
CF 20.03.	M	IS „REHR” will provide a mechanism to manage the structure of the public interface content based on which the browsing menu will be displayed.

Identifier	Binding nature	Description of functional requirement
CF 20.04.	I	The structure of the public interface of the IS „REHR” represents a tree which is unlimited in hierarchical levels – the leaves of which contain content information.
CF 20.05.	M	IS „REHR” will provide the functionality of reorganizing the structure tree of the public interface (moving the subcategory from one category to another, hiding/deleting categories of the structure tree, renaming the categories of structure tree etc.).
CF 20.06.	M	<p>The following will be possible to be defined for the structure categories of the structure tree:</p> <ul style="list-style-type: none"> • content information (adding/modifying/deleting content information); • URL of access to public interface modules or accessing external resources; • Subordinated subcategories.
CF 20.07.	M	IS „REHR” will not delete a structure category if it contains at least one content document or subordinated category.
CF 20.08.	M	IS „REHR” will provide a mechanism for managing the main page of the public interface.
CF 20.09.	I	The main page represents a mechanism of rapid access to services and facilities of the public interface.
CF 20.10.	M	<p>The following configuration facilities should exist for the main page of the public interface of the IS „REHR”:</p> <ul style="list-style-type: none"> • defining the aspect of information presentation (number of displayed color, compartments and their order of display on the main page); • setting up blocks with information extracted from the information content of the public interface; • setting up the areas with banners of access to the services of the IS „REHR”, MIA or external resources; • setting up the access to electronic services accessible through the IS „REHR”; • managing the information placed in the footnoted of the main page and of the public interface.
CF 20.11.	M	IS „REHR” will have the functionality of setting up access to the electronic service provided through public interface.
CF 20.12.	M	The electronic services provided by the IS „REHR” (example: sending the application of participation in the contest) will be implemented through modules dedicated to the interface, which will be possible to be integrated in the public interface pages of the IS „REHR”.
CF 20.13.	M	The electronic services integrated in the public interface of the IS „REHR” will be able to be accessed at permanent URLs.

Identifier	Binding nature	Description of functional requirement
CF 20.14.	M	<p>IS „REHR” will provide functionalities to manage the information content through some facilities specific for Content Management Systems, which will provide the following functionalities:</p> <ul style="list-style-type: none"> • editing and publishing documents through editors WYSIWYG; • loading files and images in the content of published documents or attaching them to these documents; • loading and publishing multimedia information (video); • publishing multimedia information from external sources (example: Youtube).
CF 20.15.	M	<p>All the content documents and metadata attached to those published through the public interface of the IS „REHR” should be in line with the provisions of the Government Decision no. 188 of 03.04.2012 on official pages of public administration authorities in Internet.</p>
CF 20.16.	M	<p>IS „REHR” will provide functionalities to manage a knowledge base which will contain training-methodological information for the Candidates and MIA Employees to be evaluated.</p>
CF 20.17.	M	<p>IS „REHR” will provide functionalities to define and manage the structure of the knowledge base.</p>
CF 20.18.	M	<p>IS „REHR” should be able to place (and subsequently display in the public interface) the following types of content in the knowledge base: (instructing-methodological materials)</p> <ul style="list-style-type: none"> • documents in HTML format (editing with the help of editors WYSIWYG); • guidelines/instructions loaded in format PDF, DOC/DOCX, PPT/PPTX etc. • references to the legal framework in force, covered in the State Register of Legal Acts (https://www.legis.md); • multimedia information loaded directly in the IS „REHR” or published through external resources (example: Youtube, social media, etc.); • demo tests’ batteries to familiarize the potential Candidates or MIA Employees with the principles of human resources’ testing implemented in the IS „REHR”.

5.22. CU21: Other administration activities

The functional requirements regarding other categories of activities to manage the IS „REHR” are provided in table 5.21.

Table 5.21. Functional requirements for case use CU21

Identifier	Binding nature	Description of functional requirement
CF 21.01.	M	IS „REHR” should allow administrative roles to take over, display and reconfigure the operational parameters and the general system settings.
CF 21.02.	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 21.03.	M	System Administrator will have a specialized interface to access and analyze systems logs of the IS „REHR”.
CF 21.04.	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 21.05.	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 21.06.	M	IS „REHR” will provide the functionality of archiving and excluding historical data to be deleted according to the legislation in force.
CF 21.07.	M	IS „REHR” will provide the System Administrator with all functional facilities necessary to ensure the functionality of the information solution in good conditions.

5.23. CU22: 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 5.22.

Table 5.22. Functional requirements for the use case CU22

Identifier	Binding nature	Description of functional requirement
CF 22.01.	M	IS „REHR” will have a component of executing automated procedures (jobs) executed with a certain periodicity and at a certain point in time.
CF 22.02.	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 22.03.	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 22.04.	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.

Identifier	Binding nature	Description of functional requirement
CF 22.05.	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 CU11.
CF 22.06.	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 22.07.	M	IS „REHR” will automatically trigger the procedures of mutual data exchange with external information systems defined through CU23.
CF 22.08.	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 CU19.
CF 22.09.	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 22.10.	M	IS „REHR” will publish periodically within the public interface of the IS „REHR” and Open Data Portal public reports and KPI produced during the implemented business processes.
CF 22.12.	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.

5.24. CU23: 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 5.23.

Table 5.23. Functional requirements for use case CU23

Identifier	Binding nature	Description of functional requirement
CF 23.01.	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 platform MConnect (in case of information systems of PA).
CF 23.02.	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 23.03.	M	IS „REHR” will have a mechanism meant for mutual exchange of data between the public interface and the BackEnd component so as to

Identifier	Binding nature	Description of functional requirement
		provide electronic services through the public interface of IS „REHR” and to send to the public interface the recruitment announcements and public reports.
CF 23.04.	M	IS „REHR” will get integrated with the RCFI so as to extract criminal record of the Candidate/MIA Employee (form F-246).
CF 23.05.	M	IS „REHR” will get integrated with the IS „Collaborator” to exchange mutually the data related to the profile of the Candidate/MIA Employee.
CF 23.06.	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.
CF 23.07.	M	IS „REHR” will get integrated through the interoperability platform 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 23.08.	M	IS „REHR” will get integrated through the interoperability platform MConnect with the IS „PAPIR” to send request for getting integrity records and to receive the integrity records of the Candidates.
CF 23.09.	M	IS „REHR” will get integrated with the platform service MPass for the purpose of implementing the user authentication procedures through the electronic signature and mobile signature.
CF 23.10.	M	IS „REHR” will get integrated with the platform service MSign to implement the procedure of electronic signature of electronic forms/documents.
CF 23.11.	M	IS „REHR” will get integrated with the platform service MLog to log critical business events.
CF 23.12.	M	IS „REHR” will get integrated with the platform service MNotify to implement the mechanism of users’ notification.
CF 23.13.	M	IS „REHR” will get integrated with the platform service MPower to verify the empowerments of authorized users.
CF 23.14.	M	IS „REHR” will get integrated with the Open Data Portal to publish public statistical data produced in the implemented workflows.
CF 23.15.	M	IS „REHR” will get integrated with Google Analytics to send statistical data regarding the use of Public Interface.
CF 23.16.	M	IS „REHR” will get integrated with social media where MIA has user profiles to publish recruitment announcements or content information of the public interface of the IS „REHR”.
CF 23.17.	M	All the synchronization events and especially accessing personal data through procedures described by the functional requirements CF

Identifier	Binding nature	Description of functional requirement
		23.03 - CF 23.14 will be logged through the internal log mechanism of the IS „REHR” and the platform service MLog.

5.25. CU24: Generate forms for evaluation

The functional requirements of the component on generating electronic forms meant to test Candidates/MIA Employees are provided in table 5.24.

Table 5.24. Functional requirements of the use case CU24

Identifier	Binding nature	Description of functional requirement
CF 24.01.	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 CU15) and evaluation agenda (concluded through CU07) and parameters for setting the evaluation test (concluded through CU08).
CF 24.02.	M	IS „REHR” will generate all categories of electronic evaluation forms specific for the evaluation case: <ul style="list-style-type: none"> • forms meant for professional skills’ evaluation; • forms meant for psychological evaluation; • forms meant for medical evaluation; • forms meant for sport evaluation; • forms meant for concluding REC Specialists’ endorsements.
CF 24.03.	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 24.04.	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"> • order for displaying the questions will be random for every generated test; • order for displaying the answer alternatives will be random; • 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).
CF 24.05.	M	Electronic forms to be filled in by the Candidate/MIA Employee (meant to evaluate professional skills or for psychological evaluation) will be accessible in the user interface only since the moment which is planned for stating the evaluation (defined in the evaluation agenda).

Identifier	Binding nature	Description of functional requirement
CF 24.06.	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).

5.26. CU25: Log events

The functional requirements of logging the business events produced during the operation of the IS „REHR” are provided in table 5.25.

Table 5.25. Functional requirements of the use case CU25

Identifier	Binding nature	Description of functional requirement
CF 25.01.	M	IS „REHR” will contain a mechanism to log all the business events related to its use.
CF 25.02.	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>CU21</i> .
CF 25.03.	M	<i>SI „REHR”</i> will provide to System Administrators a mechanism to search, filter and view the details of logged events
CF 25.04.	M	The following categories of events will be logged: <ul style="list-style-type: none"> • user login; • user logout; • adding/changing/removing/accessing the entry; • business events specific to workflows of the <i>IS „REHR”</i>; • synchronization with third information systems; • generating/accessing report; • queries to database; • other specific business events.
CF 25.05.	M	The logged events will save the following categories of data (depending on the nature of logged events): <ul style="list-style-type: none"> • identifier of the user who has generated the event; • category of the logged event; • moment of logging the event; • module of <i>IS „REHR”</i> which has generated the business event; • entry related to the business event; • action performed by the user.
CF 25.06.	M	<i>IS „REHR”</i> will log exhaustively all the produced business events.
CF 25.07.	M	<i>IS „REHR”</i> will log in parallel the critical business events through the logging governmental service <i>MLog</i> .

Identifier	Binding nature	Description of functional requirement
CF 25.08.	M	IS „REHR” will provide the functionality of defining the critical business events to be logged in parallel through the MLog platform service.

5.27. CU26: Send notifications

The functional requirements of the component related to notifying the stakeholders of the IS „REHR” are provided in table 5.26.

Table 5.26. Functional requirements for the use case CU26

Identifier	Binding nature	Description of functional requirement
CF 26.01.	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"> • notification via Email; • notification via Dashboard of the authorized user; • both categories from above
CF 26.02.	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 26.03.	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 26.04.	M	Authorized users (regardless of the roles that they have) will be able to set up the preferences of the notification means.
CF 26.05.	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 26.06.	M	<i>The System Administrator</i> will have the functionality of concluding and sending notifications to explicit users or groups of users.
CF 26.07.	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.
CF 26.08.	M	IS „REHR” will notify the System Administrator about any problems related to the performance and availability of the information system.
CF 26.09.	M	IS „REHR” will notify the external users through the governmental system of notification MNotify.

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

Value	Meaning	Interpretation
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”.
ARH	Architecture requirement	Requirement refers to architectural aspects for conceptualization of the IS „REHR”.
DEL	Deliverable requirement	Requirement refers to deliverables to be submitted by the developer of the IS „REHR”.
FLEX	Flexibility requirement	Requirement refers to the flexibility of adjusting the IS „REHR” to new needs.
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”.
SLA	Requirement for offered services	Requirement refers to quality parameters according to which the services of guarantee, maintenance and post-implementation support should be provided.
MG	Project management requirement	Requirement refers to project management aspects during the period of designing, developing, implementing, producing and operating the IS „REHR”.
PERF	Performance requirement	Requirement refers to operation performance of the IS „REHR”.
RC	Resilience and continuity requirement	Requirement refers to the reply properties of the IS „REHR” to the critical events and rapid recovery of its functionalities.
SEC	Security requirement	Requirement refers to aspects of ensuring information security to be met by the IS „REHR”.

Value	Meaning	Interpretation
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.
MR	Maintenance requirement	Requirement refers to maintenance aspects post-delivery of the IS „REHR”.
PR	Platform requirement	Requirement refers to the technological platform requested for the IS „REHR”.
UI	User interface requirement	Requirement refers to user interface to be provided by the IS „REHR” to authorized users.
ISR	Implementation services requirement	Requirement refers to services provided during the implementation of the IS „REHR” and launch into production.
PIR	Post-implementation requirement	Requirement refers to guarantee and post-implementation maintenance of the IS „REHR”.

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. 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 6.2. 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 6.2. 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"> • Production environment; • Testing/training environment; • Development environment.
LIPR 002	M	The <i>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 IS „REHR” 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 IS „REHR” (in any environment in which it operates) of at least 20000 nominal users, as well as unlimited by external systems. There will be no

ID	Binding nature	Requirement
		restrictions regarding the number of documents, transactions or accessing modality for the <i>IS „REHR”</i> (e.g. <i>limitations in concurrent accessing</i>).
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.

6.3. Requirements for system architecture

The architecture of the *IS „REHR”* should be aligned to the needs of the MIA in the aspects related to the flexibility and maintenance of the information system. *MIA* opts for an open, modular architecture based on interoperable components. These principles should be visible at all the levels of the architecture of the *IS „REHR”*.

6.3.1. General requirements of the information system architecture

Table 6.3. contains specification of the general nonfunctional requirements set for the architecture of the *IS „REHR”*.

Table 6.3. General requirements set for the information system architecture

ID	Binding nature	Requirement
ARH 001	M	Architecture of the <i>IS „REHR”</i> should be based on open standards.
ARH 002	M	Architecture of the <i>IS „REHR”</i> should be focused on services (SOA).
ARH 003	M	Architecture of the <i>IS „REHR”</i> will be set in an integrated way, developed with the best practices in the area (example: <i>architecture principles and architectures of reference aligned to TOGAF 9.1</i>).
ARH 004	M	Architecture of the <i>IS „REHR”</i> will be a client-server one, organized in at least 3 vertical levels, clearly divided, so as every higher level to depend only on its inferior level.

ID	Binding nature	Requirement
ARH 005	M	Architecture of the IS „REHR” should be adapted to the implementation and use in virtualized environments.
ARH 006	M	The characteristics of an information system with architecture focused on implementation in virtualized environments, are: aware of latency, aware of components’ falls, paralleled, aware of resources’ use.
ARH 007	M	Communication among all system components will be secured, using for this the internal interfaces of the system components.

6.3.2. Requirements at the level of information system architecture presentation

The level of architecture presentation is responsible for ensuring the interaction of the user with the business functions of the IS „REHR”. This level of architecture manages the manner in which the users access and use the functions of the information system both, for exercising the duties, but also for administrative purpose.

IS „REHR” will be accessed by the employees of the *MIA Recruitment and Evaluation Center*, MIA human resources’ specialists, MIA decision-makers, MIA employees, candidate to be employed within the MIA and additionally the Internet users, the IS „REHR” will communicate with other information systems, through external applicative interfaces (specifications related to the *Interoperability of the IS „REHR”*) for the purpose of consuming or supplying data. The external information systems (outside the ICT of MIA infrastructure), except for the *MCloud* platform services, interacted with the IS „REHR” through the interoperability platform *MConnect*.

Table 6.4. contains the specification of nonfunctional requirements set for the level of presenting the architecture of the IS „REHR”.

Table 6.4. Requirements for presenting the architecture of the information system

ID	Binding nature	Requirement
ARH 008	M	IS „REHR” will allow a user to use a single client application to access all the business functions for which the user has been authorized for. Exceptions are admitted for roles with privileged rights.
ARH 009	M	The client application will be able to be operated in standard operational environments or with minimum configuration from behalf of the Beneficiary (<i>example: only system soft standard</i>).
ARH 010	M	The default client application for the IS „REHR” will be the WEB explorer.
ARH 011	M	IS „REHR” will be compatible with at least 2 of the most used WEB explorers (<i>Microsoft Internet Explorer/Microsoft Edge, Mozilla FireFox, Google Chrome, Opera and Safari</i>).
ARH 012	M	Compatibility with <i>Microsoft Internet Explorer/Microsoft Edge</i> is mandatory.
ARH 013	M	The presentation level will not implement the business rules, except for validation of entry data.

6.3.3. Requirements for business logic level of the information system architecture

The level of business logic for the architecture of the IS „REHR” implements the basic functionalities of the information system. The business logic level contains the business logic relevant for exercising the duties of MIA Recruitment and Evaluation Center through the IS „REHR”. The business logic is responsible for accessing, processing and transforming data from the application, manages the business rules and ensures data accuracy and consistency.

The level of business logic is accessed by the presentation level to make the business function of the information system available to users. As well, it may provide these functions to external information applications, through specialized applied interfaces, which also are part of the business logic level.

An architecture of SOA type implies a high level of granularity at the level of component blocks for the Business Logic. Every logic block provides its functions through held internal or/and external interfaces. They may be accessed by other business logic components, presentation level components, or external systems.

Table 6.5. contains the specifications of the nonfunctional requirements set for the business logic level of the architecture of the information system IS „REHR”.

Table 6.5. Requirements for the business logic level of the information system architecture

ID	Binding nature	Requirement
ARH 015	M	The business logic level should be independent totally in relation to the level of presentation and applications which access the business logic level directly (through specialized applicative interfaces).
ARH 016	M	The business logic level should have a completely modular architecture, based on reusable components and abstract interfaces. There should be no identical functionalities carried out by different components at this level (<i>example: access to data</i>).
ARH 017	D	The business logic level should contain and have delimited components of „business workflow” type and „business entity” type.
ARH 018	D	The access to components of „business entity” type is carried out through components of „business workflow” type.
ARH 019	D	Business entities should be clearly identified at the level of the business logic and encapsulated in components of „business entities” type.
ARH 020	D	Components of „business entity” type should be integral and contain all the data and business logic related to the business entity it refers to, which is necessary for performing business operations, applying relevant business rules and for maintaining data integrity and accuracy.
ARH 021	M	Components related to the business logic level should communicate among them through interfaces/dedicated internal functions (<i>tight coupling</i>).
ARH 022	M	Components related to the business logic level should be accessible for external application only through external applicative interfaces defined for this reason.
ARH 023	M	Architecture of the business logic level will allow concurrent access to the objects and functions of the IS „REHR”.

6.3.4. Requirements for the data level of the architecture of the IS „REHR”

This architecture level is storing and accessing the data of the IS „REHR”. The data are accessible through the database management systems (DMS). Integrity rules for data are established at the level of the DMS. The data level should ensure the possibility for the data to be accessed only by authorized entities and will ensure their integrity and accuracy.

The data level should ensure the necessary data of the IS „REHR” to provide business functionalities and services requested by the MIA. The requirements for the data level in the architecture of the IS „REHR” are provided in table 6.6.

Table 6.6. Requirements for data level of the information system architecture

ID	Binding nature	Requirement
ARH 024	M	The model of data implemented and supported by the IS „REHR” should correspond to the description in point <i>Data model of the information system</i> .
ARH 025	M	IS „REHR” should support an integrated data model for the information of reference.
ARH 026	M	The conceptualized data model should ensure the possibility of data migration from the information systems or files currently operated by MIA.
ARH 027	M	The data of the IS „REHR” should be accessed only through the components contained in the business logic level.
ARH 028	M	The data stored in the IS „REHR” should be neutral and independent in relation to the business logic level.
ARH 029	M	The data architecture should be optimized from the point of view of rapid access of data for performing transactions and for generating statistics and analysis reports. The generation of analysis reports should not influence the performance of the transaction operations of the information system.
ARH 030	M	The implemented data model should be documented in detail. The documentation should contain the technical description of the data level (<i>example: XSD</i>), as well as the semantic description (<i>association of data structures to the business entity and their properties</i>). Semantic description of data should be available for users within the system, wherever it is useful (<i>example: configuration of reports</i>).
ARH 031	M	Every registration of the information object will have a single identification number at the system level. The algorithm for attributing the identification number will be set within the system and will allow identification of entries’ corruption.
ARH 032	M	System architecture should ensure data integrity and accuracy when accessing and modifying simultaneously more entities (users, internal processes, external applications).

6.3.5. Requirements for the technological level of the information system architecture

The soft and hard components, which are necessary for operating the components of the IS „REHR” and which are part of the above levels are located at this architecture level (level of data, level of business logic and level of presentation).

The technological level of the architecture should ensure the availability and accessibility of system components. The requirements of architecture technological level of the IS „REHR” are provided in table 6.7.

Table 6.7. Requirements set for the technological level of the information system architecture

ID	Binding nature	Requirement
ARH 033	M	Technological architecture of the system should have a high level of resistance fail, not to have singular point of failure (SPOF).
ARH 034	M	Technological architecture should ensure the rational and balanced use of processing resources.

6.4. Requirements for the technological platform

The technological platform is composed of the totality of software and hardware components necessary to ensure the operational environment in which the IS „REHR” will operate. The technological platform includes: development platform and program languages in which the information system code is established, as well as the database management systems, operation systems on which the system components may operate, assurance of a specific program necessary to be installed for accurate operation of the information system, hardware platform on which the system components operate, etc.

To have a scalable, flexible and easy to maintain system, there should be a minimum level of system’s dependency on the technological platform that its components are operating on.

6.4.1. General requirements for the technological platform of the information system

Table 6.8. contains the specification of general nonfunctional requirements set for the technological platform of the IS „REHR”.

Table 6.8. General requirements for the technological platform of the information system

ID	Binding nature	Requirement
PR 001	M	The platform technologies present in the architecture of the IS „REHR” should be widely known technologies implemented in the Republic of Moldova. At least other 3 providers should provide services for maintaining and developing solutions on the respective platforms on the local market.
PR 002	M	The components of the IS „REHR” should be independent from the technological platform on which they operate (except for cases when such requirements result explicitly from the current Terms of Reference).
PR 003	M	The architecture of the system should be optimized for operating in environments of <i>cloud computing</i> type. The characteristics of a system with an architecture focused on implementation of Cloud solutions are:

ID	Binding nature	Requirement
		aware of latency, aware of components' failure, parallelized, aware of resources' use.
PR 004	M	The technologies present at the level of the technological platform should be homogeneous (minimum number of different technologies, <i>example: the same operation systems for middleware and database</i>).
PR 005	M	<i>IS „REHR”</i> should support the creation, modification, processing, storing and accessing of text in Unicode format.
PR 006	M	The <i>Provider</i> should indicate in its bid complete and exhaustive information regarding the technological platforms supported by the application and the relevant constraints.

6.4.2. Requirements for the presentation level of the technological platform of the information system

This compartment contains the requirements related to technologies of the level of presentation of the *IS „REHR”*. Table 6.9 covers all the requirements specific for the level of presentation of the technological platform of the *IS „REHR”*.

Table 6.9. Requirements for the presentation level of the technological platform of the information system

ID	Binding nature	Requirement
PR 007	M	<i>IS „REHR”</i> should be accessible for any authorized user of the <i>IS „REHR”</i> connected to the corporate network of the MIA, using standard computers held at the place of work (desktop stations, portable computers, tablets, printers, etc.).
PR 008	M	There should be a possibility to print all the visualizations and reports generated by the <i>IS „REHR”</i> in the indicated page format. <i>IS „REHR”</i> should size automatically the exit documents so as to fit the format indicated by the user (<i>example: A2/A3/A4/A5, portrait/landscape etc.</i>). There should exist one or more options for the type of exit documents (<i>example: PDF, XML, XLS, DOC etc.</i>).

6.4.3. Requirements for the business logic level of the technological platform of the information system

Table 6.10 contains all the requirements specific for the business logic level of the technological platform of the *IS „REHR”*.

Table 6.10. Requirements for the business logic level of the technological platform of the information system

ID	Binding nature	Requirement
PR 010	M	Components which set up the business logic level should be developed in modern programming languages, widely accepted in the industry and especially in the ICT sector of the Republic of Moldova (<i>example: Java, PHP, ASP.NET, C# etc.</i>).
PR 011	M	Technologies present at this level should allow integrating the components which are or will be developed by the <i>MIA</i> through applicative interfaces made available.

6.4.4. Requirements for the data level of the technological platform of the information system

Table 6.11 contains all the requirements specific for the data level of the technological platform of the *IS „REHR”*.

Table 6.11. Requirements for the business logic level of the technological platform of the information system

ID	Binding nature	Requirement
PR 011	M	<i>Provider</i> will ensure the mechanism for storing the data for the <i>IS „REHR”</i> .
PR 013	M	If needed, the <i>Provider</i> will identify additional needs for ensuring the legality and performance of the system (additional licenses, data storage equipment, etc.).
PR 014	D	<i>IS „REHR”</i> should be compatible with the database management systems currently used by <i>MIA</i> .

6.4.5. Requirements for the technological level of the technological platform of the information system

Table 6.12 contains requirements specific for the technologies of the technological platform of *IS „REHR”*.

Table 6.12. Requirements for technologies of the technological platform of the information system

ID	Binding nature	Requirement
PR 015	M	All the components of the system (<i>example: operation system, middleware, database</i>) should be operated in virtualized environment on virtualized platforms Microsoft Hyper-V Server 2012 R2, VMware vCloud and newer.
PR 016	M	The <i>Provider</i> will include in its bid detailed information regarding the recommended technological platform (within limits of available alternatives), taking into account the needs of the <i>MIA</i> set in these specifications.

ID	Binding nature	Requirement
		In case of the winning bid, this will be taken as basis for establishing the technological platform related to the IS „REHR”.

6.5. 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 6.13 defines the requirements regarding the interoperability characteristics of the IS „REHR” requested by MIA.

Table 6.13. Requirements of the interoperability framework of the information system

ID	Binding nature	Requirement
INT 001	M	All the interfaces exposed by the IS „REHR” should be based on open standards. All the flows of messages between the IS „REHR” and external entities shall be carried out using open standards.
INT 002	M	IS „REHR” will have the capabilities to implement the interfaces through MConnect.
INT 003	M	IS „REHR” will be integrated at the implementation with the following internal systems: <ul style="list-style-type: none"> • RCFI; • IS „Collaborator”; • IS „MAO”; • Cognitrom Assessment System.
INT 004	M	IS „REHR” will be integrated at the implementation with the following external systems: <ul style="list-style-type: none"> • MPass; • MSign; • MNotify; • MLog; • MPower • Open Data Portal; • State Register of Population; • IS „PAPIR” • Social media • Google Analytics
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	IS „REHR” will have the capability to define new standard interfaces to access all the key business functions of the system (<i>example: generation of documents, generation of transactions, accessing information about business entities stored in the IS „REHR”</i>).

ID	Binding nature	Requirement
		The respective interfaces should allow managing business entities by applying all the relevant business rules and using all the characteristics related to business entities.
INT 007	M	<i>IS „REHR”</i> 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 <i>IS „REHR”</i> .
INT 008	D	<i>IS „REHR”</i> 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 (<i>example: applying model Web Services Description Language</i>).
INT 010	D	<i>IS „REHR”</i> will have specific capabilities similar to solutions of type <i>ESB</i> . These capabilities will be able to be used both for integrating the <i>IS „REHR”</i> with external systems, as well as for the interoperability of the external systems without <i>IS „REHR”</i> participating in the information exchange flow.
INT 011	M	The interoperability capabilities of the <i>IS „REHR”</i> will be aligned to the identification system and metadata defined by standards which are specific to civil status acts.

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 6.14.

Table 6.14. Requirements related to ICT related aspects and initiatives in the area

ID	Binding nature	Requirement
INT 012	M	<i>IS „REHR”</i> will integrate with the interoperability platform <i>MConnect</i> to consume data from external information systems (<i>example: extracting data from state registers</i>).
INT 013	M	<i>IS „REHR”</i> will use <i>MPass</i> platform service as a mechanism for users to log in through electronic or mobile signature.
INT 014	M	<i>IS „REHR”</i> will use <i>MSign</i> platform service as infrastructure to use the electronic signature.
INT 015	M	<i>IS „REHR”</i> will use <i>MLog</i> platform service as a mechanism to log critical business events.
INT 016	M	<i>IS „REHR”</i> will use <i>MNotify</i> platform service as mechanism to notify users.
INT 017	M	<i>IS „REHR”</i> will use <i>MPower</i> platform service as mechanism to verify authorized users' powers to perform specific actions in user's interface.
INT 018	M	<i>IS „REHR”</i> will be integrated with Open Data Portal (https://date.gov.md) for the purpose of publishing open data produced within implemented workflows.

6.6. 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 6.15 provides the performance requirements to be met by the IS „REHR”.

Table 6.15. 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 <i>Provider</i> 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 (<i>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</i>).
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 <i>Provider</i> 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 <i>Provider</i> 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.

6.7. Flexibility requirements

IS „REHR” should have the capacity to be adjusted to the new needs generated by the activity of the REC of MIA. It is preferred for this thing to be possible through adjustments in the system configurations (not the modification of the program code), hence minimizing the adjustment costs from behalf of the MIA. Table 6.16 contains the flexibility requirements to be met by the IS „REHR”.

Table 6.16. Flexibility requirements of the information system

ID	Binding nature	Requirement
FLEX 001	D	IS „REHR” will provide the functionalities which are necessary to set up the electronic forms concluded within the implemented workflows and if

		needed, creation of new forms for accessing the business logic of the <i>IS „REHR”</i> .
FLEX 002	M	<i>IS „REHR”</i> will allow setting up the existing reports (example: adjusting the set of data, reformatting).
FLEX 003	M	<i>IS „REHR”</i> will allow implementing new statistical reports (example: defining the set of data, formatting the report, defining the calculated fields).
FLEX 004	D	<i>IS „REHR”</i> will allow setting up performance indicators (<i>KPI</i>) and modalities for graphical presentation of indicators in the <i>Dashboard</i> .
FLEX 005	M	<i>IS „REHR”</i> will allow setting up the automated generation of reports. The automated generation will occur at certain events within the system or at certain time points. It will be possible to store the generated reports in the system or sent to email addresses or set users.
FLEX 006	M	<i>IS „REHR”</i> will allow setting up the programmed roll out of system procedures (jobs) depending on time parameters or those of executing certain events in the system. <i>IS „REHR”</i> will allow installing and setting up the new system procedures.
FLEX 007	D	<i>IS „REHR”</i> will allow defining and setting up new workflows and adjusting the existing flows as needed (example: sequence of operations, status transformations for business entities' properties, generated documents and entries, notifications, involved roles and allowed operations, etc.).
FLEX 008	M	<i>IS „REHR”</i> will allow defining and managing the reference normative information used in the system. The data source for the reference information may be internal or external (example: <i>external database, external web service, external file</i>).
FLEX 009	M	Potentially variable information in the <i>IS „REHR”</i> (example: parameters, constants, ways for storing data, ways of getting connected with external service, classifiers etc.) will be configurable and will NOT need recompiling the solution or direct interventions in the database. It should be possible to perform these changes in user interfaces that will be convenient for administrators.
FLEX 010	D	<i>IS „REHR”</i> should allow integrating the components developed by <i>MIA</i> in other projects for developing information applications. These components will have access to public functions and properties of the system components.
FLEX 011	M	<i>IS „REHR”</i> should allow defining the statuses in which an information object or electronic form may be. The access rights should allow establishing the operations allowed to users, depending on the statuses admitted for the information object (the information system should have a mechanism for identifying conflicts when the statuses for which the rights are set get changed).

6.8. Requirements for user interface and ergonomics

The information system interface should be user friendly, easy and intuitive to use. The time necessary for training for the purpose of efficient operation of the *IS „REHR”* should be minimum. Users will have access

at any time to support information for correct use of the facilities provided by the *IS „REHR”*. Table 6.17 contains requirements for use characteristics that should be met by the *IS „REHR”*.

Table 6.17. Requirements for user interface

ID	Binding nature	Requirement
UI 001	M	All the business functions accessible for the users of the <i>IS „REHR”</i> should have the possibility to be accessed through graphic user interfaces.
UI 002	M	<p><i>IS „REHR”</i> should have user interfaces that would be friendly, intuitive and convenient for users with non-administrator and administrator role. The information necessary for the user for the purpose of carrying out the duties should be visible and accessible.</p> <p>The user interface of the <i>IS „REHR”</i> should have unique styles of graphic designs. The used graphic elements and texts should be used consequently from the point of view of the significance associated to them.</p>
UI 003	M	All the user interfaces should be developed at least in Romanian language.
UI 004	M	The elements of user interface should comply at Level A with the requirements of <i>Web Content Accessibility Guidelines (WCAG) 2.0</i> .
UI 005	M	User interface should be optimized for desktops or notebooks with the resolution 1360x768.
UI 006	M	<i>IS „REHR”</i> will have for the most important functionalities the possibility to adapt the user interface (will provide a responsive interface) depending on the used device (notebook, desktop, tablet, smartphone).
UI 007	M	<i>IS „REHR”</i> will allow intermediary saving of work and operations initiated by user (automatically or upon user's request).
UI 008	M	<i>IS „REHR”</i> should have an integrated function for data search. The procedures for finding data and entries will be carried out through simple searches (specification of search ranges) or some searches of higher complexity, through which it would be possible to have a more exact filtering of information (QBE forms). Regardless of the nature of the searched for information, the user will use the same method of interrogating and finding data for any compartment of the user interface of the information product.
UI 009	M	Additionally to the search modality based on the QBE principle, which will give the possibility to define complex queries in a visual manner, the user interface should provide the possibility to refine the search results by ensuring the possibility of filtering the information in the search results' list.
UI 010	M	There should be a possibility for the indexed sizes (values from classifiers, nomenclatures) to be filtered by selecting values from predefined lists. For the fields of numeric type or calendar date type, there should be the possibility to filter according to the exact value of the searched characteristic (Example: 01.10.2020 - all entries with specified date) or according to logic criteria (Example: <01.01.2020 – all entries with older

ID	Binding nature	Requirement
		<i>dates than 01.01.2020, >01.10.2020 – all entries more recent than 01 October 2020).</i>
UI 011	M	There should exist the possibility to filter the results according to the mask (e.g. <i>filtering according to IDNP</i>) according to the model: 097151222* - all sequences which start with the range of characters „ 097151222 ”, * EANU – all sequences which end with the range of characters „ EANU ” or * RAȘOVEAN* - all sequences which have in their content the range of characters „ RAȘOVEAN ”.
UI 012	M	The content of any table with results should be able to be exported in format DOC/DOCX, XLS/XLSX and PDF.
UI 013	M	<i>IS „REHR”</i> will allow annexing files to information objects or references to files stored on file/web server for all the information objects. This functionality will be used depending on the settings of the access profile. Attachment files will have a set of attributes: creation date, modification date, responsible person, size.
UI 014	M	The users of the <i>IS „REHR”</i> will have access to <i>context-sensitive help</i> in all the interfaces of the information system.

6.9. Requirements for maintenance aspects

For the *IS „REHR”* to be accessible and available to business users according to the agreed level, it should be continuously monitored and maintained. The information system should allow identifying pro-actively the problems and to prevent them through easy roll-out of operational maintenance activities at the level of all system components. Table 6.18 covers the requirements for the maintenance characteristics related to the *IS „REHR”*.

Table 6.18. Requirements for information system maintenance

ID	Binding nature	Requirement
MR 001	D	<i>IS „REHR”</i> will have mechanisms for monitoring the load and operational level for all the key components (<i>example: components of the business logic level and data level</i>).
MR 002	D	<i>IS „REHR”</i> will generate notifications in case when the performance of its components degrades (<i>example: response time for users’ queries exceed 2 seconds</i>).
MR 003	M	All the errors and exceptions in the functioning of the <i>IS „REHR”</i> will be registered.
MR 004	M	<i>The Provider</i> will list the means to be used for technical breakdown of the <i>IS „REHR”</i> .
MR 005	M	<i>The Provider</i> will prepare the means facilitating the functions for administrating the <i>IS „REHR”</i> : <ul style="list-style-type: none"> • system components’ condition; • restarting the system components,

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> creating the backup copies for database and content files, restoring the functionalities of the <i>IS „REHR”</i> based on the indicated backup copy,
MR 006	M	The source code of the <i>IS „REHR”</i> will be developed according to the recommendations for writing the source code to be kept, including: well structured, accompanied by comments, suggestive variables, etc.
MR 007	M	The architecture of the <i>IS „REHR”</i> will allow implementation in a simple manner for the <i>MIA</i> of the changes at the system level. The perimeter influenced by the changes will be minimum, and the components to be tested as a result of the changes will be clearly identifiable.
MR 008	M	<i>IS „REHR”</i> will allow defining and rolling out the programmed tasks for operational maintenance activities (<i>example: archiving of historical data, preparing data for complex reports, etc.</i>).
MR 009	M	The architecture of the <i>IS „REHR”</i> will allow implementing new versions provided by the <i>Provider</i> without influencing the existing configurations, the components implemented by <i>MIA</i> and interfaces implemented for interacting with external information systems.
MR 010	M	<i>IS „REHR”</i> will be easily roll out from production environment to other operational environments and vice-versa for the purpose of ensuring the testing processes and system development. The documentation related to the <i>IS „REHR”</i> should describe this process.
MR 011	M	<i>IS „REHR”</i> will have procedures to process all the generated errors. The errors produced in the functioning of the system will be registered and accessible for subsequent analysis so as to improve the quality of the information system operation.

6.10. Requirements for scalability

While using the *IS „REHR”*, it is possible for the number of processed transactions and concurrent users to increase or to decrease from one period to another. To have rational use of processing resources, the information system should be easily scalable (upwards and downwards). Table 6.19 contains requirements for scalability characteristics related to the *IS „REHR”*.

Table 6.19. Scalability requirements for the information system

ID	Binding nature	Requirement
SR 001	M	<i>IS „REHR”</i> will allow increasing the processing capacities without interrupting its functioning. For this purpose, the system will support the horizontal extension of processing capacities (<i>example: adding new server nodes and balancing the load</i>).
SR 002	D	<i>IS „REHR”</i> will be able to be set for automated scalability at the level of key components (<i>lag sensitive</i>). The scalability of the system will be in both directions, downwards and upwards.

ID	Binding nature	Requirement
SR 003	M	<i>IS „REHR”</i> should have the possibility to serve an unlimited number of transactions, under the condition of corresponding allocation of resources for data processing and storage. Resources will be allocated on the horizontal (allocation of new servers, without increase of performance on the existing servers).

6.11. 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 provides the requirements for the security characteristics related to the system, as requested by *MIA*.

6.11.1. Requirements for security architecture

Table 6.20 contains all the requirements for security architecture of the *IS „REHR”*.

Table 6.20. Requirements for security architecture

ID	Binding nature	Requirement
SEC 001	M	The architecture of the <i>IS „REHR”</i> should be established by applying an approach of the type „ <i>Secure by design</i> ”.
SEC 002	M	The security architecture of the <i>IS „REHR”</i> 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 <i>IS „REHR”</i> and the recommendations of the <i>Provider</i> regarding the access rules to the network, to be set by <i>MIA</i> for secured access to all the system components (<i>example: communication between services matrix</i>).
SEC 005	M	All the system processes related to the components of the <i>IS „REHR”</i> 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. <i>IS „REHR”</i> will not contain hard-coded access credentials.
SEC 007	M	<i>IS „REHR”</i> will not contain open access credentials at the level of its components (based on data, configuration files).

ID	Binding nature	Requirement
SEC 008	M	All the interfaces of the <i>IS „REHR”</i> will be accessed applying safe login methods (<i>example: X.509 certificate</i>).
SEC 009	M	The access to functions provided to unauthenticated users (public interface provided by <i>IS „REHR”</i>) 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	<i>IS „REHR”</i> will be secured for <i>OWASP Top 10 vulnerabilities (2017)</i> .
SEC 012	M	<i>IS „REHR”</i> 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	<i>IS „REHR”</i> will issue a periodical signal, which indicated its functional status.

6.11.2. Requirements for the authentication mechanism

Table 6.21 covers requirements to be met by the authentication mechanism of the *IS „REHR”*.

Table 6.21. Requirements for the authentication mechanism

ID	Binding nature	Requirement
SEC 015	M	<i>IS „REHR”</i> will allow accessing its functions only after the successful authentication of the user. <i>IS „REHR”</i> will provide support for at least the following authentication methods: based on login and password, Windows authentication (integration with <i>Active Directory</i>), two step authentication (2FA) and authentication through electronic or mobile signature (<i>MPass</i>). <i>IS „REHR”</i> will allow the users to change individual passwords.
SEC 016	M	<i>IS „REHR”</i> will allow registering users and profile information related to them (<i>example: login, password, name, surname, IDNP, Email etc.</i>).
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	<i>IS „REHR”</i> will allow differentiated application of policies to use passwords for different groups of users.
SEC 019	M	<i>IS „REHR”</i> will allow blocking, deactivating or suspending users' accounts at the application level.
SEC 020	M	<i>IS „REHR”</i> will be integrated with the LDAP solution implemented in the <i>MIA</i> for internal users. When creating a new user account, the <i>IS „REHR”</i> will have the option to select from the list of users available in the directory service.

ID	Binding nature	Requirement
SEC 021	M	<p><i>IS „REHR”</i> will be able to be integrated with external services of <i>Identity Services Providers</i> type. For this purpose, standards and open protocols in the area will be used (example: <i>SAML</i>). Authentication methods to be supported with the involvement of an external ISP are:</p> <ul style="list-style-type: none"> • login and password; • Certificate X.509; • OTP (One Time Password). • <i>MPass</i> platform service will be used as a ISP solution.
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 <i>IS „REHR”</i> served will be encrypted.
SEC 023	D	<i>IS „REHR”</i> will allow the differentiated application of authentication methods, depending on accessed resources (example: <i>implicit electronic or mobile signature for authentication of candidates, login and password for the employees of the REC, OTP for the administrative interface</i>).
SEC 024	M	<i>IS „REHR”</i> will allow setting the number of simultaneous connections to be initiated by one user.
SEC 025	M	<i>IS „REHR”</i> will allow setting the time for expiration of users' sessions in case of inactivity.
SEC 026	M	<i>IS „REHR”</i> 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 <i>IS „REHR”</i> will be blocked upon the user's request or automatically, upon the expiry of the time set for the session.

6.11.3. Requirements for the authorization mechanism

Table 6.22 contains all the requirements for the authentication mechanism of the *IS „REHR”*.

Table I 6.22. Requirements for the authorization mechanism

ID	Binding nature	Requirement
SEC 028	M	<i>IS „REHR”</i> 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 <i>„everything which is not explicitly allowed is prohibited”</i> .
SEC 030	M	<i>IS „REHR”</i> will allow defining the groups of users, roles and association of users to these groups and roles.
SEC 031	M	<i>IS „REHR”</i> will allow providing access rights at the level of explicit user, group and role. A group of users will be able to contain more

ID	Binding nature	Requirement
		subgroups/roles. One user may be associated to one or more groups and roles, its access rights being determined cumulatively.
SEC 032	M	<i>IS „REHR”</i> 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	<i>IS „REHR”</i> 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	<i>IS „REHR”</i> will allow segregating the administrative activities (example: Administrator 1 modifies, Administrator 2 confirms).
SEC 035	M	<i>IS „REHR”</i> 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	<i>IS „REHR”</i> will have the capabilities to authenticate and authorize users through internal mechanisms, as well as through <i>MPass</i> platform service.
SEC 037	M	<i>IS „REHR”</i> will authorize authorized users' access to sensitive compartments of the interface and data after verifying their rights through <i>MPower</i> .

6.11.4. Requirements for the mechanism of validating entry/exit data

Table 6.23 contains the requirements related to the mechanism of validating the entry/exit data of the electronic forms provided by the *IS „REHR”*.

Table 6.23. Requirements for the mechanism of validating the entry/exit data

ID	Binding nature	Requirement
SEC 037	M	<i>IS „REHR”</i> 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 038	M	All the actions for modifying critical and sensitive data in the <i>IS „REHR”</i> will be carried out through specialized forms and documents, according to the workflow set for these categories of documents (example: <i>correcting data in the filled in and signed questionnaire</i>).
SEC 039	M	<i>IS „REHR”</i> 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 040	M	All the displays of data within the <i>IS „REHR”</i> should be accompanied with security mark, according to a classifier set for this purpose in the <i>IS „REHR”</i> .

ID	Binding nature	Requirement
SEC 041	M	Confidential data will not be stored and accessed in unsecured way in the <i>IS „REHR”</i> (example: log files, caching etc.).
SEC 042	M	<i>IS „REHR”</i> 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 043	M	<i>IS „REHR”</i> will have routine procedures to verify and detect possible corruption of data integrity relations.
SEC 044	M	<i>IS „REHR”</i> will have adequate mechanisms to prevent manipulation of data stored in the application.

6.11.5. Requirements for log and audit mechanism

Table 6.24 contains all the requirements for the log and audit mechanism provided by the *IS „REHR”*.

Table 6.24. Requirements for the log and audit mechanism

ID	Binding nature	Requirement
SEC 045	M	<i>IS „REHR”</i> 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 046	M	The audit component will allow granular setting of audit policies.
SEC 047	M	<i>IS „REHR”</i> will allow establishing audit policies at the level of functional component/user interface compartment, categories of data and level of logged event.
SEC 048	M	<i>IS „REHR”</i> 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 049	M	<i>IS „REHR”</i> will allow auditing any event, at the level of any object or business entity from the information system.
SEC 050	M	Every audit entry will contain at least: <ul style="list-style-type: none"> • time when the event was produced; • event’s subject (user identifier); • impacted object or entity; • occurred event; • IP address from where the event was initiated.
SEC 051	M	Audit entries will not contain confidential data (example: <i>passwords entered for failed authentication attempts</i>).
SEC 052	M	Errors which may occur when logging audit entries should not influence the normal functioning of the information system.

ID	Binding nature	Requirement
SEC 053	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 053	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 054	D	<i>IS „REHR”</i> will be able to generate automatically notifications to persons responsible for producing certain security events, according to set configurations.
SEC 055	D	It will be possible to integrate the audit component in the basis of open standards with solutions of SIEM type (<i>Security Incident and Event Management</i>) so as to take over the audit entries produced within the system, by the respective solutions.
SEC 056	M	<i>IS „REHR”</i> will allow fixing the historical versions of data, which will be considered to be very sensitive.
SEC 057	M	The activities for changing entries' status and responsible will be logged.
SEC 058	M	<i>IS „REHR”</i> 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 059	M	<i>IS „REHR”</i> will have safe mechanisms for protecting entered audit information integrity.
SEC 060	M	Critical business events should be logged in parallel through <i>MLog</i> log service.
SEC 061	M	<i>IS „REHR”</i> will provide a mechanism to set business events which will be logged in parallel through the <i>MLog</i> platform service.

6.11.6. Requirements for the mechanism to manage exceptions and errors

Table 6.25 contains all the requirements set for the mechanism to manage exceptions and errors provided by the *IS „REHR”*.

Table 6.25. Requirements for the mechanism to manage exceptions and errors

ID	Binding nature	Requirement
SEC 062	M	<i>IS „REHR”</i> will register in a centralized way all the exceptions and errors generated by its components.
SEC 063	M	When an error occurs, the <i>IS „REHR”</i> 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.

ID	Binding nature	Requirement
SEC 064	M	<i>IS „REHR”</i> will have the necessary tools for analysis and processing of entries related to exceptions and errors.
SEC 065	M	<i>IS „REHR”</i> will be able to generate automatically notifications to persons responsible for producing certain errors in the operation of its components.

6.12. Requirements for resilience and continuity

Table 6.25 provides the requirements set for continuity and resilience characteristics related to the *IS „REHR”* requested by the *MIA*.

Table 6.26. Requirements for resilience capabilities of the information system

ID	Binding nature	Requirement
RC 001	M	<i>IS „REHR”</i> will have implemented tools for executing the procedures of automated generation of backup copies and management of historical backup copies.
RC 002	M	<i>IS „REHR”</i> should have mechanisms to ensure integrity of data in case of failure of any component.
RC 003	M	<i>IS „REHR”</i> should have mechanisms for operative recovery of availability and accessibility in case of continuity incidents.
RC 004	M	The architecture of the <i>IS „REHR”</i> should be resistant to failure of components and to have no single point of failure (SPOF).
RC 005	M	<i>IS „REHR”</i> should have mechanisms to ensure integrity of data in case of accidental failures at the level of any of its components.
RC 006	M	<i>IS „REHR”</i> should have mechanisms for operative recovery of availability and accessibility in case of continuity incidents.

7. Requirements for implementing the *information system*

This chapter sets forth the requirements regarding the stages and deliverables of the implementation project of the *IS „REHR”*. The purpose of the respective requirements is to ensure that *Provider* will provide a computing solution which will meet all the set specifications, and its correct functioning in the production environment will be confirmed at a reasonable level of accuracy.

The requirements of this chapter are mandatory. The *Provider* will specify for each of the requirement how he/she intends to ensure its implementation (if the requirement refers to measures planned after the signing the contract) or will submit the requested information (if the requirement is applicable for the stage of bids' presentation). The bid should contain also pertinent and sufficient information regarding the capacity of the *Provider* to meet the requirements set in this chapter.

7.1. General requirements regarding the implementation of the *information system*

The compartment contain general requirements regarding the organization and execution of the project for implementing the *IS „REHR”*.

Table 7.1. General requirements for implementing the *IS „REHR”*

ID	Binding nature	Requirement
ISR 001	M	Designing, developing and implementing the <i>IS „REHR”</i> will last for maximum 13 months since the contract signature.
ISR 002	M	<i>The Provider</i> will describe in his/her bid the approach suggested for organizing the project for implementing the <i>IS „REHR”</i> . Will reason why the suggested approach is the most appropriate for supporting the implementation strategy for <i>IS „REHR”</i> within the set deadline.
ISR 003	M	The approach suggested by the <i>Provider</i> for organizing the implementation of the <i>IS „REHR”</i> should be independent from the implementation of other applications and components from the architecture of future applications of <i>MIA</i> .
ISR 004	M	The approach suggested by the <i>Provider</i> should ensure the passing through all the key stages to implementing the <i>IS „REHR”</i> set in the Terms of Reference and to produce the deliverables requested in the Terms of Reference.

7.2. Requirements regarding project management

During the implementation of the *IS „REHR”*, project management activities will produce a number of deliverables to be coordinated and agreed on with the *MIA* and will ensure the good operations of project activities.

7.2.1. General requirements

The general requirements for organizing the management framework for implementation of the *IS „REHR”* are provided in table 7.2.

Table 7.2. General requirements to organize the implementation management for IS „REHR”

ID	Binding nature	Requirement
ISR 005	M	<i>Provider</i> is responsible for implementation project management, according to the project plan and practices agreed jointly with <i>MIA</i> and <i>UNDP-Moldova</i> .
ISR 006	M	<i>Provider</i> is responsible for identification and mobilization of necessary resources for executing activities in its area of responsibility, established in the project management plan at the agreed level of quality.
ISR 007	I	<i>MIA</i> is responsible for all the administrative procedures and aspects related to the launch of the project, organization of internal project team, preparing the ICT environment necessary for implementing the IS „REHR”.
ISR 008	M	The project will be managed applying a methodology or standard, which is well-known in the area of projects' management (<i>example: PRINCE 2, PMBOK etc.</i>).
ISR 009	M	<p><i>The Bidder</i> will include in the bid the draft Document for Project Initiation (<i>PID/Project Charter</i>). The document will mention explicitly, at least, the following:</p> <ul style="list-style-type: none"> • Organigram for project management, including: project director, project committee, roles for project team members from behalf of the <i>Provider</i>, roles for project team members from behalf of the <i>MIA</i>; • The key duties in the project will be set for every role; • The practices applied to interaction and collaboration within the project, including: management of project plan, detailed planning of activities, management of resources, communication plan, management of changes, management of risks, management of deliverables' quality, progress monitoring and reporting, management of exceptions, management of project library.
ISR 010	M	<i>MIA</i> and <i>Provider</i> will appoint each project managers, who will have under their subordination project teams from <i>MIA</i> and respectively of the <i>Provider</i> .
ISR 011	M	The Project Manager from the <i>Provider</i> will hold the necessary authority to perform project activities and will have primary responsibility for producing and presenting deliverables in line with set deadlines and quality criteria.
ISR 012	M	<i>Provider</i> may appoint one or more team leaders who will facilitate the process of communication and collaboration with the <i>MIA</i> team depending on the areas of competence.
ISR 013	M	If the <i>Provider</i> is represented by an association or subcontracts another company to participate in project execution, the roles and responsibilities of every member of the association/subcontract will be clearly specified.
ISR 014	I	<i>MIA</i> and <i>UNDP-Moldova</i> may contract external consultants to whom they can delegate the function of ensuring the quality at the level of the entire project.

ID	Binding nature	Requirement
ISR 015	D	<i>The Provider</i> will prove the maturity of practices applied at the implementation of the IS „REHR” by presenting the relevant compliance certificates (example: ISO 9001, ISO 20000, ISO 27001 etc.).

7.2.2. Requirement for project management activities

Requirements for project management activities to implement the IS „REHR” are set in Table 7.3.

Table 7.3. Requirements regarding project management key activities

ID	Binding nature	Requirement
ISR 016	M	<p>To manage the project, the <i>Provider</i> will carry out at least the following activities:</p> <ul style="list-style-type: none"> • Concluding and convening with <i>MIA</i> the Project Initiation Document. Its adjustment, if needed; • Concluding and convening with <i>MIA</i> the Project Plan. Its adjustment over the project, if needed; • Development of detailed plans of activities; • Coordination of activities according to detailed activity plans; • Executing the Communication Plan; • Weekly or bi-weekly reporting of project progress; • Keeping project management registers, during the entire period of project implementation. Mandatory registers: <i>register of deliverables, register of risks, register of changes, register of communications, register of events</i>. • Organization of project management meetings according to the agreed communication plan; • Presentation of the final stage reports and support presentations within the project management meetings at the final stages; • Closing the main project stages and submission of acceptance documents to the <i>MIA</i>; <p>Placing in the project library all the project management deliverables.</p>

7.2.3. Requirements for project management deliverables

Requirements related to deliverables resulting from project management activities are set in table 7.4.

Table 7.4. Requirements for project management deliverables

ID	Binding nature	Requirement
ISR 017	M	All the communication and deliverables within project management activities will be carried out in Romanian, and if needed, in English.
ISR 018	M	For project management, the <i>Provider</i> will deliver at least the following:

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> • Project Initiation Document; • Project Plan and its modifications; • Detailed activity plans for the project (e.g. sprints, iterations); • Support presentations for kick off meetings and other meetings for project management; • Weekly/bi-weekly reports on project progress and project registers kept and updated according to the Project Initiation Document. • Reports for stage finishing, which will contain at least the following information: general presentation of finished stage, presentation of project plan for the following period, risk analysis, establishing project problems, registration of project quality level. • Reports on exceptions, which will contain at least: description of cases on project deviations, product impact, solutions suggested for settlement and general impact on the project, options recommended by the Project Manager and Provider.

7.2.4. Acceptance Criteria for project management deliverables

The acceptance criteria set for deliverables resulting from the project management activities are set in table 7.5.

Table 7.5. Criteria for accepting the deliverable for project management activities

ID	Binding nature	Requirement
ISR 019	M	Deliverables resulting from project management activities will be accepted if: <ul style="list-style-type: none"> • Deliverables are submitted within the deadlines agreed with <i>MIA</i>. • <i>MIA</i> has no observations regarding the completeness and correctness of deliverables.

7.3. Project activities' implementation stages

Project stages will correspond to the technical regulation "**Software life cycle processes** " RT 38370656 - 002:2006 (Published: 23.06.2006 in Official Gazette No. 95-97 art. No: 335). Activities mentioned in every stage represent minimum requirements.

Indicated deliverables and criteria for accepting deliverables are mandatory. According to requirements from Section 7.1, the *Provider* will specify in the bid the implementation stages and produced deliverables.

Objectives, key activities, responsible persons and tools used for carrying out activities will be set for every stage. Every stage will be planned and coordinated with *MIA*. When estimating the duration of project activities, it is necessary to take into account the time necessary to approve deliverables by *MIA*. Deadlines for examining and verifying deliverables by *MIA* will be in line with the norms set by the internal standards of the institution.

7.3.1. Analysis stage: key activities

This compartment covers the requirements regarding the key activities of the analysis stage within the processes of developing and implementing the *IS „REHR”*. Table 7.6 provides the requirements for the key activities of the analysis stage.

Table 7.6. Requirements regarding the key activities of the analysis stage

ID	Binding nature	Requirement
ISR 020	M	<p><i>The Provider</i> will validate the business needs for the <i>IS „REHR”</i> within business analysis stage. For this purpose, the <i>Provider</i> will undertake the following activities:</p> <ul style="list-style-type: none"> • review/analysis of business requirements; • analysis of relevant business processes; • analysis of reporting processes; • review/analysis of requirements for reports; • organization of workshops between <i>MIA</i>, <i>UNDP-Moldova</i> and <i>Provider</i> related to business processes' analysis; • analysis of users and their role in the <i>IS „REHR”</i>; • identification of data sources; • analysis of software, hardware and network current infrastructure. <p>Works will be carried out through interviews of responsible persons from business subdivisions and IT, and analysis of relevant documentation.</p>

7.3.2. Analysis stage: deliverables

This compartment includes the requirements of the analysis phase under the development and implementation of the *IS „REHR”*. Table 7.7 contains the requirements for deliverables of the analysis stage.

Table 7.7. Requirements for analysis stage deliverables

ID	Binding nature	Requirement
ISR 021	M	As a result of the business analysis, the <i>Provider</i> will present as deliverable <i>SRS</i> which represents a report for situation analysis „ <i>As-Is</i> ” of business processes, which may contain clarifications and proposals in relation to the Terms of Reference for <i>IS „REHR”</i> .
ISR 022	M	The duration for concluding the <i>SRS</i> shall not last more than 1 month since the launch of the project.
ISR 023	I	Based on the delivered <i>SRS</i> , <i>MIA</i> may accept adjustments to the functional and nonfunctional specifications according to the terms of reference.

7.3.3. Analysis stage: criteria for accepting deliverables

This compartment will contain requirements for deliverables' acceptance criteria in the analysis phase under the development and implementation of the *IS „REHR”*. Table 7.8 contains requirements regarding the acceptance criteria for deliverables of the analysis stage.

Table 7.8. Requirements for acceptance criteria for analysis stage deliverables

ID	Binding nature	Requirement
ISR 024	M	<p>The acceptance of analysis stage deliverables of the project will be carried out according to the following criteria:</p> <ul style="list-style-type: none"> • Deliverables are submitted to the <i>MIA</i>; • <i>MIA</i> positively endorsed and has no observations regarding the completeness and correctness of deliverables; • The deliverables' acceptance act is signed by both parties.

7.3.4. Technical design stage: key activities

This compartment contains the requirements regarding the key activities of the design stage of the *IS „REHR“*. Table 7.9 contains the requirements for the key activities of the technical design stage.

Table 7.9. Requirements regarding the key activities of the technical design stage

ID	Binding nature	Requirement
ISR 025	M	<p>At this stage, the <i>Provider</i> will develop the technical design for the <i>IS „REHR“</i> (SDD), according to the functional and nonfunctional specifications. The <i>Provider</i> will carry out, at least, the following:</p> <ul style="list-style-type: none"> • defining the architecture of the system and its levels (implementation peculiarities of the presentation level, applications level, data level, and technological level); • defining the technical peculiarities for every architecture level of the <i>IS „REHR“</i>; • analysis and description of work scenarios and workflows. As a result of the business analysis, the <i>Provider</i> will describe the existing business processes (drafting BPA) and will suggest, if needed, options for reintegration and optimization of workflows (drafting BPR); • defining in detail the data model related to the <i>IS „REHR“</i>; • mapping the data model according to the data sources currently existing in the <i>MIA</i>. • defining basic peculiarities of the user interface of the <i>IS „REHR“</i>; • defining the customizations to be made, using the native capabilities of suggested solution; • defining the developments to be made; • defining the technical specifications for the interfaces of the <i>IS „REHR“</i> necessary for the purpose of integration with external systems.

7.3.5. Technical design stage: deliverables

This compartment contains requirements regarding the deliverables of the technical design stage for *IS „REHR“*. Table 7.10 contains the requirements for the deliverables of the technical design stage.

Table 7.10. Requirements regarding the deliverables of the technical design stage

ID	Binding nature	Requirement
ISR 027	M	<p>As a result of the technical design, the <i>Provider</i> will provide as a deliverable the Technical Design (SDD). The technical design is a directory document for activities envisaged to develop the <i>IS „REHR”</i> which contains the detailed description of the following visions:</p> <ul style="list-style-type: none"> • description of the technology and implementation methods of <i>IS „REHR”</i>; • data structures and their constraints; • architecture of the information system and its elements with detailed description of all the architectural visions of the <i>IS „REHR”</i>; • description of the interaction of functional components of the <i>IS „REHR”</i>; • user interface of the <i>IS „REHR”</i> (conceptualization of user interface); • functionalities of the <i>IS „REHR”</i> (detailed description of scenarios and algorithms for implementing the functionalities of the <i>IS „REHR”</i>).
ISR 028	M	The duration for concluding the <i>SDD</i> will not last more than 1.5 months from the launch of the project.

7.3.6. Technical design stage: deliverables' acceptance criteria

This compartment contains the requirements for acceptance criteria set for the technical design stage deliverables for *IS „REHR”* (Table 7.11).

Table 7.11. Requirements for acceptance criteria for deliverables of the technical design stage

ID	Binding nature	Requirement
ISR 029	M	The acceptance of the technical design stage is conditioned by the delivery to the <i>MIA</i> of the <i>Technical Design (SDD)</i> and for relevant responsible persons from <i>MIA</i> not to have observations regarding the completeness and correctness of the <i>Technical Design</i> .
ISR 030	M	The acceptance of the technical design stage is ending with signature of the Acceptance Act by both parties.

7.3.7. Development/configuration stage: key activities

This compartment contains requirements regarding the key activities of the development/configuration stage for the *IS „REHR”* (Table 7.12).

Table 7.12. Requirements for key activities of the development stage

ID	Binding nature	Requirement
ISR 031	M	<p>At this stage, the <i>Provider</i> will configure and adjust (in case of existing solutions or used universal platforms) or will develop and configure (in case of development from scratch of the information system) the information system <i>IS „REHR“</i>, according to the specifications of the Technical Design.</p> <p><i>The Provider</i> will execute at least the following activities:</p> <ul style="list-style-type: none"> • installing the production, testing and training environments of the <i>IS „REHR“</i> (operation system/SGBD/applications, etc.); • developing, rolling and setting up the <i>IS „REHR“</i> according to the <i>SDD</i> (technical design). • Rolling out the components of the <i>IS „REHR“</i> in the prepared operational environments
ISR 032	M	The stage for developing/configuring the <i>IS „REHR“</i> will not exceed 7 calendar months.

7.3.8. Development/configuration stage: deliverables

Table 7.13 contains requirements regarding the deliverables of the *IS „REHR“* development stage.

Table 7.13. Requirements regarding the deliverables of the development stage

ID	Binding nature	Requirement
ISR 033	M	<p><i>The Provider</i> will develop and configure the components of the information system <i>IS „REHR“</i> according to the functional and nonfunctional specifications in the:</p> <ul style="list-style-type: none"> • production environment; • testing/training environment;
ISR 034	M	<i>The Provider</i> will prepared and deliver complete technical documentation regarding the components implemented according to the current methodology of the <i>MIA</i> .
ISR 035	M	<p><i>The Provider</i> will deliver the plan and testing scenarios and will test the components of the <i>IS „REHR“</i>:</p> <ul style="list-style-type: none"> • unit testing; • integration testing; • stress testing; • load testing.

7.3.9. Development/configuration stage: criteria for accepting deliverables

Table 7.14 covers the requirements set for accepting deliverables of the development/configuration stage for *IS „REHR“*.

Table 7.14. Requirements for acceptance criteria for deliverables under the development/configuration stage

ID	Binding nature	Requirement
ISR 036	M	The components of the <i>IS „REHR”</i> are implemented and configured according to the functional and nonfunctional specifications in the following environments: <ul style="list-style-type: none"> • production environment; • testing environment; • training environment.
ISR 037	M	The complete technical documentation related to the implemented components of the <i>IS „REHR”</i> is provided.
ISR 038	M	The Beneficiary has no observations or objections regarding the quality of deliverables.
ISR 039	M	The Acceptance Act of the deliverables of the development/configuration stage is signed by the <i>Provider</i> and <i>MIA</i> .

7.3.10. Data populating stage: key activities

Table 7.15 contains the requirements regarding the key activities of the stage of populating the *IS „REHR”* with initial data

Table 7.15. Requirements for key activities in data populating stage

ID	Binding nature	Requirement
ISR 040	D	<i>The Provider</i> will include in the technical bid detailed information regarding the approach, method and tools suggested for populating the system with initial data, according to the requirements set in the Terms of Reference.
ISR 041	I	<i>MIA</i> will prepared the sets of data necessary for populating the <i>IS „REHR”</i> with initial data within the limit of held data. The data format will be jointly convened.
ISR 042	M	<i>The Provider</i> will ensure migration into the <i>IS „REHR”</i> of all sets of data and at the detail level requested by <i>MIA</i> .
ISR 043	M	In the process of populating the <i>IS „REHR”</i> with data, the <i>Provider</i> will be responsible for: <ul style="list-style-type: none"> • establishing the methodology applied for data migration; • developing detailed plans for data migration; • ensuring software tools to be used in data migration; • setting the quality rules for preparing the sets of data for migration and their implementation at the level of the tools used in the process; • mapping the data made available to the <i>MIA</i> in data structures from the <i>IS „REHR”</i>;

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> • establishing the criteria for data reconciliation; • participating in activities for cleaning and enriching the data; • verifying and validating the quality of data sets for import; • import in the IS „REHR” of prepared data; • identifying the exceptions and errors in data import.
ISR 044	M	<p><i>The Provider</i> will suggest to the <i>MIA</i> a methodology to populate the system with initial data. The methodology should contain at least the following elements:</p> <ul style="list-style-type: none"> • modality to prepared the data; • modality to map the data structures; • modality to clean the data and ensure their quality; • modality to complete the types of data or attributes requested by the IS „REHR” and which are missing in the data sets held by <i>MIA</i>; • modality to import data; • modality to reconcile the migrated data; • recovery plan (at every key stage in the migration process); • launch into production plan.
ISR 045	M	<p><i>The Provider</i> will prepare and suggest to the <i>MIA</i> detailed plans for populating the system with data. Detailed plans will be aligned with the plan for implementing the IS „REHR”.</p>
ISR 046	D	<p><i>The Provider</i> will ensure specialized software tools of the type <i>ETL (Extract Transform Load)</i> to be used in the process of populating the system with data and will provide complete documentation for using the respective tools, ensuring the training of responsible persons from <i>MIA</i>, for the purpose of using the respective tools.</p>
ISR 047	M	<p>All the activities related to populating the system with data will be carried out in operation environments controlled by <i>MIA</i>, located in the local network of <i>MIA</i>. Data will never leave the information system of the <i>MIA</i>.</p>
ISR 048	M	<p>In the process of populating the system with data, the <i>Provider</i> will commit itself to join the security policies and standards approved and applied by <i>MIA</i>.</p>
ISR 049	M	<p>Data migration / population activities will not exceed 3 weeks.</p>

7.3.11. Data populating stage: deliverables

Table 7.16 contains requirements regarding the deliverables of the stage for populating with data the IS „REHR”.

Table 7.16. Requirements for deliverables of the data populating stage

ID	Binding nature	Requirement
ISR 050	M	<i>The Provider</i> will develop and deliver the Methodology for populating with data (data populating strategy) the <i>IS „REHR”</i> .
ISR 051	M	<i>The Provider</i> will develop and deliver the Plan for populating with data the IS „REHR” .
ISR 052	M	All relevant data sets held by <i>MIA</i> should be migrated completely and correctly into the <i>IS „REHR”</i> until the signature of final acceptance act for the information system

7.3.12. Data populating stage: criteria for deliverables' acceptance

Table 7.17 contains the requirements for criteria set to accept the deliverables in the data populating stage for the *IS „REHR”*.

Table 7.17. Requirements regarding the criteria set for accepting deliverables for data populating stage

ID	Binding nature	Requirement
ISR 053	M	The Strategy and the Plan for populating the system with data are delivered to and accepted by <i>MIA</i> .
ISR 054	M	All the data, according to the <i>MIA needs</i> , are populated completely and correctly in the <i>IS „REHR”</i> .
ISR 055	M	The act of acceptance of deliverables of the data populating stage for <i>IS „REHR”</i> is signed by the <i>Provider and MIA</i> .

7.3.13. Acceptance testing stage: key activities

Table 7.18 contains the requirements for key activities in acceptance testing of the *IS „REHR”*.

Table 7.18. Requirement regarding the key activities of the acceptance testing stage

ID	Binding nature	Requirement
ISR 056	M	At this stage, all the components of the <i>IS „REHR”</i> are implemented and configured according to the functional and nonfunctional specifications. <i>IS „REHR”</i> is available and operational in all the environments in which it was implemented. <i>The Provider</i> will organize system acceptance testing. For this purpose, it will carry out at least the following activities: <ul style="list-style-type: none"> • defining the testing strategy and the testing procedure; • preparing the detailed testing plans, including testing scenarios; • receiving the identified errors and removing them;

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> preparing the plan with testing final results, including the status of all identified errors.
ISR 057	M	The coverage with unit tests for capabilities of IS „REHR” will be minimum 90%.
ISR 058	M	Acceptance testing will take up to 2 calendar weeks.

7.3.14. Acceptance testing stage: deliverables

Table 7.19 contains the requirements for the deliverables of the acceptance testing stage for IS „REHR”.

Table 7.19. Requirements for deliverables of the acceptance testing stage

ID	Binding nature	Requirement
ISR 059	M	<i>The Provider</i> will deliver for coordination and acceptance by the <i>MIA</i> the plan for acceptance testing;
ISR 060	M	<i>The Provider</i> will deliver for coordination and acceptance by the <i>MIA</i> the scenarios for testing for all the test categories (<i>unit testing, integration testing, stress testing, load testing, etc.</i>).
ISR 061	M	<i>The Provider</i> will deliver for coordination and acceptance by the <i>MIA</i> the report regarding the testing results for IS „REHR”.

7.3.15. Acceptance testing stage: deliverables' acceptance criteria

Table 7.20 contains the requirements regarding the acceptance criteria for the deliverables under the acceptance testing stage for the IS „REHR”.

Table 7.20. Requirements for acceptance criteria for the information system

ID	Binding nature	Requirement
ISR 063	M	Deliverables' acceptance will take place if zero critical incompliances and less than 3 major incompliances are identified.
ISR 064	M	Acceptance will be dated with the day when all incompliances identified during the delivery are rectified.
ISR 065	M	The acceptance act of the IS „REHR” is signed by the <i>Provider</i> and <i>MIA</i> .

7.3.16. Training and documentation stage: constraints for launch

Table 7.21 contains the constraint that should be met to launch the training activities for use of IS „REHR”.

Table 7.21. Requirements for constraints for launching the training in information system use

ID	Binding nature	Requirement
ISR 066	I	<i>The Provider</i> will ensure all the facilities which are necessary for organizing the training of users from <i>MIA</i> on how to operate the IS „ <i>REHR</i> “: <ul style="list-style-type: none"> • training hall; • workstations to get connected to the network; • technical equipment necessary for training.
ISR 067	M	<i>The Provider</i> will ensure: <ul style="list-style-type: none"> • prepared training (testing) environment; • training support materials (in Romanian language); • tests to verify training efficiency (in Romanian language).
ISR 068	M	Authorized users are to be trained during 2 calendar weeks.

7.3.17. Training and documentation stage: key activities

Table 7.22 contains the requirements for the key activities in training and documentation stage for IS „*REHR*“.

Table 7.22. Requirements regarding the key activities of the training and documentation stage

ID	Binding nature	Requirement
ISR 069	M	<i>The Provider</i> will develop and deliver training programs for all the relevant categories of users from <i>MIA</i> .
ISR 070	M	<i>The Provider</i> will establish jointly with <i>MIA</i> the Plan for organizing the training sessions .
ISR 071	M	<i>The Provider</i> will provide users' training according to the training plan and programs agreed jointly with <i>MIA</i> . The training will be carried out in Romanian.
ISR 072	M	<i>The Provider</i> will train a target group of users – trainers who will provide support and will continue the trainings after the launch into production the IS „ <i>REHR</i> “.

7.3.18. Training and documentation stage: deliverables

Table 7.23 contains the requirements for deliverables of the training and documentation stage for IS „*REHR*“.

Table 7.23. Requirements for deliverables for training and documentation

ID	Binding nature	Requirement
ISR 073	M	The training and documentation stage implies the assurance of the following categories of deliverables:

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> • training on business use of the IS „REHR” (users with non-administrator role); • training for administration and configuration IS „REHR” (users with administrator role); • complete guides for all categories of users of IS „REHR” meant for operation and administration of the information system IS „REHR”.
ISR 074	M	<p><i>The Provider will prepared and deliver, at least, the following documents accompanying the IS „REHR”:</i></p> <ul style="list-style-type: none"> • document of technical architecture of IS „REHR”; • guideline on administration of IS „REHR”; • user guide for IS „REHR”; • installation guide for IS „REHR”; • guide for configuration and operational maintenance of all components of the IS „REHR”; • guides for developers, within the limit of components admitted for internal development in MIA; • support materials for training users with non-administrator and administrator role.
ISR 075	M	Guides should be complete, detailed, and updated for all groups of users.
ISR 076	M	Guides for users with administrator role will be in Romanian language. Other documentation will be concluded in Romanian language.
ISR 077	M	<i>Provider will deliver the guides in electronic format. Guides should be convenient to access and browse through, and necessary information easy to identify.</i>
ISR 078	M	<p><i>Provider will prepare and deliver the following categories of operation instructions of the IS „REHR”:</i></p> <ul style="list-style-type: none"> • guide for removing deficiencies in IS „REHR”; • manual for installation and configuration of IS „REHR”; • training materials for administrators of IS „REHR”; • guides for making backup copies and data recovery from IS „REHR”; • documentation of archiving process and data recovery from the archive of the IS „REHR”; • security documentation of the IS „REHR”.
ISR 079	M	<i>Provider will deliver the source code and the development-related libraries for IS „REHR”. The source code will have sufficient comments to be understood by the employees of MIA.</i>

7.3.19. Training and documentation stage: acceptance criteria

Table 7.24 sets the requirements for acceptance criteria for deliverables of the training and documentation stage of IS „REHR”.

Table 7.24. Requirements for deliverable acceptance criteria at the training and documentation stage

ID	Binding nature	Requirement
ISR 080	M	<i>Provider</i> should perform all the training session according to the Plan jointly agreed with <i>MIA</i> .
ISR 081	M	The documentation of the information system <i>IS „REHR”</i> should be complete and delivered in the form requested by <i>MIA</i> .
ISR 082	M	<i>Provider</i> will deliver the complete source code of the <i>IS „REHR”</i> .
ISR 083	M	<i>Provider</i> will deliver the libraries necessary for compiling the source code or for the operation of the <i>IS „REHR”</i> .
ISR 084	M	The act of accepting the training and documentation should be signed by <i>Provider</i> and <i>MIA</i> .

7.3.20. Launch into production stage: key activities

Table 7.25 contains the requirements regarding the key activities for paunch in production of the *IS „REHR”*.

Table 7.25. Requirements for key activities of the training and documentation stage

ID	Binding nature	Requirement
ISR 085	M	<i>Provider</i> will propose its approach to launch into production the <i>IS „REHR”</i> (example: <i>sequential, big-bang, parallel rolling, pilot</i>) and will justify this approach.
ISR 086	M	<i>Provider</i> will participate at all the stages of launching into production the <i>IS „REHR”</i> . For this purpose, <i>Provider</i> will perform at least the following actions: <ul style="list-style-type: none"> • will develop the Plan for launching into production (<i>cut-over plan</i>); • will develop the roll-back plan (<i>where applicable</i>); • will updated the data sets which were generated/changed in the current systems after executing the procedure of populating with initial data; • will provide support for executing the plan for launching into production; • will remover operatively the errors and deficiencies occurred in the functioning of the <i>IS „REHR”</i>.

7.3.21. Launch into production stage: deliverables

Table 7.26 sets the requirements regarding the deliverables of the launch into production stage of *IS „REHR”*.

Table 7.26. Requirements for deliverables of the information system launch into production stage

ID	Binding nature	Requirement
ISR 087	M	<i>Provider</i> will conclude the Plan for launch into production of the IS „REHR” and <i>MIA</i> will accept this plan.
ISR 088	M	<i>IS „REHR”</i> is launched into production.

7.3.22. Launch into production stage: acceptance criteria

Table 7.27 sets the requirements for acceptance criteria for deliverables of the launch into production stage of *IS „REHR”*.

Table 7.27. Requirements for acceptance criteria for deliverables of information system testing in production stage

ID	Binding nature	Requirement
ISR 089	M	<i>IS „REHR”</i> is available and functional for all authorized users of <i>MIA</i> .
ISR 090	M	Acceptance in production act for <i>IS „REHR”</i> is signed by <i>Provider</i> and <i>MIA</i> .

7.3.23. Testing in production stage for IS „REHR”

Table 7.28 sets the requirements for the testing in production stage of the *IS „REHR”*.

Table 7.28. Requirements for information system testing in production stage

ID	Binding nature	Requirement
ISR 091	M	<i>Provider</i> will provide on-site support for a period of 3 months after the launch into production, so as to settle the errors and operational deficiencies of <i>IS „REHR”</i> . During this period, the <i>IS „REHR”</i> is considered to be tested in production.
ISR 092	M	During the testing in production period of the <i>IS „REHR”</i> , <i>Provider</i> will carry out development activities to remove the errors and deficiencies, will analyze the log entries so as to prevent some eventual problems, will perform adjustments for user interface and critical modules of the <i>IS „REHR”</i> and will ensure the transmission of the knowledge necessary for the configuration, operation and administration of <i>SI „RERU”</i> to the <i>MIA</i> .

7.3.24. Final acceptance stage for IS „REHR”

Table 7.29 sets the requirements for the final acceptance of the *IS „REHR”*.

Table 7.29. Requirements for final acceptance of the information system

ID	Binding nature	Requirement
ISR 093	M	<p>The final acceptance for the implementation of the <i>IS „REHR”</i> shall be concluded bases on the Final Acceptant Act signed by the <i>Provider</i> and <i>MIA</i>, fulfilling the following conditions:</p> <ul style="list-style-type: none"> • the period of testing in production has expired; • all the errors, deficiencies and problems of seriousness 1 have been removed; • there are less than 10 errors and problems of unrecovered seriousness 2; • none of testing scenario will not corrupt the integrity of the data.
ISR 094	M	<p>An error or problem related to the <i>IS „REHR”</i> is considered to be of seriousness 1 if it blocks or makes it difficult to use the key functionalities of the information system.</p> <p>An error or problem related to <i>IS „REHR”</i> is considered of seriousness 2 if it blocks or makes it difficult the use of functionalities for which there are alternative options (workarounds).</p>

8. Requirements for post-implementation warranty, maintenance and support

The aim of post-implementation support and maintenance services for *IS „REHR”* is to ensure for *MIA* the following objectives:

- Functionality provided by the *IS „REHR”* will be aligned over time to the changing business needs of *MIA*;
- Incidents and problems occurred during the operation of the *IS „REHR”* will be addressed and settled in useful time, with minimum impact on the activity of *MIA*;
- Difficulties in operating the *IS „REHR”* will be overcome correctly and in useful time, without affecting the functionality of the information system.

To achieve these objectives, the post-implementation support and maintenance services will be offered by the *Provider* according to the requirements set in the technical specifications.

The Provider shall describe the activities to be undertaken to respond to these requirements, submitting sufficiently detailed information about the way in which it intends to provide the requested services at the requested level, as well as information regarding its technical, organizational, and competence capacities, confirming the capacity to provide services at the requested level.

MIA expects for the offer of post-implementation support and maintenance services to be based on the best practices in the project management and IT services' management area (*example: ISO 20000, ITIL etc.*).

8.1. General requirements for post-implementation warranty, maintenance and support

Table 8.1 sets all the general requirements for post-implementation warranty, maintenance and support for *IS „REHR”*.

Table 8.1. General requirements for warranty, maintenance and support

ID	Binding nature	Requirement
PIR 001	M	As part of the initial contract for delivery and implementation of the <i>IS „REHR”</i> , the <i>Provider</i> will provide warranty, maintenance and support services for delivered information system applications for 12 months since the date of final acceptance of the information system.
PIR 002	M	The price of the initial contract for developing and implementing the <i>IS „REHR”</i> will include all the services for post-implementation warranty, support and maintenance, except for the services of additional development outside the objectives set in <i>SRS</i> and <i>SDD</i> .
PIR 003	M	All the errors related to the functioning of the <i>IS „REHR”</i> identified during the warranty period will be solved on the account of the <i>Provider</i> (these activities will not be considered additional development activities outside the <i>SRS</i> and <i>SDD</i> objectives).
PIR 004	M	After one year of providing the services of post-implementation warranty, maintenance and support, <i>MIA</i> may request prolongation of service provision for an additional fee.

ID	Binding nature	Requirement
		<i>Provider is obliged to accept the subsequent provision of services, for at least 3 years, under the conditions resulting from the respective Terms of Reference and bid estimations (example: level of services, services' price, etc.).</i>

8.2. Specifications of post-implementation support and maintenance services

This point provides for the types of requested post-implementation support and maintenance services. Any subsequent reference to these terms shall have the meaning indicated in this point. As well, the requirements of the *MIA* are set for every type of services.

8.2.1. Technical support services during the warranty period

The support services are provided by the *Provider* to overcome the incidents occurred as a result of operating the *IS „REHR”*, to solve the problems identified during the operation of the *IS „REHR”* and to use correctly and efficiently the *IS „REHR”* by the *MIA*.

An incident related to *IS „REHR”* would be any event which had influenced or could have influenced the normal functioning of the information system. A problem related to the *IS „REHR”* represents a cause that led or may lead to an incident occurrence.

A consultancy request is a request coming from the *MIA* to the *Provider* to obtain the consultative support in using, setting up and maintaining operational the information system *IS „REHR”*.

Support services are meant to ensure the timely use of the *IS „REHR”* according to the quality parameters which are necessary for *MIA*. The quality parameters for the operation of the *IS „REHR”* are:

- **Availability** – capacity of the information system and its components to receive queries from authorized entities and to respond in useful time to these queries;
- **Usability** – capacity of the information system to function correctly, delivering to users and authorized entities the expected services;
- **Performance** – capacity of the information system to respond to legitimate queries at set parameters;
- **Security** – capacity of the information system to ensure confidentiality, integrity, and availability of stored and managed data.

This compartment sets forth the requirements for technical support services using the above terminology. Table 8.2 contains the support services' requirements that should be provided by the *Provider* during the warranty, maintenance and support period.

Table 8.2. Requirements for technical support services

ID	Binding nature	Requirement
PIR 005	M	<i>Provider will provide technical support to the MIA to solve the incidents related to the IS „REHR”, regardless of the causes that have led to the appearance of the incident (example: errors in application, problems at the system soft level, external application problems).</i>

ID	Binding nature	Requirement
		<p>For this reason, depending on the peculiarities of every incident case, the <i>Provider</i> may undertake the following actions:</p> <ul style="list-style-type: none"> • to receive from the <i>MIA</i> the information about the occurred incident and the context of such occurrence; • to localize the incident and to identify the immediate activities to be undertaken to diminish the impact of the incident; • to identify the causes of the incident and to establish the actions to be undertaken to remove the incident; • to guide <i>MIA</i> in undertaking actions to diminish the impact of the incident and to solve it within the set deadlines; • to submit detailed information to the <i>MIA</i> regarding the causes of the incident, reasoning of undertaken actions, and planned actions to prevent the repeated occurrence of similar incidents; • to examine the need to register of a new problem related to the <i>IS „REHR”</i> (in case of problem registration, the <i>Provider</i> will manage it according to the requirements related to support services for solving the problems).
PIR 006	M	<p><i>Provider</i> will provide support service to solve the problems registered at the level of applications. For this purpose, depending on the peculiarities of every case, separately, the <i>Provider</i> may take the following actions:</p> <ul style="list-style-type: none"> • to receive and collect the information related to the problem, symptoms, effects, specific conditions; • to analyze and localize the problem at the level of the components of the <i>IS „REHR”</i>, to identify the interdependencies which contribute to problem expression or are affected by the problem; • to identify temporary solutions to diminish the effects of the problem and to guide <i>MIA</i> on how to apply them; • to identify solutions related to the problem, to communicate on regular basis with <i>MIA</i> regarding the obtained progress in identifying solutions; • if solutions refer to configurations at the application level, to guide the <i>MIA</i> on how to implement them; • if solutions imply amendments at the level of the program code for <i>IS „REHR”</i>, these will be operated by the <i>Provider</i> and implemented within the maintenance services within the set deadlines.
PIR 007	M	<p><i>Provider</i> will provide consultative support services on how to use <i>IS „REHR”</i> to <i>MIA</i>. For this purpose, depending on the specific consultancy needs of the <i>MIA</i>, the <i>Provider</i> may take the following actions:</p> <ul style="list-style-type: none"> • to receive consultancy requests from the <i>MIA</i> and of the information related to the context, for which consultancy is necessary; • to identify solutions and to validate them in the testing environments of the <i>Provider</i>;

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> To provide complete and correct answers regarding the way in which <i>MAI</i> should act when operating the <i>IS „REHR“</i>, according to the consultancy request.

8.2.2. Maintenance services during the warranty period

The maintenance services should be provided by the *Provider* so as to maintain over the time the information system according to optimal operational parameters. For this purpose, the *Provider* may come up with updates and modifications at the level of the information system and the new releases of the system applications.

The updates of the *IS „REHR“* are modifications at the applications' level, sent to the *MIA* upon the initiative of the *Provider* and meant to improve the performance of applications, to remove the problems, errors, and vulnerabilities known by the *Provider*.

The *new releases* are software packages related to the *IS „REHR“*, sent to the *MIA* upon the initiative of the *Provider* and which contain all the changes made previously at the applications' level. Additionally, it may contain modifications and updates, new application components, which were present in the older releases of the application.

Table 8.3 sets the requirements for the maintenance services to be provided by the *Provider* during the warranty period.

Table 8.3. Requirements regarding the maintenance services for the information system

ID	Binding nature	Requirement
PIR 008	M	<i>Provider</i> will provide, if needed, services to update the <i>IS „REHR“</i> and will deliver the new releases.
PIR 09	M	For this purpose, the <i>Provider</i> will prepare the software packages and the documentation related to the updates and new releases.
PIR 010	M	The implementation of all updates and new releases will be carried out according to the requirements set in „ <i>Management of changes</i> “ in the present technical specifications.

8.2.3. Development services during the warranty period

The development services are provided by the *Provider* upon the request of the *MIA* for the purpose of aligning the *SI „REHR“* to the changed business needs of the *MIA* (modernization/improvement of the information system, adjustment of the information system when the normative-legal frame changes, adapting the software product so as to ensure operational capacities in (medium) modified conditions or conditions which are being modified, specification of corresponding program documents and their reprogramming, to improve the operational characteristics and other attributes of the software product)

A request for modification/development represents a request from the *MIA* to the *Provider* for obtaining changes at the level of the functionalities of the *IS „REHR“* or for the purpose of delivering new functionalities for the information system.

A request from the *MIA* is considered to be a modification/development only if the requested functionality is not provided by the *IS „REHR“* or is provided in a different way than that requested by the *MIA*. The last

category does not include the requests related to correcting the functionalities which imply an operational problem for the *IS „REHR”* (according to the above definition).

Table 8.4 sets forth the development services to be provided by the *Provider* during the warranty period.

Table 8.4. Requirements for information system development services

ID	Binding nature	Requirement
PIR 011	M	<p><i>The Supplier</i> will provide services for modifying and developing the <i>IS „REHR”</i>. The perimeter of changes will include at least:</p> <ul style="list-style-type: none"> • changes for the presentation level of the <i>IS „REHR”</i>; • changes for the business logic level of the <i>IS „REHR”</i>; • changes for the data level of the <i>IS „REHR”</i>.
PIR 012	M	<p>As part of the modification and development services for the <i>IS „REHR”</i>, the <i>Provider</i> will undertake the following:</p> <ul style="list-style-type: none"> • receive requests for modification with description of related functional specifications; • develop the technical project (<i>SRS+SDD</i>) related to the request and will coordinate it with the <i>MIA</i>; • perform modifications and developments at the components' level of the <i>IS „REHR”</i>.
PIR 013	M	<p>The implementation of modifications and development at the system level will be carried out according to the requirements set in <i>„Change Management”</i>.</p>
PIR 014	M	<p><i>The Provider</i> will describe in its bid the model suggested for managing the requests for modification and development, and the methods applied to estimate the effort and the price submitted to the <i>MIA</i>.</p> <p>The information included in the bid should be sufficient to assess the relation between the <i>Supplier</i> and the <i>MIA</i> in the process of provision of development services will be transparent and correct.</p>
PIR 015	M	<p><i>The Provider</i> will provide development services for the <i>IS „REHR”</i> as part of services for operational maintenance and development of <i>IS „REHR”</i>. The development services will include:</p> <ul style="list-style-type: none"> • modification of existing functionalities within the <i>IS „REHR”</i>; • implementation of new functionalities in the <i>IS „REHR”</i>.
PIR 016	M	<p>Any development for the applicative software related to the <i>IS „REHR”</i> will be initiated based on a request from the <i>MIA</i>. The request will be accompanied by functional specifications for requested modification. The implementation of any modification related to the <i>IS „REHR”</i> will pass through the process of change management agreed with the <i>MIA</i>.</p> <p>For the changes at the level of applicative software, the process will provide for at least the following:</p> <ul style="list-style-type: none"> • implementation in the testing environment of the <i>MIA</i> by performing unit testing;

ID	Binding nature	Requirement
		<ul style="list-style-type: none"> implementation in the testing environment of <i>MIA</i> and performing the acceptance tests, with the involvement of users of the <i>IS „REHR“</i>; implementation in the production environment of the <i>MIA</i>, according to the established procedure for change management; final review and final acceptance of changes.
PIR 017	M	Development services additionally to those included will be possible to be requested by <i>MIA</i> and provided by <i>Provider</i> based on additional agreements signed between Parties.

8.3. Level of services related to maintenance of the information system

The level of post-implementation support and maintenance services sets forth the requirements regarding the parameters according to which these services should be provided by the *Provider*.

8.3.1. Support services

The parameters which characterize the level of support services are the following:

- **Response time (RT)** – is the time during which the *Provider* will react to the support request, will diagnose the situation and will establish the actions to be undertaken to solve the situation;
- **Settlement time (SS)** – is the objective time during which the *Provider* is expected to undertake actions in its area of responsibility so as to solve completely the request of the *MIA*.

The requests of *MIA* for post-implementation support and maintenance services are classified from the viewpoint of their importance for *MIA*. The importance for *MIA* is assessed depending on the (produced or probable) impact of the event that has generated the need to place the request regarding the quality parameters for the operation of the *IS „REHR“*.

Table 8.5 contains the classification of the requests from *MIA* depending on their importance.

Table 8.5. Classification of support requests' importance

Classification	Impact on quality parameters for the operation of applications
Critical	<p><i>Availability:</i> the information system is unavailable for all or majority of users. Important transactions are necessary to be carried out as soon as possible (in several hours).</p> <p><i>Usability:</i> key business functions cannot be used. There are no alternative procedures and functionalities.</p> <p><i>Performance:</i> response time to users' queries make it practically unavailable the operation of the information system.</p> <p><i>Security:</i> there are major risks for compromising confidentiality, integrity and availability of data.</p>
High	<p><i>Availability:</i> information system is unavailable for a good part of users. It is necessary to perform important transactions and operations before the start of the next day.</p>

Classification	Impact on quality parameters for the operation of applications
	<p><i>Usability:</i> key business functions may be used in a limited manner.</p> <p><i>Performance:</i> the response time to users' queries impacts significantly the roll-out of key business processes.</p> <p><i>Security:</i> there are high risks for compromising confidentiality, integrity or availability of data.</p>
Ordinary	<p><i>Availability:</i> information system is unavailable for a part of users. There are transactions and operations to be performed over the next three days.</p> <p><i>Usability:</i> the business functionality of the system may be used in a limited manner.</p> <p><i>Performance:</i> the response time to users' queries impacts moderately the roll-out of business processes.</p> <p><i>Security:</i> there are risks for compromising confidentiality, integrity or availability of data.</p>
Low	<p><i>Availability:</i> information system is unavailable for a limited number of users. There are no transactions and operations to be carried out within a period of up to three days.</p> <p><i>Usability:</i> the business functionality of the information system is insignificantly impacted. There are alternative procedures and functionalities.</p> <p><i>Performance:</i> the response time to users' queries is longer than the ordinary one. The business processes roll-out is not impacted.</p> <p><i>Security:</i> there are minor risks for compromising confidentiality, integrity or availability of data.</p>

When placing a request for post-implementation support and maintenance services, the *MIA* sets the classification for every request. *MIA* will attach brief information to explain the performed classification. *MIA* will have the possibility to reclassify the placed requests, depending on the modifications in the context of related requests.

- *Provider* will provide support services during the working days according to the legislation of the Republic of Moldova, within the time interval 08:00 – 18:00.
- The level of support services provided by the *Provider* should correspond to the requirements set in table 8.6.

Table 8.6. Duration of solving the support requests

ID	Binding nature	Classification of request placed by MIA	Response Time (RT)	Settlement Time (ST)
PIR 018	M	Critical	5 min	60 min
PIR 019	M	High	60 min	End of day
PIR 020	M	Ordinary	24h	3 days
PIR 021	M	Low	3 days	Best effort*

* *Provider* will undertake efforts to solve as soon as possible the request for services, working in ordinary regime. The deadline for solving the request will be communicated and accepted by *MIA*. Subsequent changes of the deadline are allowed only with the acceptance of the *MIA*.

8.3.2. Maintenance services

Parameters which characterize the level of maintenance services provided by *Provider* during the warranty period for the *IS „REHR”* are described in Table 8.7.

Table 8.7. Requirements for post-implementation maintenance and support services

ID	Binding nature	Requirement												
PIR 022	M	<i>Provider</i> will apply a policy to minimize the frequency of issuing updates at the applications' level. The policy applied by the <i>Provider</i> will allow <i>MIA</i> to apply the new updates on monthly basis. Exceptions might be the updates meant to remove the critical and security problems at the level of the <i>IS „REHR”</i> .												
PIR 023	M	<i>Provider</i> will apply a non-binding policy for implementation of the new releases of the applications. The policy applied by the <i>Provider</i> will allow the <i>MIA</i> to implement new releases of the applications once per three years.												
PIR 024	M	<i>Provider</i> will communicate to the <i>MIA</i> its timetable of issuing the updates and the new releases. For updates, the <i>Provider</i> shall notify the <i>MIA</i> at least one month in advance. For the new releases, the <i>Provider</i> will notify the <i>MIA</i> at least 6 months in advance.												
PIR 025	M	For maintaining the <i>IS „REHR”</i> in functional condition, the <i>Provider</i> may carry out maintenance works at the level of IT components related to the information system. The type of maintenance works and commitments of the <i>Provider</i> to coordinate them with the <i>MIA</i> , the period and their duration are all set in the below table: <table border="1" data-bbox="584 1319 1461 2018"> <thead> <tr> <th>Type of maintenance works</th> <th>Notification of Beneficiary</th> <th>Period and duration of works</th> </tr> </thead> <tbody> <tr> <td>Ordinary maintenance works</td> <td>5 days in advance</td> <td>Are performed beyond the warranted availability period for <i>IS „REHR”</i>. Duration of such works shall not exceed 4 hours.</td> </tr> <tr> <td>Major maintenance works</td> <td>10 days in advance</td> <td>Are performed being the warranted availability period for <i>IS „REHR”</i>. Duration of such works shall not exceed 24 hours.</td> </tr> <tr> <td>Urgent maintenance works</td> <td>Notification immediately when the need to initiate them appeared</td> <td>May be performed in any period. Duration shall not exceed 2 hours.</td> </tr> </tbody> </table>	Type of maintenance works	Notification of Beneficiary	Period and duration of works	Ordinary maintenance works	5 days in advance	Are performed beyond the warranted availability period for <i>IS „REHR”</i> . Duration of such works shall not exceed 4 hours.	Major maintenance works	10 days in advance	Are performed being the warranted availability period for <i>IS „REHR”</i> . Duration of such works shall not exceed 24 hours.	Urgent maintenance works	Notification immediately when the need to initiate them appeared	May be performed in any period. Duration shall not exceed 2 hours.
Type of maintenance works	Notification of Beneficiary	Period and duration of works												
Ordinary maintenance works	5 days in advance	Are performed beyond the warranted availability period for <i>IS „REHR”</i> . Duration of such works shall not exceed 4 hours.												
Major maintenance works	10 days in advance	Are performed being the warranted availability period for <i>IS „REHR”</i> . Duration of such works shall not exceed 24 hours.												
Urgent maintenance works	Notification immediately when the need to initiate them appeared	May be performed in any period. Duration shall not exceed 2 hours.												

8.3.3. Development services

Parameters characterizing the level of development services provided by the *Provider* during the warranty period for the *IS „REHR”* are described in table 8.8.

Table 8.8. Requirements for development services in the post-implementation period

ID	Binding nature	Requirement
PIR 026	M	<i>Provider</i> will react to a development request from the <i>MIA</i> in maximum 3 days.
PIR 027	M	<i>Provider</i> will provide solution budget estimates and concept in maximum 10 days.
PIR 028	M	<i>Provider</i> will provide the solution in the time period agreed with the <i>MIA</i> , applying the principle „ <i>the best effort</i> ”.
PIR 029	M	<i>Provider</i> will allow <i>MIA</i> to set priorities for the development requests and their subsequent revision. Revision of requests' priorities will make it possible to review the deadlines for delivering the solutions by the <i>Provider</i> .

8.4. Management of support services

The modality of organizing the support services, including after the expiry of the warrant period for the *IS „REHR”* are described in the non-functional requirements included in table 8.9.

Table 8.9. Requirements for support services' management

ID	Binding nature	Requirement
PIR 030	M	The provision of technical support services by the selected <i>Provider</i> to <i>MIA</i> will be carried out considering the standards <i>ISO 20000</i> and the set of practice <i>ITIL v3.0</i> . <i>Provider</i> should have the capacity to interact with <i>MIA</i> according to the set best practices. As well, it should have internal processes and capabilities to provide them operationally according to the practices mentioned in the area.
PIR 031	M	The support services will be provided based on Service Provision Agreement (SPA), which will be signed between <i>MIA</i> and <i>Provider</i> . The Agreement will establish the level of post-implementation support and maintenance services, based on the requirements included in these technical specifications.
PIR 032	M	<i>Provider</i> will have a Client Support Center to which all the requests from the <i>MIA</i> will be referred. The work program and the organization of activities under the Client Support Center should ensure the provision of post-implementation support and maintenance services at the level established in these technical specifications.

ID	Binding nature	Requirement
PIR 033	M	<i>Provider</i> should be able to demonstrate access in useful time of the Support Center to specialists certified by producers of provided applicative solutions.
PIR 034	M	Support services will be provided remotely. When needed, the specialists of the <i>Provider</i> will go to the premises of the <i>MIA</i> .
PIR 035	M	To provide post-implementation support and maintenance services, the <i>Provider</i> will provide to the <i>MIA</i> an applicative platform, available for the users of the information system through Internet. The applicative platform will be adequately secured. All the interactions between the <i>Provider</i> and <i>MIA</i> under the provisions of post-implementation support and maintenance services will be carried out through the respective platform.
PIR 036	M	<i>Provider</i> will monitor the quality of post-implementation support and maintenance services and will react to the admitted deviations so as to prevent them.
PIR 037	M	<i>Provider</i> will submit monthly reports to the <i>MIA</i> regarding the provided services at their level. The reports will contain also information regarding the actions taken by the <i>Provider</i> or those planned, for the purpose of improving the quality of the services.
PIR 038	M	<i>Provider</i> will submit on quarterly basis to the <i>MIA</i> the acceptance act for post-implementation support and maintenance services. The acceptance act will contain the volume and the amount of provided services. The acceptance act will be accompanied by the report on provided services and their level.
PIR 039	M	The payment for the post-implementation support and maintenance services will be made quarterly, after the provision of services, based on the act of acceptance and of the report regarding the provided services.

8.5. Management of changes

All the changes applied within the *IS „REHR”* in the context of provision of post-implementation support and maintenance services will be managed according to a mature process of changes' management. Table 8.10 contains the requirements for organization of changes' management for the *IS „REHR”*.

Table 8.10. Requirements for management of changes

ID	Binding nature	Requirement
PIR 040	M	In its bid, the <i>Provider</i> will include information regarding the suggested approach for management of changes at the level of applications.
PIR 041	M	<i>The Provider</i> will suggest to the <i>MIA</i> the procedure for management of changes related to the applications. The procedure will be coordinated and accepted by the <i>MIA</i> .

ID	Binding nature	Requirement
PIR 042	M	<p>The procedure for the management of changes should envisage at least the following activities under the responsibility of the <i>Provider</i>:</p> <ul style="list-style-type: none"> • testing the changes in the testing environment of the <i>MIA</i>; • preparing the plan for implementing the changes; • preparing the plan for roll back in case of failed changes; • preparing the technical documentation related to changes, including: purpose of changes, affected components, implementation guide, guide for applying the roll-back plan, guide to changes; follow-up; • preparing detailed technical documentation related to changes (documentation will include the description of changes, impacted components, installation instructions, rollback plan in case of failure, follow up procedures to ensure the correct implementation of changes); • updating the user documentation and technical documentation related to the applications and sending it to the <i>MIA</i>; • providing software packs related to changes; • providing files containing the source code related to changes (authenticity and integrity of software packs and source code should be ensured with the provider's digital signature - code signing); • reacting immediately in case of an error identification in the implemented changes and correcting them as soon as possible.
PIR 043	M	<p>In the process of maintenance provision for the <i>IS „REHR”</i>, <i>Provider</i> could make a number of changes at the level of components related to the <i>IS „REHR”</i> (system components and applicative software).</p> <p>All the changes carried out by the <i>Provider</i> at the level of the <i>IS „REHR”</i> will be implemented according to a jointly agreed process for change management. The changes that may have a significant impact on quality parameters of the <i>IS „REHR”</i> services will be authorized by the <i>MIA</i>. The binding elements for this type of changes will be:</p> <ul style="list-style-type: none"> • testing in testing environment; • change implementation plan; • roll-back plan; • post-implementation review. <p><i>Provider</i> will keep the record of all changes related to the <i>IS „REHR”</i> in a Register of Changes. <i>MIA</i> will have access to reading this Register.</p>

8.6. Quality assurance

The quality of post-implementation support and maintenance services influences directly the quality of using the *IS „REHR”* by *MIA*.

The Provider should be able to prove that these services will be provided at the agreed level of quality. Table 8.11 contains the requirements for quality assurance for the post-implementation support services for the information system *IS „REHR”*.

Table 8.11. Requirements set for ensuring the quality of post-implementation support and maintenance services

ID	Binding nature	Requirement
PIR 044	M	<p><i>Provider</i> will submit at the beginning of the year a plan for quality assurance for the post-implementation support and maintenance services.</p> <p>The plan will contain performance indicators for services, risks which may influence the performance indicators, preventive actions implemented to manage the risks and the measures to mitigate the residual risks.</p> <p>The plan submitted by the <i>Provider</i> should be subsequently accepted by the <i>MIA</i>. The quality plan will be reviewed by the <i>Provider</i> at least annually, or in cases when important deviations will be identified in provision of services at the agreed level.</p>
PIR 045	M	<p><i>Provider</i> will include in its bid the information regarding the approach regarding the plan for quality assurance for the post-implementation support and maintenance services.</p>
PIR 046	D	<p><i>Provider</i> will carry out annual audit of its capabilities to provide post-implementation support and maintenance services at the established level.</p> <p>Audits should be performed by entities which are independent from the <i>Provider</i>. The applied audit methodology should be aligned to the best practices in the area (example: SAS 70, ITIL, standards ISACA etc.).</p> <p>The audit reports will be submitted to the <i>MIA</i>, together with the action plans to mitigate the gaps identified by the auditor.</p>
PIR 047	M	<p><i>Provider</i> should develop and maintain in updated condition the Quality Plan for operational maintenance services for the IS „REHR”. The plan should take into consideration the following categories of risks:</p> <ul style="list-style-type: none"> • Operational risks (loss of <i>Provider</i>'s capacity to provide at the set level, risks at the level of internal processes of the <i>Provider</i>); • Technological risks (risks that may influence the availability, accessibility, performance and security of the IS „REHR”).
PIR 048	M	<p>The Quality Plan should contain detailed information about the identified risks, measures to be implemented by the <i>Provider</i> for preventing them, the residual risks and reaction measures planned in case of residual risks.</p>
PIR 049	M	<p>The Quality Plan shall be updated at least annually or at any major change at the level of components of the IS „REHR” or at the level of the processes related to maintaining the IS „REHR”. <i>Provider</i> will submit to the <i>MIA</i> the Quality Plan in its last updated version.</p>
PIR 050	M	<p>At the stage of bid submission, the <i>Provider</i> should describe how it will produce the Service Quality Plan. The Bid will have a competitive advantage if the <i>Provider</i> attaches to it the Quality Plan, and the Quality Plan complies with the needs of the <i>MIA</i>.</p>

8.7. End of contract

If the parties decide not to prolong the contract for post-implementation support and maintenance services, the activity of the *MIA* should not be impacted. *MIA* should have the possibility to contact another *Provider* or to take over internally the support and maintenance of the *IS „REHR”*. Table 8.12 contains requirements for ending contractual relations between the *Provider* and *MIA* regarding the support and maintenance services during the post-implementation of the *IS „REHR”*.

Table 8.12. Requirements to end the contract for provision of post-implementation support and maintenance services

ID	Binding nature	Requirement
PIR 051	M	<p>If it is envisaged that the contact for post-implementation support and maintenance services comes to an end, the <i>Provider</i> should ensure at least:</p> <ul style="list-style-type: none"> • all source codes (or setup files for <i>COTS solutions</i>) related to the <i>IS „REHR”</i> are sent to the <i>MIA</i>. • the sent source/setup codes should be the ones based on which the components of the <i>IS „REHR”</i> were produced and rolled out in the production environment of the <i>MIA</i> at the moment the contact comes to an end (authenticity and integrity of the mentioned files will be confirmed by the digital signature of the <i>Provider</i>); • all the documentation related to the <i>IS „REHR”</i> is updated and sent to <i>MIA</i>; • all the records related to the requests of the <i>MIA</i> and tackled by the <i>Provider</i> (for incidents, problems, consultancy, changes, developments, etc.) are exported in the format jointly agreed (e.g.: <i>CSV, XLS etc.</i>) and sent to <i>MIA</i>; • <i>Provider</i> shall keep for one calendar year all the records produced during the provision of services, source codes and documentation related to the <i>IS „REHR”</i>.
PIR 052	M	<p>For a period of one calendar year after the expiry of the support contract, <i>Provider</i> will be willing to cooperate with third parties authorized by <i>MIA</i>, for provision to <i>MIA</i> of post-implementation support and maintenance services.</p> <p>For this purpose, the <i>Provider</i> will ensure at least the supply of any held information that might help in improving the services.</p>
PIR 053	M	<p><i>Provider</i> will include in its bid the information regarding the approach suggested for ending the post-implementation support and maintenance services, taking into account the requirements and needs of the <i>MIA</i>.</p>
PIR 054	M	<p>The contract signed based on this procurement tender shall last for 25 months. Any of the parties may request at any moment the termination of the signed contract. For this purpose, the party that wished to terminate the contract shall notify the other party about its intention at least 6 months in advance.</p>

ID	Binding nature	Requirement
PIR 055	M	All the data kept in the databases related to the <i>IS „REHR”</i> shall be the property of the <i>MIA</i> .