"ELECTRONIC LABOR EXCHANGE" PLATFORM

**TESTING REQUIREMENTS**

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**Abbreviation**

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| **N** | **Abbreviation** | **Abbreviated word or term** |
|  | "Nork" Technology Center | "Nork" Social Services Technology and Awareness Center” Foundation |
|  | ELE | Electronic Labor Exchange |
|  | ID | Identity document |
|  | MLSA | Ministry of Labour and Social Affairs of the Republic of Armenia |
|  | SRP | State Register of Population |
|  | EAEU | Eurasian Economic Union |
|  | EADB | Eurasian Development Bank |
|  | PIG | Project Implementation Group |
|  | EFSD | Eurasian Fund for Stabilization and Development |
|  | PSN | Public Service Number |
|  | RA | Republic of Armenia |
|  | USS | Unified Social Service |
|  | SRLG | State Register of Legal Entities |
|  | IS | Information system |
|  | DB | Database |
|  | OS | Operating system |
|  | MESCS | Ministry of Education, Science, Culture and Sports of the Republic of Armenia |
|  | SRC | State Revenue Committee of the Republic of Armenia |

# **Testing of ELE Platform**

The Consultant should develop and submit for approval to the PIG a plan for testing and acceptance of the information system. The test plan should include the following main sections:

* Testing strategy,
* Technical features of testing,
* Testing scenarios, including test cases,
* Testing environment,
* Development of test results,
* A strategy for implementing changes based on testing.

The consultant should conduct and submit the results of the hydraulic fracturing tests, consistingof at least the following steps:

* internal testing (unit testing)
* integration testing
* system testing
* user acceptance testing
* pilot testing

**Internal testing (unit testing) and integration testing.** The purpose of these steps is to verify the health of the platform at the level of individual subsystem functions and interrelated subsystem functions. These steps should be carried out in parallel with the platform development process.

**Internal testing** should be based on standardized testing methodologies to ensure better code suitability and relatively easy identification of potential problems and bugs. It is very important that all parts of the program code undergo internal testing. At least 90% of the platform should be subjected to internal testing, at least 80% of the platform should be subjected to integration testing and at least 70% of the platform should be subjected to system testing. It is also necessary Implement automated interface testing using widely used relevant solutions such as Selenium. All relevant codes/scripts for test automation must be provided to the PIG.

Each business case of the platform should have a correspondingly developed test case that clearly defines the input and output values. Acceptance testing of the platform (acceptance testing) should be carried out on the basis of the developed cases, in cooperation withthe Consultancy.

**Pilot testing of the platform should be carried out on users (groups of users)** **listed below:**

* RA Ministry of Labour and Social Affairs,
* Unified Social Service (USS),
* "Nork" Center
* USS Territorial centers.

At this point, the platform's operational capabilities should be tested based on the features of different user groups.

**User acceptance testing,** during which the following features of the platform should be tested:

* Management of related services,
* Platform installation,
* Platform performance in emergency (stressful) and extensive working conditions,
* Security, detection and exclusion of intrusion scenarios,
* Archiving and restoring the platform (backup and restore),
* Information recovery,
* Restoring the functionality of the platform,
* Platform management, monitoring and alerts.

Acceptance testing will be conducted by PIG with the support of a Consultant, which will also include quality, performance and stress testing activities. PIG reserves the right to form a group of experts (consisting of its own employees and / or external experts, other interested parties) to assess the compliance of the solution as a whole with the specified requirements.

All testing processes will be considered complete when the professionals involved in the testing processes do not detect any problems.

All of the above tests, including those related to the graphical user interface (GUI) and application program interface (API), should be automated when possible using the well-known standard test automation software.

# **Testing the online platform for resistance to information and cyber threats**

From the point of view of information resilience and cybersecurity threats, a test should be conducted on the platform to protect against external attacks, platform vulnerabilities should be detected and clear instructions should be developed to eliminate these vulnerabilities.

A report shall be submitted on the results of the tests, which shall include the following:

* Methods of performing tests,
* A conclusion that will include an overall assessment of the defense,
* Description of eliminated defects,
* Description of the testing process with a presentation of all the extracted vulnerabilities and the results of their exploitation,
* Instructions for fixing them.

Possible works planned as a result of the tests carried out should be:

* design and implementation of a protection system or improvement of an existing system,
* Design and implementation of a protection level management system or improvement of an existing system,
* Continuous protection monitoring.

# **Testing the reliability of the online platform**

In the process of testing the reliability of the platform, the following types of control should be applied:

* Stand-alone, designed to verify the reliability of individual components of the platform
* a complex designed to fully verify the reliability of the platform,
* Technical support,
* Software
* Information security

At the stages of creating the platform, the above types of control will be carried out at the following stages:

* Initial, which will be implemented when the requirements for the components are determined, and the design and development of the platform will be at the initial stage of implementation,
* Current, which will be carried out in the process of active software development,
* Delivery-acceptance, which will be carried out after the completion of the development of the platform,
* Operation, which will be carried out within 1 year after the platform is put into operation. Moreover, at this stage, a reliability check will be carried out both in standard conditions and for non-standard cases.

In the process of testing the reliability of the platform, the following methods will be used:

* Forecasting, which should be carried out at the initial stage of creating the platform, in order to approximate the probability of non-standard situations on the platform,
* A reference check to be carried out during the design, transfer and operation of the platform, during which data should be collected to assess reliability indicators: Mean Time between Failures (MTBF) and Mean Time to Restore (RTO);
* Extreme load, which must be carried out as part of the receiving-transmitting process, checking the behavior of the platform in extreme operational situations,
* External influence, which should be carried out as part of the transfer-receive process, checking the behavior of the platform during accidental holds or deliberate impacts. The test shall include the following effects:
* user errors when entering data and issuing commands,
* malfunction of technical means,
* software errors
* Intentional falsification of information and violation of the integrity of the structure.