



ANNEX A.1 – TECHNICAL SPECIFICATIONS

**OPEN CALL FOR TENDERS
No. F-SE-16-T01**

WEB APPLICATION HOSTING SERVICES

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1 Technical specifications

1.1 Objectives

The objective of the European Union Agency for Fundamental Rights (hereafter “FRA” or “the Agency”) is to provide independent, evidence-based advice and expertise on fundamental rights to EU institutions and Member States. FRA is an independent EU body, funded by the Union’s budget. The Agency became operational on 01 March 2007.

The Agency intends to sign a framework contract for the provision of Web Applications Hosting services as described in the present document.

1.2 Definitions and Abbreviations

The following table lists the terms, abbreviations and definitions used in the present document.

| Term or abbreviation | Definition |
|-----------------------------|---|
| FRA | European Union Agency for Fundamental Rights |
| FRA website | The FRA website at http://fra.europa.eu and all sub-sites |
| FRA CMS | Current FRA website content management system (Drupal 7) which hosts the FRA website |
| FRA CMS (old) | Old web content management system using Oracle (BEA) Weblogic 9.2 and Oracle Database 10g which hosts the e-recruitment system. |
| DVS | Data visualization tool for the visualization of survey data |
| MDX | Data visualization tool for the visualization of non-survey data |
| FRA survey software | LimeSurvey online survey tool. |
| FRA web statistics software | Piwik web statistics tool |

Table 1: List of terms

2 Title of the Contract

The title of the contract is “Web application hosting services”.

3 Overview of Services

The services that may be requested by FRA relate to the hosting of web applications (including provision of back-ups and access logs). The Agency's current policy is to outsource internet based web applications to ensure the highest quality of services to its stakeholders.

The following section provides an overview of the applications and technologies presently in use by the FRA.

Hosting services may be requested to be provided either in a virtual environment or in a stand-alone physical environment, depending on the nature of the web applications.

4 Overview of current situation

4.1 Existing externally hosted infrastructure

The FRA applications currently hosted in both staging and production environments are as follows:

- **FRA website content management system (CMS):** The current FRA website content management system which uses the Drupal 7 CMS and hosts the Agency's website <http://fra.europa.eu> . This application includes also the following modules
 - **DVS data visualization tool:** used for the visualization of FRA survey data
 - **MDX data visualization tool:** used for the visualization of non-survey data
 - **Clarity tool:** an online tool to help users with fundamental rights problems.
- **FRA CMS (old):** Based on Java, Oracle (BEA) Weblogic 9.2 and ORACLE 10g technologies. The old CMS is no longer used for the FRA website but it is still used to manage the FRA e-recruitment system. It is planned to replace the e-recruitment system with a new one in 2017. This includes:
 - **e-Recruitment application:** Based on Java, Oracle Weblogic 9.2 and Oracle Database 10g.

The following FRA applications are hosted only in the production environment:

- **FRA survey software:** A platform for online surveys that uses the PHP-based application LimeSurvey.
- **FRA web statistics software:** the open source statistics tool Piwik

The FRA reserves the right to add or remove applications to the above list of externally hosted applications at any time as it sees fit.

Currently FRA web applications are running in virtual servers within a dedicated physical infrastructure. The physical server infrastructure is as follows:

Active node(s): The applications are hosted on one or more dedicated physical servers that are virtualised to create Production and Staging environments. There are currently 2 active nodes.

Passive node(s): Dedicated physical server(s) to ensure continuity of service by replicating the active node so that in case of failure of the latter, the passive node is switched to active and vice versa. Currently 1 passive node.

Back-up server: Dedicated physical server(s) hosting the back-up software and back-ups. Currently 1 back-up server.

All of the above are managed (upgraded/expanded) when new resources are needed to ensure the applications performance.

4.2 Minimum hardware infrastructure and requirements

The minimum hardware infrastructure must be sufficient enough to support any of the following technologies online with the manufacturer's minimum specifications:

- Drupal 7
- PHP 5.4 or higher
- R (statistical programming language)
- Cairo graphics library, version 1.8.10-2 or higher
- J2EE or equivalent
- Oracle WebLogic v. 9.2 or higher.
- Oracle Database 10g or equivalent
- Open Office
- MySQL
- Linux
- Apache
- Varnish

Contractors are requested to provide the necessary hardware for any possible combinations of the above listed technologies.

The hardware and hosting services must be located in the European Union area. No data (including back-ups) can be transferred to or stored outside the European Union area.

4.3 Minimum software infrastructure and requirements

The contractor should be able to provide the necessary software requirements that match the web applications' needs. In particular, the **minimum software infrastructure** for the different technologies and operating systems should not be older than two

versions than the latest version in the market. Source code for custom FRA applications will be provided by the Agency.

Any necessary software licenses (e.g. for software not available under an Open Source licence) will be provided by FRA.

5 Service requirements

The technologies and tools used for the provision of the services and products should be in line with the technologies listed under section 4.1 and 4.2 or equivalent.

The general scope of this section is to list the overall parameters associated with the delivery of hosting services under the contract.

5.1 Web-hosting environment requirements

The tenderers should provide a hosting environment where

- the hosting of the abovementioned applications and related modules in terms of software and hardware requirements are addressed (see sections below).
- Datacentre environments shall provide redundant internet access with reliable failover mechanisms.
- The physical hosting environment proposed is appropriate in terms of power management, cooling, maintenance and monitoring of systems such as smoke detection and fire suppression and related alarm systems.
- The server application infrastructure must be virtualized offering the necessary redundancy and scalability.
- The offered infrastructure must guarantee the privacy and confidentiality of Agency's data.
- Hosting must reside in a country of the European Union. This provision covers also potential back up sites of the proposed hosting environment.
- The provided infrastructure must be adaptable to support potential growth and also high traffic periods e.g. when a report is published by the Agency. This information will be provided in advance to the contractor.

Further specific requirements are listed in the following sections.

5.2 General conditions for the provision of the Web Application Hosting Services

The contractor has to provide the **minimum guaranteed service level requirements** presented in this section; however, the contractor is allowed to propose an improved service level in each of the categories hereafter. In addition, if the contractor proposes an improved service level, the contractor will be bound to this proposal after acceptance by FRA and may not afterwards revert to the minimum requirements as set out in the present document.

5.2.1 Availability

Definition: Measures the availability of the Web-hosted application. This provides the service recipient with the percentage of time that the application(s) were available for use in a specific month. Note that in all cases, “high” refers to expected availability, while “low” refers to the minimum availability.

| | |
|-----------------------|---|
| Requirement | 24 hours per day, 7 days per week (365 days a year) |
| Measurement Range | Low = 99.8%; High = 99.999% |
| Compliance | Maintain Web-hosting application availability in good working order so that service recipient and client activities can take place within defined time frames. |
| Measurement Frequency | Monthly |
| Calculation Formula | Total available hours/by total hours (less scheduled maintenance hours) in measurement period. Each server x 24 hours x 21.16 days (average work days in a month) = "Monthly Available" to define if "Service Level Attained" |

5.2.2 Response Time

Definition: Measures the time taken to refresh the screen with requested information after the request is entered.

| | |
|---------------------|---|
| Requirement | 24 hours per day, 7 days per week (365 days a year) |
| Measurement Range | Low = Page load target within 5 seconds; High = Page load target within 1 second; |
| Compliance | Maintain Web-hosting applications availability in good working order so that service recipient and client activities can take place within defined time frames. |
| Frequency | Monthly |
| Calculation Formula | Response Time: <Y seconds. Formula: Time it takes for all characters to appear on an end-user screen from inquiry request initiation |

NOTE: The response time is also dependent on the way the web application is structured. In case web pages take longer to load then the measurement range may be adjusted accordingly following agreement between the Agency and the Contractor.

5.2.3 Server Availability

Definition: The percentage of time that the server is available for normal business operations.

| | |
|---------------------|--|
| Requirement | 24 hours per day, 7 days per week (365 days a year) |
| Measurement Range* | Low = 98%; High = 99.95% |
| Compliance | Maintain server in good operating condition so standard/normal organization activities can take place within defined time frames. |
| Frequency | Monthly |
| Calculation Formula | Total available hours/by total hours in measurement period = "service level attained." Example 12x5 = each server x 12 hours x 21.6 days (average work days in a month) = "Monthly Available measurement period" |
| Data Sources | Tool supplied by service provider that automatically records via "date and time stamping" for each activity within a process including uptime and downtime data. |

5.2.4 Security

The contractor will take all necessary security measures to protect the applications and the data from intentional or accidental damage and from unauthorised access, as described in their technical offer. Such measures must include:

- Server security management
- Timely application of security patches
- Human error reduction

The contractor must ensure that the latest patches and operating system updates are performed to ensure security. In case there are incidents where security breaches have occurred then the Agency should be informed immediately.

5.2.5 Backup and Recovery

Definition: Perform incremental backups (including of the access logs for web statistics) on a daily, weekly and monthly basis as required by the organization. The Agency may request additional back-ups of surveys running on the FRA survey software. The successful creation of back-ups should be available.

| | |
|---------------------|--|
| Requirement | 24 hours per day, 7 days per week (365 days a year) |
| Measurement Range | Low = 99% of the time; High = 99.99% of the time. |
| Compliance | Perform daily backup, maintain minimum 7 daily cycles, 6 weekly, 13 monthly. Perform one recovery test per year upon the Agency's request. |
| Frequency | Monthly |
| Calculation Formula | Confirm backup/recovery from backup/recovery logs |
| Data Sources | Provide reporting of the back-up functions including date and time-stamp capabilities and status. |

5.2.6 Restore times

The service restore time is the time needed by the contractor to provide a solution to restore the service. During normal working hours (08:30 – 17:30) (Central European Time), the following reaction times are expected.

| Item | Response times |
|----------|---------------------------------------|
| Critical | 90% within 1 hour, 10% within 2 hours |
| Urgent | 95% within 2 hours, 5% within 4 hours |
| Normal | 95% within 4 hours, 5% within 6 hours |

Table 2: Service restore times

For exceptional requests outside the normal working hours (as defined above), it is expected that the response times for all items should be not less than for urgent items as described in Table 2 above (95% within 2 hours, 5% within 4 hours).

5.3 Web Hosting environment services

For the standard hosting services and management of daily operations both a Production environment and a Staging environment are required.

The **Production environment** hosts the applications (see Section 4.1 for list of applications) for the live site and the e-recruitment system as described below.

The **Staging environment** hosts the applications for the website and e-recruitment for the development and testing of enhancements, new features, and new applications. The performance of the staging environment does not need to match exactly that of the production, as access to staging will be limited to authorised FRA staff and the contractors that develop and maintain the applications. However, it must be sufficient to allow FRA staff and contractors to work swiftly and efficiently.

Both the Production and Staging environments are virtualized to ensure stability and the optimum use of resources,

5.3.1 Hosting services – Production environment

The standard hosting services for Production are as follows:

Provision of:

- Disc space of minimum 250 GB
- UPS power backups
- Tape back-up service or other back-up service;
- Connection via:
 - HTTP access to the hosted applications
 - FTP (or sFTP) access to the hosted applications and environment
 - SSH connection

These connections should allow remote access to the hosting environment which is necessary for application deployments, patches or running SQL scripts etc. A close collaboration with other FRA Contractors developing and maintaining the web applications is required.

- SSL support and installation of SSL certificates. All certificates will be provided by FRA.
- Guaranteed direct connection to a major internet backbone (Tier 1 or 2) is required. An estimated bandwidth of 90-100 GB/month is expected.
- Streaming audio and video capabilities

The applications and databases on the existing Production environment currently use a total of around 177 GB.

Average website traffic was around 143,000 page views per month for the most recent 6-month period (October 2015 – March 2016).

5.3.2 Hosting services – Staging environment

The purpose of the Staging environment is to allow the FRA to test new software, enhancements to the existing systems, etc. The FRA will specify which of the applications on the Production environment should also be on the Staging. The applications on the Staging environment (including all content) should be synchronised regularly with the Production environment so that Staging reflects Production as closely as possible.

The standard hosting services for Staging are as follows:

Provision of:

- Disc space of minimum 200 GB
- UPS power backups
- Tape back-up service or other back-up service;
- Connection via:
 - HTTP / HTTPS access to the hosted applications
 - FTP (or sFTP) access to the hosted applications and environment
 - SSH connection

These connections should allow remote access to the hosting environment which is necessary for application deployments, patches or running SQL scripts etc. A close collaboration with other FRA Contractors developing and maintaining the web applications is required.

5.4 Support

The contractor should provide the necessary support and ensure that the following types of changes are addressed, if requested by FRA.

It is expected that the following types of changes may be requested by FRA:

- Standard change
- Complex change
- Emergency change

The implementation time is the elapsed time between the assignment of the change request to the contractor and the closing of the change request. The service offered will be evaluated on a monthly basis. It is expected that:

- The maximum implementation time (during working hours) for a standard simple change: 4 hours.
- The maximum implementation time (during working hours) for a complex change is: 6 hours.
- The maximum implementation time (24h/24h 7days/week) for an emergency change: 3 hours.

5.5 Take-over and hand-over of existing web-applications

Upon signature of the contract, the contractor will be requested to prepare the necessary production and hosting environments. These will include the set up and configuration of the environments for all applications to meet the conditions described under sections 4.2, 4.3 and 5.1 and 5.2.

The contractor should also document the provided environments upon completion of the set up phase.

This should be a one off cost related to the take-over and initial configuration. The installation of the applications will be performed by the Agency or its assigned contractor.

The contractor shall act as necessary to ensure successful handover of the applications to the next contractor at the end of the framework contract, so as to safeguard optimal operation and continuity.

On conclusion of the contract, the contractor will be required to provide the Contracting Authority with all the data contained on the Contracting Authority's applications (e.g. database dumps, files, etc.) together with any necessary tools, source code and other material (including access credentials) connected with establishing, operating and further developing the applications. The contractor will have to ensure that the handover of any of the above is made efficiently and effectively.

5.6 Place of work and delivery

The implementation of the services will be undertaken at the contractor's premises. When face to face meetings between FRA and the contractor are needed, these will take place at FRA's premises in Vienna.

Where possible, meetings between FRA and the contractor can be made by utilising modern technologies such as video conference systems or Microsoft Skype for Business (Lync) or similar.

5.7 Communication

Communication between the tenderer and the FRA must be possible by phone, electronic mail, fax, normal and registered mail, and a communications solution such as Microsoft Lync or equivalent.

5.8 Language

The working language of FRA is English. The English language shall be used throughout the project duration for all communication, reports and other documentation.

6 Project management and progress reporting

Under this activity, the overall management of the above activities will be ensured by the contractor(s) under the supervision of FRA.

6.1 Project organization

The project organization will consist of the contractor(s) project team and the project officer of FRA.

The contractor(s) shall nominate a project manager to have on his/her behalf overall responsibility for the execution of the project. The selected tenderer shall supply the curriculum vitae of the proposed project manager and other members of the project team.

A back-up for the nominated contractor project manager in case of unavailability should also be nominated. In addition, a description of the tasks, responsibilities and profiles of all members will be provided. Any change of project related personnel occurring once the contract has been signed shall be notified to FRA in writing. The FRA shall agree to the proposed changes in writing following the review of the curriculum vitae of the new member to assess if it is in line with FRA's requirements.

The project manager will ensure that the work under the contract is executed according to the specifications and with respect to the contractual deadlines. The project manager will be responsible to ensure quality-check of all deliverables and to respect the project management and quality plans.

FRA will nominate a project officer to monitor the project schedule and its progress. He or she will be the main point of contact for the contractor. The project officer may be assisted by other FRA officers, if deemed necessary. The contractor will be informed in such case. FRA will also nominate a back-up for the project officer in case of unavailability.

6.2 Quality assurance

The contractor(s) shall supply an overall **Project Management and Quality Plan (PMQP)**. At minimum, the PMQP should include details of:

- The quality assurance methodology to be applied by the contractor, including relevant quality check-points and indicators related to the contract,
- the contractor's project organisation, including the main points of interface with the FRA,
- a detailed project schedule,
- project deliverables and timing,
- an Acceptance Plan including all milestones, deliverables, review, activities and dependencies for the timely and efficient completion of the contract,
- the project's critical path,

- a risk assessment and risk mitigation procedures,
- a list and description of actions required to be taken by the FRA.

The PMQP should be of sufficient detail to enable the FRA to evaluate progress and assess the QA methodology applied. The PMQP shall be one of the project deliverables, being subject to the approval by the FRA. If a need arises, the PMQP should be updated to reflect the current situation (again subject to FRA's approval).

6.3 Project monitoring and reporting

The FRA shall nominate one or more Project Officer(s) who will ensure project monitoring (e.g. Technical, Administrative). The contractor shall prepare and submit a monthly progress report to FRA, addressing at least the following points:

- the current status of the project,
- an analysis of any problem experienced and corresponding corrective actions, taken or proposed,
- justification of any details occurred,
- current resource consumption per team member.
- any actions required to be taken by the FRA,

The monthly report shall be submitted at the latest by the 5th day of the month following the review period.

The last month of the Specific Contract the contractor(s) shall prepare and submit a Final Report to FRA, addressing at least the following:

- Details of the results achieved,
- Quality assurance methods applied,
- Deviations from the original project plan with detailed justifications,
- Description of problems encountered and solutions adopted,
- List of deliverables in line with the Specific Contract.

The final report will be subject to FRA's approval. Following the approval of the final report all deliverables will be provided to FRA as defined in section 6.4.

6.4 Definition of deliverables and acceptance

Apart from the hosting services as described in this document, the contractor shall also provide to FRA the following:

- Access to an online monitoring tool to enable the Agency to monitor the current status of the servers
- Access to an online issue-tracking system in order to report possible bugs and problems and monitor their resolution. Both parties will enter problems and bugs

faced as tickets. The contractor will update the status of the tickets on a daily basis during the implementation period.

- Project Management and Quality Plan (PMQP) according to the specifications given in Section 6.2

The procedure for accepting the deliverables shall be the following:

- FRA receives the deliverables according to the contract deadlines,
- If requested by the Agency, the contractor presents the deliverables for discussion with the FRA at a meeting or video conference
- Further actions which, in the opinion of the FRA, would be necessary for the acceptance of the deliverables will be undertaken by the contractor without delay. A new deliverable which takes into account comments or suggestions made by the FRA will have to be re-submitted within (2) two weeks unless specified otherwise.

All reports and related documentation delivered to FRA shall be written in English.

7 Description of profiles

The required profiles are provided in the following table.

| PROFILE | Required |
|-------------------------------|----------|
| Project Manager | YES |
| Database Administrator | YES |
| Web Application Administrator | YES |

Table 3: List of profiles

7.1 Project Manager

| | |
|---------------------|---|
| Nature of the tasks | <ul style="list-style-type: none"> • Project management including proposals for project strategies, planning, definition of tasks and deliverables, review of project deliverables, quality control, risk analysis and management, project status reports, problem reporting and management systems, follow up and organization. • Provide effective leadership for the project team ensuring that team members are motivated and constantly developing their skills and experience. Be in-charge of project activities and review deliverables. • Participate in functional and technical working groups and progress meetings. • Estimate monitors costs, timescales and resource requirements for the successful completion of each project to agreed terms of reference. • Prepare and maintain project and quality plans and tracks activities against the plan, provide regular and accurate reports. • Manage the change control procedure following agreement |
|---------------------|---|

| | |
|--|---|
| | for revisions to the project from project sponsors. |
| Qualifications and professional experience | <ul style="list-style-type: none"> • University degree • A minimum of six (6) years of professional experience in IT, out of which a minimum of three (3) should be in IT project management • Proven experience with quality procedures and IT service management in at least two (2) projects • Excellent knowledge of English (level C1 based on Common European Framework of Reference) |

7.2 Database Administrator

| | |
|--|---|
| Nature of the tasks | <ul style="list-style-type: none"> • Database administration (administer database login, access rights etc.) • Setup of instances and distribute schema on them. • Resource monitoring and planning. • Tuning of database instances. • Problem diagnosis and solving. • Security monitoring. • Availability monitoring of services provided by the servers • Automation of iterative tasks (writing of scripts) • Technical documentation writing related to the database administration procedures. |
| Qualifications and professional experience | <ul style="list-style-type: none"> • University degree or secondary education followed by a minimum of seven (7) years professional experience • A minimum of five (5) years of professional experience in database administration, development and maintenance in Oracle and MySQL • Professional certification as a Database Administrator • Very good knowledge of the English language is required (Level B2 based on Common European Framework of Reference (CEF)) |

7.3 Web Application Administrator

| | |
|--|--|
| Nature of the tasks | <ul style="list-style-type: none"> • Ability and previous experience in administering web applications based on different web technologies in particular Drupal, PHP, R, J2EE, Oracle Weblogic, Oracle database, MySQL, Piwik and LimeSurvey • Register maintenance incidences • Provide solutions for given incidences. • Technical evaluations – examining incidence reports. • Install and upgrade applications and operating systems. • Deploy installation patches. |
| Qualifications and professional experience | <ul style="list-style-type: none"> • University degree or secondary education followed by a minimum of seven (7) years of professional experience • A minimum of five (5) years of professional experience in IT, of which a minimum three (3) years should be in maintenance support and administration of web applications with at least 3 of the technologies mentioned under “Nature of the tasks” |

| | |
|--|--|
| | <p>above.</p> <ul style="list-style-type: none">• Very good knowledge of the English language is required (Level B2 based on Common European Framework of Reference (CEF)) |
|--|--|