



Tender Specifications

Open Procedure

No. ECHA/2014/110

**Title: Framework Service Contract for the provision of Web
services**

Annex 6.1.1 – Technical Specifications

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1 INTRODUCTION

Through its website, the Agency enhances public access to information about its initiatives, the regulatory tasks related to four pieces of EU legislation (REACH, CLP, Biocides and PIC) and specific information on chemicals. The website is continually updated and its content is targeted both for non-specialists and for informed audiences. The Agency uses its website as its main communication channel as well as for information exchange with companies and data holders.

Depending on the target audience and the type of document, translations are to be provided.

Target audience for the online communications

1. The chemical industry across Europe and beyond (whose members are primarily manufacturers, importers, downstream users, producers of articles, retailers, consultants, lawyers and only representative);
2. Institutional partners (Member States Competent Authorities, EU, national, regional and local authorities, national helpdesks, EU bodies, international organisations, third countries with agreement with ECHA);
3. Accredited Stakeholders Organisations (Industry associations, trade unions, consumer and academic associations, animal welfare and environmental NGOs at EU level);
4. Third parties (academia, research institutes and companies);
5. Media (general and specialised media);
6. General interest audiences (ECHA's suppliers, consumers, job seekers, students, trade associations, NGOs, research communities and third countries (not members of EU), companies interested in applying for ECHA's tenders);
7. Focus groups (e.g. Small and Medium Enterprises, downstream users);
8. ECHA internal users.

2 CURRENT STATUS OF THE ECHA WEBSITES

2.1 ECHA WCMS

ECHA manages its public websites by using **Liferay** (<http://www.liferay.com>) as **Web Content Management System** (WCMS). Liferay offers comprehensive content drafting and publication features, the capability of managing multilingual website content and documents. Liferay offers a flexible and modular framework for developing reusable components (portlets) based on the rich variety of out-of-the-box modules provided.

Liferay defines group of pages as **communities**, which can display content and contain portlets. Pages may contain one or more **articles**, which can contain text, links, images and other content in HTML format. An article may have one or more translations.

For each community, a specific set of user roles can be defined. In ECHA, a user with a **web editor** role is allowed to make changes to the content. When the necessary changes are finalised and reviewed, they can be published live for the public user. For each community, a **community administrator** role has been set up for configuring and defining the proper rights for web editors under the related community. Moreover, the community administrator may assign public users with specific **community user** rights in order to sign in and download documents.

Finally, each of the communities are assigned with a custom **theme** containing a specific structure and look & feel, using the combination of HTML, CSS and Velocity (Java-based template engine - <http://velocity.apache.org/>). The themes are in-line with the Agency's Corporate and Visual Identity (<http://echa.europa.eu/press/corporate-identity>)

2.2 List of current ECHA websites

ECHA hosts the following websites and web applications (list is not exhaustive):

- Communities running on Liferay:
 1. Main ECHA website (in 23 languages, including features such as dedicated searches for chemicals, Q&As, web forms, interactive applications, etc.)
<http://echa.europa.eu>
 2. CHESAR (CHEmical Safety Assessment and Reporting tool)
<http://chesar.echa.europa.eu>
 3. QSAR Toolbox <http://www.qsartoolbox.org>
 4. ECHA newsletter <http://newsletter.echa.europa.eu>

- Additional web products:
 1. IUCLID (International Uniform Chemical Information Database; soon to be integrated in Liferay) website <http://iuclid.echa.europa.eu/>
 2. Web applications to send comments to ECHA on a certain chemical substance e.g https://comments.echa.europa.eu/Comments_cms/AnnexXVCLH.aspx
 3. Web repositories to host dossiers on chemicals
 4. ECHA-term (Multilingual Chemical Terminology Database - currently hosted outside, soon to be integrated in Liferay) <http://echa.cdt.europa.eu/>

The applications are running in different platforms and support different features:

- **Main ECHA website and the additional communities (CHESAR, QSAR Toolbox and ECHA Newsletter)** running under Liferay have total of 760 pages containing 3000 articles (many translated) and 17 000 documents.
- **Web applications to send comments to ECHA on a certain chemical substance** are developed in Microsoft .NET technology using SharePoint as final repository for the data sent. A virus check is performed when the submitted information contains attachments.
- **Web repositories to host dossiers on chemicals:**
 - **Registered substances dossiers** web pages are written in ASP (Active Server Pages) and running under Microsoft IIS6 server; currently hosting over 1.4 million pages.
 - **Biocidal active substance dossiers** pages are written in JSP (Java Server Pages) running under Apache Tomcat with Oracle database backend.
- **IUCLID (International Uniform Chemical Information Database) website** – pages written in PHP with an Oracle database backend.

2.3 Details of the WCMS implementation in ECHA

This section covers the general information about the Liferay implementation in ECHA and more detailed information about the high availability cluster environment.

2.3.1 General

Liferay implementation in ECHA uses **Oracle for databases, Apache Tomcat for application servers** and **Apache HTTP Server for load balancer**. The system is running in high availability cluster environment.

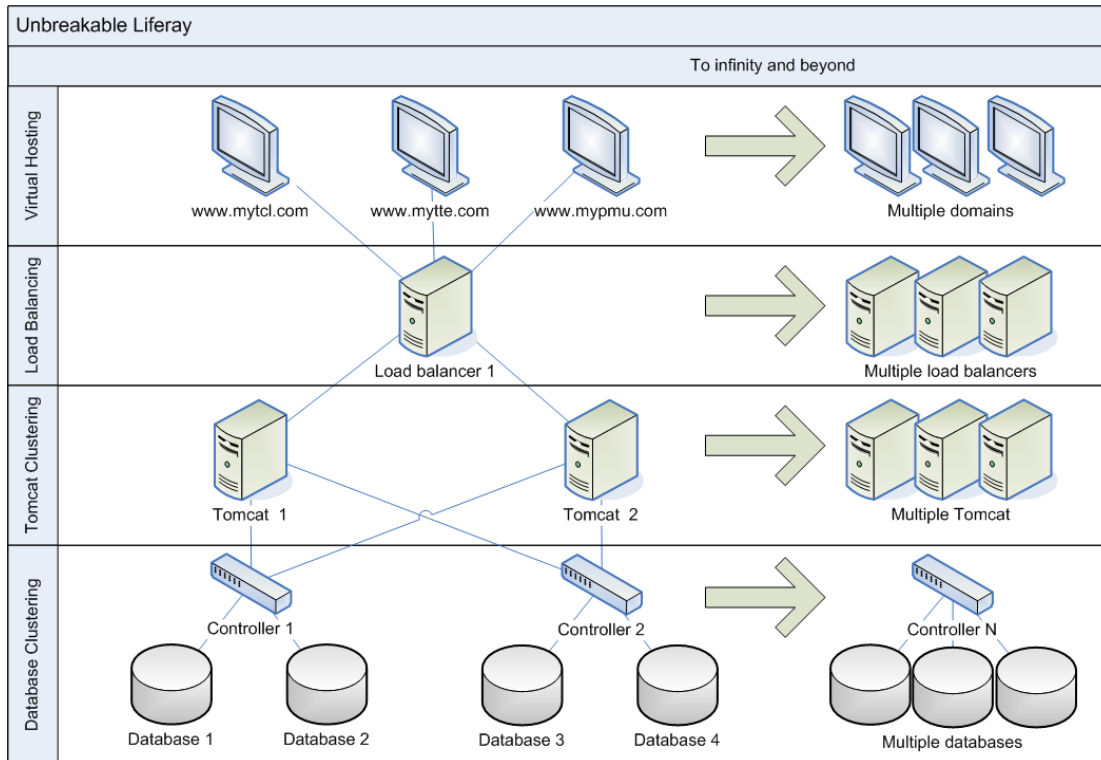
Additional database connections are made to **other Oracle databases** (hosted inside ECHA) for implementing searches for chemicals features.

ECHA is currently using Liferay Enterprise Edition version 6.0.

2.3.2 Current infrastructure

ECHA implements the following high availability infrastructure for websites running on Liferay, where 3 different layers can be identified:

- Virtual Hosting
- Load balancing
- Application Server Clustering



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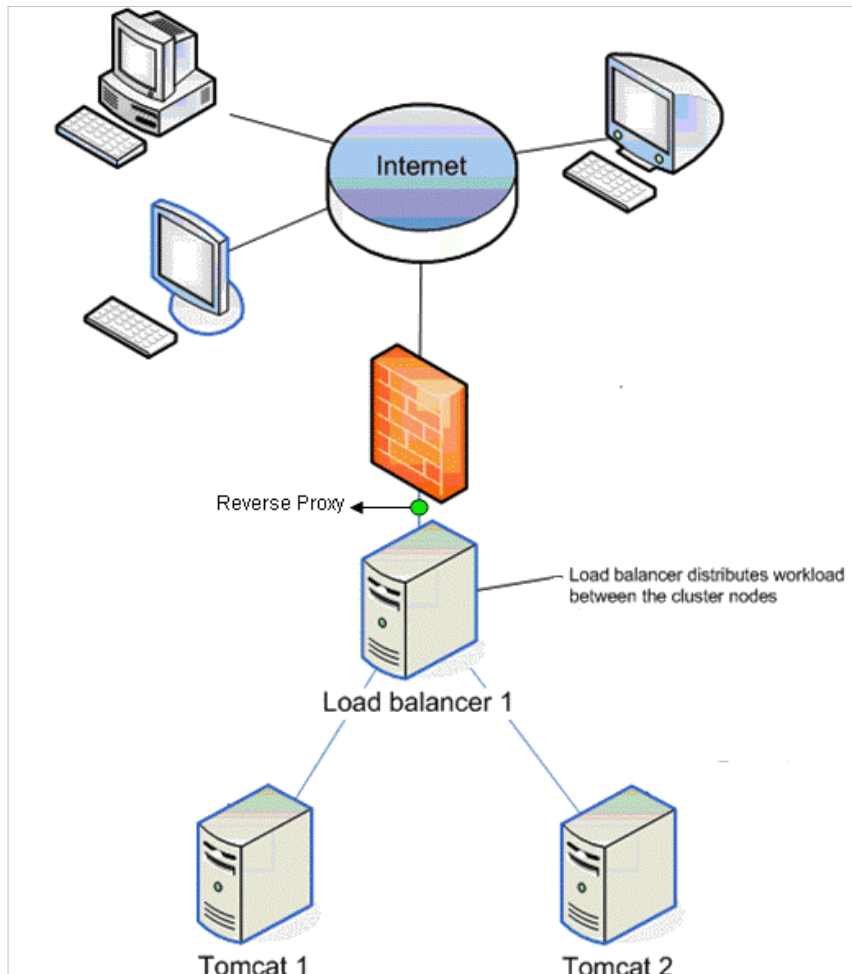
Architecture for high availability

Virtual Hosting

ECHA websites are hosted in **separate communities**. Liferay provides multiple virtual hosting; therefore communities are hosted (either full domains or sub-domains) **on a single Liferay server**.

Load balancing

An Apache HTTP web server is configured on Red Hat Linux with the modules mod_proxy and mod_proxy_balancer for performing load balancing.

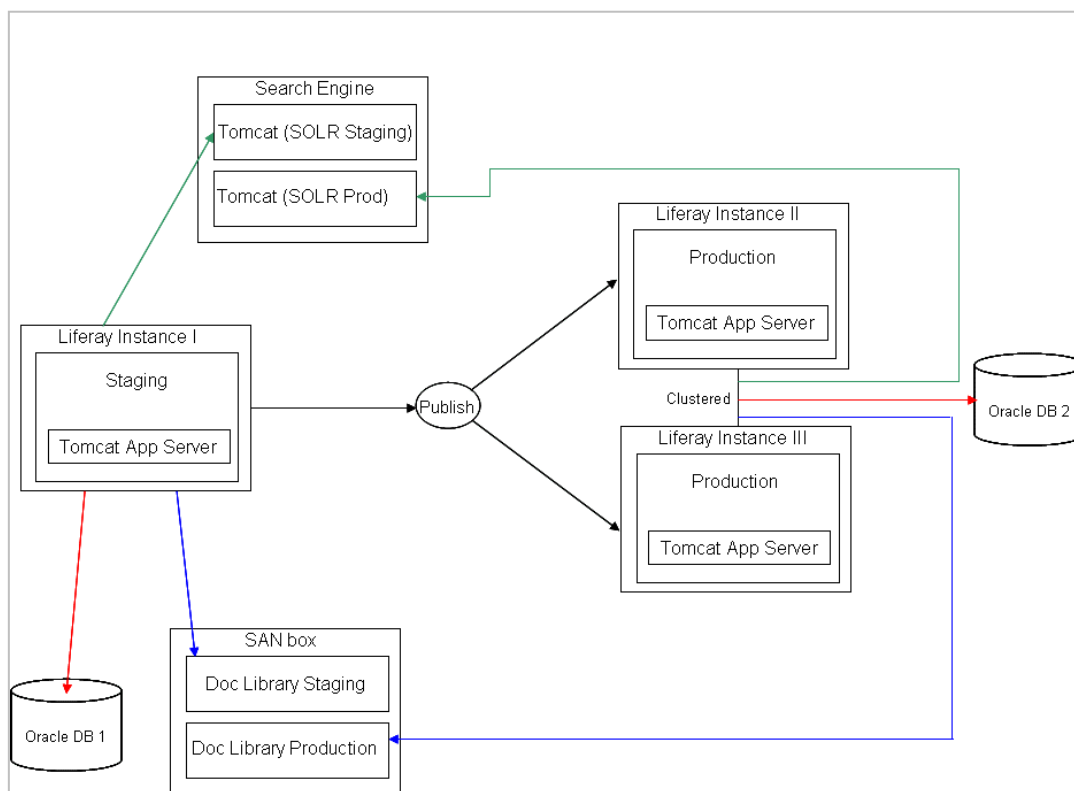


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Load balancing frontend servers

Application server clustering

For the production environment a cluster of two Tomcat servers are used to serve requests. Each of the cluster nodes is located on an individual server. Servers run on Red Hat 6, with 4CPU's and 16GB RAM.



Liferay high level architecture as for ECHA implementation

2.3.2.1 Search Engine

ECHA uses an open source search engine “Solr” (<http://lucene.apache.org/solr/>) for indexing documents and content under Document Library (<http://echa.europa.eu/support/documents-library>) and Advanced Search (<http://echa.europa.eu/search>). The search engine operates independently of the Liferay Portal nodes in a clustered environment, acting as a search service for all of the nodes simultaneously. The goal is to offload search indexing to another box in order to free up processing for the installation of Liferay. For this reason, the search engine is located on a separate server.

2.3.2.2 Document Library

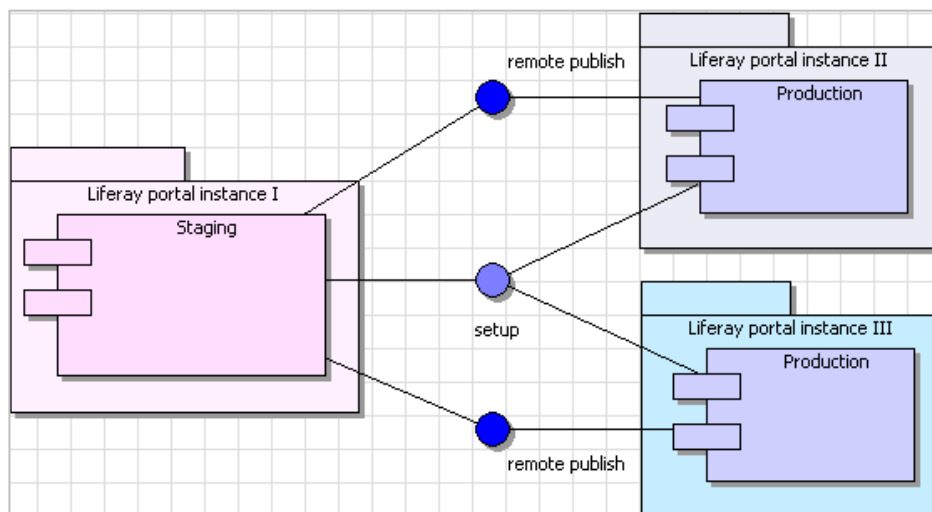
Files in the Document Library are stored on a SAN (Storage Area Network) for better performance.

Liferay Advanced File System Hook distributes the files into multiple directories and thus circumvents file system limitations. Liferay does not implement any file level locking, therefore SAN disk arrays that support file locking are used.

2.3.2.3 Staging and Production

A staging server has a separate instance of the Liferay Portal which is used only for staging environment and is connected to its own database. Web editors can use this environment to

make changes while the production server handles the incoming users' traffic. When content changes in the staging environment are ready to be published, they can be pushed remotely to the production server.



Staging – production as for ECHA implementation

2.3.3 Maintenance of components

Maintenance of the Liferay components is done via monthly releases and ad hoc fixes. The release shall be in the format of ".war" files (Web application Archive) including new or modified Liferay portlets, themes and hooks.

ECHA uses Git versioning control for the Liferay source files (<http://git-scm.com/>).

New deliveries are to be uploaded into ECHA's external GIT repository at <https://git-ext.echa.europa.eu/>

3 IMPLEMENTATION APPROACH AND METHODOLOGY

In their offer, tenderers are requested to present and to describe in detail the implementation approach and the supporting methodology. This section shall at least contain the following content:

- Description of approach and methodology;
- Structure (i.e. roles and functions) of the proposed project management/ technical team(s) organisation for the execution of the FWC and the various service requests;
- Testing approach;
- Training approach;
- Risk management plan identifying critical areas of the FWC execution together with suggested mitigating or countermeasure actions.

Further specifications linked to the content above mentioned are detailed in the sections below.

3.1 Default work streams and deliverables during the projects

The tenderer is free to propose an implementation approach deemed optimal for this FWC. The implementation approach will imply the execution of one or more service requests. The table below lists the minimal work streams and deliverables that should be part of the proposed approach.

The typical project will consist of several work streams and have the associated deliverables to be achieved. In each service request, the actual requested work stream and related deliverables will be specified.

LOT	Work Stream	Activities	Deliverables
1	Analysis, Design (new modules and customisations)	<ul style="list-style-type: none"> • Develop project charter: scope, objectives, acceptance criteria, success factors, detailed planning, risk mitigation plan, documentation standards etc. • Organise kick-off meeting • Business process & Requirements analysis • Setup of environments, team access rights definition 	<ul style="list-style-type: none"> • Project plan • Kick-off meeting • Functional specifications and technical specifications documents (for modules, customisations, reports and interfaces) • Test scenarios (cases) • Security design document
1	Developing, testing (new modules and customisations)	<ul style="list-style-type: none"> • System configuration • Security configuration • Customisation development • Testing (internal and UAT) 	<ul style="list-style-type: none"> • Configured system • Test results • Customisations and interfaces built • Technical documentation of customisations, reports, modules and interfaces

1	Developing, testing (maintenance packages)	<ul style="list-style-type: none"> • System configuration • Security configuration • Debugging and troubleshooting • Unit, integration and system test scenarios (use cases) and results • Testing (on Tenderer's environment) 	<ul style="list-style-type: none"> • Test cases and test results • Go-live assessment • Support and helpdesk manuals (if necessary)
1	Deployments	<ul style="list-style-type: none"> • User Acceptance Testing (UAT) • Describe support and help desk procedures • Perform go-live assessment • Hand over and knowledge transfer • Go/No-Go decision 	<ul style="list-style-type: none"> • UAT test cases and results • Deployment Package • Release notes • Support and helpdesk manuals (when and if needed)
2	Analysis, Design, Development (new elements)	<ul style="list-style-type: none"> • Develop project charter: scope, objectives, acceptance criteria, success factors, detailed planning, risk mitigation plan, documentation standards etc. • Organise kick-off meeting • Business process & Requirements analysis • Customisation development • Unit, integration and system test scenarios (use cases) and results 	<ul style="list-style-type: none"> • Project plan • Kick-off meeting • Functional design documents • Draft and final interfaces/mock-ups, visual elements • Consolidated review reports • Built customisations (i.e. Templates), reports, interfaces, visual elements, etc. • Technical documentation of customisations, reports, interfaces, visual elements, etc (when and if needed).
2	Delivery	<ul style="list-style-type: none"> • Acceptance • Perform go-live assessment • Hand over and knowledge transfer • Go/No-Go decision 	<ul style="list-style-type: none"> • Built customisations (i.e. Templates), reports, interfaces, visual elements, etc. • Support and helpdesk manuals (when and if needed)

3.2 Specifications for the testing approach (For Lot 1)

Quality of the produced software artefact is an imperative part of successful delivery. Only through user acceptance testing can the Agency verify whether the software delivery can be accepted or not. Therefore, any software developed should be properly tested and delivered with clear documentation.

Software should be tested and verified by the tenderer and UAT testing to be performed by the Agency. The Agency needs to be assured that all tests required by the development cycle have been executed and completed successfully by the Tenderer before starting the UAT test phase. For this purpose, the Tenderer will conduct necessary testing in order for the Agency to be able to verify:

- that the software which will be delivered for acceptance meets its specifications;
- that all development activities are completed; and
- that the tests ran during the test sessions passed successfully.

Testing is planned and executed in such a way that the main testing focus is on the most crucial and critical areas.

After the Agency has accepted the results of the tests conducted by the tenderer, the tenderer will be allowed to deliver its software for acceptance to the user acceptance test environment. The delivery shall be recorded in an Consignment note in accordance with the provisions of Article I.12 of the FWC (see Annex 6.3.1). The tenderer shall guarantee the integration of the software deliverables in the target information environment(s).

In addition to the software, the tenderer shall be responsible for providing the following Test Deliverables:

- Test Plans
- Test Cases and scripts
- Consolidated test execution reports including test phase reports
- Test Coverage Reports
- Other deliverables (according to individual Service Requests)

These Test Deliverables are considered to be document deliverables and have to be accepted by the Agency as defined in section 7.1.

4 DESCRIPTION OF SERVICES/TASKS

The tasks to be executed by the successful tenderer are detailed in the following sections, covering the two different lots in which the tender is divided:

- **Lot 1 - Web development**
- **Lot 2 – Web design**

Please note that the task lists are indicative and non-exhaustive. Other tasks relating to relevant web services under a specific lot may be requested during the implementation of the Framework Contract.

All the developments shall be compatible with Liferay (see section 2.3 [Details of the WCMS implementation in ECHA](#)). The relevant web products shall comply with usability, validation and accessibility standards (e.g. W3C, WCAG).

The Agency will provide the relevant licences to allow the tenderer to work with the Liferay (Enterprise edition).

4.1 Lot 1: Web development

Lot 1 “Web development” covers the maintenance and development of the ECHA website and relevant communities (see section 2.2 [List of current ECHA websites](#)). In particular, services to be provided under this Lot entail the development of applications for, extend and customise Liferay. Among others:

- Build websites by using Liferay for desktop and mobile devices;
- Use Liferay as a collaborative platform;
- Use Liferay as a social platform;
- Use Liferay as a web platform by connecting it with different user’s applications (e.g. connectivity with Active Directory, SAML, third parties systems like SharePoint through designed API and web services);
- Extend and customize Liferay by developing special software components called hook and ext plugins which enable to change any aspect of Liferay’s interface and behaviour.

Technology to be used for the execution of the work:

- Java;
- JSR as standard to develop Java portal components (porlets);
- Apache Tomcat;
- Linux operating system.

More in general, the activities that the tenderer is required to perform can be grouped as follows:

- *To develop new functionalities for the ECHA website*

The ECHA website is constantly streamlined to meet new users requirements. The tenderer, under the supervision of ECHA, will be responsible for the development of the website. The deployments enhancing the ECHA website will have to comply with the standardized procedure described in section 2.3.3 [Maintenance of components](#). In each specific contract, ECHA will provide the tenderer with the requirements for additional functionalities or fine tuning of existing ones.

- *To further engineer Liferay*

The ECHA implementation of Liferay is constantly improved to streamline the management of the Agency's website. In each specific contract, ECHA will provide the tenderer with the relevant specifications for the detailed tuning of the corrective actions to improve the Liferay functionalities. The deployments enhancing Liferay will have to comply with the standardized procedure described in section 2.3.3 [Maintenance of components](#).

- *To demonstrate and explain to ECHA ways to further enhance Liferay components*

Liferay provides possibility to develop advanced components by extending the WCMS modules. The tenderer shall show ECHA the framework of actions and relevant details to enhance such advanced components.

- *To actively collaborate with ECHA and the successful tenderer of Lot 2 "Web design"*

Services to be provided under Lot 2 "Web design" are interconnected with services to be provided under Lot 1: "Web development". Therefore, the tenderer is required to actively collaborate with ECHA and the successful tenderer of Lot 2 "Web design" for the implementation of changes in the layout of the ECHA website, to test the compatibility of proposed solutions, to follow the information architecture outcomes etc. ECHA shall ensure and mediate for the collaboration among parties under these two lots. The tenderer shall commit to ensure smooth service provisioning, continuity of service and no additional costs shall be charged to ECHA.

The tenderer shall set up the **necessary environments** at its own premises in order to perform development and test activities. Hence the tenderer shall have the necessary infrastructure capacity to replicate ECHA's environment and perform the required activities.

Particular attention shall be paid to the **security and confidentiality** of the information (see also relevant provisions of the draft FWC in Annex 6.3.1). The Agency needs to be able to connect to the tenderer's test environment (e.g. to perform user acceptance testing)

from ECHA premises in such way that adequate response time and security requirements are always guaranteed.

4.2 Lot 2: Web design

Lot 2: Web design covers work related to web design, focusing on providing the Agency with services related to redesign layouts and creating user requirements analysis of websites and customer insight research services. Lot 2 also includes other graphical services like creation of banners, logos etc.

More in general, the activities that the tenderer is required to perform can be grouped as follows:

- *To develop information architectures and graphical interfaces for ECHA web products*
ECHA web products need to change rapidly to reflect the needs of their users. The tenderer will be asked to perform thorough analysis of specific ECHA web products and provide solid proposals for restructuring the relevant content according to users' priorities and trends.
- *To produce customer insight research services*
Customer insight services will need to identify, working with different user groups, what information will be of most interest to them and how the Agency can make it available online. The tenderer will make quantitative and qualitative research with on-line audiences, identifying users' needs and providing ECHA with relevant conclusions and recommendations for the development of web products.
- *To produce graphical and conceptual designs for ECHA web products*
The tenderer will be asked to design and deliver animations, banners, logos, editing of pictures, in line with ECHA's corporate identity.
- *To actively cooperate with the successful tenderer in Lot 1 "Web development"*
Services to be provided under Lot 1: "Web development" are interconnected with services to be provided under Lot 2 "Web design". Therefore, the tenderer is required to actively collaborate with ECHA and the successful tenderer of Lot 1: "Web development" for the implementation of changes in the layout of the ECHA website, testing the compatibility of proposed solutions, to follow the information architecture outcomes etc. ECHA shall ensure and mediate for the collaboration among parties under these two lots. The tenderer shall commit to ensure smooth service provisioning, continuity of service and no additional costs shall be charged to ECHA.

5 DESCRIPTION OF RESOURCES AND TEAMS

It is required that the tenderer establishes a proper organisation for the implementation of all service types of the FWC. The requirements for this are described below.

5.1 Management Team

A management team shall be established for the duration of the FWC. The management team is responsible for overseeing the implementation of the FWC and all the related Specific Contracts. More in detail, the management team will (among others):

- Foster a mutual understanding of needs, expectations, and constraints;
- Ensure transparency and fruitful co-operation in the daily work;
- Establish clear decision-making responsibilities;
- Provide open communication and information channels;
- Ensure a smooth transitioning of services.

The management team is represented by both parties and consists of:

- ECHA Framework Contract Manager (Project Manager);
- Tenderer Framework Contract Manager, responsible for any contractual issue on the tenderer's side and for supervising the correct implementation of the FWC and Specific Contracts;
- Tenderer's high-level executive for this FWC, in cases where an escalation is needed.

Practical aspects:

- Unless otherwise agreed, meetings shall be held at ECHA premises in Helsinki (Tele- and videoconferencing facilities may be used by mutual agreement);
- All meetings will be chaired by ECHA.
- Meeting minutes shall be produced by the Tenderer within 3 working days following the meeting, and reviewed and approved by ECHA within 5 working days. Irrespective of elapsed time, minutes have to be explicitly approved.
- Each party will bear its own cost (like travel and communication charges, but also time/labour) related to the practical implementation of management services and corresponding meetings.

5.2 Functional and technical Team

The day-to-day work related to any Specific Contract under this FWC will be carried out by the tenderer team and managed by the tenderer Project manager(s). The tenderer shall

provide the necessary resources to implement the services under this FWC. Resource provided shall comply with the profiles indicated below.

The requirements for the profiles indicated hereafter shall be applicable to all resources involved in the implementation of the FWC. The tenderer is requested to have availability at all times of profiles meeting the requirements and with the relevant experience and expertise for the respective service request.

The tenderer shall guarantee that under each Specific Contract, the replacement of its personnel shall not affect the normal implementation of the work carried out under the respective Specific Contract. Any replacement of the tenderer's personnel under Time&Means or Quoted Time&Means contracts shall be done as defined in sections 4.7.1.2 and 4.7.1.3 respectively of the Tender Specifications.

ECHA identified the following key technical profiles that the tenderer **may be required** to deploy under the FWC:

Profile common to Lot 1 and Lot 2:

- Project manager

Profiles for Lot 1 "Web development":

- Senior Analyst
- Senior Web Developer
- Junior Web Developer
- UI Developer
- Test Engineer
- Web content editor

Profiles for Lot 2 "Web design":

- Senior UX Designer
- Web Designer
- Graphics Designer

For each of them a set of minimum requirements is defined below. The tenderer should have availability of staff for each of the technical profiles mentioned above and matching the respective minimum requirements.

The requirements for the profiles indicated hereafter shall be applicable to all resources involved in the implementation of the FWC. The tenderer is requested to have availability at all times of profiles meeting the requirements and with the relevant experience and expertise for the respective service request.

The tenderer shall guarantee that under each Specific Contract, the replacement of its personnel shall not affect the normal implementation of the work carried out under the respective Specific Contract. Any replacement of the tenderer's personnel under specific contracts shall be done as defined in sections 4.7.1.2 and 4.7.1.3 respectively of the Tender Specifications.

5.2.1 Profiles related to both Lots

Requirements for Project Manager

Responsibilities

The Project Manager is responsible for the management of all aspects of the FWC to meet identified business needs, acquiring and utilising the necessary resources and skills, in line with cost, time, and quality service levels.

Nature of tasks

- Project management including proposals for project strategies, project planning, definition of tasks and deliverables, review of project deliverables, quality control, risk analysis and management, status reports, problem reporting and management systems, follow up and organisation.
- Participating in functional and technical working groups and progress meetings.
- Estimating costs, timescales and resource requirements.
- Preparing and maintaining project and quality plans and tracks activities against the plan, providing regular and accurate reports.
- Monitoring costs, timescales and resources.
- Ensuring that delivered web products are implemented within these criteria.
- Managing the change control procedure. Cost/benefit analysis.

A Project Manager will contribute to the following deliverables:

- Project plans, reports, project management tools.
- Test plans and test reports.
- Project/team resources management.
- Management of the delivery of all project/service deliverables and products.
- Quality assurance.
- Project communications.
- Liaison with ECHA users and other stakeholders.

Qualifications and experience

- University degree in relevant fields.
- At least 7 years of overall relevant IT experience.
- At least 5 years of the above must be as a Project Manager and/or Program Manager.
- At least 3 years of the above must be in relation to web implementation projects.
- At least 2 year of experience working in an international environment.
- The following valid Project management certifications are desirable:
 - PRINCE2 Foundation and PRINCE2 Practitioner or equivalent;
 - PMP Project Management Professional or equivalent;
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

Knowledge

The Project Manager shall have practical knowledge of the following:

- Project management and team collaboration software (e.g. Microsoft Project, JIRA);
- Tools used throughout the software development lifecycle;
- Software development methods;
- Use of software testing tools within projects.

5.2.2 Profiles related to Lot1 – Web development

Requirements for Senior Analyst

Responsibilities

The Senior Analyst will be responsible for a variety of duties related to the development, enhancement and delivery of ECHA's website(s). She/he should have a combination of experience with enterprise web content management systems, databases and data-driven application systems. She/he will participate in the creation of new products and enhancements to existing products from concept to launch. Her/his responsibility will be to design, implement, and test solutions that result in compelling, easy to use digital products. She/he will be responsible for a demanding variety of duties related to the development, enhancement and delivery of ECHA's digital products.

Nature of tasks

- Carrying out research and data collection and conduct analysis.

- Running focus groups and facilitating workshops.
- Preparing proposals/presentations.
- Analysis of requirements and design of new web products.
- Data analysis, data modelling, document management workflow analysis.
- Production of user requirements for new web products in a form understandable for both business and technology users.
- Interfacing between users and the technical team.
- Analysis of business processes and organisational structures.
- Planning delivery of solutions; answering technical and procedural questions.
- Identifying requirements by establishing close liaison with end-users and with other staff in a position to understand service requirements.
- Arranging project requirements in programming sequence by analysing requirements; preparing workflow charts and diagrams using knowledge of computer capabilities, subject matter, programming language, and logic.
- Confirming program operation by conducting tests; modifying program sequence and/or codes.
- Writing and maintaining user documentation;
- Understand how ECHA's applications operate, are structured, and how end-users use them.
- Providing engineering support (when necessary) to ECHA's technical operations staff when building, deploying, configuring and supporting systems.
- Defining plans for standardizing, scaling and enhancing ECHA's products and the services utilized to deploy/install/release those products.
- Consultancy studies on quality matters regarding web environments and relevant processes.
- Consultancy studies in the analysis and application of security regarding web products.
- Providing expertise in the security of web products.
- Assistance and support with the preparation and validation of quality plans for building and maintaining web products.
- Evaluating and testing software programs to verify programs function according to user requirements

- Writing, reviewing, revising, and verifying quality standards and test procedures for program design and product evaluation.
- Participating in review of standards, procedures, tools, and processes.
- Assisting in disaster recovery testing.

Qualifications and experience

- University degree in relevant fields (e.g. ICT, Web, Software Engineering etc.).
- At least 8 years of experience in business analysis, design and configuration of Web/IT systems.
- At least 4 years of the above in a Business Analyst/Software Engineer role.
- At least 3 years of the above working with Liferay solutions.
- At least 2 year of experience working in an international environment.
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

Knowledge

The Senior Analyst must have practical knowledge of the following:

- Business Process Model and Notation (BPMN).;
- System requirements analysis;
- Liferay system configuration;
- System testing.

Requirements for Senior Web Developer

Responsibilities

The Senior Web Developer will be responsible for developing dynamic solutions using Liferay. She/he will develop technical briefs, specifications, requirements documents, and test plans as required. She/he will deliver top-quality web products and have a deep understanding of emerging technologies in the industry.

Nature of tasks

- Translate requirements (use-cases) into detailed and accurate solution design specifications, adequate for web development or customisation of standard web products.
- Definition of the logical and physical structure of ECHA website(s) and web pages.
- Definition of navigation methods.

- Definition and integration of the various required technological components.
- Development of web-enabled applications, from front-end to back-end systems.
- Creating/maintaining applications for web environments.
- Producing relevant supporting documentation.
- Prototyping (creation of wireframes / mock-ups).
- Analysis of business processes and of organisational structures.
- Data flow analysis.
- Designing, programming, and delivering web development projects within designated schedules and budget.
- Supporting development of projects from inception through alpha/beta testing and final delivery.
- Comprehending and following of specific project life-cycle instructions and procedures
- Revision and troubleshooting of development work.
- Following technical documentation related to interactive development cycles.
- Turning design and user interface mockups into functional websites.
- Ensuring all technology solutions have a proper architecture and have been properly specified.
- Ensuring HTML/CSS is cross-browser and standards compliant and meeting accessibility/disability requirements.

Qualifications and experience

- Post secondary degree in relevant fields (e.g. web development, IT etc.).
- At least 8 years of experience in web development.
- At least 4 years of the above in Java/ J2EE technologies.
- At least 3 years of the above in a Senior role.
- Proficient with usability and accessibility considerations in web development.
- Experience and solid technical expertise in all technical areas of Liferay (including Liferay portal development, troubleshooting and architecture and Portlets and Java apps development).
- Experience with web development technologies such as JSP, JavaScript, HTML, Spring MVC, Hibernate and SOAP based web services.
- Experience with Microsoft SQL Server and/or Oracle and/or MySQL

- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://euopass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).
- The following certifications are desirable:
 - Relevant industry certificates.

Knowledge

The Senior Web Developer must have in depth practical knowledge of:

- The programming language specific to Liferay and proven experience in the customization and management of development tools related to the implementation and operating of Liferay;
- .NET and Microsoft Solutions Framework;
- XML;
- XSL.

Requirements for Junior Web Developer

Responsibilities

The Junior Web Developer will be responsible for designing, developing, delivering, implementing and maintaining Web applications. She/he will be responsible for supporting the existing infrastructure as well as developing new technologies. She/he must show excellent written and oral skills with demonstrated interpersonal and organization abilities.

Nature of tasks

- Assisting in the definition of the logical and physical structure of the ECHA website.
- Assisting in the definition of navigation methods.
- Development of web-enabled applications, from front end to back-end.
- Contributing to writing handover and operational maintenance documentation.
- Developing, packaging and customising web applications.
- Maintaining and enhancing existing Web applications.
- Testing of Web applications.
- Conducting user acceptance testing, and report results.
- Contributing in designing and implementing user-driven templates, databases and interfaces for ease of use.

- Developing web content componentry such as presentation and authoring templates, menu, navigation and personalization components.
- Building new and support existing sub sites using or based on Liferay and potentially using or based on third party components.
- Enhancing and maintaining core components such as the ECHA website theme.
- Creating new portal and WCMS based applications using existing as well newly developed artifacts such as portlets, servlets, web services, etc.
- Covering maintenance efforts on an ongoing basis, adjusting and fixing any bugs in existing sub-systems.
- Using analytics tools to measure, test, and track effectiveness of designs, content, and channels and perform optimization.

Qualifications and experience

- Post secondary degree in relevant fields (e.g. web development, IT etc.).
- At least 3 years of experience in web development.
- At least 2 years of the above in Java/ J2EE technologies.
- Proficient with usability and accessibility considerations in web development.
- Technical knowledge of Liferay.
- Experience in Liferay portal development, troubleshooting and architecture, as well as in portlets and Java apps development.
- Experience with Microsoft SQL Server and/or Oracle and/or MySQL.
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

Knowledge

The Junior Web Developer must have practical knowledge of at least one of the followings:

- .NET;
- XML;
- XSL;

Requirements for UI Developer

Responsibilities

The UI Developer will be responsible for creating user-friendly interfaces. She/he will be determining flow patterns, feature positioning, and how to reduce user friction with the

interface. She/he must have a solid knowledge of JavaScript, AJAX, JSP and other coding, as well as back-end languages such as Java. She/he must also understand how page routing and paths operate.

Nature of tasks

- Exploring client side frameworks and technologies, and doing rapid prototyping to evaluate them.
- Designing and building UI architecture and components for the ECHA website(s).
- Designing applications using HTML5/CSS3, HTML/CSS, Javascript, XML, JSP, Java among others.
- Supporting and maintaining existing production code in the field and developing/delivering new enhancements and products.
- Implementation of functional requirements of ECHA's various applications.
- Quality Assurance and system testing of web application developments.
- Developing documentation including help texts, report samples, and screen samples.
- Providing training on new and existing products and technologies.
- SEO and usability testing.

Qualifications and experience

- Post secondary degree in relevant fields (e.g. web design/development, interface design, software design etc.)
- At least 4 years of experience in designing, marking up, developing the UI of websites and/or web applications.
- At least 2 years of the above in web and UI development.
- Solid understanding of UX and UI design with an emphasis on maximizing usability.
- Front-end skills and basic understanding of how back-end development works.
- Solid markup skills utilizing HTML/HTML5, CSS/CSS3, JavaScript.
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

Requirements for Test Engineer

Responsibilities

The Test Engineer will develop test plans and evaluate the quality of web components. She/he will have to detect software flaws (e.g. bugs, errors, failures, breakdowns, risks) in order to fix them and ensure the performance of the developed system(s).

She/he will analyse the context of web systems and apply testing types and levels (component, integration, system, and acceptance tests) to various software development models. She/he will conduct static tests (based on detection, correction and improvement) and write down evaluation and incident reports.

Nature of tasks

- Design and creation of test conditions and scripts to address business and technical use cases.
- Use of existing tools and techniques to execute test cases and building/scripting potential new tools for performing testing/validation function.
- Developing and leading the automation strategy/effort.
- Generating scripts to perform automated testing cycles.
- Execution and analysis of automation test results.
- Participating in troubleshooting of issues to drive towards root cause identification and resolution.
- Supporting production deployment of applications and performing “validation testing”.
- Preparing tests against use cases
- Planning and performing tests
- Reporting and documentation on test results

Qualifications and experience

- Post secondary degree in relevant fields (e.g. Computer science, computer engineering, software testing etc.).
- At least 3 years of experience in software testing.
- At least 1 year of the above in testing web applications.
- Functional and Regression Testing experience of Web Applications.
- Experience in writing test cases, defect logging and test reporting.
- Knowledge of web application fundamentals (HTTP, HTTPS, HTML, CSS, JavaScript, AJAX).
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

Requirements for Web Content Editor

Responsibilities

The Web content editor will be responsible for planning, creating, editing and publishing information on the ECHA websites.

Nature of tasks

- Addition, modification and withdrawal of content
- Ensuring of coherence and quality throughout the web products
- Publishing the content online via the WCMS
- Producing new content and writing it in an interesting and appealing manner
- Sourcing images and artwork.
- Ensuring the information is accurate.

Qualifications and experience

- Post secondary degree in relevant fields (e.g. web editing, publishing, media, communications, marketing etc.).
- At least 3 years of experience in web editing.
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

5.2.3 Profiles related to Lot2 – Web design

Requirements for Senior UX Designer

Responsibilities

The Senior UX Designer will be responsible for designing user experiences, which are communicated to the end-user through visual design. She/he should know how the user-centred design process is used to develop new products and services. The She/he should understand the importance of user experience and visual design and can effectively communicate it to the end users.

She/he is expected to work closely with end users in order to understand their business and help define both business and user requirements. She/he will be responsible for the creation of overall UX strategy and detailed interaction design which will guide the design and development of ECHA's digital products.

Nature of tasks

- Carrying out research and data collection and conduct analysis.

- Running focus groups and facilitating workshops.
- Preparing proposals/presentations.
- Analysis of requirements and design of new web products.
- Data analysis, data modelling, document management workflow analysis.
- Production of user requirements for new web products in a form understandable for both users and technical persons.
- Interface between users and the technical team.
- Analysis of business processes.
- Analysis of organisational structures.
- Ensuring of appliance of web standards.
- Planning and performing usability tests.
- Conceptual design of web interfaces.
- Proposing best practices on web usability.
- Best practices in dealing with multilingual websites
- Producing sketched concepts, flows, user journeys, wireframes and prototypes that answer user needs.
- Providing design solutions that work across multiple screens.
- Developing the visual and interaction elements of the user experience and refine towards a polished design, taking into consideration ECHA's typography, iconography, layout and brand identity.
- Checking the quality of the deliverables.
- Consultancy studies on quality matters regarding web products regarding usability and visuals.
- Writing, reviewing, revising, and verifying quality standards and test procedures for product evaluation.
- Participating in review of standards, procedures, tools, and process.

Qualifications and experience

- University degree in relevant fields (e.g. Interaction and visual design, Information technology, Information management, Multimedia design, Interactive Arts & Technology etc.)
- At least 6 years of experience in UX design and/or interaction design (including:

- Experience designing interfaces across multiple platforms and operating systems including desktop, web, tablet and mobile.
 - Experience with data visualization.
 - Experience in creating wireframes, user work flows.
 - Expert understanding of user-centered design methods and best practices.
 - Proven ability in a variety of design and wireframing tools such as Axure, Photoshop, Illustrator, Fireworks, Visio, Balsamiq etc.
 - Expert at documenting, prototyping and presenting detailed interaction design specifications.
 - Experience in defining and delivering multi-faceted, service driven experiences across one or many products.
 - Direct experience with user research, including using insights to divine user needs and inform experience capability priorities.
 - Experience in creating information architectures, including archetypes, profiles, personas, scenarios, or other user centred design artefacts.
 - Working knowledge of technology mediums, including a combination of CSS/CSS3, HTML/HTML5, etc.
 - Solid knowledge of adaptive and responsive techniques.
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

Requirements for Web Designer

Responsibilities

The web designer shall create attractive Web interfaces by using various elements: graphic guidelines, images, illustrations, layout, fonts, colours, etc. in line with ECHA's corporate and visual identity. She/he will be responsible for the production, modification and maintenance of ECHA website's user interface. This involves using semantic mark-up language i.e. XTMTL/CSS, to turn static designs into working browser based web pages. She/he should have a solid knowledge of HTML/CSS/JS (jQuery), as well as HTML5/CSS3, with focus on cross-browser compatibility and semantic markup. She/he should also have strong object-oriented development skills and experience developing rich, interactive, highly dynamic, client-side applications.

The web designer shall be responsible for the design, layout and coding of ECHA's website. She/he will be involved with the technical and graphical aspects of the website - how the site works and how it looks. She/he will also be involved with the maintenance and update of ECHA's website.

The web designer will also:

- Coding, either from scratch or by adapting existing website software and graphics packages to meet business requirements;
- Test the website and identify any technical problems related to the layout and interface.

Nature of tasks

- Organisation and design of the layout of web products (e.g. pages, templates etc)
- Creation of web graphics and promotional material (e.g. banners, logos, animations etc)
- Implementation and optimisation of the ECHA web brand
- Meeting/liasing with ECHA's internal/external stakeholders to discuss requirements and/or project progress
- Creating web page designs
- Producing sample mockups/web pages
- Producing products that are user-friendly, effective and appealing
- Development of site content and graphics (icons, banners etc).
- Updating content and graphics; monitoring performance and results; identifying and evaluating improvement options; introducing new technology; maintaining links.
- Maintenance of site appearance by developing and enforcing content and display standards.
- Prototyping and interaction design of ECHA's website
- Development and Documentation of user-centric design methodologies, style guides, web standards, and CSS/XHTML best practices
- Recommendations for front-end technologies
- Testing and Quality Assurance also in liaison with the successful tenderer under Lot 1 "Web development".
- Contributing to documentation (instructional, pitch and technical specification)
- Discussing technical solutions with clients and providing innovative new ideas to solutions.

- Ensuring cross-browser, cross-platform, and multiple device type compatibility for all web solutions.
- Position includes updating existing sites as well as creating new responsive websites connected to ECHA's Web Content Management System.
- Knowledge of SEO and writing web content.
- Helping drive UI and UX decisions.
- Prototyping experimental features.
- Participating in general engineering needs.

Qualifications and experience

- Post secondary degree in relevant fields (e.g. web design, Visual Design and Communications, web and Interactive design, responsive web etc.)
- At least 4 years of experience in web design.
- Experience with JQuery AJAX and JavaScript.
- Experience with the Adobe Creative Suite (focus on InDesign, PhotoShop and Illustrator).
- Solid understanding of XHTML, HTML, HTML5 and CSS/CSS3.
- Experience with enterprise Content Management Systems (Java-oriented).
- Experience with developing cross-browser and cross-platform compatible solutions
- Good understanding of Usability and Web Accessibility.
- Knowledge of HTML email best practice desirable.
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

Requirements for Graphics Designer

Responsibilities

The graphic designer will be responsible for creating design solutions based on ECHA's visual identity. The role involves listening to clients and understanding their needs before making design decisions.

The graphic designer will be responsible for creating a visible image that can be used in media and print. She/he will develop creative ideas and concepts, choosing the appropriate media and style to meet ECHA's objectives.

The work demands creative flair, up-to-date knowledge of industry software and a professional approach to time, costs and deadlines.

Nature of tasks

- Meetings with ECHA's internal/external stakeholders to establish a vision for a product or design.
- Planning concepts by studying information and materials.
- Development of concepts, graphics and layouts for product illustrations, logos, and website elements (fonts, colours, logos, templates etc.)
- Selection of colours, images, textures and shapes to create the layout, the sizes and arrangements of the different elements.
- Creation of electronic versions of designs.
- Design of logos and branding elements for ECHA's digital products.
- Illustrating concepts by designing rough layout of art and copying regarding arrangement, size, type size and style, and related aesthetic concepts.
- Obtaining approval of concepts by submitting rough layout for approval.
- Producing rough sketches or computer visuals.
- Developing interactive design;

Qualifications and experience

- Post secondary degree in relevant fields (e.g. web graphic design, graphic design, web design, information design, web animation, multimedia design etc.)
- At least 4 years of experience in graphic design.
- Experience with design and animation programs such as QuarkXPress, FreeHand, 3DS Max, Acrobat, Director;
- Expert in Adobe Creative Suite with a focus on InDesign, PhotoShop, Dreamweaver, Flash and Illustrator.
- Experience with enterprise Content Management Systems.
- Solid understanding of User-Interface and User-Experience (UI, UX) design.
- Technical knowledge of CSS, HTML, Javascript, AJAX and JQuery is a bonus.
- A level of oral and written English language skills corresponding to at least level C1 of the European Common Framework of Languages is required (<https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>).

6 DELIVERABLES AND DESIRED OUTCOMES

The format of deliverables can vary considerably and will be specified in the Specific Contracts. Formats for deliverables include (non-exhaustive list):

- Project plans and reports
- Project communications and meeting minutes
- Functional specification documents
- Analysis and design models
- Test plans and test reports (for Lot 1 only)
- Technical reports
- Source code
- Quality assurance
- Training plans
- User manuals and documentation
- Liaison with ECHA users, other stakeholders and third party
- Handover, knowledge transfer

All deliverables shall undergo thorough reviews and/or tests by the tenderer before released to the Agency for acceptance. Each deliverable will be assessed to verify that it conforms to the description of work. Only deliverables that are approved by the tenderer's Project Manager (or equivalent role) will be formally released and then become available for review and acceptance by the Agency.

6.1 General deliverables

This section identifies specific requirements for a number of general deliverables to be always provided and maintained by the tenderer when implementing the Framework Contract via Specific Contracts .

- **Functional specifications and detailed technical specifications (For Lot 1)**

The tenderer will deliver complete and detailed functional and technical specifications for software development, along with its design and, if existing, database structure, plus any other relevant documents.

- **Test plans (For Lot 1)**

Testing of the modules will be performed before acceptance, to ensure the compliance of the deliverables with the specifications. The tenderer will be required to produce an overall testing approach, describing the test strategy, testing

requirements and test cases. The Agency will be free to require changes or additions to the submitted test plan. The test plan must describe in detail the planned testing activities:

- Each test item must describe the feature(s) it tests and include a script with the exact sequences of actions to be performed and an exact description of the expected outcome.
- Tests must cover functionality, scalability, stress/volume/performance, interoperability/integration, version compatibility.
- The results of these tests performed by the tenderer must be documented and reported to the Agency. This is needed to ensure correct reporting as well as to enable a follow-up of any failed tests.

The Agency will perform its own tests (UAT) on the deliverables using the agreed test plan.

- **Project Management and Quality Plan**

The Project Management and Quality Plan (PMQP) describes the processes for project management between ECHA and the tenderer and defines the acceptable level of quality (expected by ECHA) describing how each project will ensure this level of quality in its deliverables and work processes. In particular, quality management activities ensure that:

- Tasks/ deliverables are executed to meet agreed- upon standards and requirements;
- Work processes are performed efficiently and as documented;
- Non-conformances are identified and appropriate corrective actions are taken;

The tenderer will provide a PMQP based on its own approved model. The PMQP shall be sufficiently detailed and shall define the project activities in terms of (non exhaustive list):

- Organisation and communication
- Project time plan
- Progress monitoring and reviews
- Change control management
- Risk management plan
- Standards, procedures and methods
- Deliverables

- Roles and responsibilities

The PMQP is the first deliverable for a specific project and will be included as a deliverable for a Specific Contract. The PMQP shall be subject to approval of the Agency (see chapter 7 [Acceptance procedure](#) for details). The plan shall be updated whenever required during the implementation of a Specific Contract. Revisions can be based on information supplied by the Agency, as well as on the tenderer's own assessment.

- **Progress reporting**

The successful tenderer shall provide regular reports to the responsible Contract/Project Manager at the Agency, in the layout specified in the Specific Contracts. The frequency of reporting (in general monthly) may differ depending on the size and complexity of the service or project and will be stipulated in the Specific Contracts.

The report will include, as a minimum:

- The current status of the project (task completion percentage, logical relation between the activities, project critical path, milestones, deliverables, delivery dates, budget execution etc.).
- Resources utilisation and forecast (in particular, in case of Quoted Time & Means and Time & Means contracts).
- The risks identified, problems encountered and any other issue that may need assessment along with mitigating measures taken/ proposed.

The Agency shall receive a progress report at least one week before a planned progress meeting. The tenderer is required to draft the minutes of each progress meeting/ teleconference.

Contract/Project reports, which have been agreed by the Agency's project team, will form part of the deliverables.

- **Final technical report**

A final technical report shall be delivered by the tenderer at the end of each Specific Contract. This report shall include, at a minimum:

- A summary of the activities carried out and their status.
- An assessment of experienced problems, corrective actions taken and/or suggested.
- Breakdown of resources used and budget executed (in particular, in case of Quoted Time & Means and Time & Means contracts).

6.2 Service transitioning tasks

- **Project-specific handover**

At the end of a project (i.e. Specific Contract/ related task) the tenderer may be requested to perform service transitioning tasks (handover) to the Agency. The tenderer shall guarantee that the transfer of knowledge, documentation, operational data, responsibilities for evolving and maintaining the websites and other web applications (applicable to Lot 1) etc. is performed in a smooth way and reducing the costs for the Agency. Handover tasks will be part of the respective Specific Contract when required.

- **Framework Contract handover**

The tenderer shall actively collaborate with ECHA and any third party to ensure the smooth transitioning of the services (handover), to minimise costs and to guarantee the continuity of services for the Agency, when the Framework Contract will be nearing its end (including in case of FWC termination/non renewal).

The tenderer shall assist and contribute in all reasonable ways to guarantee the successful and smooth handover of required services to ECHA and/or a new service provider as well as to provide any information, documentation and other materials, support, training, consultation, cooperation and help in the transition of services as can reasonably be expected and as required by ECHA.

The tenderer shall present in his offer a handover plan, setting forth (in such detail as may reasonably be required) the measures, processes and procedures required to ensure a successful and smooth transition of the services. The handover plan shall be maintained by the tenderer throughout the Framework Contract. At the request of ECHA and in cooperation with ECHA, the tenderer shall update the transition plan and submit it to ECHA for approval at no additional costs.

Handover is an essential part of the Framework Contract and shall be carried out at no additional costs for ECHA.

The handover shall include (among others, non-exhaustive list):

- Up-to-date version of all documentation produced during the implementation of the FWC.
- Up-to-date supporting material.
- Knowledge transfer sessions.
- For lot 1, fully working development environment at ECHA premises.
- For lot 1, fully transferred software assets to ECHA.

- For lot 1, fully transferred contents of the repositories used during development time to ECHA (including test plans, test cases, defect reports and test reports).
- When Time & Means or Quoted Time and Means contracting mode is used, reports showing the overall situation of the remaining work.
- Any other documentation related to the transitioning.

6.3 Software (technical) documentation (For Lot 1)

All source files developed in the course of the project must be delivered to the Agency with complete software documentation, including:

- Full functional and technical description of the software, with instructions for set-up, configuration, operation and troubleshooting.
- Description of contents and use of each module;
- For any database description of its structure, fields and tables;

Source code files with comments within the code: all code comments must be written in English, and each source file must contain a comment header describing its contents.

7 ACCEPTANCE PROCEDURE

During the execution of the FWC, and as specified in section 6 above, the format of possible deliverables can vary considerably and will be further specified in the Specific Contracts.

- Document deliverables. The acceptance procedure for these is defined in section 7.1.
- Software deliverables (aka IT deliverables). The acceptance procedure for these is defined in section 7.2.

7.1 Acceptance of Deliverables

If not specified otherwise in a Specific Contract, when a deliverable is submitted to the Agency for acceptance, the default review cycle T1/T2/T3 shall apply, where:

- T1 refers to the number of working days needed by the Agency to review the deliverable and provide the tenderer with comments on the deliverable.
- T2 refers to the number of working days allotted to the tenderer to implement the Agency's recommendations and submit an updated version of the deliverable.
- T3 refers to the number of working days needed by the Agency to verify the correct implementation of the reviewers' remarks.
- The minimum amount of working days for T1 is five (5), for T2 is two (2), for T3 is two (2).
- The exact number of working days (T1/T2/T3) for a deliverable shall be provided in the separate Specific Contracts.

The tenderer must take into account the expected acceptance time when planning the project deliverables.

The Agency can reject a deliverable by interrupting the review cycle when there is evidence that its quality is too low or when there is evidence that the objective of the deliverable is missed.

No deliverable is accepted by default. When the responsibility of a delay in the review process is clearly identified on the Agency side, the tenderer must alert the Agency. Following final acceptance, the Agency will issue a Certificate of conformity.

7.2 Acceptance of Software Deliverables (For Lot 1)

7.2.1 User Acceptance Testing

User Acceptance Testing activities: the Agency will run the test cases specified for the User Acceptance Testing. These cases shall be prepared by the tenderer and be available to the Agency before the start of the User Acceptance Testing. The tenderer shall support and

provide assistance to the Agency's personnel during the execution of the tests. Scheduling of the tests should be organised and agreed by both parties.

Acceptance Testing closure: The Acceptance Testing is under the responsibility of the Agency and may be repeated until the software attains the acceptance criteria.

A technical meeting where the results are presented and discussed marks the end of each Acceptance Testing. Based on the outcome of the tests, the Agency will draft an Acceptance Testing report and decide whether the software being tested can be accepted as it is or can be accepted with reservations (which will be implemented in future releases) or cannot be accepted. In the latter case, the changes will need to be implemented and a new Acceptance Testing cycle will be planned.

7.2.2 User Acceptance test pass / fail criteria

Each test shall only have been deemed to be successful if the actual result matches exactly the expected result specified in the acceptance test script document. If this is not the case, the tester will raise an issue and report that the test has failed.

Unless specified otherwise in the Specific Contracts, the following number of defects that can be accepted and their criticality, shall apply:

When one critical issue is raised during the Acceptance Testing, the Acceptance Testing may be interrupted and the software may be rejected.

When more than three major issues are raised during the Acceptance Testing, the Acceptance Testing may be interrupted and the software may be rejected.

When more than 7 minor issues are raised during the Acceptance Testing, the Acceptance Testing may be interrupted and the software may be rejected.

A critical issue is: a defect that prevents the user from using the software for its purpose.

A major issue is: a defect that will prevent the user from using one or more functionalities of the software.

A minor issue is: a defect that will not prevent the user from using any functionality. However the implementation of the functionality is considered faulty and requires a modification.

7.2.3 Decision on Acceptance

The decision of the Agency on acceptance of the software is based on the Acceptance Testing report produced by the Agency. In the case the tests have been satisfactory, the Agency shall deliver a Certificate of Conformity that shows the acceptance date and mentions any reservations it may have regarding the services.

7.2.4 Provisional Acceptance Procedure

During this phase, the procedure defined in point 7.2.1 and 7.2.2 above is applicable during the course of the project for intermediate deliverables under each Specific Contract.

7.2.5 Final Acceptance

Although some deliverables may be accepted within a Specific Contract to allow the project's subsequent steps to be executed (see above), the Agency will perform a final acceptance test of all deliverables as a whole at the end of the project, the rationale being alignment and consistency of all deliverables resulting from further development in subsequent Specific Contracts.

After final acceptance a warranty as specified in the "Tender Specifications" document, section 4.8 (iii) applies.

8 AUDITS

In accordance with Article II.18 of the FWC (see Annex 6.3.1) and without prejudice to the other relevant provision of the FWC, the Agency may conduct audits e.g. of the project management, practices and methodologies, IT environments, delivery, documentation etc. with the Tenderer, and when necessary, at the Tenderer's site. Any findings of the audit must be fixed by the Tenderer within two months after the audit report is issued.