

**Technical Specifications (In-Cash Procurement)**

**PLM Project. Framework Contract for Engineering Support**

This document define the overall frame and requirements for engineering service contracts in order to support ITER Organization Central Team (IO-CT) in the implementation the PLM project.

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## 1. Purpose

**A PLM project for the whole ITER project has been launched** The purpose of this technical specification is to define the overall frame and requirements for an engineering Framework Services Contracts in order to support ITER Organization Central Team (IO-CT) in the implementation the PLM project.

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**This specification defines the overall frame of services** According to the IO council's recommendation, IO will launch a PLM project. The objectives of the PLM project are (1) to define and establish the proper engineering processes to effectively manage the technical configuration and establish common work basis between the central team and the domestic agencies (2) to deploy a PLM platform project wide. The Dassault System "3D Experience Platform" has been chosen as platform. The main principles of implementation have been agreed: integrated team inside CIO, step-wise deployment through pilots (scope to be defined in the roadmap, progressive ramp-up of functionalities and numbers of users).

Central Integration Office (CIO) will lead the deployment of the PLM System. An integrated team with IT, DO and Configuration Management Division (CMD) has been setup.

## 2. Scope

**Context of the ITER project: an international scientific and engineering project** The ITER project aims to demonstrate the scientific and technological feasibility of fusion power for peaceful purposes and to gain the knowledge necessary for the design of the next stage device.

The ITER project is organized as an international research and development project jointly funded by its seven Members; the European Union (represented by EURATOM), Japan, the People’s Republic of China, India, the Republic of Korea, the Russian Federation and the USA.

ITER is being constructed in Europe, at Cadarache in southern France, which is also the location of the headquarters of the ITER Organization (IO).

During ITER construction, most of its components will be supplied “in-kind” by the ITER Members. These in-kind contributions are being managed through a Domestic Agency (one per ITER Member) located within the Member’s own territory.

More details about the Project Organization, The Domestic Agencies, the IO location and other different aspects of the Organization are available on the website: [www.iter.org](http://www.iter.org).

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**Rq 1. Working language: English**

The working language of the ITER Project is English. Meetings shall be conducted in English. Software human interfaces, comments in code, emails, etc. shall be written in English. All documents shall be written in English. All personnel in direct interaction with ITER staff shall be fluent in English (written and spoken).

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**Engineering Support Scope of service**

The scope of the engineering support services for the PLM Implementation and Deployment is divided into 6 activities:

- Support to Program Management
- Support to Project Management
- Support to Configuration Management and System Engineering
- Support to Data Migration Preparation
- Support to Data Migration Operation
- Knowledge transfer and skills ramp-up

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**Rq 2. Independence of the activities**

Each activity can be launched separately and independently using Task Orders. The mechanism on how to launch each activity is explained in detail in Section 8 of this document.

### 3. Definitions

- “Shall/Should” – Shall: Mandatory requirement.  
– Should/May/Will: Recommendation or action which is advised but not required. “Will” is used for all actions to be performed by IO and/or the others.
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**How to find the requirements?** General requirements concerning the execution of the contract are identified in this document with the prefix “Rq” and numbered.

Technical requirements concerning the services packages can be found in the corresponding sections. All information given in these sections are considered mandatory requirements, even though no “shall” is used.

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**Abbreviations** For a complete list of ITER abbreviations see:  
[ITER Abbreviations \(ITER\\_D\\_2MU6W5\)](#).

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**PLM Technical Specification** The PLM Technical Specification defines the technical requirements to meet the functional needs.

#### 4. Estimated duration

**Period** The duration of services is 4 years.

**Task Orders** 

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The services shall be rendered after the signature of Task Orders by both parties.

## 5. Work Description

**Rq 3. Services shall be provided by experts** The scope of this contract is divided into 6 activities (see following sections). The contractor shall supply its expertise in each of the listed areas.

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**Rq 4. Deviations shall be specified and formalized** Any deviation of the service work shall be specified and formalized in consultation with the Contractor. An updated deliverable schedule and dates shall be then agreed.

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**Output/Scope of work package and deliveries to be defined in the task order** The exact scope and all detailed deliverables will be defined in the technical specification for each task order. The coordination of all task order, and if applicable work packages inside a task order, as well as the detailed implementation, provision of input and other requirements shall be responsibility of the project team.

Details on how Work Packages shall be launched are specified in Section 8 of this document.

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**Rq 5 Inputs and exchange of data** All detailed inputs shall be given to the contractor at the launch of the work package (or at milestones defined in the agreed work plan at the start of the package) and shall be discussed at the start of the implementation.

All data shall be stored in a common exchange area and shall be used on regular basis. The detail of the tools and best practice to be followed to insure a smooth group work and traceability will be defined and agreed at the start of the implementation (mailing list, use of SharePoint pages, IDM, etc.).



## 5.1 Support to Program Management

<b>Objectives for the PLM project</b>	<ul style="list-style-type: none"> <li>– Realistic roadmap (schedule, resource, scope)</li> <li>– Relevant roadmap (scope in agreement with ITER needs)</li> <li>– Strategy of communication about the implementation of a PLM</li> <li>– Strategy to business changes in ITER</li> </ul>
<b>Tasks to be performed</b>	<p>Support and advise PLM Program manager and WP leaders regarding:</p> <ul style="list-style-type: none"> <li>– PLM program management (roadmap, team sizing and organization, etc.)</li> <li>– Engineering processes and methodologies in connection to PLM</li> <li>– System engineering</li> <li>– Configuration management</li> <li>– High level data model definition</li> <li>– PLM Key functionalities</li> <li>– Communication, training and user support strategy</li> <li>– Definition and implementation of the People &amp; Organisation (PnO) which defines the users organisation and accessibility to the PLM data and functionalities</li> <li>– PLM interface with other IT Systems</li> </ul>
<b>Required Profile 1</b>	<p>Senior PLM Program Manager experienced in the management of PLM implementation &amp; deployment for projects of similar scale. Knowledge of the ITER context. Expertise on:</p> <ul style="list-style-type: none"> <li>– Data migration and integration to external databases (EDB, ENOVIA v5, etc.)</li> <li>– PLM implementation on big projects</li> <li>– Configuration management in the context of nuclear and first of kind project</li> <li>– PLM PnO</li> </ul>
<b>Required Profile 2</b>	<p>Senior Program Manager experienced in the management of complex engineering projects in the nuclear field Expertise on:</p> <ul style="list-style-type: none"> <li>– Practical use of PLM for such projects</li> <li>– Engineering and configuration management processes and best practices</li> <li>– Organization of the project with the PLM</li> </ul>
<b>Deliverables</b>	<ul style="list-style-type: none"> <li>– Assessment and Recommendation reports</li> <li>– Meeting minutes</li> <li>– Technical documentation supporting the knowledge transfer</li> </ul>

## 5.2 Support to Project Management

<b>Objectives for the PLM project</b>	<ul style="list-style-type: none"> <li>– Relevant functional and detailed specifications</li> <li>– Relevant test cases</li> <li>– Pertinent training material</li> </ul>
<b>Typical tasks to be performed</b>	<hr/> <p>Support and advise the WP leaders in all their activities, in particular for drafting and review of:</p> <ul style="list-style-type: none"> <li>– Functional specifications</li> <li>– Detailed specifications</li> <li>– Platform validation tests</li> <li>– Training material</li> </ul> <hr/>
<b>Required Profile</b>	<p>Senior PLM and DMU Project Manager experienced in the management of PLM implementation &amp; deployment projects of similar scale.</p> <p>Expertise on:</p> <ul style="list-style-type: none"> <li>– MATRIX/ENOVIA V6</li> <li>– SSD</li> <li>– ENOVIA V5</li> <li>– CATIA V5</li> <li>– Coexistence/coherence of 2D/3D</li> </ul> <hr/>
<b>Deliverables</b>	<ul style="list-style-type: none"> <li>– Assessment and Recommendation reports</li> <li>– Minutes of Meetings</li> <li>– Technical documentation supporting the knowledge transfer</li> </ul>

### 5.3 Support to Configuration Management and System Engineering

<b>Objectives for the projects</b>	<p>Pertinent Configuration Management processes</p> <p>Pertinent system engineering processes</p>
<b>Typical tasks to be performed</b>	<p>Support and advice the PLM team, configuration management section and system engineering section about:</p> <ul style="list-style-type: none"> <li>– procedures and best practices concerning Configuration Management and System Engineering: for instance, Document Production Plan (DPP), Applicability, etc.</li> <li>– structure of reference configuration and baselines,</li> <li>– structure and content of technical baseline documents.</li> </ul> <p>Participate to procedure drafting for:</p> <ul style="list-style-type: none"> <li>– Engineering business processes and methodologies including actors and roles in the context of complex nuclear power plant research projects</li> <li>– Management of: <ul style="list-style-type: none"> <li>• CATIA V5 3D models</li> <li>• Other CAD 3D models – multi-CAD</li> <li>• Catalogues and Standard Parts</li> <li>• 2D schematics</li> <li>• 2D Drawings</li> </ul> </li> <li>– Use of the DMU for integration use</li> <li>– Document management, including document typology</li> <li>– Interface management</li> <li>– Requirement management</li> <li>– Change management</li> <li>– Component management</li> </ul>
<b>Required Profile</b>	<p>Senior Configuration Manager experienced in</p> <ul style="list-style-type: none"> <li>– Complex system engineering</li> <li>– Nuclear plant engineering</li> <li>– Similar research project (first of kind)</li> </ul>
<b>Deliverables</b>	<ul style="list-style-type: none"> <li>– Write procedure</li> <li>– Assessment and Recommendation reports</li> <li>– Minutes of Meetings</li> <li>– Technical documentation supporting the knowledge transfer</li> </ul>

## 5.4 Support to the Data Migration Preparation

<b>Objectives</b>	Obtain Expert support to the data migration from other ITER systems (identification of relevant documents, cleaning, etc.). The expertise shall include configuration management aspects like data cleaning with respect to applicability
<b>Typical tasks to be performed</b>	<p>Assist ITER in:</p> <ul style="list-style-type: none"> <li>- Drafting data quality check list for consistency and completeness</li> <li>- Identifying correct documents to migrate - including 2D &amp; 3D - and coaching Responsible Officers (RO)</li> <li>- Defining Document Production Plan (DPP) with RO: definition of tasks, input and output data</li> <li>- Drafting user manual</li> <li>- Supporting RO to define correct applicability</li> <li>- Performing random check on document content</li> <li>- Performing product structuration</li> <li>- Define the correct structuration of the documentation (eg. Applicability folders)</li> </ul>
<b>Required Profile</b>	Engineers both mechanical and plant with field experience and capabilities to judge content of the document and their (possible) applicability
<b>Deliverables</b>	<ul style="list-style-type: none"> <li>- Assessment and Recommendation reports</li> <li>- Minutes of Meetings</li> <li>- Technical documentation supporting the knowledge transfer</li> </ul>

## 5.5 Support to the Data Migration Execution

<b>Objectives</b>	Obtain assistance for preparing, coordinating and participating to the data migration - collecting data and checking their consistency
<b>Typical tasks to be performed</b>	<p>Perform for ITER:</p> <ul style="list-style-type: none"> <li>- Definition of the data migration plan</li> <li>- Coordination of the data migration execution</li> <li>- Performing the quality check on migrated data</li> <li>- PLM Users Support</li> </ul>
<b>Required Profile</b>	Junior engineer with some experience with the Database Management and user support
<b>Deliverables</b>	<ul style="list-style-type: none"> <li>- Data migration plan</li> <li>- Data migration and quality check Reports</li> <li>- Minutes of Meetings</li> </ul>

## 5.6 Knowledge transfer and skill ramp-up

<b>Objectives</b>	Obtain Expert support for skill ramp-up concerning all previous tasks
<b>Typical tasks to be performed</b>	<p>Contribute to:</p> <ul style="list-style-type: none"> <li>– Define the global training strategy</li> <li>– Draft PLM ITER specific training material – including practice exercises</li> <li>– Draft How to's</li> <li>– Organize, prepare and animate training sessions</li> <li>– Support the users during the operation phase</li> </ul>
<b>Required Profile 1</b>	Senior PLM engineer experienced in PLM training management
<b>Required Profile 2</b>	Junior engineer experienced in training organisation and animation
<b>Deliverables</b>	<ul style="list-style-type: none"> <li>– Training plan</li> <li>– Training material</li> <li>– Reports</li> <li>– How to's</li> </ul>

## 6. Responsibilities

**IO Responsibilities** IO shall assign one IO representative, to work as sole Contractor interface for the coordination of the full Technical Specification.

IO shall assign one IO representative, to work as sole Contractor interface for the supervision of the each specific Task Order.

The IO representative(s) will assess the performance and quality of the work.

The IO representative shall be responsible for checking the deliverables against requirements, schedule the processes.

IO shall make available to the Contractor all technical data and documents which the Contractor requires to carry out its obligations pursuant to this specification in a timely manner. For delays of more than two weeks in making them available, the Contractor shall advise IO representative of the potential impact on the delivery of the Work Packages, to agree and define all the correction actions to be taken in place.

**Contractor's responsibilities**

The Contractor shall ensure that he complies with the provisions of the Contract in particular with the following:

- the Contractor shall guaranty that all input information provided to perform the services remain property of IO and shall not be used for any other activity than the one specified in this specification;
- the Contractor shall be in charge of the training & coaching of all its resources;
- the contractor shall provide an organization suitable to perform the work as described in this specification;
- the contractor shall work in accordance with the QA plan approved by IO;
- the contractor shall perform the activities accordingly to this specification taking into account all relevant additional documents and IO processes into account (hand books, export control, intellectual properties, etc.); the Contractor shall be responsible to produce and manage, using the ITER software platform, all the documents listed in Section 8;
- Contractor shall provide to the IO representative full access to its work premises and related documentation, to permit to follow up the progress of the work.

Prior to the start of work on each package, the Contractor shall review the input technical information provided to it by IO for completeness and consistency, and shall advise the IO representative of any deficiencies it may find. The contractor shall not be responsible for errors in the input technical information which could not be reasonably detected during such review; duration of this review will be agreed between Contractor and IO representative and will have no impact on the delivery schedule.

## **7. List of deliverables and due dates**

Deliverables are defined in the Work Description Chapter 5.  
The exact list will be defined in the Task Orders.

## 8. Acceptance Criteria

<b>Rq 6. All deliverables to be “materialized” by a report in IDM</b>	Even if deliverables are not per se documents (running platform, trainings, demonstrators, etc.), each main deliverables shall be “materialized” by a report in IDM. Depending on the type of deliverables, it can be a “working instruction” (e.g. working instruction for installation), a “recommendation” (e.g. recommendation on how to use the demonstrator), etc. Type of report and content shall be agreed between IO and the contractor at the start of the work package.
<b>Rq 7. All deliverables document to be stored in IDM</b>	All the deliverables produced in the scope of this services, will be stored in IDM <u>in a dedicated folder</u> (folder will be communicated at the start of the work package), based on the following mandatory work-flows (depending on templates).
<b>Rq 8. Workflow for document following IO’s template</b>	For document using an IO form or an IO template (i.e. a document created in the IO document management system and showing the IO logo and details): the document should be stored in IDM (native format) implementing the following work-flow: <ul style="list-style-type: none"> <li>– Author: Contractor. By signing in IDM, as author, the contractor certify that he has properly implemented its own QA process and that the document is ready to be delivered to IO</li> <li>– Reviewer: According to the corresponding IO work-flow and procedures</li> <li>– Approver: According to the corresponding IO work-flow and procedures</li> </ul>
<b>Rq 9. Workflow for document following contractor’s template</b>	For document using a contractor template / form (i.e. a document created in the contractor document management system and showing the Contractor logo and details): the document should be stored in IDM as follows: <ul style="list-style-type: none"> <li>– The document should be stored in IDM with the following method: <ul style="list-style-type: none"> <li>• in PDF format</li> <li>• with a clear demonstration of the Contractor’s internal review process</li> <li>• attaching in the metadata of the document the native version (word, excel,...)</li> <li>• using signatory instead of author</li> <li>• using an automatically generated IO cover-sheet</li> <li>• filling in the abstract with the following: “Document submitted for IO Acceptance”</li> </ul> </li> <li>– Signatory: Contractor representative</li> <li>– Reviewer: According to documents contents and in particular impacted unit in interface</li> <li>– Approver: PLM team leader (Approval stands for an acceptance)</li> </ul>
<b>Review time: 10 workings days</b>	The maximum time for IO acceptance or comments in IDM is 10 working days after the storage (+IDM email) of the deliverables in IDM. However, for documents longer than 20 pages, IO must be given sufficient notice and time to properly review the document through a pre-review. A pre-review (using groupware tools put in place in the team) shall be used to submit any long document in advance.



**Changes** In case of non-compliance / conformity of a deliverable or a set of deliverables, the Contractor shall correct them and re-submit them for review and acceptance; resubmission shall be at contractor's cost.

## 9. Specific requirements and conditions

**Rq 10. Possible location: IO headquarter or Contractor's premises** The location of the services may be at Contractor's premises, at the IO headquarters in Cadarache and/or a mixed approach. This will be made apparent in the technical specification for each specific Task Order.

## 10. Work Monitoring / Meeting Schedule

**Task Orders** The work to be performed by the Contractor will be implemented through Task Order(s) in accordance with the conditions of the Contract. This will be initiated by means of a Task Request whereby the Contractor will be asked to submit a technical and financial offer for the work.

Each Task Order shall define:

- The precise scope of the task
- The list of actions to be performed
- The inputs that will be provided by ITER
- The deliverables and their due dates

**Work monitoring** In some cases the contractor will be required to undertake several task orders (themselves composed of several Activities) simultaneously and re-priorities services.

Regular progress meetings shall be conducted between the Contractor and the IO RO, if needed other meeting may be needed after mutual agreement. The format and frequency of the contractor's progress report and the format shall be agreed between IO and the contractors and may vary depending on task urgency and criticality, needs of follow-up, etc.

**Changes** The list of deliverables can be changed only by amendment to the Task Order.

Should the deliverables content and priority be adjusted, ITER and the Contractor shall arbitrate together in order to reach appropriate measures. The changes and decisions shall be recorded and formalized (e.g. using minutes of meetings).

## **11. Delivery time breakdown**

The schedule and list of deliverables will be specified in the Task Orders.

## 12. Quality Assurance (QA) requirement

- Rq 11. ISO 9001** The organisation conducting these activities should have an ITER approved QA Program or an ISO 9001 accredited quality system.
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- Rq 12. Procurement quality requirements** The general requirements are detailed in [ITER Procurement Quality Requirements \(ITER\\_D\\_22MFG4\)](#).
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- Rq 13. Quality plan** Prior to commencement of the task, a Quality Plan must be submitted for IO approval giving evidence of the above and describing the organisation for this task; the skill of workers involved in the study; any anticipated sub-contractors; and giving details of who will be the independent checker of the activities (see [Procurement Requirements for Producing a Quality Plan \(ITER\\_D\\_22MFMW\)](#)).
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- Rq 14. Documentation archive : 5 years** Documentation developed as the result of these services shall be retained by the Contractor of the services for a minimum of five (5) years and then may be discarded at the direction of the IO.
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- Use of software to perform safety related activities** The use of computer software to perform a safety basis task activity such as analysis and/or modelling, etc. shall be reviewed and approved by the IO prior to its use, in accordance with [Quality Assurance for ITER Safety Codes \(ITER\\_D\\_258LKL\)](#).

### 13. Safety requirements

<b>ITER is an INB</b>	ITER is a Nuclear Facility identified in France by the number-INB-174 (“Installation Nucléaire de Base”).
<b>French regulation applies in particular Order 2012</b>	<p>For Protection Important Components and in particular Safety Important Class components (SIC), the French Nuclear Regulation must be observed, in application of the Article 14 of the ITER Agreement.</p> <p>In such case the Suppliers and Subcontractors must be informed that:</p> <ul style="list-style-type: none"> <li>– The Order 7th February 2012 applies to all the components important for the protection (PIC) and the activities important for the protection (PIA).</li> <li>– The compliance with the INB-order must be demonstrated in the chain of external contractors.</li> <li>– In application of article II.2.5.4 of the Order 7th February 2012, contracted activities for supervision purposes are also subject to a supervision done by the Nuclear Operator.</li> </ul> <p>For the Protection Important Components, structures and systems of the nuclear facility, and Protection Important Activities the contractor shall ensure that a specific management system is implemented for his own activities and for the activities done by any Supplier and Subcontractor following the requirements of the Order 7th February 2012 [20].</p>