Technical Specifications (In-Cash Procurement)

TECS_2023-10_CFT_IT Digital Transformation & Enterprise Architecture

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Table of Contents

Purpose

1.1 The ITER Project

ITER is a joint international research and development project under construction which aims to demonstrate the scientific and technological feasibility of fusion power for peaceful purposes. In particular, the aim of the ITER project is to gain the necessary data to design, construct and operate the first electricity-producing plant. It will generate 500 MW of fusion power for extended periods of time, ten times more than the energy input needed to keep the plasma at the correct temperature. It will also test a number of key technologies, including the heating, control, diagnostic and remote maintenance that will be needed for a full-scale fusion power station. The seven members of the ITER Organization (IO) are; The European Union (represented by EURATOM), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA.

The ITER site is established in South East France, in the Bouches du Rhône district, close to the CEA Cadarache Centre. It includes the Headquarters of the ITER Organization, and the construction worksite. The construction of the facility is on-going and will last more than 10 years. Further information is available on the ITER website: http://www.iter.org.

1.2 Background and objectives

IT within Central Integration Division is launching a digital transformation program to integrate new technologies, rationalize IT landscape and simplify user experience and optimize process and cost. By leveraging the latest technologies such as AI & automation, Data, AR/VR, 3D, Digital Twin, Robotics, IoT and Cloud, IO would like to create a digital environment to enable faster prototyping and experimentation, and more rapid product and service development and deployment. The digital transformation program will help unify the approach across IO business domains to support the entire digitalization process from ideation to proof-of-concept to test and industrialization. It will also drive innovation within the entire organization.

IT within Central Integration Division has also launched the Enterprise Architecture initiative with the objective to define the centralized IT architectural landscape as the reference for the future IT at ITER. A global Enterprise Architecture functional map has been created based on TOGAF framework and the IT within Integration Division continues to coordinate projects around Enterprise Architecture to perform business and IT assessments, run market surveys and drive projects to close the gap between as-is and to-be architecture.

1.3 Purpose

The ITER Organization intends to set up a new framework contract to support activities in IT digital transformation program and Enterprise Architecture.

2 Scope

The objective of this contract is to support the Central Integration Division IT digital transformation program by contributing to the strategy definition and building a Digital Factory to execute the prioritized proof-of-concept development and deployment. The contractor will

also work across a range of areas, including (but not limited to) Enterprise Architecture, Artificial Intelligence, AR & VR etc..

3   Definitions

IO: ITER Organization
AI: Artificial Intelligence
3D: 3 Dimensions
AR: Augmented reality
VR: Virtual Reality
IoT: Internet of Things
TOGAF: The Open Group Architecture Framework

For a complete list of ITER abbreviations see: ITER Abbreviations (ITER_D_2MU6W5).

4   References

Not applicable.

5   Estimated Duration

This framework contract will be set up for 3 firm years plus 2 times one optional year.

6   Work Description

You can find below the list of expected work areas and related activities

6.1   Digital Transformation

IT within Central Integration Division should drive the digital transformation efforts at ITER and continuously propose new technologies to improve the productivity and operational efficiency.

As part of this goal, the contractor will support to:
- Define a long-term vision and strategy to adopt the latest technologies in AI & automation, Data, AR/VR, 3D, Digital Twin, Robotics, IoT and Cloud
- Identify areas of adoption and unify the approach across the ITER domains.
- Provide Technology Benchmark to help IO choose the best solution and platform provider to implement selected use cases
- Propose an on-demand based Digital Factory taskforce to support proof-of-concept development activities around key technologies mentioned above.
- Apply best practice in Agile development, DevOps and Cloud to build an efficient digital platform to accelerate the software development lifecycle.

- Participate on definition and implementation of new IT processes to increase IT maturity and operational efficiency. Identify process deviation and define corresponding corrective measures whenever needed.

6.2   Enterprise Architecture

The contractor will support the Enterprise Architecture initiative especially for the following tasks:

- Perform IT architecture assessments and gap analysis to improve coverage of existing tools
- Participate on tool benchmarking in the market and tool selection for IO related business domains
- Collect business process requirements, clarify future needs and propose improvements.

6.3   Profiles description

6.3.1   Digital transformation IT consultant

- **Profile**: a dynamic and experienced IT Consultant to play a pivotal role in driving our organization's digital transformation program. Have a strong background in IT consulting, a deep understanding of digital technologies, and a proven track record of successfully leading digital transformation initiatives.
- **Tasks**: collaborate with key stakeholders to assess current digital capabilities and identify areas for improvement. Develop and implement a comprehensive digital transformation strategy aligned with IO's organizational goals. Provide expert advice on emerging technologies and trends, ensuring the organization stays ahead in the digital landscape. Help manage cross-functional teams in the execution of digital projects, ensuring timely delivery and adherence to quality standards. Evaluate and select appropriate technologies and platforms to support digital and enterprise architecture initiatives.
- **Skills and Experience**: Master's degree in Computer Science, or a related field; Proven experience (at least 5 years) in IT consulting with a focus on digital transformation. Strong understanding of digital technologies, cloud computing, and AI. Excellent project management skills with a track record of successful project delivery. Ability to organize and manage on-demand Digital Factory development teams. Good communication and interpersonal skills to engage with stakeholders at all levels. Ability to analyze complex problems and develop innovative, effective solutions.

6.3.2   Digital transformation IT expert (on-demand)

- **Profile:** a highly skilled and knowledgeable Digital Transformation subject matter expert with a specialization in one of the domains: AI, Data, AR/VR, 3D, Digital Twin, Robotics, IoT and Cloud. Capable of designing and implementing solutions to support our organization's digital transformation goals.
- **Tasks:** provide expert advice on emerging technologies and trends, ensuring the organization stays ahead in the digital landscape. Manage Digital Factory delivery team and lead the development and implementation of solutions from proof-of-concept to industrialization, ensuring the seamless integration of solutions into IO's infrastructure.

Collaborate with cross-functional teams to identify new opportunities and integrate technologies into existing systems and processes. Conduct training sessions for IO internal teams to enhance understanding and proficiency in relevant technologies.

- **Skills and Experience:** Master's degree in Computer Science, or a related field; Proven experience (at least 7 years) working in technical solution development and implementation. Strong programming skills. Excellent problem-solving skills and the ability to translate business requirements into technical solutions. Effective communication skills to convey complex technical concepts to non-technical stakeholders.

6.4   Expected volume of work

IT within Central Integration Division expects that the contractor's team will be composed of 1-2 full or part-time resources to support activities mentioned above and on-demand Digital Factory teams for proof-of-concept development purpose.

7   Responsibilities

ITER:

IO will make available necessary access to the system in accordance with IO security policy.

IO will on-board properly contractor resources to give them the specific ITER project knowledge. In case of contractor resource shift this tasks will be contractor's responsibility.

The Contractor:

The contractor shall be responsible for the organization of the work and production of all the deliverables described in section 8 below.

8   List of deliverables and due dates

The contractor shall provide off-site services to perform the tasks described in Section 6. Periodic entries in the in-house developed activity tools are required from the contractor's team in order to facilitate the follow up of the work performed such as:

- Periodic time and activity logging: Worklog Pro (In-house developed)
- Project management: ITPM2 (In-house developed)
- Ticketing follow-up: Jira.
- The activity reports have to be provided on a monthly basis. They have to contain qualitative and quantitative detailed information about the issues the Contractor has been confronted to, about the solution proposed and implemented, the outcomes of the proof-of-concepts, the innovations introduced in the processes and the ideas to further improve the As Is situation. These reports have to be agreed and accepted from IO TRO in order to release the corresponding payment.
- Other deliverable may be precisely defined in a task order.

9 Acceptance Criteria

Each item of work to be completed according to agreed deliverables shall be reviewed and accepted by the IO Contract Responsible Officer or a nominated representative.

10 Specific requirements and conditions

The contractor shall have demonstrated capabilities in the areas of Digital Transformation, Digital Factory delivery and Enterprise Architecture, for large and complex organisation, preferably in an international context and in a complex contractual and organizational setup (comparable to the ITER project).

ITER's cost containment objectives also favour companies with a proven track record of delivering projects on time and within budget and services at fixed cost or at time & material with competitive daily rates. The specific experience and qualities sought by IO include:

- Proven expertise in the technical fields listed in Section 6;
- Proven track record of successfully delivering similar type of services;
- Ability to respond rapidly to changing resource requirements, to accommodate peak demands, and to provide specific technical expertise;
- Capability to mobilise and manage on-demand resources;
- Capability to manage projects/activities involved mixed teams (ITER Organization staff and external contractors).
- The proposed resources shall have the following Qualifications & Experience:
  - At least Master's Degree in Engineering or Business School and over 5 years of experience in the following :
  - experience on Digital Transformation approach
  - technical expertise on selected technologies
  - Digital Factory setup and delivery
  - professional proven experience in technology innovation
  - knowledge and experience with Cloud, TOGAF or other relevant certifications
  - Fluent in English (written & spoken)

All documents sent to and communications with the ITER Organization shall be conducted in English.

11 Work Monitoring / Meeting Schedule

Contractor should follow project detailed scheduling that will be given at the start of the contract and update weekly by IO.

A progress meeting is expected weekly and should monitor activity done versus the scheduling, with open action item, issues and action to complete and resolve.

Outcome of this meeting should be a formal weekly progress report including decision and action decided during the meeting

12 Delivery time breakdown

Monthly invoices and deliverables as described.

13 Quality Assurance (QA) requirements

The organisation conducting these activities should have an ITER approved QA Program or an ISO 9001 accredited quality system.

The general requirements are detailed in ITER Procurement Quality Requirements (ITER_D_22MFG4).

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)).

Documentation developed as the result of this task shall be retained by the performer of the task or the DA organization for a minimum of 5 years and then may be discarded at the direction of the IO. 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).

14 CAD Design Requirements (if applicable)

Not applicable.

15 Safety requirements

ITER is a Nuclear Facility identified in France by the number-INB-174 ("Installation Nucléaire de Base").

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.

In such case the Suppliers and Subcontractors must be informed that:

- The Order 7th February 2012 applies to all the components important for the protection (PIC) and the activities important for the protection (PIA).
- The compliance with the INB-order must be demonstrated in the chain of external contractors.
- 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.

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].