CTBTO
PREPARATORY COMMISSION

preparatory commission for the
comprehensive nuclear-test-ban
treaty organization

# REQUEST FOR PROPOSAL

| | | | |
|---|---|---|---|
| ***To:*** | ALL BIDDERS | ***CTBTO Ref. No.:*** | **2024-0154/MOGAPI** |

(PLEASE QUOTE ON ALL COMMUNICATIONS)

| | |
|---|---|
| ***Tel. No.:*** | +43 (1) 26030-6350 |
| ***E-mail:*** | procurement@ctbto.org |

***Attn:***

| | | | |
|---|---|---|---|
| Phone: | | ***Date:*** | 27 Sep 24 |
| Fax: | | | |
| Email: | | | |

***Subject:*** Software Engineering Services for Waveform and Radionuclide
Operational Applications (MuTIP)

***Deadline for Submission: 21 Oct 24***          ***Vienna Local Time:*** 17:00

    The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (hereinafter referred to as the 'Commission') hereby invites you to submit a proposal that meets the requirements of the attached documents.

    You are kindly requested to complete and return the acknowledgement form by email as soon as possible.

    If you have any questions you should contact the email address indicated above.

Yours Sincerely,

*SAS*

Sally Alvarez de Schreiner
Chief, Procurement Services Section

## *ACKNOWLEDGEMENT FORM*

| | |
|---|---|
| **Solicitation No:** 2024-0154 | **Closing Date:**       15 Oct 24 |
| **Title:** Software Engineering Services for Waveform and Radionuclide Operational Applications (MuTIP) | **Vienna Local Time:**   17:00 |

**Procurement Staff:** Gookeditswe Mogapi        **CTBTO Req. No.:** 0010025187

Please complete 'A' or 'B' or 'C'
and Return

### WITHIN FIVE (5) DAYS

THE PREPARATORY COMMISSION FOR THE
COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION (CTBTO)

**by email to**
procurement@ctbto.org

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**A: We shall submit our proposal**

By: _____
(date)

Company Name: _____

Contact Name: _____

Email/Tel: _____

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**B: We may submit and will advise**

By: _____
(date)

Company Name: _____

Contact Name: _____

Email/Tel: _____

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**C: We will not submit a proposal for the following reason(s)**

____ our current workload does not permit us to take on additional work at this time;
____ we do not have the required expertise for this specific project;
____ insufficient time to prepare a proper submission;
____ other (please specify) _____

Company Name: _____

Contact Name: _____

Email/Tel: _____

**INSTRUCTIONS FOR PREPARATION AND SUBMISSION OF PROPOSALS**

**1.     General**

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (the "Commission") with its offices located in Vienna, Austria, is the International Organization mandated to establish the global verification system foreseen under the Comprehensive Nuclear-Test-Ban Treaty (CTBT), which is the Treaty banning any nuclear weapon test explosion or any other nuclear explosions. The Treaty provides for a global verification regime, including a network of 321 stations worldwide, a communication system, an International Data Centre and on-site inspections to monitor compliance with the Treaty.

This Request for Proposal (RFP) is for the *provision of **software engineering services for Waveform and Radionuclide Operational Applications - Multi-Technology Integration Portal Umbrella (MuTIP Umbrella) on a call-off basis*** as described in the Terms of Reference.

The Proposal shall meet all requirements stated in the Terms of Reference and be submitted in accordance with these Instructions for Preparation and Submission of Proposals. For this project, the Commission is seeking capabilities, which will ensure that the services are delivered and the tasks are accomplished expeditiously and at a reasonable cost.

**2.     Documents included in this RFP**

This RFP consists of the following documents:

(a)   Letter of Invitation
(b)   These Instructions for Preparation and Submission of Proposals with its Attachments:
  -   Attachment 1: Minimum Content of Technical Proposals and Technical Compliance Matrix
  -   Attachment 2: Evaluation Criteria and Method
  -   Attachment 3: Format of Financial Proposal
  -   Attachment 4: Procedure for submission of electronic offers in two (2) sealed files
(c)   Statement of Confirmation
(d)   Vendor Profile Form
(e)   The Commission's Model Contract and its Annexes A – B;
  o   The Commission's General Conditions of Contract (Annex A) –found at www.ctbto.org under CTBTO General Conditions of Contract and incorporated herein by reference;
  o   The Commission's Terms of Reference (Annex B)

Note: In the event of award, the Proposal will be incorporated as Annex C to the Contract.

**3.     Amendment of RFP Documents**

At any time prior to the closing date for submission of Proposal, the Commission may, for any reason, modify the RFP documents by amendment.  The Commission may consider extending the deadline in order to allow adequate time for considering the modifications in the preparation of the Proposal.

**4.     Language of the Proposal**

The Proposal and all correspondence and documents relating to it shall be in English.

**5.** **Format and Submission of the Proposal**

The Proposal shall be typed, dated and signed by an official legally authorized to enter into contracts on behalf of your organization. The Proposal shall not contain any interlineation, erasures or overwriting except as necessary to correct errors, in which case such corrections shall be initialled by the authorized person(s) signing the Proposal.

**The Proposal shall be submitted electronically according to the attached "PROCEDURE FOR SUBMISSION OF ELECTRONIC BIDS IN TWO (2) SEALED FILES".**

The Proposal shall be received not later than the closing date indicated in the Letter of Invitation.

**6.** **Request for Clarifications and Contacting the Commission**

The Commission will issue clarifications, if required. Bidders are requested to e-mail any questions pertaining to this RFP as soon as possible after receipt of the solicitation documents, but in any case, no later than **10 business days prior to the Closing Date**. No requests for clarifications will be entertained after this time. Questions will only be accepted via e-mail sent to:

      E-mail:        procurement@ctbto.org
      Subject:      RFP No. 2024-0154/MOGAPI - Request for Clarifications

The Commission will make all reasonable efforts to issue the clarifications not later than 7 business days prior to the Closing Date.

Except in the case of responding to an RFP clarification, no bidder shall contact the Commission on any matter relating to the Proposal after its submission and until the award of the Contract. Any attempt to influence the Commission in its evaluation of the Proposal or the contract award decision may result in the rejection of the Proposal.

**7.** **Eligible Goods and Services**

The goods and services (if any) to be rendered under the Contract/Purchase Order shall have their origin in the States Signatories of the Comprehensive Nuclear-Test-Ban Treaty (CTBT), a list of which is available in the CTBTO website at www.ctbto.org under Status of Signatures and Ratifications | CTBTO. For purposes of this paragraph, "the origin" means the place from where the materials, goods and/or from which the services are supplied.

**8.** **Type of Contract and Payment**

The Commission intends to conclude firm fixed unit prices Call-off Contract based on the attached Model Contract. The terms and conditions of payment for services are described in Clause 13 of the attached Model Contract.

**9. Preparation of the Proposal**

> **Use of former Preparatory Commission for the CTBTO ("Commission") employees in the preparation of Proposals:**
>
> A bidder must <u>not</u>, in the absence of prior written approval from the Commission, permit a person to contribute to, or participate in, any process relating to the preparation of a Proposal or the procurement process if the person:
> a. At any time during the 12 months immediately preceding the date of issue of the Solicitation was an official, agent, servant or employee of, or otherwise engaged by the Commission;
> b. At any time during the 24 months immediately preceding the date of issue of the Solicitation was an employee of the Commission personally engaged, directly or indirectly, in the definition of the requirements, project or activity to which the Solicitation relates.

The Proposal shall contain, but not necessarily be limited to, the information described below.

The Proposal shall be composed of the following separate parts:

I.   **Technical Proposal**; and
II.  **Financial Proposal**;

providing, but not limited to, the following information:

**PART I: TECHNICAL PROPOSAL**

Please state the reference number and the date of this RFP in the Proposal and any correspondence relating to it.

No pricing/financial information shall be included in the Technical Proposal. Note however that a complete list of the items being offered (without the prices) shall be included in the Technical Section of the Proposal.

Bidders are required to complete and follow *Attachment 1* provided as part of Instructions for Preparation and Submission of Proposals. This shall include an explanation of the Bidder's understanding of the services to be provided and an overall preliminary operational plan for the execution of the services by providing a section-by-section response to the Terms of Reference indicating how the Bidder meet or will meet each of the technical requirements.

The Commission will take into consideration the on-boarding time (off-site/on-site) needed to get familiar with the systems. The Proposal shall clearly state how many person-days are expected to be necessary for the Contractor's staff to familiarize with the system landscape. The estimated on-site/off-site days needed to get familiar with the systems shall be listed as a separate item in the proposal.

The Proposal shall also provide any other relevant issue which the bidder would like to bring to the attention of the Commission whether or not having cost implications.

**Point of Contact**

The Proposal shall state the contact details and address (name, telephone and fax numbers, and e-mail address) of the person/point of contact in your company dealing with this RFP.

**Bidder's Statement, Statement of Confirmation and Vendor Profile Form**

The attached Bidder's Statement, Statement of Confirmation and Vendor Profile Form shall be duly filled-in, signed and submitted as part of the Technical Proposal.

**Documents Establishing the Eligibility and Qualifications of the Bidder**

The Bidder shall furnish documentary evidence of its status as an eligible and qualified supplier in accordance with the requirements set forth in the Terms of Reference. In order to award a contract to a Bidder, its qualifications must be demonstrated and documented in the Proposal to the Commission's satisfaction.

**Commission's Inputs**

A description of the expected inputs/resources to be made available by the Commission and at what stage of the services.

**Qualifications**

Documentary evidence of the bidder's qualifications to provide the Services, which shall establish to the Commission's satisfaction that the bidder has technical capability necessary to perform the Contract and other necessary ongoing services as required in compliance with all the requirements and qualifications set forth in the Terms of Reference (see Attachment 1 to this RFP).

**Personnel**

In addition to Attachment 1 to this RFP, the Technical Proposal shall include:

i. A statement that the capacity of the Contractor, in terms of qualified manpower resources, is adequate to conduct the Work.

ii. A statement of availability of the personnel, and the minimum period required before starting the work under the Contract;

iii. A list of capable and experienced personnel, including their function and duration of assignment as key staff to work under this Contract (such as Project Manager or Team Leader, etc);

iv. Curriculum vitae of the key personnel proposed for this contract, including experience with standards and technical experience to perform the Work.

v. Details of key personnel identified at (iii) and (iv) above, which shall include at a minimum the following information:

    a. Name.

    b. Nationality.

    c. Role.

    d. Employed since. (Please specify whether the key personnel are a permanent member or rather, if they are contracted for the duration of the Contract on an ad-hoc basis.)

    e. Type(s) of Service(s) set specified in the Terms of Reference, which the key personnel will perform.

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Please note that it is the bidder's responsibility alone to obtain **work permits or visa or similar** for the personnel proposed to implement this project. The Commission will make no effort nor accept any responsibility for obtaining work permits or visa or similar for the Contractor's personnel.

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**Sub-Contractors**

Names, legal status, address and qualifications of subcontractor(s), if any, and the scope of the subcontracted services. The Proposal shall provide a statement that your organization shall be

fully responsible for the performance of sub-contractors. All sub-contractors shall be legally established in one of the CTBTO States Signatories the list of which is available at www.ctbto.org under Status of Signatures and Ratifications | CTBTO.

**PART II: FINANCIAL PROPOSAL**

i.  The Financial Proposal shall be submitted in the format set out in Attachment 3 "Format of Financial Proposal" attached herewith. Bidders shall provide all the information requested in this matrix but may provide additional related content as attachments. This will be evaluated as part of the responsiveness of the Financial Proposal. A Proposal that fails to meet this requirement may be disqualified and not be considered for further evaluation.

ii.  The bidder shall quote firm fixed person-day fees/rates in EURO or US Dollars for the duration of the contract. The quoted fees/rates should include all overheads and ancillary expenses, unless included as firm-fixed "Other Costs", or otherwise stated in Attachment 3 "Format of Financial Proposal".

iii.  Note that clear and detailed explanations would enable us to evaluate the Proposal promptly and proceed with fewer requests for clarifications/justifications in a later stage. This is also a factor influencing the decision for Contract award.

**Indirect Taxes**

In principle the Commission is exempt from taxes. Since the arrangement under which such exemption is respected varies from country-to-country, the selected bidder will be informed by the Commission whether tax exemption will occur at source or whether taxes paid by the selected bidder will be reimbursed by the Commission upon submission of the original supporting documentation. **"Taxes"** means all direct and indirect taxes (including value added tax, general sales tax or goods and services tax), assessments, fees, customs duties, liens and charges in as much as they are levied in conclusion or implementation of the Contract, including customs restrictions and charges of similar nature in respect of articles imported or exported for the Commission's official use.

For Austrian companies
The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or be separately identified on the Proposal together with information on the nature of the tax and its method of calculation.

For European Union (EU) Companies
The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or separately identified on the Proposal together with information on the nature of the Tax and its method of calculation. Due to the VAT exemption applicable to the Commission, no VAT will be charged to the Commission by the EEC Suppliers under the Contract (Ref. EU VAT Council Directive 2006/112/EC, Article 151).

For Non-EU Companies
The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or be separately identified on the Proposal together with information on the nature of the tax and its method of calculation. For deliveries to Vienna, Austria, and due to the tax exemption at source applicable to the Commission, no Taxes shall be charged to the Commission under the Contract.

**10.    Completeness and Correctness of the Proposal**

The Commission reserves the right to verify all information furnished by you in the Proposal through a source of its choice. Any inaccurate information so given may lead to the rejection of the Proposal.

**11.    Validity of the Proposal**

The Proposal shall be valid for 90 (ninety) days after the deadline for its submission to the Commission, unless an extension of validity has been requested by the Commission.

**12.    Correction of Errors**

The Commission will check the Proposal for any arithmetic errors. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.

**13.    Evaluation of the Proposal**

The Commission, based on the evaluation criteria and method given in Attachment 2, will determine the Proposal that 'most effectively satisfies the technical and operational requirements set out in the solicitation documents'. The Commission reserves the right, as it deems appropriate, to award to a single bidder, to award to multiple bidders in any combination or not to award to any of the bidders as a result of this RFP.

**14.    Negotiations of the Proposal and Award**

The Commission reserves the right to request clarifications on the Proposal and to enter into negotiations regarding technical or commercial aspects of the Proposal before awarding the contract under this RFP.

**15.    Modification and Withdrawal of the Proposal**

Bidders may modify or withdraw their Proposals after their submission, provided that written notice of the modification or withdrawal is received by the Commission by the closing date for the submission of the Proposal. The Proposal may not be modified subsequent to the closing date.

**16.    The Commission's Right to Reject the Proposal**

The Commission reserves the right to accept or reject the Proposal or to annul this procurement process at any time prior to the award of contract without having to inform the bidders of the grounds therefore, without thereby incurring any liability to the bidders.

**17.    Costs of preparation and submission of the Proposal**

Bidders shall bear all the costs associated with the preparation and submission of their Proposal and the Commission will not be responsible or liable for those costs, regardless of the outcome of this RFP.

**18.     Proprietary Information**

All documentation and information contained in this RFP are proprietary to the Commission and shall not be duplicated, used or disclosed -in whole or in part- for any purpose other than to evaluate them and respond to the Commission's request for Proposal or otherwise without prior written agreement of the Commission.

Delivery Time:

Shipping weight (kg) and Volume (m³) – if applicable:

List of recommended consumables and spares including prices and details on local availability, if applicable (please tick):

☐ For one year period ☐ For a period of ………………………….

Warranty period if applicable (it shall be for a **minimum of 24 months**, starting from the acceptance of the goods/services by the Commission) – please tick below as applicable:

☐ For a two-year period ☐ For a period of ………………………….

Availability of local service in Vienna, Austria (if any):

State country of origin or assembly of all items quoted:

Quantity discount and early payment discount (if any):

Include documentary evidence of qualifications to perform the order, which shall establish to the Commission's satisfaction that the bidder has the financial, technical and production capability necessary to perform the order in its entirety and to provide spare parts and other necessary on-going services as required.

Included in this quotation : **Yes** ☐ **No** ☐

**Confirmation that the bidder has reviewed the Commission's General Conditions of Contract, Model Contract, and agreed to all terms and conditions.**
**Yes** ☐ **No** ☐
**Remarks:**

With regards to the software provided with the equipment, state and confirm whether the software licenses are transferable to third parties, i.e. the Commission or the Commission's State Signatories - list available at www.ctbto.og under Status of Signatures and Ratifications | CTBTO.

Yes ☐ No ☐ Not applicable ☐
Remarks:

**Name:**

**Name & Title of Contact Person:**

**Signature & date:**

# MINIMUM CONTENT OF TECHNICAL PROPOSAL AND TECHNICAL COMPLIANCE MATRIX

## RFP No. 2024-0154/MOGAPI

## PROVISION OF SOFTWARE ENGINEERING SERVICES FOR WAVEFORM AND RADIONUCLIDE OPERATIONAL APPLICATIONS - MULTI-TECHNOLOGY INTEGRATION PORTAL UMBRELLA (MUTIP UMBRELLA) ON A CALL-OFF BASIS

*Below sets out the **Minimum content of the Proposal and the <u>Mandatory Requirements</u> of the Technical Proposal**. Bidders are requested to demonstrate compliance with the requirements and add any further information in support of their Proposal. Please refer to the relevant section of the Terms of Reference for further explanation of the requirements. The information provided will form an integral part of the technical evaluation process.*

**Part II of this document must be completed and returned as part of the Proposal.**

## Part I

| | Item | Minimum content |
|---|---|---|
| **1.** | **Executive Summary** | Provide an overview of the proposal |
| **2.** | **Experience, Resources and Project Management** | |
| 2.1 | Corporate Profile and Values | <ul><li>Brief background of the company, mission/vision, ownership, size, location, number of personnel by type profile, etc.</li><li>Company business structure and its authority to execute all Work under the Contract.</li><li>If a consortium, provide a clear explanation of the business relationship between the members and governance for the execution of this project.</li><li>In case the Bidder requires the services of subcontractors, the Proposal shall include:<br>a) Relationship of the Bidder's business to any subcontractor(s) that will be used.<br>b) Names, addresses, legal status, and qualifications of major sub-contractor(s) proposed by your organization.<br>c) The scope of work and nature of subcontracting.</li></ul> |

| | | |
|---|---|---|
| 2.2 | Corporate Experience | The proposal should detail the Bidder's experience in executing work of similar scope and complexity. |
| 2.3 | Requirements for the Contractor | The Proposal should address and describe all requirements spelled out under Section V and VII of the Terms of Reference (ToR). |
| **3.** | **Meeting the Requirements** | |
| 3.1 | Understanding of the ToR | • Please describe your understanding of the services that are to be provided under this ToR, detailing key assumptions that impact the Technical Proposal.<br>• Please discuss how you propose to address some of the sample tasks listed in Section III (Scope of Work) and Section IV (Provision of Software Engineering Services) of the ToR. |
| **4.** | **Contractor's key staff** | |
| 4.1. | Visa & Work Permits | Provide written confirmation that the Bidder understands and agrees to take responsibility for obtaining any Visa and/or work permits, which may be required to perform the Work under the Contract. The CTBTO does not sponsor work permits for contractors. |
| 4.2. | Documentation and Reporting | • Provide written assurance that all reports, documentation, and communication (written and oral) supplied to the Commission shall be in English and submitted in electronic form.<br>• Provide written assurance that all documentation will adhere to the IDC Documentation Standards, samples of which will be provided to the successful Contractor. |
| **5.** | **Model Contract** | |
| | | A statement that the bidder has carefully reviewed the Model Contract and its Annexes and is in agreement with all its terms and conditions. |

## Part II – Compliance Matrix

| Ref No. of ToR | Requirements<br><br>*A section-by-section response to each section of the Terms of Reference is included in the Proposal* | Bidder's Response<br><br>*Please tick whichever is applicable* | | Indicate the section in your Proposal and ensure that it is sufficiently described in the Proposal |
|---|---|---|---|---|
| | | "Yes" | "No" | |
| **Meeting Requirements** | | | | |
| **III and IV** | Understanding of the ToR: Understanding of the scope, and of the duties and responsibilities of the Contractor | | | |
| **Requirements for the Contractor** | | | | |
| **V.1 1.** | At least twelve (12) staff are included in the Team Roster that meet the requirements as described in Section V.2.5 and Section V.2.6. This shall apply for the initial roster and throughout the Contract period. | | | |
| **V.1 2.** | Demonstrated experience implementing at least three (3) projects of similar scope and complexity. | | | |
| **V.1 3.** | Demonstrated experience, in the last five (5) years, in using a recognized formal project management methodology (how the work is to be managed and controlled, risk management, reporting, planning and assurance of quality), such as PRINCE2. | | | |
| **V.1 4.** | Demonstrated experience, in the last five (5) years, in using a formal software engineering methodology and providing services using an Agile framework, such as Scrum. | | | |
| **V.1 5.** | Staff turnover has been and is kept below 20% per year over the past three (3) years. | | | |
| **V.1 6.** | All reports, documentation, and communication (written and oral) supplied to the Commission shall be in | | | |

| | | | | |
|---|---|---|---|---|
| | English and submitted in an electronic form. | | | |
| **V.1 7.** | Warranty period of at least two (2) years after the completion of the user acceptance testing. Terms and conditions of post-warranty support and bug fixes must be available and clearly specified. | | | |
| **V.1 8.** | Working hours of relevant staff (e.g. project manager and lead developers) assigned to a Software Team, to overlap at least two (2) hours with the Commission's working hours (9am to 5pm CET), as deemed necessary by the Commission. | | | |
| **V.1 9.** | Has a documented framework for the Contractor's approach to provide Technical Writing Services. | | | |
| **V.1 10.** | Provide a Risk Management methodology for the execution of the outlined software development activities in these Terms of Reference as per Section VIII. | | | |
| **V.1 11.** **(advantage)** | Use of standard approach for quality assurance, operational efficiency and customer satisfaction, a current CMMI level 3 or higher, or ISO 9001 certification is an asset. | | | |
| **V.1 12.** **(advantage)** | Use of standard approach to manage IT services, preferably ITIL. ISO 20000 certification is an asset. | | | |
| **V.2.3** | Confirmation that the Software Team shall continuously keep abreast of the technological advancements, thereby supporting the Commission by delivering high-quality and innovative software solutions. | | | |
| **Requirement for the Contractor's Personnel / Skills and experience amongst the members of the Team Roster** | | | | |
| **V.2.5** | Requirements' Compliance Matrix for each member of the Team Roster. | | | |
| **V.2.6** | Team Roster Compliance Matrix with the requested skills and experience. | | | |
| **V.2.6.1 to V.2.6.11** | Services Assignment Matrix for Compliance with their related requirements. | | | |

| | | | | |
|---|---|---|---|---|
| **VII** | Confirmation that the Contractor shall adhere to the described standards and the working environment. | | | |
| **RISK MANAGEMENT** | | | | |
| **VIII** | Confirmation that the Contractor shall develop and maintain a Risk Management plan in accordance section VIII of the ToR. | | | |

# PROVISION OF SOFTWARE ENGINEERING SERVICES FOR WAVEFORM AND RADIONUCLIDE OPERATIONAL APPLICATIONS - MULTI-TECHNOLOGY INTEGRATION PORTAL UMBRELLA (MUTIP UMBRELLA) ON A CALL-OFF BASIS

## Overview of the Evaluation Method

### 1. Technical Evaluation

The technical evaluation process will be done in two stages:

Stage 1: Technical proposals will first be evaluated against the mandatory requirements outlined in the Sheet "Table 1 - Evaluation Criteria", on a PASS/FAIL basis. Compliance with all mandatory requirements is required in order to pass stage 1 of the technical evaluation and to be further considered for stage 2 of the evaluation process.

Stage 2: The technical proposals that have passed stage 1 of the technical evaluation process, will be evaluated against the weighted criteria set forth in the Sheet "Table 1 - Evaluation Criteria".

In order to pass this stage, bidders must obtain **a minimum <u>score</u> of 96.60** and in accordance with the scoring indicated in the Sheet "Table 2 – Scoring".
Failing one of the criteria in Stage 2 will not result in the entire technical proposal failing; provided that the technical proposal obtains a minimum score of 96.60 as already stated.

### 2. Financial Evaluation and Commercial Evaluation

Once the technical evaluation is finalized, the financial offers of the technically compliant bidders will be evaluated in accordance with the formula given below:

X= Max Available Points * Y/Z

Legend:
X= points to be assigned to the offer being evaluated
Y= price of the lowest priced, technically compliant offer
Z= price of the offer being evaluated

The weight of the technical and financial components is 60% and 40% respectively, subject to contractual acceptability.
The Contract will be awarded to the bidder who receives the highest combined score resulting from the technical and financial evaluations, subject to contractual acceptability.

| Technical Evaluation: Weighted Criteria | Points and Scoring | | |
|---|---|---|---|
| **Quality of the proposal** | | | |
| Completeness: Extent to which all aspects of the ToR have been addressed in sufficient detail. | 5 | 1 | 5 |
| Clarity: Understanding of the scope, and of the duties and responsibilities of the Contractor. | 5 | 1 | 5 |
| Effectiveness: Suitability of proposed approach/methodology for approaching work and completing deliverables. | 5 | 1 | 5 |
| Confirmation that the Contractor shall adhere to the described standards and the working environment. | 5 | 0.2 | 1 |
| **Subtotal** | **20** | | **16** |
| **Contractor's requirements** | **Max Points** | **Weight/Factor** | **Max Score** |
| Use of standard approach for quality assurance, operational efficiency and customer satisfaction, a current CMMI level 3 or higher, or ISO 9001 certification is an asset. | 5 | 1 | 5 |
| Use of standard approach to manage IT services, preferably ITIL. ISO 20000 certification is an asset. | 5 | 1 | 5 |
| **Subtotal** | **10** | | **10** |
| **Skills and experience amongst the members of the Team Roster** | **Max Points** | **Weight/Factor** | **Max Score** |
| A minimum of five (5) years of experience over the past seven (7) years, in software engineering (eliciting use cases and requirements, design, development, support, maintenance and enhancement, documentation) for operational software systems, preferably geophysical. | 5 | 1 | 5 |
| Demonstrated experience in at least two (2) projects in the development and integration of complex operational software systems, for geophysical and radionuclide applications or related field. | 5 | 1 | 5 |
| A minimum of three (3) years of experience, providing software maintenance and support services for complex and custom software systems. | 5 | 0.2 | 1 |
| An advanced degree in digital signal processing, applied mathematics, physics, electrical engineering or related field, with a minimum of three (3) years of experience in executing projects in the field of digital signal processing. | 5 | 0.2 | 1 |
| A minimum of three (3) years over the past five (5) years of experience in all stages of software development using C programming language. | 5 | 1 | 5 |
| A minimum of three (3) years over the past five (5) years of experience in all stages of software development using java programming language. | 5 | 1 | 5 |
| A minimum of three (3) years over the past five (5) years of experience in all stages of software development python programming language. | 5 | 1 | 5 |
| A minimum of five (5) years of experience in the development of UNIX and Linux-based client/server systems. | 5 | 0.5 | 2.5 |
| A minimum of three (3) years over the past five (5) years, in the development of web applications, preferably Angular. | 5 | 1 | 5 |
| Demonstrated experience in at least three (3) projects working as a Software architect on web-based software projects of similar size and complexity and a minimum of ten (10) years of experience in the field of software engineering. Details shall be provided. | 5 | 1 | 5 |
| A minimum of five (5) years of experience over the past seven (7) years in object-oriented development and design patterns, in particular using service oriented and micro-services architecture designs, exposure to project management methodologies and incremental software development techniques. | 5 | 1 | 5 |
| A minimum of three (3) years of professional experience with SQL and database programming, ideally using Oracle and/or PostgreSQL databases, experience designing data access layers and data models for an application. | 5 | 0.8 | 4 |
| A minimum of one (1) year of experience with ELK (Elasticsearch, Logstash and Kibana). | 5 | 0.2 | 1 |
| Demonstrated experience in at least one (1) project in installing, configuring, administering and operating Big Data Clusters, data flow and data processing distributed systems, open-source message brokers, frameworks and tools, such as Hadoop, Spark, Kafka, Nifi, RabbitMQ. Details shall be provided. | 5 | 0.2 | 1 |
| Working knowledge and experience using the GNU Autotools and RPM for software packaging, compilation and distribution | 5 | 0.2 | 1 |
| A minimum of two (2) years of experience in integrating applications with an Identity Management platform, preferably (but not limited to) Oracle Identity/Access Manager and MS Azure AD. | 5 | 0.2 | 1 |
| A minimum of two (2) years of experience in both source-code-level and configuration-level invocation of single sign-on, identity, authentication and authorization federation protocols such as SAML, OAuth 2.0, OpenID. | 5 | 0.2 | 1 |
| Demonstrated experience in at least two (2) projects showing the capability to timely address sensitive issues. | 5 | 0.2 | 1 |
| A minimum of seven (7) years of experience over the past ten (10) years demonstrating expert knowledge, and a related university (or equivalent) degree, in the field for which senior engineering support (see Section IV.3) is required. Details shall be provided. | 5 | 0.5 | 2.5 |
| A minimum of five (5) years of experience over the past seven (7) years as a system analyst, project manager or both, in an information system. | 5 | 0.5 | 2.5 |
| A minimum of three (3) years of experience delivering interactive, data-intensive applications including embedded and/or web applications in a Project Management and Scrum Master role (or equivalent role in another Agile framework). | 5 | 0.5 | 2.5 |
| A minimum of three (3) years of experience using a disciplined approach for planning, designing, executing and reporting on software testing. | 5 | 0.5 | 2.5 |
| Experience with scripting techniques for automated testing and continuous integration and deployment. Details shall be provided. | 5 | 0.5 | 2.5 |
| A minimum of two (2) years of experience with GitLab CI and/or Jenkins. | 5 | 0.8 | 4 |
| Proven records of effective communication, presentation and facilitation. Details shall be provided. | 5 | 1 | 5 |
| Proven records of team leadership. Details shall be provided. | 5 | 0.5 | 2.5 |
| A minimum of two (2) years of experience as a Technical Writer on projects with similar scope, that demonstrate the solid understanding of Software development methodologies and the ability to conduct research into a wide range of IT issues and proven ability to write technical documentation. | 5 | 0.2 | 1 |
| A minimum of three (3) years of experience over the past five (5) as a User Experience and Interaction designer on projects with similar scope, that demonstrate the solid understanding of Software development methodologies. | 5 | 0.5 | 2.5 |
| A minimum of three (3) years of experience as a business analyst or equivalent, having in-depth knowledge of requirements engineering, definition of requirements engineering processes and practices. | 5 | 1 | 5 |
| A minimum of three (3) years of experience over the past five (5) years designing and implementing a disciplined approach for continuous integration, out of which a minimum of two (2) years of experience using Docker containers and Kubernetes. | 5 | 0.8 | 4 |
| A minimum of three (3) years of experience over the past five (5) years of experience in executing projects in the field of data science or scientific visualization. | 5 | 0.8 | 4 |
| A minimum of two (2) years of experience over the past five (5) years in developing geospatial/digital mapping applications. | 5 | 0.8 | 4 |
| Developer on at least two (2) projects involving programming using 2D/3D scientific visualization libraries (visualizations of time series, histograms, surface plots, scatter plots, spectrograms). | 5 | 0.8 | 4 |
| Demonstrated experience in at two (2) projects with data modelling and data warehousing, knowledge of data structures and algorithms. Details shall be provided. | 5 | 0.2 | 1 |
| **Subtotal** | **170** | | **104** |
| **Capacity and Technical Expertise to deliver services listed in section IV of the ToR** | **Max Points** | **Weight/Factor** | **Max Score** |
| Personnel Capacity with needed Technical Expertise to provide Software Development and Enhancement | 5 | 1 | 5 |
| Personnel Capacity with needed Technical Expertise to provide Software Support and Maintenance | 5 | 0.2 | 1 |
| Personnel Capacity with needed Technical Expertise to provide Senior Software Engineering Support | 5 | 0.5 | 2.5 |
| Personnel Capacity with needed Technical Expertise to provide Agile Support | 5 | 0.5 | 2.5 |
| Personnel Capacity with needed Technical Expertise to provide Software Testing Support | 5 | 0.5 | 2.5 |
| Personnel Capacity with needed Technical Expertise to provide Technical Writing | 5 | 0.2 | 1 |
| Personnel Capacity with needed Technical Expertise to provide User Experience and Interaction Design Expertise | 5 | 0.5 | 2.5 |
| Personnel Capacity with needed Technical Expertise to provide Software Architecture Expertise | 5 | 1 | 5 |
| Personnel Capacity with needed Technical Expertise to provide CI/CD/DevOPS Support | 5 | 0.8 | 4 |
| Personnel Capacity with needed Technical Expertise to provide Digital Signal Processing Engineering Support | 5 | 0.2 | 1 |
| Personnel Capacity with needed Technical Expertise to provide Scientific Visualization Software Engineering Support | 5 | 0.8 | 4 |
| **Subtotal** | **55** | | **31** |
| **TOTAL - Technical Evaluation** | **255** | | **161** |

**TABLE 2 - Scoring**

| Points | Explanation - to be considered when assigning the points |
|---|---|
| 0 | Unsatisfactory - Response incomplete, inadequate and/or non-responsive to the criterion. Bidder does not clearly understand the criterion. |
| 1 - 2 | Weak - Does not meet the minimum technical, functional, or performance related criterion. |
| 3 | Good - Meets the minimum requirements of the criterion. |
| 4 | Very good - Exceeds the minimum requirements of the criterion in some areas. |
| 5 | Excellent - Exceeds the minimum requirements of the criterion in all areas. |

## ATTACHMENT 3
## Summary of Financial Proposal

**RFP No. 2024-0154/MOGAPI:**
**PROVISION OF**
**SOFTWARE ENGINEERING SERVICES FOR WAVEFORM AND RADIONUCLIDE OPERATIONAL APPLICATIONS - MULTI-TECHNOLOGY INTEGRATION PORTAL UMBRELLA (MUTIP UMBRELLA)**
**ON A CALL-OFF BASIS - FRDs**

| MAX QUANTITY UNDER EACH PERIOD | CALL-OFF PERIOD 1 - 24 months for <u>max of 3800 days</u> in EUR or USD | CALL-OFF PERIOD 2 (OPTIONAL) - 24 months for <u>max of 3800 days</u> in EUR or USD | CALL-OFF PERIOD 3 (OPTIONAL) - 24 months for <u>max of 3800 days</u> in EUR or USD |
|---|---|---|---|
| **Fees** | | | |
| **Staff fee - Off-site** | | | |
| **Proficiency level** | Daily Rate | Daily Rate | Daily Rate |
| Junior | | | |
| Standard | | | |
| Expert | | | |
| | | | |
| **Staff fee - On-site** | | | |
| **Proficiency level** | Daily Rate | Daily Rate | Daily Rate |
| Junior | | | |
| Standard | | | |
| Expert | | | |
| | | | |
| **Travel costs** | Lump Sum | Lump Sum | Lump Sum |
| Return transport cost for 1 return trip (if applicable) - *Maximum 8 return trips per Call-Off Period* (on the seperat sheet please specfy the destion and break down of lump sumproposed) | | | |
| | | | |
| Other costs (if applicable) | | | |
| | | | |
| | | | |
| **Overall total** | | | |

**NOTES:**

1) Please specify currency (USD or Euro only). The rates shall be firm and fixed throughout the term of the Contract.

2) This is a unit-based Contract. The exact number of working days will be determined/called-off in the form of Formal Request for Delivery (FRD) at the rates quoted in this Attachment.

3) The person-days noted are an upper limit, and the Commission reserves the right, at its sole discretion, to call-off fewer person-days or no person-days at all.

4) Estimated costs for travel based on the most economic and direct route shall be specified in the Financial Proposal. Bidders shall indicate whether the travel costs (without DSA) are firm and fixed for the duration of the Contract, or they are estimated. In the case the travel costs are estimated, payment shall be based on actual costs against relevant supporting documentation e.g. invoices for travel, and shall not exceed 10% of the estimate.

5) If applicable, Daily Subsistance Allowance (DSA) shall be calculated based on the values provided by the International Civil Service Commission (ICSC) https://icsc.un.org/. Daily subsistance/per diem will be reimbursed at the applicable Daily Subsistance Allowance (DSA) rate of the United Nations (and UN EUR/USD exchange rate, if applicable).

# Attachment 3

## "Procedure for Submission of Electronic Offers in 2 Sealed Files"

The Commission invites you to submit your sealed offer (Bid, or Proposal) in response to the solicitation forming part of this request.

**Please be sure to follow the instructions below very carefully, so that the documents you submit are encrypted, and cannot be opened without an encryption key (password). If the documents are not encrypted, they will not be accepted as part of this tender process.**

## CRITICAL INFORMATION:

Create separate zip files for the technical offer and the financial offer (labeling them clearly in the title) with different encryption keys. Instructions for how to do this are provided below.

**Step 1: You provide the encryption key (password) for the *Technical Offer only* (in accordance with the below instructions)!**

**Step 2: After the Commission has performed the evaluation of the Technical Offer, if your Technical Offer is considered to be acceptable, the Commission will request the encryption key (password) for the Financial Offer you have already submitted by the tender Deadline.**

Should you have any questions, please send an email to procurement@ctbto.org.

**We recommend that you leave yourself plenty of time to complete the below process (including getting any necessary assistance from the Commission), as late offer will not be accepted.**

## INSTRUCTIONS:

1.  In a **WINDOWS** environment, one way of meeting the requirements is as follows.

    We recommend using the open-source, free software **7-zip**, but if you are comfortable with other tools, the result should be the same, as long as you can apply encryption to the archive. In the below, we'll use 7-zip as an example.
    (You can download the 7-zip code for Windows at: 7-zip.org )

2.  In **LINUX** environment, you can use, for instance, "sha1sum" on the command line.

**Creating the archives for submission**

Regardless of whether the offer is a single file, or a collection of files, the files are easier to manage if delivered as a single, compressed file. Compressing the archive is a common way to meet size limitations in email systems.

As an example of how to submit your offer in the required format: assuming you are supplier "SOFTCOMP" and have the following files related to the offer for "RFP 2020-0010/EDWALD". *(You will need to replace these elements with the real information for your actual offer in line with the relevant Instructions for Preparation and Submission of Proposals/Bids.)* Assuming further that you have installed the 7-zip software on the Windows system you are using.

We will only go through the creation of the Technical Offer (Proposal/Bid) component; the Financial Offer (Proposal/Bid) component is similar.
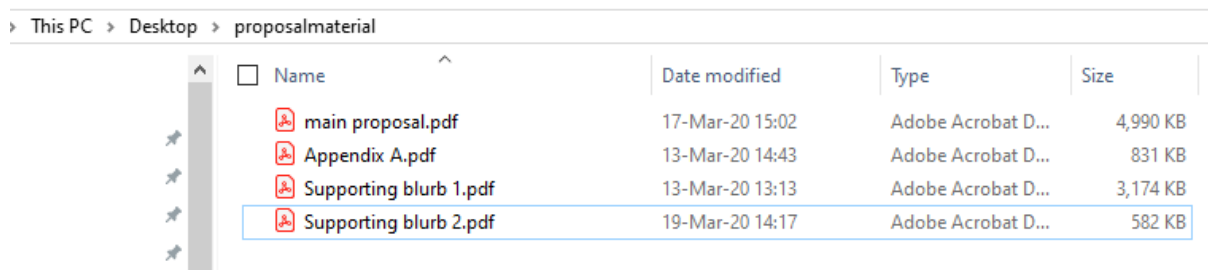


*Figure 1 An example set of files to be submitted*

Select the four files and right-click; a Dialog box pops up, with one of the options being "**7-ZIP   >**". Hover your cursor over the "  **>**" part and a few more options appear, select the "**Add to archive**" option.

Another dialog box pops up (see 'Figure 2, *Creating an Archive*', next page):

Using the standard Windows methods, select a suitable location for the archive (if you don't change it, the archive gets created right where the selected files are), and give it a name in the form of: "SOFTCOMP-2020-0010-EDWALD-TECHNICAL-BID", of course replacing all the elements with the true values for the offer in question: the actual company indicator, and the actual RFP/ITB identification string. Note that it is not possible to put a slash "/" in the filname, and therefore put a dash "-" instead. Leave the file extension ".zip' as is.

Leave all the other settings as is, except: **add a password to the encryption** (see figure 2 below). This is done by typing the same password (of your choosing) twice in the two text fields in the lower right hand corner.

***Make a note of this password. You must choose different passwords for the two zip archives, that is, the Technical and the Financial Proposal/Bid.***
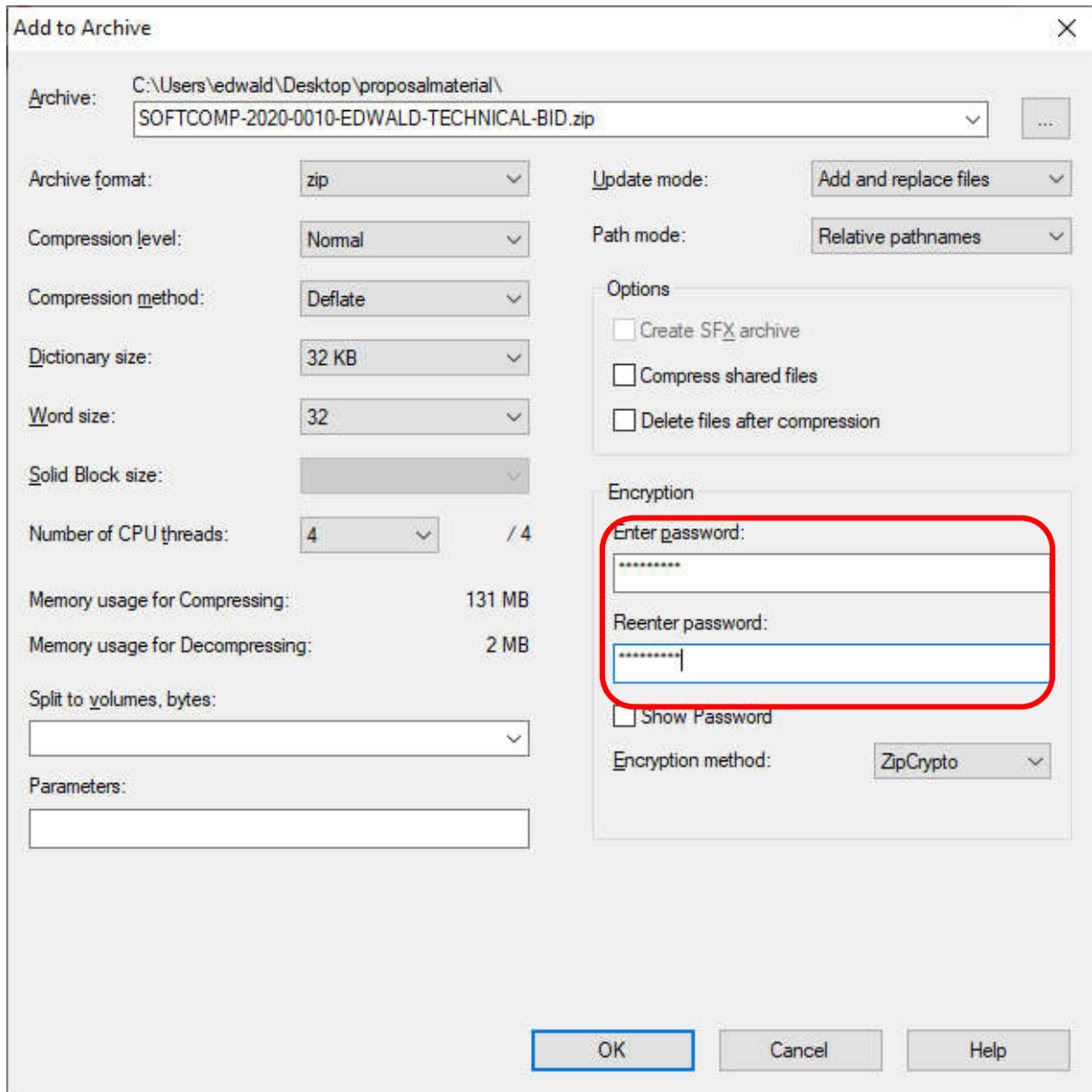
*Figure 2 Creating an Archive*

Now, we seek the "SHA1 Hash", and electronic fingerprint of the archive you have just created. The hash is a string calculated from your file(s) and can be used to guarantee that the file has not been modified since you created it. Any change to the file will result in a different hash value.

There are many ways of calculating this; two common options are decribed below.

If the appropriate functionality is available in your Windows environment: Select the compressed archive in the Windows file manager, (eg. SOFTCOMP-2020-0010-EDWALD-TECHNICAL-BID.zip) and right click. One of the options to select is "**CRC SHA  >**". Hovering over the "  **>**" brings a few more options to light, select the **SHA-1** option. A smaller dialog pops up: (see Figure 3, *SHA1* below).

Clicking Ctrl-C grabs the contents of this box.  You can close the box after copying the contents. (You can paste the contents into a mail message, for instance.)
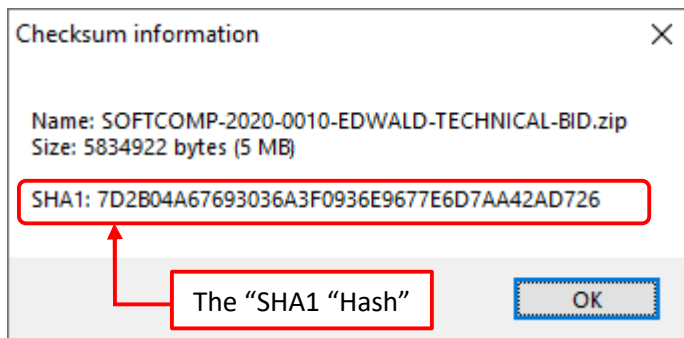


*Figure 3  SHA1*

If this CRC SHA function is not available by 'right-click' on your Windows version, you can also do this from 'the command line', a slightly more complicated way.  Open a CMD window (see sidebar below), move to the folder where your archive is, and execute the command:
"`certutil –hashfile SOFTCOMP-2020-0010-EDWALD-TECHNICAL-BID.zip sha1`"
where you obviously replace the name of the file with your real file name.  The output of this command is the SHA1 "hash".  You can copy-and-paste the string for use in the email (below).

---

Sidebar: How to open a CMD window in Windows:

The way to open a Command window (or 'terminal') depends on the version of Windows you have.  The different methods are very clearly described in the following article, but a quick internet search will find multiple descriptions.

https://www.lifewire.com/how-to-open-command-prompt-2618089

---

Finally,

1.  Create a new email, Subject: example- "SOFTCOMP-2020-0010-EDWALD".  Add the two compressed archives, that is, the Technical Offer and the Financial Offer archives as attachments.  The text of the email should contain the SHA1 information for both archives. **SEND THIS TO:**  sealed_bids@ctbto.org   (note that there is an underscore "_" between "sealed" and "bids"). (Should the email become larger than your mail system allows, you can try sending the two archives in separate emails.  Take care to include the right SHA1 information with each file.)

2.  Create a new email, Subject: example- "SOFTCOMP-2020-2010-EDWALD-Technical Offer" the contents of which must contain the Encryption Key for the Technical Offer (the password

*Procedure for Submission of Electronic Offers in 2 Sealed Files*

you used when creating the Technical Offer). (Again, note the underscore between 'bid' and 'keys'.)

**SEND THIS TO:** bid_keys@ctbto.org

**IMPORTANT NOTE:**  As stated above, only send the Encryption Key for the Technical Offer to the bid_keys@ctbto.org mailbox when sending your Technical and Financial Offer to the sealed_bids@ctbto.org mailbox.  You shall only send the Encryption Key for the Financial Offer to the Commission if and when informed by the Commission that your Technical Offer had been evaluated as "technically acceptable".

The Financial Offer Encryption Key will need to be provided by you to the same e-mail (bid_keys@ctbto.org) within 48 hours of the Commission's request, clearly marked in Subject: Encryption Key for (example):"SOFTCOMP 2020-2010 EDWALD-Financial Offer".  If your Offer is not considered "technically acceptable", the Commission will not request an Encryption Key for your Financial Offer, and it will remain unopened.

As mentioned above, should you have questions or difficulties, please send an e-mail to procurement@ctbto.org.

**We recommend that you leave yourself plenty of time to complete the above process (including getting any necessary assistance from the Commission), as late offers will not be accepted.**

# MODEL CONTRACT

(Shopping Cart No.        )
(SAP No.        )

between

THE PREPARATORY COMMISSION

FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY

ORGANIZATION

and

THE NAME OF THE CONTRACTOR

for

PROVISION OF
SOFTWARE ENGINEERING SERVICES FOR WAVEFORM AND
RADIONUCLIDE OPERATIONAL APPLICATIONS - MULTI-
TECHNOLOGY INTEGRATION PORTAL UMBRELLA (MUTIP
UMBRELLA)
ON A CALL-OFF BASIS

This Contract comprises this cover page, a table of contents, 8 (eight) pages of text, a signatories page, a List of Annexes and 3 (three) Annexes (A to C)

September 2024

# TABLE OF CONTENTS

## [TO BE UPDATED ONCE SPECIFIC CONTRACT IS PREPARED]

# MODEL CONTRACT

This Contract is entered into between the PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION (hereinafter referred to as the "Commission"), having its office located at Vienna International Centre, Wagramer Strasse 5, 1400 Vienna, Austria, and _____ (hereinafter referred to as the "Contractor"), having its registered office located at _____ [address] (both hereinafter individually referred to as the "Party" and collectively as the "Parties").

The Parties hereto mutually agree as follows:

## 1    DEFINITIONS

In this Contract, words and expressions shall have the same meanings as respectively assigned to them in the General Conditions of Contract and the Terms of Reference. In addition, the following words and expressions shall have the meanings hereby assigned to them:

**"Annex A"** means the Commission's General Conditions of Contract.

**"Annex B"** means the Commission's Terms of Reference.

**"Annex C"** means the Contractor's Proposal.

**"Contract"** means this document, its Annexes, FRD, and any further modifications or such further documents as may be expressly incorporated in this Contract by the Parties in accordance with Clause 21 (Contract Amendment) below.

**"Contractor"** means the legal entity named in the preamble of this Contract or its successors. The Contractor shall be the only interface for all matters pertaining to execution of the Work under this Contract.

**"FRD"** means a Formal Request for Delivery to be issued by the Commission specifying Goods and/or Services to be provided by the Contractor upon request by the Commission in accordance with the provisions of the Contract.

**"Goods"** means the goods and/or equipment items to be supplied and delivered by the Contractor under the Contract as requested by the Commission under the FRDs.

**"Services"** means services provided by the Contractor under this Contract as requested by the Commission under FRDs.

**"Party(ies)"** means the Commission and/or the Contractor, as the context requires.

**"Rule(s)"** means any regulation(s), official directive(s), ordinance(s), guideline(s), customs and practices.

**"Work"** means all the Goods and/or Services to be provided by the Contractor, including its affiliates and/or subcontractors, in order to fulfil all its obligations under the Contract, and the remedying of any defects therein.

## 2   AIM OF THE CONTRACT

The aim of this Contract is to provide software engineering services for Waveform and Radionuclide Operational Applications (hereinafter referred to as the "Work") on a call-off basis as and when required by the Commission.

## 3   ENTRY INTO FORCE AND DURATION OF THE CONTRACT

The Contract shall enter into force upon the date of the last signature by the authorized Representatives of the Parties (hereinafter referred to as the "**Effective Date**") and shall be valid until the Parties fulfill all their obligations hereunder.

## 4   COMMENCEMENT AND COMPLETION OF THE WORK

(a) The Commission shall have the right, but not obligation, to call-off the Work in the form of FRDs within a period of twenty-four (24) months from the Effective Date, or the performance of a maximum of three thousand eight hundred person-days (3800) by the Contractor, whichever occurs first (hereinafter referred to as the "**Call-off Period**"). The commencement and completion date for the performance of the Work (hereinafter referred to as "**Commencement Date**" and "**Completion Date**", respectively) will be set out in the respective FRDs. This sub-Clause (a) shall also apply to any extension exercised under sub-Clause (b) below.

(b) The Commission shall have the option to extend the Call-off Period two (2) times, for a first optional extension period of twenty-four (24) months or the performance of a maximum of three thousand eight hundred person-days (3800) by the Contractor, whichever occurs first, and for a second optional extension period of  twenty-four (24) months or the performance of a maximum of three thousand eight hundred person-days (3800) by the Contractor, whichever occurs first, subject to the availability of funds, under the same terms and conditions as those of this Contract. The Commission will inform the Contractor about its intention to extend the Work at least one (1) month prior to the expiry of the Contract.  The optional extensions will be implemented through a written notification to the Contractor by the Commission.

## 5   STANDARD OF WORK

The Contractor shall perform the Work in a workmanlike manner in conformity with standard professional practices, using qualified personnel and in strict accordance with the Contract. The Contractor shall furnish the highest skill and judgement and cooperate with the Commission, including all the Commission's consultants and agents, in best furthering the interests of the Commission and the aim of this Contract. The Contractor shall provide efficient business administration and supervision, and it shall perform the Work in the best way and in the most expeditious and economical manner consistent with the requirements of the Contract.

## 6 RESPONSIBILITIES OF THE CONTRACTOR

(a) The Contractor shall provide the Work described in Annexes B and C.

(b) The Contractor shall provide qualified English-speaking personnel as necessary to perform the Work under this Contract. The key persons shall be available for possible tasks related to the Work throughout the duration of the Contract period. Any replacement of the key personnel shall be made in accordance with Clause 7 of Annex A.

(c) The Contractor acknowledges that after the completion of the Work under this Contract, the Commission shall own the Software and source code described in Annex B and developed in this Contract and the Contractor shall have no rights in that Software or source code unless granted by the Commission under Clause 24 of this Contract or in writing under a separate agreement.

## 7 ORGANISATION OF CONTRACT IMPLEMENTATION

(a) During the term of the Contract, the Commission has the right, but not the obligation, to initiate performance of the Work through the issuance of individual FRDs in accordance with Annex B based on the firm fixed unit prices set out in Annex C. The Contractor shall not perform any Work if not requested by the Commission through an FRD. However, the Contractor may propose a FRD for the Commission's evaluation.

(b) The FRD issued by the Commission shall be the basis for acceptance, invoicing and payment of any Work performed by the Contractor.

(c) The performance of the Work shall be made in full in accordance with the respective FRD. Partial service performance of a FRD will not be accepted and reimbursed without prior written agreement by the Commission.

(d) The Work shall be performed at the place and within the approved Work Plan specified in the relevant FRD.

(e) The Commission may revise a FRD as and when it may deem necessary.

## 8 WARRANTY

(a) The provisions of Clause 28 of Annex A shall apply to the Work performed by the Contractor.

(b) The Contractor shall ensure that the Commission shall experience no loss of service or support level by sub-contractors or repair agents acting on behalf of the Contractor.

## 9 PERMITS, NOTICES, LAWS AND ORDINANCES

(a) The Contractor shall obtain and pay for all permits and inspections necessary for the proper execution and completion of the Work that are customarily obtained upon execution of this Contract and that are legally required at the time the Proposal is received by the Commission. This shall include, but not be limited to, work permits, visa, or similar.

(b)     The Contractor shall give all notices required by the nature of the Work.

(c)     If the Contractor notices that the Work or any part thereof required under this Contract is not in accordance with applicable laws and Rules, or with technical or safety standards, it shall promptly notify the Commission thereof in writing.

## 10   PROTECTION OF PERSONS AND PROPERTY

(a)     The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programmes in connection with the Work.

(b)     The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury and loss to:

   (i)    all employees on the Commission's premises and all other persons who may be affected thereby;

   (ii)   all the Work, equipment, its spare parts, materials and supplies to be incorporated therein, whether in storage on or off the Commission's premises, which are under the care, custody or control of the Contractor or any of its subcontractors; and

   (iii)  other property on the Commission's premises or adjacent thereto.

(c)     The Contractor shall give all notices and comply with all applicable laws and Rules bearing on the safety of persons and property and/or their protection from damage, injury and loss.

(d)     The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for the safety and protection of persons and property, including posting danger signs and other warnings against hazards and promulgating safety regulations.

(e)     When the use or storage of combustible, explosive or other hazardous materials is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

(f)     The Contractor shall be responsible for the prevention of accidents on the Commission's premises during the execution of the Work.

(g)     In any emergency affecting the safety of persons or property, the Contractor shall promptly act to prevent threatened damage, injury and loss.

(h)     The Contractor shall promptly remedy all damage and loss to any property, referred to in Sub-Clause (b) above, caused in whole or in part by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under Sub-Clause (b) above, except damage and loss attributable to the acts or omissions of the Commission or anyone directly or indirectly employed by it, or of anyone for whose acts the Commission may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to its obligations under Clause 9 of Annex A.

## 11 RESPONSIBILITIES OF THE COMMISSION

The Commission shall designate members of its staff to act as points of contact for the Contractor to ensure that the Work is carried out in accordance with Annexes B and C and shall promptly notify the Contractor thereof. The Commission shall respond promptly to requests for information by the Contractor regarding the Work.

## 12 CONTRACT PRICE

(a)    For each FRD issued during the Call-off Period specified in Clause 4 above, the Commission shall pay to the Contractor, in consideration of the full and proper performance of its obligations under the Contract, as follows:

    (i)    A firm fixed person-day rate pursuant to Annex C;

    (ii)    If applicable, daily subsistence allowance (DSA) based on the applicable United Nations DSA rates published by the International Civil Service Commission (ICSC);

    (iii)    If applicable, the actual incurred travel costs, excluding DSA, based on the most economic and direct route and relevant supporting documentation of costs actually incurred subject to Clause 13(a)(ii) below;

(hereinafter altogether referred to as the "**Contract Price**").

(b)    The person-day unit prices set out in Annex C shall be held fixed for the entire duration of the Contract.

(c)    The Contract Price shall cover all costs and expenses incurred by the Contractor for the full and proper performance of all relevant obligations under the Contract (including travel, allowances, management and remuneration of the personnel, national income tax, medical insurance, and social security contributions).

[OR]:

(d)    The Contractor shall be reimbursed by the Commission for such taxes on the basis of actual amounts paid and duly documented by the Contractor as per Clause 13(e) below.

OR

(e)    No Taxes are applicable under this Contract.

## 13 PAYMENT

(a)    The Contract Price shall be paid upon satisfactory completion of each deliverable for the Work and satisfactory completion of each FRD and submission of the following:

    i)    Invoice drawn up in accordance with this Clause 13;

---

ii)    If applicable, supporting documentation referred to in Clause 12(a)(iii) above. Payment by the Commission of any such estimated travel costs shall not exceed 10% (ten percent) of the estimated amount in the FRD;

iii)   Any other documentation that might be required under the applicable FRD.

(b)    The Commission will make the payments to the Contractor on the basis of an invoice submitted by the Contractor as per Sub-Clause (d) below.  All payments shall be made within 30 (thirty) days of the receipt and acceptance of the invoice, provided that the Work has been satisfactorily completed and has been accepted by the Commission.

(c)    The making of any payment hereunder by the Commission shall not be construed as an unconditional acceptance by the Commission of the Work accomplished by the Contractor up to the time of such payment.

(d)    The Contractor shall submit an invoice electronically, from the Contractor's official e-mail address in PDF format, duly signed and stamped by the Contractor and submitted to the Commission's email address specified in Clause 22 below. Each invoice shall contain the Contract number (CTBTO and SAP numbers), detailed banking instructions, including the name and address of the Contractor's bank, account number, account holder's name and SWIFT, IBAN and/or ABA codes for payment by electronic transfer.

**[PARAGRAPH (e) BELOW ONLY APPLIES IF THERE ARE TAXES (SEE CLAUSE 12 (d) ABOVE). IF NO TAXES ARE APPLICABLE UNDER THIS CONTRACT, PARAGRAPH (e) SHALLBE OMITTED.]**

(e)    Applicable Taxes payable by the Contractor and/or its subcontractor(s) in respect of the Work shall be invoiced separately or be separately identified on the invoice. Actual payment of the Taxes must primarily be supported by original documentation such as invoices, bank account statements, transfer orders, or receipts issued by the local tax or customs authorities. If submission of such original documentation is not possible for justifiable reasons, their copies could be accepted by the Commission provided that they are duly signed and certified by local tax or customs authorities.  In case the currency in which the Taxes are levied is not the currency of the Contract, bank statements (or equivalent) showing the exchange rate used for the conversion should be submitted to the Commission, in addition to any other supporting documentation.

## 14   TEMPORARY SUSPENSION OF WORK

The Commission may, at any time, temporarily suspend the Work, in whole or in part, being performed by the Contractor under this Contract by giving 30 (thirty) days' advance notice in writing to the Contractor. The Work so suspended shall be resumed by the Contractor on the basis of a revised time schedule and on terms and conditions to be mutually agreed upon between the Parties.

## 15   DELAYS AND EXTENSION OF TIME

(a)    If the Contractor is delayed at any time in the progress of the Work by any act or omission of the Commission or by any of its employees, or by any other contractor employed by the Commission, or by changes in the Work ordered by the Commission, or by any causes

beyond the Contractor's reasonable control, or by any other cause which the Commission determines may justify the delay, then the time for completion of the Work shall be extended by an amendment to this Contract in accordance with Clause 21 below for such reasonable time as the Commission may determine.

(b)     Any request for extension of the time for reasons referred to in Clause 15(a) above shall be submitted to the Commission not later than 20 (twenty) days after the commencement of the delay, otherwise said request shall be deemed to be waived. Such request shall state grounds for the delay and shall provide an estimate of the probable effect of such delay on the progress of the Work.

## 16  CONTRACTOR'S CLAIMS AND REMEDIES

In no event shall the Contractor make any claim against the Commission for or be entitled to additional costs or compensation resulting from any delays in the progress or completion of the Work or any portion thereof, whether caused by the acts or omissions of the Commission, including, but not limited to, damages related to overheads, loss of productivity, acceleration due to delay and inefficiency. The Contractor's sole remedy in such event shall be an extension of time for completion of the Work, provided the Contractor otherwise meets the requirements and conditions set forth in this Contract.

## 17  ENTIRE AGREEMENT

This Contract represents the final agreement in respect of the Work and shall supersede all prior agreements and representations between the Parties in this respect. Annexes A to C and the relevant FRD shall constitute integral parts of this Contract and shall be of full force and effect.

## 18  DISCREPANCIES

If there are discrepancies or conflicts between any of the documents that are part of this Contract, the document to prevail shall be given precedence in the following order:

(i)   This document;

(ii) The Commission's General Conditions of Contract (Annex A);

(iii) The Commission's Terms of Reference (Annex B);

(iv) The Contractor's Proposal (Annex C);

(v) The relevant FRD.

## 19  SEVERABILITY

If any term and/or provision of this Contract is or becomes invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions of this Contract shall not in any way be affected or impaired thereby.

## 20  NO WAIVER

Failure by a Party to enforce a right shall not be deemed to be a waiver of that right unless otherwise expressly provided in this Contract.

## 21  CONTRACT AMENDMENT

No modification of, or change in, this Contract, or waiver of any of its provisions, or additional contractual relationship with the Contractor shall be valid unless approved in the form of a written amendment to this Contract, signed by duly authorized Representatives of the Parties.

## 22  TRANSMISSION OF NOTICES AND OTHER DOCUMENTS

Notices, invoices, reports and other documentation under the Contract shall be delivered or sent to the relevant Party as follows (or to such person/title, address or email address as the Party may substitute by notice after the date of the Contract):

(a)     The Commission:

For Contractual Issues:

*Chief, Procurement Services Section*
*Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO)*
*Vienna International Centre*
*Wagramerstrasse 5, P.O. Box 1200*
*1400 Vienna, Austria*
*Tel: + (43 1) 26030 6350*
*E-mail: procurement@ctbto.org*

For submission of invoices:
*Accounts Payable*
*CTBTO Financial Services Section*
*Vienna International Centre*
*Wagramerstrasse 5, P.O. Box 1200*
*1400 Vienna, Austria*
*Tel: + (43 1) 26030 6292*
*E-Mail: Payable_Invoices@ctbto.org*

For invoices and payment related enquiries:
*Payments@ctbto.org*

(b)     The Contractor:

For Contractual Issues and Invoices and Related Enquiries:

*Name: ……………*
*Title ………………*
*Address ………………*

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*Model Contract – Provision of software engineering services for Waveform and Radionuclide Operational Applications - Multi-Technology Integration Portal Umbrella (MuTIP Umbrella) on a call-off basis-September 2024*

*Tel: …………………..*
*Email: ………………..*

## 23   EFFECTIVENESS

(a)   Except as provided below, any communication in connection with the Contract will be deemed to be given as follows:

  (i)    if delivered in person, at the time of delivery;

  (ii)   if by registered mail or courier, when received;

  (iv)   if by electronic communication, when retrievable by the Commission in document form.

(b)   A communication given under Clause 23(a) above that is received or becomes retrievable on a non-working day or after business hours at the seat of the Commission will only be deemed to be given on the next working day of the Commission.

## 24   SOFTWARE LICENCE

The Commission hereby grants the Contractor a non-exclusive, non-transferable, irrevocable license to use the Software for the duration of the Contract and for the purpose of doing the Work under the Contract. The use of the source code is only for the duration of the Contract and for the Work required under the Contract. All title, ownership rights and intellectual property rights in and to the Software shall remain with the Commission. The Contractor acquires no title, right or interest in the Software, other than the license(s) specifically granted herein by the Commission.

IN WITNESS hereof, the duly authorized Representatives of the Parties have executed this Contract:

For and on behalf of the **PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION:**

_____

[Name and Position]

Date: _____                              Place: <u>Vienna, Austria.</u>

For and on behalf of **[REGISTERED NAME OF THE CONTRACTOR]:**

_____

[Name and Position]

Date: _____                              Place: _____

**LIST OF ANNEXES**


**ANNEX A**: THE COMMISSION'S GENERAL CONDITIONS OF CONTRACT

**ANNEX B**: THE COMMISSION'S TERMS OF REFERENCE

**ANNEX C**: THE CONTRACTOR'S PROPOSAL

# ANNEX B
# TERMS OF REFERENCE

# FOR THE PROVISION OF
# SOFTWARE ENGINEERING SERVICES FOR WAVEFORM
# AND RADIONUCLIDE OPERATIONAL APPLICATIONS -
# MULTI-TECHNOLOGY INTEGRATION PORTAL
# UMBRELLA (MUTIP UMBRELLA)
# ON A CALL-OFF BASIS

# I.  INTRODUCTION

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (hereinafter referred to as the "Commission") operates a global verification regime to monitor compliance with the Comprehensive Nuclear-Test-Ban Treaty. It provides timely data, assessments and other products and services to Signatory States of the Treaty. The International Monitoring System (IMS), consisting of 337 monitoring facilities worldwide, is managed from the Commission's International Data Centre (IDC) in Vienna, Austria. More information can be found under www.ctbto.org.

The Commission develops and operates software to acquire, transmit, receive, monitor and process data from seismic, hydro-acoustic, infrasound and radionuclide stations from around the world. The data are transmitted to the IDC.

The IDC is responsible for continuously monitoring and reporting on the operational status of the IMS facilities, of communication links, and of its own processing systems. The IDC provides immediate notification to those responsible should the operational performance of any component fail to meet agreed levels set out in the relevant operational manual.

With the combined objectives of building up, maintaining, sustaining and operating the IMS network, and with supporting IDC activities from data acquisition to bulletin production while staying synchronised with the latest technological and scientific advancements, the Commission seeks to establish a new Contract for the provision of software engineering services for waveform and radionuclide operational applications. The requested Services aim to extend and enhance the Commission internal portal developed under the framework of Multi-Technology Integration Portal Umbrella (hereinafter referred to as the "MuTIP Umbrella").

## II. Background

From station establishment by IMS to bulletin production at the IDC, many actors across the technical divisions of the Commission need the highest level of quality and support for their core activities. They usually work with several tools accessed at the same time and sometimes under time constraints, and therefore they need an efficient and easy way of accessing the different sources of information and report on IMS data and IDC products.

The Multi-Technology Integration Portal (hereinafter referred to as "MuTIP") is a platform that aims at supporting several key functions and activities of technical staff of the Provisional Technical Secretariat (hereinafter referred to as the "PTS"), mainly IMS and IDC, such as:

- Support IDC products production and analysts' review activities.
- Assessment of the operational status of IMS stations.
- Assessment of IMS station/network status and performance that can be used as an input for sustainment studies.
- Assessing data quality (e.g. noise levels, calibration).
- Supporting station testing to optimize downtime or transition time between work at the station and implementation of station configuration parameters in IDC operations.
- Advancing technology knowledge and sharing across the technical divisions.

MuTIP is developed as a centralizing portal to guide users to the relevant expert tools and to facilitate access to the information through aggregation and representation of results coming from a variety of data sources (eg. Oracle database, PostgreSQL, InfluxDB, etc.). The portal is developed using Liferay (Java 8 backend and AngularJS frontend). It has some python modules to preprocess the data before displaying it into the portal.

Since 2019, the MuTIP Umbrella framework has been created to allow for a heterogenous software ecosystem and to allow other tools and services to be plugged to MuTIP. This framework allows the users to focus on the business value while providing an abstraction layer and clear interface for further integration with the centralized portal MuTIP.

# III. SCOPE OF WORK

The Commission seeks to establish a Call-off Contract with an Initial Call-off Period of two (2) years, subject to two (2) optional extensions of two (2) years each (two additional Call-off Periods) for a maximum Contract duration of six (6) years. These Terms of Reference (hereinafter referred to as "ToR") form the technical framework for the provision of on-site and off-site software engineering services for waveform and radionuclide operational applications (hereinafter referred to as "Services" or "Work").

The maximum volume of work under the Call-off Periods is shown in the table below. This volume serves only as an indication, and the Commission reserves the right, at its sole discretion, to call-off less or no person-days at all. The maximum number of days includes both off-site and on-site work.

|  | Years | Person-days per Year | Total |
|---|---|---|---|
| **Initial Call-Off Period** | 2 | 1900 | 3800 |
| **1st Extension** | 2 | 1900 | 3800 |
| **2nd Extension** | 2 | 1900 | 3800 |
| **Contract Total** |  |  | **11400** |

The following software engineering services are sought (see Section IV for the detailed requirements):

- IV.1 Software Development and Enhancement
- IV.2 Software Support and Maintenance
- **Error! Reference source not found.     Error! Reference source not found.**
- IV.4 Agile Support
- IV.5 Software Testing Support
- IV.6 Technical Writing
- IV.7 User Experience and Interaction Design Expertise
- IV.8 Software Architecture Expertise
- IV.9 CI/CD/DevOps Support
- IV.10 Digital Signal Processing Software Engineering Support
- IV.11 Scientific Visualization Software Engineering Support

The Contractor shall be required to provide the Services to perform:

- Further development of MuTIP Umbrella.
- Design and Development, Maintenance and Support of MuTIP Umbrella Core Services.
- MuTIP Umbrella Services integration.

## III.1 Further development of the MuTIP Umbrella

By design and as shown in Figure 1, the MuTIP Umbrella encompasses:

- Services that are developed under the MuTIP project with the aim to be integrated into the MuTIP portal (hereinafter referred to as "MuTIP Umbrella Core Services" or "MuTIP Core Services"). Some of those services have their own data sources.
- Integration of MuTIP Core Services and other applications (legacy systems and recent software, hereinafter referred to as "External Services") into the MuTIP Portal. This integration is application dependent, and several interfaces have already been developed under the MuTIP Umbrella.
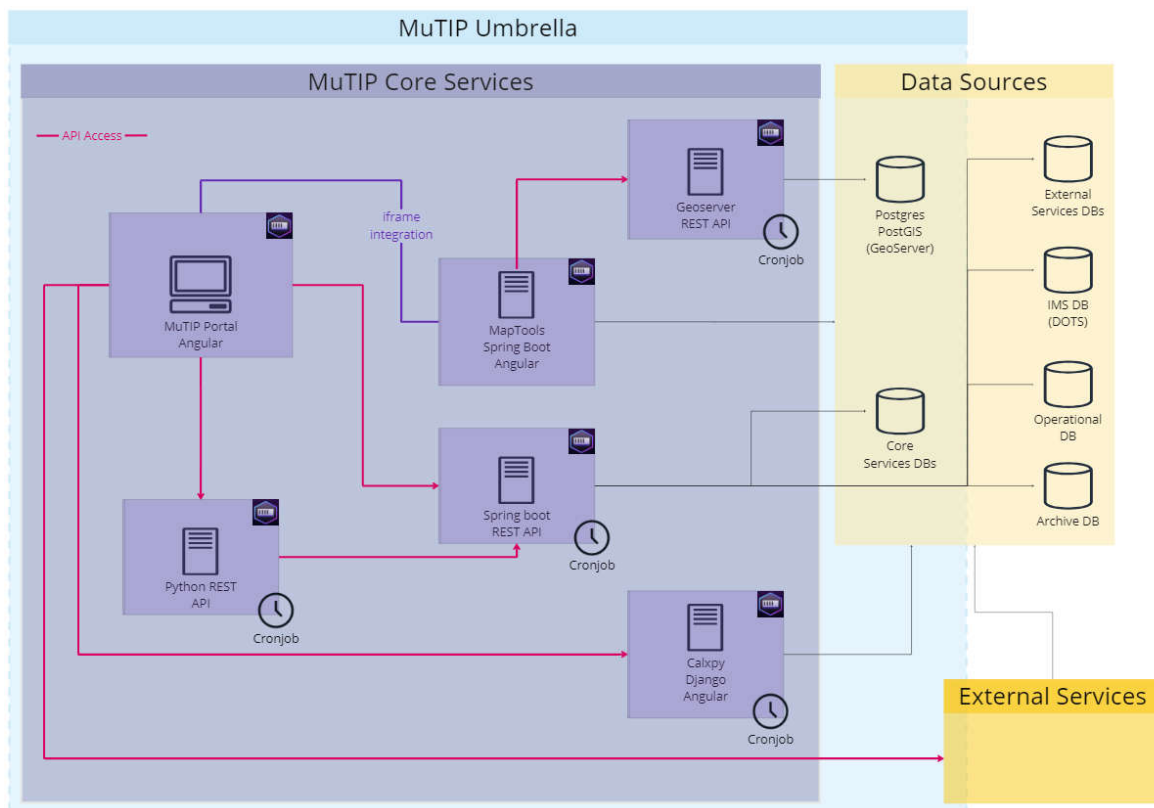


**Figure 1: MuTIP Umbrella Design**

To ensure the software quality (reliability, maintainability, efficiency and security) of the different components that are developed under the MuTIP Umbrella, the Contractor shall provide software engineering services to put in place:

- Architecture Standards: designs of the MuTIP Core Services and interfaces between the portal and the services.
- Quality Assurance and testing plan.
- Coding Practices.
- Documentation (including but not limited to Software Design and Architecture documentation, User Guide, and Installation Manual).
- CI/CD Standards: configuration management, containerization, Kubernetes deployment.
- Application monitoring (ELK Stack, Prometheus, and Grafana).
- Customer-driven development practices through UX deliverables.
- Bottom-up Business/ Process / Service analysis and Process mapping.
- Requirements Gathering.

- Service Management Practices aligned with the ITIL framework.

## III.2 Design and Development, Maintenance and Support of MuTIP Umbrella Core Services

The MuTIP aims to be the internal PTS platform that supports activities for all verification technologies (waveform and radionuclide) performed by technical staff such as the assessment of data quality, configuration management, and the analysts' review activities. MuTIP is the main Core Service that is developed under the MuTIP Umbrella. It consists of two backend services and one frontend service, and it interfaces with other Core Services and External Services.

MuTIP portal as well as all the other Core Services (as shown in Figure 1) shall be enhanced or maintained, updated and modernized as requested to meet all the standards and best practices that are developed as part of the Services requested under III.1. The modernization work includes but not limited to:

- Decoupling of the Monolithic Liferay-based Portal MuTIP into several services
- Upgrade the core services to use the latest stable versions of Java, Python, Angular

Containerizing all core services and deployment on KubernetesNew software supporting Operations Processes and verification's related activities shall also be designed and developed as requested following all the standards and best practices that are developed under III.1. A non-exhaustive list of applications that are planned to be developed as MuTIP Core Services includes:

- a tool for quality control of the waveform data by continuously monitoring the noise levels of the IMS Seismic, Hydroacoustic and Infrasound stations.
- a tool for evaluating and assessing the Network Performance by simulating and analyzing detection capabilities in case of installation/certification of a station or in case of the resilience of the network to a station outage/failure.
- a tool for assessing and predicting the network and stations status that can be used as an input for the sustainment planning of the IMS Network

## III.3 MuTIP Umbrella Services integration

If a MuTIP Core Service has been developed or an External Service has been made available, the next stage is its integration into the MuTIP Portal. The work may involve:

- Coordination with External Services projects' teams for interface definition.
- Coordination with the work done under III.1 and III.2.
- Business analysis, service integration design.
- Definition of interfaces & integration plan (Service catalog, API inventory and design, integration strategy selection, documentation.
- Requirements gathering.
- Development of new dashboards or widgets under MuTIP Portal to integrate functionalities of the other core services based on user's needs.

# IV. PROVISION OF SOFTWARE ENGINEERING SERVICES

This section breaks down the description of the Services into separate types of work.

## IV.1 Software Development and Enhancement

### IV.1.1    Work Specifications

In general, the Work involves the review and execution of the software design and implementation phases, and the delivery of code and documentation, which can be used to construct and deploy systems.

In particular, the Work may involve the following tasks:

- A review of the requirements specifications, any existing systems and databases and additional information requirements and comments expressed by the Commission's project manager. The outcome of this step shall be a revised requirements document forming the basis for planning the Work.
- Analysis of the requirement and design of the deliverables.
- Code Quality with well-defined testing plan.
- Scheduling of the deliverables and estimating the effort to execute the Work.
- Delivery and acceptance support of each deliverable.
- Delivery of the documentation agreed for each project which will provide the Commission staff with a sound understanding of the rationale of the developed component, so that these staff can maintain and expand the system accordingly.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.1.2    Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices. The deliverables may include:

- A statement of the requirements / objectives of the software component.
- Source code as per agreed coding standards.
- Test plans, test cases, test scripts and test results (of unit test, integration and system test and when applicable regression test).
- Results of review and inspection (architectural, database design, code, documentation when applicable).
- Technical documentation including design documents for the software components as per agreed standards.
- Workshops or (tele)conferences for knowledge transfer to the Commission staff.
- Recommendations / guidelines to help the Commission staff adhere to the implementation / design concepts.
- Configuration management plan.
- Deployment and Release policies.
- Changelog: a description of what changes were made relative to the previous release, along with a list of files that were modified by each change. Each release shall also include a list of outstanding items to be done, including any known defects.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.2 Software Support and Maintenance

### IV.2.1 Work Specifications

In general, the Work involves the review and execution of the software transition and operation phases through the provision of support and maintenance services, mainly for custom software systems.

In particular, the Work may involve the following tasks:

- Perform remote troubleshooting.
- Provide proactive and/or reactive support services.
- Analysis of the current functionality of a software system.
- Provide and/or implement software patches and updates.
- Migrations for major releases of software.
- Implement deployment and release policies.
- Provide installation and usability assistance.
- Provide training or other services associated with operating the software.
- Track and perform software license code updates and upgrades (when applicable).

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.2.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices. The deliverables may include:

- Training materials.
- Source code as per agreed coding standards.
- Test plans, test cases, test scripts and test results (of unit test, integration and system test and when applicable regression test).
- Updated technical documentation for the software components, as per agreed standards.
- Workshops or (tele)conferences for knowledge transfer.
- Changelog: a description of what changes were made relative to the previous release, along with a list of files that were modified by each change. Each release shall also include a list of outstanding items to be done, including any known defects.
- Monitoring Reports: regular reports on the performance and health of the software, including metrics such as uptime, response times, and system usage.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.3 Senior Engineering Support

### IV.3.1 Work Specifications

In general, senior engineering support may be requested to support the Commission and/or the Software Team in complex software engineering tasks, such as the planning, design or re-design of complex systems, or other tasks.

In particular, the Work may involve the following tasks:

- Support business analysis and translate into software requirements, architecture and design.
- Functional and performance testing.
- Define and support the implementation of release and deployment policies.
- Mentor other Software Team members in development methodologies.
- Audit Software Code in preparation for upgrades / enhancements.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.3.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices.

At the time when Work is called-off (see Section VI), the Commission may request deliverables deemed relevant to the project.

## IV.4 Agile Support

### IV.4.1 Work Specifications

In general, the Work involves the provision of Agile support such as a Scrum Master or an Agile consultant to support the Commission in the establishment and implementation of Agile methodology in software projects.

In particular, the Work may involve the following tasks:

- Lead high performing Agile (generally Scrum) delivery teams on a variety of software development projects.
- Apply broad-base technical, client-facing and industry expertise to create practical, innovative solutions.
- Learn and work with the latest web, mobile, and cloud solutions and technologies.
- Be the steward of the Scrum process and create extraordinary team outcomes.
- Organize and facilitate project planning, daily stand-up meetings, reviews, retrospectives, sprint and release planning, demos and other Scrum-related meetings.
- Ensure the development teams are practicing the core agile principles of collaboration, prioritization, team accountability, and visibility.
- Recommend improvements and assist in changes to best practice.
- Identify and remove impediments, prevent distractions that interfere with the ability of the team to deliver the sprint goal.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.4.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices. The deliverables may include:

- Documented current and fixed impediments and corresponding actions.
- Risk assessment and mitigation plan.
- Planning and assurance of quality for each stage of the project, meeting operational or project task objectives, following established standards.
- Final report and Lessons learned report at the end of the project.
- Communication plan.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.5 Software Testing Support

### IV.5.1 Work Specifications

In general, software testing support may be requested to assure that the delivered product meets the requirements and its quality goals.

In particular, the Work may involve the following tasks:

- Complete test preparation and execution.
- Audit code coverage.
- Work from software specifications to identify test data requirements and generate required test data.
- Design, support the implementation and automate tests (unit tests, integration tests and system tests, and when applicable regression tests).
- Correct errors by making appropriate changes and rechecking the program to ensure that the desired results are produced.
- Report software defects and priorities.
- Consult with managerial, engineering and technical personnel of the Commission to consolidate test efforts, identify bottlenecks, risk analysis and mitigation, and quality improvement as well as to coordinate test efforts and adapt to changing requirements and fast paced release schedules.
- Consult with development team to troubleshoot and resolve project issues both technical and non-technical in nature.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.5.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices. The deliverables may include:

- Test plans / cases / scripts.

- Test results (of unit test, integration and system test and when applicable regression test).
- Documented test standards for the core and external services under the MuTIP umbrella.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.6 Technical Writing

### IV.6.1 Work Specifications

In particular, the Work may involve the following tasks:

- Compiling all documentation for business requirements by working with the Commission and development teams to capture, document and manage IT related documents including:
    - Interviewing subject matter experts.
    - Updating of user manuals.
    - Writing and updating Help files.
    - Distilling relevant information and presenting that information in an easy-to-understand format using text, screen shots, photographs, drawings, sketches, diagrams, and charts.
    - Maintaining document repository.
    - Contributing to and communicating documentation standards, and provide training where required.
    - Analysing IT project requirements to determine and deliver types of documents needed.
- Plan, design, research, write, and edit a range of documents, including user guides and manuals, technical specifications, training materials, user policies, for both print and online media.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.6.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices. The deliverables may include, in the form of print and electronic media:

- User guides and manuals.
- Help files.
- Technical specifications.
- Training materials.
- User policies.
- Release and deployment documentation.
- Quality Assurance Plan for Technical Documentation: Define quality assurance measures to ensure the accuracy, consistency, and usability of technical documentation, such as peer reviews, usability testing, and compliance with style guides.

The above list is not exhaustive. At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.7 User Experience and Interaction Design Expertise

### IV.7.1 Work Specifications

In general, User Experience and Interaction Design expertise may be requested to support the Commission and/or the Software Team in complex software engineering tasks, such as the planning, design or re-design of complex systems, or other tasks.

In particular, the work may involve the following tasks:

- Ensure the logical flow of the software product.
- Conduct in-person user tests to observe users' behaviour.
- Refine and iterate to optimize user experience.
- Support business analysis and software requirements, architecture and design tasks.
- Develop Software Standards.
- Mentor other Software Team members in User Experience methodologies.
- Audit existing software designs and implementations in terms of user experience in preparation for upgrades / enhancements.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.7.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.8 Software Architecture Expertise

### IV.8.1 Work Specifications

In general, the Work involves the review and execution of the software design and implementation phases, and the delivery of code and documentation which can be used to build and deploy systems.

In particular, the work may involve the following tasks:

- Architecture Analysis – understand and document functional, non-functional and business requirements, environmental context and development time.
- Architecture Design.
- Architecture Evaluation – audit an existing software architecture and design.
- Architecture Evolution - maintain and adapt an existing software architecture.
- Develop Software Standards.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.8.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.9 CI/CD/DevOps Support

### IV.9.1 Work Specifications

In general, the Work involves the audit, design and implementation of software development lifecycles to minimize the time to operations while ensuring high quality.

In particular, the Work may involve the following tasks:

- Mentor other Software Team members in CI/CD/DevOps methodologies.
- Develop release and deployment policies.
- Support the implementation of release and deployment policies.
- Support scripting of automated deployment (and rollback) of releases.
- Design, implement and maintain infrastructure for running and evaluating the Software.
- Adjust operating system settings, Docker runtime, and container orchestration parametrisation.
- Support developers in testing and running the Software on development machines.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.9.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.10 Digital Signal Processing Software Engineering Support

### IV.10.1 Work Specifications

In general, digital signal processing engineering support may be requested to support the Commission in complex software engineering tasks as part of the automatic processing of waveform data.

In particular, the Work may involve the following tasks:

- Perform system analysis and translate software requirements into architecture, design and implementation using Agile software development methodologies.
- Develop prototypes to capture domain related requirements, prove and document mathematical correctness and accuracy of developed methods.
- Unit-test, black-box testing, and performance testing for the systems being developed or maintained.

- Mentor other Software Team members to ensure that the prototype's logic (algorithm, mathematics) remains correct while implementing the operational software.
- Audit Software Code and propose enhancement.
- Bridge the gap between the domain knowledge and the software engineering skills.
- Deep knowledge of both the domain and software development, enabling comprehensive grasp of complex scientific articles.
- Fast prototyping abilities, efficiently translating requirements (from scientific paper to software) into robust solutions across various domains.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.10.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

## IV.11 Scientific Visualization Software Engineering Support

### IV.11.1 Work Specifications

In general, scientific visualization engineering support may be requested to support the Commission and/or the Software team in complex software engineering tasks that requires extraction of information in an effective way from the raw data.

In particular, the Work may involve the following tasks:

- Assist in searching and collecting information from the raw data.
- Prototype GUI elements to help visualize extracted insights from large datasets.
- Developing and applying statistical and machine learning algorithms for data analysis.

The detailed scope of the Service and specific requirements for a Software Project will be defined at the time when the Commission requests the Contractor to submit a Project/Work Plan (see Section VI).

### IV.11.2 Deliverables

The deliverables shall follow standards specified by the Commission, which are based on industry best practices.

At the time when Work is called-off (see Section VI), the Commission may select deliverables from the above list, or request other deliverables deemed relevant to the project.

# V. Requirements for the Contractor and the Team Roster

## V.1 Contractor's requirements

The Contractor shall meet the following mandatory requirements:

1. At least twelve (12) staff are included in the Team Roster that meet the requirements as described in Section V.2.5 and Section V.2.6. This shall apply for the initial roster and throughout the Contract period.

2. Demonstrated experience implementing at least three (3) projects of similar scope and complexity.

3. Demonstrated experience, in the last five (5) years, in using a recognized formal project management methodology (how the work is to be managed and controlled, risk management, reporting, planning and assurance of quality), such as PRINCE2.

4. Demonstrated experience, in the last five (5) years, in using a formal software engineering methodology and providing services using an Agile framework, such as Scrum.

5. Staff turnover has been and is kept below 20% per year over the past three (3) years.

6. All reports, documentation, and communication (written and oral) supplied to the Commission shall be in English and submitted in an electronic form.

7. Warranty period of at least two (2) years after the completion of the user acceptance testing. Terms and conditions of post-warranty support and bug fixes must be available and clearly specified.

8. Working hours of relevant staff (e.g. project manager and lead developers) assigned to a Software Team, to overlap at least two (2) hours with the Commission's working hours (9am to 5pm CET), as deemed necessary by the Commission.

9. Has a documented framework for the Contractor's approach to provide Technical Writing Services.

10. Provide a Risk Management methodology for the execution of the outlined software development activities in these Terms of Reference as per Section **Error! Reference source not found.**.

The following requirements, although not mandatory, are an advantage:

11. Use of standard approach for quality assurance, operational efficiency and customer satisfaction, a current CMMI level 3 or higher, or ISO 9001 certification is an asset.

12. Use of standard approach to manage IT services, preferably ITIL. ISO 20000 certification is an asset.

## V.2 Team Roster

### V.2.1 Constitution of the Team Roster

The Contractor shall provide details of staff that are expected to be involved in the performance of Work on-site and/or off-site for the Commission. At a minimum, the following information shall be provided for each of these staff:

- Name
- Role
- Employed since
- Type(s) of Service(s) from Section IV which the staff will perform.

- Curriculum Vitae

The Contractor shall demonstrate:

- The capacity of the suggested Team Roster to tackle all Services described in section IV and that each member of the Team Roster shall be appropriately skilled and experienced to carry out the role for the assigned services.
- The compliance of the suggested Team Roster with requirements set out in sections V.2.5 and V.2.6.
- The capability and capacity of the suggested Team Roster to provide Software Services in the environment described in Section VII.

### V.2.2 Maintenance of the Team Roster, conditions of revision

The Contractor shall maintain an up-to-date version of the Team Roster for the duration of the Contract. The Contractor shall be responsible to inform the Commission when members of the Team Roster are to be removed or added to the Team Roster, and if the details of a member are modified.

If the Commission estimates that the Team Roster lacks capacity or capability to perform a specific work within the specified timeframe or quality, the Contractor shall provide, within three (3) working days after a request is made by the Commission, the details of skilled and experienced member to be added to the Team Roster for consideration by the Commission.

The Commission shall be entitled to confirm whether or not the proposed Team Roster revision is acceptable.

### V.2.3 Software Team

Prior to the issuance of an FRD, as described in the Section VI, the Contractor will be required to propose to the Commission a list of the Software Team members that will be working under this FRD. This Software Team shall be selected from the Team Roster.

The Contractor shall ensure that each member of the Software Team:

- is dedicated to the project during the development period (unless otherwise agreed); and
- is not re-assigned from the project without the prior written consent of the Commission.

The Contractor shall satisfy the following mandatory requirements:

- Establishment of a pre-screening process to identify suitable staff.
- Provision documented evidence that the proposed Software Team is appropriately skilled and experienced to carry out the work plan, along with the proficiency level of each member of the Software Team on this project (see Section V.2.4).
- Replacement of unsatisfactory performing Software Team members or provision of specific training to address a gap in knowledge identified after a Software Team member has started his or her assignment, at no cost for the Commission, upon request by the Commission.
- Establishment of an induction program, at no cost for the Commission, to help new members of the Software Team become productive within a predefined period after the acceptance of the start of their assignment for the Commission. The duration of the period will be from one (1) to three (3) months depending on the type of service.

- Ensuring that the knowledge is retained in the team roster in case of staff turnover, at no cost for the Commission.

- Informing the Commission of a planned change of a team member with a minimum of one (1) month's notice to allow for enough time for the pre-screening process.

- Confirmation that the Software Team shall continuously keep abreast of the technological advancements, thereby supporting the Commission by delivering high-quality and innovative software solutions.

The Contractor shall be proactive in identifying and proposing additional resources and/or expertise to the Software Team based on the current needs for the Software Project.

The Commission shall be entitled to confirm whether the proposed Software Team is acceptable.

The Commission reserves the right to seek an immediate replacement for any Software Team member, as determined by the Commission. In such cases, the Commission will request a replacement of the Contractor staff, with equal or more adequate qualifications and experience, to complete the tasks. If no suitable replacement consultant can be agreed upon, the Commission reserves the right to terminate the assignment of the Software Team member with immediate effect. Continuity of staff is an important consideration. The Contractor shall therefore take necessary measures to ensure a seamless transition when taking over the Services and keep changes to staff being assigned to the Commission to a minimum throughout the duration of the Contract.

### V.2.4   Proficiency level

The Contractor shall provide three (3) levels of staff proficiency as follows:
- Junior
- Standard
- Expert

The proficiency level of a member of the Team Roster shall be determined at the time when a project is initiated, and the Software Team is defined for that project. It shall be determined based on the expertise and level of experience of that member in the task he/she is to perform under a given project (e.g. the same person may be considered "Expert" on one project, and "Standard" on another one). The proposed proficiency levels for each member of the Software Team are subject to the Commission's approval. If deemed necessary by the Commission, the Contractor may be requested to provide further evidence of the proficiency level of a Software Team member at any time during the project, and the Commission reserves the right to modify the proficiency level of a Software Team member.

### V.2.5   Requirements for each member of the Team Roster

Each of the Contractor's staff on the Team Roster must have the following minimum qualifications:

1. A university degree in Computer Science, Mathematics, Physics or related scientific/technical subject.
2. At least two (2) years of recent experience using Agile framework such as Scrum.
3. At least one (1) year of recent experience working with a state-of-the-art ticket management system such as Jira.

### V.2.6   Skills and experience amongst the members of the Team Roster

The following skills and experience shall be available in the initial Team Roster, and maintained for the duration of the Contract:

1. A minimum of five (5) years of experience over the past seven (7) years, in software engineering (eliciting use cases and requirements, design, development, support, maintenance and enhancement, documentation) for operational software systems, preferably geophysical.

2. Demonstrated experience in at least two (2) projects in the development and integration of complex operational software systems, for geophysical and radionuclide applications or related field.

3. A minimum of three (3) years of experience, providing software maintenance and support services for complex and custom software systems.

4. An advanced degree in digital signal processing, applied mathematics, physics, electrical engineering or related field, with a minimum of three (3) years of experience in executing projects in the field of digital signal processing.

5. A minimum of three (3) years over the past five (5) years of experience in all stages of software development using C programming language.

6. A minimum of three (3) years over the past five (5) years of experience in all stages of software development using java programming language.

7. A minimum of three (3) years over the past five (5) years of experience in all stages of software development python programming language.

8. A minimum of five (5) years of experience in the development of UNIX and Linux-based client/server systems.

9. A minimum of three (3) years over the past five (5) years, in the development of web applications, preferably Angular.

10. Demonstrated experience in at least three (3) projects working as a Software architect on web-based software projects of similar size and complexity and a minimum of ten (10) years of experience in the field of software engineering. Details shall be provided.

11. A minimum of five (5) years of experience over the past seven (7) years in object-oriented development and design patterns, in particular using service oriented and micro-services architecture designs, exposure to project management methodologies and incremental software development techniques.

12. A minimum of three (3) years of professional experience with SQL and database programming, ideally using Oracle and/or PostgreSQL databases, experience designing data access layers and data models for an application.

13. A minimum of one (1) year of experience with ELK (Elasticsearch, Logstash and Kibana).

14. Demonstrated experience in at least one (1) project in installing, configuring, administering and operating Big Data Clusters, data flow and data processing distributed systems, open-source message brokers, frameworks and tools, such as Hadoop, Spark, Kafka, Nifi, RabbitMQ. Details shall be provided.

15. Working knowledge and experience using the GNU Autotools and RPM for software packaging, compilation and distribution.

16. A minimum of two (2) years of experience in integrating applications with an Identity Management platform, preferably (but not limited to) Oracle Identity/Access Manager and MS Azure AD

17. A minimum of two (2) years of experience in both source-code-level and configuration-level invocation of single sign-on, identity, authentication and authorization federation protocols such as SAML, OAuth 2.0, OpenID.

18. Demonstrated experience in at least two (2) projects showing the capability to timely address sensitive issues

19. A minimum of seven (7) years of experience over the past ten (10) years demonstrating expert knowledge, and a related university (or equivalent) degree, in the field for which senior engineering support (see Section IV.3) is required. Details shall be provided.

20. A minimum of five (5) years of experience over the past seven (7) years as a system analyst, project manager or both, in an information system.

21. A minimum of three (3) years of experience delivering interactive, data-intensive applications including embedded and/or web applications in a Project Management and Scrum Master role (or equivalent role in another Agile framework).

22. A minimum of three (3) years of experience using a disciplined approach for planning, designing, executing and reporting on software testing.

23. Experience with scripting techniques for automated testing and continuous integration and deployment. Details shall be provided.

24. A minimum of two (2) years of experience with GitLab CI and/or Jenkins.

25. Proven records of effective communication, presentation and facilitation. Details shall be provided:

    - Proven ability to communicate effectively with meaningful and articulate verbal discussions.

    - Excellent written and oral communication skills in English with a focus on report building, listening, and interviewing skills.

    - Demonstrated ability to absorb and retain information quickly, specifically complex technical information.

    - Demonstrated ability to analyse target audience and to present ideas in user-friendly language.

26. Proven records of team leadership. Details shall be provided:

    - Proven ability to motivate teams and guide them through impediments and/or conflict.

    - Excellent business presentation and facilitation skills, including Agile retrospectives.

    - Experience in business process reengineering: Identifying opportunities for improvements, proposing new processes.

27. A minimum of two (2) years of experience as a Technical Writer on projects with similar scope, that demonstrate the solid understanding of Software development methodologies and the ability to conduct research into a wide range of IT issues and proven ability to write technical documentation.

28. A minimum of three (3) years of experience over the past five (5) as a User Experience and Interaction designer on projects with similar scope, that demonstrate the solid understanding of Software development methodologies

29. A minimum of three (3) years of experience as a business analyst or equivalent, having in-depth knowledge of requirements engineering, definition of requirements engineering processes and practices.

30. A minimum of three (3) years of experience over the past five (5) years designing and implementing a disciplined approach for continuous integration, out of which a minimum of two (2) years of experience using Docker containers and Kubernetes.

31. A minimum of three (3) years of experience over the past five (5) years of experience in executing projects in the field of data science or scientific visualization.

32. A minimum of two (2) years of experience over the past five (5) years in developing geospatial/digital mapping applications.

33. Developer on at least two (2) projects involving programming using 2D/3D scientific visualization libraries (visualizations of time series, histograms, surface plots, scatter plots, spectrograms).

34. Demonstrated experience in at two (2) projects with data modelling and data warehousing, knowledge of data structures and algorithms. Details shall be provided.

The Contractor shall ensure that, in addition to all mandatory requirements listed in Section V.2.5, the following minimum requirements are met when selecting each member of the team that is to provide Software Engineering Services listed in Section **Error! Reference source not found.**:

### V.2.6.1 Requirements for the Software Team members to deliver Software Development and Enhancement
- Requirements listed in Section V.2.6: 2, (5 or 6 or 7 or 9)

### V.2.6.2 Requirements for the Software Team members to deliver Software Support and Maintenance
- Requirements listed in Section V.2.6: 2, 3, (5 or 6 or 7 or 9), 18

### V.2.6.3 Requirements for the Software Team members to deliver Senior Engineering Support
- Requirements listed in Section V.2.6: 19, 25

### V.2.6.4 Requirements for the Software Team members to deliver Agile Support
- Requirements listed in Section V.2.6: 20, 21, 25, 26
- Having one of the following certificates is an advantage. Details shall be provided:
    - Certification in Business Analysis and/or Certified Scrum Master.
    - Project management certification in PMP and/or PRINCE2
    - Certification in managing IT services
- Experience managing a Software Project using the ticket Management System Jira, Jira Tempo and Jira Budget is an advantage. Details shall be provided.

### V.2.6.5 Requirements for the Software Team members to deliver Software Testing Support
- Requirements listed in Section V.2.6: 22, 23
- ISTQB (International Software Testing Qualifications Board) certification or equivalent is an advantage. Details shall be provided.

### V.2.6.6 Requirements for the Software Team members to deliver Technical Writing
- Requirements listed in Section V.2.6: 25, 27

### V.2.6.7 Requirements for the Software Team members to deliver User Experience and Interaction Design Expertise
- Requirements listed in Section V.2.6: 25, 28

### V.2.6.8 Requirements for the Software Team members to deliver Software Architecture Expertise
- Requirements listed in Section V.2.6: 10, **Error! Reference source not found.**, 25, 29

### V.2.6.9 Requirements for the Software Team members to deliver CI/CD/DevOPS Support
- Requirements listed in Section V.2.6: 24, 30
- Experience with a software repository manager such as Nexus is an advantage. Details shall be provided.

### V.2.6.10 Requirements for the Software Team members to deliver Digital Signal Processing Software Engineering Support

- Requirements listed in Section V.2.6: 2, 4, 25
- Proficiency in scientific and numeric Python would be an advantage. Details shall be provided.

### *V.2.6.11 Requirements for the Software Team members to deliver Scientific Visualization Software Engineering Support*

- Requirements listed in Section V.2.6: 25, 31, (32 or 33)
- Experience with Plotly is an advantage. Details shall be provided.
- Experience with OpenLayers is an advantage. Details shall be provided.

# VI.   ORGANIZATION OF WORK

The Commission may ask for Services as described in Section IV. Calling-off the Work will be done based on Formal Request for Delivery (FRD)

**FRD/WO Project Call-off:** The Commission may choose to issue a Formal Request for Delivery (FRD) to the Contractor to define the scope of a Software Project, and a capped amount for its completion. After the FRD has been issued, the Work may be called-off in the form of Sprint Work Orders (Sprint WOs). Each Sprint WO shall include the exact scope of Work and the required deliverables to be performed and delivered by the Contractor as well as the acceptance criteria.

*Note: This work organization may typically be used to support Agile Software Development Projects, whereby each iteration will be a Sprint Work Order.*

In this mode of work, an FRD shall be issued to define the overall Software Project, particularly the Work scope, the Software Team, and a capped price for the Project. The capped price defined under the FRD shall be an upper limit only, and the Commission reserves the right, at its sole discretion, to call-off less Services or no Services at all. After the FRD is issued, the Work may be called-off in the form of Sprint WOs within the scope and capped price stipulated in the FRD.

## VI.1 FRD issuance

Before the issuance of an FRD to the Contractor and upon receipt of a written request from the Commission, containing elaborations and definitions as to the nature of the Software Project, the Contractor shall provide, at a minimum, within one (1) week of receiving the written request, the following information in the form of a Project Plan for each Service identified in the written request:

- A list of staff (Software Team) who will be working on the Software Project, and the role of each of these staff members. The Software Team shall be a subset of the Team Roster, as described in Section V.2.
- Details of the suggested project management approach.
- Approach to reporting and monitoring of the progress of the Work.
- Work plan and key schedule for the Project initiation.
- Ballpark estimate of the total cost to be allocated of the Software Project, broken into Services, and based on the unit rates defined in the Contractor's Financial Proposal.
- Commencement date and completion date of the service.
- Place of work (on-site/off-site).
- If applicable, the proposed number of travels.
- Where applicable, travel shall be organized by the Contractor and reimbursed by the Commission based on simple economy return ticket for the most direct route upon presentation of supporting documents.

After review of the Project Plan for each of the Service identified in the written request, and only after acceptance by the Commission, the FRD shall be issued to the Contractor.

Each FRD shall be based on one (1) or more of the Services described in this ToR under Section IV and on the approved Project Plan for each of the Service to be completed.

The Commission shall not be held liable for the performance of any particular Service(s) which have been performed before the formal issuance of an FRD and Sprint WO (see Section V.1.2(d) below) to the Contractor.

## VI.2 Initiating Work

The Commission shall have the right, but not the obligation, to call-off Services in the form of Sprint WOs under the issued FRD. These Sprint WOs shall include the exact scope of Work and the required deliverables to be performed and delivered by the Contractor.

(a)    Before the issuance of a Sprint WO to the Contractor and upon receipt of a request, containing elaborations and definitions as to the nature of the particular Work(s), the Contractor shall provide, at a minimum, within one (1) week of receiving the request, the following information in the form of a Work Plan for each Work identified in the request:

   - Work plan and key schedule to accomplish the Work.
   - Assumptions, constraints, and key risks that could affect the completion of the Work and proposed methods to manage the risks.
   - Number of person-days to be allocated to the Work.
   - Place of work (on-site / off-site).
   - Commencement date and completion date of the Work.
   - Approach to reporting and monitoring of the progress of the Work.
   - If applicable, the proposed number of travels.

   *Note: the request may be in written form, or made through the sprint planning ceremony by moving tasks to the sprint backlog (in the case of an Agile Software Development Project)*

(b)    After review of the Work Plan for the Work identified in the written request, and only after acceptance by the Commission, the Sprint WO will be issued to the Contractor.

(c)    Each Sprint WO shall be based on one (1) or more of the tasks described in section IV above and on the approved Work Plan for each of the Work to be completed. The Commission will forward Sprint WOs to the Contractor with adequate advanced notice and containing all necessary details, expected deliverables, and minimum requirements for satisfactory performance.

(d)    The Contractor shall perform Work only after receipt of the Sprint WO.

(e)    During the performance of the Work under a Sprint WO, the Contractor shall respond within two (2) working days to any comments from the Commission on work-in-progress with a plan to resolve issues.

(f)    Upon signature of the Contract, the Contractor shall draft a Sprint WO Work Plan template for review and acceptance by the Commission.

## VI.3 Completion and Acceptance

(a)    At the end of a particular Work under a Sprint WO, the Contractor shall submit to the Commission the deliverables within the period of performance stated in the respective Sprint WO. The deliverables may include:

- Updated Documents (e.g. Software Design Document, Software User Guide and Developers Guide.)
- Updated source code for software and common libraries, including documentation.
- The functionality of the delivered product.

(b) The deliverables will be evaluated by the Commission within twenty (20) working days after delivery of the product by the Contractor.

(c) If requested by the Commission in a Sprint WO, upon completion of the Work(s) under the Sprint WO, the Contractor shall provide an oral presentation (including slides/handouts as required) to the Commission at its Headquarters in Vienna.

## VI.4 Reporting

During the execution of the Sprint WO, the progress status must be communicated to the Commission as defined in the Sprint WO.

At the end of the performance period stated in the Sprint WO, the Contractor shall submit a Report to the Commission, electronically via email and within the first five (5) working days following the completion of each Sprint WO, describing all the performed activities, including but not limited to:

- Status of the work items.
- Remaining Budget in the FRD

Within the first five (5) working days following the completion of the last Sprint WO of the FRD, the Contractor shall submit an End of FRD Report to the Commission, electronically via email, describing the updates of the team roster and the achievements of the Sprint WOs executed under the FRD.

# VII.    Standards and Working Environment

## VII.1  Software and Database Environment

Most of the software is designed to run on open-source UNIX / Linux (e.g. RHEL/CentOS 7.x+ and RHEL/Rocky 8.x+ operating environment). The processing software is mostly written in ANSI C and/or Python, with some supporting libraries in C++. A few programs are in Java. There are a number of support programs and scripts written in shell or Perl, as well as desktop Java applications and some MATLAB scripts.

Most software accesses Oracle, PostgreSQL or MySQL based RDBMS using ODBC libraries. Some other software applications use InfluxDB or Elasticsearch as data storage.

The primary languages intended for future software development are C/C++, Python, Java and Angular, with PostgreSQL and Oracle databases.

Git is used as Software Versioning System. Maven and Gradle are the build automation tools that are in use.

## VII.2  Best practices and Standards

Several best practices and standards have been established within the Commission including ITIL for IT service management, PRINCE2 for project management and Scrum-like Agile methodology for software development.

All software developed under this Contract shall follow the IDC Coding Standards (which includes recommended coding style, the required implementation of unit tests, and use of open standards and open-source libraries where possible) and shall compile and run under the Linux operating system family (RHEL/CentOS 7.x, RHEL/Rocky 8.x+, or compatible). The IDC guidelines for requirements engineering shall form the basis for eliciting and documenting requirements.

The Contractor shall deliver software through incremental releases according to the Agile software development methodology (specifically Scrum). In particular, the Contractor shall follow the "Release Early, Release Often" (RERO) software development philosophy which emphasizes the importance of early and frequent releases in creating a tight feedback loop between developers, testers and users. Each new delivery shall include a description of what changes were made relative to the previous release, along with a list of files that were modified by each change.

The software that the Contractor shall be working on is being maintained in the Git version control system and all software releases shall be delivered via this version control system. Software developments are done in a GitLab based continuous integration and testing environment.

The Commission has a change management process in place that covers reporting and tracking software problems, as well as releasing software updates in its Development, Testbed and Operational environments. An Integrated Ticketing System based on the JIRA software is used to support this change management process. The Contractor personnel shall familiarize themselves with this process and follow it when releasing software upgrades. All software and configuration changes shall be approved by the Commission's Configuration Change Board.

Software developments and documentation shall also adhere with the evolving MuTIP Development and Documentation Standards. All documentation shall adhere to the IDC Documentation Standards. Both Standards will be made available to the Contractor upon request after signature of the Contract. For software development, Open-Source technologies shall be preferred. The source code for the developed software shall be delivered to the Commission upon completion of each task and shall become the property of the Commission as of the delivery date. The source code of the software developed under the Contract shall follow the Commission's software standards and guidelines.

## VII.3 Work Environment

For on-site Services provided at the Commission's headquarters in Vienna, Austria, the Commission will provide at its premises a suitable work environment (workspace, room for meetings, presentations and trainings, standard stationary, Internet connection) for the Contractor's personnel to perform the Services under the Contract, as required. The Contractor shall arrange for laptop computers and telephones required to execute the on-site work. The Commission will also make reasonable efforts to cooperate with the Contractor in connection with its performance under the Contract, including, but not limited to, reasonable and timely access to Commission's personnel, documentation, and databases and other necessary identified sources of information.

The working language at the Commission's headquarters in Vienna, Austria, is English, and the normal weekly working hours is forty (40), Monday to Friday. Exceptionally, there may be a need to work overtime or on Saturdays and Sundays. The working period in a given day will be defined on the basis of actual needs even though the usual working hours from Mondays to Fridays are between 08:00am and 06:00pm.

For off-site work, the Contractor shall provide its own infrastructure, hardware and software environment necessary for the completion of its work under the Contract. The Contractor shall communicate with the Commission by telephone, or electronic mail, as appropriate. All costs incurred by the Contractor as a result of such communication with the Commission for the performance of work under the Contract, shall be borne by the Contractor.

If needed, remote access to the relevant infrastructure (servers, VLANs, databases) in the Commission's network will be provided to the Contractor. Infrastructure comprises, but is not limited to software, servers, VLANs and databases.

Most of the Work is expected to be carried out off-site. On-site days may be requested by the Commission and will be agreed upon prior to the issuance of the FRD. When On-site days are requested, the Contractor's staff may be required to spend up to 20% of the person-days per Call-off Period on-site at the premises of the Commission in Vienna, Austria. The staff may need to travel to the premises of the Commission up to 8 times per Call-off Period.

The Contractor shall perform technical visits, when requested by the Commission, to support the use of software systems, conduct corrective maintenance or provide training. The Commission reserves the right to define the scope of the work in its written request prior to FRD issuance, as described in the Section VI.

# VIII.    Risk Management

The Contractor shall provide a business continuity plan and a thorough risk assessment plan at the project's commencement to identify potential risks that could impact the successful execution of the outlined software development activities in these Terms of Reference, and subsequent FRDs, and propose adequate risk mitigation measures. Risks may include, but are not limited to, technical challenges, changes in project requirements/scope, resource constraints, schedule delays, integration difficulties, and third-party software dependencies. The risk assessment and mitigation measures plans shall be consistently updated, aligning with the delivery of project milestones or significant accomplishments.

Upon the project's satisfactory completion, the Contractor is obligated to conduct a final review of the identified risks and mitigation measures. Risks that have been effectively mitigated or did not materialize should be officially closed, accompanied by appropriate documentation. The insights gained from the risk management process should be methodically documented and shared with the Commission, thereby contributing to the knowledge repository for forthcoming software development endeavors.

# STATEMENT OF CONFIRMATION

On behalf of (name of firm or organization):_____, I hereby attest and confirm that:

a) The firm/organization possesses the legal status and capacity to enter into legally binding contracts with the Commission for the supply of equipment, supplies, services or work.

b) The firm/organization is not insolvent, in receivership, bankrupt or being wound up, and not under administration by a court or a judicial officer, and that it is not subject to the suspension of its business or legal proceedings for any of the foregoing reasons.

c) The firm/organization has fulfilled all its obligations to pay taxes and social security contributions.

d) The firm/organization has not, and that its directors and officers have not, within the last five years been convicted of any criminal offense related to professional conduct or the making of false statements or misrepresentations as to their capacity or qualifications to enter into a procurement or supply contract.

e) The Commission, in the event that any of the foregoing should occur at a later time, will be duly informed thereof, and in any event, will have the right to disqualify the firm/organization from any further participation in procurement proceedings.

f) The firm/organization did not/will not attempt to influence any other bidder, organization, partnership or corporation to either submit or not submit a proposal/bid/quotation.

g) The firm/organization will not, in the absence of a written approval from the Commission, permit a person to contribute to, or participate in, any process relating to the preparation of a Quotation/Bid/ Proposal or the procurement process if the person:

    a. at any time during the 12 months immediately preceding the date of issue of the Solicitation was an official, agent, servant or employee of, or otherwise engaged by the Commission;

    b. at any time during the 24 months immediately preceding the date of issue of the Solicitation was an employee of the Commission personally engaged, directly or indirectly, in the definition of the requirements, project or activity to which the Solicitation relates.

h) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) have been identified on, or associated with any individual, groups, undertakings and entities identified on, the list established pursuant to the UN Security Council Resolution 1267 (Consolidated Sanctions List).[1]

i) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) are subject to any form of sanction imposed by an organization or body within the United Nations System, including the World Bank.

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[1] The Consolidated United Nations Security Council Sanctions List can be found on the following website: **https://www.un.org/securitycouncil/content/un-sc-consolidated-list**

j) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any), is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, inter alia, requires that a child shall be protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

k) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) will use the funds received under contracts/purchase orders with the Commission to provide support to individuals, groups, undertakings or entities associated with terrorism.

l) The prices in the firm/organization's proposal/bid/quotation have been arrived at independently, without consultation, communication or agreement with any other interested companies, competitor or potential competitor with a view to restricting competition.

m) The Commission shall have the right to disqualify the firm/organization from participation in any further procurement proceedings, if it offers, gives or agrees to give, directly or indirectly, to any current or former staff member of the Commission a gratuity in any form, an offer of employment or any other thing of service or value, as an inducement with respect to an act or a decision of, or a procedure followed by, the Commission in connection with a procurement proceeding.

n) The Commission shall have the right to disqualify the firm/organization from participation in any further procurement proceedings if it does not disclose to the Commission any situation that may appear as a conflict of interest, and if it does not disclose to the Commission if any official or professional under contract with the Commission have an interest of any kind in the firm/organization's business or any kind of economic ties with the firm/organization.

o) The firm/organization expressly agrees to abide by the United Nations Supplier Code of Conduct.[1]


Name (print): _____       Signature: _____


Title/Position: _____


Place (City and Country): _____       Date: _____

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[1] https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct

## VENDOR PROFILE FORM (VPF) – FOR PRODUCTS/SERVICES/WORK

1. Name of Company:

2. Street Address:

3. Telephone:

P.O. Box:
City:

4. E-Mail:

Zip Code:
Country:

5. Website:

6. Contact Person:                          Title:

7. Legal Status (e.g. Partnership, Private Limited Company, Government Institution)
   PLEASE INCLUDE A COPY OF THE CERTIFICATE OF INCORPORATION

8. Year Established:

9. Number of Employees:

10. Gross Corporate Annual Turnover (US$m)*:

11. Annual Export Turnover (US$m)*:

12. Type of Business/Products:     Manufacturer ☐     Sole Agent ☐     Supplier ☐
    Other ☐ (please explain)

13. Type of Business/Services/Work:  Engineering ☐     Civil Work ☐     Governmental Institution ☐
    Other ☐ (please explain)

14. References (your main customers, country, year and technical field of products, services or work): **

15. Previous Supply Contracts with United Nations Organizations (over the last 3 years)**

    Organization:              Value in US$ Equivalent:              Year:

    Organization:              Value in US$ Equivalent:              Year:

16. Summary of any changes in your company's ownership during the last 5 years:

\*    Please provide a copy of the most recent audited annual report and accounts. Note:  Export includes services or work performed abroad or for foreign clients.
\*\*   Please provide supplementary documentation on these items.

## 17. List of Products/Services/Work offered:

| Product/Service/Work # | Product/Service/Work Description |
|---|---|
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| | |

18. This section shall be **signed and stamped** by an official legally authorized to enter into contracts on behalf of your organization:

Name:                    Title:                         Signature:                    Date:

| **Bank Details** | **Beneficiary Details** |
|---|---|
| Bank Name: | Beneficiary Name: <br> (exactly as stated on bank statements) |
| Bank Address: | IBAN: <br> (if applicable) |
| Exact Account Holder Name: | Account number: <br><br> SWIFT/BIC: <br><br> ABA/Sort Code: |

**Additional Details** (if applicable)

Correspondent bank:

Correspondent account number:

Correspondent SWIFT/BIC:

Tax Identification Number:

| FOR CTBTO USE ONLY | | |
|---|---|---|
| Evaluated By: | Initials | Date: |
| Updated By: | Initials | Date: |
| Remarks: | | |

\*    Please provide a copy of the most recent audited annual report and accounts. Note:  Export includes services or work performed abroad or for foreign clients.
\*\*   Please provide supplementary documentation on these items.