REQUEST FOR PROPOSAL

Date: 20 October 2023   Closing date: 10 November 2023

Reference: RFP 3/2023

Subject: Long-term Agreement for software development services with a focus on Artificial Intelligence solutions

1. The United Nations System Staff College (UNSSC) hereby solicits your proposal for the above subject, in accordance with this document and annexes attached hereto. Proposals must be submitted to the UNSSC before 10 November 2023 by close of business in Turin, Italy.

2. This request for Proposal (RFP) consists of this document and the following annexes:
   - Annex A: Terms of Reference
   - Annex B: Terms and Conditions to Submit a Proposal
   - Annex C: Evaluation Criteria

3. Your proposal must include information in sufficient scope and detail to allow the Staff College to consider whether the proposer has the necessary capability, experience, knowledge, expertise and the required capacity to perform the work specified satisfactorily.

4. The UNSSC reserves the right to request from vendors additional information regarding their commercial activities, history and resources.

5. Your technical and financial proposal must be submitted via email to procurement@unssc.org. Non-compliant offers with the terms stated in this document and its annexes may be rejected without any evaluation.

6. Inquiries and clarifications concerning this RFP, along with changes or modifications to the proposals must be submitted before the deadline via email to procurement@unssc.org.

7. Please note that the Staff College has VAT exemption status and can provide documentation for same. Hence, your pricing should take this status into account and be presented net of VAT.
Background and Context:

The United Nations System Staff College (UNSSC) is the United Nations institution for system-wide knowledge management, learning and training for the staff of the United Nations system.

The College is expected to play a pivotal role in contributing to UN reform, the development of a common culture based on effectiveness, expertise and continuous learning through the development, co-ordination and provision of cross-cutting learning programmes which impact on all agencies and staff.

Objectives:

The College in the last years has invested in several research and development (R&D) initiatives to integrate Artificial Intelligence (AI) in its learning ecosystem. UNSSC currently uses a custom-made version of Moodle Workplace as core technology for its Learning Management System (LMS), with unique functionalities and features developed by and for UNSSC. These initiatives resulted in the development and deployment of the following tools:

1. Trends analyzer
2. Sentiment analysis tools
3. Semantic analysis tools
4. Recommendation engine

The College is now seeking a provider to enhance and complement the capacity of its infrastructure and user experience. Initially, the College is seeking a provider to develop the following:

1. Custom finetuning of a Large Language Model;
2. Summarization tool;
3. Intelligent Tutoring System.

The listed developments are to be considered as components of the single broader solution and are to be pursued in phases to ensure consistency of success metrics, monitoring and evaluation and alignment for future possible additional implementations.

Deliverables (in phases):

Phase 1 - Custom finetuning of a Large Language Model

The custom fine-tuning of a Large Language Model will form the basis for the other developments and will guide the deployment and implementation of generative AI in UNSSC's learning ecosystem. To this end, the selected vendor will be requested to:

1. Analyze UNSSC's datasets in preparation for the pre-training phase;
2. Work with UNSSC team in the selection of a Large Language Model and process the custom fine-tuning based on UNSSC's datasets.

Data collected will be pre-processed for the fine-tuning exercise. If needed, this could include manual or automatic data annotation and labelling. The creation
of training dataset could include a combination of data from the organization, pre-processed or annotated, with existing publicly available datasets used for LLM pre-training.

**Phase 2 - Design and development of a multi-modal summarization tool that can automatically process and summarize content from different sources**

The proposal should include the development of a summarization tool to work on the basis of the fine-tuned LLM. Here below is a list of non-exhaustive features:

1. The summarization tool should be able to work in English and other five UN official languages, including respective grammar, syntax and semantics.
2. It should employ an extractive (with generated sentences accurately representing the main points and details of the original content) and abstractive (with generated sentences capturing the essence of the source content while maintaining coherence and readability) summarization.
3. It should be able to handle, for instance, qualitative text entries generated by participants in the LMS in different text formats and through various activities.
4. The tool should incorporate entity recognition capabilities to ensure that the summary includes crucial information and maintains its accuracy.
5. The tool should be scalable and capable of handling large volumes of text while maintaining processing performance.
6. The tool should integrate selected glossaries relevant for the work of UNSSC and include the possibility to explain domain-specific terms within the summary.

The summarization tool should ensure good generalization ability and domain-specific performance. It should be contextually appropriate, coherent and relevant in text generation vis-à-vis given input and conversation. To this end, common evaluation metrics, BLUE and ROUGE score, will be used to evaluate to evaluate performance of the model.

**Phase 3 - Design and development of an Intelligent Tutoring System (ITS) to support learners' experience in UNSSC's LMS**

The proposal should include the development of Intelligent Tutoring System (ITS) to work on the basis of the fine-tuned LLM.

The fine-tuned LLM will work as the foundation and enabler for the design and development of an Intelligent Tutoring System (ITS) capable of understanding and responding to learner queries in a conversational manner and acting as a
one-to-one learning assistant within UNSSC’s Learning Management System (LMS). Here below a list of non-exhaustive features:

1. The ITS should be able to analyse learner’s progress, history, and preferences within the LMS, tailoring its interactions and making recommendations accordingly. The ITS’ recommendation should include learning resources and activities on the basis of learner’s knowledge level, objectives, and performance.
2. The ITS should provide immediate feedback, pointing out areas where the learner needs improvement and suggesting relevant study materials.
3. The ITS should be designed with a conversational user interface that allows learners to interact with the system seamlessly across LMS-related activities and communication channels.

The development of the ITC should include testing and evaluation framework to assess, in cooperation with UNSSC team, correctness and effectiveness of the ITS based on the fined-tuned LLM. This could include, inter alia, further finetuning of the model, functional, performance and usability testing, as well as content quality assessment and user feedback and satisfaction.

**Performance indicators:**

1. The new AI-based developments are successfully designed and implemented in line with UNSSC’s needs and indications.
2. The proposed solution, and deliverables produced, ensure efficient methods and tools for data collection, preparation and annotation to support the fine-tuning process.
3. The pre-training and subsequent fine-tuning phases facilitate the development of the indicated AI-based tools.
4. The fine-tuned LLM efficiently adapts weights and parameters to capture the key characteristics and language found in UNSSC’s custom data.
5. The proposed solution includes testing and evaluation of the fine-tuned LLM to assess the quality, coherence, and relevant of generated outputs.
6. The fine-tuned LLM and related tools work efficiently in terms of inference time, memory usage and energy consumption.
7. Quality assurance and timely resolution of technical issues.
The deliverable will be deployed and hosted on UNSSC’s infrastructure. At the end, the vendor will provide UNSSC with a comprehensive documentation in support of the fine-tuning process and related tools.

The vendor will be responsible for securing the necessary rights should the proposed solution involve components of third parties.

The proposed solution and related deliverables must ensure data privacy and security throughout the process by adhering to best practices for data handling, storage and protection, making sure that sensitive information is safeguarded and complies with UNSSC’s data protection and privacy policies and instructions.
Submission of Proposals

Proposals must be submitted in English and shall be expressed in the form described in the table below:

| PRE-REQUISITE | 1. Please provide company profile, clearly identifying the experiences that demonstrate expertise in the subject of this RFP.  
                  2. Please provide a certificate of incorporation. |
|---------------|--------------------------------------------------------------------------------------------------|
| TECHNICAL PROPOSAL | 1. Proposed solution to the scope of this RFP;  
                         2. Description of the timeline, key deliverables and recommendations for successful implementation;  
                         3. Description of similar projects delivered to other clients. |
| Financial Proposal | Specify the total cost for the development detailing breakdown for each phase and deliverable.  
                          Specify a daily fee for custom development related to the scope of this RFP, you may include discounted rates for baskets of development. |

Proposers must provide all information required under this RFP and clearly and concisely respond to all points set out in this RFP. Any proposal which does not fully and comprehensively address this RFP may be rejected. However, unnecessarily elaborate brochures and other presentations beyond those sufficient to present complete and effective proposals, are not encouraged.

Following submission of the proposals and final evaluation, the Staff College will have the right to retain unsuccessful proposals. It is the proposer’s responsibility to identify any information of a confidential or proprietary nature contained in its proposal, so that it may be handled accordingly.

NO COMMITMENT

This RFP does not commit the UNSSC to consider any proposal, to award a contract or to pay any costs incurred in the preparation or submission of proposals, or any costs incurred in making necessary studies for the preparation thereof, or to procure or contract for services or goods.

The UNSSC reserves the right to reject any or all proposals received in response to this RFP and to negotiate with any of the proposers or other firms in any manner deemed to be in the best interest of the Organization.

This RFP contains no contractual proposal or offer of any kind; any proposal submitted will be regarded as an offer by the proposer and not as an acceptance by the proposer of any proposal or offer by the UNSSC. No contractual relationship will exist except pursuant to a written contract document signed by the authorized official of the Staff College and by an authorized officer of the successful proposer(s).

Rejection of Proposals
The UNSSC reserves the right to reject any proposals that, inter alia:
   i. are received after the deadline stipulated in the RFP;
   ii. are not properly marked or addressed as required in the RFP;
   iii. contain an alternate proposal; or
   iv. are not otherwise in compliance with the RFP.

**Ethical Standards**

All UN vendors shall adhere to the highest ethical standards, both during the procurement process and throughout the performance of a contract.

**Contract**

The UNSSC shall enter into a long-term agreement for the service with the highest scoring proposer in accordance with Annex C on a non-exclusive basis. The expected duration of each contract is three years, subject to satisfactory performance.

The award of the contract pursuant to the terms stated in this proposal, including its annexes, is subject to the United Nations General Conditions of Contracts (UNGCC). The applicable text of the UNGCC is available at the following address:


Full acceptance of the UNGCC is a mandatory requirement for the award of the contract(s), non-acceptance of the UNGCC may result in the rejection of the proposal.
## Annex C – Evaluation Criteria

### PRE-REQUISITE

1. Valid certificate of incorporation
2. Knowledge and experience in generative AI as well as design and development of AI-based products;
3. Minimum requirements of key personnel involved in the project:
   - Master's degree or higher in informatics or computer science or learning and development;
   - Minimum 5 years of experience in developing software products using AI techniques.

### TECHNICAL PROPOSAL

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<th>Criterion A: Proposed approach to developments.</th>
<th>Max Score 25 points</th>
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<tr>
<td>Evaluated based on:</td>
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<tr>
<td>• Proposed method for the preparation of the training data, annotation and labelling;</td>
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<td>• Methods and solutions to ensure data integrity;</td>
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<td>• Methodology and workflow for the fine-tuning process, with clear description of each steps to follow for pre-training, fine-tuning, evaluation</td>
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<td>• Proposed metrics and benchmarks to assess the effectiveness of the process;</td>
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<th>Criterion B: Proposed approach to development of customs solutions for UNSSC.</th>
<th>Max score 25 points</th>
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<tr>
<td>Evaluated based on:</td>
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<tr>
<td>• Computational requirements for the deployment of the final product on UNSSC’s ICT infrastructure;</td>
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<td>• Scalability and fine-tuning of the developed solution;</td>
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<td>• Approach for the continuous monitoring and improvement of the developed solution;</td>
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<th>Criterion C: Previous experience in delivering and developing similar projects., with particular focus on developing customised LLM solutions</th>
<th>Max score 10 points</th>
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### FINANCIAL PROPOSAL

| Indicate the total cost of the development | Max 30 points |
| Daily fee for custom development          | Max 10 points  |
A two-stage procedure is utilized in evaluating the submissions, with evaluation of the technical components being completed prior to any price proposals being opened and compared. The price proposal will be opened only for submissions that passed the minimum technical score of 70% (42 points) of the obtainable score of 60 points in the evaluation of the technical component.

Maximum 40 points will be given to the lowest offer and the other financial proposals will receive the points inversely proportional to their financial offers. i.e. $S_f = 30 \times \frac{F_m}{F}$, in which $S_f$ is the financial score, $F_m$ is the lowest price and $F$ the price of the submission under consideration. The weight of the technical proposal is 60% and the weight of the financial proposal is 40%.