GSI Helmholtzzentrum für Schwerionenforschung GmbH

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64291 Darmstadt

www.gsi.de

Facility for Antiproton and Ion Research in Europe GmbH

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64291 Darmstadt

www.fair-center.eu

Intended to remain with candidate/bidder, not to be returned with the participation application or tender!

A Note on Gender:

For reasons of readability, the language forms male, female and diverse (m/f/d) are not used concurrently. All gender markings and pronouns apply equally to all genders.

To All Bidders

Special Application Requirements for the Negotiation Procedure with Preliminar Call for Competition According to § 17 VgV

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To whom it may concern,

GSI Helmholtzzentrum für Schwerionenforschung & FAIR - Facility for Antiproton and Ion Research in Europe GmbH (hereinafter referred to as “GSI” & "FAIR", "Awarding Authority" or "Client") conducts a negotiation procedure with a preliminary call for competition according to § 17 VgV, § 119 para. 5 GWB [transl.: Act against Restraints of Competition for the tender **“33/RV_ Digitizer_maintenance & extension for GSI GmbH & FAIR GmbH”**
Maintenance and extension of the existing g distributed real-time digitizer framework for GSI and FAIR under the following conditions:

0. Notification of Ambiguities in the Tender Documents

After receiving the tender documents, Candidate must check them for completeness. If the tender documents are incomplete or if they contain ambiguities in Candidate's opinion, Candidate must immediately inform Awarding Authority before submitting the participation application via DTVP [transl.: German Awarding Platform].

A. Call for Competition

Components of the Participation Application

NOTE: To clarify matters, Awarding Authority emphasises that the terms "Candidate", "Bidder", "Tenderer" and "Contractor" each refer to the same (legal) person;

"Candidate" is usually used in the call for competition, "Bidder" throughout the tender procedure. The "Bidding Consortium" and the "Tenderer Consortium" are also used synonymously; for the sake of clarity, only the term "Bidding Consortium" is used in the other documents, even when it comes to the call for competition.

The following forms provided by GSI & FAIR together with the award documents must be completed and submitted to Awarding Authority as part of the participation application:

- Form Reguest to Participate for “Agile framework agreement”
- Form Declaration of Suitability according to §§ 123, 124 GWB
- Form Violations of the SchwarzArbG [transl.: Law On Illegal Employment], the AEntG [transl.: Posted Workers Act], the AufenthG [transl.: Residence Act] as well as the MiLoG [transl.: Minimum Wage Law]
- Form Business and Professional Liability Declaration
- Further Bidder Information
- Self-Declaration on Regulation (EU) 833/2014
- Company Profile
- Form References, with the following **requirements** for the references:

An agile work contract is offered.The services comprise the maintenance and further development of the C++ components of the distributed real-time digitizer framework and of the JavaFX components for scientific data visualisation. Applicants shall demonstrate their expertise in at least one of these two domains (C++ or JavaFX) by meeting the minimum requirements below for that domain.

Requirements for reference projects At least 3 and at most 5 reference projects relating to the services tendered for, from the last five years. Documented contributions to publicly accessible source code repositories may be submitted as a reference project. In that case, the repository URL shall be stated in place of the customer and the order volume.

Minimum requirements (all requirements must be met cumulatively for the C++ or the JavaFX domain):

(1) Documented contributions to the publicly accessible source code repositories of the software packages listed below, or to a publicly accessible source code repository

of comparable size and complexity in the same programming language and application domain (C++: a real-time or streaming signal-processing framework in C++20 or later; JavaFX: a JavaFX-based scientific charting or visualisation library), as follows:

C++: GNU Radio 4 (fair-acc/gnuradio4), OpenDigitizer (fair-acc/opendigitizer), OpenCMW-C++ (fair-acc/opencmw-cpp) and gr-digitizers (fair-acc/gr-digitizers)

JavaFX: ChartFx (fair-acc/chart-fx)

(2) The first such contribution shall date back at least 36 months before the deadline for the request to participate, and at least one contribution shall have been made within the last 36 months.

(3) At least 100 commits authored by the applicant shall have been merged into the default branch of a repository referred to under (1) that is not controlled by the applicant. Commits are counted as commits authored on the default branch, excluding merge commits, as at the deadline for the request to participate; an equivalent demonstrable contribution volume (e.g. merged pull requests) may be submitted instead.

(4) Named personnel who will perform the contract, each with at least five years of professional experience in the relevant programming language: C++: at least two developers, each with at least two years using C++20 or later and at least 20 individually attributable commits under (1); JavaFX: at least one developer with at least two years using Java 17 or later and at least 50 individually attributable commits under (1).

(5) Evidence for (1) to (4) shall be furnished by stating the repository URLs and the account identifiers (e.g. GitHub user names) and/or e-mail addresses under which the contributions were made, such that the contributions are attributable to the applicant and to the named personnel and are verifiable by the contracting authority. Additional documentation (release notes, publications, project descriptions) may be submitted.

(6) In addition, experience in at least one of the following areas of the respective domain is required:

C++: signal processing, GNU Radio 4.0, OpenDigitizer, and/or digitizers or other similar generic laboratory I&M equipment (e.g. oscilloscopes, spectrum analysers).

JavaFX: scientific data visualisation, UI/UX design, GraalVM, Java-based robotics control or automation platforms.

(7) Where a third party provides the evidence under (1) to (4) (reliance on the capacities of other entities), that third party shall perform the corresponding parts of the contract itself. The core development work, i.e. the design, implementation, testing and maintenance of the source code delivered under this contract, shall be performed by the applicant itself.

An agile work contract is offered. The applicable process is described in the Agile Process Description annexed to the framework agreement.

Attention! Subcontracting is not permitted without the written consent of GSI & FAIR!

If Candidate submits the **Einheitliche Europäische Eigenerklärung "EEE" [transl.: European Single Procurement Document (ESPD)] in accordance with § 50 VgV**, only the following of the aforementioned forms must be attached **in addition**:

- Form Company Presentation (completed, because of the additional data requested)
- Form Violations of the SchwarzArbG, the AEntgG, the AufenthG as well as the MiLoG
- Form Professional Liability Insurance

In addition, GSI & FAIR would like to point out that in this case each member of Bidding Consortium and each subcontractor must complete an EEE.

The forms provided with the tender documents must be completed in full, depending on the participation application. Failure to submit or incomplete submission of the required documents, as well as deliberate misrepresentation may result in exclusion of Candidate from the competition. GSI & FAIR reserves the right to request additional documents once only within a period to be determined in the subsequential request in accordance with § 56 VgV. Candidates cannot, however, rely on such a request being made. Ultimately incomplete participation requests will be excluded (§ 57 para. 1 no. 2, para. 3 VgV).

Candidates may not base their participation application on their own contractual conditions. Changes to the tender documents (e.g. deletions or additions to the documents in spaces not provided explicitly for this purpose) are not permitted and will result in exclusion from further proceedings, § 57 para. 1 no. 4, para. 3 VgV.

The following documents are made available together with the tender documents for information purposes:

- Specifications/service description (consisting of the specifications listed again in the call for tender and in the contract - in case of inconsistencies, the listing in the contract is legally binding.)
- Documents relating to the bidding phase (contract, tender evaluation criteria)

These documents must not be completed or submitted as part of the participation application. Especially the documents relating to the bidding phase are for information purposes only and must not to be completed or submitted as part of the participation application.

If tenders are already submitted during Phase 1 of the procedure (call for competition), this may lead to the exclusion of Candidate.

1. Deadline for Submitting a Participation Application

The deadline set in the contract notice for the submission of participation applications must be strictly observed. Participation applications received late will be excluded from the procedure, unless Candidate cannot be held responsible (§ 57 para. 1 no. 1, para. 3 VgV).

2. Formal Requirements for the Participation Application

The only form of submission of participation applications accepted by Awarding Authority is in writing, electronically

Note: In Writing, Electronically

Participation applications shall be submitted electronically within the deadline via the German awarding platform DTVP.

URL: http://www.dtvp.de/Center/

The forms and other documents to be completed, provided by GSI & FAIR, may be

- either completed on the online tendering tool under the section "Documents to Be Completed" or

- created and compiled separately by Candidate together with the other components of the participation application or tender (concepts or explanations etc.), then uploaded under the heading "Own Documents".

However, Candidates should not fill in the forms online and upload them again separately, as this can result in transmission errors and increases the workload on both sides.

In order to comply with the text form (in writing) according to § 126b BGB [transl.: German Civil Code] when submitting participation applications, Candidates must provide the following information:

- In the case of natural persons, the full name (first name and surname) must be given (name of the declaring person in the participation application form).
- In the case of legal entities and commercial companies and corporations, the name of the company and its legal form must be stated. In addition, the full name of the employee who is submitting the participation application on behalf of the company (name of the declaring person in the participation application form) must be stated. The insertion of a company logo is not sufficient.
- In the case of Bidding Consortia, the declaring person according to § 126b BGB shall be the employee of the leading member who submits the participation application on behalf of the Bidding Consortium; besides, the form "Bidding Consortium Declaration" must be submitted.

It should be noted that in the case of electronic submission, the text form according to § 126b BGB is only observed if the participation applications are transmitted in encrypted form via the awarding platform (cf. information on eVergabe). **Submitting the participation application via email is not sufficient.**

In the case of incorrect/ incomplete information that violates the aforementioned formal requirements, participation applications will be excluded unless Candidate cannot be held responsible (§ 57 para. 1 nr. 1, para. 3 VgV).

4. Communication with Candidates

Communication with Candidates takes place via the DTVP's tender platform. Questions must be sent to GSI & FAIR via DTVP and will are answered via DTVP. Questions posed orally or by telephone regarding the documents or the contractual object will not be answered; answers given orally or by telephone are not binding.

5. Languages

The procedural and contractual language is English. The tender documents, specifications and technical equipment are in English.

B. Bidding Phase

1. Procedural Information

After the deadline for submitting the participation applications has expired, GSI & FAIR will check that the documents submitted are complete and that any minimum requirements specified in the contract notice have been met. Participation applications that are still incomplete even after a possible request for additional documents will be excluded from the further procedure. GSI & FAIR will request that Bidders who have proven their suitability according to § 122 GWB by submitting the participation application now submit a tender in the Phase 2.

Based on the minimum requirements set out in the "Form References" document, GSI & FAIR will solicit bids from a minimum of three and a maximum of five bidders that meet the requirements of the contracting authority. If fewer or exactly three bidders meet the selection criteria, all will be invited to submit a bid.

The request for tenders shall also specify the **binding deadline for the submission of tenders**. Tenders received after this deadline will be excluded from the further procedure unless Bidder cannot be held responsible (§ 57 para. 1 no. 1 VgV).

GSI & FAIR will check that the documents submitted with the offers are complete and that any specified minimum requirements have been met. In addition, GSI & FAIR will examine the cost-effectiveness of the tenders and evaluate them provisionally on the basis of the award criteria (see below) and come to a decision about the award.

GSI & FAIR expressly reserves the right according to § 17 para. 11 VgV to award the contract on the basis of the initial offers without entering into negotiations. The initial offers submitted by the deadline are therefore already binding.

If there is need for negotiation and consequently the contract is not awarded on the basis of the initial tenders, the contracting authority will subsequently negotiate the initial tenders and any subsequent tenders (but not the minimum requirements and award criteria) with Bidders in one or more rounds, as necessary. GSI & FAIR reserves the right to negotiate only with the three Bidders whose initial tenders have received the highest scores in the preliminary evaluation.

At the conclusion of the negotiations, GSI & FAIR will set a single deadline for Bidders still involved in the procedure for submission of their final tenders; GSI & FAIR will then make a decision considering these final tenders on the basis of the specified award criteria without renegotiating. GSI & FAIR points out that the award may be made to a contract that has been specifically negotiated, the specific provisions of which may differ from those of the contracts finally negotiated with other Bidders.

The general procedural information in Part A. of these application requirements concerning language and form of participation applications, the communication of ambiguities, communication, Bidding Consortia and subcontractors, etc. shall apply mutatis mutandis to the preparation and submission of tenders in Phase 2. Something else shall only apply if the regulations can, by their nature, only be effective in regards to participation applications or hereafter or if the invitation to submit an offer expressly contains diverging regulations for the tenders.

In Phase 2, the following also applies: All forms and templates provided with the tender documents must be completed in full. Prices must be quoted on the tender form and expanded on in the cost breakdown. Bidders may not base their bids on their own contractual conditions. Changes to the tender documents (e.g. deletions or additions to the documents in spaces not provided explicitly for this purpose) are not permitted and will result in exclusion of the tender from the tender procedure, §§ 53, 57 VgV.

If Bidder makes changes to the documents without indicating them clearly, Bidder may be excluded from the further procedure.

2. Components of the Tender

NOTE: The declaration of intention to submit a tender **(Form Declaration of Intention of Tender)** must be submitted to Awarding Authority **at least 1 week before the deadline for submitting the tender**.

The basis for the tender are all tender documents made available via DTVP.

The following documents made available to Bidder together with the tender documents must be submitted to Awarding Authority as part of the tender:

- Form Tender (completed)

The following documents must also be prepared by Bidder and submitted to Awarding Authority together with the tender:

- Explanatory Notes on the Tender (see below, Section 6.)
- Technical concept for the offer (see evaluation criteria)

The following documents are also part of the tender but remain with Bidder:

- Contract
- Specifications/service description (consisting of the specifications listed again in the call for tender and in the contract - in case of inconsistencies, the listing in the contract is legally binding.)
  VOL/B [transl.: German Construction Contract Procedures, Part B], up-to-date version

3. Form and Deadline

The same rules on the form of participation applications (Part A, section 3) shall apply to the submission of tenders. The deadline set in the contract notice for the

submission of participation applications must be strictly observed. Tenders received late will be excluded from the procedure, unless Bidder cannot be held responsible (§ 57 para. 1, no. 1 VgV).

4. Award Criteria/ Tender Evaluation

The award shall be made to the most economically advantageous tender. Bidders accepted for evaluation shall be evaluated on the basis of the award criteria with the corresponding weighting indicated.

In compliance with the general principles of equal treatment and transparency, Awarding Authority has determined the following award criteria:

Award Criteria	Weighting	Score
Total Bid Offer = price	100 %	evaluation method, see below

For each call from the framework agreement, the client will call for a new competition among the contractual partners (so-called mini-competition).

For the overall project we are assuming 10 to 12 mini-competitions.

Award Criteria mini-competition	Weighting	Score
Total Bid Offer = price	60 %	evaluation method, see below
Performance Criteria (PC)	40 %	evaluation method, see below

Performance Criteria, Specified (100%)	Weighting Key Criteria	Points	Score/ max. score
Delivery time	**100 %**	0 - 10	XX/1000
Total	**100 %**		XX/1000

If there is a specific need, the framework contract partners will receive a request for the following initial calls are foreseen **a), b) c)_Exemples.** Here, the most economical offer according to the evaluation matrix is awarded the contract. If the delivery date is specified, this is considered fixed when the contract is awarded in the mini-competition and must be observed.

Multiplicative with maximum duration, i.e.

Points (kEUR*) = 'fixed total costs' * 'committed time' / 'mean value (committed time of all providers)`

Those bidders with the lowest point value get the contract awarded, for example:

* if bidder A offers to execute the project within 80% of the time and for a fixed-price of 200 kEUR would get a point value of 160 kEUR*, and

* if bidder B to execute the project within 120% of the time and for a fixed-price of 200 kEUR would get a point value of 240 kEUR*, then bidder A would get the contract awarded for a fixed price of 200 kEUR.

Initially, the following should be developed:

A) **Implementation of a generic digitizer framework[1] based on OpenCMW[2], existing specifications and implementations[3,4]:**
[1]: Digitizer: https://edms.cern.ch/document/1823376/1
[2]: OpenCMW: https://edms.cern.ch/document/2444348/1
[3]: **https://github.com/fair-acc/gr-digitizers**
[4]: https://github.com/fair-acc/gr-flowgraph
Particularly:
1) Migration of the existing Digitizer GNU Radio (GR) modules from V3.7 to V3.9
2. Adaptation and splitting of the existing timing integration into two sub-components:
   - a generic digitizer timing input for the GR sources (i.e. 'message port'), and
   - GR blocks for SW or UDP-based (for stand-alone QA, FAT / SAT tests) and HW-based White Rabbit (FAIR) timing sources
3. Extension / support of GR Hier-blocks in and possibly revision of 'gr-flowgraph'
4. Migration of the existing FESA implementation to OpenCMW and completion of the user interfaces based on [1].
5. Development of a simple digitizer signal name DNS service (OpenCMW-based), i.e.

- Digitizers register themselves and their available / configured signals with the DNS (simple memory-only hash map, with time-expiring elements)
- For unknown signals, applications do a look-up at the DNS and then report to the actual specific digitizer server with the information.

6. If necessary: the necessary generic functionalities in OpenCMW should be completed.
7. Analysis, re-evaluation and (according to 'A.3)' & 'B)') processing of the existing issues (partly FESA-specific and may become irrelevant with the use of OpenCMW):
   1. **https://github.com/fair-acc/gr-digitizers/issues?q=is%3Aissue+is%3Aopen+label%3Aexternal (24 issues)**
   2. **https://gitlab.com/al.schwinn/gr-flowgraph/-/issues?label_name[]=external (2 issues)**

B) Agile development of a Qt-based digitizer application for remote display of the signals acquired and published in 'A)'.

1. The new Qt application should be usable both natively (Linux) and via WebAssembly and should be qualitatively / functionally oriented towards applications of the digitizer hardware manufacturer (https://www.picotech.com/) or similar other prototypes.
2. If technically possible: a sub-set of functions of the signals should be visualized via semi-static service-side (offscreen) rendering as web-based fixed displays (i.e. representation of individual signals or preconfigured static views).
3. If necessary: the necessary generic functionalities in Chart-Qt and OpenCMW should be completed.

C) Agile development of further GSI / FAIR-specific measurement & monitoring applications based on the signals generated (and/or existing) described in 'A)'.

1) Monitoring & aggregated UI for pulsed devices (specifically: SIS18 injection, bumper & extraction kicker, primarily: actual-vs-reference parameter value comparison of the signal rise-time, settling-time, over-shoot, flat-top ripple, flat-top duration and fall-time)
   - detailed functional and UI analysis should be established through a sprint / user-workshop
2) Monitoring & aggregated display of the RF cavity parameters (primarily: actual-vs-reference parameter value comparison of the RF amplitude, phase, and frequency) and the resulting bunch shape (i.e. tomography).

- detailed functional and UI analysis should be established through a sprint / user-workshop

This includes not only the actual implementation of the services and applications etc, but also the (remunerated) analysis and creation of the conceptional / detailed design for the applications insofar as these do not emerge from the existing implementations or specifications.

4.1 Weighting of Award Criteria

The evaluation is based on the price-quotient method. Price and performance are assigned the weighting factors (see above). The Price-Quotient-Method can be shown as follows:

$$Z = G(\text{Performance}) * L(\text{Tender}) + G(\text{Price}) * \frac{L(\text{best}) * P(\text{lowest})}{P(\text{Tender})}$$

The individual components of the formula are specified as follows:

Z(Tender) = Weighted score for price/performance evaluation of the evaluable tender

G(Performance) = Weighting factor for the performance criteria of the evaluable tender according to the above chart

L(Tender) = Total score of the performance criteria of the evaluable tender as reference value

G(Price) = Weighting factor for the total bid price of the evaluable tender in accordance with the above chart

L(best) = Best overall score of the performance criteria of the evaluable tenders

P(lowest) = Lowest total tender price of the evaluable tenders

P(Tender) = Total tender price of the evaluable tender

4.2 Award Criterion "Total Tender Price"

In the context of the award criterion "total tender price", which is included in the evaluation at **100 %**, the price quotations are taken into account as follows:

In order to submit a tender in terms of price, the tender form must be completed, the specifications of which are described in more detail in the tender form itself and in the service description.

Only the prices stated in the tender form are binding for the provision of services.

5. Alternative Tender, § 35 VgV

Alternative tenders are not permitted.

6. Explanatory Notes on the Tender

Bidder submits the tender with a document attached that explains the total tender price and the technical data of the scope of supply and services offered in detail. The information required under technical specifications must be documented. All system components must be listed and described in detail.

7. Industrial Property Rights, § 53 para. 8 VgV

If industrial property rights exist for and apply to the subject of the tender or have been applied for by Bidder or others, this must be stated under Explanatory Notes on the Tender. If Bidder is considering making information from their tender the subject of an application for an industrial property right, this must be clearly stated under Explanatory Notes on the Tender.

C. Competent Authority for Appeals, Other Information

The competent reviewing authority is

Vergabekammer des Bundes [transl.: Federal Public Procurement Tribunal]
Villemombler Straße 76
53123 Bonn
Tel.: 0228 9499-0
Fax: 0228 9499-163
Email: vk@bundeskartellamt.bund.de
Website:
http://www.bundeskartellamt.de/SharedDocs/Kontaktdaten/DE/Vergabekammern.html

Candidate/ Bidder is requested to clearly identify those sections of the participation application (and eventually of the tender, if applicable) that contain a trade or business secret. If Bidder fails to do so, the Public Procurement Tribunal may, in

the case of a review procedure, assume that Bidder has agreed to have these documents inspected (§165 para. 3 GWB). As Awarding Authority, GSI & FAIR is obliged to make the tender file available to the Public Procurement Tribunal immediately when initiating a review procedure (§ 163 para. 2 cl. 3 GWB).

Candidates/ Bidders have a right to expect the contracting authority's compliance with the Bidder-protecting provisions re: the tender procedure (§ 97 para. 6 GWB). If Candidate/ Bidder interested in the contract considers that Bidder's rights have been infringed through failure to comply with award regulations, the infringement must be reported to GSI & FAIR within ten calendar days (§ 160 para. 3 cl. 1 nr. 1 GWB).

Infringements identifiable on the basis of the announcement or the award documents must be asserted against GSI & FAIR within the deadline for submission of applications (or tenders) specified in the announcement (§ 160 para. 3 cl. 1 nr. 2 - 3 GWB).

If GSI & FAIR informs Candidate/ Bidder that GSI & FAIR is unwilling to redress its complaint, it is possible to file an appeal for review with the aforementioned Public Procurement Tribunal within 15 days of receipt of the notification (§ 160 para. 3 cl. 1 nr. 4 GWB).

Bidders whose tenders are not to be considered for the award will be informed prior to the award according to § 134 GWB. A contract may only be concluded 15 calendar days after this information has been sent by GSI & FAIR. In the case of transmission by fax or electronic means, this period shall be ten calendar days. It commences on the day after dispatch of the information by GSI & FAIR. After this period has expired, a surcharge is possible, even if the deadline is not passed according to § 160 para. 3 GWB. An application for review would therefore have to be delivered to GSI & FAIR by the Public Procurement Tribunal before the expiry of the deadline according to § 134 GWB in order to prevent a surcharge.

According to § 135 para. 1 and 2 GWB, the ineffectiveness of a commission can only be established if it has been asserted in the review procedure within 30 calendar days of the conclusion of the contract but not later than six months after the conclusion of the contract. If the contracting entity has published the award in *Amtsblatt der Europäischen Union* [transl.: Official Journal of the European Union], the period unenforceability shall end 30 calendar days after announcement of the publication of the award in *Amtsblatt der Europäischen Union*.

Information pursuant to Art. 13 GDPR on the processing of your personal data within the scope of our business relationship is available at:

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