



Request for Proposals (RFP)

**For the development of a learning management system
for virtual reality training**

RFP No. 3391/16/09/2020

Date of Issue	Tuesday, 01 September 2020	
Closing Date	Wednesday, 16 September 2020 at 16h30	
Place of tender submission	tender@csir.co.za If tenders exceed 30MB multiple emails can be sent	
Enquiries	Strategic Procurement Unit (tender@csir.co.za)	
CSIR business hours	08h00-16h30	E-mail:tender@csir.co.za
Category	Engineering	

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1 SECTION A – TECHNICAL INFORMATION

1 INTRODUCTION

The Council for Scientific and Industrial Research (CSIR) is one of the leading scientific research and technology development organisations in Africa. In partnership with national and international research and technology institutions, CSIR undertakes directed and multidisciplinary research and technology innovation that contributes to the improvement of the quality of life of South Africans. The CSIR's main site is in Pretoria while it is represented in other provinces of South Africa through regional offices.

2 BACKGROUND

The CSIR is developing augmented-virtual reality (AR-VR) training solutions to support the effective and efficient operation and maintenance of complex system equipment. The CSIR has a long history of technology development in the areas of virtual training simulators, modelling and simulation, visualisation and computer vision. AR-VR technologies developed at the CSIR Defence and Security cluster have been produced in 3 impact areas including, aeronautics systems (helicopter pilot trainer for deck landing), Optronics Sensor Systems (helicopter deck landing instructions trainer), command and control systems (Holo-lens and tactical battlefield modelling and simulation), and electronic warfare engagement simulator (SEWES).

The modern trends in line with 4IR is that of developing intelligent training environments that adapt the learning process according to the learner's ability and progress under training, in order to improve the training process. This requires expertise in the area of psychology of education and learning, to be able to exploit the theory, principles and processes on how the brain learns. For effective learning and skills transfer to take place, the best andragogy (the study of how adults learn) must be applied within the context of the learning environment. This will be achieved by a learning management system (LMS), which is to be developed and integrated with a VR trainer to measure the capabilities of the trainee as they execute the tasks, and adapt the learning processing accordingly to optimize the training process. The LMS will uncover strengths and weaknesses of the trainee and expose them to situations that will allow for quicker development of relevant skills.

The supplier will deliver the strategies, concepts and implementation manual of the learning management system that will form part of a VR trainer.

3 INVITATION FOR PROPOSALS

Proposals are hereby invited for the development of a learning management system for virtual reality training. The proposals are for work that will be conducted over a period of no longer than 3 Months.

4 PROPOSAL SPECIFICATION

All proposals are to be submitted in a format specified in this enquiry. However, tenderers are welcome to submit additional / alternative proposals over and above the originally specified format. Please note that additional/alternative proposals will only be measured against the criteria set out in this RFP.

4.1 Task

The development of a learning management system (LMS) for a VR trainer including:

- Strategy
- Concept of operation
- System/sub-system design and specification
- Implementation manual
- Procurement of relevant hardware

4.2 VR Mobile Development Workstation

The adoption of mobile/VR platforms as a learning medium has the potential to drive a significant transformation in current training and educational trends. It enables current methods of training to be propelled by:

- Providing safe, repeatable, and controlled exposure to emotional, and stressful situations,
- Training effectively with isolation from distractions,
- Offering immersive experiences that promote knowledge retention,
- Reducing training budget and providing scalability.

The VR mobile development workflow is also required.

4.2.1 Functional Requirements

- 4.2.1.1 Hold workshops on strategies for the development of the learning management system (LMS) in line with requisite experience and expertise on the psychology of education and learning.
- 4.2.1.2 The contractor shall produce documents on strategy, concept of operation, system and sub-system requirements specification, and implementation manual for the learning management system (LMS).
- 4.2.1.3 The contractor shall procure the required hardware (Section 4.2.2.1) and install the required operating systems, software, and tools.
- 4.2.1.4 The contractor shall develop a module that hosts a placeholder 3D model which can be interacted with in virtual space in, VR, and mobile smart-tablet virtual environments.

4.2.1.5 The 3D model shall be interactable in AR/mobile platforms using touch gestures and on virtual reality platforms using hand gestures.

The required interactions (for both VR and) of the 3D model are as follows:

- Object Resize
- Object Rotate
- Object Translate

4.2.2 Physical Specifications

4.2.2.1 Hardware and Computing Units

The Devices that are required for the simulation training are as follows:

AR and Mobile Deployment and Testing

- 1 x Samsung Galaxy Note 20 Ultra
- 1 x Samsung Galaxy Tab 7+ with Pen and case
- 1 x iPad Pro 12.9" – with Apple Pencil and cover case

VR Deployment and Testing

- Oculus Quest with:
 - Controllers
 - Link Cable
- HTC Cosmos with:
 - Controllers
 - VIVE Wireless Adapter
 - HTC VR Tracker
 - Hand Tracking Module for the HTC Cosmos

AR/VR and Mobile Development

- PC Workstation
 - 10th Generation Intel CPU
 - 32Gig RAM
 - 1 TB M.2 Storage
 - Nvidia 2080 TI GPU
 - Motherboard with PCIe 4 Support
 - Samsung LC49HG90DMUXEN 49 Curved Monitor
 - Windows 10 OS installed
 - Precision mouse and keyboard
- MacBook Pro Workstation
 - 16 inch
 - 9th Gen Intel processor
 - 16 Gigs RAM
 - 1 TB Storage
 - Fusion boot with Windows and MacOS Installed

4.2.2.2 Virtual Environments:

- Unity based.

- The training and testing modules shall be compatible with Augmented Reality Frameworks such as Vuforia and AR foundation
- The installation shall be compatible with Steam VR framework

4.2.2.3 Software:

- Unity 2020.1 installed.
- Unity Assets, environments, and scripts.
- VR Frameworks
- C# API Library
- Support for Mac, Linux 20 and Windows 10.

4.2.3 Deliverables

4.2.3.1 Project management and System engineering

- Project plan including a SOW and timelines
- Documentation: Strategy, Concept of operation, System requirements, Implementation manual
- Monthly progress reports and workshop minutes

4.2.3.2 Software and Hardware

- Two Unity Pro licenses valid for two years.
- Unity Assets, environments, and scripts.
- Source code.
- Computing units (as mentioned in 4.2.2.1)

4.2.4 Software Demonstrations:

- Milestone software demonstrations for progress reporting
- Final ATP conducted at CSIR

4.3 Proposal Submission

The proposal submission must include supporting documentation highlighting the experience and expertise of the qualifying enterprise (e.g. include complete business profile and portfolio) and names of personnel to be used in the projects.

The proposal must include:

- Detailed CVs of currently employed staff (permanent or part-time) from which relevant experience for the items listed in paragraph 4.1 can be ascertained and/or assessed.
- Company documentation
- Expected development timelines
- Equipment proposal

- Resource Planning

5 FUNCTIONAL EVALUATION CRITERIA

5.1 The evaluation of the technical capability of the proposal will be based on the following criteria:

Evaluation Criteria	Technical Evaluation Criteria	Weight	Score	Result
Software Development Experience				
The bidder needs to demonstrate in CV /Business profile/Reference Letter a combination of the following experience and expertise in years:				
<ul style="list-style-type: none"> • Application development with Unity 	<ul style="list-style-type: none"> • 5 = 4 or more years' experience. • 3 = 3 years' experience • 2 = 2 years' experience • 0 = 0 years' experience 	5%.	Out of 5	
<ul style="list-style-type: none"> • Software development with C# 	<ul style="list-style-type: none"> • 5 = 4 or more years' experience. • 3 = 3 years' experience • 2 = 2 years' experience • 0 = 0 years' experience 	5%.	Out of 5	
Modelling and Simulation Experience				
The bidder needs to demonstrate in CV /Business profile/Reference Letter a combination of the following experience and expertise:				
<ul style="list-style-type: none"> • List of projects involving Modelling of 3D CAD models in mechanical machinery. 	<ul style="list-style-type: none"> • 5 = 4 or more years' experience. • 3 = 3 years' experience • 2 = 2 years' experience • 0 = 0 years' experience 	5%	Out of 5	
<ul style="list-style-type: none"> • List of projects involving Animation of 3D parts of mechanical assemblies 	<ul style="list-style-type: none"> • 5 = 4 or more years' experience. • 3 = 3 years' experience • 2 = 2 years' experience • 0 = 0 years' experience 	5%.	Out of 5	
3D Simulation for Training Experience				
The bidder needs to indicate the R&D or related projects they have worked in over the past 5 years.				
<ul style="list-style-type: none"> • List of Training Simulations. 	<ul style="list-style-type: none"> • 5 = 4 or more projects. • 3 = 2-3 projects. • 2 = 1 projects. • 0 = 0 projects. 	5%	Out of 5	

<ul style="list-style-type: none"> List of VR and/or AR Development projects. 	<ul style="list-style-type: none"> 5 = 4 or more projects. 3 = 2-3 projects. 2 = 1 projects. 0 = 0 projects. 	5%	Out of 5	
Psychology of education and training The bidder needs to indicate their qualification in education and training				
<ul style="list-style-type: none"> Qualification 	<ul style="list-style-type: none"> 5 = University degree in education 0 = no relevant qualification 	55%	Out of 5	
Resources The bidder needs to provide detailed CVs of qualifying personal that will be used within the project.				
Qualifying CVs: Skills: a. 3D Modelling and Visualisation. b. AR/VR c. Real-time 3D platforms. d. Project Management. e. Programming.	<ul style="list-style-type: none"> 5 = 2 CVs (Covering all skills) 3 = 2 CVs (Covering (a or b) and c) 2 = 1 CV (Covering a or b) 0 = 0 CVs provided with relevant experience and qualifications. 0 or more reference letter indicating similar work completed. 	10%	Out of 10	
<ul style="list-style-type: none"> Project reference letters. 	<ul style="list-style-type: none"> 5 = 4 letter. 3 = 3 letters 2 = 2 letters 0 = 0 letters 	5%	Out of 5	

- Proposals with capability points of less than the pre-determined minimum overall percentage of 65% will be eliminated from further evaluation.

6 ELIMINATION CRITERIA

Proposals will be eliminated under the following conditions:

- Submission after the deadline;
- Proposals submitted at incorrect - submit to tender@csir.co.za
- incomplete submission (e.g. missing required documentation such as, Business Profile, CVs of Personnel, Reference letters from clients, Evidence of experience or expertise, and other relevant documentation);
- Proposals that are out of scope or specifications presented in this document;
- Proposals without hourly labour rates for resources;
- Only Service providers with BBBEE Level 1 (51% or more black ownership) will be considered for this work;

7 FINANCIAL EVALUATION CRITERIA

This RFP has budget restrictions for the period of the contract. Each proposal submitted and has passed the technical evaluation stage would be subjected to the following criteria with regards to the financial aspects:

- **Labour hourly rate (VAT Exclusive)** for different types of resources (e.g. Junior and Senior) including project management or other costs (if not included in the labour hourly rate) for 2020/2021 financial year. Labour rate increase is equal to inflation rate.
- CSIR will negotiate the final terms and conditions of the contract with the successful bidders. This may include aspects such as the project requirements, statement of works, level of effort (based on labour hourly rate quoted) and delivery including project plans. Thereafter, the final contract will be awarded to the successful bidders(s).

8 NATIONAL TREASURY CENTRAL SUPPLIER DATABASE REGISTRATION

Before any negotiations will start with the winning bidder it will be required from the winning bidder to:

- be registered on National Treasury's Central Supplier Database (CSD). Registrations can be completed online at: www.csd.gov.za;
- provide the CSIR of their CSD registration number; and
- provide the CSIR with a certified copy of their B-BBEE certificate. If no certificate can be provided, no points will be scored during the evaluation process. (RSA suppliers only)

2 SECTION B – TERMS AND CONDITIONS

9 VENUE FOR PROPOSAL SUBMISSION

All proposals must be submitted at: tender@csir.co.za

If tenders exceed 30MB multiple emails can be sent

10 TENDER PROGRAMME [Update dates]

The tender program, as currently envisaged, incorporates the following key dates:

- Issue of tender documents: 1 September 2020
- Closing / submission Date: 16 September 2020

11 SUBMISSION OF PROPOSALS

11.1 All proposals are to be clearly marked with the RFP number and the name of the tenderer and must consist of two parts, clearly marked:

2.1 **PART 1:** Technical Proposal:

2.2 **PART 2:** Pricing Proposal, B-BBEE and other Mandatory Documentation:

11.2 Proposals submitted by companies must be signed by a person or persons duly authorised.

11.3 The CSIR will award the contract to qualified tenderer(s) whose proposal is determined to be the most advantageous to the CSIR, taking into consideration the technical (functional) solution, price and B-BBEE.

12 DEADLINE FOR SUBMISSION

Proposals shall be submitted at the address mentioned above no later than the closing date of *16 September 2020* during CSIR's business hours. The CSIR business hours are between 08h00 and 16h30.

Where a proposal is not received by the CSIR by the due date and stipulated place, it will be regarded as a late tender. Late tenders will not be considered.

13 AWARDING OF TENDERS

13.1 Awarding of tenders will be published on the National Treasury e-tender portal. No regret letters will be sent out.

14 EVALUATION PROCESS

14.1 Evaluation of proposals

All proposals will be evaluated by an evaluation team according to technical points, price and B-BBEE as stated in Section 4 and 5. Based on the results of the evaluation process and upon successful negotiations, the CSIR will approve the awarding of the contract to successful tenderers.

A three-phase evaluation process will be followed.

- The first phase includes evaluation of **elimination** and **functionality criteria**,
- The second phase includes the evaluation of **price** and **B-BBEE** status.
- Final evaluation score consist of 50% pricing and 50% functionality.

Pricing Proposals will only be considered after functionality phase has been adjudicated and accepted. Only proposals that achieved the specified minimum qualification scores for functionality will be evaluated further using the preference points system.

14.2 Preference points system

The 80/20 preference point system will be used where 80 points will be dedicated to price and 20 points to B-BBEE status.

15 PRICING PROPOSAL

15.1 Pricing proposal must be cross-referenced to the sections in the Technical Proposal. Any options offered must be clearly labelled. Separate pricing must be provided for each option offered to ensure that pricing comparisons are clear and unambiguous.

15.2 Price needs to be provided in South African Rand (excl. VAT), with details on price elements that are subject to escalation and exchange rate fluctuations clearly indicated.

15.3 Price should include additional cost elements such as freight, insurance until acceptance, duty where applicable.

15.4 Only firm prices* will be accepted during the tender validity period. Non-firm prices** (including prices subject to rates of exchange variations) will not be considered.

**Firm price is the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax which, in terms of a law or regulation is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;*

***Non-firm price is all prices other than “firm” prices.*

15.5 Payment will be according to the CSIR Payment Terms and Conditions.

16 VALIDITY PERIOD OF PROPOSAL

Each **proposal** shall be valid for a minimum period of three (3) months calculated from the closing date.

17 APPOINTMENT OF SERVICE PROVIDER

17.1 The contract will be awarded to the tenderer who scores the highest total number of points during the evaluation process, except where the law permits otherwise.

17.2 Appointment as a successful service provider shall be subject to the parties agreeing to mutually acceptable contractual terms and conditions. In the event of the parties failing to reach such agreement CSIR reserves the right to appoint an alternative supplier.

17.3 Awarding of contracts will be announced on the National Treasury website and no regret letters will be sent to unsuccessful bidders.

18 ENQUIRIES AND CONTACT WITH THE CSIR

Any enquiry regarding this RFP shall be submitted in writing to CSIR at tender@csir.co.za with **“RFP No 3391/16/09/2020 – Development of a learning management system for Virtual Reality training** as the subject.

Any other contact with CSIR personnel involved in this tender is not permitted during the RFP process other than as required through existing service arrangements or as requested by the CSIR as part of the RFP process.

19 MEDIUM OF COMMUNICATION

All documentation submitted in response to this RFP must be in English.

20 COST OF PROPOSAL

Tenderers are expected to fully acquaint themselves with the conditions, requirements and specifications of this RFP before submitting proposals. Each tenderer assumes all risks for resource commitment and expenses, direct or indirect, of proposal preparation and participation throughout the RFP process. The CSIR is not responsible directly or indirectly for any costs incurred by tenderers.

21 CORRECTNESS OF RESPONSES

- 21.1** The tenderer must confirm satisfaction regarding the correctness and validity of their proposal and that all prices and rates quoted cover all the work/items specified in the RFP. The prices and rates quoted must cover all obligations under any resulting contract.
- 21.2** The tenderer accepts that any mistakes regarding prices and calculations will be at their own risk.

22 VERIFICATION OF DOCUMENTS

- 22.1** Tenderers should check the numbers of the pages to satisfy themselves that none are missing or duplicated. No liability will be accepted by the CSIR in regard to anything arising from the fact that pages are missing or duplicated.
- 22.2** Electronic copy of each proposal must be submitted.
- 22.3** Pricing schedule and B-BBEE credentials should be submitted with the proposal, but as a separate document and no such information should be available in the technical proposal.
- 22.4** If a courier service company is being used for delivery of the proposal document, the RFP description must be endorsed on the delivery note/courier packaging to ensure that documents are delivered to the tender box, by the stipulated due date.

23 SUB-CONTRACTING

- 23.1** A tenderer will not be awarded points for B-BBEE status level if it is indicated in the tender documents that such a tenderer intends sub-contracting more than **10%** of the value of the contract to any other enterprise that does not qualify for at least the points that such a tenderer qualifies for, unless the intended sub-contractor is an exempted micro enterprise that has the capability and ability to execute the sub-contract.
- 23.2** A tenderer awarded a contract may not sub-contract more than **25%** of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an exempted micro enterprise that has the capability and ability to execute the sub-contract.

24 ENGAGEMENT OF CONSULTANTS

The consultants will only be remunerated at the rates:

- 24.1** Determined in the "Guideline for fees", issued by the South African Institute of Chartered Accountants (SAICA); or
- 24.2** Set out in the "Guide on Hourly Fee Rates for Consultants", by the Department of Public Service and Administration (DPSA); or
- 24.3** Prescribed by the body - regulating the profession of the consultant.

25 TRAVEL EXPENSES

- 25.1** All travel expenses will be on the selected service providers' accounts and these need to be factored in the labour rate quoted by the service provider.
- 25.2** The CSIR will not be responsible for any travel arrangements or office space for the selected service provider(s).

26 ADDITIONAL TERMS AND CONDITIONS

- 26.1** A tenderer shall not assume that information and/or documents supplied to CSIR, at any time prior to this request, are still available to CSIR, and shall consequently not make any reference to such information document in its response to this request.
- 26.2** Copies of any affiliations, memberships and/or accreditations that support your submission must be included in the tender.
- 26.3** In case of proposal from a joint venture, the following must be submitted together with the proposal:
- Joint venture Agreement including split of work signed by both parties;
 - The original or certified copy of the B-BBEE certificate of the joint venture;
 - The Tax Clearance Certificate of each joint venture member;
 - Proof of ownership/shareholder certificates/copies; and
 - Company registration certificates.
- 26.4** An omission to disclose material information, a factual inaccuracy, and/or a misrepresentation of fact may result in the disqualification of a tender, or cancellation of any subsequent contract.
- 26.5** Failure to comply with any of the terms and conditions as set out in this document will invalidate the Proposal.

27 CSIR RESERVES THE RIGHT TO

- 27.1** Extend the closing date;
- 27.2** Verify any information contained in a proposal;
- 27.3** Request documentary proof regarding any tendering issue;
- 27.4** Give preference to locally manufactured goods;
- 27.5** Appoint one or more service providers, separately or jointly (whether or not they submitted a joint proposal);

27.6 Award this RFP as a whole or in part;

27.7 Cancel or withdraw this RFP as a whole or in part.

28 DISCLAIMER

This RFP is a request for proposals only and not an offer document. Answers to this RFP must not be construed as acceptance of an offer or imply the existence of a contract between the parties. By submission of its proposal, tenderers shall be deemed to have satisfied themselves with and to have accepted all Terms & Conditions of this RFP. The CSIR makes no representation, warranty, assurance, guarantee or endorsements to tenderer concerning the RFP, whether with regard to its accuracy, completeness or otherwise and the CSIR shall have no liability towards the tenderer or any other party in connection therewith.

DECLARATION BY TENDERER

Only tenderers who completed the declaration below will be considered for evaluation.

RFP No: 3391/16/09/2020

I hereby undertake to render services described in the attached tendering documents to CSIR in accordance with the requirements and task directives / proposal specifications stipulated in RFP No..... at the price/s quoted. My offer/s remains binding upon me and open for acceptance by the CSIR during the validity period indicated and calculated from the closing date of the proposal.

I confirm that I am satisfied with regards to the correctness and validity of my proposal; that the price(s) and rate(s) quoted cover all the services specified in the proposal documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this proposal as the principal liable for the due fulfilment of this proposal.

I declare that I have no participation in any collusive practices with any tenderer or any other person regarding this or any other proposal.

I accept that the CSIR may take appropriate actions, deemed necessary, should there be a conflict of interest or if this declaration proves to be false.

I confirm that I am duly authorised to sign this proposal.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE