



GOVERNMENT OF TAMIL NADU

Tamil Virtual Academy

Request for Proposal (RFP)

For

Selection of System Implementation Partner (SIP) for the Creation of Virtual Reality content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for Tamil Virtual Academy (TVA), Government of Tamil Nadu

Tender Ref No: TVA/Virtual Reality/SIP/2023-2024

Tamil Virtual Academy

Anna University Campus, Gandhi Mandapam Road,

Kottur, Chennai - 600 025.

Tel No: +91-44-2220 9400

Email: tva@tn.gov.in

Website: www.tamilvu.org

Important Notice

This Tender (RFP) process is governed by The Tamil Nadu Transparency in Tenders Act 1998 and The Tamil Nadu Transparency in Tenders Rules 2000 as amended from time to time.

In case of any conflict between the terms and conditions in the tender document and the Tamil Nadu Transparency in Tenders Act 1998 and The Tamil Nadu Transparency in Tenders Rules 2000, the Act and Rules shall prevail.

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List of Acronyms

2D	Two Dimensional
3D	Three Dimensional
AI	Artificial Intelligence
AR	Augmented Reality
BG	Bank Guarantee
BOQ	Bill of Quantity
CA	Chartered Accountant
CV	Curriculum Vitae
EMD	Earnest Money Deposit
G.O.	Government Order
GIGW	Guidelines for Indian Government Websites
GoI	Government of India
GoTN	Government of Tamil Nadu
GST	Goods and Services Tax
IA	Inter Axial
INR	Indian Rupee
IPR	Intellectual Property Rights
LD	Liquidated Damages
LD	Liquidated Damages
LD	Liquidated Damages
LOA	Letter of Acceptance
MEC	Minimum Eligibility Criteria
MR	Mixed Reality
NLP	Natural Language Processing
O&M	Operation and Maintenance
OCR	Optical Character Recognizer
P&L	Profit and Loss
P&L	Profit and Loss
PAN	Permanent Account Number
PCT	Project Coordination Team
PWD	Public Works Department
RBAC	Role-Based Access Control
RFP	Request for Proposal
SAT	Senses Accommodation Time
SD	Security Deposit

RFP for Selection of SIP for the “Creation of Virtual Reality content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for TVA, GoTN”

SIP	System Implementation Partner
TDS	Tax Deduction at Source
TEC	Technical Eligibility Criteria
TSC	Tender Scrutiny Committee
TVA	Tamil Virtual Academy
UI	User Interface
UX	User Experience
VC	Video Conference
VR	Virtual Reality
XR	Extended Reality

Letter of Undertaking

To
The Director,
Tamil Virtual Academy,
Anna University Campus, Gandhi Mandapam Road,
Kottur, Chennai-600025.

Sir,

Subject: Undertaking for participating in **REQUEST FOR PROPOSAL** for the “**Selection of System Implementation Partner (SIP) for the Creation of Virtual Reality content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for Tamil Virtual Academy (TVA), Government of Tamil Nadu.**” - Reg

Tender Reference: TVA/Virtual Reality/SIP/2023-2024

I/We do hereby submit my/our bid for Request for Proposal for the “Selection of System Implementation Partner (SIP) for the Creation of Virtual Reality content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for Tamil Virtual Academy (TVA), Government of Tamil Nadu” in accordance with the Terms and Conditions of this RFP.

I/We have examined the details of the tender and have carefully noted the conditions and specifications of contract, the stipulations of which I/We agree to comply with. I/We hereby undertake to complete the assigned tasks at the places mentioned in the specification of all the articles within as per RFP & tender schedule from the date of communication of acceptance of my/our tender.

I/We further agree that his acceptance of this tender shall result in a valid and concluded contract binding on me/us the terms whereof shall be taken to be those mentioned in the form of agreement hereby annexed notwithstanding the non-execution of the said agreement.

I/We hereby declare that I/We agree to do the various acts, deeds and things referred to herein including the condition relating to non-withdrawal of this tender above set out in consideration of the TVA and considering this my/our tender.

I/We hereby confirm that our Company/ Companies was/were not blacklisted by any State Government/Central Government/Public Sector Undertakings during the last three years.

I/We also hereby confirm that our EMD/SD was not forfeited by any State Government/ Central Government / Public Sector Undertakings during the last three years due to our non- performance, non-compliance with the tender conditions etc.

I/We hereby confirm that our Company has not violated / infringed on any Indian or foreign trademark, patent, registered design or other intellectual property rights any time anywhere in India.

I/We..... shall not sub-contract any works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

I/We hereby declare that I/We shall not form any consortium with any other bidder / firm/ company for this tender as well as during the period of contract if selected.

I/We have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India, as per Government of Tamil Nadu G.O.Ms.No.343, Finance (Salaries) department, dated 18.9.2020; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I certify that this bidder fulfils all requirements in this regard and is eligible to be considered.

I/We hereby declare that all particulars furnished by using this Tender are true to the best of my/our knowledge and we understand and accept that if at any stage, the information furnished is found to be in corrector false, we are liable for disqualification from this tender and also are liable for any penal action that may arise due to the above.

I/We certify that we are liable and responsible for any disputes arising out of Intellectual Property Rights.

In case of violation of any of the conditions above, I/We understand that I/We are liable to be blacklisted by TVA/Government of Tamil Nadu for a period of three years.

Name of Bidding Entity:

Signature of Signing Authority:

Name of Signing Authority

Designation of Signing

Authority:

Mobile No. & Email id:

Note:

1. Declaration as per the above format should be submitted in the entity letter head.
2. If the bidding firm has been blacklisted by any State Government/ Central Government/ Public Sector Undertakings earlier, then the details should be provided on entity's letter head.

1. Introduction

Tamil Virtual Academy (TVA) is functioning under the Information Technology and Digital Services Department, Government of Tamilnadu. TVA teaches Tamil through the internet and provides information about Tamil history and culture through the Tamil digital library to the Tamil Diaspora across the globe (www.tamilvu.org).

TVA is functioning under the guidance of board of directors and general body consisting of academician and officers as members.

Tamil Virtual Academy has developed websites for Tamil digital library, namely, www.tamildigitallibrary.in and www.tagavalaatrappadai.in. These websites contain rare collections of printed books, periodicals, manuscripts, and photographs related to the Tamil language and culture.

Creation of Virtual Reality Museum

Tamil Virtual Academy too intends to create and develop VR content and house them in Web and Hybrid mobile technology, thus offering a visual treat and knowledge for the users on the glorious past of the Tamil Language tagged Civilization. As a pilot initiative, it has been decided to work on two subjects – one from historical perspective and the other from literary perspective. They are **King Rajendra Chola’s Naval Voyages and Maritime Trade** and **Festival of Indra as in Pukar Kandam of Silappathikaram**, which is grouped under the Five Major Poetry’s in Tamil Literature.

On these lines it is decided to “**Select a System Implementation Partner (SIP) for Creation of Two Virtual Reality content in Tamil using advanced VR Technologies and to Design, Develop, Implement, Operate and Maintain the advanced VR/AR/XR hybrid web portal for a period of Two Years**”.

Thus, Tamil Virtual Academy (TVA) floats the Request for Proposal (**RFP**) for the “**Selection of System Implementation Partner (SIP) for the Creation of Virtual Reality content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for Tamil Virtual Academy (TVA), Government of Tamil Nadu**”.

2. Tender Schedule and Data Sheets

1.	Tender inviting Authority, Designation and Address	The Director, Tamil Virtual Academy, Anna University Campus, Gandhi Mandapam Road, Kottur, Chennai - 600 025. Tel No: +91-44-222209400
2.	A) Name of the Work	Request for Proposal (RFP) for the “Selection of System Implementation Partner (SIP) for the Creation of Virtual Reality content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for Tamil Virtual Academy (TVA)”.
	B) Tender Ref No.	TVA/Virtual Reality/SIP/2023-2024
3.	Earnest Money Deposit	INR Five Lakhs Forty Thousand (5.4 Lakhs)
4.	Contract Period	24 Months
5.	Tender Document download hyperlinks	The Tender document can be downloaded free of cost from the URL. https://tntenders.gov.in & https://tamilvu.org
6.	Mode of Submission	Online through TN e-Tendering website https://tntenders.gov.in Bids cannot be submitted after the due date and time.
7.	Date, Time and Place of Pre-Bid meeting	On 03.01.2024 at 11:30 hrs. Pre-bid meeting will be conducted online through video conference and the link for the VC is given below: https://meet.google.com/mwd-ryni-ygj
8.	Due Date and Time for Bid Submission	18.01.2024 till 15:00 hrs
9.	Date, Time and Place of Opening of Technical Bids	19.01.2024 at 15:00 hrs
10.	Date, Time and Place of Opening of Price Bids	Price Bid Opening Date & Time will be communicated to Technically Qualified Bidders Only
11.	Tender validity period	90 days from date of Bid opening

Note: Neither the TVA nor their representatives are obligated to inform any bidders who have not qualified in any of the stages of bid process management.

3. General Instructions

3.1. General

- a. The Bidders are requested to examine the instructions, terms and conditions and specifications given in the Request for Proposal (RFP). Failure to furnish all the required information in every respect will be at the Bidder's risk and may result in the rejection of bid.
- b. It will be imperative for each Bidder(s) to familiarize itself/ themselves with the prevailing legal situations for the execution of contract. TVA shall not entertain any request for clarification from the Bidder regarding such legal aspects of submission of the Bids.
- c. It will be the responsibility of the Bidder that all factors have been investigated and considered while submitting the Bids and no claim whatsoever including those of financial adjustments to the contract awarded under this tender will be entertained by TVA. Neither any time schedule nor financial adjustments arising thereof shall be permitted on account of failure by the Bidder to appraise themselves.
- d. The Bidder shall be deemed to have satisfied itself fully before Bidding as to the correctness and sufficiency of its Bids for the contract and price quoted in the Bid to cover all obligations under this Tender.
- e. It must be clearly understood that the Terms and Conditions and specifications are intended to be strictly enforced. No escalation of cost in the Tender by the Bidder will be permitted throughout the period of Agreement or throughout the period of completion of contract whichever is later on account of any reasons whatsoever.
- f. The Bidder should be fully and completely responsible for the TVA for all the deliveries and deliverables.
- g. The Bidder shall submit the scanned copy bid document (in pdf) and corrigendum (if any) as an acceptance of the bid.
- h. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

3.2. Clarifications to the RFP

A prospective Bidder requiring any clarification in the RFP may notify by e-Mail to tva@tn.gov.in. Clarifications to the queries (if any) by the bidders and corrigendum's (if any) will be published in the websites <https://tntenders.gov.in> & <https://tamilvu.org>.

3.3. Amendments to the Tender

- a. A Pre-bid meeting will be held online for addressing the clarifications on the date and time mentioned in the Tender Data Sheet or any other date to be decided by TVA. The Bidders are requested to participate in the Pre-bid meeting and get clarifications.
- b. Before closing of the Tender, clarifications and corrigendum (if any) will be notified in the websites mentioned in the Tender Schedule. The Bidders shall periodically check for the amendments or corrigendum or information in the websites till the closing date of this Tender. TVA will not make any individual communication and will in no way be responsible for any information missed out by the bidders.
- c. No clarifications would be offered within 48 hours prior to the due date and time for submitting the Tender.
- d. Before the closing of the Tender, TVA may amend the Tender document as per requirements or wherever it feels that such amendments are absolutely necessary.
- e. Amendments also may be given in response to the queries by the prospective Bidder(s). Such amendments will be notified in the websites mentioned in the tender schedule. It is the bidder's responsibility to keep checking the website for any changes or clarifications or corrigendum to the tender document.
- f. TVA at its discretion may or may not extend the due date and time for the submission of bids on account of any amendments.
- g. TVA is not responsible for any misinterpretation of the provisions of this tender document on account of the Bidder failure to update the Bid documents on changes announced through the website.

3.4. Language of the Bid

- a. The bid prepared by the Bidder as well as all correspondences and documents relating to the bid shall be in English only. The supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation in English duly notarized, in which case, for all purposes of the bid, the translation shall govern. Bids received without such translation copy are liable to be rejected.

3.5. Bid Currency

- a. Price should be quoted in Indian Rupees (INR) only and Payment shall be made in Indian Rupees only.

3.6. Contacting Tender Inviting Authority

- i. Bidders shall not make attempts to establish unsolicited and unauthorized contact with the Tender Accepting Authority, Tender Inviting Authority or Tender Scrutiny Committee after the opening of the Tender and prior to the notification of the Award and any attempt by any Bidder to bring to bear extraneous pressures on the Tender Accepting Authority shall be sufficient reason to disqualify the Bidder
- ii. Notwithstanding anything mentioned above, the Tender Inviting Authority or the Tender Accepting Authority may seek bonafide clarifications from Bidders relating to the tenders submitted by them during the evaluation of tenders.

3.7. Force Majeure

- i. Neither the Purchaser / nor the Successful Bidder shall be liable to the other for any delay or failure in the performance of their respective obligations due to causes or contingencies beyond their reasonable control such as:
 - a) Natural phenomena including but not limited to earthquakes, floods and epidemics.
 - b) Acts of any Government authority domestic or foreign including but not limited to war declared or undeclared, priorities and quarantine restrictions.
 - c) Accidents or disruptions including, but not limited to fire, explosions, breakdown of essential machinery or equipment, power and water shortages.

3.8. Arbitration

In case of any dispute, the matter will be referred to a sole Arbitrator to be appointed by the Director, Tamil Virtual Academy (TVA) under the “Arbitration and Conciliation Act 1996”. The arbitration shall be held in Chennai, Tamil Nadu, India, and the language of arbitration shall be English. The Hon’ble High Court of Madras, Chennai alone shall have jurisdiction in the matter. Arbitration detailed in clause: 7.11.

4. Minimum Eligibility Criteria (MEC) & Technical Eligibility Criteria (TEC)

- a. The Bidders should have the following MEC for participating in the Tender. The Bidders should enclose documentary evidence for fulfilling the MEC in the Technical Bid. **If a Bidder fails to enclose the documentary proof for MEC, their bid will be summarily rejected.**

4.1. Minimum Eligibility Criteria (MEC)

S.No.	MEC	Documents to be Submitted
4.1.1	The bidder should be a Company registered under Indian Companies Act, 1956/2013 or a Registered Society under Society Act with their registered office in India or a Partnership registered under the India Partnership Act 1932 or Limited Liability Partnership Firm registered under the Limited Liability Partnership Act 2008 or Proprietary firm with their registered office in India atleast for a period of 5 years.	<p>a. Copy of Letter of Incorporation/ Bye laws and certificate of registration (in case of registered co-operative societies)/ Certificate of Registration attested by Authorized signatory of the bidder.</p> <p>b. Copy of valid PAN and GSTIN registration should be submitted</p>
4.1.2	The Bidder should have an average annual turnover of at least Rs. Five (5) crores for the last three financial years	<ul style="list-style-type: none"> ● Audited and Certified Balance Sheet & Profit/Loss Account of last 3 Financial Years.

S.No.	MEC	Documents to be Submitted
	(2020-2021, 2021-2022 and 2022-2023). Further, the bidder should have positive net worth as on March 31, 2023.	<ul style="list-style-type: none"> ● Certified Copy of audited Profit and Loss (P&L) Statements / Net worth Certificate from CA.
4.1.3	The Bidder must have an office in Tamil Nadu and be capable of doing end-to-end consultation. If the Bidder is not having any office in Tamil Nadu, then bidder should submit a letter of undertaking to open an office in Tamil Nadu within 15 days from the date of issue of work order if he is awarded the work.	<ul style="list-style-type: none"> i. Copy of Property tax bill/ Electricity Bill/Telephone Bill/G.S.T.-C.S.T/ Registration/Lease agreement should be submitted as proof. (or) ii. A letter undertaking that bidder would open an office in Tamil Nadu within 15 days from the date of issue of work order if awarded.
4.1.4	<p>The Bidder should be specialized in working on VR Content Creation and Development of VR/AR/XR Hybrid platform anywhere in India during the last 5 years as on date of submission of Bid with a minimum individual order value of Fifty (50) Lakhs per project and total combined project value of One and half (1.5) Crore.</p> <p>1) Proven Track Record: The bidder should have successfully completed a minimum of three (3) VR projects with a total project value exceeding 50 lakh INR each. Documentation, including project completion certificates and client</p>	<p>Work order and satisfactory performance certificate from the client for proof of delivering services as per the scope of work (Clause 8) related to VR Content Creation and in the role of SIP for Web Portal Development in the last 5 years.</p>

S.No.	MEC	Documents to be Submitted
	<p>references, must be provided as evidence of past performance.</p> <p>2)Diversified Experience: The bidder must have experience in both VR interactive development with multi-user access and VR rendered video production. This requires a minimum of one (1) successfully executed project for each category. Detailed project descriptions, outcomes, and client feedback should be submitted for evaluation.</p> <p>(Minimum 3 projects)</p>	

- b. The bidders who have submitted required documents and meet the MEC as mentioned above and as determined by the Tender Scrutiny Committee (TSC) shall only be eligible for further technical evaluation as per clause 4.2.

4.2. Technical Eligibility Criteria (TEC)

The following are the Technical Evaluation Criteria based on which the Bidders would be evaluated.

This comprises of two parts: Document Submission and Proof of Concept.

S.No.	TEC	Documents to be submitted
4.2.1	<p>Consultant’s Organization & Experience</p> <ul style="list-style-type: none"> ● A brief description of the Consultant’s organization and an outline of the experience of the Consultant in the proposed study. (2 Marks) ● List only previous similar assignments 	<p>Description of the Organization and Experience to be enclosed.</p> <p>Total Marks = 10 Marks</p>

S.No.	TEC	Documents to be submitted
	<p>related to VR Content Creation and as an SIP for advanced VR/AR/XR Web Portal Development completed in the last 5 years. (2 Marks)</p> <ul style="list-style-type: none"> List only those assignments for which the Consultant was legally contracted by the Client as a company or was one of the major consortium partner. Assignments completed by the Consultant’s individual experts working privately or through other consulting firms cannot be claimed as the relevant experience of the Consultant, or that of the Consultant’s partners or sub-consultants, but can be claimed by the Experts themselves in their CVs. The Consultant should be prepared to substantiate the claimed experience by presenting copies of relevant documents and references if so requested by the Client. (6 Marks) 	
4.2.2	<p>Experience in Establishment of Digital Museum and Web Portal Development and also VR content Development</p> <p>The Museum has to be nothing less than a Stereo 3D animation Extended Reality (AR/VR/MR) technology & Interactive 3D Projection technologies – 3 Projects of each INR 50 (Fifty) Lakhs per project and total combined project value of One and half (1.5) Crore and above. (3x4Marks)</p>	<p>Copy of Relevant Project Completion certificate and/or Performance Certificates for the Projects executed during the last 5 years from the relevant authority to be submitted.</p> <p>Total = 12 Marks</p>

S.No.	TEC	Documents to be submitted
4.2.3	<p>Experience in Operations and Maintenance of Digital Museum and also VR Content</p> <p>The bidder must currently Operate and Maintain (O&M) atleast one Museum or Digital Experience Centre Project for One project of value equivalent to or higher than INR 50 (Fifty) Lakhs. (One Project = 6 Marks, Extra One Project = 6 Marks)</p>	<p>Copy of Work Order for O&M Maintenance executed during the last 5 years from the relevant authority to be submitted.</p> <p>Total = 12 Marks</p>
4.2.4	<p>Team Strength</p> <p>The Project has two components, VR Content Creation and VR/AR/XR hybrid platform establishment. The important Level 1 and 2 staffs of the organization who would be involved in this Developmental activity of the organization along with their years of experience and Project Exposure would be considered to score the team strength.</p> <p>(2 x 4 Marks & Additional 2 marks for Tamil in Read / Write / Speak and also list out the team who are involved in the project for both component, marks will be distributed entirely based on quality and year of experience)</p>	<p>Details of the Staffs in the order of Seniority in their roles and designations along with the CV's to be presented for both VR Content Creation and Web Portal Development.</p> <p>(Atleast one staff should be in expert in Tamil Literature with specifics to the scope of work related to VR Content creation will give more preference)</p> <p>1 Additional mark per role for proficiency (Read/Write/Speak) in Tamil</p> <p>Total = 10 Marks</p>
4.2.5	<p>Description of Approach Methodology and Work Plan with reference to Scope of Work as per Clause 8 of the RFP.</p>	
	<p><u>Technical Approach and Methodology.</u> {Please explain your understanding of the objectives of the assignment as outlined in</p>	<p>Detailed Technical and Approach Methodology</p>

S.No.	TEC	Documents to be submitted
	<p>the Scope of Work, the technical approach, and the methodology you would adopt for implementing the tasks to deliver the expected output(s), and the degree of detail of such output. Please do not repeat/copy the Scope of Work in here.}(2x4Marks)</p>	<p>document as per the TEC to be submitted.</p> <p>Total = 8 Marks</p>
	<p>Work Plan. {Please outline the plan for the implementation of the main activities/tasks of the assignment, their content and duration, phasing and interrelations, milestones (including interim approvals by the Client), and tentative delivery dates of the reports. The proposed work plan should be consistent with the technical approach and methodology, showing your understanding of the Scope of Work and ability to translate them into a feasible working plan. A list of the final documents (including reports) to be delivered as final output(s) should be included here. The work plan should be consistent with the Project Deliverables and Time lines of the said RFP.} (2x4Marks)</p>	<p>Detailed Work Plan document as per the TEC to be submitted.</p> <p>Total = 8 Marks</p>
4.2.6	<p>Technical Presentation and Live Demonstration of Past Experience – Minimum 4 Projects</p> <p>The Bidder must present a previously executed Stereo-3D/VR Content created for Museum or a Digital Experience Centre and</p>	<p>The Proof of Concept would be evaluated against the following Parameters.</p> <p>a. Creative Aspects</p> <ol style="list-style-type: none"> 1. Creation of Virtual World 2. Light and Sound Effects 3. Clarity of Detailing and Content 4. Feel good Factor 5. Interactive and Immersive

S.No.	TEC	Documents to be submitted
	<p>also present the AR/VR/XR/hybrid platform which is live.</p> <p>This will be a Presentation made in front of the Tender Scrutiny Committee. Only the Technically quality bidders would be called for. (4x5Marks)</p>	<p>b. Technical Aspects</p> <p><i>i. <u>Innovative adoption of latest technologies in Stereo-3D/VR content production</u></i></p> <ol style="list-style-type: none"> 1. 3D Character Modeling techniques 2. 3D Shading & Texturing techniques 3. Character body-Rigging techniques 4. Character face-rigging techniques 5. Body Animation & Motion-Capture techniques 6. Face Animation & Motion-Capture techniques 7. Ocean fluid simulation in Stereo-3D/VR 8. Dynamics & Particles simulation in Stereo-3D/VR 9. 3D Scene-Lighting techniques 10. Photorealistic Stereo-3D/VR Rendering techniques 11. Sound-Design for Stereo-3D/VR <p><i>ii. <u>Comfortness of experience designed within the thresholds of Stereo-3D/VR hurt index & Immersiveness of the Application</u></i></p> <ol style="list-style-type: none"> 1. Handling Camera parameters in Stereo-3D/VR 2. Handling Stereo Parallax & Inter Axial (IA) 3. Depth Script & Depth budget 4. Depth-grading & Dwell time (The time for the Eyes & brain to digest the scene in Stereo3D)

S.No.	TEC	Documents to be submitted
		<ol style="list-style-type: none"> 5. Convergence & Accommodation (SAT - Senses Accommodation Time) 6. Pseudo Stereo3D effects in compositing 7. Antialiasing 8. Handling God-Rays issue in Stereo-3D/VR 9. Resolution in Stereo-3D/VR 10. Video Compression quality (Spatial & Temporal) & bit rate for Stereo-3D/VR 11. Frame rate for Stereo-3D/VR 12. Stereo-3D Projection format 13. Motion-Sickness: Head-Tracking Latency / Stutter Playback 14. Quality of Stereo-3D VR filming 15. Overall Stereoscopic Viewing comfort <p>Total = 20 Marks</p>
4.2.7	<p>Submission of VR Content</p> <p>Minimum 90 seconds of Stereoscopic-3D VR teaser movie presentation on either one of the below topics should be presented to the Tender Scrutiny Committee. Bidder has to bear the expenses related to the full production.</p> <ol style="list-style-type: none"> a. King Rajendra Chola’s Naval Voyages and Maritime Trade b. Festival of Indra as in Pukar Kandam of Silappathikaram 	<p>The Proof of Concept would be evaluated against the following Parameters.</p> <p>a. Creative Aspects</p> <ol style="list-style-type: none"> 1. Creation of Virtual World 2. Correlation of the Topic and the Final Delivery 3. Light and Sound Effects 4. Clarity of Detailing and Content 5. Feel good Factor 6. Interactive and Immersive 7. Value for Money spent 8. Kindles to watch again

S.No.	TEC	Documents to be submitted
	(20 Marks)	<p>b. Technical Aspects</p> <p><i>i. <u>Innovative adoption of latest technologies in Stereo-3D/VR content production</u></i></p> <ol style="list-style-type: none"> 1. 3D Character Modeling techniques 2. 3D Shading & Texturing techniques 3. Character body-Rigging techniques 4. Character face-rigging techniques 5. Body Animation & Motion-Capture techniques 6. Face Animation & Motion-Capture techniques 7. Ocean fluid simulation in Stereo-3D/VR 8. Dynamics & Particles simulation in Stereo-3D/VR 9. 3D Scene-Lighting techniques 10. Photorealistic Stereo-3D/VR Rendering techniques 11. Sound-Design for Stereo-3D/VR <p><i>ii. <u>Comfortness of experience designed within the thresholds of Stereo-3D/VR hurt index & Immersiveness of the Application</u></i></p> <ol style="list-style-type: none"> 1. Handling Camera parameters in Stereo-3D/VR 2. Handling Stereo Parallax & Interaxial (IA) 3. Depth Script & Depth budget 4. Depth-grading & Dwell time (The time for the Eyes & brain to digest the scene in Stereo3D) 5. Convergence & Accommodation (SAT - Senses Accommodation)

S.No.	TEC	Documents to be submitted
		Time) 6. Pseudo Stereo3D effects in compositing 7. Antialiasing 8. Handling God-Rays issue in Stereo-3D/VR 9. Resolution in Stereo-3D/VR 10. Video Compression quality (Spatial & Temporal) & bit rate for Stereo-3D/VR 11. Frame rate for Stereo-3D/VR 12. Stereo-3D Projection format 13. Motion-Sickness: Head-Tracking Latency / Stutter Playback 14. Quality of Stereo-3D VR filming 15. Overall Stereoscopic Viewing comfort Total = 20 Marks

Section 4.2.6 and Section 4.2.7 would be a Presentation in front of the Tender Scrutiny Committee.

4.3. Evaluation of technical proposal:

- a. Tender Scrutiny Committee (TSC) will evaluate whether all the requirements mentioned in the RFP are understood and addressed well.
- b. The Bidders who have got qualified in MEC alone would be entitled for Technical Evaluation. The rejected bidders will not be informed separately.
- c. The Bidders should enclose documentary evidence for fulfilling the TEC and the Tender Scrutiny Committee will evaluate the bids as per the terms and conditions only. The bids will be rejected if the necessary documentations are not submitted for evaluation. Based on the tender document submission and its authenticity verified by the Tender Scrutiny Committee, the evaluation moves to the Proof of Concept presentation stage.
- d. The Date and time for the Presentation of Proof of Concept as per Clause 4.2.6 and 4.2.7 would be intimated through the official email id of the bidders mentioned in the submitted bid document.

- e. Those Bidders who score 70 Marks and above out of 100 Marks would be qualified for Price Bid evaluation.
- f. The Price bid would be opened for only those bidders who have got qualified in the Technical Proposal. Decision of Tender Scrutiny Committee would be final.

5. Bid Preparation and Submission

5.1. Cost of Bidding

- a. The Bidder should bear all costs associated with the preparation and submission of Bids. TVA will in no way be responsible or liable for these charges/costs incurred regardless of the conduct or outcome of the bidding process.

5.2. Earnest Money Deposit (EMD)

- a. An EMD amount as specified in the tender schedule should be paid through ONLINE mode. The EMD of the unsuccessful Bidders will be auto refunded to their bank account within a reasonable time in consistent with the rules and regulations in this behalf. The EMD amount held by TVA till it is refunded to the unsuccessful Bidders will not earn any interest thereof.
- b. The EMD amount of the successful bidder shall be converted as part of the Security Deposit (SD) for successful execution of the work and will be returned only after the successful fulfilment of the contract.
- c. The EMD shall be forfeited by TVA if the bidder withdraws the bid during the validity period specified in the tender or if the successful bidder fails to sign the contract by the due date or the successful in bidder fails to remit security deposit by the due date.

5.3. Letter of Authorization

- a. A letter of authorization from the Board of Directors / appropriate authority authorizing the tender submitting authority or a power of attorney should be submitted in the tender; otherwise, the bids will be summarily rejected.

5.4. Two Part Bidding

- a. Bidders should examine all instructions, terms, conditions and technical specifications given in the tender document. Failure to furnish information required by the bid or submission of a bid not substantially responsive in every respect will be at the bidder's risk and may result in

rejection of bids. Bidders should strictly submit the bid as specified in the tender, failing which the bids will be non-responsive and will be rejected.

5.4.1. Technical Bid

- a. The first part relates to technical bid submitting all the required details and documents complying with all the MEC conditions and the other tender conditions/instructions as well as the statement of compliance consisting of the following.
 - 1) A Letter of Undertaking (as per the format specified in this RFP) in company's letter head in pdf
 - 2) This Technical Bid documents & corrigendum if any
 - 3) Copy of supporting documents for MEC and TEC as .rar file (Zipped) have to be submitted.

5.4.2. Financial Bid

- a. The price quoted in the financial bid is inclusive for all activities as per the Scope of Work detailed in Section 8 of this RFP. The price quoted should be inclusive of all items and no other charges will be allowed by TVA.
- b. The Pricing schedule document or Bill of Quantity (BoQ) should not contain any conditional offers or variation clause, otherwise the bids will be summarily rejected.
- c. The rates quoted shall be only in INDIAN RUPEES (INR) only. The tender is liable for rejection if BoQ contains conditional offers.
- d. The cost quoted by the bidder shall be kept firm for a period specified in the tender from the date of opening of the tender. The bidder should keep the rates firm during the period of contract including during the period of extension of time if any. Escalation of cost will not be permitted during the said periods or during any period while providing services whether extended or not for reasons other than increase of duties / taxes payable to the Governments in India.

5.4.3. Details of the Documentary proofs to be uploaded in portal

Letter of Undertaking		Upload Format
A Letter of Undertaking (as per the format specified in this RFP) in company’s letterhead	1	PDF (Max 2 MB)
Technical Bid		Upload Format
This RFP document along with corrigendum if any (Signed)	1	PDF (Max 2 MB)
Minimum Eligibility Criteria (4.1)		Upload Format
1	Copy of documentary proof for clause 4.1.1 as PDF	(All these PDF have to be placed in a folder, and zipped as .rar file before submission) RAR (WinRAR) (Max 20 MB)
2	Copy of documentary proofs for clause 4.1.2 as merged PDF	
3	Copy of documentary proofs for clause 4.1.3 as merged PDF	
4	Copy of documentary proof for clause 4.1.4 as PDF	
Total	4	
Technical Eligibility Criteria (4.2)		Upload Format
1	Copy of documentary proofs for clause 4.2.1 as merged PDF	(All these PDF have to be placed in a folder, and zipped as .rar file before submission) RAR (WinRAR) (Max 30 MB)
2	Copy of documentary proofs for clause 4.2.2 as merged PDF	
3	Copy of documentary proofs for clause 4.2.3 as merged PDF	
4	Copy of documentary proofs for clause 4.2.4 as merged PDF	
5	Copy of documentary proofs for clause 4.2.5 as merged PDF	
Total	5	
Price Bid		Upload Format
Bill of Quantity (BoQ)	1	(pre-defined BOQ in excel template) .XLS
Grand Total Proofs	12	
Note: Technical Bid: 11 Documents and Price Bid: 1 Document		

5.5. Bid closing date and time

- a. Bids cannot be submitted after the due date and time specified in the tender schedule unless a corrigendum for date extension is published. Hence bidders should be cautious to submit the bids well in advance to avoid disappointments.

5.6. Online Submission of Bids - <https://tntenders.gov.in>

- i. Bidder should read all the terms and conditions and accept the same to proceed further to submit bids. Tendering system will give a successful bid update message after uploading all the bid documents submitted. A print out of bid submission confirmation showing the bid number, the date and time of submission of the bid with all other relevant details can be taken from the website and kept as an acknowledgement for submission of bid. This acknowledgement will act as a proof of bid submission.
- ii. The bidders can resubmit the bid as many times as possible till the closing time of the bid submission. Withdrawal of the bid is also possible before the closing time of the bid submission.
- iii. The time settings fixed in the server and displayed at the top of the tender site, will be valid for all actions of bid submission, bid opening etc., in E-Tender system.

5.7. Self-Declaration of the submitted bid documents for MEC and TEC

- i. All bidder's need to submit a sheet with self-Declaration on the list of documents submitted for each clauses of the MEC and TEC clauses (4.1 and 4.2) of this RFP. On failing to submit this, the bid will be considered non-responsive. Please submit individual compliance for each MEC and TEC sub-clause in this sheet along with documentary proof submitted.
- ii. The format of the self-declaration of the documents reference of MEC and TEC clauses are available in Annexure III and Annexure IV.

6. Tender Opening and Evaluation

6.1. Technical Bid Opening

- a. The technical bid will be opened on the date and time as specified in the tender schedule or in the corrigendum issued by TVA (if any).

NOTE: If the date fixed for opening of the tender happens to be a Government holiday, the e-tender will be opened on the next working day at the time specified in the tender schedule.

6.2. Tender Validity

- a. The offer submitted by the bidders should be valid for a minimum period of 90 days from the date of opening of the Tender.

6.3. Initial Scrutiny

- a. Initial bid scrutiny will be conducted and incomplete details as given below will be treated as non-responsive.

If Tenders are;

- 1) received without the Letter of Undertaking and Letter of Authorization
 - 2) received without EMD amount
 - 3) found with suppression of details
 - 4) with incomplete information, subjective, conditional offers and partial offers
 - 5) submitted without support documents as per the MEC and TEC
 - 6) non-compliance of any of the clauses stipulated in the Tender
 - 7) lesser validity period
 - 8) disclosure of financial bid or bid price in the technical bid
- b. All responsive Bids will be considered for further evaluation. The decision of Tamil Virtual Academy will be final in this regard.

6.4. Clarifications

- a. When deemed necessary, TVA shall seek bona-fide clarifications on any aspect from the Bidder. However, that would not entitle the Bidder to change or cause any change in the substance of the Bid or price quoted. During the course of technical bid evaluation, TVA may seek additional information or historical documents for verification to facilitate decision making. In case the Bidder failed to comply with the requirements of TVA as stated above, such Bids may at the discretion of TVA, shall be rejected as technically non-responsive.

6.5. Tender Evaluation

6.5.1. Suppression of facts and misleading information

- a. During the bid evaluation, if any suppression or misrepresentation is brought to the notice of TVA, TVA shall have the right to reject the bid and if after selection, TVA would terminate the contract, as the case may be. Termination of the contract will be without any compensation to the Bidder and the EMD / SD, as the case may be, shall be forfeited.

- b. Bidders should note that any figures in the proof documents submitted by the Bidders for proving their eligibility is found suppressed or erased, TVA shall have the right to seek the correct facts and figures or reject such Bids.
- c. It is up to the Bidders to submit the full copies of the proof documents to meet out the MEC and TEC. Otherwise, TVA at its discretion may or may not consider such documents.
- d. The Tender calls for full copies of documents to prove the Bidder's experience and capacity to undertake the project.

6.5.2. Technical bid evaluation

(a) MEC Evaluation:

Tender Scrutiny Committee (TSC) will examine the technical bids as per Cl.4.1 MEC given in the Tender document. The documents which did not meet the MEC in the first stage of scrutiny will be rejected in that stage itself and further evaluation will not be carried out for such bidders. The eligible bidders satisfying all the criteria in cl. 4.1 – MEC alone will be considered for further evaluation as per TEC (cl.4.2). The decision of TVA will be final in this regard.

(b) TEC Evaluation:

TSC will examine the bids as per clause 4.2 TEC based on the documentary evidence enclosed by bidder in the Technical Bid and the Proof of Concept. If the bidder fails to demonstrate their capability, bid will be summarily rejected. Based on the evaluation by the Technical Scrutiny Committee, those bids which get technically qualified alone are eligible for getting their financial bids opened.

6.5.3. Financial bid evaluation

- a. Bidders should fill price quote details ONLY in Bill of Quantity (BoQ).
- b. The Final Evaluation will be done on Quality-cum-Cost-Based-System (QCBS) with the weightage of Technical & financial bid (Price bid) score in the ratio 70:30. The final evaluation be done as described below:
 - i. The marks scored in Technical Bid will be evaluated as follows:

$$T_N = T_B / T_{Max} * 100$$

T_N = Normalized technical score of the bidder under consideration

T_B = Evaluated technical score for the bidder under consideration

T_{Max} = Maximum technical score for any bidder

- ii. For Technically Qualified bidders, the commercial scores will be calculated as

$$F_N = F_{Min} / F_B * 100$$

Where

F_N = Normalized financial score of the bidder under consideration

F_B = Evaluated cost for the bidder under consideration

F_{Min} = Minimum evaluated cost for any bidder

- iii. Both the Technical Bid mark & Price Bid mark will be added to arrive at the total mark as follows:

$$B_N = 0.7 * T_N + 0.3 * F_N$$

Where

B_N = overall score of the bidder under consideration

T_N = Normalized technical score for the bidder under consideration

F_N = Normalized financial score of the bidder under consideration

- c. The total mark will be arranged in the descending order. The Highest scorer (H1) will be declared as the successful bidder (L1).
- d. In the event the Final scores are 'tied', the bidder securing the highest technical score will be adjudicated as the Best Value bidder for award of the Project.
- e. All the taxes indicated in the financial bid will be taken for the financial evaluation as per the Tamil Nadu Transparency in Tender Act 1998 and Rules 2000 with latest amendments.
- f. Bidders should quote for all the items. Failure to submit the rates for all the items (including price discovery items) or partial offer will be liable for rejection of the bid itself. The decision of TVA will be the final.
- g. The bidders are supposed to carefully examine the BOQ attached with the Bid Document and quote the price for every line item mentioned in the BOQ. Finally, the sum total has to be provided.

6.5.4. Negotiation of Price Bid

1. Negotiations will be conducted with the successful L1 bidder only and also for improvement in the scope of work, specification, further reduction in bid price & price discovery and advancement of delivery schedule.
2. If the L1 bidder withdraws from the tender process after the intimation of their qualification or if fails to turn up for negotiation, the EMD provided would be forfeited.
3. If L1 bidder fails to turn up or expresses His non-willingness to participate in the qualified tender submitted by Him, then L2 would be called and asked to match the price of L1 and further proceed with the necessary negotiation. This process proceeds to the next available bidder if the L2 bidder too rejects the offer.

6.6. Award of Contract (through <https://tntenders.gov.in>)

- a. Award of Contract commences with the issuance of Letter of Acceptance (LOA) and this would be issued online through <https://tntenders.gov.in> to the successful L1 bidder. After acceptance of the tender and LOA issued by TVA, the successful bidder shall have no right to withdraw their tender or claim higher price.
- b. No dispute can be raised by any bidder whose bid has been rejected and no claims will be entertained or paid on this account.

6.7. TVA reserves the right to:

- a. Modify, reduce or increase the quantity requirements to an extent of tendered quantity as per the provisions of Tamil Nadu Transparency in Tenders Act 1998 and Tamil Nadu Transparency in Tenders Rules, 2000.
- b. Inspect the bidders' premises/Company before or after placement of orders and based on the inspection, reserves a right to modify the quantity ordered.
- c. Withhold any amount for the deficiency in Quality/Service aspect rendered during the contract period.
- d. Accept or reject any or all of the tenders in full or in parts without assigning any reason whatsoever. The Tender Accepting Authority may also reject all the tenders for reasons such as change in scope, specification, lack of anticipated financial resources, court orders, calamities or any other unforeseen circumstances.

7. Execution of Contract

7.1. Security Deposit (SD) / Bank Guarantee (BG)

- a. The successful bidder shall have to furnish a Security Deposit (SD) for **3% of contract value** by way of demand draft or banker's cheque payable at Chennai or in the form of unconditional irrevocable Bank Guarantee from the date of acceptance of the tender on receipt of confirmation from TVA.
- b. The SD shall be paid within 10 days from the date of issue Letter of Acceptance (LOA) by TVA. The SD furnished by the Successful Bidder in respect of the tender will be returned to them after the entire scope of work is executed by the bidder as per the RFP, Contract and as per order(s) issued by TVA from time to time during the execution of work and after 3 months from the completion of contract period. The Security Deposit held by TVA till it is refunded to the successful bidder will not earn any interest thereof.
- c. The EMD/Security Deposit will be forfeited if the successful bidder withdraws the bid during the period of bid validity specified in the tender or if the bidder fails to sign the contract.

7.2. Execution of Contract

- a. The successful bidder should execute a Contract in the INR 100 non-judicial stamp paper bought in Tamil Nadu in the name of the TVA within 10 working days from the date of letter of acceptance issued by TVA with such changes/modifications as may be indicated by TVA at the time of execution on receipt of confirmation from TVA.
- b. The successful bidder shall not assign or make over the contract, the benefit or burden thereof to any other person or persons or body corporate for the execution of the contract or any part thereof without the prior written consent of TVA. TVA reserves its right to cancel the LOA either in part or full, if this condition is violated. If the Successful Bidder fails to execute the agreement within the stipulated period of 10 days, the SD of the Successful Bidder will be forfeited and their tender will be held as non- responsive.
- c. The expenses incidental to the execution of the agreement should be borne by the successful bidder.
- d. The conditions stipulated in the agreement should be strictly adhered to and violation of any of the conditions will entail termination of the contract without prejudice to the rights of TVA and also TVA have the right to recover any consequential losses from the Successful Bidder.

7.3. Release of Work Order

- a. After the payment of Security Deposit and execution of the Contract by the successful bidder, TVA will issue the Work Order to the successful bidder for commencement of the work.

7.4. Refund of EMD

- a. The EMD amount paid by the Successful Bidder will be adjusted towards security deposit payable by them. If the Successful Bidder submits security deposit for the stipulated value, the EMD will be refunded. The EMD amount of the unsuccessful bidder(s) will be auto refunded upon finalization and issue of LoA to the successful bidder.

7.5. Forfeiture of EMD and SD

- a. If the successful Bidder fails to act according to the tender conditions or backs out, after the tender has been accepted, the EMD will be forfeited.
- b. If the successful bidder fails to remit the SD, the EMD remitted by him will be forfeited to TVA and the tender will be held void.
- c. If the successful bidder fails to act up on to the tender / contract conditions or backs out from the contract or fails to deliver the services and fails to perform any of the contractual obligations during the contract period, the SD mentioned above will also be forfeited by TVA.

7.6. Termination of Contract

7.6.1. Termination for default

- a. TVA may without prejudice to any other remedy for breach of contract, by written notice of default with a notice period of 15 days, sent to the successful bidder, terminate the contract in whole or part, (i) if the successful bidder fails to deliver any or all of the service within the time period(s) specified in the contract, or fails to supply the items as per the delivery schedule or within any extension thereof granted by TVA ; or (ii) if the successful bidder fails to perform any of the obligation(s) under the contract; or (iii) if the successful bidder, in the judgment of TVA , has engaged in fraudulent and corrupt practices in competing for or in executing the Contract.
- b. In the event TVA terminates the Contract in whole or in part, TVA may procure, upon terms and in such manner as it deems appropriate, the goods and services similar to those and delivered and the successful bidder shall be liable to TVA for any additional costs for

such similar goods and service. However, the successful bidder shall continue the performance of the contract to the extent not terminated.

7.6.2. Termination for Insolvency

- a. TVA may at any time terminate the Contract by giving written notice with a notice period of 7 days to the successful bidder, if the successful bidder becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the successful bidder, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to TVA.

7.6.3. Termination for Convenience

- a. TVA may by written notice, with a notice period of 15 days sent to the successful bidder, TVA may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for TVA's convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective. On termination, the successful bidder is not entitled to any compensation whatsoever.

7.7. Single point of contact and Project Lead

- a. The successful bidder should nominate a single point of contact from their side to lead the project full-time and be available to respond to all requests from the TVA. This person should be responsible for delivery of work in compliance with all the terms and conditions.

7.8. Assigning of Tender whole or in part

- a. The successful bidder shall not assign or make over the contract, the benefit or burden thereof to any other person or persons or body corporate. The successful bidder should not under-let or sublet to any person(s) or body corporate for the execution of the contract or any part thereof, without the written consent of TVA.

7.9. Liquidated Damages (LD)

- a. The successful bidder must strictly adhere to the implementation schedule, specified in the RFP & Contract / Work Order and any delay attributable to the successful bidder will enable TVA to resort to any or both of the following or on recommendation of TVA:

1. Claim liquidated damages at 1% of the contract value for delayed performance per week and the maximum LD applicable is 10% of the contract value. When the LD reaches 10% of the contract, TVA may terminate the contract due to the non- performance of the successful bidder.
 2. In case of the termination of the contract by TVA due to non- performance of the successful bidder, the Security Deposit will be forfeited.
 3. In addition, TVA reserves the right to award the work to any other party / parties and the loss / expenses incurred thereafter will be recovered from the successful bidder.
 4. Or any other timely deliverable requested by the TVA during course of the project.
- b. The RFP, bid submitted by the successful bidder, negotiated offer of the successful bidder, contract and the work orders will form part of this contract. Wherever the offer conditions furnished by the successful bidder are at variance with the conditions of this contract or conditions stipulated in the work order, the latter shall prevail over the offer conditions furnished by the successful bidder.
- c. Notwithstanding anything contained in this clause, TVA reserves the right to blacklist the successful bidder from taking part in any of the procurement operations of TVA for a minimum period of three years from the date of blacklisting for their failure to execute the work as per the agreed terms and conditions of the RFP, Contract and Work Order.

7.10. Deployment of Resources

- a. The staffs who are required to work on the VR Content Creation and Web Portal Development can work from their respective offices, unless it is warranted to be present in TVA office premises during the Design and Development Stage.
- b. During the Implementation stage, all staffs involved in executing the work for posting the VR Content and Web Portal hosting has to be physically deployed in the TVA office, unless these jobs have some dependence in the prospective bidder's office.
- c. The Operation and Maintenance phase of the project needs dedicated staffs and they must be deployed in the TVA office on full time. The manpower to be deployed during this phase must be discussed with TVA, their resume's to be shared and their roles and responsibilities should be documented along with their period of stay in TVA.

- d. If the Successful bidder replaces the resources, they must inform one month prior to TVA. Based on their concurrence, resource can be replaced with similar qualifications in consultation with TVA Virtual Museum team and with due approval from the concerned authority. Also, a right Knowledge Transfer has to be done by the resource in work before He/She leaves the role assigned.
- e. In case there is a need for extension of the contract period as per the decision of TVA, the prospective bidder must work in tandem with TVA by deploying the existing or better quality man power resources, to provide the best support instead of quitting the assignment.

7.11. Other Conditions

- a. TVA reserves the right not to accept lowest price, to reject any or all the tenders without assigning any reason, to relax or waive any of the conditions stipulated in the terms and conditions of tender as deemed necessary in the best interest of TVA for good and sufficient reasons.
- b. The prospective bidder who is to be selected as a SIP must ensure that their firm doesn't land up in any situation which would raise to Conflict of Interest in terms of manpower, legal entity, involvement in any activities that is against the functioning of TVA among others. Any violation in this would lead to blacklisting of the consultant firm/Organization.

7.12. Arbitration and Jurisdiction

- a. Except as otherwise provided elsewhere in the contract, if any dispute, difference, question or disagreement arises between the parties hereto or their respective representatives or assignees, at any time in connection with construction, meaning, operation, effect, interpretation or out of the contract or breach thereof, the same shall be decided by Sole Arbitrator to be appointed by the Director, TVA.
- b. If the sole arbitrator so appointed dies, resigns, incapacitated or withdraws for any reason from the proceedings, another Sole Arbitrator shall be appointed by the Director, TVA. The Sole Arbitrator so appointed shall proceed with the reference from the stage where his predecessor had left if both parties consent for the same.
- c. It is a term of the contract that the party invoking arbitration shall specify all disputes to be referred to arbitration at the time of invocation of arbitration and not thereafter. Neither party to the contract shall be entitled to seek interest nor should the arbitrator not grant interest.

- d. The Sole Arbitrator shall give reasoned award and the same shall be final, conclusive and binding on the parties.
- e. The venue of the arbitration shall be Chennai and language English. The fees of the sole arbitrator and expenses incidental to the arbitration proceedings shall be borne equally by the parties.
- f. Subject to as aforesaid, the provisions of the Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment in lieu thereof shall apply to the arbitration proceedings under this Clause.
- g. Subject to the above, the Hon'ble High Court of Madras, Chennai alone shall have jurisdiction in this matter.

8. Scope of Work

TVA is planning to create a Virtual Reality Museum pertaining to Tamil Culture and Heritage by bringing them to life through use of innovative multimodal visualization technology in a virtualized environment. This initiative will be helpful in gaining knowledge about the lost Tamil pride, culture and heritage. Based on this, TVA intends to create and develop Virtual Reality (VR) content, which would be compatible with web and hybrid mobile technology. The Pilot VR Content Creation would be on two topics:

1. Rajendra Chola's Naval Voyages and Maritime Trade
2. Cilapathikaram - Puharkandam - Festival for Indra

This augments for the creation of a Web Portal which would be responsive to multiple screen sizes ranging from hand phones to desktop screens. This web platform would be following the Guidelines for Indian Government Websites (GIGW) and also AR/VR standards. In order to achieve the Vision and Mission, the following Scope of Work is designed for the System Implementation Partner (SIP) who would work on Virtual Reality Content Creation and advanced VR Web Portal Development.

8.1. Virtual Reality Content Creation:

There are two pilot projects conceived for the Virtual Reality Content Creation which would be housed in the Virtual Reality Museum.

Project-01: 1. Rajendra Chola’s Naval Voyages and Maritime Trade (Approx 5min)

To create a highly immersive Virtual Reality (VR) experience that teleports the audience to witness the amazing historical events that took place more than 1000 years ago during the reign of Rajendra Chola and travel along to witness directly the glorious adventures of his maritime trade and naval expeditions.

Project-02: 2. Cilapathikaram - Puharkandam - Festival for Indra (Approx 5min)

To create a highly immersive Virtual Reality (VR) experience that teleports the audience to the celebration grounds of Poompuhar during the “Festival for Indra” and to deliver the feel of directly witnessing and participating in those events as described in the literary masterpiece of Cilapathikaram, written by Ilangovadikalar more than 2000 years ago.

8.1.1. The Final Output expected out of VR Creation

The project would revolve around creating an immersive, engaging, and thrilling VR movie experience. The process is divided into three major phases - Pre-Production, Production, and Post-Production. The Quality Option, Description, Hardware & Software requirement along with the Cost per Minute (before tax) for bringing out a single VR creation is detailed as follows:

Quality Option	Ultra-Premium - Quality Animations & VR Movie Outputs
Description	Ultra-Premium quality animations and immersive VR experiences for 5 min with minimum of 12 Scenes & Ambisonics audios. It includes the "7DX Virtual-Rider 15-Seater Ship Design & Fabrication". The system to simulate scenes like ship movements, replicating conditions such as tides and unpredictable movements of a battlefield situation. Special effects like breeze, stormy wind, thunder-vibrations, water splashes/drizzles, and aroma effects and much more to be included.
Level of Detailing in Quality	Hyper-realistic details to be present in environments, objects, characters, and animals. Dynamic simulations for ocean water, cloth, hair, fur, cloud, foliage, fog must be at the highest quality level.

	Crowd animations must be detailed and varied. High number of complex 3D assets to be used.
Complexity	High-complexity models and environments. Complex scene composition with diverse elements.
Audio – Visual Quality	Highest quality audio and visual effects. Binaural sound mixing, high-resolution textures and shaders. State-of-the-art rendering.
Animation Sophistication	Must use motion-capture for body, facial, hand, and finger animations. High quality secondary animations.
Pre-Production Phase	Detailed scripting and storyboarding with comprehensive art direction. Highly complex character and environment design. Deeply layered scene composition and depth scripting.
Detailed description for the Pre-Production Phase:	
<ul style="list-style-type: none"> a. Scripting: Highly detailed script with intricate narratives and dialogues. Several iterations of review and refinement. b. Storyboarding: High number of detailed storyboards with complex scenes. c. Art Direction: Detailed and sophisticated art direction involving colour theory, design principles and visual aesthetics. d. Character & Environment Design: Highly detailed character and environment design involving complex textures and lighting. e. Scene Composition & Depth Scripting: Detailed scene composition with depth scripting involving complex layers and elements. 	
Production Phase	High-fidelity 3D modelling with intricate texturing and rigging. Advanced motion capture, detailed physics simulations, high-quality lighting, and rendering.
Detailed description for the Production Phase:	
<ul style="list-style-type: none"> a. 3D Modelling: High detailed 3D models with complex geometries and surfaces. b. Texturing: High-resolution textures with intricate detail for realistic appearance. c. Rigging: Advanced rigging techniques for realistic movements and flexibility. 	

<p>d. Animation: Complex animation sequences involving many moving parts and characters.</p> <p>e. Motion Capture: High fidelity motion capture for realistic human and animal movements.</p> <p>f. Physics Simulations: Detailed physics simulations for realistic interaction of objects, fluids and atmospheric effects.</p> <p>g. Lighting: Detailed lighting techniques for realistic and dynamic illumination.</p> <p>h. Rendering: High-resolution rendering with attention to detail, shadow, and light reflections.</p>	
Post-Production Phase	Extensive stitching and grading with detailed editing. High-quality sound recording and mixing. Advanced VR implementation.
<p>Detailed description for the Post-Production Phase:</p> <p>a. Stitching: Advanced stitching techniques for seamless transitions and high-quality output.</p> <p>b. Grading: Detailed colour grading for lifelike visuals and dynamic contrasts.</p> <p>c. Editing: Detailed editing with a focus on visual storytelling and pacing.</p> <p>d. Sound Recording and Mixing: High fidelity sound recording and mixing for immersive audio experience. Recording Format & Mixing: Ambisonic and Encoding Format: Binaural & User-Experience: Head-Trackted 3D-Spatial Audio</p> <p>e. VR Implementation: Advanced VR implementation techniques for highly immersive experiences.</p>	
Included Hardware & Software	The centralized Play-control system hardware & software has to be installed for easy operation and simultaneous playback on all VR devices. Any other Hardware to support the function, if not specified in the scope of work must also be packed in the deliverable.
Quality Control Procedure	<p>a. Depth-Scripts & Depth-Budgets: Full consideration of psychological/physiological factors; scientific depth budgeting.</p> <p>b. Interaxial (IA) calculation: Precise scientific calculation.</p> <p>c. Scene Lighting & Textures: Complete check to avoid antialiasing & stereo conflict.</p>

	<ul style="list-style-type: none"> d. Ghosting & God Rays Effects: Full optimization to eliminate these effects. e. Camera Positions, Angles & Movements: High precision in finding the sweet spots to avoid disorientation. f. Depth Grading: Detailed depth grading with comfortable dwell time. g. Depth Continuity & Depth Ramping: Complete consideration for convergence & accommodation (SAT). h. Stitching & Edge Blending: Seamless stitching & edge blending. i. Pseudo Stereo-3D compositing errors: Frame by frame check. j. S3D Hurt Index: To be checked in every step.
Final Output	Must offer the highest level of detail, complexity, and sophistication in all areas.

8.1.2. Details of the Story to be created

- a. The creation of a right story board takes an important milestone in the project execution. The SIP would interact with the TVA Project Coordination Team (PCT) and confirm on the books referred for the content preparation without distorting the true history and get this approved from the highest authority as per the instructions of TVA.
- b. The script once prepared has to be discussed with the PCT, ensure iterations where ever required and must get it approved before it leaves for Production from TVA.
- c. The story board with Key scenes, Color sequences and References to be discussed and approval taken from PCT.
- d. Ensure that every decision is documented and approved, small and big, and synchronized with TVA to avoid any ambiguity in the Content Development.
- e. Where ever required a Pre-View has to be planned for the PCT to ensure that the SIP is in the correct path of VR Content Delivery.

8.2. Virtual Reality Content Web Portal Development:

The second part of the Virtual Reality Museum is to develop a Web Portal which would house the developed advanced VR Content. This requires a hybrid VR/AR/XR platform.

8.2.1. Preamble for Hybrid Web Portal Development

- a. By hybrid platforms, it refers to the concept that connects the physical and remote presence in one digitally enhanced virtual or real-life environment. Further, it implies collaboration between users that are present on location and the ones interacting remotely with both parties feeling physically present. The user interface web portal would be easy-to-use, intuitive, accessible to those who are differently abled and available in both Tamil and English Language.
- b. Even though many have had the opportunity to engage in either of the XR technology environments enabled by AR, VR or MR, but when it comes to a hybrid platform, the expectation for it to have capabilities to connect all three of the XR technologies in a joined digitally enhanced environment is very promising as it sounds and the hybrid platforms are yet to reach their tip point of development. The next generation hybrid platform enables immersive presence and photorealistic holoportation into a shared experience, wherein holoportation refers to the new type of hyper realistic 3D capture technology that allows reconstructing, compressing and transmitting real-time models of people regardless of their physical location.
- c. One of the biggest challenges for the next level hybrid platform creation will be overcoming the User Interface (UI) and User Experience (UX) barrier. As the hybrid XR collaboration spaces will have to combine well with the real-world environments, elements of VR spatial design will play a significant role in how comfortable both online and offline users will feel within the same collaborative space, from ergonomics and affordance to intuitiveness and onboarding. With that being said, XR is the technology that will play the key role in making it possible to blur the boundaries between being physically and remotely present.
- d. Creation of the hybrid system will bring great opportunities however can come with a number of challenges. On one hand it will allow users to connect regardless of their physical location, and on the other hand it could lead to some offline users feeling physically isolated and

artificially forced into a virtual environment. This is another reason for XR technology to advance into a hybrid system that unites elements of AR, VR and MR in order to provide its users with a true feeling of presence regardless of their locations and preferred interaction device. Hence the advanced VR hybrid web portal would be termed as **XR Hybrid web portal**.

- e. This volunteers for a System Implementation Partner (SIP) who would Design, Develop, Implement and Maintain the XR Hybrid web portal.

8.2.2. Salient Features of Hybrid Platforms

The Proposed Hybrid VR web portal for the TVA Museum is expected to house the best feature in terms of its Technology and Up-gradation. The following would be the basic expectation for the proposed Web Portal construction in terms of its look and feel, hardware and software, performance and testing among others.

a) PLATFORM EDITOR

- Back-End System Architecture Design
- System for every department room content editor and files of different formats being able to be uploaded and arranged
- Unity supported file upload system and viewer
- Tools to upload 2D, 3D, 360° Stereoscopic VR videos
- Tools to upload 2D, 360° images and documents
- Tools to modify Building Visuals
- Tools to add room object for every department
- Placement tool to arrange items in the room to the desired unique setups
- Front-End Development for Usable Friendly Tools
- Database Design and Management
- Documentation and User Guides
- Pipeline system building for continuous Integration and Deployment

b) MEETING AND CONFERENCE FEATURES

- Meeting Room Integration
- Board Room Meeting Integration
- Lobby Manager
- Audio and Video Conferencing
- Mini Game Modules Development

c) **SIMULATION/USER EXPERIENCE FEATURES**

- Department specific Virtual AI Receptionist to assist every visitor to explore in and out of every room and make the experience a guided one.
- Department specific Mini-Games to engage users
- Limited Custom Character Customisation
- 3D spatial sound effects
- Ability to view and experience 2D, 3D, 360° Stereoscopic VR video files
- Ability to view and experience 2D, 360° images.
- Ability to view Documents
- Dynamic and interactive environment with realistic graphics, and simulations.
- User Privacy and user data security
- Audio and Video gallery
- Invite friend to metaverse system
- Cross-Platform Compatibility:
 - Windows Version
 - OpenXR supported devices
 - WebGL (Which should work both on PC and Mobile devices)
- User Category Integration:
 - Admin
 - Govt Officials
 - Organizer
 - Visitor

d) **3D DESIGNING**

- Concept Art and Design
- 3D Character Modeling
- 3D Environment Modeling
- 3D Building and Object Modeling
- 3D Graphics and Rendering
- Texturing
- Character Model Rigging
- Ultra High Definition Skybox
- Realistic High Quality Terrain
- Character Animation Key framing
- Lighting

- Image Rendering
- Particle Effects
- Audio Feedbacks
- Optimization
- Optimised Rendering Techniques
- Environmental Design.
- Asset Integration in Metaverse Platform

e) **2D DESIGNING**

- Concept Art and Illustration
- Character Sketching
- User Interface (UI) & User Experience (UX) Design For VR Headset
- User Interface (UI) & User Experience (UX) Design for Touch based interface
- User Interface (UI) & User Experience (UX) Design For Keyboard & Mouse usage
- Icon and Logo Design
- Graphic Design for Marketing Materials
- Texture Design
- Character Design
- Environmental Design
- Sprite Animation
- Typography Design
- User Experience (UX) Design
- Branding and Visual Identity
- Iterative Design and Feedback

f) **BACKEND STACK (SERVER SIDE)**

- Web Portal Dashboard Mechanism
- User Login UI and authentication system
- Networking Infrastructure Planning and Development
- Network Protocols
- Networking and Server Setup
- Client-Server Architecture
- Multiplayer Functionality
- Real-Time Communication using text, voice and video chat
- Seamless Data Synchronization with Lag compensation
- Hybrid system for balancing static and dynamic load
- Security and Encryption

- Latency Optimization
- User Monitoring and Analytics based development
- User Authentication and Authorization
- Integration of External Services:
- Payment gateways (if required),
- Social media APIs,
- Analytics tools.
- Role specific Dashboard Features:
- Dashboard for Analytics and Monitoring
- Dashboard to Organize Meetings
- Dashboard to Upload Media Contents
- Dashboard to Add Role Based user like Admins, Officials, etc

g) **CYBER-SECURITY**

- Threat Modeling
- Role-Based Access Control (RBAC)
- Data Encryption
- Secure Communication
- User Privacy
- Secure Software Development
- Secure API
- Security Monitoring and Intrusion Detection Incident Response System
- Regular Updates and Patching Pipeline Mechanism
- Testing Audits and Penetration Testing
- Disaster Recovery and System Continuity Pipeline

h) **RESEARCH AND PROJECT MANAGEMENT**

- Understanding Different Departments Requirements
- Research on Usability of Metaverse for Public access
- Research on Optimisation for Other Role Based Users to make the experience Easy to Access
- Project Management Control for Super Monitoring to keep track of Timelines
- Project Management Tools like Asana, Miro or any compatible software will be implemented
- Managing Projects to ensure smooth communication among different departments and stand at one goal

- Resource Allocation without compromising on deadlines and budget allocated
- Timeline Management for Milestones to monitor progress and identify potential bottlenecks and proactively manage risks to ensure that the project stays on track and meets its deadlines
- Tools to ensure that project documentation, including project plans, progress reports, and meeting minutes, is properly maintained and is on track

i) **PERFORMANCE AND TESTING**

- Performance Optimization for Editor Tools to Add Room Objects
- Optimize Placement Tools to Arrange Objects in The Department Rooms.
- Rigorous Testing on Database Management and Proper Structuring to Database
- Back And Forth Testing on Meeting Features for Both Boardroom and Public Meeting
- Meeting Scheduling System Testing and Optimization
- Character Customisation System Testing
- Unity Based Asset File Uploader and Viewer Optimization and Testing
- Testing And Optimization for Media File Content Including 2D, 3D, 360° Stereoscopic VR Video and Images Files
- Optimisation for Cross Platform devices compatibility catering windows Devices, OpenXR devices, WebGL versions.
- Particular optimization for UI and UX design setup for both Mobile and VR Devices
- Testing for Role Based Authentication and Access Control
- Ensuring on 3D models to be imported perfectly and not Quality checks to avoid tearing or anything mishaps during importing models from different software's
- Lighting and model sizing optimization
- Audio tuning, maintaining ambience balance in the overall metaverse, and 3D spatial sound effects to cater an immersive experience.
- Rigorous Testing and optimization in Multiplayer functionality for a seamless and lagless experience
- Latency optimization and testing
- Testing on all External services used.
- Analytics and monitoring Testing and making sure right parameters are used
- Role Specific Dashboard Testing and Optimization based on usability
- User Privacy Testing
- Data Encryption Optimisation

8.2.3. Other Roles of SIP

- a. Coordination with various stakeholders: SIP would be required to coordinate with all the stakeholders and support the TVA while interacting with various agencies (internal and external) during the course of the project. SIP shall build mechanism to ensure coordination and consultation between all key stakeholders including technical & literature specific to the scope of work and members of the governance committees on a continued basis to facilitate the execution of the project.
- b. Review and implementation of Security Audits and Policies on regular basis.
- c. The Operation and Maintenance of the Web Portal shall be given utmost importance and the Help Desk must function with best citizen support.
- d. Any other activity, not detailed in the Scope of Work, but if required as an SIP for driving the project must be performed during the project tenure.

8.3. Special Focus for the Project:

- The Design, Development and Implementation of Web Portal Features must be in line with adapting to new changes to basic technologies.
- Every activity that would fall in the list of outputs in the web portal creation must be in concurrence with PCT
- SIP must be available for all project related meetings with TVA as and when required.
- All reports related to the Project has to be prepared in coordination with TVA
- **The Final Deliverable – both content creation and web portal are the sole property of TVA.**

8.4. Activities of Hardware & Software for the hybrid portal

8.4.1. Application study and analysis of requirements

The successful bidder would be required to study the requirement for AR / VR/ XR Hybrid portal. They shall analyze these requirements and ensure they are complete, accurate, consistent, and unambiguous.

Post the detailed study, they will suggest development and re-engineering of the solution as required, and vet the functionality of the proposed applications with TVA before beginning the design of the

system. The structure of the portal needs to be built based on the wireframes, provided by the TVA team.

8.4.2. Solution design

Based on the requirements study and the wireframe, the design and customization of the solution would be done by the successful bidder.

Below is an indicative list of documentation to be prepared as part of this phase:

- 1) Detailed design document detailing technical architecture (application, network, and security)
- 2) Data architecture, interface architecture and integration architecture, appropriate load balancing and clustering techniques adopted in the solution design for meeting the requirements of the RFP.
- 3) SRS document meeting the standards specified in this RFP. The SRS shall be validated and approved by the TVA for all subsequent phases of application development and deployment from an application requirements perspective.
- 4) The successful bidder is required to keep all such documentation up to date to reflect the latest enhancements/modifications made to the application.
- 5) The successful bidder is required to catalog each tech stack component (open source and third-party) and seek explicit approval from TVA.

8.4.3. Application development

- 1) The successful bidder would be responsible for developing, customizing, testing, and implementing the end-to-end web applications. The application developed would be evaluated against the SRS as approved by TVA.
- 2) The successful bidder will be required to deliver the overall application including the website, and their documentation in line with best standards.
- 3) The development should comply with relevant standards on data, security, industry best practices on coding and documentation.
- 4) The successful bidder will need to check-in the latest version of the complete source code, UI artefacts and other documents to the TVA servers daily or as mutually agreed in writing.

8.4.4. Application testing & user acceptance testing

Once the application development has been completed by the successful bidder, they will thoroughly test the application at their end for user acceptance, including Unit Testing, Integration

Testing, System Testing and Performance / Load testing. The successful bidder has to carry out the performance / load testing within the project cost (bid price) itself. The approved design documents will be used as inputs for this activity.

1) Unit Testing

a) This will be done in parallel to the development work. The test cases, test matrix and screenshots of the test results will be submitted to TVA.

2) Integration Testing

a) The successful bidder should thoroughly test the web portal for functional testing and integrated testing as per the standards and proven methodologies. A report of the integration testing with screenshots shall be submitted to TVA at the time of submission of UAT test cases.

3) Performance Testing

a) The successful bidder will conduct performance testing on many industries standard performance testing parameters. The load testing should be done for 15,000 concurrent users for the portal. At the time of requirement sign off, the successful bidder may provide their study results for the number of users of the proposed system. The successful bidder shall incorporate the changes/suggestions that come out of load testing/ audit results.

4) UAT Server Installation

a) The successful bidder must install the web portal on their server for the UAT purpose.

5) User Acceptance Testing (UAT)

a) The successful bidder shall design detailed procedures for user acceptance and develop a UAT plan in consultation with TVA.

b) The successful bidder shall thoroughly test the application at bidder's premises for functional testing and integrated testing as per the standards and proven methodologies. Test cases and test reports of the Unit and Integration testing shall be submitted when requested by TVA.

c) For UAT, the bidder shall install the application in a staging server and publish the test link. Test cases for UAT shall be provided by the successful bidder in consultation with TVA. TVA would share bugs report with the bidder. The bugs may be prioritized by TVA based on their severity. The bidder shall ensure all bugs are resolved and retested.

d) The changes if any at this stage shall be made in the software without any additional cost. The UAT shall be completed, and Signoff shall be obtained from TVA.

8.4.5. Release management

The successful bidder should maintain the source code and other artifacts in a repository system. Every release, the release build along with its release note should be maintained the repository. Anytime, the production environment can be rolled back to any of its previous versions without any difficulty.

8.4.6. Training

The successful bidder will be responsible for training the users of the web portal and the content management system. A comprehensive planning of the capacity building program is fundamental as it has direct association with the success of the overall implementation. For training to be considered effective, sufficient high-level as well as important, specific objectives need to be set, and monitored at periodic intervals. An overall plan for capacity building for the department must be prepared based on the training objectives. The successful bidder should work this out with proper schedule and submit it as part of the overall project plan.

The major components of capacity building and training programs are:

- 1) Identification of the different users who need to be trained.
- 2) Identification of the training objectives as per the user roles / types (e.g. 'training the trainer' modules, modules customized to those with limited technological familiarity).
- 3) Planning and scheduling the location, number, duration of trainings, etc.
- 4) Using a hands-on, well-designed training methodology with excellent training materials for aid.
- 5) Preparation of neat, intuitive, self-explanatory, and well-crafted training materials (documentations, tutorial videos, assignments, etc.), help files, etc. in both Tamil, and English.
- 6) Providing the required training materials, manuals, and help files in both soft and hard copies during the training session for all trainees.
- 7) Conducting the training programs both for direct usage and to train trainers.
- 8) Getting feedback and closing the feedback loop.
- 9) Instructions on how to get help after the training as well.
- 10) Addressing the user issues and resolving them as and when required.

The venue will be provided by TVA office being trained. The bidder must ensure that the venues have the required audio/visual communication tools and internet connectivity, and make appropriate arrangements in the event that those are not available.

8.4.7. Pilot run

The UAT-passed applications shall then be launched as a pilot operation. The changes, if any, at this stage shall be made in the software without any additional cost. The bugs, if any, at this stage should be fixed. The following requirements should be standardized during this phase:

- 1) Number of peak sessions and concurrent sessions, number of peak users and concurrent users
- 2) Application response time when peak number of users connected
- 3) Network bandwidth utilization and throughput
- 4) Server configuration parameters tuning
- 5) Any other parameters which determine application reliability and scalability
- 6) At this stage, if the successful bidder finds that there are more concurrent users than the target set in SLA, the SLA target may be amended upon mutual understanding, and the same may be incorporated in the MSA.

8.4.8. Software freezing

After UAT and Pilot testing, the software shall be finalized for all the standardized parameters. The applications shall be ready for rollout.

8.4.9. Rollout

After the UAT and Pilot run, the successful bidder shall ensure that all the phases are rolled out within the agreed timeframe.

After successful rollout, the applications must be handed over to TVA for back-up purpose.

8.4.10. Production deployment

The successful bidder shall install the web portal in the production servers. The successful bidder shall finalize the architecture and server configuration and submit them to TVA for validation and approval. The successful bidder shall install the operating system, the database and web services, the application servers and services and support and install the necessary software required. The web server/middle ware servers shall be configured for the parameters standardized during the UAT and pilot. The application shall be replicated from staging server.

Any modification or corrections in the platform should be done in the staging server and pushed into the production server after testing. The application should comply with the standards as mentioned in this RFP.

8.4.11. Data retention

- 1) During pilot implementation, application and related processing data should be captured.
- 2) On state-wide rollout, the data captured during pilot implementation should be migrated to the new infrastructure.
- 3) The frequency of archival should be customizable.

8.4.12. Data backup and disaster recovery

- 1) Ensure real time data backup, i.e., back up each transaction immediately after it occurs on the system server.
- 2) The system server should be able to recover the data, with rollback capability, in case of any system or communication failure.
- 3) Implement Disaster Recovery with adequate data backup, business continuity and restoration procedures for all Data (including, but not limited to, the database, attachments and all other data elements created in and generated by the system and users).
- 4) The DR site will be hosted at the state DR site at Tiruchirappalli / on Cloud. The successful bidder must ensure implementation of the Hot DR. In case of primary failure, the access to the server and the portal available in DR site must happen without manual interventions, or with minimal manual interventions if required. The successful bidder must ensure this switch over activity happens in less than an hour and provided with the availability of last successful transaction data that happened at the primary data centre / Cloud.

8.4.13. IT Infrastructure Setup

- 1) The successful bidder should evaluate the requirements and size the H/W and S/W, network, network bandwidth for hosting the solution. The successful bidder should suggest if any additional hardware required in this regard with necessary supporting documents/reports. The requirement will be validated by TVA based on which the procurement will be done. The successful bidder must take care of the IT infrastructure for the development and UAT Phases. For the production environment, TVA will procure the necessary H/W and the successful bidder will support the installation, commissioning and other deployment activities with the OEMs and other stakeholders.
- 2) The successful bidder shall be responsible for hosting the TVA web portal. The hosting will be done in the TN State Data Center / on Cloud and bidder would be responsible for arranging all

the necessary software (other than State Data Center / Cloud infrastructure and DR), licenses etc. for hosting the application.

- a) The proposed solution should provide the following without compromising in the quality & performance of the services:
 - i) High Reliability
 - ii) High Availability (24*7*365) i.e.,>99% Server Uptime
 - iii) High Scalability (15,000 concurrent users) with load balancing & clustering as per the need.
 - iv) High Performance (The proposed solution should work even with low bandwidth connections)
- b) The successful bidder shall deploy, commission, and configure the software (application, database, monitoring, etc.), servers and networks for the staging and production environment.
- c) The successful bidder must migrate data from existing applications / servers as needed.
- d) Additionally, they must test the environment before Go-Live.
- e) The successful bidder should also support the content management and training activities. The bidder shall ensure that the deployment strategies and solutions for the CMS, the web portal should work on any hardware.

8.4.14. Implementation and support

The successful bidder's responsibilities during the implementation and support phase would include:

- 1) Implementation and commissioning of the applications
- 2) Providing technical support to resolve any issues logged by internal and external stakeholders. The tool used for issue-tracking and resolution will need to be approved by TVA.
- 3) Engaging in patch management, testing and installation of software upgrades issued by the OEM/vendors from time to time.
- 4) Monitoring of application activity/performance and periodic reporting with respect to adherence to SLAs.

8.4.15. Software change management

This phase includes making enhancements / modifications to the applications (the CMS, web portal), arising from changes in legislation or regulations, change in user requirements, or any other factor.

- 1) Any change to the application from the system requirements specification document must be agreed and signed-off by TVA.
- 2) The successful bidder is expected to adopt the relevant procedures, protocols, and standards of a mature Software Development Life Cycle (SDLC) including (but not limited to) the following for any enhancement / amendment done to the application during the project:
 - a) Feasibility study / Proposal for change
 - b) Requirement study
 - c) Design
 - d) Development
 - e) Unit and Integration testing
 - f) User acceptance testing
 - g) Pilot launch
 - h) Incorporation of from pilot rollout changes
 - i) Rollout
- 3) Before proceeding to the next phase, the successful bidder shall ensure that they obtain formal approval from TVA for the deliverables (including documentation).
- 4) Even for enhancements/amendments to the application, the successful bidder will be required to prepare all documentation applicable as otherwise done for the application as per industry standards. This includes (but not limited to):
 - a) Design documents
 - b) Test documents
 - c) Change request logs
- 5) Preparing at-least the following documentation as per industry standards at the implementation stage:
 - a) Software installation guide
 - b) Application release documents
 - c) User manuals & training manuals
 - d) Detailed documentation of any changes to the application including proposed changes, impact to the system in terms of functional outcomes/additional features added to the system, etc.
- 6) Change requests, wherever applicable are to be handled by the successful bidder as detailed in section 13. The successful bidder must continuously support these members with necessary

technical and domain specific knowledge of the company and enable them to perform their duties as per requirement of this RFP. (Refer to section 13 for further details.)

8.4.16. Software documentation

- 1) An indicative list of documents to be developed and maintained by the successful bidder for various activities is mentioned above.
- 2) All documentation should be prepared as per latest industry standards and should incorporate necessary version control mechanism.

8.4.17. Software configuration management and project management

- 1) The successful bidder must employ suitable and proven software(s) for configuration and project management practice, such as GitHub, Jira, or others. This would include the software documentation that the successful bidder must maintain and share, as well as issue tracking systems.

8.4.18. Security Audit

- 1) The security audit shall be carried out by the empaneled vendors of TNeGA.
- 2) The successful bidder should resolve the issues (Non-Conformity) reported by the IT security audit agency (TNeGA/empaneled vendors).
- 3) After the compliance certificate is issued by the IT security audit agency, the website will be deployed in the SDC / Cloud environment. The cost of security audit shall be borne by TVA.
- 4) Generating the CSR, obtaining the SSL and other related activities pertaining to installation & maintenance of SSL certificate belong to successful bidder. The payment for the procurement of SSL will be made by TVA.

8.4.19. Free Warranty and Operations & Maintenance

8.4.19.1. Duration of Free Warranty, Operations & Maintenance

- 1) The successful bidder should maintain the VR/AR/SR/ Hybrid platform and the content for the entire contract period of 36 months – 12 months of development period, 12 months of Free Warranty period from the date of Go-live and 12 months O&M after completion of Free warranty.
- 2) The contract is extendable by another 1 year (called the Operations & Maintenance period – O&M). The successful bidder should submit a price discovery for the same.

8.4.19.2. Scope of work during Free Warranty, Operations & Maintenance

In brief, the scope of work for free warranty and Operation & Maintenance consists of comprehensive regular timely operations, maintenance, CR implementation, H/W and S/W installation & support, commissioning of H/W and S/W components, managing the system alerts & events etc. activities related to information gathering, analysis, etc.

During the period of free warranty and O&M, the following detailed activities should be performed one or more times based on the requirement. For the below activities, all human resources required are to be maintained and managed separately by the successful bidder. Apart from the above the following detailed activities should be performed one or more times based on the requirement:

- 1) Bug fixes and updates to the asset or the underlying software / hardware stack.
- 2) Regular monitoring and maintenance of entire stack for optimal performance – applications, databases, and servers.
- 3) SLA reporting – periodic reporting (weekly/monthly/quarterly) on the users, usage, transactions, activities, system performance, application response and allied, preferably along with a dashboard.
- 4) Generation of adhoc reports requested by Government and other departments.
- 5) Addition/Removal/Update of content (static or dynamic) or layers including its authoring; where content includes, but is not limited to: Web pages, Style sheets, Images, Audio, Video, Maps, Animation, Scripting, AJAX interfaces, Flash interfaces/content etc. and authoring includes but is not limited to: capturing, development, testing, processing etc.
- 6) Replacing any content (photos, videos, text etc.) derived from public domain with the official content as and when they are developed or made available for a given asset.
- 7) Server-side activities required for proper functioning, but not limited to: configuration, fine-tuning, optimization, scripting, and addition/soft deletion/update of features for the applicable web server(s), application server(s), database server(s) etc.
- 8) Feedback-based continuous improvement
- 9) Identification of preventive and corrective measures with respect to the changes occurring
- 10) Maintain a log for the operations being done which can be used for further action.
- 11) BCP management

During the O&M period, the successful bidder will also carry out the above activities for any additional software component developed through the Change Request/ New feature development team.

8.4.20. List of Deliverable Artefacts

The successful bidder shall deliver/update the artefacts relevant at each milestone. The list of artefacts include:

- 1) Project Plan and Schedule along with the Project implementation timeline
- 2) Requirement Traceability matrix
- 3) Software Requirement Specifications (SRS)
- 4) UI Design and Wireframes
- 5) Design documents
- 6) Database Design documents
- 7) Data Mapping documentation
- 8) Documentation of steps involved in data modeling, data transformation, data pre-processing, and data validation
- 9) Documentation of the steps involved in building the analytics / arriving at the KPIs
- 10) Use cases, Test cases, Test reports
- 11) Bug fixing report
- 12) Incident / Issue Resolution Reports
- 13) CR Reports
- 14) System tuning and Patch update
- 15) Application usage report including analytics
- 16) User Manuals, Help files, training materials and trainings
- 17) Backup, restore procedure
- 18) SOP (Standard Operating Procedures) for O&M
- 19) Application Deployment Plan
- 20) Source code (complete software source code with versions incl. the latest version used at Go-Live, for further enhancements as and when required)
- 21) Configuration file in case of a customized product-based solution
- 22) Database data Backup
- 23) SLA dashboard reports

- 24) Minutes of the Meetings
- 25) All Data and documents related to the software
- 26) Other artefacts as required by TVA
- 27) Issue tracking and action-taken reports

9. Expected Project Timelines

The Project Timelines have been split into two based on the activities carried out. Both activities should be carried out in parallel in Prescribed time as mentioned below.

9.1. Virtual Reality Content Creation:

S.No.	Activity Description	Expected Timelines
1.	Day of Receiving Work Order	T0
2.	Submission of Inception Report	T1 = T0 + 1 Month
3.	Finalization of Script/Storyboard	T2 = T1 + 1 Month
4.	Character and Environment Design	T3 = T2 + 1 Month
5.	3D Modeling and Animation Prototyping	T4 = T3 + 1 Month
6.	Completion of 50% of the Animation Sequences	T5 = T3 + 2 Months
7.	Voice-over and Sound Integration	T6 = T5 + 1 Month
8.	Integration of VR Mechanics	T7 = T6 + 1 Month
9.	Post-Production & Special Effects	T8 = T7 + 2 Months
10.	Final Quality Checks and Adjustments	T9 = T8 + 1 Month
11.	Submission of Final Product	T10 = T9 + 1 Month
12.	O&M Phase	T11 = T10 +12 Months

9.2. Virtual Reality Content Web Portal Development:

S.No.	Activity Description	Expected Timelines
1.	Day of Receiving Work Order	T0

S.No.	Activity Description	Expected Timelines
2.	Submission of Inception Report	T1 = T0 + 1 Month
3.	Completion of Web Portal Design and Mockups	T2 = T1 +1 Month
4.	Web Portal Backend Development Initialization	T3 = T2 + 1 Month
5.	Integration of VR Playback Capabilities	T4 = T3 +1 Month
6.	Initial 3D Environment Design and Prototyping	T5 = T3 + 2 Months
7.	Completion of Main Web Portal Features	T6 = T5 +1 Month
8.	Integration of Social/Interactive Features	T7 = T6 + 1 Month
9.	Beta Testing and Feedback Incorporation	T8 = T7 + 1 Month
10.	Final Quality Assurance and Performance Testing	T9 = T8 +2 Months
11.	Submission of Final Product	T10 = T9 + 1 Month
12.	O&M Phase	T11 = T10 + 12 Months

10. Payment Schedule

The Payment Schedule will also be made independent of the two activities carried out.

10.1. Virtual Reality Content Creation:

S.No.	Milestone Description	% of Total Payment
1.	Submission of Inception Report	5%
2.	Finalization of Script/Storyboard	5%
3.	Character and Environment Design	10%
4.	3D Modeling and Animation Prototyping	10%

S.No.	Milestone Description	% of Total Payment
5.	Completion of 50% of the Animation Sequences	10%
6.	Voice-over and Sound Integration	10%
7.	Integration of VR Mechanics	10%
8.	Post-Production & Special Effects	10%
9.	Final Quality Checks and Adjustments	10%
10.	Submission of Final Product	10%
11.	O&M Phase	10%

10.2. Virtual Reality Content Web Portal Development:

S. No.	Milestone Description	% of Total Payment
1.	Submission of Inception Report	5%
2.	Completion of Web Portal Design and Mockups	5%
3.	Web Portal Backend Development Initialization	10%
4.	Integration of VR Playback Capabilities	10%
5.	Initial 3D Environment Design and Prototyping	10%
6.	Completion of Main Web Portal Features	10%
7.	Integration of Social/Interactive Features	10%
8.	Beta Testing and Feedback Incorporation	10%
9.	Final Quality Assurance and Performance Testing	10%
10.	Submission of Final Product	10%

S. No.	Milestone Description	% of Total Payment
11.	O&M Phase	10%

11. Payment Terms

- a. No advance payment will be made. Stage-wise payment will be released based on the milestone deliverables completed and approved by TVA.
- b. Payment will be made by TVA after getting written concurrence from PCT against each milestone.
- c. Any payment due to the SIP will be released within 30 days from the date of receipt of bills along with Letter of concurrence from PCT.
- d. The TDS amount, and penalty if any, will be deducted from the payment of SIP.
- e. The taxes as applicable during the contract period as specified in the RFP will be paid by TVA. In case the taxes have been reduced retrospectively, the SIP shall be liable to return the same to TVA.
- f. The SIP shall have full and exclusive liability for payment of all taxes and other statutory payments payable under any or all the Statutes/ Laws/ Acts etc., now or hereafter imposed. TVA will not be responsible or liable for defaulting on payment of taxes to the statutory authorities.
- g. All taxes and other levies imposed by Governments of India will be paid at actual as applicable.
- h. If GST increases during the tenure, TVA will bear the increased cost. If it is reduced, then the reduced cost will be paid to the SIP.
- i. All Payments shall be made in Indian Rupees Only.
- j. The payments will be released in stages as per the section 10 (payment schedule) in this RFP.

12. SLA Monitoring

12.1. Service Level Agreement

- 1) The web portal should be developed, deployed and hosted at the State Data Center (SDC) / Cloud server. Necessary application-level support and client level support shall be required when issues are reported by TVA.
- 2) SLA will be monitored during the Free Warranty (and O&M) post Go-Live.
- 3) The Successful Bidder shall ensure application uptime, responsiveness and resolution of issues reported are within the acceptable limits as set forth in section 12.2.
- 4) The Successful Bidder will maintain logs for the entire contract period.
- 5) The Successful Bidder must develop the required tool and an SLA Dashboard to monitor and visualize the SLA parameters. This development must be completed before the beginning of the free warranty period.
- 6) The sections below list the SLA parameters and quantify penalty for any breaches.

12.2. Application Availability and Performance SLAs

Description	Baseline	Severity Level 1 Breach	Severity Level 2 Breach	Severity Level 3 Breach	Severity Level 4 Breach
<p>Availability of Application</p> <p>(Any failure due to external factors or scheduled downtime is not part of the SLA but the bidder is required to document these external failures and provide documentary evidence when asked for)</p>	99%	<99% and >=98%	<98% and >=96%	<96% and >=95%	<95%

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<p>Application Performance SLA</p> <p>Average Response Time for any user interaction (Excluding the time taken by the external system)</p>	<p><=2 seconds for 99% of the requests</p>	<p><=2 seconds for 98% of the requests</p>	<p><=2 seconds for 96% of the requests</p>	<p><=2 seconds for 95% of the requests</p>	<p><=2 seconds for less than 95% of the requests</p>
<p>Support Resolution SLA – P1</p> <p>Time taken to fix a P1 defect once reported</p> <p>P1: A defect which results in users not being able to complete the service transaction / activity</p>	<p>16 hrs</p>	<p>>16 hrs and <=24 hrs</p>	<p>>24 hrs and <=48 hrs</p>	<p>>48 hrs and <=72 hrs</p>	<p>>72 hrs</p>
<p>Support Resolution SLA – P2</p> <p>Time taken to fix a P2 defect once reported</p> <p>P2: A defect which impacts the functionality, services/information are delivered at a sub-optimal level or workaround for the identified issue is not possible without significant inconvenience to the users or loss of required functionality</p>	<p>48 hrs</p>	<p>>48 hrs and <=72 hrs</p>	<p>>72 hrs and <=96 hrs</p>	<p>> 96 hrs and <=120 hrs</p>	<p>>120 hrs</p>

Note:

- 1) The above SLA parameters and criteria for evaluation apply unless otherwise agreed in writing mutually between TVA and the Successful bidder.
- 2) Additional SLAs may be defined by TVA and agreed upon mutually, in writing, from time to time, to ensure better user experience.

12.3. SLA Non-Compliance and Penalty Calculation

- 1) The penalty for SLA breaches will be calculated based on the severity level of the breach determined in accordance with the table in section 12.2, and levied as % of the milestone payment as set forth in the table below:

Table: Penalty as per Severity of Breach

Severity Level	Penalty
4	2.0%
3	1.5%
2	1.0%
1	0.5%

- 2) Penalties for SLA non-compliance would be calculated each quarter.
- 3) Penalty for each breach is added up to arrive at the total penalty for the quarter.
- 4) When the cumulative penalty reaches 10% of the total contract value, or when the total penalty during the milestone period reaches 50% of the milestone payment, TVA may terminate the contract due to the non-performance of the successful bidder.
- 5) Penalty shall not be levied if the SLA breach is not attributable to the successful bidder.

13. Change Requests

- 1) The successful bidder must continuously support the VR/AR/XR Hybrid platform with necessary technical and domain specific skilled manpower to enable them to perform their duties as per requirement of this RFP.
- 2) The change requests that may be required for any reason by TVA shall be made in accordance with the procedures to be established by the department in this regard.

- 3) The changes referred to here are the ones that aren't covered in the scope of free warranty & O&M, and do not include changes that may be made within the solution by the admin, such as setting up of new user accounts, configuration management, role management, master data management, performance fine tuning, etc. No additional cost will be paid for such work.
- 4) For adding new features at times, there may be a need for developing new modules or making major changes to the web portal. In case of such change requirements, the development effort for every individual request will be estimated by the SI and sent to the Development Approval Committee (DAC) for review and approval.
- 5) TVA will setup a Development Approval Committee (DAC) which would evaluate all such new / change development proposals and decide whether they can be categorized as 'Change Request'.
- 6) Payment for the change request / newly developed module / component(s) will be made after successful Go Live of the feature on a quarterly basis.

13.1. Development Approval Committee (DAC)

- 1) The purpose of this committee is to have a streamlined and auditable process for carrying out enhancements to the web portal and approve the change requests.
- 2) TVA will create the Development Approval Committee (DAC) which includes Functional Experts/ Subject Matter Experts (SME) as advisors and representatives from user departments, to oversee the administration of the Change Requirement / Enhancement / new development and implementation procedures and guidelines.
- 3) The DAC will be authorized to review and approve new / change development requirement proposals and the estimation submitted by the SI. All decisions of the DAC will be final and binding on all parties involved.
- 4) The effort estimation for the change request development would be mutually agreed between TVA and System Integrator. TVA reserves the right to get the effort estimate validated by an independent agency which will be binding on the System Integrator & TVA
- 5) Any configuration, performance tuning, mitigation of security observation during annual/ periodical audits, minor enhancements required to accommodate patches, upgrades, bugs fixing and other maintenance activities which are required for the continued operation of the project shall not qualify as New / Change Development requirement.

- 6) All the development / customization/ configuration must meet the requirements for security, performance, and ease of use for operations, administration, and management.
- 7) Any report whose data is residing in the portal Application solution, or which can be arrived at by using some logic on the available data will not fall/ qualify as a New Development Request.

14. Intellectual Property Rights (IPR)

- a. The IPR and ownership of the deliverables made under this Contract would always rest with TVA. Further, the IPR of all the system and application software (other than the proprietary component) that are part of the contract and any derivative works, modifications, enhancements, improvements or customization to the software or its related source code and/ or documentation and also all copyrights and trademarks will vest with TVA. The IPR and ownership of the Proprietary tools and/ or other tools used by the Implementation Partner or third party or parties for the purpose of design, development and making the deliverables would always rest with the respective parties.
- b. In relation to any inventions, discoveries or other Intellectual Property Rights, the Implementation Partner shall make full and complete disclosure to TVA including any or all information in the Implementation Partner's possession relating to their IPR/ patentability if any, including any or all information in the Implementation Partner's possession relating to their IPR/ patentability if any.
- c. The Implementation Partner shall be required to provide the detailed list of information, data and physical security controls that are deployed at onsite or offsite such as:
 - Data security
 - Governance framework to cover the threat landscape.
 - Solution to ensure fool proof security to the system from various threats including hacking attempts, internal threats, etc.
 - The Implementation Partner shall also be required to provide a copy of all available data, information and physical security related certifications such as DSCI, ISO27001, BS10012 etc.
- d. The Implementation Partner shall not publish or disclose in any manner, without TVA's prior written consent, the details of any security safeguards designed, developed, or implemented by

the Implementation Partner under this contract. The Implementation Partner shall develop procedures and implementation plans to ensure that IT resources leaving the control of the assigned user (such as being reassigned, removed for repair, replaced, or upgraded) are cleared of all TVA's data and sensitive application software. The Implementation Partner shall also ensure that all its employees and associated staff who are involved in providing such security safeguards or part of it shall not publish or disclose in any manner, without the TVA's prior written consent, the details of any security safeguards designed, developed, or implemented by the Implementation Partner under this contract.

- e. The Implementation partner will be exposed by virtue of the contracted activities to internal business information of the TVA, affiliates, and/or business partners and user's data. The Implementation partner shall not disclose any part of the aforementioned information to parties not directly involved in providing the services requested. The information provided/ which will be provided is solely for the purpose of undertaking the services effectively.
- f. Notwithstanding anything contrary contained herein, TVA Department against any suit or claim brought by a third party that a possession or use of software, programs, hardware, materials or documents infringes such third parties Intellectual Property Rights or its misuse of its confidential information.

15. Review and Monitoring

The SIP should be accountable to TVA, regarding the successful delivery of services as per the scope of work defined in this RFP. TVA will hold scheduled review meetings and the SIP should report the progress to TVA and adhere to the decisions made during the review meeting.

16. Exit Clause

- a. At the time of expiry of contract period, as per the contract between the parties, the SIP should ensure a complete knowledge transfer to the new professional replacing them within a period of 4 weeks. The SIP at the time of exit process will furnish the following.
 - All information relating to the work rendered,

- Project data and confidential information
- All other information including but not limited to documents, application source code, records and agreements relating to the services reasonably necessary to TVA identified to carryout due diligence in order to transition the provision of services to TVA or any other agency identified.
- All properties provided by TVA.
- Before the date of exit, the SIP shall deliver to TVA all new and updated deliverables and shall not retain any copy thereof.

17. Service Level Standards

The following Service Level Standards would be strictly adhered to by the SIP during the full term of the contract period.

17.1. Industrial relations and discipline

The Bidder will put in place appropriate disciplinary procedures and ensure congenial working relations with its employees. TVA shall not intervene in any of the industrial disputes between the Bidders employees and (Bidders) management, nor can TVA be drawn in any circumstances in such industrial disputes. The employees of the Bidder will never be considered as employees (fulltime or part-time or contractual) of the TVA in any circumstances. The employees of the Bidder will never claim any right to employment in the TVA irrespective of their status of employment with Bidder.

17.2. Governance and Management

The Bidder will comply with all applicable TVA policies, including but not limited to, the Privacy Policy, Information Security Policy, Code of Conduct/ Ethics, GoTN standards and Policies, GoI Standards and Policies.

17.3. Remuneration to employees of Bidder

TVA will have NO obligation to pay any remuneration, reimbursements or incentives to employees or members of the Bidder. All the payments including statutory payments due to them shall be paid only by the Bidder.

17.4. Compliance to Labour Laws

The Bidder shall be responsible for compliance of all laws, rules, regulations and ordinances

applicable in respect of its employees, sub-contractors and Call Centre Representatives(including but not limited to Minimum Wages Act, Provident Fund Laws, Workmen's Compensation Act, Employees State Insurance, etc.,) and shall establish and maintain all proper records including, but not limited to, accounting records required by any law, code, practice or corporate policy applicable to it from time to time, including records and returns as applicable under labour legislations.

17.5. Reference standards and Policies

The TVA Museum must be designed following the Reference standards published by the Government of Tamil Nadu and in line with overall system requirements set out in this RFP, in order to provide for good quality, security and interoperability with multiple platforms.

18. Penalty for Delays

Project delays on account of the prospective Bidder will attract a penalty of 0.25% (point twenty five percent) per week of the total project value for up to 30 days beyond which the Department will be free to get the job done from any of other vendors and the cost incurred would be deducted from the Payment to be made to the prospective bidder. However the maximum ceiling limit of the penalty would be 10% of the contract value of the project. In case if the issue gets repeated, TVA would look for other options including suspension of the contract and blacklisting the consultant.

19. Extension of Contract Period

TVA may, in its sole and exclusive discretion, extend the end date of this Agreement beyond that provided for in Subsection 2 (4). Any such extension shall require a written amendment to this Agreement, as provided for herein. Further TVA shall have no obligation to provide Consultant with compensation beyond the maximum amount provided for in this Agreement. Similarly, unless authorized by the TVA shall have no obligation to reimburse SIP for any otherwise reimbursable expenses incurred during the extension period.

20. ANNEXURE I: Bank Guarantee Format

(To be executed in Rs.100/- Stamp Paper)

RFP for Selection of SIP for the "Creation of Virtual Reality content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for TVA, GoTN"

To

The Director, Tamil Virtual Academy,
Anna University Campus, Gandhi Mandapam Road,
Kottur, Chennai – 600025.

Bank Guarantee No:

Amount of Guarantee:

Guarantee covers from:

Last date for lodgment of claim:

This Deed of Guarantee executed by _____ (Bankers Name & Address)
having our

Head Office at(address) (hereinafter referred to as "the Bank") in favor of The Director, TVA, registered under Societies Act and wholly owned by Government of Tamil Nadu and having its Registered office at Anna University Campus, Gandhi Mandapam Road, Kottur, Chennai- 600 025 (hereinafter referred to as "the Beneficiary") for an amount not exceeding Rs. _/ - (Rupees _____ Only) as per the request of M/ s. _____ having its office address at _____ (hereinafter referred to as "Successful Bidder") against Letter of Acceptance reference _____ dated _/ _/___ of M/ s. Tamil Nadu e-Governance Agency for the tender ref: TVA/Virtual Reality/SIP/2023-2024 - "Selection of System Implementation Partner (SIP) for the Creation of Virtual Reality Content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for Tamil Virtual Academy (TVA), Government of Tamil Nadu" . This guarantee is issued subject to the condition that the liability of the Bank under this guarantee is limited to a maximum Rs. _____ / - (Rupees _____ Only) and the guarantee shall remain in full force up to months from the date of Bank Guarantee and cannot be invoked otherwise by a written demand or claim by the beneficiary under the Guarantee served on the Bank before _ months from the date of Bank Guarantee.

AND WHEREAS it has been stipulated by you in the said ORDER that the Successful Bidder shall

furnish you with a Bank Guarantee by a Scheduled / Nationalized Bank for the sum specified therein as security for compliance with the Successful Bidder performance obligations for a period in accordance with the contract.

AND WHEREAS we have agreed to give the Successful Bidder a Guarantee.

THEREFORE, we (Bankers address)....., hereby affirm that we are Guarantors and responsible to you on behalf of the Successful Bidder up to a total of Rs. _____/ -

(Rupees

_____ Only) and we undertake to pay you, upon your first written demand declaring the Successful Bidder to be in default under the contract and without any demur, cavil or argument, any sum or sums within the limit of Rs. _____/ - (Rupees _____ only) as aforesaid, without your needing to prove or show grounds or reasons for your demand or the sum specified therein. We will pay the guaranteed amount notwithstanding any objection or dispute whatsoever raised by the Successful Bidder.

This Guarantee is valid until _____ months from the date of Bank Guarantee. Notwithstanding, anything contained herein, our liability under this guarantee shall not exceed Rs.

_____/ - (Rupees _____

_____ Only). This Bank Guarantee shall be valid up to _____ months from the date of Bank guarantee and we are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before _____.

In witness whereof the Bank, through its authorized Officer, has set its, hand and stamp on this.....at

Witness:

(Signature)

(Name in Block Letters)

21. ANNEXURE II: Model Form of Contract

(To be executed on a Rs. 100/- Non-Judicial Stamp Paper bought in Tamil Nadu by the Successful Bidder)

(NO FIGURES IN NUMERALS OR WORDS SHALL BE FILLED UP IN THIS SAMPLE FORM AT THE TIME OF SUBMISSION OF TENDER)

This CONTRACT is made at Chennai on the..... day of 2022

BETWEEN

Tamil Nadu Virtual Academy, registered under the Tamil Nadu Societies Registration Act 1975 and having its Registered Office at Anna University Campus, Gandhi Mandapam Road, Kottur, Chennai - 600025, being the Service recipient (hereinafter referred to as "**TVA**" which expression shall unless repugnant to the context mean and include its successors and assigns) on Behalf of Government of Tamil Nadu of the FIRST PART.

AND

....., a firm represented herein by, aged years and having its registered office at (Hereinafter referred to as "Successful Bidder" which expression shall unless repugnant to the context mean and include its successors and assigns) of the SECOND PART.

Whereas, TVA invited a tender vide **Tender Ref:** TVA/Virtual Reality/SIP/2023-2024 for the "Selection of System Implementation Partner (SIP) for the Creation of Virtual Reality content & Design, Development, and Maintenance of VR/AR/XR Hybrid platform for Tamil Virtual Academy (TVA), Government of Tamil Nadu" as per the Scope of Work and Terms & Conditions prescribed in the RFP Tender document.

Whereas TVA and the Successful Bidder in pursuance thereof have arrived at the following terms and conditions.

NOW THEREFORE

In consideration of the mutual protection of information herein by the parties hereto and such additional promises and understandings as are hereinafter set forth, the parties agree as follows:

1) Purpose

- a. The purpose of this Agreement is to maintain in confidence the various Confidential Information, which is provided between TVA and System Implementation Partner to perform the considerations (hereinafter called "Purpose") set forth in below:

2) Definition

- a. For purposes of this Agreement, "Confidential Information" means the terms and conditions, and with respect to either party, any and all information in written, representational, electronic, verbal or other form relating directly or indirectly to the Purpose (including, but not limited to, information identified as being proprietary and/ or confidential or pertaining to, pricing, marketing plans or strategy, volumes, services rendered, customers and suppliers lists, financial or technical or service matters or data, employee/ agent/ consultant/ officer/ director related personal or sensitive data and any information which might reasonably be presumed to be proprietary or confidential in nature) excluding any such information which (i) is known to the public (through no act or omission of the Successful Bidder in violation of this Agreement)
 - 1) is lawfully acquired by the Successful Bidder from an independent source having no obligation to maintain the confidentiality of such information
 - 2) was known to the Successful Bidder prior to its disclosure under this Agreement
 - 3) was or is independently developed by the Successful Bidder without breach of this Agreement
 - 4) is required to be disclosed by governmental or judicial order, in which case Successful Bidder shall give the TVA prompt written notice, where possible, and use reasonable efforts to ensure that such disclosure is accorded confidential treatment and also to enable the TVA to seek a protective order or other appropriate remedy at TVA's sole costs.
- b. Confidential Information disclosed orally shall only be considered Confidential Information if: (i) identified as confidential, proprietary or the like at the time of

disclosure, and (ii) confirmed in writing within Seven (7) days of disclosure.

3) No Licenses

- a. This Agreement does not obligate either party to disclose any particular proprietary information; to purchase, sell, license, transfer, or otherwise dispose of any technology, services, or products; or to enter into any other form of business, contract or arrangement. Furthermore, nothing contained hereunder shall be construed as creating, conveying, transferring, granting or conferring by one party on the other party any rights, license or authority in or to the Confidential Information disclosed under this Agreement.

4) Disclosure

- a. Successful Bidder agrees and undertakes that it shall not, without first obtaining the written consent of the TVA, disclose or make available to any person, reproduce or transmit in any manner, or use (directly or indirectly) for its own benefit or the benefit of others, any Confidential Information save and except both parties may disclose any Confidential Information to their Affiliates, directors, officers, employees or advisors of their own or of Affiliates on a "need to know" basis to enable them to evaluate such Confidential Information in connection with the negotiation of the possible business relationship; provided that such persons have been informed of, and agree to be bound by obligations which are at least as strict as the recipient's obligations hereunder. For the purpose of this Agreement, Affiliates shall mean, with respect to any party, any other person directly or indirectly Controlling, Controlled by, or under direct or indirect common Control with, such party. "Control", "Controlled" or "Controlling" shall mean, with respect to any person, any circumstance in which such person is controlled by another person by virtue of the latter person controlling the composition of the Board of Directors or owning the largest or controlling percentage of the voting securities of such person or by way of contractual relationship or otherwise.
- b. The Successful Bidder shall use the same degree of care and protection to protect the Confidential Information received by it from the TVA as it uses to protect its own Confidential Information of a like nature, and in no event such degree of care and protection shall be of less than a reasonable degree of care.
- c. The TVA shall not be in any way responsible for any decisions or commitments made by

Successful Bidder in relying on the TVA's Confidential Information.

5) Return or Destruction of Confidential Information

- a. The parties agree that upon termination/ expiry of this Agreement or at any time during its currency, at the request of the TVA, the Successful Bidder shall promptly deliver to the TVA the Confidential Information and copies thereof in its possession or under its direct or indirect control, and shall destroy all memoranda, notes and other writings prepared by the Successful Bidder or its Affiliates or Directors, officers, employees or advisors based on the Confidential Information and promptly certify such destruction.

6) Independent Development and Residuals

- a. Both parties acknowledge that the Confidential Information coming to the knowledge of the other may relate to and/ or have implications regarding the future strategies, plans, business activities, methods, processes and or information of the parties, which afford them certain competitive and strategic advantage. Accordingly, nothing in this Agreement will prohibit the Successful Bidder from developing or having developed for it products, concepts, systems or techniques that are similar to or compete with the products, concepts, systems or techniques contemplated by or embodied in the Confidential Information provided that the Successful Bidder does not violate any of its obligations under this Agreement in connection with such development.

7) Injunctive Relief

- a. The parties hereto acknowledge and agree that in the event of a breach or threatened breach by the other of the provisions of this Agreement, the party not in breach will have no adequate remedy in money or damages and accordingly the party not in breach shall be entitled to injunctive relief against such breach or threatened breach by the party in breach.

8) Non-Waiver

- a. No failure or delay by either party in exercising or enforcing any right, remedy or power hereunder shall operate as a waiver thereof, nor shall any single or partial exercise or enforcement of any right, remedy or power preclude any further exercise or enforcement thereof or the exercise of enforcement of any other right, remedy or power.

9) This Contract shall remain in force during the Contract period of 2 (Two) years as per the

Deliverables and Scope of work from the date of signing of this contract or till the completion of the scope of work from the contract signed date. TVA may renew/ extend the contract for a further period as may be agreed between the parties.

- 10)** The Successful Bidder agrees to deliver the services as per the scope indicated in the Tender Scope of Work and terms & conditions of this Tender within the stipulated period prescribed by TVA at the cost arrived at in the PRICE BID. This cost is firm and not subject to enhancement.
- 11)** The Contract or any part share of interest in it shall not be transferred or assigned by the Successful Bidder directly or indirectly to any person or persons whomsoever without the prior written consent of TVA.
- 12)** Neither TVA nor the Successful Bidder shall be liable to the other for any delay or failure in the performance of their respective obligations due to causes, contingencies beyond their reasonable control such as:
 - a) Natural phenomena including but not limited to earthquakes, floods and epidemics.
 - b) Acts of any Government authority domestic or foreign including but not limited to war declared or undeclared.
 - c) Accidents or disruptions including, but not limited to fire and explosions.
- 13)** The tender (RFP) document in relation with this contract shall be deemed to form and be read and construed as part of this Contract. The Tender enclosures, the offer submitted by the Successful Bidder, the finalized Terms and Conditions and the LOA/ Work Order respectively will form part of this contract. Wherever the offer conditions furnished by the Successful Bidder are at variance with conditions of this contract or conditions stipulated in the RFP document, the final negotiated offer conditions shall prevail over the tender conditions furnished by the Successful Bidder.
- 14)** Liquidated Damages (LD)
- 15)** Implementation Timeline
- 16)** Service Level Conditions
- 17)** Payment Terms
- 18)** Arbitration

(14 to 18 as per the RFP Terms and Conditions)

- 19)** The Successful Bidder shall be liable and / or responsible for the compliance of all Statutory Provisions, especially those relating to Labour Laws in respect of this Contract.
- 20)** Any notice from one party to the other given or required to be given hereunder shall be given by either:
- a) Mailing the same by registered mail, postage prepaid, return receipt requested; or
 - b) Having the same delivered by courier with receipt acknowledged at the address set forth above or with other addresses and to the attentions of such other person or persons as may hereafter be designated by like notice hereunder and any such notice shall be deemed to have been served if sent by post on the date when in the ordinary course of post, it would have been delivered at the addresses to which it was sent or if delivered by courier on the date of acknowledgement of receipt.
- 21)** In case of breach of any of the conditions of the contract by the Successful Bidder during the contract period, TVA reserves the right to recover costs/ liabilities arising directly due to such breach from the Successful Bidder.
- 22)** Termination of Contract – as per RFP.

IN WITNESS WHEREOF the Parties have by duly authorized Representatives set their respective hands and seal on the date first above

Signed by:

(Name and designation) For and on behalf of TVA (FIRST PARTY)

Signed by:

(Name and designation) For and on behalf of Implementation Partner (SECOND PARTY)

WITNESSES:

1. (for FIRST PARTY)
2. (for SECOND PARTY)

22. ANNEXURE III: Self-Declaration of Minimum Eligibility Criteria

(Note: Under the column 'The proof submitted', please write which of the required documentary proofs you are submitting as per Section 4.1 of this RFP Document. It is not a Yes/ No answer.)

Clause	MEC	Documents to be Submitted	Compliance (Y/N)	Proof Submitted along with Page No
4.1.1				
4.1.2				
4.1.3				
4.1.4				

23. ANNEXURE IV: Self-Declaration of Technical Evaluation System

((Note: Under the column ‘The proof submitted’, please write which of the required documentary proofs you are submitting as per Section 4.2 of this RFP Document. It is not a Yes/ No answer.))

Clause	TEC	Documents to be Submitted	Compliance (Y/N)	Proof Submitted along with Page No
4.2.1				
4.2.2				
4.2.3				
4.2.4				
4.2.5				

24. ANNEXURE V: Price Bid

(Bidder shall enter/quote the total price /amount online in “tntenders” portal under Price Bid only)
Bidders are required to upload their total quoted price in the above format wherever it is asked for in the “tntenders” portal to upload the same in the specified place. No material relating to Price Bid shall be included in the Techno-Commercial Bid.

Sl. No.	Item Description	Quantity	Units	TOTAL AMOUNT Without Taxes in Rs. P
1	2	4	5	6
1	Virtual Reality Content Creation			
1.01	Cost for the Virtual reality content Creation for the project 1: Rajendra Chola’s Naval Voyages and Maritime Trade [including Hardware and Software as per RFP class 8.1.1.] (Approx 5min)	1	Lump sum	
1.02	Cost for the VR content creation for the project 2: Cilapathikaram - Puharkandam - Festival for Indra [including Hardware and Software as per RFP class 8.1.1.] (Approx 5min)	1	Lump sum	
1.03	O & M for a period of 12 months after Free Warranty period as per RFP class 8.4.19	1	Lump sum	
2	AR / VR / XR Hybrid platform			
2.01	Cost for Software Development (up to final Go-live) and Free Warranty for a period of 12 months	1	Lump sum	
2.02	O & M for a period of 12 months after Free Warranty period as per RFP class 8.4.19	1	Lump sum	
3	Optional work cost			
3.01	Technical manpower cost for Change Request / New feature Development for content creation	100	Man-day	
3.02	Technical manpower cost for Change Request / New feature Development for Hybrid platform	100	Man-day	
Total in Figures (without tax)				