INVITATION FOR EXPRESSION OF INTEREST (EoI)
FOR DEVELOPMENT OF AI BASED LEARNING MANAGEMENT SYSTEM

Introduction

1.   Indian Navy has been a pioneer in adopting Artificial Intelligence (AI) towards achieving enhanced self- reliance. This **Expression of Interest (EoI) invites responses from eligible Indian Companies for development of AI based Learning Management System (LMS) for Indian Navy**. An AI Based learning management system is planned to be developed to undertake training of various courses, as per training curriculum. Since the scope of training required and the Standard of Knowledge (SOK) level for these courses are different, AI based Learning Management System is envisaged to be utilised to aptly deliver individually tailored training for each trainee. As a pilot project, it is proposed to also develop training content for courses on "Artificial Intelligence (AI) and Big Data" and later, integrate other courses on the AI based Learning Management System.

2.   **Objective**. The objective of this EoI is to seek responses from eligible Indian industries and generate maximum vendor response and competition for procurement of AI based LMS for use in Indian Navy. Inputs received from the shortlisted firms would be considered to finalise the requirements of RFP.

Layout

3.   The EoI has been covered under the following parts:-

(a)	Part I	General Information
(b)	Part II	Technical Requirements
(c)	Part III	Guidelines for formation of Association of Persons (AoP) i.e. consortium
(d)	Part IV	Eligibility Criteria
(e)	Part V	Assessment Parameters
(f)	Part VI	Evaluation Criteria of Assessment Parameters
(g)	Part VII	Documents to be submitted by EoI Respondents
(h)	Part VIII	Queries and Clarifications
(j)	Part IX	Miscellaneous

PART I: GENERAL INFORMATION

4.   **Eligibility to Respond to an EoI as Individual Entity or as Consortium**. The EoI can be responded to, at the option of an EoI recipient, by the Individual EoI Recipient or as AoP.

5.   **Intellectual Property Rights (IPRs)**. Intellectual Property Rights of Government in "Make" projects are placed at **Appendix 'A'**. Development Agency/ Agencies (DA/DAs) shall retain title or ownership and all other rights in intellectual property generated during the development of project. However, the Government shall have March-in rights under which the Government can require the contractor to grant, or may itself grant license for, inter alia, the following reasons:-

      (a)   Where health and safety requirements so require the Government to act in public interest;

      (b)   For National Security Reasons;

      (c)   To meet requirements for public use not reasonably satisfied by the contractor;

      (d)   For failure of the contractor to substantially develop the products embodying the subject invention in India; or

      (e)   For failure of the contractor to comply with any of the requirements laid down under these guidelines.

6.   **Foreign Collaboration**. If the DA(s) collaborate(s) with a foreign firm as a technology provider in a certain technology area for the project, the nature of such collaboration and the technology areas being transferred must be clearly stated in the response. The contribution of the Indian industry in acquiring, developing and indigenising critical technologies shall be one of the key criteria in assessment of various proposals.

7.   No component or any sub system of AI based LMS shall be subjected to any type of inspection or audit by any Foreign Govt or Agency without prior approval of Indian Navy , MoD, Govt of India.

8.   Detailed information about blacklisting of the company/consortium partners and foreign technology partner by any Govt Agency in India/ any other country would be provided as part of the response. Companies currently blacklisted by any Indian Govt Agency are ineligible for participation. Any such information not disclosed but revealed at a later stage would render the Company/Consortium ineligible for further participation.

9.   **Submission of Offers**. The firm/ organisation shall submit their technical proposals as per requirement in Part II of the EoI along with details sought at Appendix 'C' and Appendix 'D'.

10.   Indian Navy reserves the right to consider evaluation of any offer in whole or part or may reject all offers without giving any reasons. Indian Navy also reserves the right to decline to discuss the process further with any party expressing interest. The applicants shall not be entitled to any refund of cost of documents or any other costs incurred by them in participating in the EoI process.

11.   **No obligation to issue RFP**.   Indian Navy shall be under no obligation to issue a Request for Proposal (RFP)/ Request for Tender (RFT) at any later stage after opening of EoI applications as this EoI is only a prospective exploration of system available in the market with the intent to frame functional parameters/ broad generic specification required for AI based Learning Management System.

12.   **Time frames and critical activities**.   The below schedule is tentative and Indian Navy reserves the right to modify the said schedule at any time at its sole discretion without assigning any reason or being liable for the same in any manner whatsoever. The schedule for the project AI based LMS, for shortlisting of the firm is as follows:-

<u>Sr. No</u>	<u>Activity</u>	<u>Time in weeks from submission of EoI D weeks</u>
(a)	Publishing of EoI Document on Internet	D
(b)	Pre response meeting	D + 2
(c)	EoI Response Submission	D + 4
(d)	Evaluation of responses and intimation regarding shortlisting of firms	D + 8

PART II: TECHNICAL REQUIREMENTS

13.   This guidelines for preparation of technical proposals in response to the EoI are enumerated in succeeding paragraphs.

14.   **Scope of the Project**.   As a pilot project, it is proposed to develop a framework and training content for courses on the subject/ topic of "Artificial Intelligence (AI) and Big Data". The framework so developed should be scalable to host about 250 topics/ subjects. The framework of AI based LMS should include:-

> (a)   The system should be intelligent and must ensure directed and effective training as per Standard of Knowledge (SOK) level of trainees. The path taken by a trainee in a conventional LMS is common for all trainees, while it could vary significantly in an AI based LMS, as per the knowledge levels and aptitude of the trainee. The level of trainee is decided by the LMS based software in the manner a trainee progresses his training on AI based LMS. Further, the question papers are generated dynamically in AI based LMS, wherein responses provided by the trainee are used to select the next question on the go.

(b) **Functionality** AI based LMS may recommend duration/ revision of content based on the progress of trainees. AI based LMS facilitates an above average trainee to complete a course faster than a below average trainee. The AI based LMS software should comprise of the following features :-

   (i)   Recommend training paths as per Standard of Knowledge (SOK) level (A- Topics which are to be covered 100%, B - To be covered at some level, C - Can be ignored or covered as per student's personal interest, D - The topics can be ignored) of trainees.

   (ii)   Recommend Course duration as per SOK level of trainees.

   (iii)   Detect Guess Work/ Cheating during exams.

   (iv)   Recommend Course duration to trainers.

   (v)   Generate Question Paper for Entry Level Knowledge Test (ELKT) as well as Exams (The Entry Level Knowledge Test is conducted to check the initial level of knowledge a trainee prior starting of the course. The ELKT result can be used to identify the area of weakness and remedial instructions can be planned for weak trainees. The final exam results can be compared to ELKT to find the progress of the trainees).

   (vi)   Deliver training content to trainees.

(c)   **System Specifications**. The proposal should provide specifications of infrastructure required for the project, in the following categories:-

Ser	Standard/Specification
(i)	Hardware
(ii)	Software suite required for the AI based LMS including Programming Languages/ Tools utilised for development of the system
(iii)	Other Project Infrastructure such as space requirement for housing the hardware, any specific environmental conditions or any other requirement

(d)   **System Architecture**. AI based LMS shall follow a client server architecture on separately managed network (Intranet without connectivity to Internet). The server should be able to support over 100 clusters, wherein each cluster contains 100 clients and the clusters are geographically located in various locations in India, connected over optical fiber network. The Server should be able to handle 10000 concurrent connections and be able to provide an efficient response time (200ms – 1 sec) to all the concurrent connections without any lag. The server uptime should be better than 99.95% per month.

(e) **Data Details**.

(i) **Data Sources with owners**. Training Data required for the machine learning model may be captured at INS Valsura, Jamnagar through deployment of a data aggregation prototype/ application. Further, copy of available records of previous training courses that would aid in training the algorithms would be provided by INS Valsura and same may be incorporated in the software.

(ii) **Security Classification of Data**. Unclassified training content.

(iii) **Brief Description of the Data**.

(aa) **Trainee Data**. Educational background, Past Courses Undertaken, Past performance in exams.

(ab) **Courses Curriculum Data and Content of the Courses**. Course content topics on AI and Big Data, is to be utilised for development of the project. The course content including notes, videos and presentations and other audio/ visual aids required to provide conceptual understanding of the subject/ topic are to be provided by the firm. There should be a provision to add the content by the buyer at a later date.

(f) **Training Structure and Design**. The training for each course will be structured into different modules with an aim to automate and streamline the training methodology. Details of the training structure are enumerated below:-

(i) **Description of Courses**. The courses include ab-initio courses for Officers and Sailors, mid-level career upgrade courses, refresher courses etc and the list of courses will be provided by INS Valsura. Training objectives for these courses have been defined based on the take-off level of the trainees and their future job profiles.

(ii) **Description of Modules**. AI based LMS should be able to divide each course into certain modules depending upon commonality of topics in the course and take off level of the course. The modular framework of the course and training path should facilitate towards better structuring of training content of the course. AI based LMS should be able to define a separate training path consisting of certain training modules.

(iii) **Description of Levels**. AI based LMS should facilitate categorising of each training module into three levels which comprises of animation tutorials, exercises, notes and quizzes. The levels of the module should pertain to the take-off level of the trainee. A trainee may be categorised at Level 1 for a module if the trainee lacks basic appreciation of the topics and needs to spend more time to understand a particular topic. For example, he may need to go through animation tutorials (for better understanding of the subject), exercises (to

consolidate subject knowledge), notes and quizzes to understand a topic. A trainee may be categorised at Level 2 for a module if the trainee lacks high level appreciation of the topics and needs to spend average time to understand a particular topic. For example, he may need to go through exercises (to consolidate subject knowledge), notes and quizzes to understand a topic. However, since his take off levels are higher than level 1 trainee, he does not need to go through animations additionally to understand the topic. A trainee may be categorised at Level 3 for a module if the trainee has a good appreciation of the topics and needs to spend less time to understand a particular topic. For example, he may need to go through notes and quizzes to understand a topic. However, since his take off levels are higher than level 1 or level 2 trainee, he does not need to go through animations and exercises additionally to understand the topic and reading notes are enough for him to understand the topic.

(iv)   **User Onboarding**. Upon commencement of a course, individual users would login in to the AI based LMS and create their profile. The profile may consist of name of the trainee and details of his course (course name, course commencement and end date) which should be populated automatically based on the data pre fed by the administrator. The application should then select training path for the particular course. The trainee would be asked to undergo an Entry Level Knowledge Test (ELKT) initially, which would be an objective exam of 100 marks. Assessment of trainee's knowledge will be undertaken by AI based LMS to ascertain level of the trainee for each module. Based on the assessment, trainee would undertake the training and thereafter, final examination will be conducted upon successful completion of all the modules.

(v)   **ELKT**. Entry Level Knowledge Test (ELKT) will be conducted to assess knowledge of a trainee. Post ELKT, AI based LMS should recommend level (Level 1, Level 2, Level 3) of trainee for each module in his course's training path. It is pertinent to mention that a trainee may have Level 3 for module 1, Level 1 for module 2 and Level 1 for module 3 and so on. Also, Level Module matrix would be unique to a trainee based on his ELKT results and may not be common for an entire course. The ELKT exam is required to be derived from a question bank of 900 unique questions (100 questions for each module) with different weightage as per difficulty of the questions and a 70:30 ratio of Easy to Difficult questions. The AI based LMS should select ELKT questions from the Question Bank and ELKT exam may be different for each trainee. Accordingly, a question bank repository is required to be formulated for ELKT test. The ELKT Question paper would encompass questions from all modules of trainee's training path with appropriate weightage to assess trainee's level of understanding in the respective modules. The number of questions in the ELKT exams would depend on the questions required to be asked by AI based Algorithm for judging the knowledge level of the trainee within a range of 50 to 100 questions with proportionate amount of time.

(vi) **Quiz for Each Module**. Once a trainee completes a module, an objective quiz will be conducted to assess the knowledge acquired by the trainee in that module. Trainee will be able to access next module, only after successful completion of quiz of previous module. If a trainee fails to qualify the quiz, he will have to repeat the module. However, the AI based LMS should assess the responses of trainee in the quiz, and recommend sections (sub topics) of module wherein trainee lacks the knowledge and accordingly trainee is required to repeat only those sections of module.

(vii) **Final Exam**. A trainee is required to appear in final examination (objective exam – 100 questions) post successful completion of all the modules in the training path. The question paper for final exam will consist of questions from all the modules for assessment of knowledge acquired by the trainee in the course. The results of final exams for a complete course are required to be analysed and submitted to the instructor indicating strengths and weakness of the trainee, focus areas and other insights. The Question bank for the final exam, quizzes and ELKT are required to be formulated as part of deliverables of the project and are to be different from each other. Further, the trainer/ instructor should be able to increase/ decrease the number of questions at a later date including addition/ deletion of the questions. If the time permits, a trainee should be able to review his responses. However, selection of questions has to be done automatically by the system from the question bank.

(viii) **Consultancy for Content**. Training content including question banks are required to be designed for the subject/ topic pertaining to AI and Big Data, in consultation with subject matter experts from academia/ industry and INS Valsura. The syllabus for formulation of training content for various courses will be developed in consultation with INS Valsura, industry and academia. The training content developed by the firm would be reviewed by the instructors at Valsura in order to assess the relevance of the content. Amendments will have to be made by the firm in the training content if found necessary during the review.

(g) **Identification of Knowledge Level of Trainees**. Artificial Intelligence algorithms are proposed to be utilised to identify the knowledge level of the trainees. Initially a static approach shall be utilised to assess the knowledge level of trainee and same would be thereafter, improvised using reinforced learning based AI algorithms catering for following considerations:-

(i) A trainee may have good knowledge in some module and average/ below average in other modules which needs to be identified and preserved by the algorithm for selection of level of respective modules.

(ii) The levels selected for a trainee vis-à-vis his performance in

quizzes of modules and final exam.

(iii)   The question paper of ELKT exam would be generated dynamically by AI algorithm while the trainee is answering the ELKT paper. Type of questions in the exam would depend on the responses of the trainee. For example, for a particular topic, a trainee may be asked a simple question and if the trainee answers the question quickly, then the trainee is asked a tougher question (at higher level of SOK) of the same topic. The level of the question is to be changed depending on the response time of the trainee. Further, the level may increase/ decrease non-linearly according to the response time of the trainee. The same methodology may be adopted for the final exam as well.

(iv)   Amount of knowledge gained by trainee by analysing his performance in ELKT and final exam including the type of questions answered by the trainee and his response time.

(v)   The AI algorithms will be trained/ refined using reinforcement learning. Reinforcement learning is a type of machine learning technique that enables the machine learning model to learn from feedback from its own actions and experiences with an aim to optimise the performance of the machine learning model.

(h)   **Recommendations to Instructors**. The AI algorithms shall suggest recommendation towards better organisation of the topics and revision of training content (Syllabus, Animation and exercises) periodically for optimal design of the course. The algorithm shall undertake analysis of performance of trainees in quizzes/ exams, module content accessed by trainees (animation tutorials, exercises and notes) and knowledge acquired by trainee to suggest recommendation/ feedback to the instructors for improvement in the training structure. Following points are critical for developing algorithm to achieve these functionalities:-

(i)   Training content which were followed by most of the trainees, however, their performance was not up to the desired level need to be augmented with inclusion of more relevant topics (suggestion for practical sessions, exercises, animation and notes).

(ii)   Training content which was not followed by most of the trainees, however, their performance was up to the desired level. Such training content would be revised through pruning of repetitive/ irrelevant content.

(iii)   Increase/ decrease in the time duration of each module based on the analysis.

(j)   **Identification & Avoidance of Guess Work**. During the ELKT, quizzes and final exam, AI algorithms shall analyse and assess trainee's work to identify and avoid guess work by trainees in the exams/ quizzes/ ELKTs.

If the AI based LMS identifies that a trainee is resorting to guess work, the algorithm may change the question of the exam at the same time for that trainee. Following are the envisaged aspects of AI algorithm to meet the requirement:-

     (iv)   The algorithm shall analyse and compare time spent by a trainee in answering a type of question with average time spent by all the trainees in answering the same type of question.

     (v)   The order in which trainee answers the question, whether it is sequential or random.

     (vi)   The approach of trainee, whether he revisits the answered questions or not for reviewing of answers.

(k) **AI Technologies**. Reinforcement Learning, Classification, recommender systems, transfer learning.

(l) **Documentation**. The documentation to be provided must include Technical Description, Maintenance & Operational Manual and any other document felt necessary.

(m) **Acceptance Trials**. An acceptance test procedure, detailing the tests to be conducted to validate the efficacy of AI based LMS will be developed by the seller and agreed to by the buyer. Based on the agreed acceptance test procedure, acceptance trials of the system would be carried out by INS Valsura wherein nominated instructors would ascertain the efficacy of the system in terms of plotting of training path, assessment of individual trainees, selection of training modules, recommendation generated for the instructors etc over a duration of three courses spanning over six months. Subsequently recommendation for fine tuning of the system will be given to the firm.

(n) **Handholding Period**. The firm is to extend support of onsite engineer during the period of acceptance trials for a minimum duration of six months. Further the product will be under maintenance support for a minimum period of one year on completion of the handholding period.

PART III: GUIDELINES FOR FORMATION OF ASSOCIATION OF PERSONS (AoP) OR CONSORTIUM

15.   Where an AoP/Group of EoI recipients ("Consortium") comes together to implement the project, there must exist, at the time of responding to EoI, an '*Association of Persons (AoP) Agreement*' to form an AoP i.e. Consortium to execute and implement the complete 'Make' project.

16.   Where the EoI Respondent is an AoP/Consortium, it shall, while responding to the EoI, comply with the following additional requirements:-

(a)   Number of members in a Consortium shall not exceed 05(five).

(b)   The EoI Response should contain requisite information for each member of the AoP/Consortium.

(c)   Members of the AoP/Consortium shall nominate one member as the Lead Member(the 'Lead Member').

(d)   The EoI Response should include a description of the roles and responsibilities of individual members, particularly with reference to productionarrangements in India and R&D activities for which IPRs will vest with MoD asper **Appendix 'A'**.

(e)   An individual EoI respondent cannot at the same time be member of an AoP/Consortium responding to the EoI. Further, a member of a particular responding AoP/Consortium cannot be member of any other Consortium responding to the EoI.

(f)   Members of the AoP/Consortium shall enter into a legally binding Agreement, substantially in the form specified at **Appendix 'B'** for the purpose of responding to the EoI. The Agreement to be submitted along withthe EoI Response, shall, *inter alia:*

(g)   Form the basis for the AoP members to enter into a contractand perform all the obligations of the DA in terms of the contract, in case a development contract to undertake the 'Make' Project is awarded to the Consortium;

(h)   Clearly outline the proposed roles and responsibilities, if any, of each member;

(j)   Include a statement to the effect that members of theAoP/Consortium shall be liable jointly and severally for all obligations ofthe DA in relation to the 'Make' Project as required under these Guidelines.

Change in Membership of a Consortium

17.   Change in the composition of an AoP/Consortium will not be permitted after the submission of EoI responses until the award of a Development Contract for Prototype Development.

18.   Where the EoI Respondent is an AoP/Consortium, change in the composition of a Consortium AoP may be permitted by the Authority after the award of a development contract only where:-

(a)   The Lead Member continues to be the Lead Member of the AoP/ Consortium and shall not be changed under any circumstances;

(b)   The non-lead substitute member(s) shall continue to meet eligibility

criteria for membership of an AoP/ Consortium;

(c)   The new Member(s) expressly adopt(s) the EoI Response and the Development Contract already made on behalf of the AoP/Consortium as if it/ they were a party to it originally and is/are not a Member of any other Consortium short-listed for the 'Make' Project, while undertaking the joint and several or joint liabilities (as applicable) of the member it/they are replacing.

19.   Any change in the composition of an AoP/Consortium shall require prior approval of MoD/ DDP.

20.   The approval to such changes shall be at the sole discretion of MoD/ DDP and must be approved by them in writing for the approval to take effect.

21.   The modified AoP/Consortium/Partners shall submit a revised 'Association of Persons Agreement'.

Miscellaneous Provisions

22.   Any violation of any of the guidelines by any company shall render it liable to initiation of proceedings for suspension and/or banning of business dealings as per the Guidelines for Putting on Hold, Suspension, Debarment and any other penal action on the Entities dealing with the Ministry of Defence, as promulgated by Government from time to time, will be applicable on procurement process andbidders.

PART IV: ELIGIBILITY CRITERIA

23.   Indian entity satisfying all of the following criteria shall be considered as eligible 'Indian Vendor' for issue of EoI by PFT:-

(a)   Public limited company, private limited company, partnership firms, limited liability partnership, one Person Company, sole proprietorship registered as per applicable Indian laws. In addition, such entity shall also possess or be in the process of acquiring a license as per DIPP's licensing policy.

(b)   The entity has to be owned and controlled by resident Indian citizens; entity with excess of 49% foreign investment will not be eligible to take part in 'Make' category of acquisition.

24.   Start-ups recognised by the DIPP are eligible for the project. Start-ups registered under the following categories and industry domains are eligible:-

(a)   Categories.

        (i)   Computer Engineering

(b)   Industry Domains.

(i)   Software Development

(ii)   IT Hardware

25.   Vendors are required to be compliant to DAP 2020.

PART V: ASSESSMENT PARAMETERS

26.   The assessment of the EoI responses would be based on the Evaluation Criteria, details of which are elaborated in the succeeding paragraphs:-

27.   **Technical Capability Criteria**. The AI based LMS will require sound knowledge of Computer and information technology, artificial intelligence and machine learning based application development. The Development Agency (DA) should have a good understanding of Project Management. The contribution of the DA in acquiring and developing technologies in critical areas shall be an important criterion in assessment of the proposal. The respondents to this EoI (including start-ups) are required to furnish information about their technical capabilities as per **Appendix 'C'**.

PART VI: EVALUATION CRITERIA OF ASSESSMENT PARAMETERS

28.   **Evaluation Criteria for All Entities Other Than 'Start-Ups'**. The responses to this EoI will be evaluated based on the assessment parameters given at **Appendix C** to identify Companies/Consortia with proven R&D and Technical strengths and capabilities. The weightage for each of the criteria and sub-criteria at **Appendix C** would be finalised by the Project Facilitation Team.

29.   **MoD, Govt of India reserves the right to modify these criteria at any time before the responses are opened for evaluation**. MoD, Govt of India also reserves the right to disqualify a respondent/consortium if he/they fail to comply with specific criteria at any stage of the evaluation process by the PFT. **No amendment/ change in response to EoI will be accepted under any circumstances once the EoI response is submitted**.

PART VII: DOCUMENTS TO BE SUBMITTED BY EOI RESPONDENTS

30.   Following documents are required to be submitted by EoI respondents along with their proposals:-

(a)   Technical capability assessment criteria. The required specifications are placed at Appendix 'C'.

(b)   Information Proforma (format placed at Appendix 'D').

(c)   Certificate as per Appendix 'E'.

(d)   Documents in proof of Evaluation Criteria (i.e. Technical capability).

(e)   MSME certificate, if claiming to be MSME. Start-ups are to submit their certificate in specified domain registered with DPITT.

31.   **E-Submission**. The EoI respondents shall submit only soft copies of relevant documents (preferably pdfs) with self-certification/ seals of company on official email address < **oicits (dot) valsura (at) Navy (dot) Gov (dot) in**>. All the documents should be zipped in two zipped folder and forwarded on email with Subject Heading (EOI – RESPONSE – COMPANY NAME). All response appendices should be submitted in a single file/folder. Supporting documents/additional reference should be submitted in a separate folder with proper reference mentioned against each parameters/sub parameters/sub sub parameters in respective appendices.

32.   If document size is large, then document may be zipped in parts and mailed separately. No hard copy of the document is required for submission of EoI. However, hard copy may be sought by the Indian Navy for evaluation of the EoI, if found necessary.

33.   The response to this EoI must be submitted within four weeks of publishing of EOI.

34.   Indian Navy at its discretion can extend this deadline for the submission of responses to EoI and the same shall be notified in writing.

PART VIII: QUERIES AND CLARIFICATIONS

35.   Following aspects will govern the procedure for queries and clarifications:-

(a)   **Companies may email queries/clarification/ amplifications on specific issues within two weeks of publishing of EOI**. No queries/ clarifications would be entertained post completion of the aforementioned period. Consolidation and examination of the queries received will be carried out by the Project Felicitation Team will be given to all the companies during the pre-response meeting. If **deemed** necessary, a written reply may be given to all respondents after the meeting.

(b)   **Pre- Response meeting**. A pre response online meeting would be conducted within two weeks of publishing of EoI for clarifications of queries if any. The meeting would be attended by reps of all the interested parties and one to one interaction, may be allowed only at discretion of Indian Navy (with no conditions by the respondents attached whatsoever). The firms willing to participate in the pre-response meeting are to send an email request < **oicits (dot) valsura (at) Navy (dot) Gov (dot) in**> within one week of publishing of EoI with Subject Heading (EOI – PRE-RESPONSE – COMPANY NAME).

PART IX: MISCELLANEOUS

36.   This EoI is being invited with ***no financial commitment*** on part of the Govt. of India/ MoD. Govt of India reserves the right to withdraw or change or vary any part thereof at any stage. MoD, Govt of India also reserves the right to disqualify any company should it be so necessary at any stage on grounds of national security.

37.   Respondent/consortium would be disqualified if they make false, incorrect, or misleading claims in their response to this EoI. A certificate as per the format at **Appendix 'E'** would be furnished as part of the response, including respective consortium partners, where applicable.

Enclosure:- Appendices 'A' to 'E'

**INTELLECTUAL PROPERTY RIGHTS OF GOVERNMENT
IN 'MAKE' PROJECTS**

Guiding Principles

1.   The Government shall retain only a license in the Intellectual Property being generated under contract; and the contractor retains title or ownership and all other rights in intellectual property that are not granted to the Government, subject to conditions prescribed herein.

2.   During the development of prototype, if any technology/product is developed, which the Government considers to be sensitive or classified and needs to be restricted for use in other purposes or for export, the Government through PFT or any other expert or body may identify such technology/product and shall retain the full ownership of IPRs in respect of such technology/product.

3.   All technology licensing is divided up between two mutually exclusive categories of deliverables: (a) Technical Data (TD)1 and (b) Computer Software(CS)2. The Government shall also have certain rights to subject inventions and patents generated under the 'Make' contract.

4.   The EoI shall contain details of (a) the delivery requirements, storage formats and storage medium; and (b) the associated data rights, in all technologies required to be developed or delivered under the 'Make' contract. Officials connected with award of 'Make' projects shall ensure that all such delivery requirements are clearly stated in the EoI and the 'Make' contract signed, if any, including delivery and form in which source code is required as a contract deliverable.

5.   The Government's standard license rights in subject inventions and associated data; and all other data generated under the 'Make' contract, including technical data and computer software whether associated with such subject inventions or otherwise, shall be 'Government-Purpose Rights' (GPR). In respect of subject inventions, the Government shall hold a non-exclusive, non-transferable, irrevocable, paid up (royalty-free) license to practice, or have practiced for on its behalf, the subject invention throughout the world.

6.   These guiding principles shall apply at both the prime and subcontract levels; i.e., the prime DA(s) shall incorporate the rights of the Government as prescribed in this Annexure in all their subsequent sub-contracts and agreements insofar as technology development under 'Make' projects is concerned.

Government Rights

7.   The Government shall have 'Government-Purpose Rights' and 'Unlimited Rights' in succeeding paragraphs.

8.   For all subject inventions under the 'Make' contract, including technical data and computer software associated with such subject inventions, the Government shall

hold GPRs, in that it shall hold a non-exclusive, non-transferable, irrevocable, paid up(royalty-free) license to practice, or have practiced for on its behalf, the subject invention throughout the world. These GPRs shall automatically convert to 'Unlimited Rights' as defined under this section upon the expiry of ten years.

9.   For the purpose of all technical data and computer software, whether related to subject inventions or otherwise, GPRs shall imply the right to use such technical data and computer software within the Government without restriction and the right to authorise any other entity for any government purpose including re-procurement. More specifically, GPRs include the rights to:-

(a)   Use, modify, reproduce, release, perform, display, or disclose technical data within the Government without restriction; and

(b)   Release or disclose technical data outside the Government and authorise persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose that data for Government purposes.

(c)   Form, Fit and Function data and Manuals or instructional and training materials for installation, operation, or routine maintenance and repair;

(d)   Computer software documentation required to be delivered under the 'Make' contract;

(e)   Corrections or changes to computer software or computer software documentation furnished to the contractor by the Government;

(f)   Computer software or computer software documentation that is otherwise publicly available or has been released or disclosed by the contractor or subcontractor without restrictions on further use, release or disclosure other than a release or disclosure resulting from the sale, transfer, or other assignment of interest in the software to another party or the sale or transfer of some or all of a business entity or its assets to another party;

10.   For the purposes of these guidelines, 'Government Purpose' means an activity in which the Government of India is a party, including cooperative agreements with international or multinational Defence organisations, or sales or transfers by the Government of India to foreign Government or international organisations. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data for commercial purposes or authorise others to do so.

11.   In addition to standard GPRs, Government rights in computer software to be delivered under contract shall also include the right to:-

(a)   Use of a computer program with Government computer(s);

(b)   Transfer to another Government computer;

(c)   Make copies of computer software for safekeeping; backup or modification purposes;

(d)   Modify computer software;

(e)   Disclose to service contractors;

(f)   Permit service contractors to use computer software to diagnose/correct deficiencies, or to modify to respond to urgent or tactical situations; and

(g)   Disclose to contractors or any other third-parties for proposes of emergency repair and overhaul.

(h)   March-In Rights.

12.   The Government shall have 'March-In' rights for all items covered under its 'Government-Purpose Rights'. 'March-In' Rights shall include the right to work the patent, either by itself, or by another entity on behalf of the Government, in case the contractor fails to work the patent on its own within a specified and reasonable period of time.

13.   Under its march-in rights, the Government can require the contractor to grant, or may itself grant license for, inter alia, the following reasons:-

(a)   The contractor fails to work the patent towards practical application within a reasonable time; or

(b)   Where health and safety requirements so require the Government to act in public interest;

(c)   For National Security Reasons;

(d)   To meet requirements for public use not reasonably satisfied by the contractor;

(e)   For failure of the contractor to substantially manufacture the products embodying the subject invention in India; or

(f)   For failure of the contractor to comply with any of the requirements laid down under these guidelines.

Miscellaneous

14.   The contractor is required to have a timely and efficient disclosure system in place for reporting of intellectual property generation under the 'Make' contract to the Ministry of Defence. Failure to disclose in timely manner, or failure on part of the contractor to invoke his/her default right of ownership, shall imply that all IPRs shall ab-initio vest in the Government of India. The contractor may elect to retain title of any invention made in the performance of work under a contract. If the contractor does not elect to retain title, the title shall ab-initio vest in the Government as stated above and

the contractor shall only be entitled to a license on such terms and conditions that the Government may deem it fit. Such license to the contractor shall usually be (a) revocable, non-exclusive and royalty-free; (b) extend to its domestic subsidiaries and affiliates; and (c) include the right to sublicense; but (d) shall not be transferable without prior approval of the Government.

15.   The contractor shall also be required to submit periodic reports about commercialisation and manufacturing activities undertaken for products embodying the subject invention under 'Make' contracts.

16.   The Government's IPRs shall flow down from the prime contractor to all sub-contractors at all tiers; that is, every sub-contractor will have the same obligations vis-à-vis the Government as applicable to the prime contractor under the main procurement contract. To this end, the subcontractors shall have limited contractual privity with the Government solely for the purposes of their IPR obligations to the Government.

17.   The ownership of any rights by the contractor does not include an absolute right to transfer of any software, product or documentation; and such transfer, including export thereof, shall continue to be governed by and be subject to the Export Policy, Export Guidelines and all applicable laws, rules, regulations, orders and instructions of the Government of India. All such transfers and exports shall require prior and explicit approval of the Ministry of Defence.

18.   Where the DA is not a consortium, ownership rights in intellectual property (IP) being generated under the 'Make' contract shall vest with the Government upon dissolution of such DA. Where the DA is a consortium, the ownership rights in the IP generated under the 'Make' contract, upon dissolution of the consortium, shall vest amongst the partners as per their agreement on the subject contained in the joint partnership agreement of the consortium, without government rights as licensee being adversely affected in any

ILLUSTRATIVE: 'ASSOCIATION OF PERSONS AGREEMENT'

THIS ASSOCIATION OF PERSONS (AOP) AGREEMENT is entered into on this day of 20……..

AMONGST

1.   { .... Limited, a company incorporated under the Companies Act} and having its registered office at.............. (herein after referred to as the 'First Part' which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

2.   {………….. Limited, a company incorporated under the Companies Act} and having its registered office at(hereinafter referred to as the 'Second Part' which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

3.   {…….. Limited, a company incorporated under the Companies Act and having its registered office at(hereinafter referred to as the 'Third Part' which expression shall, unless repugnant to the context include its successors and permitted assigns)}

AND

4.   { ....Limited, a company incorporated under the Companies Act and having its registered office at(hereinafter referred to as the 'Fourth Part' which expression shall, unless repugnant to the context include its successors and permitted assigns)}The above mentioned parties of the FIRST, SECOND, {THIRD and FOURTH} PART are collectively referred to as the 'Parties' and each is individually referred to as a 'Party'.

   WHEREAS,

   (a)   The Ministry of Defence, Government of India (hereinafter referred to as the 'Buyer' which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited responses(the 'responses')to its Expression of Interest No…….. dated……….. (the 'EoI') for short-listing of bidders for development of .... Project (the 'Project').

   (b)   The Parties are interested in jointly bidding for the Project as an Association of Persons ('AoP') in accordance with the terms and conditions of the EoI document

and other documents in respect of the Project and

(c)   It is a necessary condition under the EoI document that the members of the AoP shall enter into an Association of Persons Agreement and furnish a copythereof with the Response.

NOW IT IS HEREBY AGREED as follows:

1.   **Definitions and Interpretations**.

In this Agreement, the capitalised terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the EoI.

2.   **Association of Persons/Consortium**.

(a)   The Parties do hereby irrevocably constitute an Association of Persons/Consortium (the 'Consortium') for the purposes of jointly participating in the bidding process for the 'Make' Project and executing and implementing the complete 'Make' Project up to the completion of the Production Phase or any subsequent Lifecycle Support or technology Refresh/Upgrade Contract that MoD places on the Lead Member of AoP before completion of the Warranty Period, whichever is later.

(b)   The Parties hereby undertake to participate in the 'Make' Project only through this AoP Agreement and not individually and/or through any other AoP/ Consortium constituted for this Project, either directly or indirectly or through any of their Associates.

3.   **Covenants**.

The Parties hereby undertake that in the event the AoP is declared the selected Development Agency and awarded the project, the parties shall enter into a Contract with the Buyer for performing all its obligations as the Development Agency in terms of the contract for the Project.

4.   **Role of the Parties**.

The Parties hereby undertake to perform the roles and responsibilities as described below:-

(a)   Party of the First Part shall be the Lead member of the Consortium for and on behalf of the Consortium during the bidding process and until the Appointed Date under the Contract.

(b)   Party of the Second Part shall be responsible for ....

(c)   Party of the Third Part shall be responsible for ....

(d)   Party of the Fourth Part shall be responsible for ....

5.   Joint and Several Liabilities.

The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the Project and in accordance with the terms of the EoI and subsequently in accordance with the development contract, if and when awarded.

6.   Lead Member.

Without prejudice to the joint and several liabilities of the parties, each party agrees that it shall communicate with the MoD in matters of the EoI and the Development and Production Contract, as applicable through the Lead Member and the Buyer shall be entitled to communicate with such Lead Member as the representative of all the members. Each party agrees and acknowledges that:-

(a)   The Lead Member shall take prior written consent by all participating AoP members before sending any communication regarding a decision (including without limitation, any waiver or consent), action or omission, before communicating the same to MoD. The AoP Members shall send their responses to the Lead Member and ensure that stipulated timelines of MoD are met with by the Lead Member; and;

(b)   Any decision(including without limitation, any waiver or consent), action, omission communicated by the Lead Member on any matters related to the Contracts shall be deemed to have been on its behalf and shall be binding on it. TheBuyer shall be entitled to rely upon any such action, decision or communication fromthe Lead Member; and;

(c)   Any notice, communication, information or documents to be provided to the Development Agency shall be delivered to the authorised representative of the Development Agency (as designated pursuant to the Contract) and any such notice, communication, information or documents shall be delivered to all the Parties by the Lead Member.

7.   Termination.

This Agreement shall be effective from the date hereof and shall continue in full force and effect until completion of the 'AI based LMS' project and in accordance with the contract, in case the Project is awarded to the Consortium.

8. **<u>Miscellaneous</u>**.

(a)   This Agreement shall be governed by the laws of India.

(b)   In the event of a dispute, the Parties shall attempt to amicably resolve the same, failing which the dispute shall be referred to arbitration which shall be resolved in accordance with the Arbitration & Conciliation Act, 1996. The venue for dispute resolution shall be New Delhi, India. The arbitration proceedings shall be conducted in English language. The arbitration award shall be final and binding uponthe Parties.

(c) The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of the Buyer.

<u>IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN</u>.

SIGNED, SEALED AND DELIVERED For and on behalf of Lead Member by:

(Signature)
(Name)
(Designation)
(Address)

SIGNED, SEALED AND DELIVERED For and on behalf of SECOND PART

(Signature)
(Name)
(Designation)
(Address)

SIGNED, SEALED AND DELIVERED For and on behalf of THIRD PART

(Signature)
(Name)
(Designation)
(Address)

SIGNED, SEALED AND DELIVERED For and on behalf of FOURTH PART

(Signature)
(Name)
(Designation)
(Address)

In the presence of: 1.
                             2.

TECHNICAL CAPABILITY ASSESSMENT CRITERIA

1. **Name of the vendor/ form/ company**:

Ser	Description of selection Criteria	Company 1	Company 2	Weightage (Total 100)
(a) **Reputation of firm applying in response of tender**: -				
(i)	Whether the firm is registered under the aegis of ISO/CMMI.			3
(ii)	Whether the firm is a registered Start-up.			3
(iii)	How many projects of similar nature undertaken by the firm?			7
(iv)	Whether firm is holding any patent for Artificial Intelligence related technology?			7
(v)	How much is firm's annual turnover?			7
(vi)	How many employees are working with the firm?			3
(vii)	How many employees are working on research work and holding PhD (Computer Science)?			3
(viii)	Has firm ever failed to deliver any product within stipulated time duration (False declarations made will lead to termination of contract/non-awarding of contract)?			7
(ix)	Has any legal proceeding are presently in progress against the firm?			7
(x)	Where the firm is located?			3
Overall score achieved by the firm on basis of above serials is out of 50*				
(b) **Specification of Products Developed/ Deployed by firm**: -				
(xi)	Is firm having training			10

Ser	Description of selection Criteria	Company 1	Company 2	Weightage (Total 100)
	data of similar nature/ service? If Yes, can it be utilised for transfer learning?			
(xii)	What is size of development team i.e. how many senior technical developer, how many coder, how many testing members etc.			10
(xiii)	Whether the firm is willing to extend onsite engineer support. If Yes, then for how many months?			15
(xiv)	What will be the time duration for the Maintenance support provided by firm?			15
Overall score achieved by the firm on basis of above serials is out of 50*				
Grand Total score of Ser(a) and Ser(b) will be out of 100*				

2.   Any other details to be provided in addition to the ones, sought above.

Signature with Company Seal

_____ _____   _____   _____   _____
Company No 1 Company No 2   Company No 3   Company No 4   Company No 5

INFORMATION PERFORMA: FOR RESPONDENTS OTHER THAN START-UPS

1.   Name of the Company

2.   Name of CEO with Designation

3.   Address of the Registered Office

4.   Address of the Factory/Factories

5.   Company Website(s)

6.   Date of Incorporation

7.   Brief History of the Company

8.   Category of Industry(Large Scale/Medium Scale/Small Scale)

9.   Nature of Company(Public Limited/Private Limited)

10.   Nature of Business(Please give broad product range against each)

      (a)   Manufacturer
      (b)   Trader
      (c)   Sole Selling or Authorised Agent
      (d)   Dealer
      (e)   Assembler
      (f)   Processor
      (g)   Re-packer
      (h)   Service Provider

11.   Details of Current Products

      (a)   Type/Description
      (b)   Licensed/Installed Capacity

12.	Details of Bought Out Items

    (a)	Main Equipment

    (b)	Component/Assembly/Sub Assembly/Processes

    (c)	Name and Address of the Sub-Contractor

13.	Sources of Raw Materials

    (a)	Imported/Indigenous

    (b)	Brief Description

    (c)	Estimated CIF Value

    (d)	Percentage FE Content in Final Product

14.	Details of Foreign Collaborations

    (a)	Product

    (b)	Name and Address of Collaborator

    (c)	Year of Collaboration

    (d)	Current Status of the Collaboration(whether expired or current)

15.	Technology Received from Abroad and Assimilated

16.	Technology Transfer MoUs Signed/Under Negotiation

17.	 Products Already Supplied

    (a)	To Indian Army/Air Force/Navy

    (b)	PSUs

    (c)	DRDO and its Laboratories

    (d)	Ordnance Factories

    (e)	Any other Defence Organisation

    (f)	To other Principal Customers

18.	Details of Registration Certification held(along with product details)

    (a)	DGQA

    (b)	DGAQA/DGNAI

    (c)	CEMILAC

    (d)	DGS&D

(e)   Other Defence Departments

(f)   Other Government Department

19.   Details of ISO or CMMI Certification(Attach certificate, if any)

20.   Details of Pollution Control Certificate(Attach certificate, if any)

21.   Latest Certificate of Incorporation by the Registrar of Companies(RoC), if any

22.   Details of Credit Rating Certificate(Attach certificate, if any)

23.   Details of Patent/IPR certificates(Attach certificate, if any)

24.   Details of Permanent Man Power(with the details of qualifications)

(a)   Technical

(b)   Administrative

25.   Total Area of Factory

(a)   Covered(sq. mtrs)

(b)   Uncovered(sq. mtrs)

(c)   Bonded Space Available(sq. mtrs)

26.   Details of Developmental Facilities

(a)   R&D Facilities Available

(b)   Number of Technical Manpower

(c)   R&D during the Last Three Years

27.   Area of Interest for Future Expansion/Diversification (please provide adequate details)

28.   Future Plan(if any) in respect of Expansion Program, Installation of Additional Machines/Test Facilities

29.   Turn-Over during the last three Financial Years(Attach relevant documents, if any).

30.   Present Net Worth of the Company(Attach relevant documents, if any)

31.   Any other Relevant Information

32.   Contact Details of the Executive Nominated to co-ordinate with the Assessment Team(please provide telephone, mobile and e-mail address).

ADDITIONAL INFORMATION

33.   Outline features of the proposal.

34.   Recommended stages/phases of development with priorities and time schedules.

35.   Milestones that can be clearly demonstrated to facilitate project monitoring.

36.   Estimated capital expenditure for prototype development.

37.   Roles Responsibilities and expertise details of consortium members, if any.

38.   Role of foreign technology provider, if any, including the agreement intended to be entered into on being shortlisted.

INFORMATION PROFORMA: FOR START-UPS

1.   Name of the Vendor/Company/Firm

2.   Brief about the Company(Nature & category of company)

3.   Contact Details

4.   Local Branch/Liaison Office/Contact in Delhi

5.   Details of Registration Certification held(along with product details). Attach certificate, if any

        (a)   DGQA

        (b)   DGAQA/DGNAI

        (c)   CEMILAC

        (d)   DGS&D

        (e)   Other Defence Departments

        (f)   Other Government Department

6.   Membership of FICCI/ASSOCHAM/CII or other Industrial Associations. Give Name of Organisation and Membership number.

7.   Credit rating of the company.

8.   Details of Prototype/product to be developed

        (a)   Name of product

        (b)   Description(attach technical literature)

        (c)   Specification of Material

        (d)   Technical Specifications

        (e)   Dimensions/Weight of the product

        (f)   Type of tests planned to be carried out post development

        (g)   Proposed methodology for evaluation

        (h)   Conformance to MIL grade/international standards

        (j)   Details of inspection agency/Accredited Lab planned to be involved

        (k)   Interface requirement

        (l)   Indigenous Content

        (m)   Product life

        (p)   Guarantee/Warranty

        (q)   Whether   proposed   product   being   offered   is   an

invention/improvement/innovation? Please elaborate

(r)   Tentative cost of the product

(s)   Proposed timeline for development of prototype, and if successful, production and delivery timelines, along with the cost breakup

(t)   If the price varies with the number of procurement, please indicate cost breakup vis-à-vis number

9.   Details of products developed earlier.

10.   Products Already Supplied

      (a)   To Indian Army/Air Force/Navy

      (b)   PSUs

      (c)   DRDO and its Laboratories

      (d)   Ordnance Factories

      (e)   Any other Defence Organisation

      (f)   To other Principal Customers

11.   Execution of similar projects for military users in Indian and abroad

12.   Execution of similar projects for other users in Indian and abroad

13.   Execution of projects pertaining to critical technology area

14.   History of successful supply orders(Attach relevant documents, if any)

15.   History of past non-performing contracts(Attach relevant documents, if any)

16.   Pending litigation/Litigation history(Attach relevant documents, if any)

17.   Capital Asset of the Company

18.   Turn-over during last three Financial Years(Attach relevant documents, if any)

19.   Present Net Worth of the Company(Attach relevant documents, if any)

20.   Net profit in the last five years

21.   Any other relevant information

Declaration. It is certified that the above information is true and any changes will be intimated at the earliest

CERTIFICATE

It is certified that information submitted in the documents as part of the response to Expression of Interest for Project AI based LMS is correct and complete in all respects. It is acknowledged that the company and/or all consortium members will be disqualified from further participation if any information provided is found to be incorrect.

Signature with Company Seal

_____	_____	_____	_____	_____
Company No 1	**Company No 2**	**Company No 3**	**Company No 4**	**Company No 5**