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INTEGRATED HEADQUARTERS OF THE MINISTRY OF DEFENCE (NAVY)
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(DIRECTORATE OF WEAPON EQUIPMENT)

QUESTIONNAIRE FOR SEEKING INDUSTRY RESPONSE
MAKE – I CASE FOR FCS OF URAN MISSILE

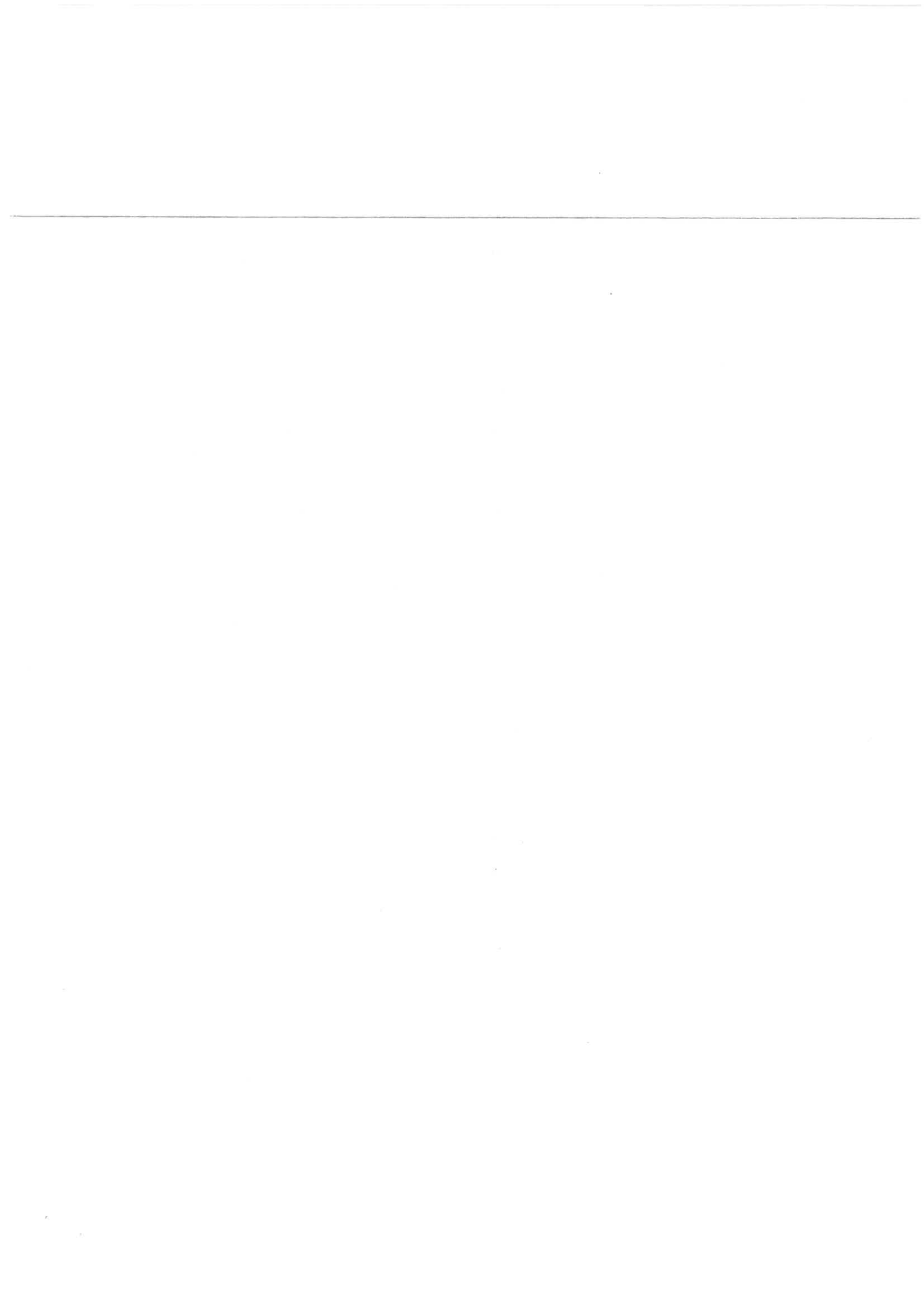
1. Refer to IHQ MoD (N)/ DOI note DI/1033/Make in India/ Make 1 dated 07 Apr 22.
2. Questionnaire, duly cleared by DNI, for seeking industry response iro Make – I case of FCS for Uran Missile is being forwarded herewith as enclosure to this note for uploading iaw IHQ MoD (N)/ DOI note ibid.


(Prince Matta)
Commander
Cdr (WE)

Encl:- As above

Cdr (Indigenisation)

KASU



QUESTIONNAIRE –SSM FIRE CONTROL SYSTEM UNDER MAKE-I CATEGORY

1. **Background.** The Ministry of Defence, Government of India, intends to upgrade Fire Control System (FCS) of a Surface to Surface Missile (SSM) Complex **through Make-I procedure of DAP-2020.**

2. **Description.** The Fire Control System of the SSM complex was inducted in 1997 from Russia. The system generates the fire control solution for the SSM onboard fitted ships. The FCS system primarily consists of devices KB163 (central command and control computing device) and HB108 (interface with the missile launchers). The proposal entails upgradation of the FCS (devices HB108 and KB 163) through indigenous firm as part of obsolescence management of the originally installed Russian system.

3. **Scope of Work.** The scope of work is as follows:-
 - (a) Replacement of units and modules of devices HB 108 and KB 163.
 - (b) Modification of software and operational manuals
 - (c) Development/ updation of new protocols (using modern standards viz. Ethernet, MIL STD 1553B, RS-422/485 etc.) for interface with external systems.
 - (d) Interface with missiles
 - (e) Interface with ship systems including Surface Surveillance Radar (SSR), Gyro/INS, Log, Combat Management System (CMS) and Weapon safety devices.
 - (f) Generation of target parameters which would be provided to the missile system.

4. **Total Quantity and Prototypes.** One prototype system would be required to be developed by the firm. Thereafter, bulk production of a total of nine FCS systems, depending on the development timelines, would be required post completion of prototype system field trials and results achieved of the prototype onboard nominated ship.

5. **Questionnaire.** In order to identify prospective vendors who can undertake the said project, the vendors are requested to furnish information as elucidated in the attached questionnaire.

QUESTIONNAIRE TO BE FILLED BY PROSPECTIVE VENDORS

Ser	Questions
Vendor Details	
1.	Name and registered office address
2.	Factory/ Work address
3.	Category of industry – Large scale/ SME/ MSME
4.	Details of earlier contracts with Indian Ministry of Defence/ Government (including customer, equipment, quantity and cost)
5.	Organisation structure and details of manpower held:- (a) Technical – Skilled and unskilled. (b) Administrative.
6.	Details of single Point of Contact (POC) for clarification of queries, if any.
7.	Profit/ Loss Statement of the last 03 financial years
8.	Annual Turnover in INR for last 03 financial years
9.	Production capacity per annum
10.	Present Net worth
11.	Present source of finance and borrowing limit (Bank details)
12.	Details of certification by Quality Assurance Organisation, if any.
13.	Details of membership of FICCI/ ASSOCHAM or other industrial association, if any.
Technical Details	
14.	R&D capability and facilities:- (a) Details of R&D infrastructure held (b) Details of technical manpower held for R&D efforts
15.	Capabilities to design and manufacture sub-assemblies and components:- (a) Broad list of sub-assemblies and components designed and manufactured in-house. (b) Broad list of sub-assemblies and components outsourced from Indian/ foreign manufacturer
16.	Details of IPR held
17.	Details of IPR translated to field products
18.	Elaborate in detail upon the capability in electronics, PCB manufacture, software development, analysis/ mapping of extant proprietary foreign (Russian) interface protocols.
19.	Availability of ESS testing lab, EMI/EMC lab, test setup/ emulators for testing signal flow as per interface protocol with all supporting / interfaced equipment such as navigation and stabilization equipment onboard ships (eg Gyro and Log).
20.	Compliance to JSS 5555 and MIL STD 461 E/F EMI/EMC standards
21.	Details of standards to be followed for development, manufacture and testing electronics hardware and software.

Ser	Questions
22.	Broad plan/ roadmap for design, development, manufacture and delivery of upgraded FCS with modernised electronics along with associated interfaces:- (a) Technologies to be acquired/ imported. (b) Envisaged indigenous content. (c) Capability of integrating the FCS with existing interfaces onboard ship. (d) Mode of participation: Single/ JV. (e) Incase of JV – List of joint partners. (f) Estimated time for completion of initial design
23.	Details of manufacturing infrastructure that would be useful for manufacturing the FCS and its subsystems
24.	Vendor to specify the following:- (a) <u>FCS</u> . Characteristics and algorithm of software. Willingness to offer software and control algorithms for clearance by QA agencies. (b) <u>Trials</u> . Would the FAT/ HAT/ SAT schedule be forwarded to <i>IN</i> for collegiate vetting on selection? Would the system be offered for trials on NCNC basis? (c) <u>Interfacing</u> . Can the system be interfaced with legacy C4I2 systems and other sensors and weapons?
25.	Anticipated timelines with milestones for development of the prototype (including Quality Assessment Tests) and production of bulk quantities? Specify the timelines separately for each
26.	Envisaged indigenous content in the upgradation of FCS with approximate indigenous content (in terms of cost percentages) at both Prototype Development Stage and Production Stage (including sub-assemblies)
27.	Estimated timelines for production of final product as per <i>IN</i> requirement, post successful prototype development
28.	Adequacy of existing infrastructure capabilities for PCB design, production and testing along with software development and testing
29.	Requirement of setting up of new assembly line or augmenting/repurposing the existing assembly line.
30.	Costing:- (a) Cost of prototype development and their basis. (b) Cost of final product and their basis.
31.	Roadmap for providing onsite after-sales service:- (a) Spares (indigenous and imported) (b) DI and repair services. (c) Capability to undertake AMC/ RRC/RC (d) Promulgation of Obsolescence Management Plan (OMP)
32.	Will simulators/emulators be provided?
33.	Would the overall system reliability be more than 95%?
34.	Would the vendor provide customer support in terms of a Comprehensive Annual Maintenance Contract?
35.	How will the vendor ensure continuous supply of spares for the system, especially for those components being procured ex-import, if any
36.	What would be the lead time to supply BQs and spares to <i>IN</i> ?
37.	Any other details that the vendor like to put forwards to the feasibility study board
38.	What are the QA standards that the equipment (including components) will comply to? Please state the DIN standards/ other standards of compliance.

