

Directorate General of Armoured Corps
General Staff Branch
Integrated Headquarters of
Ministry of Defence (Army)
Defence Headquarters
Post Office, New Delhi-110011.

A/36026/FRCV/RFI/GS

09 Sep 21

REQUEST FOR INFORMATION (RFI)
FUTURE READY COMBAT VEHICLE (FRCV) FOR INDIAN ARMY

1. **Introduction.** The Ministry of Defence, Government of India, intends to procure a new generation 'Future Tank' platform namely **Future Ready Combat Vehicle (FRCV)**, **approximately quantity 1770 in a phased manner**, with expected **induction by 2030**, along with Performance Based Logistics, Transfer of Technology, Engineering Support Package and other Maintenance and Training requirements. The FRCV platform is planned to be procured under the '**Strategic Partnership**' route within the provision of Chapter-VII of **Defence Acquisition Procedure - 2020**'.
2. The Ministry of Defence, Government of India, seeks information from the foreign OEM for participation in FRCV project in accordance with Chapter-VII of DAP- 2020. This **RFI supersedes earlier RFI issued on 08 Nov 2017** on the same subject, being technologically outdated.
3. **Structure.** This Request for Information consists of two parts as indicated below: -
 - (a) **PART - I.** The first part of RFI incorporates the operational characteristics to include **intended use of FRCV, Technical Parameters, Cost, Transfer of Technology, Delivery Schedule and other requirements.**
 - (b) **PART - II.** The second part of the RFI states the **methodology of seeking response.**

PART - I

4. **Intended Use of the Equipment.** In conformity with **the emerging future threat spectrum** and the **technological advancements**, the Indian Army intends to induct a new '**state-of-the art**' '**technology enabled**' tank to operate in **varied terrain profile** (High Altitude Areas, Plains/Riverine, Deserts/Semi-Deserts) across the **current and future spectrum of conflict**, which will remain in service for the **next 40-50 years as the 'Main Battle Tank'** of the Indian Army.
5. **Important Technical Parameters.** Broad operational requirements are tabulated at **Appendix 'A'**.

6. **Approximate Cost Estimate**. The Foreign OEMs are required to provide **indicative cost** for the platform offered along with the breakdown of cost. Other aspects (if any) may be mentioned specifically.
7. **Basic Design**. The Foreign OEMs is required to indicate the **Basic Design** (Base Model) of the platform offered along with the names of customer (Army) to whom the same or similar platform has been contracted or delivered. In addition, proposed configuration, service life and **technologies that have already been integrated or capable of being integrated into the basic design** of the FRCV platform on offer, is to be indicated.
8. **Transfer of Technology (ToT)**. The Government of India, Ministry of Defence, is desirous of acquiring Comprehensive Technologies including detailed design manufacturing know-how of the FRCV platform being offered. The Indian '**Strategic Partner**' will retain the ownership of the design and technologies for the platform to ensure realisation of '**Atmanirbhar Bharat**'. To provide impetus to indigenisation, incentive to Transfer of Technology (ToT) and Indigenous Content (IC) will be specified in the EoI issued to the Foreign OEM. The key requirements related to **Transfer of Technology will be as per Appendix F to Schedule 1 to Chapter - II of DAP- 2020**. The vendors are required to identify each system/sub-system in the platform offered and provide information on the categories of ToT offered.
9. **Induction in Phased Manner**. The FRCV total quantities are planned to be **inducted in a phased manner to ensure delivery of FRCV platforms in synch with technological advancements**. Hence, the Foreign OEM may indicate the numbers recommended for this phased induction. The phased induction will cater for the following aspects: -
 - (a) Initially, limited quantities are planned to be inducted that will assist in product improvement of the subsequent induction **based on performance / feedback**.
 - (b) Rapid pace of technological advancements are now taking place every three-four years, and is bringing in new systems and concepts. The phased induction will thus cater for this aspect and **facilitate product improvement / up-gradation** and delivery of FRCV platforms in synch with technological advancements.
10. **Tentative Time Plan - Prototype & Delivery Schedule**. The Foreign OEM is required to give out the **tentative time plan for prototype to be offered** and indicate the **overall time frame of delivery of the platforms** (if selected).
11. **Ammunition/Missiles/Armament**. The Foreign OEM is required to indicate type, availability, OEM/manufacturer of all ammunition/missiles and all other armament as being proposed for the FRCV for all weapon systems/counter measure systems.
12. **Maintenance & Life Support**. The Foreign OEM is to provide broad plan for life cycle support / Performance Based Logistics / Repair & Maintenance aspects.
13. **Training of Crew and Personnel**. The Foreign OEM is required to indicate training requirements of all personnel along with the training aids as applicable (Crew Members, Instructors, and Maintenance Staff etc).
14. **Warranty**. The supplied FRCV platform (s) and equipment shall carry a warranty of 24 months from the respective date of delivery or acceptance of each FRCV platform by user post Joint Receipt Inspection, whichever is later. The warranty should cover both Hardware and Software, as applicable.

PART – II15. **Procedure for Response.**

(a) **Format.** The Vendor/Foreign OEM will fill in the Questionnaire given at **Appendix 'A'** and also fill the form of response given at **Appendix 'B'**. Apart from filling details about company, details about the product meeting other technical specifications should be given out. Additional literature on the product can also be attached with the form.

(b) **Address for Response.** The filled form and the response (Hard and Soft copies) should be dispatched to the under mentioned address: -

**Directorate General of Armoured Corps
Project FRCV, AC-4 (FRCV & EM)
General Staff Branch
Integrated Headquarters of Ministry of Defence (Army)
Defence Headquarters Post Office, New Delhi-110011**

Contact Details:

**Tele : 011- 23792971
E mail : abhay-6337@gov.in**

(c) **Time for Response.** Last date of Acceptance of Receipt of response is **30 Sep 21.**

16. The Government of India invites responses to this RFI **only from foreign OEMs.** The end user of the equipment is the **Indian Army.**

17. **Criteria for Shortlisting of Indian SP and Foreign OEMs.** Guidelines for shortlisting and selection of SP and Foreign OEMs will be governed by **Chapter VII of DAP-2020.**

18. This RFI is being issued with **no Financial Commitment** and the Ministry of Defence reserves the right to change or vary any part thereof, at any stage. The Government of India also reserves the right to withdraw it, should it be so necessary, at any stage.

19. The response needs to be detailed with **provision of specific or not less than or not exceeding parameters** so as to facilitate formulation of Staff Qualitative Requirement at Integrated Headquarters of Ministry of Defence (Army).

20. Reply to this **RFI** (and further communication on the case, including equipment description, training and documentation) are to be made in **English language only.** Response to the Request for Information is to be provided in **Hard and Soft Copy.** The compliance table to all aspects are required to be provided in editable form (preferably Microsoft Excel).

21. The offers shall be evaluated in accordance with provisions of DAP-2020. The respondent(s) is/are **liable to be disqualified for any materially false statement.**

Appendix 'A'
(Refers to Para 5 of the RFI)

BROAD OPERATIONAL REQUIREMENT (OR)
FOR FUTURE READY COMBAT VEHICLE (FRCV) PLATFORM

1. **Operational Concept.**

(a) Since its introduction in the battle arena more than 100 years back, the 'Tank' has been the dominant battle winning factor of the Land Forces and over period to time has upgraded its capabilities with development of new threats.

(b) Now, with the rapid pace in technology, there are 'new' threats to the 'Tank' from the aerial dimension with UCAVs, Loitering Munitions, etc. The improvement in ISR has also made targeting of Land Forces including the 'Tank' easier. The battlefield now requires all forces to operate in a synergetic and networked environment.

(c) Thus, whilst the adversary Tank continues to be the **primary target**, the future Tank (FRCV) has to be in synch with technological battle field advancements and needs to once again upgrade and; incorporate systems to negate ISR systems, counter the new threats and enhance its operational performance using technology, to ensure staying power and victory of the Land Forces in any conflict.

(d) In line with future threats and desired capabilities borne out of the requirement of continued 'operational readiness' and 'combat overmatch' over the adversary, there is a need for a **modern Tank platform which is superior** and incorporates niche technologies i.e Artificial Intelligence, See Through Armr, etc and has ability to operate in a **network centric & EW environment**.

(e) FRCV will be required to conduct sustained, continuous operations by day and night in real time awareness, all terrain agility and high mobility, precision lethal firepower, multi-layered protection with use of niche technologies. The FRCV is likely to be employed in varied terrain configuration, as existing in the Indian Sub-continent including High Altitude Areas, Plains/ Riverine and Deserts / Semi-Deserts Terrains under varied Temperature Conditions.

(f) The FRCV should also lend itself to development of a **family of combat vehicles**, like Recovery Vehicle, Bridge Layer Tank, etc, based on modularity and standardisation of platform.

2. **Broad Operational Parameters.**

(a) The FRCV platform must be adaptable to **Indian terrain and temperature conditions**.

(b) Since FRCV is a 'Future Tank', the technologies which are *likely to manifest in future and can be incorporated* can be stated as such.

(c) Details required from the vendors on various parameters are given below in a questionnaire form and **Vendors to conform their response to the requirement of**

broad operational parameters given below with suitable amplifications and NOT only 'Yes' or 'No' :-

<u>SER NO</u>	<u>PARAMETERS</u>	<u>BROAD DESIRED SPECIFICATIONS</u>	<u>VENDORS RESPONSE</u> (Yes/No to be suitably amplified)
(a) <u>BASIC CONFIGURATION</u>			
(i)	What is the combat weight of the platform offered?	Medium Weight Class Tank.	
(ii)	What will be the dimensions of the platform offered?	The design should be modular and physical dimensions should not impede its transportability by in-service rail, road, air and ship.	
(iii)	What will be crew configuration of the platform offered?	2/ 3 with Crew Pod Concept.	
(iv)	What will be temperature range in which the platform will operate?	All systems and assemblies including ammunition should be able to operate in a minimum temperature as in High Altitude Area and maximum range as existing in deserts terrain with corresponding humidity conditions.	
(b) <u>FIRE POWER</u>			
(i)	What will be the main armament offered and whether the same is upgradable or not?	Large Calibre, Lethal, Modular and upgradable weapon system with capability to destroy and offer countermeasures to varied threats.	
(ii)	What will be Accuracy and Range of the various weapons platform offered?	To take on current / future tanks with High First Round Hit Probability and at max operational ranges. Other weapon systems and counter measures should cater for the threats as currently existing and in future.	
(iii)	What types of ammunition for both main and secondary armament can be fired from the platform offered along with the quantity?	Modern advance multipurpose 'smart munitions' both for main and secondary armaments with gun tube launched anti-tank guided missile.	
(iv)	What will be the maximum lethality	To defeat contemporary & likely future tks / A vehs at ranges greater than those of the adversary's, emplacements/ guns,	

<u>SER NO</u>	<u>PARAMETERS</u>	<u>BROAD DESIRED SPECIFICATIONS</u>	<u>VENDORS RESPONSE</u> (Yes/No to be suitably amplified)
	achieved by the platform offered?	UAVs, soft skinned vehicles and destroy or deter Attack Helicopters.	
(v)	What is the type and specification of fire control system on the platform offered?	A digital fire control system, to incorporate, AI enabled target acquisition / Multiple-Auto Target Tracker with hunter killer capability and eye safe laser range finder	
(vi)	What is the rate of fire, vertical and horizontal angle and type of ammunition loading provision of the main and secondary armament of the platform offered?	High rate of fire capable to fire at high as well as low angles with capb to fire beyond line of sight. The loading system should provide auto-Loading mode with minimum intervention and engagement time.	
(vii)	What type of secondary armament will the platform offer?	Multiple weapons for anti-air craft, counter UAV/ counter RPAs and ground role with different calibre assisted with remote control weapon station. Smoke Dischargers with Anti Thermal/Laser capability	
(viii)	What kind of weapon control arrangements are existing on the platform	Automotive and gun control system and any other system/ sub-system which enhances the operational capability and employability of the platform.	
(ix)	What are the specification of the day and night vision devices installed on the platform offered?	High detection recognition and identification ranges with thermal night fighting and Lock on Target capability.	
(c) <u>SURVIVABILITY</u>			
(i)	What is the all-round protection levels of the platform offered?	STANAG level of all round protection including top, bottom, sides and frontal-against current / future KE/CE threat, Mines with combination of other survival means (ERA, APS etc)	
(ii)	What is type of armour material being used – effectiveness and weight aspects?	Modern Armour material like ceramics, laminates, EM armour etc give higher level of protection with lesser weight which will give a very big operational advantage.	

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(iii)	What is the passive protection of the platform offered?	Soft Kill systems and other counter measures (Laser Warning System, IR/RF sensors) desired.	
(iv)	What are the measures available for secondary protection on the platform offered?	Explosive Reactive Armour (ERA), Hard and Soft Kill Measures, Chemical Biological Radiological Nuclear (CBRN) Protection & Instant Fire Detection and Suppression System (IFDSS).	
(v)	What are the ammunition stowage arrangements on the platform offered?	Containerized compartments, with suitable safety of blow out provisions.	
(vi)	What are the stealth and signature management arrangements available on the platform offered?	To suppress visual, audio/acoustic, thermal and electro-magnetic signatures. Provision of Adaptive Camouflage IR stealth and pre fed shapes for deception – Thermal Camouflage.	
(d) <u>MOBILITY</u>			
(i)	What is the power to weight ratio of the platform offered?	Approx 30:1 horse power/ton or better.	
(ii)	What is the nominal ground pressure of the platform offered?	High trafficability – in marginal, boggy terrain.	
(iii)	What will be the maximum operational range in different terrain configuration with internal fuel capacity of the platform offered?	Operational ranges in cross country and on road.	
(iv)	What type of suspension is available on the platform?	Should provide a stable weapon platform to achieve first round hit probability in varying Terrain - Active Suspension .	
(v)	What type of power pack is installed on the platform?	Hybrid electric drive with long engine life, Modular with ease of maintenance.	
(vi)	What kind of tracks are available on the	A quick-fit and detachable rubberised pads, with the ability to function with and without the rubber pads. It should	

<u>SER NO</u>	<u>PARAMETERS</u>	<u>BROAD DESIRED SPECIFICATIONS</u>	<u>VENDORS RESPONSE</u> (Yes/No to be suitably amplified)
	platform along with its design features?	incorporate a dynamic and automatic track tension system.	
(vii)	What type of Braking System is available on the offered platform?	Improved vehicle control and decrease stopping distance.	
(viii)	What are the obstacle crossing capabilities of the platform offered?	Capability to negotiate maximum gradient and ability for deep- fording .	
(ix)	What is the maximum speed the platform can attain, both on and off road?	Maximum speeds to include reverse speed adding to agility/ survivability.	
(e) <u>ISR AND SITUATIONAL AWARENESS</u>			
(i)	What are the systems/ sub-systems available for situational awareness on the platform offered?	Systems to provide day and night high resolution, high field of view and continuous and integrated 360 ^o real time situational awareness for the crew members - See Through Armour, IFF systems .	
(ii)	What are the systems which can be incorporated for enhancing ISR like UAVs, Tethered Systems etc?	To enhance ISR capability	
(iii)	What are the arrangements and specifications available for inter and intra communication in the platform offered?	High Data media rate transfer, networked and media connectivity with Ae and other platforms. Issues of compatibility with in-service radio sets and secrecy to be addressed.	
(iv)	What measures are available on the platform for electronic warfare?	Offensive and defensive electronic countermeasures (ECM) and counter-countermeasures (ECCM).	
(v)	What are the Vetronics arrangements available on the offered platform	Battlefield networked and situational awareness systems with powering of vetronics.	
(f) <u>MAINTENANCE</u>			

<u>SER NO</u>	<u>PARAMETERS</u>	<u>BROAD DESIRED SPECIFICATIONS</u>	<u>VENDORS RESPONSE</u> (Yes/No to be suitably amplified)
(i)	What kind of built-in test facility available on the offered platform?	'On-board monitoring and diagnostic system' to provide real time information on digital display regarding status of serviceability and logistic requirements of the system.	
(ii)	What are the Maintainability systems available on the offered platform?	Incorporate modular systems to enable quick replacement and predictive maintenance at Field Workshop level with high Mean Time Between Failures and low Mean Time Taken to Repair.	
(iii)	Does the FRCV do away with requirement of Overhaul?	With on board monitoring systems and predictive maintenance, the requirement to do overhaul can be negated.	
<u>(g) WHAT OTHER CAPABILITIES ARE OFFERED ON THE PLATFORM?</u>			
(i)	Does the platform offers battlefield management system? If yes, details of the system.	BMS integrated with Fire Control System.	
(ii)	What type of navigation system will be offered on the platform?	Hybrid navigation system, compatibility with In-service map system, DSM series.	
(iii)	Any other systems available to enhance the overall operational capabilities?	Auxiliary Power Unit, Preheater, Environment Control Unit and Anti Drone capability, UAV Jammers, Net Enabled (UAV feed) and Identification-Friend-or-Foe system.	
(iv)	What are the energy & power management systems available on the platform?	The platform should adapt to alternate power management system.	
(v)	Does the platform concept offer family of vehicles?	Multipurpose chassis with maximum standardization.	
(vi)	What types of autonomous military technologies are available on the offered platform?	Incremental introduction of autonomous technologies complimenting crew tasks and enhance situational awareness.	

<u>SER NO</u>	<u>PARAMETERS</u>	<u>BROAD DESIRED SPECIFICATIONS</u>	<u>VENDORS RESPONSE</u> (Yes/No to be suitably amplified)
(vii)	Is there exist possibility for Direct Energy Weapons on the platform offered?	Precise targeting, instant effects and long range with sufficient power-generation capacity. Alternate options of Armament with Liquid Propellant Gun, Electro Thermal Gun	
(viii)	Can the platform offer provision for artificial intelligence, cloud computing and block chains?	Performance optimization, Decision support, trust based network and Weapon systems and target/surveillance systems.	
(ix)	Does the platform has ability of provision and control of UAV/UCAVs, Swarms and Loiter Munitions?	Surveillance, neutralize EW capability and kinetic engagements.	
(x)	Does the platform offer Counter Drone Systems?	Advance EW capabilities and kinetic engagements.	
(xi)	Does the platform offer provision of Veh Information Sys?	Vehicle Monitoring System to include data of various parameters incorporated so as to provide ease of maintenance / important logistic information etc	
(xii)	Does the platform offers Quantum Computing for secured network?	Secure communication network and inertial navigation in GPS denied environment.	
(xiii)	Does the platform offer Temperature Control / Climate Control system?	System should provide temperature control system to provide for safety and performance optimization of Opto Electronic systems.	

3. Many new/futuristic technologies have been sought and the prospective OEM/Integrator may not have them as these systems/sub-systems being preserve of other OEMs. However, provision for integration and its incorporation into the platform sought can/should be confirmed.

4. In addition to above, the prospective OEMs can state higher performance parameters, new generation technologies and other design configurations.

Annexure 'B'
(Refer to Para 15 (a) of RFI)

VENDOR INFORMATION PROFORMA

1. **Name of the Vendor/Company/Firm.**

(Company profile, including Share Holding Pattern in Brief, to be attached)

2. **Type (Tick the relevant category).**

Original Equipment Manufacturer (OEM) Yes/No
 Authorised Vendor or foreign Firm Yes/No (attach details, if yes)
 Others (give specific details)

3. **Contact Details.**

Postal Address:

City: _____ State: _____

PIN Code: _____ Tele: _____

Fax: _____ URL/ Web Site/ E-mail: _____

4. **Local Branch/ Liaison Office/Agent (if any).**

Name & Address: _____

PIN Code: _____ Tele: _____ Fax: _____

E mail _____

5. **Financial Details.**

(a) Category of Industry (Large/Medium/Small Scale): _____

(b) Annual Turnover _____ (in INR)

(c) Number of employees in firm _____

(d) Details of manufacturing infrastructure _____

(e) Earlier contracts with Indian Ministry of Defence/Government agencies.

6. **Certification of Quality Assurance Organisation.**

<u>Name of Agency</u>	<u>Certification</u>	<u>Application from (Date & Year)</u>	<u>Valid till (Date & Year)</u>

7. **Details of Registration.**

<u>Agency</u>	<u>Registration No</u>	<u>Validity (Date)</u>	<u>Equipment</u>

8. **Member of Indian (FICCI/ASSOCHAM/CII) or other Industrial (Including Foreign) Associations.**

Name of Organisation

Membership Number

9. **Equipment/Product Profile (to be submitted for each product separately.**

- (a) Name of Product _____
(IDDM Capability be indicated against the product)
- (b) Description (attach technical literature): _____
- (c) Whether OEM or Integrator _____
- (d) Name and address for Foreign collaboration (if any) _____

- (e) Industrial License Number: _____
- (f) Indigenous component of the product (in percentage) : _____
- (g) Status (in service/design & development stage) : _____
- (h) Production capacity per annum: _____
- (j) Countries/agencies where equipment supplied earlier (give details of quantity supplied). _____
- (k) Estimated price of the equipment _____

10. Alternative for meeting the objective of the equipment set forth in the RFI.

11. Any other relevant information: _____

12. **Declaration.** It is certified that the above information is true and any changes will be intimated at the earliest.**Note:** Para 51 and Appendix F to Chapter II may be referred**(Authorised Signatory)**