REQUEST FOR INFORMATION
FUTURE READY COMBAT VEHICLE FOR INDIAN ARMY

1. **Introduction**. The Ministry of Defence, Government of India, has decided to procure a new generation, contemporary State-of-the-Art Combat Vehicle Platform, **approximately 1770 Armoured Fighting Vehicles (in various kit combinations) in a Phased Manner**, along with 10 Years Performance Based Logistics, Transfer of Technology Engineering Support Package, Personnel Training, Training Aggregates including Technical Training Simulators, Documentation and spares Package for replacing a part of its ageing Armoured Fighting Vehicle fleet as part of the Modernisation Plan. This vehicle, which will be called the **Future Ready Combat Vehicle (FRCV)**, will form the base platform for the Main Battle Tank. It is also planned to subsequently develop other need-based **Family of Variants on this platform**. The Future Ready Combat Vehicle is planned to be procured under the provisions of the Armoured Fighting Vehicle segment of '**Strategic Partnership**' route as per Chapter - VII of **Defence Procurement Procedure -2016**. The **Indigenous Manufactured Portion** of the procurement is to be manufactured in India, based on design to be provided by the foreign Original Equipment Manufacturer to the selected Strategic Partner.

2. The Ministry of Defence, Government of India seeks information from the Armoured Fighting Vehicle Original Equipment Manufacturers/authorised agencies for participation in Future Ready Combat Vehicle Project in accordance with Chapter-VII of Defence Procurement Procedure - 2016. The Request for Proposal for the acquisition is likely to be issued by Mid-2018.

3. **Request for Information Structure**. This Request for Information consists of two parts as indicated below: -

(a) **PART - I**. The first part of RFI incorporates the **intended use of Armoured Fighting Vehicle, Essential Parameters, Transfer of Technology, desired indigenous content, delivery scheduled and training including Training Aggregates**, which should be met by the Original Equipment Manufacturers.

(b) **PART - II.** The second part of the Request for Information states the **methodology of seeking response of Original Equipment Manufacturers**. Submission of incomplete response format will render the Original Equipment Manufacturers liable for rejection.

PART - I

4. **Intended use of the Equipment.** It will call for rapid dominance in an expanded battle space, characterised by real time awareness, all terrain agility and high mobility, precision lethal firepower, multi-layered protection and increasing use of technology. The Future Ready Combat Vehicle will be required

to conduct sustained, continuous operations by day and night in all terrain, in various forms where applicable (except in an amphibious role). Increased all-round survivability and ability to avoid, and thereafter, respond to attacks by all kinds of anti-tank threats would be essential. The armament of the Future Ready Combat Vehicle should be able to inflict damage on all targets, including mobile threats and static fortifications. The Armoured Fighting Vehicle is likely to be employed in varied terrain configuration, as existing in the Indian Sub-continent including High Altitude Areas, Deserts, Semi-Deserts, Riverine and Mountainous Terrains under varied Temperature Conditions. It should also be able to:-

(a) Provide Fire Support to Assaulting Forces, when required to do so.

(b) Fire while on the move, accurately.

(c) Fire multiple types of Ammunition, including Anti-Tank Guided Missiles.

(d) Include capability to destroy enemy tanks at ranges higher than he can engage us, in a time earlier than he can fire at us, with very high first round hit/kill probability and acquire targets at a longer range.

(e) Engage low flying manned and unmanned rotary wing aircraft.

(f) Engage enemy massed armour led attacks, when part of a defensive layout.

5. **Essential Parameters**. The Future Ready Combat Vehicle will be a tracked fighting vehicle of **Medium Weight Class** (All up combat weight not to exceed **50Tons ± 15%)** and should present a **small target signature**. It should be capable of all weather, day and night operations. All systems should be able to operate in an ambient temperature range of minus **30^0C** to plus **50^0C**.

6. **Field Evaluation Trials**. The Field Evaluation Trials will be conducted in accordance with Para 58-71 of Chapter – II of Defence Procurement Plan 2016. Original Equipment Manufacturers may indicate suggested **Trial Methodology and Parameters** for which evaluation can be done through simulation/ certification/documentation/demonstration etc at Technology Evaluation Committee /Field Evaluation Trial stage.

7. **Approximate Cost Estimate**. The Original Equipment Manufacturer is to provide indicative cost for Future Ready Combat Vehicle program under Strategic Partnership Model, outlined in Chapter - VII of Defence Procurement Procedure-2016. The Original Equipment Manufacturers should take into account all aspects of **Supply of Production Material, Manufacturing, Transfer of Technology, Trials, 10 Years Performance Based Logistics, Documentation, Training,**

Simulators and Life Cycle Support for a period of 40-50 years. Other aspects (if any) may be mentioned specifically. Breakdown of cost is to be indicted.

8. **Basic Design**. The Foreign Original Equipment Manufacturer is to indicate the **basic Design (Base Model) of a proven Armoured Fighting Vehicle, based on which the current design is being proposed** along with the names of customer Army to whom the same on similar Armoured Fighting Vehicles (model of Armoured Fighting Vehicles) has been contracted or delivered. In addition, Proposed Configuration and the range of contemporary Armoured Fighting Vehicles Technologies that are available in the world market and have already been integrated or capable of being integrated into the basic design of Armoured Fighting Vehicles on offer is to be indicated. Standard offered along with Quality Assurance of the product may also be specified.

9. **Acceptance of Foreign Original Equipment Manufacturers Government**. The foreign Original Equipment Manufacturer is to state in unambiguous terms that, "*as a part of response to the Expression of Interest (EoI), Original Equipment Manufacturers(OEMs) will provide a formal acceptance of their Govt that necessary license for Transfer of Technology (ToT) will be granted in case the Original Equipment Manufacturer is selected as a partner for the Indian Strategic Partnership to manufacture the platforms or equipment in India, wherever required, prior to issuance of RFP*". Requirement to conclude inter-governmental agreements between India and the counties concerned, at the stage of award of contract may also be intimated.

10. **Transfer of Technology (Transfer of Technology)**. The Government of India, Ministry of Defence is desirous of **acquiring Comprehensive Technologies including detailed design manufacturing know-how of the Armoured Fighting Vehicles being offered** by the Original Equipment Manufacturer. The key requirements related to Transfer of Technology which are to be fulfilled by the Original Equipment Manufacturers are given at **Appendix B**. In case any Transfer of Technology requirement cannot be met, the level of minimum acceptance Transfer of Technology as per **Appendix G to Schedule 1**

to Chapter - II of Defence Procurement Procedure-2016 along with the percentage of achievable value addition is to be indicated. Government of India reserves the right to negotiate Transfer of Technology terms subsequently, but the availability of Transfer of Technology would be an essential pre-requisite for processing the instant case. The Original Equipment Manufacturers are to give Para- wise compliance to the Transfer of Technology requirements at **Appendix B**. Guidelines for Transfer of Technology are laid down at **Appendix C**. The Transfer of Technology plan is to be submitted, highlighting the following:-

(a) Range, Depth and Scope of Comprehensive Technology Transfer offered in identified areas.

(b) Extent of Indigenous Content proposed.

(c) Extent of Eco-System of Indian Vendors/ Manufacturers Proposed.

(d) Measures to support Strategic Partnership in establishing system for integration of platforms.

(e) Plans to Train Skilled Manpower in India.

(f) Plans of future R & D to be established in India.

(g) Life cycle support including upgrade plan.

11. **Indigenisation Content**. In line with the 'Make in India' initiative of the Government of India, the Original Equipment Manufacturer is to ensure that all efforts are made to **maximise the Indigenous Content** of the project without any deterioration in Performance Standards as specified at **Appendix A**. India is in the process of developing a vibrant Industrial Ecosystem for Armoured Fighting Vehicles equipment including design and manufacture of cutting edge components and equipment for use on other projects. Original Equipment Manufacturers are to maximise Indigenous Content in the proposed design. The Indigenous Content will be stipulated in the EoI and shall not be less than 40% on cost basis of the Make portion of contract as calculated in accordance with Para 13 of Chapter - I of Defence Procurement Procedure-2016.

12. **Integration of Weapons and Sensors**. The Original Equipment Manufacturer is to indicate experience in integration of customer designated or nominated weapons and sensors. The **Weapons and Sensors integration experience** shall include Primary and Secondary Armament System and Sensors {such as Multi-Sensor-Aided Target Acquisition and Fire Control System, Integrated Day-Night Vision Devices for complete crew, incorporating Fusion Technology & 360° Panoramic View for Commander, Data Link, Self-Protection Suite, Software Defined Radio, Identification Friend or Foe responder etc}. The details of weapons and nominated equipment shall be intimated at a later date. **Any reservation regarding integration of weapons and sensors from suppliers of other countries is to be highlighted in unambiguous terms**. However, Ministry of Defence, Government of India shall facilitate necessary clearances for release of the required interface codes of weapons from weapon suppliers to the Original Equipment Manufacturer or their sub-vendors (as per requirement).

13. **Tentative Delivery Schedule**. The Original Equipment Manufacturer is required to indicate the overall Time Frame of delivery of **'Fully Formed Buy' component of Armoured Fighting Vehicles 'Made' in India**. It would include stage wise break-up of the entire project post conclusion of contract. The delivery schedule is to be in line with the Training Schedule and schedule of Technology

Transfer. In drawing up the delivery schedule the following guidelines are to be borne in the mind: -

(a) Armoured Fighting Vehicles are to be delivered in batches along with proportional spares, Engineering Support Package (ESP), Maintenance Support and Documentation.

(b) Ammunition and Missiles are to be delivered in a Phased Manner proportionally, along with the Armoured Fighting Vehicles.

(c) Maintenance Infrastructure and Repair facility is to be set up in India in stages and commissioned for all maintenance facilities at least Three months prior to delivery of Armoured Fighting Vehicles at designated place.

14. **Warranty**. The supplied Armoured Fighting Vehicle (s) and equipment shall carry a **Warranty of 24 Months** from the respective date of delivery or acceptance of each Armoured Fighting Vehicles by user unit post JRI, whichever is later. The warranty should cover both Hardware and Software, as applicable. Original Equipment Manufacturer to specify Product Support Package for **Life Cycle Sustenance**, including Periodicity of Midlife Interventions.

15. **Training of Crew and Maintenance Personnel**. The Original Equipment Manufacturer is to provide **Broad Plan of Training of all Personnel along with the Training Aids** as applicable (Crew Members, Instructors, Maintenance Staff etc). Original Equipment Manufacturer should also indicate the place of Training of Crew.

16. **Service Life of Armoured Fighting Vehicles**. The Minimum **Service Life of the Armoured Fighting Vehicles is required to be 40-50 years**. The Original Equipment Manufacturer is required to give details of the Reliability Model, Reliability Prediction and its Validation by Designer or Manufacturer to ensure Reliability of Stores throughout the Service Life of the Armoured Fighting Vehicles. In addition, availability of Stores/spares is to be ensured as stipulated in 'Product Support Requirements'. Intent towards Establishing Main Hubs/Overhaul Facilities in India may also be indicated. Further, the areas of system and platform upgrades to be supported during the Life cycle be stated.

17. **Manpower Requirements**. The Original Equipment Manufacturer is to indicate the Broad requirements of Crew for Training Team, Logistics Establishment, Operational Maintenance Staff, etc. Need to keep **Manpower Requirement to minimum**; **commensurate** with operational and functional efficiency is to be borne in mind.

18. **Broad Methodology to be Adopted**. Post receipt of the response of the Request for Information, the methodology adopted to progress the Future Ready

Combat Vehicle program will be in accordance with Chapter - VII of Defence Procurement Procedure-2016.

19. **Information Proforma**. The Original Equipment Manufacturer is to furnish details as per the Information Proforma at **Appendix E**. In addition, the Original Equipment Manufacturer is to indicate capability and willingness to execute the Future Ready Combat Vehicle programme and provide support to the Strategic Partnership including the following: -

(a) Technical Support for manufacturing of Armoured Fighting Vehicles by the Strategic Partnership. This shall include detailed plan, but not limited to consultancy for setting up and modification of infrastructure with Strategic Partner, training of personnel from Strategic Partner in requisite skills related to Design, Manufacture, Quality Assurance, Quality Control, Preservation of Equipment & Storing Techniques, Basic Operation and Maintenance of Armoured Fighting Vehicles equipment including Training Simulators, provision of suitable documentation, providing 'Overseeing Support' by Original Equipment Manufacturer specialist, etc.

(b) Maintenance and Life Cycle Support to the Armoured Fighting Vehicles during its Service Life, including Performance Based Logistics and Warranty through Strategic Partnership.

(c) Upgradation of Armoured Fighting Vehicles as part of Capability Augmentation, and to overcome Obsolescence during its Lifecycle.

(d) Willingness of accepting responsibility in conjunction with the selected Strategic Partner for the timely production and performance of the Armoured Fighting Vehicles. The same could be implemented by one to one contracts with the Strategic Partner or tri-partite contracts involving Ministry of Defence, Strategic Partner and Original Equipment Manufacturer as per Chapter VII of Defence Procurement Procedure-2016.

(e) Willingness to provide Product Support for Life Cycle of the platform, which includes Spares and Maintenance Tools/Jigs/Fixtures for Field and Component Level Repairs.

(f) Willingness to accept all conditions of Defence Procurement Procedure-2016, if not, which Para or Clause of Defence Procurement Procedure-2016 is not acceptable is to be indicated. Further, the OEM may be required to accept the general conditions of contract given in the Standard Contract Document at Chapter- VII of Defence Procurement Procedure placed at www.indianarmy.nic.in/www.mod.nic.in.

(g) Earliest date by which the Original Equipment Manufacturer is willing to give a presentation at Integrated Headquarters, Ministry of Defence (Army), New Delhi. The presentation is to be provided by a team of specialists with the required knowledge and mandate for addressing various queries/clarifications made by the Indian Army.

20. The offers shall be evaluated in accordance with provisions of Chapter-VII of Defence Procurement Procedure-2016. **The Foreign Original Equipment Manufacturer is liable to be disqualified for any materially False Statement**.

PART – II

21. **Procedure for Response**.

(a) **Format**. The details of Technical Requirements and Transfer of Technology are to be forwarded as mentioned in **Appendix B** of Request for Information respectively, in terms of specifications, Parametric Information, Description and Particulars as mentioned against each item. The guidelines for Transfer of Technology are placed at **Appendix C** of Request for Information. Apart from filling details about Company, details about the exact Product, Planned Infrastructure, Past Track Record etc should be carefully filled. Additional information on the product and product support facilities 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 Mechanised Forces
Project Future Ready Combat Vehicle (FRCV)
General Staff Branch
Integrated Headquarters of Ministry of Defence (Army)
Defence Headquarters Post Office, New Delhi-110011.
Fax: 011-23792508
Contact Details: 011- 23333565

(c) **Time for Response**. Last date of Acceptance of Receipt of response is **20 December 2017**.

22. The Government of India invites responses to this Request for Information only from **Original Equipment Manufacturers or Authorised Vendors or Government sponsored Export Agencies** (applicable in case of countries where domestic laws do not permit direct export by Original Equipment Manufacturer). The end user of the equipment is the Indian Army.

23. Reply to this Request for Information (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).

24. 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.

25. 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).

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

BROAD OPERATIONAL REQUIREMENT FOR FUTURE READY COMBAT VEHICLE(FRCV)

PART I - GENERAL INFORMATION

General

1. In conformity with the emerging threat, operational scenarios, and the technological advancements in the tanks, the Indian Army needs to induct a new 'state of art' 'technology enabled' Medium Weight Class Tank, through the 'Strategic Partnership' Route (Defence Procurement Procedure-2016). The Future Ready Combat Vehicle is proposed to replace the vintage T-72 Tank Fleet, which will be Beyond Service Life progressively. To maintain the 'Operational Readiness', and 'Combat Overmatch' over the adversary in the Mechanised Forces, it is imperative that the Future Ready Combat Vehicle is inducted earliest, with an institutionalised road map for its manifestation.

2. The Future Ready Combat Vehicle is proposed to be a Medium Weight Class Tank (50Tons±15%), incorporating 'State-of-the-Art' technologies, and will remain relevant for the next 40-50 years. The Future Ready Combat Vehicle will lend itself to development of a family of combat vehicles, based on modularity and standardisation of platform. In keeping with our future threats and desired capabilities borne out of the requirement of continued operational readiness, and the need for a modern platform, it has been decided by the Ministry of Defence to develop the Future Ready Combat Vehicle, under the Strategic Partner Route, elaborated in Defence Procurement Procedure-2016.

Aim

3. To lay down the Provisional Staff Qualitative Requirement (PSQR) for the Future Ready Combat Vehicle (FRCV).

Proposed Service Employment

4. It will call for rapid dominance in an expanded battle space, characterised by real time awareness, all terrain agility and high mobility, precision lethal firepower, multi-layered protection and increasing use of technology. The Future Ready Combat Vehicle will be required to conduct sustained, continuous operations by day and night in all terrain, in variant form where applicable (except in an amphibious role). Increased all-round survivability and ability to avoid, and thereafter, respond to attacks by all kinds of anti-tank

threats would be essential. The armament of the Future Ready Combat Vehicle should be able to inflict damage on all targets, including mobile threats and static fortifications. The Armoured Fighting Vehicle is likely to be employed in varied terrain configuration as existing in the Indian sub-continent including High Altitude Area, Desert, Semi-Desert, Riverine and Mountainous Terrains under Varied Temperature Conditions. It should also be able to: -

(a) Provide Fire Support to Assaulting Forces, when required to do so.

(b) Fire while on the move accurately.

(c) Fire multiple types of Ammunition, including Anti-Tank Guided Missiles.

(d) Include capability to destroy enemy tanks at ranges higher than he can engage us, in a time earlier than he can fire at us, with first round hit/kill probability and acquire targets at a longer range.

(e) Engage low flying manned and unmanned rotary wing aircraft.

(f) Engage enemy massed armour led attacks, when part of a defensive layout.

Availability

5. The Ministry of Defence, Government of India, intends to procure a new generation, contemporary State-of-the-Art combat vehicle platform, for populating its Armoured Fighting Vehicle fleet as part of the Modernisation Plan. This vehicle, which will be called the Future Ready Combat Vehicle, will form the base platform for the Main Battle Tank. It is also planned to subsequently develop other need-based Family of Variants on this platform. The Future Ready Combat Vehicle is planned to be procured under the provisions of the Armoured Fighting Vehicle segment of ‘Strategic Partner’ route as per Chapter - VII of Defence Procurement Procedure - 2016.

PART II - ESSENTIAL CHARACTERISTICS

Physical Characteristics

6. An Indian MBT must be adaptable to Indian Operational Environments and Threat-Cum-Capability Spectrum. **Will the Armoured Fighting Vehicle conform to the Physical Specifications enumerated below**?

Ser No	Parameters	Specifications
(a)	**Basic Configuration**	(i) A Tracked Fighting Vehicle of Medium Weight Class (**All up combat weight not to exceed 50Tons ± 15%)**. (ii) All systems and assemblies including ammunition should be able to **operate in an ambient temperature range of minus 30°C to plus 50°C**, to include High Altitude Areas (HAA), after incorporating suitable modification kits.
(b)	**Dimensions**	The Physical Dimensions including its weight should be such that they **do not impede its transportability by in-service Rail, Road (On Tank Transporters), Ship and Air**, as also operational mobility within the theatre of operations.
(c)	**Crew**	The Crew Configuration should be 4/3 and should be able to **perform their designated tasks in an Intense Operational Scenario efficiently** and operate all on-board systems without hindrance.

Operational Characteristics

7. **Can the Armoured Fighting Vehicle meet following Operational Characteristics as under**?

Ser No	Parameters	Specifications
Fire Power		
(a)	**Main Gun**	Smooth Bore, 120mm/125mm.

Ser No	**Parameters**	**Specifications**
(b)	**Secondary Armament**	(i) **Coaxial Machine Gun**. The existing (7.62mm) or an improved Machine Gun in service. Minimum Range of 1000m. (ii) **Anti-Aircraft Machine Gun.** Minimum 12.7 mm capable of effectively **engaging aerial targets up to Minimum 1500m and ground targets up to Minimum 2000m**. It should be capable of being remotely operated (including cocking and firing) while closed down.
(c)	**Ammunition**	(i) **KE** (APFSDS). (ii) **CE** (HEAT, HE). (iii) **Gun Tube Launched Advance Anti-Tank Guided Missile**.
(d)	**Lethality**	(i) **KE**. At least 650mm at 2000m at 60° Angle of Attack on a RHA target. (ii) **CE**. At least 1000mm at 2000m at 60° Angle of Attack on a RHA target. (iii) **Anti-Tank Guided Missile**. At least 1000mm at 5000m.
(e)	**Rate of Fire**	**Minimum 6-8 Rounds** Per Minute.
(f)	**Angle of Firing(Main Armament)**	**Armament Front** (i) **Min Depression**. 5°in the complete Horizontal Envelope. (ii) **Min Elevation**. 15° in the complete Horizontal Envelope. (iii) **Traverse Angle**. 360°
(g)	**Ready to Fire Rounds**	Minimum **10 Rounds in Ready Round Stowage** System for rapid loading of the Main Gun
(h)	**Minimum Gun Life**	Minimum **600 Effective Full Charge**

Ser No	Parameters	Specifications
(j)	**Fire Control System**	**Full Solution Fire Control System** to have: (i) Accuracy to achieve the First Round Hit Probability (FRHP) of Minimum 90%. (ii) Multiple Operating Modes (Hunter Killer) (iii) **Minimum Identification Ranges** (Standard Tank Target under standard weather conditions) (aa) **By Day- 5000m**. (ab) **By Night- 3500m**. (iv) Capability to carry out Indirect Fire.
(k)	**Ballistic Computer**	Electronic and Digital
(l)	**Image digitizer with video switcher**	Independent Automatic Target Tracking from Gunner and Commander's Station with Hunter killer included
Vision/ Viewing Devices		
(a)	**Day and Night Vision Devices**	(i) **Commander**. 2-Axis independently stabilised, **360^0 FOV Panoramic**, integrated day-cum-night sight, laser range finder, having day colour camera. It should have an Optical Channel as back-up. (ii) **Gunner**. 2-Axis independently stabilised, integrated day-night sight, Multichannel with sighting and thermal channels laser range finder and **built-in- laser missile guidance channel**, having day colour camera. It should have an optical channel as back-up. There should be an Auxiliary/ Standby sight. (iii) **Driver**. Day and night sight (viewing range at least **500m**, upgradable up to 1000m), with at least 150^0 FOV. (iv) **Systems Operator (If Part of Crew)**. 360^0 rotatable day sight, with at least 60^0 FOV.

Ser No	Parameters	Specifications
Vision/ Viewing Devices		
(b)	**Monitoring/ Viewing Devices**	Rugged-ised **Video Viewing Device with current technology Display unit**. It should facilitate data input and operating of systems integrated with the FCS by both Gunner and Commander. It should have the facility of merging and displaying inputs from all systems on-board, like BMS, BITE, etc.
(c)	**Field of View and Magnification**	Adjustable to carry out their designated tasks both during day and night, in all weather conditions, without any add-on device/ measures for assistance.
(d)	**Parallel Sight**	Minimum Identification Range (i) **By Day- 2000m** (ii) **At Twilight- 1000m**
Other Capabilities		
(a)	**Built-In Test Facility**	'**On-board Monitoring and Diagnostic System**' which will be receiving inputs from sensors of various systems fitted in the tank and provide real time information on digital display regarding status of serviceability of the system.
(b)	**Mil Std**	All Electrical and Electronic System/Sub-Systems/Assemblies shall comply with latest version of JSS: 55555 (or the latest standard/ protocol in vogue), as applicable at the time of issue of Request for Proposal. Other components shall be of Military-Grade Standards to ensure the Reliability and Ruggedisation of the components.
(c)	**Bore Sighting Equipment**	Provision to carry out Bore Sighting of the Main Gun with error not exceeding **±0.1 milli Radian** (m Rad).

Ser No	Parameters	Specifications
Other Capabilities		
(d)	**Gun Control System**	All-Electric-Drive System in all planes, with stabilisation in both vertical and horizontal planes. There should be a manual operation feature as back up, for both traversing and elevating mechanisms.
(e)	**Ammunition Stowage Capacity**	(i) **Main Gun** - At least 40 rounds per tank (including Anti-Tank Guided Missiles). (ii) **Anti-Aircraft Machine Gun** - At least 800 rounds. (iii) **Coax Machine Gun** - At least 2000 rounds.
Survivability		
(a)	**Protection**	At least **800mm** RHA including ERA panel/ add on armour in frontal 60° arc. The tank belly must be able to survive Improvised Explosive Device and mine blasts of up to **15kgs** of TNT.
(b)	**Active Protection System**	Active Protection Suite to contribute to the 360° all-round protection (including against top-attack). It should have both soft and hard kill capability, to destroy multiple CE and KE threats.
(c)	**Smoke**	Anti-Thermal Anti-Laser Smoke Discharger System capable of creating a smoke screen at distances ranging up to 60m from the place of firing, within 5-6 seconds of being fired.
(d)	**Mine Counter Measures System**	System should be modular and included in the all up combat weight and in addition capable of neutralising influence mines.
(e)	**Chemical Biological Reaction Nuclear Protection**	The Crew and all Systems should be protected against the effects of Nuclear Explosions, EMP attacks, Toxic Chemical Agents and Biological Warfare Agents and be able to operate effectively in a Chemical Biological Reaction Nuclear environment for **Six Hours**. It should also incorporate an automated digital CBRN warning system along with serviceability indication.

Ser No	**Parameters**	**Specifications**
(f)	**Ergonomics**	The tank should have suspended seats for the crew members, capable of absorbing the energy of an explosion of up to **15kgs** of TNT in the belly.
(g)	**Instant Fire Detection and Suppression System**	Incorporating environment-friendly, non-ozone depleting suppressant materials, and having an automatic activation response of not more than **100 milliseconds** for the crew compartment and **01 second** for the engine compartment along with serviceability indications.
(h)	**Ammunition Stowage**	All ammunition should be stored in easily accessible containerised compartments, with suitable safety measures like **Blow-Off Panels**, to ensure Crew Protection from any accidental explosion involving blast, heat and fire.
(j)	**Signature Management Technologies**	Incorporate Signature Management Technologies to suppress various signatures viz, **Visual, Acoustic, Thermal and Electromagnetic**, by at **least 25%** of the unsuppressed value.
Mobility		
(a)	**Power to Weight Ratio**	Not less than **25:1 HP/Ton**, with Full Combat Weight.
(b)	**Maximum speed**	(i) **Forward**. (aa) **Cross Country**. At least 45 kmph. (ab) **Road**. At least 70 kmph. (ii) **Reverse**. At least 20 kmph.
(c)	**Acceleration**	From **0-40 kmph** in not more than **10 seconds** on Flat Gravel Ground.

Ser No	**Parameters**	**Specifications**
(d)	**Tilt**	At least **25^0**.
(e)	**Gradient**	At least **30^0**.
(f)	**Nominal Ground Pressure (NGP)**	Not more than **0.85 kg/cm^2**
(g)	**Operating Range**	Not less than **300km** in Cross-Country/Desert Terrain and **500km** on Road.
(h)	**Obstacle Crossing Capability**	(i) Minimum Fording Capabilities: - (aa) **Shallow Fording**. **1.2m** depth, without Tank Preparation. (ab) **Medium Fording**. **1.8m** depth, after 15 Minutes Preparation. (ac) **Deep Fording**. **5m** depth, for a Minimum Width up to **1000m**. (ii) **Vertical Obstacle**. Not less than **0.85m** (without external attachments). (iii) **Trench Crossing**. Not less than **2.6m** (without external attachments).
(j)	**Suspension**	Dynamic Suspension System.
(k)	**Transmission System**	An **Automatic** Transmission System, with a Mechanical Redundancy.
(l)	**Engine**	**1500 HP** with the option of Manual Override by the Crew and Alternate Starting Mode. The life of the Engine (without overhaul) should not be less than **1000 hours**.

Ser No	**Parameters**	**Specifications**
(m)	**Tracks**	Quick-Fit and Detachable Rubberised Pads, incorporating a Dynamic And Automatic Track Tension Measurement and Adjustment System.
(n)	**Braking System**	Regenerative Braking System.
(o)	**Special Equipment**	(i) It should have a facility for aligning the tank for negotiating a Bridge Layer Tank/Railway Wagon/ Tank Transporter. (ii) The tank should have Self-Extrication Capability.
Communication		
(a)	**Radio Communication**	**Software Defined Radio**. It should be integrated with the Inter-Crew Communication System and other Electronic Systems installed in the tank.
(b)	**External Communication and Inter-Communication**	(i) **External Communication**. The facility to communicate with other stations on the external radio network should be available to all crew members. (ii) **Internal Communication**. A digital Crew Inter-Communication System for all the crew members. There should be external sockets to enable communication with a person located outside the tank.
(c)	**Remote Communication**	The Commander should be able to communicate remotely with all outstations as well as on the Internal Communication while away from his tank up to a distance of 25m.

Ser No	Parameters	Specifications
Other Capabilities		
(a)	**Battlefield Management System**	To include an advanced Identification-Friend-or-Foe system. The Situation Awareness Data obtained from the Tactical Information Systems shall be displayed on a Geographic Information System, Military Grade based touch panel, located inside the Future Ready Combat Vehicle.
(b)	**Navigation**	The Hybrid Navigation System, retaining the capability for incorporating satellite (Indian Regional Navigation Satellite System) and Inertial Navigation as and when it is Operationalised.
(c)	**Ergonomics & Crew Comfort**	(i) Improved Tank Helmets, incorporating Built-In Noise-Cancelling Headphones and Enabling Hands-Free Communication. (ii) A **150^0 Viewing Arc for the Driver** while driving closed down. There should also be a provision for rear and side view display inside the driver compartment. (iii) Provision for storing potable water at a scale of **20 litres per day** per crew member and vehicle for **72 hours**. (iv) There should be a provision for Emergency Escape for the Crew in the Tank. (v) There should be a provision of Individual Underwater Breathing Apparatus (IUWBA) for all Crew Members for Survivability during Deep Fording.
(d)	**Environment Control Unit**	With Minimum Temperature to be maintained at 25°± 05°C at Ambient Temperature 45°±5°C.
(e)	**Auxiliary Power Unit**	To operate Specified Systems (FCS, Viewing Devices, GCE, Communication Systems, Battlefield Management System, Navigation System, and Battery Charging) for up to **Six Hours** continuously with the Main Engine Off.

Ser No	Parameters	Specifications
(f)	**Stowage**	The Future Ready Combat Vehicle should have suitable rugged-ised containers and arrangements for the logistic needs of the crew so that they can be **Self-Contained for 96 hours**.
(g)	**Mil Std**	All electrical and electro-mechanical systems/sub systems/assemblies of Future Ready Combat Vehicle shall comply with latest version of EMI/EMC Test Standard 861 as applicable at the time of issue of RFP.

Operation and Maintenance

8**. Will the Armoured Fighting Vehicle have the following maintenance characteristics**?

Ser No	Parameters	Specifications
(a)	**Family of Technical Support Vehicles**	(i) Minimum two workshop-level Technical Support Vehicle, one as Workshop Repair Lorry (Chassis and Automotive, Armament, Electrical any other facilities) and second as Guided Weapon System and Communication System Repair Lorry (Missiles and Communication Requirements), based on the systems that can be diagnosed and repaired/replaced in Battle Conditions. (ii) The Vehicle Platform should be in Service 8 x 8 Vehicle.
(b)	**Built-In Test Facility**	(i) The Future Ready Combat Vehicle should have an 'On-board Monitoring and Diagnostic system' which will be receiving inputs from sensors of various systems fitted in the tank and provide real time information on digital display regarding status of serviceability of the system. (ii) Each system should incorporate a built-in diagnostic and test facility and will be displayed on the information unit of the commander. Driver will have a separate display system for systems related to Engine, Transmission, and Running Gear.

Ser No	Parameters	Specifications
(c)	**Mil Std**	All electrical and electronic system/sub-systems/assemblies of Future Ready Combat Vehicle shall comply with latest version of JSS: 55555 (or the latest standard/ protocol in vogue).as applicable at the time of issue of Request for Proposal. Other components shall be of Military-Grade Standards to ensure the Reliability and Ruggedisation of the components.
(d)	**Reliability**	(i) All systems and sub-systems, including ammunition, should be capable of operating between **minus 30^0 and plus 50^0C** ambient temperature to include HAA areas. (ii) The assemblies/sub-assemblies of all systems of Future Ready Combat Vehicle should have very high Mission Reliability and very high Mean Time Between Failures /Mean Time To Repair.
(e)	**Maintainability**	(i) The Future Ready Combat Vehicle should incorporate modular systems to enable quick replacement and repairs at Field Workshop level. (ii) All sub-systems of the Future Ready Combat Vehicle should have high Mean Time Between Failures and low Mean Time Taken to Repair.
(f)	**Technical Literature/User Handbooks**	All the requisite technical literature and user handbooks, in bilingual form, should be provided along with the tank.
(g)	**Training Aids**	(i) Containerised Advance Training Simulators for Driving, Gunnery and Crew Integration. (ii) Section-ised/ Working models, Technical Charts and Blow-Up Diagrams. (iii) Computer Based Trainer packages. (iv) Tactical-Cum-Firing Training system which can be integrated into the tank FCS.

Ser No	**Parameters**	**Specifications**
(h)	**Driver Information System**	(i) A processor unit which will display vital performance parameters of engine and transmission unit. Based on the parameters, the processor should also display messages related to periodical maintenance tasks and have facilities to enter the date of carrying out the tasks for retrieval of information at later point of time. (ii) Software being used in any of the systems/simulators must be developed as per procedure stipulated in IEEE 12207 or mutually agreed procedure which is better. The quality model used by the manufacturer/developer of software should be ISO/IEC 25010:2015 or better.
Initial and Recurring Requirement		
(a)	**Prototypes**	03 tanks for user trials.
(b)	**Series Production**	Not less than 150 tanks per year

PART III - DESIRABLE CHARACTERISTICS

9. **Can the Armoured Fighting Vehicle be provisioned with the following desirable characteristics as given below**?

Ser No	Parameters	Specifications
Gen Configuration		
(a)	**Family of Vehicles**	It should lend themselves to evolution of following vehicles: - (i) Light Tank – Obstacle Ridden Terrain. (ii) Bridge Layer Tank. (iii) Trawl Tank and Full Width Engineer Mine Ploughs. (iv) Armoured Recovery Vehicle. (v) Self Propelled Base Platform for other Arms / Combat Support Arms.
Fire Power		
(a)	**Advance Gun System**	Light Weight, Soft Recoil Gun with Improved Metallurgy and Peak Pressure.
(b)	**Lethality(RHA)**	(i) **KE**. At least **800mm** at 2000m at 60° Angle of Attack. (ii) **CE**. At least **1200mm** at 2000mat 60° Angle of Attack. (iii) **Anti-Tank Guided Missile**. At least **1200mm** at 5000m.Third Generation. (iv) Multi-Purpose Advance Technology Round-ERP.
(c)	**Rate of Fire**	8-10 rounds per minute, whether it has an Autoloader or Manual Loader.

Ser No	Parameters	Specifications
Survivability		
(a)	**Protection**	**1200mm** RHA
(b)	**Tank Urban Survival Kit (TUSK)**	The crew should be able to fit TUSK within **Six Hours in Field**. The sides and belly should have protection from CE weapons and IEDs of up to **25kg** of TNT.
(c)	**Shooting Sensing**	Provision to incorporate Shooting Sensing Technology to sense the direction of firing by an Anti-Tank Weapon System.
(d)	**Stealth Technologies**	Stealth and Signature Management Technologies as part of Survivability Measures, as and when developed.
Mobility		
(a)	**Active Suspension**	Active Suspension for sensing the terrain and providing a fully stable firing platform during move.
(b)	**Codification and Standardisation**	(i) All items of Future Ready Combat Vehicle down to component level must be codified with Bar Coded Identification. (ii) In case of indigenous manufacture, the items shall be codified from the directorate of standardisation at the time of supply of Future Ready Combat Vehicle and part numbers mentioned in technical documents.
Miscellaneous		
(a)	Intelligent Power Management System to provide Distributed Power.	
(b)	Modular, Variable HP, intelligent engine with Minimum 1500 HP.	
(c)	Light Weight, High Hardness Composite Material for Passive Armour	

10. In addition to above, the prospective OEMs would be allowed to offer higher performance parameters and new generation technologies.

(a)	Prep by	-	Col Gurpreet Singh
(b)	Vetted by	-	Brig Amit Loomba
(c)	Contact No	-	33576

Appendix 'B'
(Refer to Para 10 of RFI

ToT REQUIREMENTS- FUTURE READY COMBAT VEHICLE

Gen

1. ToT shall be provided to the designated Strategic Partner. The key technologies for ToT should be identified prior to issue of RFP jointly by the designated Strategic Partner, OEM and Ministry of Defence. Technology used shall be current, State-of-the-art as used in the contemporary systems. Critical technology aspects having bearing on ToT evaluation need to be specified on a case to case basis. To bring in a fair comparison between the ToT offered by various OEMs as also to have a fair assessment of the depth of technology being transferred, OEMs are required to identify each item (system/sub-system/assembly/sub-assembly/module/detail parts/PCB etc) in the product structure under the following categories, as may be applicable and provide information on the relative price for each of the items in the product structure as percentage of product cost:-

(a) **Category-1**. Items, for which complete ToT, i.e., Engineering and Manufacturing documentation to enable the Strategic Partner carryout fabrication, assembly and test of the item from CKD/IM Kit level as the case may be, is being provided by the OEM, may be classified under the head "CToT".

(b) **Category-2**. Items which are manufactured by the OEM's Subcontractors based on engineering documentation provided by the OEM and these Engineering Documentation are being provided by the OEM to the Strategic Partner, may also be classified under the head "CToT".

(c) **Category-3**. Items in respect of which development and manufacture by the OEM has been subcontracted to its vendors/sub-contractors based on only the procurement specifications provided by him and the OEM is not in a position to provide any additional technical information to the Strategic Partner except the procurement drawings/specifications provided by him to his vendors/ sub-contractors, may be classified under the head Single Vendor "Subcontract". However, in such case, the OEM in collaboration with his vendor/subcontractor, is required to provide the Strategic Partner, maintenance Documentation, the recommended list of spares for repair and overhaul as may be applicable and maintenance training at the vendor's/ subcontractor's premises, then such vendor items are may be classified under the head "Limited ToT for maintenance support", i.e, "M-ToT".

(d) **Category-4**. Items including catalogue/standard items sourced by the OEM against his procurement specifications as “Fully Finished‟, may be classified as “Bought Out”. Evidently ToT for such items for indigenous manufacture will not be available and the OEM will be able to provide only the procurement drawings/specifications, sources of supply. OEM has to ensure the availability of such items or its equivalents during the life cycle of the product. However, in respect of some of the selected items in this category, if the OEM, in collaboration with his vendor, is able to provide the Production Agency documentation for maintenance, recommended list of spares for repair and overhaul as may be applicable and maintenance training in the vendor’s premises, then such items may also be classified under the head „limited ToT for maintenance support‟ i.e. “M-ToT”.

(e) **Category -5**. Some of the items for which the ownership of Design and Manufacturing Documentation is available with the OEM, but the OEM is not willing to transfer the technology to the Strategic Partner may be classified under the head ‘Proprietary’ items.

2. **Key Technologies**. MoD desires that at least following Key Technologies are transferred to Indian Companies in India: -

Ser No	Description of Technology	Proposed Technical Category, Range ,Depth and Scope
Mobility		
(a)	Engine Technology	
(b)	Automatic Transmission Systems	
(c)	Tracks & Suspension Systems (Active / Adaptive)	
(d)	Improved Mine Plough	
(e)	Intelligent Power Management System	
(f)	Energy Storage Technology	
Armament		
(a)	Gun Barrel Metallurgy	
(b)	Advance Technology Tube Launched ATGM	
(c)	3rd Generation TI Sights	

Ser No	Description of Technology	Proposed Technical Category, Range ,Depth and Scope
(d)	Armour Piercing Fin Stabilised Discarding Sabot (APFSDS) Ammunition for tanks with DoP>650 mm	
(e)	Electro Magnetic Weapons	
(f)	Full Solution Fire Control System	
Armour Protection		
(a)	Smart Armour Material	
(b)	Active Protection Systems (APS)	
(c)	Improved ERA Panels	
(d)	CBRN Auto Detection and Activation	
(e)	Defensive Aid Suit	
(f)	Instant Fire Detection and Suppression System(IFDSS)	
(g)	Blast Resistance Light Weight Armour for underbelly.	
Situational Awareness System		
(a)	Battlefield Situational Awareness	
(b)	Multiple Target Tracker	
(c)	Digital Data Bus Technology	
(d)	IFF module Technology	
Signature Management and Stealth Tech		
(a)	Technology to facilitate reduction of Thermal and Acoustic Signatures	
(b)	EMP Technology	

Appendix 'C'
(Refers to Para 10 of RFI)

GUIDELINES FOR TRANSFER OF TECHNOLOGY FUTURE READY COMBAT VEHICLE

1. MoD, would shortlist Original Equipment Manufacturers(OEM) for 'Future Ready Combat Vehicle' (FRCV) based on the Services Qualitative Requirement (SQRs), Technology Transfer and Indigenous Roadmap. OEMs having platforms meeting SQRs of Future Ready Combat Vehicle need to provide Transfer of Technology (ToT) along with the delivery of Future Ready Combat Vehicle. The Future Ready Combat Vehicle for the Indian Army is expected to be in the weight category of 50 tons±15%. The Future Ready Combat Vehicle would primarily operate in terrain as existing in Indian Environment ranging from High Altitude Area, Desert, Semi-Desert, Riverine and Mountainous Terrains under Varied Temperature Conditions.

2. The Original Equipment Manufacturer(OEM)need to recommend the range, scope and depth of Transfer of Technology which would enable the Production Agencies/ Strategic Partnerships to manufacture, assemble, integrate, test, install and commission, use, repair, overhaul, support and maintain the Armoured Fighting Vehicle, from Completely Knocked Down(CKD)/Semi Knocked Down(SKD)/ Indigenous Manufacture Kit(IMK). The Original Equipment Manufacturer would be required to provide the latest version of Configuration Control Document which would provide detailed breakdown of the product structure in terms of sensors/ subsystems/ assemblies/ sub-assemblies/ modules/details parts/wiring diagrams, etc with their latest modifications status. All updates as per the 'contract terms' would be provided as and when issued. Consolidated list of updates during the year would have to be provided during the first quarter of subsequent year.

3. **Definitions**. The following would define the scope of Transfer of Technology: -

(a) **Transfer of Technologies**. It shall mean the quantum and scope of technology being offered by the Buyer and which shall be transferred to the Indian recipient body as part of Buyer Indigenization plan.

(b) **Range**. It shall mean the field (engineering, manufacturing, maintenance) of the Scope of technologies to be transferred.

(c) **Depth**. It shall mean the extent of the Range to be transferred.

(d) **Scope**. It shall mean identification (naming) of the technology.

(e) **Design Technology**. It involves the transfer of design and the knowhow and know why of the equipment. On successful transfer of the technology, the Production Agency (PA) should be equipped with data and knowledge to develop similar products/equipment.

(f) **Manufacturing Technology**. It involves the transfer of required know how and know why for the entire manufacturing process of the particular equipment/ product. On successful transfer of the technology, the Production Agency should be equipped with the requisite data and knowledge to undertake manufacture of similar equipment which may have been designed based on the design technology acquired.

(g) **Transfer of Algorithms**. This would involve the transfer of requisite software, the rationale behind the algorithms and the methods involved in arriving at the particular algorithms.

4. **Product Offering**. The Original Equipment Manufacturers need to convey in brief and with adequate clarity, their Transfer of Technology offer for indigenous manufacture of Future Ready Combat Vehicle in India towards 'Strategic Partnership' initiative of the government of India.

5. **Transfer of Technology Requirements**. The Transfer of Technology should meet following requirements:-

(a) Transfer of Technology should be comprehensive covering design and manufacturing technology.

(b) The technical information provided by Original Equipment Manufacturer should enable the Indian Production Agency to manufacture, assemble, integrate, test, install, commission, repair/overhaul, support and maintain the Future Ready Combat Vehicle. In addition, Transfer of Technology should facilitate obsolescence management, life extension and subsequent integration of sensors/systems and weapons.

(c) At the end of technology transfer process, it is essential to indigenously manufacture the Future Ready Combat Vehicle, which shall be defined based on mutual work-share agreement between the Future Ready Combat Vehicle, major sub-contractors of the Future Ready Combat Vehicle and the Indian Production Agency.

(d) The extent of Key Technologies, which will be provided, should be indicated along with scope and depth being provided for each technology as per format at **Appendix B**.

6. The transferred knowledge should contain possibilities for design/ development/ sourcing/ integration/ production/ maintenance ('O', 'I' & 'D' levels)/ upgrade, as applicable. Further, it is mandatory that the transferred capabilities/ technologies should be capable of being utilized / implemented in the ongoing and future indigenous programs.

7. **General Guidelines for Transfer of Technology**. It is essential to adhere to the general guidelines for Transfer of Technology provided at **Appendix G** to Schedule I to Chapter II of Defence Procurement Plan-2016. The specific requirements listed therein, which would not be feasible, should be clearly brought out in the response to the RFI. In order to facilitate fair assessment of the depth of technology being transferred, OEMS would be required to identify sensors/ system/ sub- systems under Category 1 to 4. The sensors/ system/ Sub-system/ assembly/ sub-assembly/ module/ detail parts classified as category 5 should be listed and the total value of category-5 items as a percentage of the Total value of the Armoured Fighting Vehicle must be Specified. The definitions of Category 1 to 5 items and the Transfer of Technology requirements of each category are enumerated in Defence Procurement Plan 2016.

8. **Configuration Control**. The OEMs would be required to provide the current version of Configuration Control Document to the Indian Production Agency(ies)/ Strategic Partner having detailed breakdown of the product structure (AFV, sensors, sub-systems and support equipment) in terms of the lower level sub-systems/ assemblies/sub-assemblies/modules/detail parts/PCB/wiring diagrams etc with latest modification status. The OEMs should provide the date (i.e appropriate procurement identification or nomenclature information) necessary to procure all the components including appropriate sub-vendor's identification. All updates during the term of the agreement should be provided as and when issued. Considered list of updates during the year should also be provided during the first quarter of the subsequent year.

9. Design date would have to include the details that the Indian Production Agencies/Strategic Indian Partners would need to analyse, carryout trouble shooting, give design disposition during the production and exploitation (i.e operational use) of the AFV, its engine, sensors, system/ sub-systems and accessories on account of snags, deviations, concessions, modification, up-gradation of the product and substitute parts and systems of the product as required by the Indian certifying agency and the Indian Production Agency/ Strategic Indian Partner.

10. **Government Approvals**. The OEMs would also provide an assurance in the proposal that it would seek all necessary Government export approvals in respect of Transfer of Technology required for design/ development, manufacture, repair/ overhaul, upgrade for the AFV, engine, weapon and sensors, systems and all the components. The OEM would also provide and assurance that all the subsequent government approvals needed to allow the OEM to enter into

negotiation, sign and execute contracts with the Government of India related to the product would be carried out in a timely manner as and when required. Final export approval should be obtained when contract negotiations are completed, the exact specifications of the product to be supplied have been agreed and inter-Government Agreement (IGA)/Contract have been signed. At the time of IGA/contract signature, the OEM will present required documents for GoI signature/approval allowing for the implementation of the Transfer of Technology agreed upon in the IGA/Contract.

11. **Infrastructure Setup**. The OEM would have to include the overall requirement and specification for the infrastructure set-up required for the satisfactory implementation of the envisaged development, production, tests and maintenance, as applicable. The GSE/GHE, with quantities and all other necessary requirements with specifications, required for implementation of the envisaged development, production, test and maintenance, as applicable, should also be provided to the Indian Production Agency/ Strategic Partner.

12. **Support**. The OEMs would have to provide and support complete Transfer of Technology for the envisaged development, production, test and maintenance as applicable to the Indian Production Agency/ Strategic Partner for the AFV, sensors and its sub-systems, modules, assemblies and detailed parts/components, including those from sub-vendors. Availability of support is desirable for a long term with a goal of achieving minimum period of 40 years, beginning after the last AFV is produced. The OEM would be expected to provide support, and facilitate Transfer of Technology of the sub-systems from his sub-vendors/OEMs. The OEM should resolve any design deficiency revealed during the operational utilisation of the AFV in India by the user, which impact stipulated performance.

13. **Sub-assembly Details**. It is likely that some of the assemblies/sub-assemblies/ sensors/ sub-systems and systems are manufactured by OEMs vendors/sub-contractors either based on Engineering documentation provided by the OEM or developed by the OEMs vendors/sub-contractors which are based on procurement specifications provided by OEM. Detailed list (including procurement information) of such items would have to be provided by OEM.

14. **Proprietary Items**. Certain components/processes specifically developed by the OEMs for use in the manufacture of the AFV, sensors, its sub-systems and support equipment may be classified ‘Proprietary’ and not included within the scope of Transfer of Technology offered to the Indian Production Agency(s). The OEM shall make every effort to minimize proprietary items and if such items are necessary, shall provide details of the nature and scope of the specific items excluded. Further, no item in the product structure which is critical either from the technology point of view or from the point of view of significant value addition or which constitutes a significant relative percentage of the product cost, should be included under the hear ‘Proprietary items’.

15. **Strategy for Future Capabilities**. The OEMs should provide a strategy which describes how the transferred capabilities can be future developed, enhanced and used for other existing and future AFV programs in India.

16. **Assistance to Indian Production Agency(s)**. OEM shall assist the Indian Production Agency(s)/ Strategic Indian Partner and ensure that maintenance Transfer of Technology is provided to the maximum extent possible, as required, from his vendor/ sub-contractors for items not being provided under Transfer of Technology.

17. The OEMs should permit the Indian Production Agency(s)/ Strategic Partner to sub contract components/ assemblies to its sub-contractors. The arrangement of Transfer of Technology shall be such that the Indian Production Agency(s)/ Strategic Partner are able to procure components/ sub-assemblies/ raw material/ test equipment directly from OE's sub-contractors/ vendors. Exhaustive lists of the OEM sub vendors and the part Numbers of equipment shall be provided by the OEM to the Indian Production Agency/ Strategic Partnership.

18. The option to produce AFV/ engines/ sensors/ sub systems/ spares for the Indian Armed Forces use, beyond the quantity indicate in the RFI shall rest with the Government of Indian. The option to export to third country, beyond the Indian requirement, would be subject to agreements with the Government of Indian and Government of OEM.

19. **Manufacturing Quality Standard Parameters**. The OEM shall provide Manufacturing Quality Standard Parameters (MQSP) details such as Rejection Rate, Rework Rate, Concession Rate, Defect Rate, Quality Escape Rate, MTBF and Failure Rate.

20. **Product Upgrades**. The AFV OEM would extend full support for technology insertion/ up-gradation/ modification of the helicopter to meet user requirements over the life Strategic Partnership an of the entire fleet in the Armed Forces inventory. The guidelines would be as follows: -

(a) **OEM Process/ History of Upgrades**. OEM shall describe the process for research and development of future technology insertion and how the Indian Armed Forces can benefit/ influence this process.

(b) **Technical Date Provided for Upgrades**. Technical date, including relevant documentation update, in respect any modifications/ improvements/ upgrades undertaken by OEM in the licensed product during the entire life cycle of the product/ license Agreement, shall be provided to the Indian Production Agency/ Strategic Partnership along with manufacturing data for the same.

(c) **Indigenous Upgrade Capability**. It should be possible to integrate indigenous Sensors/Systems/sub-system of Indian/ western/Russian origins. The Transfer of Technology must include complete design/data/ knowledge to undertake above integration.

21. **Technical Assistance**. As part of Transfer of Technology, OEM shall provide requisite technical assistance to the Indian software engineers and technicians during the manufacturing program and also during support, repair, overhaul and upgrade of the product.

Annexure 'D'
(Refer to Para 3 of RFI)

INFORMATION PERFORMA (INDIAN VENDORS)

1. **Name of the Vendor/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 in Delhi (if any)**.

Name & Address:-

_____

_____

_____

PIN Code: _____Tele: _____Fax: _____

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

Contact Number	**Equipment**	**Quantity**	**Cost**

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

Name of Agency	**Certification**	**Application from (Date & Year)**	**Valid till (Date & Year)**

7. **Details of Registration.**

Name of Agency	**Registration No**	**Validity (Date)**	**Equipment**

8. **Member of FICCI/ASSOCHAM/CII or other Industrial 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)
(Should be given category wise for e.g. all products under night vision devises to be mentioned together)

(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 44 and Appendix F to Chapter II may be referred*

(Authorised Signatory)

Annexure 'E'
(Refer to Para 3 of RFI)

INFORMATION PERFORMA (FOREIGN VENDORS)

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

_____

_____

(Company profile, in Brief, to be attached)

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

(a) Original Equipment Manufacturer (OEM) Yes/No

(b) Government sponsored Export Agency Yes/No (Details of registration to be provided)

(c) Authorised Vendors of OEM Others (give specific details)

_____

3. **Contact Details**.

Postal Address:-

_____

_____

City: _____ Province: _____

Country: _____ PIN Code: _____ _____

Tele: _____ Fax: _____

URL/ Web Site/ E-mail: _____

4. **Local Branch/ Liaison Office/Authorised Representatives, in India (if any)**.

Name & Address: _____

City: _____ Province: _____

PIN Code: _____ Tele: _____ Fax: _____

5. **Financial Details.**

(a) Annual Turnover _____(USD)

(b) Number of employees in firm: _____

(c) Details of manufacturing infrastructure available: _____

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

Contact Number	**Equipment**	**Quantity**	**Cost**

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

Name of Agency	**Certification**	**Application from (Date & Year)**	**Valid till (Date & Year)**

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

(a) Name of Product _____
(Should be given category wise for e.g. all products under night vision devises to be mentioned together).

(b) Description (attach technical literature: _____

(c) Whether OEM or Integrator _____

(d) Status (in service/design & development stage) : _____

(e) Production capacity per annum: _____

(f) Countries where equipment is in service: _____

(g) Whether export clearance is required from respective Government __.

(h) Any collaboration/joint venture/co production/authorised dealer with Indian industry (give details) :-

Name & Address

_____

Tele : _____ Fax :

_____

(j) Estimated price of the equipment _____

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

9. Any other relevant information: _____
_____

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

***Note**:Para 44 and Appendix F to Chapter II may be referred*

(Authorised Signatory)