

Seminar Report

STRATEGIC PARTNERSHIP: POWERING INDIA'S DEFENCE SECTOR

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EXECUTIVE SUMMARY

Salient Aspects of the Strategic Partnership Policy

Some of the salient aspects of the Strategic Partnership (SP) Policy are as under: SP to build indigenous defence manufacturing capability over and above capacity already existing in public sector.

- SP to be a ‘System of Systems’ integrator, wherein it will build an extensive ecosystem comprising development partners, specialised vendors and suppliers, in particular, those from the micro, small and medium enterprises (MSME) sector.
- SP to set-up tiered industrial ecosystem and extensive vendor base for sourcing, particularly from MSMEs.
- SP to be an Indian owned and controlled company as defined in the Indian Companies Act 2013;
- Maximum permissible foreign direct investment (FDI) is 49 per cent. It gives an opportunity for the Indian private sector to front-end mega platform specific programmes at par the Defense Public Sector Undertakings (DPSUs) and Ordnance Factories (OFs).
- Indian control shall include the following:
 - Right to appoint majority of directors; and
 - Control of management and policy matters.
- Any subsequent change in shareholding pattern/ownership of the SP shall require prior approval of the Ministry of Defence (MoD).

Key Recommendations

Some key recommendations that flowed out during the course of the Seminar are enumerated in the succeeding paragraphs.

- For any niche technology to flow in from other countries, the government-to-government initiative is mandatory. apropos, the government will have to hold hands with strategic partners of respective segments during the initial stages;

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- In order to retain and promote genuine industry players in the selected segments, government must select strategic partners only amongst those who have already developed rare capabilities in the concerned sector;
- MoD should move from a buyer-seller relationship to that of a partner with Indian private sector and FOEMs for co-development and co-manufacturing with ToT leading to creation of much needed DIB;
- For creating a robust defence supply chain, it is important to:
 - Identify and support existing suppliers who are capable as well as willing to contribute to the defence futuristic programmes;
 - Develop an ecosystem to provide opportunity to such small and medium enterprises (SME's)/MSME's to be integrated with SPs and become a part of global supply chain of FOEMs;
 - Identify local suppliers to collaborate with the global suppliers as well as motivate local suppliers to innovate and bring in new technologies;
 - One part one supplier to ensure commitment on business volumes; and
 - Support from government agencies in terms of incentives for localisation.
- A robust system of audit-jurisdiction over the strategic partners and the joint ventures through long-term partnerships with FOEM, create value through frugal engineering, low-cost design, and production to become a part of global value chain for the Indian industry;
- Original cost price should be competitive and subsequent upgrades and maintenance contract for life extension/MR/OH, upgradations and spares management for sustenance should be co-opted in the initial stages of the contract;
- Technology hegemony and price cartelisation has to be guarded against and the Indian partner should not get reduced to being the assembly house of a foreign OEM;

- The private industry agrees that the SP has to be time bound to be meaningful; however, the following irritants in print promulgated in the Policy tend to defeat the spirit:
 - Introduction of competitive bidding element states that DPSU's may be a part of the process. This clause makes it akin to a limited tender system with no strategic element in SP.
 - The clause of selection of SP to have 80 per cent weightage to price and 20 per cent for segment specific capabilities again defeats the purpose as it was earlier envisaged to have a 50 per cent weightage for each being a technology intensive sector. For low tech infra projects, 20 per cent weightage is followed.
 - Long-term covenants are missing as the final contract would be for 10 years apart from life cycle support, whereas the Task Force recommended that SP would be 'partner' to the Government of India for 20 years along with the existing DIB consisting of OFBs and DPSUs. This would justify the huge investment in the private sector.

DETAILED REPORT

INTRODUCTION

With the publication of the Chapter VII of the *Defence Procurement Procedure* (DPP) 2016 on 'Revitalising Defence Industrial Ecosystem Through Strategic Partnerships', the contours for progressively building indigenous capabilities in the private sector to design, develop, and manufacture complex weapon systems for the future needs of the Armed Forces have been laid down. Production of major defence platforms in India is currently carried out by the DPSU and the Ordnance Factory Board (OFB). Barring ships, indigenous production is largely limited to 'Build-to-Print' (Licensed Production) rather than 'Build-to-Specifications'. Indigenisation is mostly restricted to the lower end of technology and there is continued dependence on imports. The private sector is not incentivised due to lack of wherewithal and government support. There is thus a need to align defence sector with 'Make in India' initiative and institutionalise a transparent, objective, and a functional mechanism to encourage private sector participation. Active involvement of the private sector in the manufacturing of major defence equipment will have a transformational impact. It will serve to enhance competition, increase efficiencies, facilitate faster and more significant absorption of technology, create a tiered industrial ecosystem, ensure the development of a wider skill base, trigger innovation, and promote participation in global value chains as well as exports. From a strategic perspective, this will help reduce current dependence on imports and gradually ensure greater self-reliance and dependability of supplies essential to meet national security objectives.

The current defence procurement procedures focus on short- and medium-term contracts. The emphasis on purchase of equipment alone does not promote the creation of a defence industrial ecosystem. Achieving self-reliance and self-sufficiency calls for assimilation of technology, extensive indigenisation, developing an ecosystem of tiers I, II, and III partners and undertaking long-term upgrades

of the platforms through resource and development (R&D). This will require the private sector partner selected through a laid down procedure by the government to make necessary long-term investments in manufacturing infrastructure, an ecosystem of suppliers, skilled human resources, R&D for modernisation and upgrades as well as and other capabilities, besides the production of equipment. Such a partnership between the MoD and the Indian private entity will be known as SP. Expert Committees set-up by MoD from 2014 to 2016 recommended development of defence industrial base through 'SP' route and after extensive consultations, the SP Model was approved by DAC and CCS in May 2017. While the defence sector continues to be at the heart of 'Make in India' policy, the concept of SP will have a transformational impact on the journey of the defence sector towards indigenisation and self-reliance.

REVITALISING DEFENCE INDUSTRIAL ECOSYSTEM THROUGH STRATEGIC PARTNERSHIP MODEL

Objectives

The primary objectives of the SP model are as follows:

- To build indigenous capabilities in the private sector to design, develop, and manufacture complex weapon systems for the future needs of the Armed Forces;
- Creation of a defence industrial ecosystem; and
- Reduce dependence on imports and gradually ensure greater self-reliance and dependability of supplies essential to meet national security objectives.

Segments Added

Initially, four segments have been added, i.e. fighter aircraft, helicopters, submarine, and armoured fighting vehicles (AFV)/main battle tanks (MBT). MoD may add more or subdivide segments as deemed necessary.

Generally, only one SP per segment will be selected to:

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- Maintain focus on core areas; and
- Ensure wider participation from industry.

Why Now?

India's defence industrial base dates back to the pre-independence era and hence there is a genuine question that comes to everyone's mind as to why only now or what is the necessity to introduce this Model? The reasons are as follows:

- Major defence platforms (fighters, submarines, helicopters, AFVs) are overdue for modernisation;
- DPSUs/OFB have adequate orders and lack surge capacity; and
- The Indian private sector has evolved and matured over the last 30 years and has demonstrated the capability to execute high tech, large-scale production in the civil sector.

Salient Aspects of the 'Make in India' Policy

Some of the salient aspects of the 'Make in India' Policy are as under:

- SP to build indigenous defence manufacturing capability over and above capacity already existing in public sector.
- SP to be a 'System of Systems' Integrator, wherein it will build an extensive eco-system comprising development partners, specialised vendors and suppliers, in particular, those from the MSME sector.
- SP to set-up tiered industrial ecosystem and extensive vendor base for sourcing, particularly from MSMEs.
- SP to be an Indian owned and controlled company as defined in the Indian Companies Act 2013.
- Maximum permissible FDI is 49 per cent. It gives an opportunity for the Indian private sector to front-end mega platform specific programs at par with DPSUs and OFs.
- Indian control shall include the following:

- Right to appoint majority of directors; and
- Control of management and policy matters.
- Any subsequent change in shareholding pattern/ownership of the SP shall require prior approval of MoD.

Challenges

The SP model comes along with its own peculiar set of challenges as this is the first time in the history of India's defence production that such a major decision has been taken to bring the private sector within the ambit of strategic defence production. This brings with it certain inherent challenges. These are discussed as under:

- Limited experience in defence manufacturing or final integration of complex defence platforms by private players;
- Limited capability to absorb/assimilate technology;
- Absence of a robust ecosystem of tiers I, II, and III partners;
- Limited R&D base; and
- Lack of adequate skilled manpower.

METHODOLOGY OF SELECTING ORIGINAL EQUIPMENT MANAGER AND STRATEGIC PARTNERSHIP

Short Listing of Original Equipment Manager's

As ToT remains the main factor in the selection of Original Equipment Manager (OEM), therefore considerations for selection will include the following:

- Range, depth, and scope of technology transfer offered in identified areas;
- The extent of indigenous content proposed;
- The extent of ecosystem of Indian vendors/manufacturers proposed;
- Measures to support SP in establishing system for integration of platforms;

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- Plans to train skilled manpower; and
- Extent of future R & D planned in India.

Original Equipment Manager would be jointly responsible with the SP for certification, quality assurance, transfer of technology, and life-cycle support. MoD would sign the contract with SP and in the event of an SPV being formed by the SP and OEM, a tripartite contract between MoD, SP, and the JV/SPV may be considered, provided it does not dilute responsibilities of the SP and the OEM individually, jointly, and severally for implementation of contractual conditions.

Procedure for Shortlisting Strategic Partner

The selection criteria for SPs will be based on the inherent capacity and ability of the vendor to emerge as a systems integrator and set-up a vendor network for sourcing. The criteria for selection would be fair, reasonable, non-arbitrary, transparent and rational, and based on the broad parameters of financial strength, technical capability, and capacity/infrastructure. SP would need to collaborate with foreign OEMs and MoD to facilitate government-to-government support for ToT and intellectual property rights (IPR) issues. The procedure for selecting the SP will comprise three phases. These are as follows:

- Phase I: Short listing of SP (based on evaluation of financial, technical, and segment specific capabilities);
- Phase II: Short listing of OEM (based on SQRs, technology transfer, willingness to develop ecosystem, etc.); and
(Phase I and II to run concurrently.)
- Phase III: Final selection of SP (based on technical compliance and price bids).

Minimum Qualification Criteria for Strategic Partnership

- Technical Gate. The applicant company should have demonstrated the capability of integration of ‘system of systems’.
- Financial Gate. Consolidated turnover, net worth, and rating.
- Other aspects such as being a wilful defaulter, etc.

SEGMENT SPECIFIC CRITERIA

The segment specific criteria for submarines, aircraft, helicopters, and AFV/MBT have also been laid down to help determine suitable stakeholders and encourage genuine response from the industry.

Submarines

- Infrastructure
 - One suitable dry dock or building bay with ship lift/floating dock for submarine of 3000 T displacement and length of 90 metre;
 - Two water frontage/wet basin/outfitting/berths.
- Experience
 - Should have delivered a warship/ship as lead or prime contractor in the past 5 years.

Single Engine Aircraft and Helicopters

- Availability of hangar and land space exclusively for production, assembly, and testing;
- Experience in production of aircraft/helicopters systems and components thereof; and
- Availability of special machining/processing facilities for metals and composites including forging, casting, machining, and forming/moulding.

Armoured Fighting Vehicles/Main Battle Tank

- Mobility track, test driving track, and adequate land bank available;
- Simulation and modelling capabilities for complex systems;
- Integration of complex automotive and/or armament systems; and
- Processing facilities for metals and composites including forging, casting, machining, and forming/moulding.

Subsequent Acquisitions

- Subsequent acquisitions for identified segments would ideally be carried out by Indian companies under Buy (IDDM), Buy (Indian), Buy and Make (Indian) and ‘Make’ categories;
- Requires companies to invest in *Capacity Creation* and *Capability Development*;
- To incentivise Indian companies to achieve these objectives, adequate weightages may be provided for the following:
 - Investments made to improve segment specific infrastructure;
 - Nature of R&D investments made;
 - Development and acquisition of relevant technologies; and
 - The extent of ecosystem created.

ALIGNING TO THE FUTURE READY COMBAT VEHICLE: INDIAN ARMY PERSPECTIVE

General

The implementation of the SP model provides the Indian Army (IA) with an opportunity to cater for its present and future armour platforms and align to the Future Ready Combat Vehicle (FRCV) model. The Army expects the SP to ensure realistic capability building, enhanced R&D, enabling infusion of cutting-edge and emerging technologies, lifecycle support, a holistic ecosystem, a genuine Make In India (IDDM) product, and overcoming integration challenges and field fitment. Concurrently, the user will try to ensure a fair, transparent, competitive, and an unbiased environment under DPP 2016. In addition, assistance in terms of equipment, infrastructure on request, enhanced interaction and interface as joint stakeholders of the capability building and assured volumes due to the new scheme, platform upgrades, spares and training aids/simulators.

Why Future Ready Combat Vehicle is a Good Business Model?

It is based on the theory of cooperative benefits, which ensures that there is a family of AFVs, the size of the fleet-numbers make good

economic sense, and have assured life-time sustenance and upgrades. The challenges to the FRCV concept are ensuring comprehensive IPR management, limitations of production capacity, ensuring proper lifecycle management, indigenisation, foolproof quality assurance (QA)/quality check (QC) and converting concept to product cycle.

Technology Vectors: Armoured Fighting Vehicles Design

There are certain essential technology vectors that need to be considered before finalising the design. These are as follows:

- Lethality and Advance Fire Control Systems. High performance guns, multi-purpose amn, and next generation precision amn.
- Survivability and Counter-Measure System. Based on vehicle silhouette profile, stealth, crew configuration, active protection, light weight configurable armour array.
- Signature Management. Vehicle shape, stealth, outer surface material, crew configuration for survivability and spooking.
- Enhanced Agility and Maneuverability. New generation power-packs, modular variable HP engine, suspension optimisation, wheeled AFVs, and light tanks.
- Information Management and Situational Awareness. Network enabled tactical cellular networks, information fusion, and decision support functions.
- Transportability. Strategic mobility for force projection, weight and dimension constraints.
- Common Chassis System Design and Modular Approach. Allows more common variant platforms, strategic deployability, logistics and development cost advantages.
- Reduced Logistics Requirements and Sustainability. A modular sub-system, in-built diagnostics and redundancies (fault-management), high MTBF and lifecycle sustenance.

Way Forward: Integrated Approach

Collaborative convergence of minds (concept) and actions (product) is the only way forward to ensure success for this Model.

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- **Equal Ownership and Non-Segmented Approach.** The user, private industry partners, government, and academia need to be on the same platform.
- **Conducive Environment and Supportive Ecosystem.** Bold, risk tolerant, investment supported for an innovative, vibrant and interlocking ecosystem is the need of the hour.
- **Outcome Orientation.** Time critical, technologically competitive, cost sensitive, and quality ensured deliverance.
- **Transition and Sustenance Technology.** Help transition and sustainment of state-of-art technology to war fighting system.

PRIVATE SECTOR: PROPOSED ROADMAP TO BUILD DESIRED CAPABILITY IN LAND-BASED SYSTEMS

General

In order to build the desired capability in land-based systems, entire value chain needs to be developed across all phases to achieve the desired capability, i.e. design phase, manufacturing phase, in-service support, upgrades, and overhauls:

- **Design Phase.** During the design phase, the focus is on the following:
 - Selection of competent mobility based players as SPs;
 - Selection of foreign OEMs willing for technology transfer;
 - Absorption of technology by SP;
 - Competence development in system of system integration; and
 - Development of MSMEs for aggregated and sub-systems by SP.
- **Manufacturing Phase.** In order to ensure smooth production and unhindered supply of placed orders in the industry, it is important to consider the under mentioned during the initial stages:
 - Existing capacity assessment at DPSUs;

- Additional capacity creation by SP as required to achieve the desired production capability; and
- Establishment of a robust local supply chain by SPs through new vendor development.
- In-Service Support. It is essential to establish an extensive spares and service network near base workshops for ensuring low MTTR and also build-up advanced simulation based training capability for continuous upgrading of skills.
- Upgrades and Overhauls. Technology refreshers to be carried out with minimal/no involvement of foreign OEMs, SPs to ensure continuous investment in technology and system upgrades and practice robust obsolescence management.

Key Drivers While Developing Supply Chain Capability

The main factor is support from the government agencies in terms of incentives for localisation. In addition, local supply chain capability building will entail the following:

- Technological competency for transfer of technology;
- Strategic collaboration, integration, and sub-systems development capability;
- Achieving consistency in quality;
- Innovation-driven supplier base;
- Sound financial background in view of the development cycle time;
- After sales capability; and
- Integrated logistics capability.

Approach for Defence Supply Chain Development

The enablers from industry are mentioned as follows:

- Identify global suppliers for unique defence technologies;
- Identify local suppliers to collaborate with the global suppliers

and motivate local suppliers to innovate and bring in new technologies;

- Ensure the transfer of technology from global suppliers to local suppliers or encourage global suppliers to set-up manufacturing facilities in India;
- One part one supplier to ensure commitment on business volumes; and
- Create awareness among the local suppliers about the defence business opportunities in various Tata Motors Supplier Communications.

Creation of a Robust Ecosystem is Need of the Hour

The defence ecosystem comprising the Armed Forces, MoD, SP, Defence Research and Development Organisation (DRDO), OFs, MSME's, and the DPSUs need to focus on integrated logistic support, regular technology upgrades, spares availability, system integration, technology transfers, and high indigenisation content to move from imports to self-reliance and exports.

NAVAL PERSPECTIVE: PRESENT OUTLOOK AND FUTURE PROSPECTS

General

The Indian Navy (IN) is at the fore front of self-reliance in defence production since independence. It has 40 ships and submarines constructed indigenously, of which 32 platforms are from DPSU/PSUs shipyards and 8 from private shipyards. In addition, it has contracted 12 Dornier /16 ALH. The naval requirements from the SP model are primarily for submarines and helicopters. RFI for the P 75 (I) submarines to foreign vendors have recently been issued. PPP Model has been successful in a number of countries and India has the benefit of hindsight and lessons learned in the past.

The SP model is both a challenge and an opportunity. It requires a focused approach towards skill development, indigenous R&D,

innovation, ToT, and R&D to be meaningful in both letter and spirit. The IN on its part is, therefore, looking forward to doing the following:

- Submarine construction in private sector;
- Induction of two types of helicopters (multi-role and utility); and
- Fillip to MSMEs and ancillary industries.

Aerospace Manufacturing

This is capital intensive, technology driven, has long gestation periods, very limited OEMs, and compounded by enhanced complexity in the manufacture of maritime/ship borne aircraft. Keeping this in mind, there are huge opportunities in aviation technology, to include the following:

- Light weight and compact:
 - Maritime radars;
 - Sonars;Self-protection suites; and
 - ESM.
- Deck landing/catapult take-off/arrested landing;
- Structures subjected to corrosion/high stress/sea state; and
- New generation materials and self-healing composites.

Focus on ToT: Helicopters

In order to ensure genuine indigenisation in the field of helicopters, it is essential to have ToT in systems/components relating to engine and fuel systems, avionics design and integration, electrical design and integration, auto pilot system, crash worthy fuselage, blade folding mechanism, vibration isolation system, landing gear and under carriage mechanism, cockpit display and mission computer. The focus, therefore, has to be on realistic indigenisation through the adoption of critical technologies.

Submarines

System Construction

Submarine construction is both complex and technology intensive. There are more than 100 systems onboard a submarine, limited space availability (20 per cent to 30 per cent of a Frigate), stringent standards (shock, noise, and vibration) and specialised infrastructure is required for construction. In addition, Hull design/construction has to withstand high pressure, the submarine has to manoeuvre in both horizontal and vertical plane and launch weapons in a dived condition.

Focus on ToT

In order to succeed in the initiative for building indigenous defence platforms, it is important to understand and identify those complex systems/subsystems that need to be manufactured through the ToT route and concurrently these technologies need to be absorbed in the system. Certain critical areas in regard to submarines are as follows:

- Hull design;
- Integrated combat suite;
- Air independent propulsion;
- Power generation and distribution system;
- Stealth technologies; and
- Rescue and safety system.

Skill-set Development

The skill-set development forms the back bone of the 'Make in India' initiative, failing which there can be no genuine indigenisation. Infrastructure for the same in terms of workshops/design bureaus, speedy reorganisation, and creation of the requisite ecosystem and entrepreneurship promotion needs to be encouraged.

SPECIAL PROJECTS UNDERWATER PLATFORMS: FROM CURRENT CAPABILITY TO CAPACITY BUILDING PRIVATE SECTOR

General

India received submarine technologies from Germany, Russia, and France; however, it has still not assimilated the technologies completely to embark upon indigenous submarine design all by itself. There is a need to synergise and assimilate the knowledge pools available as mandated by the CCS approved '30-year Submarine Building Plan'. Larsen & Toubro (L&T) is one of the private players that have with minimal ToT acquired the capability as well as innovated to build these stealth platforms of high quality in a reasonable time and has shown progress from successive vessel-to-vessel.

Unique Skills and Expertise

Submarine building requires certain unique skills and expertise due to the peculiar nature of the platform and hence can only be undertaken by a specialised industry.

- Construction. It is difficult, inefficient, and an expensive proposition.
- It is analogous to building a ship in a bottle as:
 - Equipment, piping, and cables are installed after the pressure hull is built;
 - Openings and spaces are constrained as construction is progressed;
 - Binding/limited options in design; and
 - Sequencing of activities and supply chain is critical to cycle time.
- Unique Design and Engineering Skills. For this, a pool of knowledge and experience must be nurtured and sustained.

Submarine Building Orders and its Impact

- **Worldwide Decline.** New submarine programmes are occurring less frequently as there is an increase in the operational life of submarines and constrained defense budgets across the globe.
- **Substantial Gaps Between New Programmes.** This is leading to few opportunities to gain experience and hence informed decisions have to be taken and complex processes managed.
- **Erosion of skill set/expertise** is leading to dependency and collaborations.
- **Time overruns and increases in cost** are witnessed.

Strategic Submarine Building in Advanced Countries

Advanced countries have ensured that their strategic submarine building capability is not withered by investing in a single shipyard and supporting it over decades. In the US, seven shipyards built nuclear submarine during the Cold War, but presently only two shipyards are engaged. Russia had four shipyards to build nuclear submarines during the Cold War, but presently only one shipyard is engaged and in the UK. BAE Systems is the only shipyard today for the Royal Navy. Hence, India needs a strategy to pool and preserve special skills, built indigenously, as a national asset. This will have the following advantages:

- **No migration of skilled workers** even during lean period—tacit assurance of order;
- **Design/build philosophy:** Builder actively involved during design;
 - Build in an efficient manner;
 - Potential problems addressed earlier; and
 - Single designer and builder ensure reduced costs and construction time.

AIR FORCE: LONG-TERM CHALLENGES FOR IMPLEMENTING STRATEGIC PARTNERSHIP MODEL

General

The Indian Air Force (IAF) has a wide range of equipment profile that ranges from fighter aircraft, helicopters, radars, electronic warfare equipment, and ground support equipment. The equipment profile of the IAF is more inclined towards the high-end technology spectrum and requires an ecosystem compatible with such needs.

Modernisation Plan

The IAF modernisation plan aims to do the following:

- Develop capability to take on multiple threats simultaneously;
- Ability to conduct all weather, round the clock, offensive and defensive, network enabled operations;
- Capability build-up to support joint operations;
- Airlift and helicopter lift capability for swift inter/intra theatre movement of forces; and
- Develop operational and training infrastructure.

Capabilities Sought

Keeping in view the present and the future threat perception in mind, the air platforms have to provide a competitive capability to the air force. Future technologies and list of items that are required have also been put on the official website of the IAF. The essential capabilities that the Air Force is looking at, include the following:

- Good performance, avionics, and weapons;
- All weather day and night capability;
- Reach and employability;
- Net centric ability;Survivability in new environment; and
- Low maintainability/high serviceability.

Why Make in India Fighter?

Squadron strength is currently less than authorised and current inductions will only assist in arresting further drawdown. Short- to a medium-term requirement of additional fighters through ‘Make in India’ SP route and an Aerospace Ecosystem for Components, Testers, GSE and GHE, consumables. Private sector participation in design, development, and manufacturing activities is being encouraged and test facilities and related infrastructure are being offered to private players for tests and trials.

Expectations and Challenges

The organisation has major expectations in terms of building-up of an aerospace ecosystem, timely induction of Make in India fighter, long-term package support for maintenance, capability for in-house integration of existing weapons, sensors and future inductions without OEM support, indigenous life time product support, and unilateral mid-life upgrade solutions at all stages of equipment life without OEM support. In keeping with the same, some major challenges that can be seen are as under:

- Such technology and capital intensive projects will require big and serious private players;
- Obsolescence management has to be factored in the product life cycle;
- Robust and evolving R&D to be ensured;
- Cannot do it alone: Supporting ecosystem is essential (tiers 1, 2, and 3 vendor base);
- Quality control/quality assurance with after sales service for user satisfaction and credible export capability;
- Availability of skilled manpower;
- Develop a pool of indigenous expertise and requisite infrastructure to cater for spinoffs; and Product support through a life cycle.

ORDNANCE FACTORIES: COMPLEMENTING THE STRATEGIC PARTNERSHIP MODEL

General

Ordnance Factory Board is the largest defence manufacturing base under single organisation having 41 factories, state-of-the-art facilities for complete spectrum of products, backward integrated plants with large infrastructure, holds vast technological knowledge in armament system production, has a large pool of trained manpower for armament industry, and is poised to achieve an annual turnover of over US\$ 20,000 crore during the next 2 years. The role of OFB has not yet been clearly defined at this stage of the SP and will be decided by MoD subsequently.

Strategic Partnership Model and Ordnance Factory Board

- OFB will undoubtedly play a major role as part of the defence ecosystem that is required to complement the SP model in contributing towards an ultimate goal of achieving self-reliance in defence production. Capabilities already existing with OFB in terms of manufacture, integration, and testing of AFVs/MBTs already are as under:
 - Mobility track and test driving track;
 - Simulation and modeling capabilities for complex systems;
 - Integration of complex automotive/armament systems;
 - Processing facilities for metals and composites including forging, casting, machining and forming/moulding;
- SP Model intends to create an ecosystem for indigenous manufacture of complex system, for which OFB is already working in this direction and has signed umbrella memorandum of understanding (MoU) with Bharat Electricals Limited (BEL), Bharat Earth Movers Limited (BEML), Bharat Dynamics Limited (BDL), and MIDHANI for joint development;
- SP Model intends to create capacities over and above the abilities

available with OFB. Following points need consideration in this regard–

- Long-terms annual requirement of AFV/MBT, vis-à-vis, available capacities and gaps if any; and
- Huge investment required by the production agency undertaking manufacturing, integration, and testing.

Proposed Way Ahead

The proposed way ahead for the private players and the OFB is through a joint approach complementing each other's strengths and leveraging all available resources. In order to do so, the following is recommended:

- Technological gaps to be bridged through formation of consortium between OFs and Indian industry;
- Indian industry to focus on state-of-art and futuristic sub-system technologies to support OFB;
- OFB to remain lead integrator for AFVs/MBTs to avoid investment in manufacture, integration, and testing facilities;
- This approach offers the following advantages–
 - Required capacities will be created with minimum investment;
 - Technologies of sub-systems required for AFVs/MBTs will be developed in Indian industry; and
 - No overlapping of capabilities and capacities.

CONCLUSION

The SP model is being implemented to enable participation of private Indian firms in Make in India in defence. The overall aim will be to progressively build indigenous capabilities in the private sector to design, develop, and manufacture complex weapon systems for the future needs of the Armed Forces. This will be an important step towards meeting broader national objectives, encouraging self-reliance, and aligning the defence sector with the 'Make in India'

initiative of the Government. The topic of this seminar, viz, ‘Strategic Partnership: Powering India’s Defence Sector’ has been specifically chosen for its relevance in the present context wherein there is an acknowledged need by all the stakeholders to see concrete and tangible fructification of the SP model and move towards a more joint, dynamic, and a responsive defence industrial base wherein the private sector truly gets to compete in defence production. In addition to a host of issues that need resolution, change in the existing mind set, creating a holistic defence ecosystem and transparent, clear and realistic guidelines in both letter and spirit are the need of the hour to sustain this initiative.