



Cultivating synergies between auto and defence manufacturing

July 2021

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Foreword

The defence sector in India is complex and diversified, with substantial presence in civil aerospace, shipbuilding, defence mobility and heavy manufacturing industries. The sector presents a plethora of opportunities with an annual budget allocating over INR4.78 lakh crores (USD72 billion) towards the military spends. While a large part of the market is dominated by foreign OEMs, Indian Defence PSUs and the Ordnance Factories, the recent policy changes by the government have been aimed at encouraging the Indian private sector participation, particularly the MSMEs in the industry. These changes are aimed at fulfilling the domestic defence requirements of India and are directed towards achieving defence exports target of INR35,000 Crores (USD5 billion) by the year 2025. The recent policy changes that have been affected by the government with respect to financial assistance, grants, and offset policies on large foreign defence procurements with an aim to boost indigenous defence manufacturing.

All the factors listed above have created opportunities for the private players, particularly the MSMEs, in the Indian defence market. Other manufacturing sector which have skillsets and resources which are parallel/complimentary to the requirements of the defence sector find the diversification into the defence industry to be a profitable move, one that is also encouraged by the Indian Government through favourable policies.

The auto industry has a high degree of synergy with defence manufacturing. The skillset requirements of the two industries have adjacencies and the auto sector has the technical capabilities to adequately fill the mobility requirements of the Indian Armed Forces. The automotive industry in the country is a relatively

mature and developed industry, it is adequately capable of meeting the consumer and commercial automotive needs. The technologies and skills that have been nurtured and developed in the country by the auto industry over the past few decades also lend themselves well to the defence manufacturing requirements of the country. With the Armed Forces poised on investing over INR1.5 – 2 lakh crores (approximately USD2-3 billion) in the procurement of Armored Personnel Carriers (APCs), Future Infantry Combat Vehicles (FICVs), Future Ready Combat Vehicles (FRCV) as well as various self-propelled and towed artillery units, the opportunity size for the auto sector in defence mobility is immense.

These opportunities are not limited only to the defence mobility sector, with technologies such as casting, forging and precision machining, which have been a staple of the auto sector, being vital for the operations in the manufacture of arms, ammunitions, artillery shells, vehicle armour solutions etc. This paper aims to identify specific opportunities and product lines where the auto industry players may enter either as primary platform suppliers themselves, or as tier 1/2/3 suppliers to existing defence vendors.



Abhishek Verma
Partner
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Foreword

The Defence sector has been identified as one of the key drivers by the Government of India that will propel our Hon'ble Prime Minister's vision of a USD5 trillion Indian economy by 2024, one among the top three in the world. The sector offers a huge opportunity, as modernisation and indigenisation programmes are being undertaken by all the three services of the fourth largest military force in the world.

The thrust on 'Make in India' and 'Atmanirbhar Bharat' by our government is leading to self-reliance in defence production and indigenisation of weapon platforms. Further, with the recently announced Defence Acquisition Procedures (DAP) 2020 localisation in the sector is expected to gather steam.

The Ministry of Defence, with an outlay of USD130 billion over the next seven years, has drawn-out a detailed roadmap of modernisation of Indian armed forces. The plan includes procurement of a range of weapons, missiles, air defence systems, fighter jets, submarines and warships, drones, surveillance equipment and developing infrastructure for extensive use of artificial intelligence. Further, increase in the FDI limits in the sector to 74 per cent will help the Indian industry engaged with the aerospace and defence sector become globally competitive.

We, at ACMA, strongly believe that the Indian auto component industry is best positioned to harness the opportunities in the defence sector due to their proven manufacturing capabilities, world class quality and price competitiveness. In fact, the Indian auto component manufacturers have all the right ingredients in place to repeat the success story of automotive industry in the aerospace and defence sector.

On behalf of ACMA, I thank KPMG in India for setting the context of this engagement, and releasing the 'white paper' at the 'Conference on Aerospace and Defence - Cultivating synergies between Auto and Defence manufacturing' on 13 July 2021 .



Deepak Jain
President,
ACMA



Executive Summary

The aerospace and defence market in India, by the virtue of its size and strategic importance, represents a major business opportunity for the private industry in general and the automotive industry in particular. The Indian defence industry primarily revolves around the Indian defence PSUs and the Ordnance Factories in terms of value and market share, and these organisations are a major source of business for many of the private vendors, sub-contractors and sub-component manufacturers, particularly the MSMEs.

For the Indian automotive industry, the defence mobility platform requirements of the Indian military represents a major opportunity in terms of both

one-time capital procurement as well as service, overhaul, maintenance and replacements activities which form a part of revenue procurement. Furthermore, the indigenisation goals of the Indian Government would also result in significant portion of the business that was previously being handled by foreign OEMs, now move to the Indian industry.

The government, for its part, has made several notable policy changes in the recent past that are aimed at reducing the country's dependence on imports for its defence requirements, and also simultaneously encourage further participation from the Indian private industry. These fall largely under the broader goals of 'Atmanirbhar Bharat'



and the 'Make in India' initiatives of the government.

Yet, the Indian defence industry is not without its fair share of challenges, with challenges such as non-uniform demand patterns, lengthy gestation periods, lack of facilities and limited access to funds being among the industry's major pain points.

However, the above problems notwithstanding, the Indian defence market is still an extremely lucrative and compelling business proposition for the Indian industry, specifically the automotive industry players who are looking for opportunities to diversify and grow. The framework shared later in the document is an attempt to help them better map their journey so as to maximise the probability of success.



Glossary of terms



Abbreviations	Expansion
A&D	Aerospace and Defence
AHSP	Authority Holding Sealed Particulars
CAGR	Compounded Annual Growth Rate
CCS	Cabinet Committee on Security
DAP	Defence Acquisition Policy 2020
DDP	Department of Defence Production
DFARS	Defence Federal Acquisition Regulation Supplement
DGOA	Directorate General of Quality Assurance
DIC	Defence Industrial Corridor
DIO	Defence Innovation Organisation
DoD	Department of Defence
DoI	Directorate of Indigenisation
DPIIT	Department for Promotion of Industry and Internal Trade
DPM	Defence Procurement Manual
DPP	Defence Procurement Procedure
DPSU	Defence Public Sector Undertakings
DRDO	Defence Research and Development Organisation
DTAQ	Defence Agency for Technology and Quality
EMD	Earnest Money Deposits
EOI	Expression of Interest
FAI	First Article Inspection
FDI	Foreign Direct Investment
FTP	Foreign Trade Policy
GoI	Government of India
HMV	Heavy Motor Vehicle
IAF	Indian Air Force



Glossary of terms



Abbreviations	Expansion
IC	Indigenous Content
ICV	Infantry Combat Vehicles
IDDM	Indigenously Designed, Developed and Manufactured
iDEX	Innovations for Defence Excellence
IOP	Indian Offset Partner
IP	Intellectual Property
JV	Joint Venture
LMV	Light Motor Vehicles
MBT	Main Battle Tank
MIDHANI	Mishra Dhatu Nigam Limited
MoD	Ministry of Defence
MPP	Mentor-Protégé Program
MSME	Micro, Small and Medium Enterprises
NSIC	National Small Industries Corporation
OEM	Original Equipment Manufacturers
OFB	Ordnance Factor Boards
PSU	Public Sector Undertaking
QMS	Quality Management System
RFI	Request for Information
SCOMET	Special Chemicals, Organisms, Materials, Equipment and Technologies
SME	Small and Medium Enterprises
SP	Strategic Partnership
TDF	Technology Development Fund
ToT	Transfer of Technology
TPCR	Technology Perspective and Capability Roadmap
TRL3	Technology Readiness Level 3



Aerospace and Defence in India



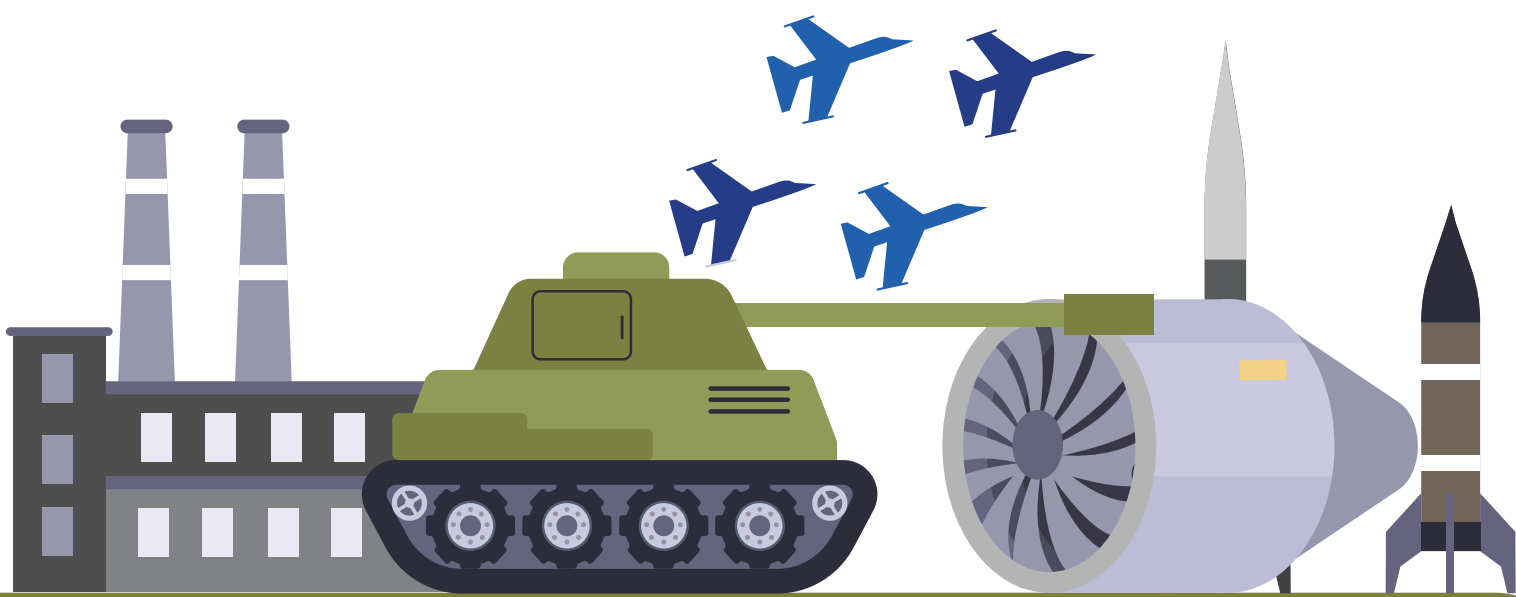
India is one of the world's largest markets for military and defence products, and Indian Aerospace and Defence (A&D) sector is currently poised for major transformation.

The defence market primarily has been dominated by foreign defence manufacturers and, to a limited extent, the Indian Ordnance Factories (OFs), along with the Defence Public Sector Undertakings (DPSUs). India was the world's second largest importer of defence goods accounting for about 9.5 per cent of all global imports between the years 2016 - 2020¹. Though, the import has reduced compared to the previous five years, i.e. from 2011-2015, India accounted for about 14 per cent of all global defence imports².

This reduction in India's share of global defence imports, by about 33 per cent (from 14 per cent to 9.5 per cent)³, has been the result of a concerted and visible effort of the Government of India, to

push for participation of domestic private players in the defence manufacturing ecosystem of the country. The indigenous manufacturing sector is driven by Transfer of Technology (ToT) agreements with large foreign OEMs, with production being majorly driven by the DPSUs. The private sector accounted for only 17 per cent of all domestic manufacturing in 2021 with the DPSUs, OFs and their JVs accounting for the remaining 83 per cent⁴.

The defence sector is one of the key focus areas under the Atmanirbhar Bharat initiative with major reforms being initiated, the most recent of which include corporatisation of 41 OFs into seven new DPSUs. The government has also increased the FDI limits for the sector to 74 per cent⁵ through the automatic route in a bid to open the sector to foreign OEMs to set up manufacturing, service, and research hubs in the country.



1. TRENDS IN INTERNATIONAL ARMS TRANSFERS, 2020| SIPRI Fact Sheet | April 2021
2. TRENDS IN INTERNATIONAL ARMS TRANSFERS, 2020| SIPRI Fact Sheet | April 2021
3. TRENDS IN INTERNATIONAL ARMS TRANSFERS, 2020| SIPRI Fact Sheet | April 2021

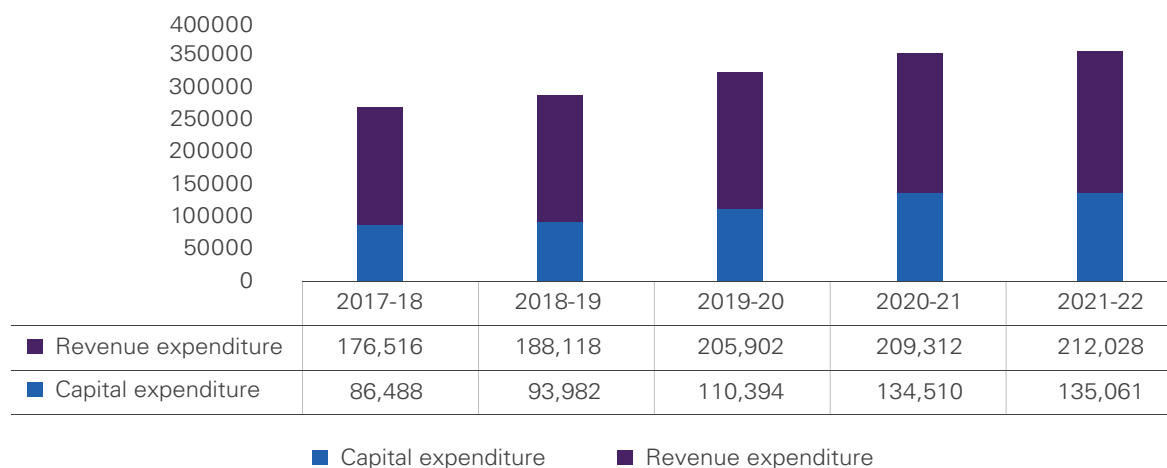
4. Department of Defence Production website, Ministry of Defence, Government of India
5. Press Information Bureau, Government of India, 14th Sept 2020



1.1 Budget analysis

India is the 3rd largest military spender in the world behind U.S. and China⁶. India allocated a record budget of INR 4.78 lac crores (USD72 billion) for the Ministry of Defence (MoD) for the FY 2021-22. This budget of the MoD is split between two categories namely - capital expenditure and revenue expenditure. The budgetary allocation over the past 5 years is as shown below:-

Annual defence spending (in INR Crores)



Capital expenditure CAGR – 9.32 % Revenue expenditure CAGR – 3.73 % Overall CAGR – 5.70%

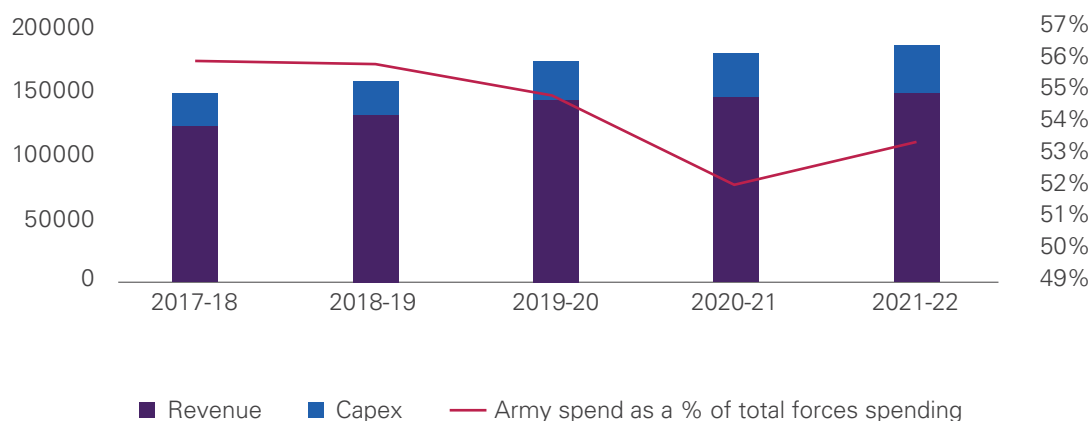
Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021

The split between capital and revenue expenditure of the Indian Armed Forces has traditionally been around 30-33 per cent for capital expenditure and about 67-70 per cent for revenue expenditure.

Indian Army

The army spends a major portion of its budget on revenue expenditure with the split between capital expenditure and revenue expenditure hovering between 17 – 83 per cent to 20 – 80 per cent respectively.

Army spending (in INR Crores)



Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021

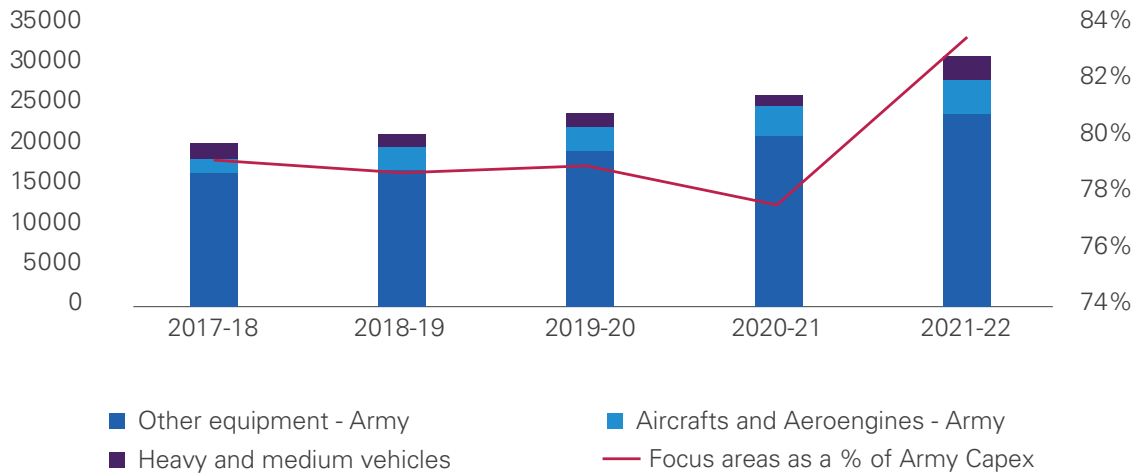
6. SIPRI database, KPMG analysis. Note: The exchange rate for INR to USD has been assumed to be 1 USD = INR 74.2 (as on 24th June 2021) for all conversions in the paper.



Focus areas of capital spending include aircraft and aeroengines along with heavy and medium vehicles amongst others. The below graph gives a breakup of the capital expenditure of the

Indian Army in terms of the various heads of expenditure. Overall, the focus areas of the army account for about 78 – 82 per cent of the Army's capital expenditure.

Capital expenditure on focus areas (in INR Crores)

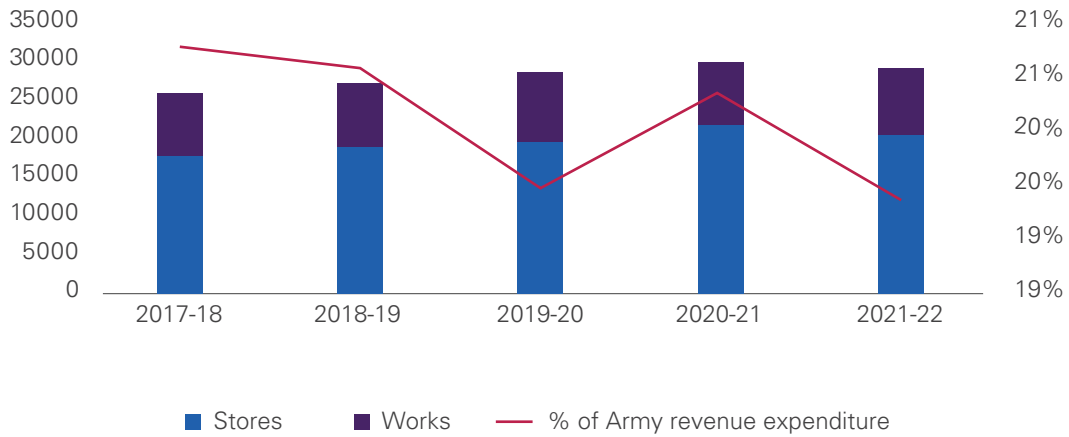


Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021



The key focus areas in the Army's revenue expenditure is stores and works which together form about 19 – 21 per cent of the overall revenue expenditure.

Revenue expenditure on focus areas (in INR Crores)

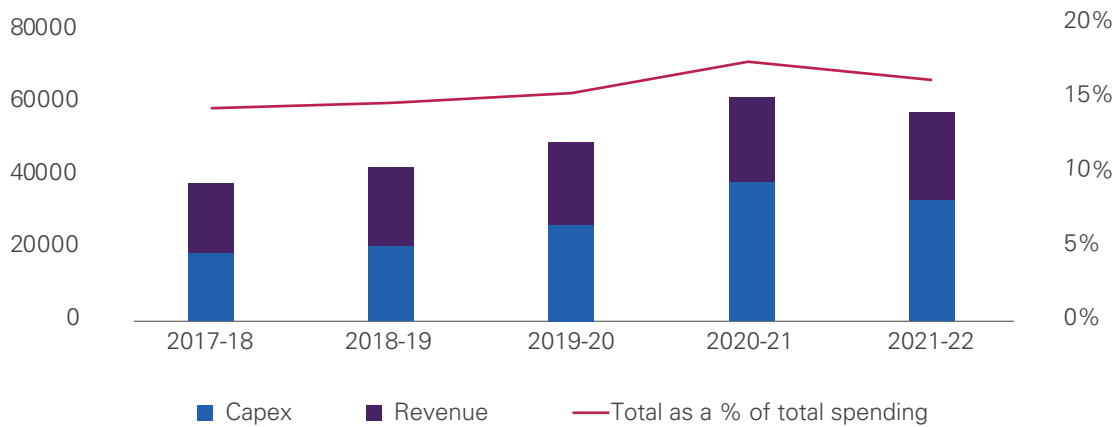


Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021

Indian Navy

The graphs depicted below provide some insights into the specific spending trends of the Indian Navy. The Navy accounts for about 15 -17 per cent of the overall military budget and compared to the Indian Army, the Indian Navy spends a much larger proportion of its annual budget on capital expenditure.

Navy expenditure (in INR Crores)

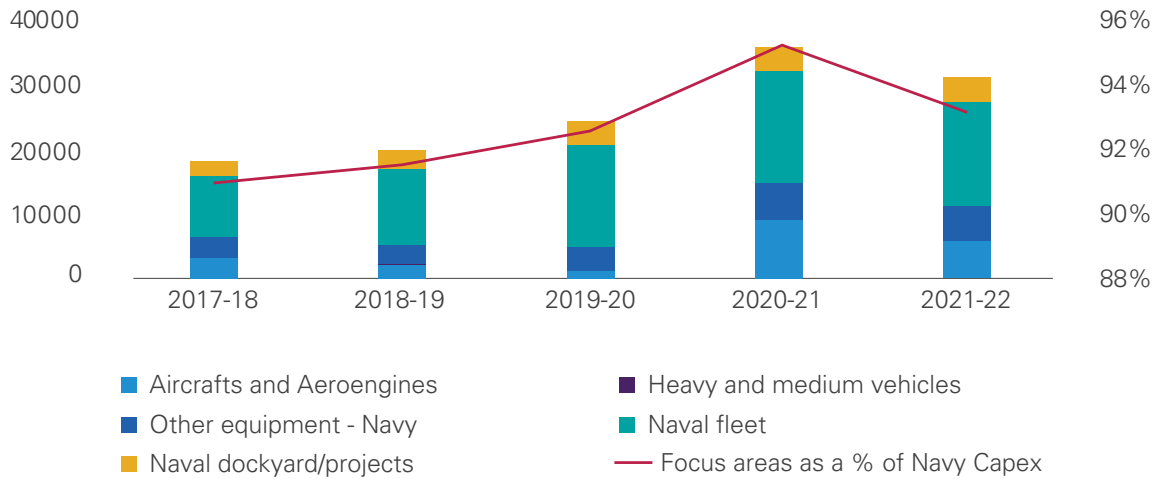


Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021



The fleet is the single largest category of focus expenditure as the Navy often spends well over 50 per cent of its capital budget on the acquisition of naval vessels. The breakup of the Navy's capital expenditure would show that the other areas of expenditure are primarily aircraft and aeroengines, heavy and medium vehicles, naval dockyards and projects.

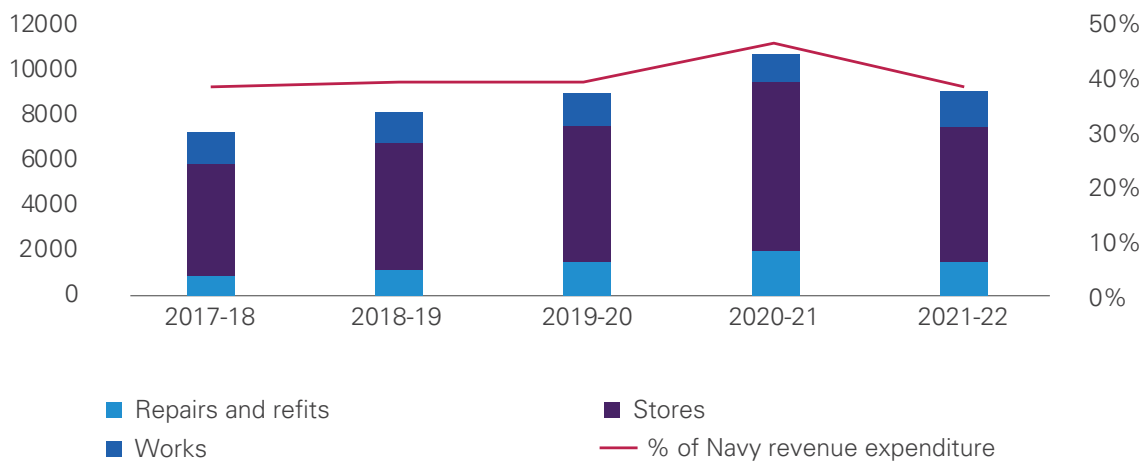
Capital expenditure focus areas (in INR Crores)



Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021

The focus areas for the Navy's revenue expenditure consist primarily of the repairs and refits, stores, and works. The Indian Navy spends about 36 – 45 per cent of their revenue budget on the focus areas.

Revenue expenditure focus areas (in INR Crores)



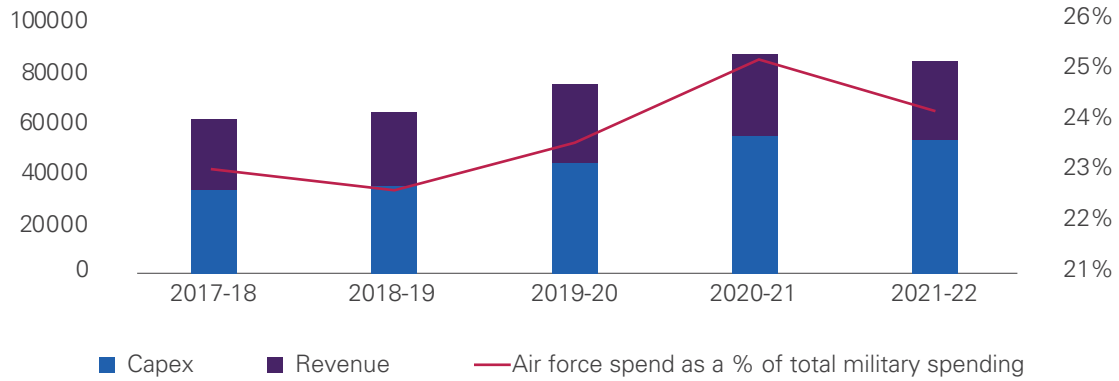
Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021



Air Force

Like the Navy, the Air Force too spends a larger proportion of its annual budget on capital expenditure than the Army. The Air Force accounts for about 23 -25 per cent of the overall military budget.

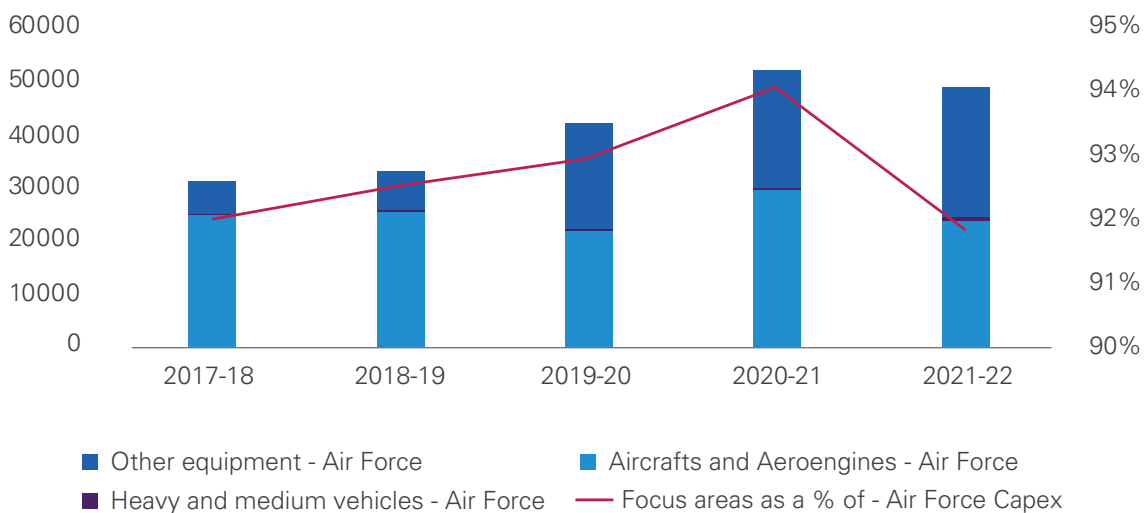
Air Force expenditure (in INR Crores)



Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021

Acquisition of aircraft and aeroengines forms a major chunk of the Air Force's capital expenditure. It accounts for anywhere between 50 – 80 per cent of the overall capital expenditure budget of the Indian Air Force.

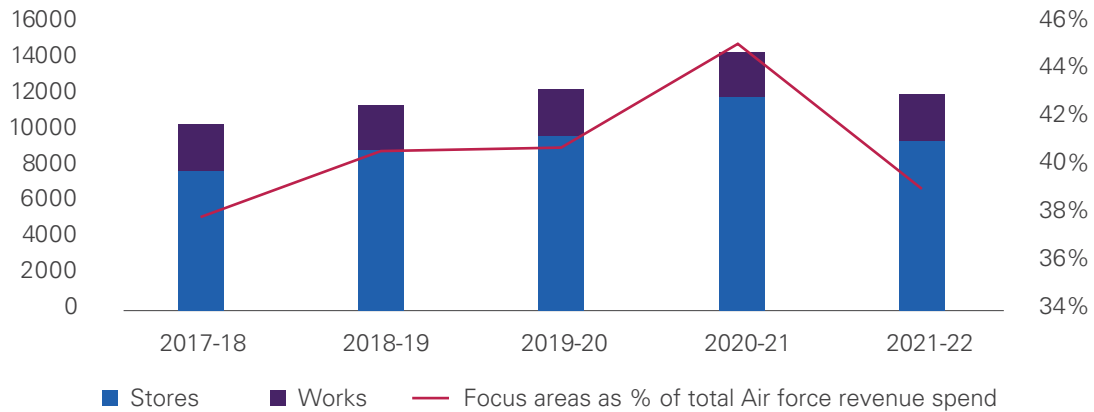
Capital expenditure - focus areas (in INR Crores)



Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021



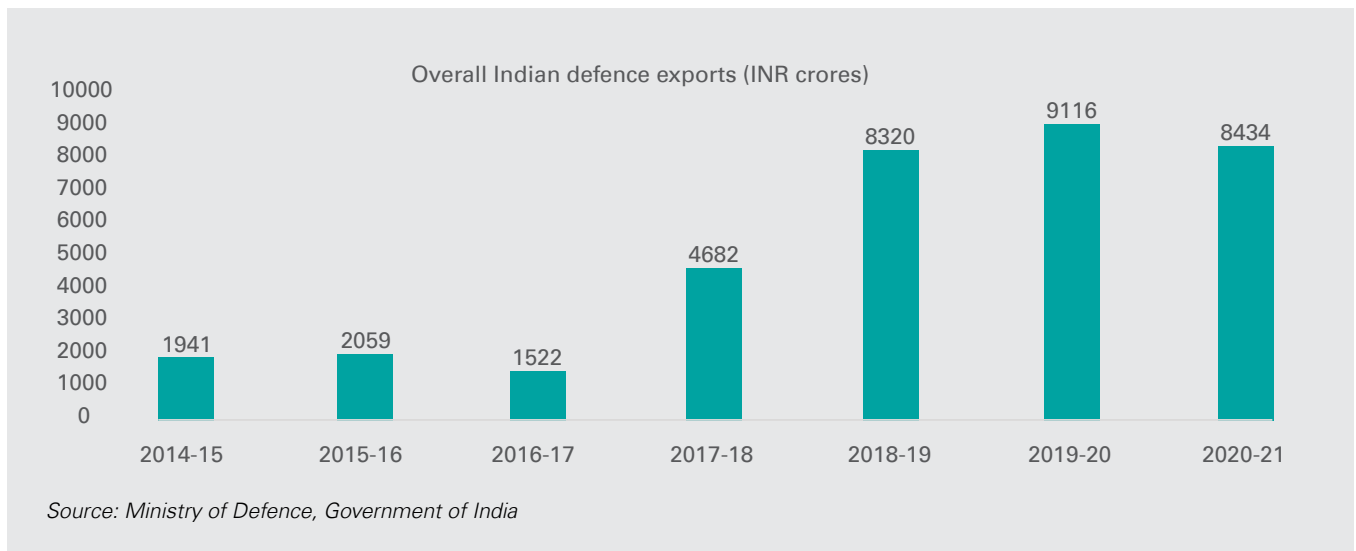
Revenue expenditure - focus areas (in INR Crores)



Source: Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021

1.2 Exports

India has been ranked 23rd⁷ in the list of major arms exporters for 2019⁸. The government has placed tremendous impetus on indigenous development and manufacturing in the defence sector which has led to an increase in defence exports amounting to INR 9,116 crore (USD 1.22 billion) in 2019-20⁹. This phenomenal growth with a CAGR of over 23 per cent over the past seven years while being commendable, has yielded a share of only 0.17 per cent of the global arms exports¹⁰.



The MoD has also recognised the potential for defence exports and has set a target to achieve exports of INR 35,000 crore (USD5 billion) till 2024 wherein the exports will have to grow at a CAGR of >40 per cent in order to meet the target.

7. TRENDS IN INTERNATIONAL ARMS TRANSFERS, 2020| SIPRI Fact Sheet | April 2021

8. Importer exporter TIV tables 2019, Stockholm Institute of Peace Research Institute (SIPRI)

9. Department of Defence Production, Ministry of Defence, Government of India

10. Importer exporter TIV tables 2019, Stockholm Institute of Peace Research Institute (SIPRI)



The following products are being positioned by the MoD to be the key drivers of export¹¹:

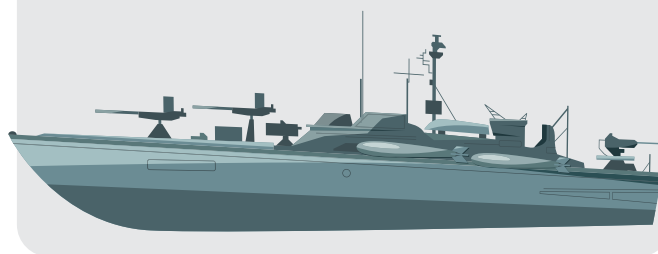
Land Systems

1. Akash – Air defence system
2. BrahMos – Cruise missile weapon system
3. Milan 2T – ATGM
4. Dhanush – Artillery gun
5. Advanced Towed Artillery Gun System (ATAGS)
6. K-9 Vajra – Self-propelled artillery gun
7. Bharat 52 – Towed gun
8. Garuda 105 – Light field gun
9. Upgraded L-70 gun
10. Zu 23 upgraded gun
11. Upgraded Schilka weapon system
12. Wheeled Armored Amphibious platform
13. Weapon Locating Radar
14. Battlefield Surveillance Radar
15. 3D low level light weight Radar
16. Military Vehicles
17. Mine Protected Vehicles



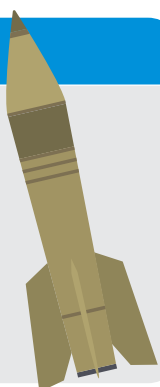
Naval Systems

1. Anti-submarine warfare corvette
2. Offshore Patrol Vessel
3. Advanced Offshore Patrol Vessel
4. Fast Patrol Vessel
5. High Speed Patrol Boat
6. Fast Interceptor Boats
7. Inshore Patrol Vessel
8. Landing Craft Utility
9. Torpedo Advanced Light
10. Torpedo Launchers



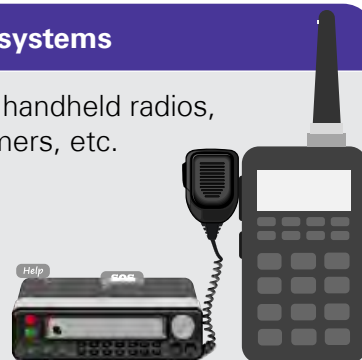
Air systems

1. LCA Tejas
2. Light Combat Helicopter
3. Advanced Light Helicopter
4. Cheetal
5. Dornier
6. Brake Parachute



Communication systems

Different types of handheld radios, transceivers, jammers, etc.



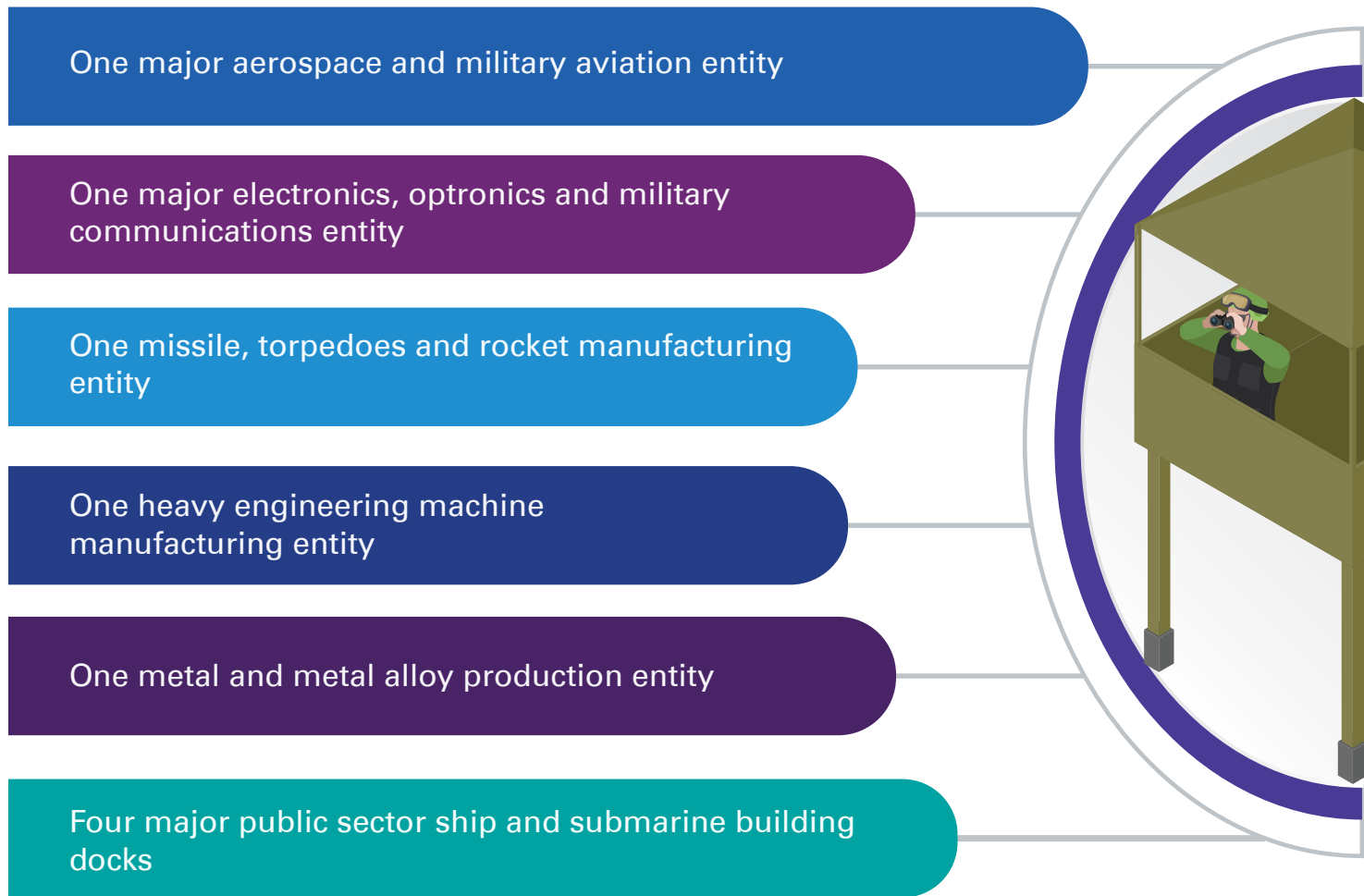
1.3 Defence Public Sector Undertakings (DPSUs)

The DPSUs of India are under the administrative control of the Department of Defence Production (DDP), Ministry of Defence. Many of these have been classified as Navratnas and Miniratnas and these companies produce several key products and platforms for the Armed Forces. These DPSUs are a major source of products and platforms for the Indian military and with the large number of tenders issued by them for sub-contracting, outsourcing and procurement related activities, they form a major point of contact for the private industry as well, particularly the MSMEs.

¹¹. Defence Exports Promotion website, Department of Defence Production, Ministry of Defence, Government of India

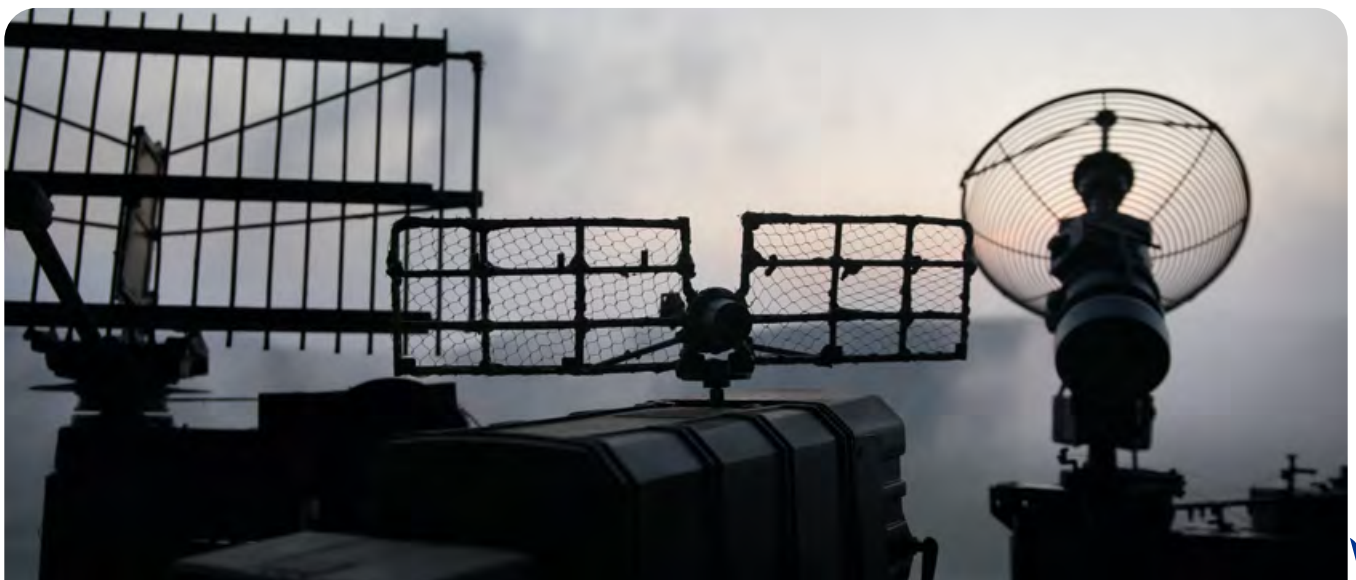


The distribution of the DPSUs is as follows:



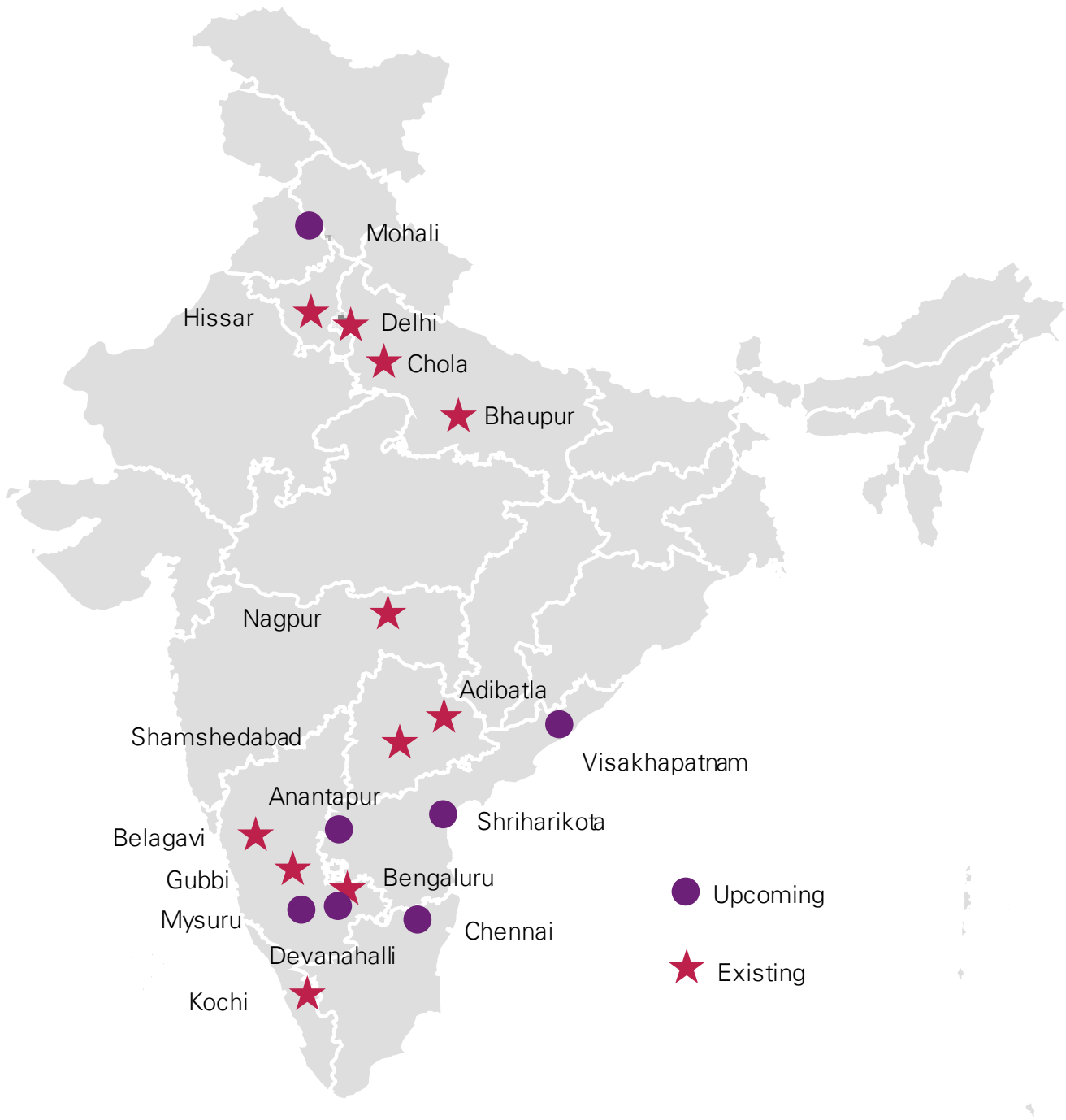
1.4 Ordnance Factories (OFs)

The 41 OFs form part of the Ordnance Factory Board (OFB) operating under the DDP and are responsible for the manufacture of a large portion of India's domestic defence production, ranging from small arms and ammunition to main battle tanks. These organisations are a valuable source of business opportunities for the Tier 1,2 and 3 manufacturers. Recently, the Government of India has initiated the process for corporatisation of the OFs, which would result in the formation of seven new DPSUs.



1.5 Aerospace (civilian and defence) parks

Aerospace parks are areas earmarked by the respective state governments which are hubs for activities related to manufacturing, research, and development in the aerospace sector. The state governments provide the industries with the necessary land and utilities and also earmark areas for the industry to set up its labs and production units. The close proximity of various stakeholders within the aerospace sector also assists in streamlining the logistics for sub-components and other sub systems. The existing and upcoming aerospace parks in the country are depicted below:



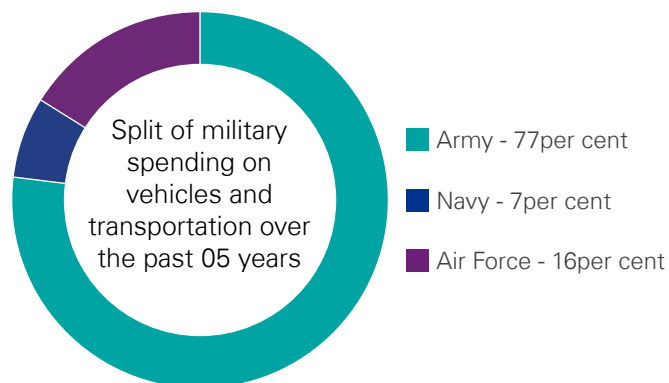
Source: Invest India website, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India



Automotive opportunities in the A&D Sector



Due to the geo-political location of India and the threats India faces, the Armed Forces have primarily been dominated by land-based force. This has necessitated India to spend a large quantum of its budget on armored vehicles, mechanised infantry vehicles, troop carriers, mobility solutions for artillery and other types of specialised vehicles.



Source : Annual Budget, Ministry of Finance, Government of India, KPMG in India's analysis 2021

Further, as evidenced from the graph above, the army consumes the major chunk of the mobility solutions defence budget at approximately 77 per cent due to its overall size, focus on land warfare and the goal of mechanising a major portion of its strike corps. The Air Force and Navy form the other major components of the budget with 16 per cent and 07 per cent respectively¹². Their requirements consist mainly of radar mobility platforms, missile mobility platforms, cranes, towing vehicles for aircraft and various other specialised vehicles.

While in the past it was primarily driven by imports, the present demand of this segment has majorly been fulfilled by OFs which have been the suppliers of Main Battle Tanks (MBT), Infantry Combat Vehicles (ICV) and troop carriers to the armed forces.

The private industry is also likely to play a larger role in this segment going forward, with the government releasing two major Requests for Information (RFI), one for 350 light tanks¹³ and the other for 2000 Future Ready Combat Vehicles (FRCV)¹⁴ both of which are large enough in value as well as volumes. Further, the Armed Forces have already started inducting 4x4 wheeled vehicles from private sector to replace the older fleet of Maruti Gypsies¹⁵. The Indian auto industry can leverage its existing expertise for the Indian Armed Force's defence mobility requirements. These recent developments can be explored both by the Indian OEMs and their tiered vendors as India looks at import substitution for its mobility solutions. The market for procurement of military vehicles in the country is approximately INR 3,700 crores (USD 498 million) and is expected to grow at a CAGR of 3 per cent annually.¹⁶ To maintain the life of military vehicles as per established standards, the vehicles usually undergo upgrades, refits and overhauls throughout their lifecycle, further adding to possible business opportunities, a good example of the same would be the procurement of 1000 new units of engines for the T-72 Ajeya MBT so as to ensure their combat effectiveness for an approximate cost of about INR 2300 Crores (USD 310 million).¹⁷

12. Annual Budget, Ministry of Finance, Government of India

13. Tender no : A/36026/FRCV/Lt Tk/RFI/GS, Directorate General of Mechanised Forces, General Staff Branch Integrated Headquarters of Ministry of Defence

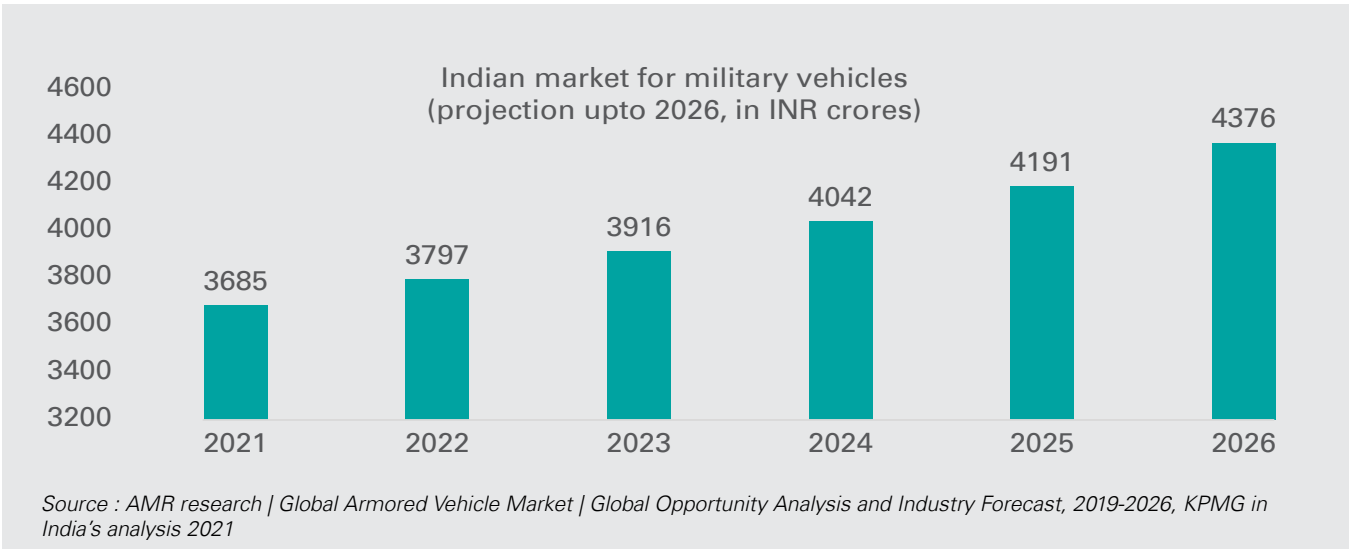
14. Tender no : A/36026/FRCV/RFI/GS, Directorate General of Mechanised Forces, General Staff Branch Integrated Headquarters of Ministry of Defence

15. Press Bureau of India, Government of India, 22nd March 2021

16. AMR research | Global Armored Vehicle Market | Global Opportunity Analysis and Industry Forecast, 2019-2026

17. Press Bureau of India, Government of India, Dated 25th Sep 2018





The domestic market is primarily driven by the modernisation efforts being undertaken by the Armed Forces to phase out their existing obsolete fleet and induct, new, state of the art fleet. Apart from the capital procurement, as discussed, the market is also driven by the aftermarket sales and support required for the safe operation of these vehicles.

Note: The data given above is primarily focused around the defence mobility sector. There are, however, opportunities in the fields of forging, casting and other forms of precision manufacturing techniques which are an expertise of the auto sector.

2.1 Capital procurement

Capital procurement under the Technology Perspective and Capability Roadmap (TCPR) 2018 lists the Armed Forces need for vehicles over the course of the next ten years. The plan for induction of vehicles as per the TCPR is provided below:

Vehicle type	Quantity	Service life (in years)
Explosive van	350	10
Armoured amphibious dozer	100	20
Helicoptorable module dozer	150	20
Light bulletproof vehicle	300+	15
General purpose tractor	2000	10
Cranes	200	15
Vehicle based mine scattering system	150	15



Source : Technology Perspective and Capability Roadmap (TCPR) 2018, Ministry of Defence, Government of India



Apart from TPCR, the Armed Forces, during the course of the last couple of years have made some major procurement announcements. These opportunities for defence mobility are as shown below:

Service	Category	Project	Quantity	Program size (estimated, INR Crores)
Army	Armoured Vehicles	Armoured Personnel Carrier (wheeled) (APC)	100	2,200
Army	Armoured Vehicles	Future Ready Combat Vehicle (FRCV)	2,000	80,000
Army	Armoured Vehicles	Future Infantry Combat Vehicle (FICV)	2,614	60,000
Army	Armoured Vehicles	Light Tank (Tracked)	350	6,000
Army	Artillery Platforms	Advanced Towed Artillery Gun Systems (ATAGS)	150	3,400

Source: KPMG in India's analysis 2021

These platforms, due to their large sizes, provide opportunities for several OEMs and Tier I, II, III suppliers to become part of the integrated value chain of the platform and to develop capabilities, technologies as well as experience in their respective fields. Apart from the above platforms, Heavy Motor Vehicles (HMTVs) and Light Motor Vehicles (LMVs) for other defence platforms (rocket launchers, missile launch platforms, mobile radars, self-propelled artillery guns etc.) are procured from local manufacturers as per government mandate.

2.2 Revenue procurement as per DPM

Apart from procurement of the above-mentioned capital assets, as the service life of the existing platforms comes to an end, the replacement units are procured through the processes defined in the Defence Procurement Manual (DPM) 2009. Most vehicles in the Armed Forces have a life ranging from 10 to 25 years, the military has vehicles consisting of various kinds of medium/heavy trucks, tractors, towing vehicles, cranes etc., all of which need to be replaced when they near the end of their useful service life. The DPM also governs the procurement of spares, components, accessories, etc. for these vehicles. These present lucrative opportunities for Tier I and Tier II

manufacturers/suppliers in the country, especially as the market size for after-market components is about eight to ten times the size of the market for new purchases.

2.3 Indigenisation

As per the mandate of the government, all the production units of the OFs, DPSUs and the Armed Forces have been mandated by the MoD to reduce their dependence on imports and to promote the adoption of locally sourced products and spares. To this effect, the Armed Forces have each formed a Directorate of Indigenisation (DOI). The OFB and all DPSUs have developed a long list of sub-components that will be procured domestically and have come up with policies that favour local manufacturers with special privileges being accorded to MSMEs.

Indigenisation is expected to become one of the largest opportunities for the Indian auto industry while the overall market for military vehicles in India is growing at a modest CAGR of 3 per cent. The share of Indigenous Content (IC) in the market is growing at an extremely healthy rate, and with the second negative import list making it exceedingly clear that the government intends to stop the import of certain key defence items, the opportunity is all the more pronounced.



The negative list contains some items which are of relevance to the auto industry and are tabulated below:

S. No.	Description	Indicative year of Import embargo
1	Military trucks of 4x4 and above variants: 12x12, 10x10, 8x8, 6x6	Dec 2020
2	Field Artillery Tractor (FAT) 6X6 for Medium Guns	Dec 2020
3	Wheeled Armoured Fighting Vehicle (AFV)	Dec 2021
4	Material Handling Crane 2.5 to 7.5 Tons (Vehicle Mounted)	Dec 2021
5	Wheeled Armoured Platform (WhAP) – CBRN	Dec 2021
6	Tank Track Assembly	Dec 2021
7	Tunguska Track Assembly	Dec 2021
8	Light, Medium and Heavy Combat Armoured and/ or Mine Protected Vehicles for Infantry	Dec 2021
9	Remote Control Weapon Stations (7.62MM, 12.7 MM, 30MM, AGL & AGS) for Tanks	Dec 2021
10	Multi-Functional Display System (MFDS) for Indigenously Produced Aircraft	Dec 2021
11	Armoured Engineer Recce Vehicle (AERV)	Dec 2021
12	Armoured Repair and Recovery Vehicle (ARRV)	Dec 2021
13	4x2 Armoured Command Post Vehicle	Dec 2021
14	Trawl Assembly for Tanks	Dec 2022
15	Armoured Dozor	Dec 2022
16	1000HP Engine for Tank (T-72)	Dec 2025
17	Auxiliary Power Unit for T-72/ 90 Tank	Dec 2025

Source: Press Information Bureau, Government of India, KPMG in India's analysis



Government policy and incentives



To achieve the vision of the government and to achieve complete import substitution, a large number of policy initiatives have been brought in by the Government of India (GoI). These policies are largely focused on building a tiered ecosystem in the country for components, systems and sub-systems that are currently being imported.

3.1 Defence Industrial Corridors (DICs)

The DICs are an initiative by the government to boost domestic manufacturing and production capabilities in the defence sector under the 'Make in India' initiative to boost defence industrial production. The corridors are aimed at serving as an incentive for global and domestic OEMs to set up their production units in India, with the government promising land, utilities and tax holidays along with a 'plug and play' model for setting up the facility¹⁸. 02 DICs have been set up in India, one in Uttar Pradesh and another in Tamil Nadu¹⁹ to support the growth of the defence sector and enhance manufacturing capacity in the sector with a combined investment of approximately INR 7,000 crores (USD 943 million)²⁰.

3.2 Innovation for Defence Excellence (iDEX)

iDEX is an initiative of the MoD to foster a healthy ecosystem for fostering innovation, research, and development in the A&D sector. The government will provide grants and funding to organisations, MSMEs, individual innovators and academia to develop products, technologies and materials that

will fulfil the future defence needs of the country. iDEX is being managed by the Defence Innovation Organisation (DIO) which has been formed as a 'not for profit' company by 02 DPSUs namely HAL & BEL.

3.3 Industrial license

In order to foster investments in the defence sector, the DPIIT, through Press Note 1 of 2019 has clarified that manufacturing of defence aircraft, warships and allied items of defence equipment, would now require an industrial license under the provisions of the Industries (Development & Regulation) Act, 1951 and under the Arms Act 1957. Further, component and parts manufacturing, such as certain types of composites have been removed from the purview of obtaining industrial license.

3.4 Offset policies

Offsets are investment obligations which are to be fulfilled by foreign OEMs for capital procurements valued over INR2,000 crore (USD 269 million). The DAP 2020 recommends a minimum offset obligation of 30 per cent of the contract value where the OEM is responsible for the fulfilment of offset obligations and is allowed to discharge it through avenues as listed in the DAP 2020. The OEM may allow its Tier-1 sub-vendors to discharge offset obligations, on behalf of the main/prime OEM.

18. Tamil Nadu defence corridor: a destination of choice for Korean investors, Industries department, Government of Tamil Nadu

19. Invest India website, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India

20. Press Information Bureau, Government of India, Dated 17 July 2019



As on the 1st of July 2021, the Military Offset Management Wing (MOMW) of the Department of Defence Production (DDP), Ministry of Defence, Government of India has tagged claims worth INR 21,444 Crores (USD 2.89 billion) as 'disposed', with claims worth another INR 4,358 Crores (USD 587.34 million) being tagged as 'clarification sought' and another INR 2,689 Crores (USD 362.49 million) being tagged as 'under examination'. This brings the overall total offset value to be around INR 28,491 Crores (USD 3.841 billion)²¹.

Further, the offset obligations being discharged by MSMEs in India, have a multiplier value of 1.5 times which has been done so as to boost the tie ups of OEMs, Tier I and Indian MSMEs.

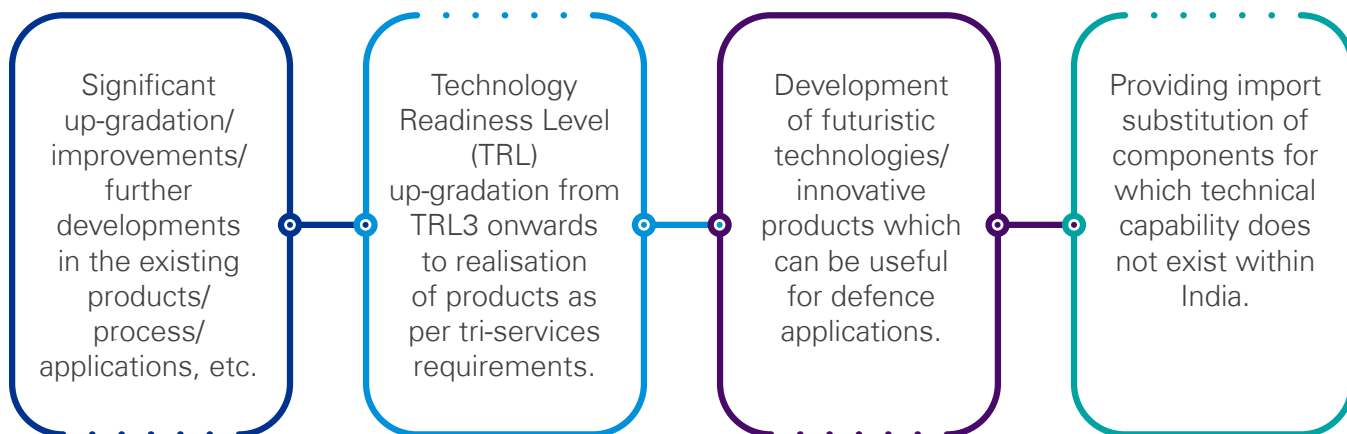
3.5 Srijan defence portal

The DDP has developed and implemented an online portal of srijandefence.gov.in, for the purpose of providing information on the import items of all the DPSUs, OFB as well as the Armed

Forces. The portal also provides details such as order size and future orders expected, along with the details of products planned for indigenisation. Domestic vendors who wish to be a part of the import substitution process may use the portal to express their interest in the specific components, write queries and interact with the concerned DPSU/OFB unit. This portal therefore brings much needed clarity that was being sought by the industry so as to better enable their participation.

3.6 Technology Development Fund (TDF)

TDF is a programme of MoD under the 'Make in India' initiative and is executed by DRDO with the aim to meet the requirements of the tri-services, defence production and DRDO. The scheme encourages participation of public/private industries especially MSMEs so as to create an eco-system for enhancing cutting edge technology capability for defence applications. The TDF programme covers the following technology development in terms of:



The scheme will be limited to development of technologies or prototypes of products having potential use for the services with a typical development period of two years. The scheme will cover funding through provision of grants to industry that may work in collaboration with academia or research institutions to carry out innovation and R&D and such chosen entities will be referred to as Development Agencies (DAs).

In cases where academia or research institutions are involved, their work involvement cannot exceed 40per cent of the total efforts required. The requirements will be projected on the website through a process defined in the Standard Operating Procedure (SOP) document. Only Indian vendors including Association of Persons (AoP) as detailed in the SOP are eligible for participation.

²¹. Military offset management wing website, Department of Defence Production, Ministry of Defence, Government of India



3.7 Defence Acquisition Policy 2020 (DAP 2020)

The DAP 2020 is the comprehensive policy guideline for all acquisition that are categorised under the capital heads of the defence services estimates. Acquisition under DAP 2020 is mainly for capital acquisition of weapons, platforms, and systems. The DAP 2020 lays down the priority of capital acquisition by the Armed Forces. This priority has been outlined below:-

Priority of procurement	Indigenisation Content (IC)	Offset requirements
Buy (Indian – IDDM)	Indigenous design IC \geq 50 %	No offset requirement
Buy (Indian)	IC \geq 50 % for IDDM products; IC \geq 60 % (others)	No offset requirement
Buy and Make (Indian)	IC \geq 50 % on cost basis of 'Make' portion of contract	No offset requirement
Buy (Global manufacture in India)	IC \geq 50 %	No offset requirement
Buy (Global)	IC \geq 30 % if Indian vendor (in case IC content is not fulfilled Indian vendor has to fulfill equivalent amount of offsets)	Offset of minimum 30 % if foreign vendors (No offset obligation for ab-initio single vendor cases, including procurements based on IGA/FMS, procurement under fast-track mode and option clause).

Source: Defence Acquisition procedure 2020 document, Ministry of Defence, Government of India

Buy {Indian-IDDM (Indigenously Designed, Developed and Manufactured)} is a new category of procurement that had been introduced in DPP-2016 to promote indigenous design and development of defence equipment. As per the document released by the MoD, this category has been accorded topmost priority for procurement of capital equipment.



3.8 Make I, Make II and Make III

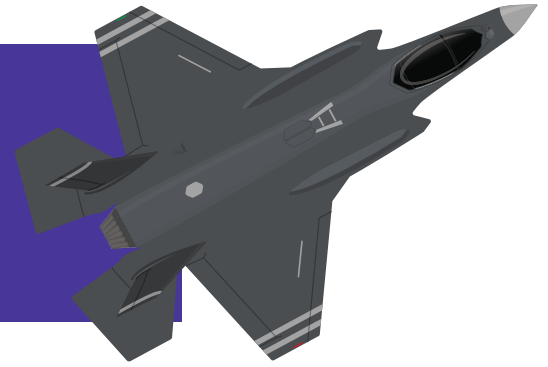
To enhance the R&D in the sector, the Gol has also come out with 'Make' categories of defence procurement. This category helps achieve a higher number of designed and developed systems and sub-systems. There are 03 categories of Make as defined below:

	Make I (Government funded)	Make II (Industry funded)	Make III (Indigenously manufactured)
Source of funding	70% Government funding, released in a phased manner, and based on the progress of the scheme, as per terms agreed between MoD and the vendor.	Industry funding, involving prototype development of equipment/ system/ platform or their upgrades, or their sub-systems/ sub-assembly/ assemblies/ components with a focus on import substitution.	Subsystems / sub-assembly / components, etc. not IDD but manufacture in India as import substitution for product support of equipment in inventory.
Amount of Indigenous Content (IC)	Buy (Indian - IDDM) route with minimum of 50% IC.	Buy (Indian - IDDM) route with minimum of 50% IC.	Buy (Indian) route with minimum of 60% IC
Progress	Programme such as Tactical Communication Systems (TCS) and Battlefield Management System (BMS) to be taken up under this category.	Industry can suggest projects, especially among those items which are currently being imported.	Buy (Indian) route with minimum of 60% IC

Source: Defence Acquisition procedure 2020 document, Ministry of Defence, Government of India



Key challenges



Although the A&D sector has a lot of opportunities, the sector comes with its own challenges. Some of the key challenges faced by the sector are listed in this section.

4.1 The nature of demand is non-uniform

While the quantity of procurement by the Armed Forces are large enough to warrant the establishment of production units and carry out manufacturing on a scale so as to be economically viable, the demand however is not cyclical and uniform in nature. The requirements of the Armed Forces are contingent upon multiple factors such as military budgets, national defence objectives, replenishment due to conflicts, military exercises/ training, etc. There is often a degree of unpredictability in these matters (except military exercises and training) and hence the demand may vary to a large extent year on year.

4.2 Lengthy product gestation periods

There is a significant gestation period in product development and certification due to the stringent process and procedures. This would mean an initial period of investment before orders may be realised for the product and hence the

manufacturer would need to have adequate resources to sustain their operations during this period, which might be a challenge for some of the smaller entities, MSMEs, etc.

4.3 Limited testing facilities

The products and platforms meant for the military need to be adequately tested before being deemed fit for operational use. In case of military vehicles and other mobile platforms, it may need to be tested across a variety of terrains and weather conditions etc. As of now such facilities are in limited number which lead to delays related to the testing and certification processes.

4.4 Lack of adequate funding

Military and defence product development is by its nature a resource intensive endeavour and often times a product may prove not to be viable post investment of significant time, labour and funding. Therefore, having access to adequate funding so as to be able to bear the costs and risks of research and new product development is critical for the industry. This concern, however, is something that the government has taken cognisance of, particularly as it strives to increase the participation of private industry and increase indigenisation of defence platforms.





Way forward



The Indian A&D market is a sunshine sector which has been listed as priority sector in the Government of India indigenisation effort. Further, with India looking to secure its strategic interests, play a larger role in global politics, and positioning itself as an exporter in the defence market, the sector is poised for exponential growth. Over the next two sub sections, we would share some key points to be aware of when deciding to enter the aerospace and defence markets.

5.1 Eligibility checklist for entering the A&D markets

Entering a new market can often be a daunting prospect, with a large number of unfamiliar variables, this can often lead the leadership of a company to face challenges in decision making. The auto component manufacturers, most of whom are MSMEs, seeking to enter the A&D market may study the checklist as shared below and assess their eligibility wherever applicable.



Eligibility checklist for MSMEs

MSME registration	The first step is for the company to register itself as an MSME as per the MSMEs Act, 2006. Based on the revised classification criteria that include composition of investment and annual turnover to classify both manufacturing and service sector, business are be categorised as ²² :		
	Category	Investment	Turnover
	Micro	< INR 01 cr.	< INR 05 cr.
	Small	< INR 10 cr.	< INR 50 cr.
	Medium	< INR 50 cr.	< INR 250 cr.
	The companies can get registered on Udyog Aadhar website or offline.		
Indian vendor	For a company to be considered as an Indian vendor under the DPP 2016, the company should be incorporated under the Companies Act or have an ownership model of partnership firm, proprietorship and other types of ownership models including Societies, following the requirements put forth by the Department for Promotion of Industry and Internal Trade (DPIIT) .		
Certifications	<p>Certifications According to the updated DPP 2016, expected documentation from OEMs include:</p> <ul style="list-style-type: none"> • ISO 9001 certification of OEM, vendors & subcontractors/ISO 14000 certification. • ISO 9001:2015 and OHSAS 18001:2007 or later certifications for ship building projects. • ISO 9001 for OEM, collaborators and subcontractors or the ISO 14001 certification is required for transfer of technology. • ISO 9001 for OEM, collaborators and subcontractors or the ISO 14001 certification is required for transfer of technology. 		
AS9100 certification	For companies planning on entering into the aerospace manufacturing, the AS9001 certification for quality management is mandatory.		
NSIC registration	MSMEs may also choose to register with the National Small Industries Corporation (NSIC). NSIC registration exempts MSMEs from paying Earnest Money Deposits (EMDs) and makes them eligible for free issuance of tender sets. It also provides the MSMEs with a price band for quoting price bids to supply up to 25% of the procurement for government tenders.		
Security requirements	In June 2014, the MoD released a Security Manual for Licensed Defence Industries to define the minimum security and safety requirements for all private companies involved in defence manufacturing in India. The manual categorises the defence equipment being manufactured into 03 categories. Each enterprise is required to comply with the requirements, based on the category of defence equipment they manufacture.		
Industrial licenses	The Department of Industrial Policy and Promotion (DIPP) released Press Note No. 1, 2019 which highlights the list of defence items for which industrial license under Industries (Development and Regulation) Act, 1951. It also includes the list of arms and ammunition, as updated by the Ministry of Home Affairs (MHA), requiring license for manufacturing and/or proof testing under the Arms Act, 1959.		

Source : KPMG in India's Analysis

Note: Kindly note that this checklist is indicative only and in no way an exhaustive list, specific products/platforms and technologies would have their own eligibility and qualification criteria, which would need to be duly followed.

²². Press Information Bureau, Dated 01 June 2020, Ministry of Micro, Small and Medium Enterprises website



5.2 Market entry framework

Apart from the information in the earlier sections, the below framework has been developed to assist players from the auto industry to enter the aerospace and defence market. This is a broadly generic framework which is aimed towards the auto industry and is not specific to any particular platform or product.

Market entry framework	
<p>Step 1 Opportunity identification Timeline: 0 to 3 months</p>	<ul style="list-style-type: none"> • Understand your company's' key strength and core competencies. • Have preliminary interaction with Tier-I OEMs and Subject Matter Experts (SMEs) to get insights into the specific market. • Develop robust vision and objective to carry the company forward. • Identify key product segments to focus on and target for market entry. • Identify critical gaps and ways to address them. • Identify key focal person(s) to lead specific sectorial initiatives. • Create dedicated business verticals with goals and KPIs. • Devise entry strategy and investment plan for market entry.
<p>Step 2 Capability development- foundational infrastructure and team Timeline: 03 to 12 months</p>	<ul style="list-style-type: none"> • Identify key military products and target their global supply chain. • Participate in defence sector events and forums to build contacts and develop networks to help develop market awareness. • Build a focused team that is dedicated to the A&D practice. • Identify anchor customers (armed forces, defence OEMs) and build rapport with them. • Train core team on key expectations of aerospace and defence players. • Create dedicated line/facility for aerospace and defence depending on the product line. • Devise a production strategy to manufacture in house and outsource. • Initiate process to purchase right machines after due analysis. • Establish process, controls, and documentation as per defence industry and government/ military standards. • Meet with the sourcing teams of global/ Indian defence OEMs to synchronise with their India plans.



<p>Step 3 Initiation of business activities – initial orders Timeline: 12 months to 02 years</p>	<ul style="list-style-type: none"> • Complete registration formalities for each target customer and DPSUs/ OEMs as may be applicable. • Prepare facility for formal assessment by customers/ certifying authorities (DGQA/CELIMAC etc.). • Choose the right components to pilot the market entry endeavour. • The component should align the company’s capabilities and involve simpler processes. • Set up special process & material sourcing tie ups with various vendors. • Conduct pilot trials and reviews by the customer till achieving first right part. • Review regulatory requirements as mentioned in the checklist and prepare facility for certifications. • Secure initial order or assurance from customer for the products. • Clear First Article Inspection (FAI).
<p>Step 4 Capacity enhancement, certifications, and expansion Timeline: 02 to 04 years</p>	<ul style="list-style-type: none"> • Get the required certifications and other customer approvals. • Scale up facility and processes to meet the required volume and quality. • Win confidence of the first customer. • It is of utmost importance to maintain quality and timeliness of deliveries, as failure to do the same may result in loss of business from OEMs. • Discuss on other opportunities (components) with customer. • Develop a healthy portfolio of components so as to increase business volumes. • Expand customer base of OEMs (if entering as a sub-contractor/ vendor). • Gradually add new components and customers without compromising quality and reputation. • Plan for additional approvals, audits, quality requirements.
<p>Step 5 Value chain progression Timeline: 04 to 06 years</p>	<ul style="list-style-type: none"> • Develop clear vision and strategy to move up from component to sub assembly manufacturer (Tier 2 level). • Build capability by working with customers to identify right assemblies. • Look for global players (JVs, acquisition) to propel the transformation. • Target Indian and other global players who have defence manufacturing bases in India as they would be valuable partners in growing the business. • Develop capability and approvals to supply sub-assemblies to key global aircraft programmes.

Note: The timelines are indicative and may differ on a case to case basis. The procurement for several of the DPSUs and the Armed Forces may follow a tendering process with its own set of rules and requirements, the same may be considered as the guiding documents for such engagements.



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