

The holy grail of indigenisation

Achieving self-reliance in defence equipment



Message

It is a pleasure to learn that the Associated Chambers of Commerce and Industry of India is organising the 6th International Conference on Aerospace and Defence. The theme of the Conference, *'Improving of Indigenisation towards self-reliance'* is timely and relevant.

Aerospace and Defence are two of the core sectors that are crucial to strengthening the defence of any nation. Fast paced technological changes are taking place in these fields. However, the endeavour of both the public and the private sectors must be to modernise the defence systems through maximum possible indigenisation.

Various agencies are making efforts at indigenous development of latest equipment and weapon systems. All these agencies must interact on a regular basis with end-users for timely induction of such weapon systems and equipment.

I am sure that the Conference will discuss ways and means to accelerate the pace of indigenisation in the defence and aerospace sectors.

I wish all the delegates at the Conference a warm and a pleasant stay at our country.

Here is wishing the deliberations at the Conference all success.



A.K Anthony
Hon'ble Minister of Defence
Government of India

Message

On behalf of ASSOCHAM, I am pleased to announce the sixth international conference on Aerospace & Defence for increasing indigenisation towards self-reliance to be held on 26th June, 2013 at Hotel Shangrila, New Delhi.

ASSOCHAM's National Council of Defence has been proactively working in close coordination with the Ministry of Defence, Government of India and is committed to making the Indian Defence Sector more robust. ASSOCHAM appreciates the efforts being made by Ministry of Defence and specifically by its Acquisition Wing towards rendering the defence procurement procedures more conducive to indigenisation. The new DPP 2013 has helped in promoting participation of the Indian Private Sector and adoption/ development of technology, to enable the Private Sector in contributing to Indian Defence programs in a meaningful way.

While the Ministry of Defence initiatives definitely boosts optimism, there are still certain elements which need the attention of Ministry of Defence. This seminar is intended to highlight these elements.

For a meaningful two-way discussion the Ministry of Defence has very graciously accepted to chair the various sessions of this seminar.

We are also pleased to release the report on *'The holy grail of indigenisation: Achieving self-reliance in defence equipment'*. We would like to thank PricewaterhouseCoopers, our Knowledge Partner for this conference, for this excellent report that highlights the key issues and challenges in increasing indigenisation to achieve self-reliance in manufacturing defence equipment.



PC Bhasin, Vice Admiral (Retd.), PVSM, AVSM, VSM
Chairman,
ASSOCHAM Defence Council

Message

The recent announcement made by the Ministry of Defence, Government of India on Defence Procurement Procedure 2013 on Capital Procurement highlights the need for self reliance towards indigenisation of the Indian Defence Industry.

Ministry of Defence has promulgated the Defence Procurement Procedure 2013 which aims to balance the competing requirements of expediting capital procurement, developing a robust indigenous Defence sector and conforming to the highest standards of transparency, probity and public accountability. While laying a strong emphasis on promoting indigenisation and creating a level playing field for the Indian Industry

Any Defence program success or failure is because of supply chain execution and it is precisely here that the Indian Small and Medium companies will play a critical role in the entire supply chain for the Aerospace and Defence sector.

ASSOCHAM has taken the thought leadership position by inviting the industry leaders and the decision makers on various forums for creating a better understanding about this Sector. We are very confident that the ASSOCHAM's National Council on Defence is organizing the 6th ASSOCHAM International Conference on Aerospace & Defence with the theme "Improving of Indigenisation towards Self-Reliance" for creating a better understanding in further strengthening the domestic supply chain and local manufacturing in the A&D sector in India.

We believe that there is a significant business opportunity for the India Defence companies particularly the Small and Medium Enterprises who are known to develop niche technologies for the Defence and Home Land security. We at ASSOCHAM believe that for developing niche technologies within the country Government needs to review the current FDI norms in the Defence Sector.

We thank the Ministry of Defence and also Micro, Small and Medium Enterprises, Ministry, for officially supporting the 6th ASSOCHAM International Conference on Aerospace & Defence and also guiding us. We would also like to thank our knowledge partner PricewaterhouseCoopers for mapping the critical issues and suggesting the remedial measures in achieving indigenisation

The Recommendations from this Conference will be forwarded to the concerned Ministries which may set the roadmap for further developing the Defence Industry within the country.

With best wishes,



D S Rawat
Secretary General
ASSOCHAM

Message

India undoubtedly has potential to become one of the key players on the international stage in the competitive Aerospace Industry, domain of highly developed countries for decades. Fundamental global economic and political decisions hinge on how far India has progressed and how quickly our highly complex country can become a global powerhouse.

There is a very clear linkage between a country's economic growth and its aviation industry. There are encouraging signs of the aerospace industry emerging as a major contributor to our self reliance and export business. At the same time, there are signs of domestic industry enhancing its capabilities through joint ventures and technology tie-ups.

India continues to be one of the top Defence spending countries in the world, with substantial numbers of signed capital acquisition contracts in the recent past and many more in the pipeline. With the increasing liberalization of Defence Procurement Procedure as well as the recently announced focus on Make India programs, there would be substantial impetus to domestic Industry for growing at fast pace.

Fundamental strength in the Indian Industry already exists, in form of a large number of SME's and MSME's, who are transforming themselves into major players in this sector. If they and large business houses can collaborate to form a robust Indian Aerospace & Defence eco system, India would surely create a mark on international stage, sooner than later. It is time for Government and Private enterprises to come together and become a key part of Global Aerospace Supply Chain.

Industry bodies play a crucial role in creating and sustaining an atmosphere crucial for industry growth. ASSOCHAM has been doing an admirable work by actively contributing in this area.

Wishing team ASSOCHAM a success.



Kamesh Gupta
Co-Chairman
ASSOCHAM Defence Council

Message

We are pleased to present the discussion paper on *'The holy grail of indigenisation: Achieving self-reliance in defence equipment'* at the 6th ASSOCHAM conference on Aerospace and Defence. Characterised by a high growth potential, India's aerospace and defence industry is important to the country's strategic and economic interests.

The A&D value-chain is long and complex and our manufacturing capabilities can at best be described as patchy with small pockets of excellence at many levels, but without comprehensive coverage. The defence procurement procedures (DPP) have undergone several revisions in the past to promote indigenisation. However, none have been as direct and comprehensive as those announced in its latest version. The most important of these is laying down a hierarchy of acquisition programmes with those that will make domestic private companies the primes by giving them highest priority while categorizing defence procurements. Though the revised DPP is encouraging and seeks to invite larger participation by domestic players, the government is still a long way from achieving its stated objective of broad basing domestic capabilities by including the private sector in defence production.

There is a need to streamline policy contradictions for creating synergies and an eco-system that stimulates investments in building domestic capabilities across the entire supply-chain. We trust this paper will provide valuable insight to existing and prospective investors on the opportunities and challenges confronting indigenisation. We also thank ASSOCHAM for giving us this opportunity to present the perspectives and opportunities for the sector in India.



Dhiraj Mathur

Leader, Aerospace and Defence Practice
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Introduction

Across the world, the aerospace and defence (A&D) sector has always been associated with cutting-edge research and development that has spawned some of the most game-changing inventions to have impacted our lives. An excellent example is the internet. These innovations are generally a state mandate, employing a battery of scientists and engineers.

As India continues with a massive acquisition programme (that started over 10 years ago) to provide its armed forces with the latest and best equipment, it is pertinent to ponder over reducing its extreme dependence on imports by building indigenous capabilities across the entire value-chain – from research, design and development to manufacturing, integration, maintenance and repair. The government being the sole regulator needs to design solutions for what is a tightly regulated monopsony market. The regulator and its companies account for almost all of the limited indigenous production.

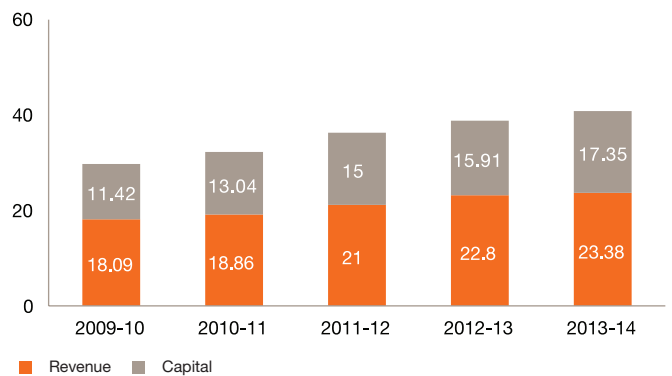
Laudable as the government initiatives are, it must be borne in mind that domestic capability cannot be built merely by addressing RFPs to Indian companies. There are multiple areas that need attention—funding, R&D, taxation, protection of intellectual property, foreign investment and collaboration, the import and export regimes. There is need for a comprehensive review of all of these to create synergies rather than contradictions and an ecosystem that stimulates investments in building domestic capabilities across the entire supply-chain.

Keeping in view the above background, this paper assesses the current status of the Indian defence industrial base, requirement of next-generation technologies and analyses the role the new DPP can play in accelerating the pace of indigenisation. This paper also attempts to identify various operational and regulatory challenges impacting indigenisation.



The Indian A&D market presents an attractive and significant opportunity for Indian and foreign companies. India allocates about 2.1% of its GDP towards defence spending, of which 40% is allocated to capital acquisitions. India ranks among the top 10 countries in the world in terms of military expenditure yet imports 70% of defence equipments.

Indian defence budget (Figures in billion USD)



Sector overview

Indian A&D manufacturing is dominated by DPSUs and ordnance factories which contribute about 90% of the total manufacturing output.

Type	Units	Revenue 2011-12 (INR crore)
DPSU	9	28,667
Ordnance	41	12,390

DPSUs contribute about 63% in the defence manufacturing output of the country. Their output has grown at a CAGR of 14% from 2002 to 2012. While they have enjoyed significant protection from the government, it must also be acknowledged that their growth has been constrained by this ownership. Moreover, they have grown during the long period that this country faced denial regimes. DPSUs have been unable to expand with the orders placed and each has order books that extend well beyond 15 to 20 years. Co-opting the private sector will, over time, reduce the production and delivery period.

DPSUs have played a critical role in building a domestic industrial base in this sector as they typically outsource 20 to 25% of their production requirements to private companies. The leading DPSUs include Hindustan Aeronautical Ltd, Bharat Electronics Ltd, Mazagon Dock Ltd, and Bharat Earth Movers Ltd.

The 41 ordnance factories are spread over 26 different locations and employ close to 1,25,000 people. These factories manufacture a wide spectrum of products from weapons (small calibre, mortar equipment, medium calibre and large calibre), ammunition (small medium and large calibre, mortar bombs, grenades, signalling smoke, rocket bombs, demolition, explosives, propellants and chemicals), vehicles (armoured and transport), clothing, general stores and equipment for the defence services.

Landscape: Defence industrial base



Efforts to indigenise

Defence sector manufacturing was opened to private and foreign participation in 2001. Since then, there has been increased focus on indigenisation. The private sector, which contributes approximately 10% of the total manufacturing output, has seen a significant change in its role. From a supplier of raw material, components and sub-systems, Indian companies are now progressing to become partners in manufacturing and integrating complete equipment and systems. Till date, as per the data available, close to 180 licences have been granted which is reflective of the current manufacturing capability of the Indian enterprises. Some of the established Indian companies engaged in defence manufacturing or rendering engineering, design and testing services include Larsen & Toubro, Mahindra Defence Systems, Tata Advanced Systems Ltd and Tata Motor Defence Systems in addition to over 6000 MSMEs such as Alpha Design Technologies, TAAL, Axis Aerospace and Centum Electronics.

The government has initiated the process of transforming the A&D sector by taking policy decisions to develop an indigenous manufacturing base, consequently reducing the dependence on imports. Progressive revisions in the DPP clearly highlight the gradual shift in focus towards indigenisation as the government attempts to utilise the Indian industry's cost advantages, availability of talent, manufacturing capabilities and IT competitiveness.

DPP 2013 clearly focuses on creating a conducive environment for achieving indigenisation by stipulating preferred categorisation for buy (Indian), buy and make (Indian), make categories and allowing the private industry to participate in maintenance transfer of technology (ToT) thereby providing a level playing field to it with foreign OEMs and DPSUs. This mandate will compel Indian companies and foreign OEMs to revisit their India strategies and will most surely stimulate increased strategic and technology partnerships between them. The government has also been successful in bringing much-needed clarity in the licensing process by releasing the defence product list and by clarifying that dual use products do not need licensing. However, the procedure for arriving at the value of indigenous content seems to be complex and requires deliberation as there will be many practical challenges in compliance.

A point of concern is a recent office memorandum issued by the Department of Defence Production to keep in abeyance certain 'service' related paragraphs in offset guidelines which raises significant concern on the fate of the eligibility of services as an offset avenue. India is a pioneer in rendering engineering, design, testing and software development services and hopefully the government will seek representations from all stakeholders before taking a final decision on the eligibility of services as a positive offset avenue.

Areas of development

Project management capabilities

The defence manufacturing set-up has traditionally faced constraints due to inadequate technology and in delivering projects within the budgeted cost and time e.g. the delay in the 'Light Combat Aircraft Tejas' programme which took close to three decades for completion resulted in a 10-fold increase in project cost.

An analysis of the employee productivity reveals that the defence sector has a long way to go to meet benchmarks from the domestic and global private sector. The Annual Survey of Industries, conducted by the Ministry of Finance revealed that the defence industry output of 1,539 (INR thousand per employee per year) was considerably lower than the average of 3,000 (INR thousand per employee per year) across various industries.

The DPSUs and ordnance factories have often faced challenges towards scaling up production capability and to match global standards of quality and delivery. However, sectors with dominant private participation have over time been more agile in building capacity and adapting new technology and delivering to international standards of quality. For example, in the automobile industry, global companies like Toyota, Suzuki, General Motors, Ford and Honda and in telecommunication, majors like Nokia and LG have all set up production bases in India. Due to the limited share of private and foreign participation in the defence sector, the industrial growth trajectory has been sluggish in increasing capacity and absorbing technology.

Technology

India's historical dependence on imports may possibly be one reason for the limited focus on developing intellectual property. Presently, access to technology and in-house capability development has been a bottleneck for manufacturing. ToT carried out by global OEMs is limited in access for domestic players as the DPSUs have invariably been selected for production purposes. The 26% cap on FDI also disincentivises investment and ToT.

Talent development and retention

India has a large pool of qualified scientists and engineers leveraged by a growing number of foreign OEMs who have set up engineering and design centres. Anecdotal evidence suggests that the growing presence of these OEMs has put pressure on the DPSUs in attracting and retaining talent.

Industry SWOT analysis

Strengths

- Large domestic market
- Existing manufacturing infrastructure of DPSUs contributing approximately 63% of manufacturing output
- Strong R&D set-up for the Defence Research and Development Organisation (DRDO)
- Large pool of talented scientists, engineers and skilled manpower

Weaknesses

- High dependence on import of capital equipment
- Low absorption and ToT by DPSUs and ordnance factories
- Limited indigenous machine tool building capability
- Talent attraction and retention
- Restrictive and contradictory policy regime

Opportunities for growth

- Shrinking defence budgets in the US and Europe
- The offset policy can stimulate creation of a domestic value-chain
- Allowing private participation in MToT will create domestic industry in MRO

Threats

- Lack of a level playing field due to unfavourable policies for domestic private players has thwarted their development.
- Competition from emerging economies for OEM investments and ToT
- Adversaries also investing in acquisition and development of a defence industrial base while turning self-sufficient in production and technology

Research and development

With a vast network of institutions and more than 50 labs across the country, the DRDO is the pioneer R&D agency in the Indian defence sector and has to its credit a number of spectacular successes, particularly in its missile development and aeronautical system programme. Other government agencies like the CSIR, the Department of Space (DoS), the MOES and the DST are also involved in R&D while outsourcing to domestic MSMEs.

The private sector has had a limited share in the R&D space of the defence sector. However, there have been a few success stories like Tata Power's Strategic Electronics Division that has partnered with the MoD, the armed forces and the DRDO since 1974 in the development and supply of state-of-the-art defence systems.

Challenges facing R&D

- The Indian defence budget allocates approximately 6% towards R&D spend as compared to 15% by France and 12% by the US.
- High upfront R&D and establishment costs with long gestation periods for realising R&D benefits and the absence of government sponsored programmes have deterred private involvement and investments in R&D.
- India is faced with limited expertise in designing critical equipment in advanced technology due to lack of ToT from global OEMs.
- India lacks adequate infrastructure and trained human capital to support R&D initiatives.
- End users of technology and equipment along with manufacturers are currently not fully involved in the decision-making process with key R&D agencies like the DRDO.
- Existing agencies have not been very successful in sharing R&D capabilities with private players.
- There is hardly any competition within R&D agencies and private players for developing weapon systems and technologies.



Next-generation technologies



The A&D sector has spawned cutting-edge technology. Constant improvements are taking place in military equipment and better technologies are being developed around the globe. India has long been considered a potential hub for R&D because of its vast talent pool of engineers and scientists. Despite this, the country is lagging behind in terms of technology development and increasing imports show that it is not utilising its purchasing power to leapfrog into niche areas.

A key requirement for private participation is visibility of the technology requirements of the armed forces. The technological capabilities which India needs were first spelt out in the Technology Perspective and Capability Roadmap 2010 (TPCR) and subsequently in TPCR 2013, which are released as an unclassified version of the LTIPP. These are one of the first efforts to provide the domestic industry with an overview of what the armed services hope to acquire by the middle of the next 15 years. The document's stated intent has been to drive the technology and development process of prospective developers, contractors and bidders in India and abroad, and to 'provide industry an overview' of the MoD's objectives and enable the defence industry to plan their R&D roadmap.

The TPCRs thus identify strategies for attaining national defence objectives such as strategic deterrence, full-spectrum capability, sea control, aerospace capabilities, special operations, logistics, defence cooperation, media, personnel, leadership and use of technology. The capabilities envisaged for the army include optimising force application capability, individual protective equipment for troops, enhancing detection and decontamination equipment in quality and quantity, developing integrated field shelters, addressing logistic voids and enhancing logistic capability, enhancing mobilisation capability, C4I2SAR capability, night-fighting capability, developing IW capability, improving anti-armour, SAM, ASM and SSM capabilities, introducing and developing the 'land warrior' concept, aviation quick reaction capability, indigenisation of bridging technology, improving communication to effect manpower savings and derive maximum benefit from the telecom network, improving and developing wide area network and satellite communication network, enhancing battle space awareness and force protection capability. Similarly, it elucidates the requirements of the navy and the air force.

With increasing technological sophistication in defence, skill requirements of the industry are specific and require considerable time, money and human resources to develop. Thus, TPCRs are a welcome step. However, the extent to which the industry can utilise these TPCRs with the details available remains a big question as it does not provide relevant information on the basis of which industry can chalk out its business plans. The industry needs adequate information to create a technology roadmap by identifying the product that will be the focus, the technology drivers, the alternatives and the timelines. Thus, the concept of indigenisation can be facilitated if the contents of the TPCR have adequate details and are in consonance with a well-planned defence manufacturing policy based on 'product strategy'.

It is added that measures are also required to promote R&D and greater coordination between research institutes like the DRDO, universities and private industry players. The educational institutions are a rich source of human capital, which can be effectively leveraged to help the sector jumpstart its development. In the current environment of blanket secrecy, it is difficult to develop meaningful partnerships with academia or private institutions. There are a large number of niche areas where the nation's existing talent and low-cost base can be leveraged to attain a competitive position in developing next-generation technologies.

Stealth

With the advent of and improvements in sonar, infra-red and radar technologies, it has become increasingly difficult to remain undetected by the enemy. Countries around the world are trying to develop ways to reduce the visibility of their troops and machinery for tactical and operational advantages. Stealth technology was developed as a direct consequence. It aims to reduce the visibility of troops, vehicles or aircraft using a variety of techniques. Some of these involve design, shape, camouflage, radar absorbing materials and ways to reduce the infrared trail. Stealth aircraft are probably the best example of the advancements in stealth technology. They are adapted in certain ground vehicles and are also an important part of designing a submarine. In India, the advanced medium combat aircraft (AMCA) and fifth generation fighter aircraft (FGFA) will possess stealth technology.

Robotics

The importance of robots for the armed forces is immense. Unmanned aerial vehicles (UAVs) and unmanned ground vehicles (UGVs) are examples of robots increasingly being used by countries both for reconnaissance and attack. Robots are used in a variety of applications where the job is either too tedious or dangerous for people. The DRDO is developing an unmanned combat air vehicle (UCAV) called 'Rustom' for the Indian military. It has the potential to be used for reconnaissance in the Naxalite infested areas which will give troops a clear idea of the dangers.

Air independent propulsion (AIP)

The AIP technology helps keep submarines underwater for longer periods of time. Submarines have to surface or use a snorkel to access atmospheric oxygen and to release exhaust. This makes them vulnerable to detection by enemy forces compromising the safety of the submarine. The DRDO is in the process of developing this technology. Two of the Scorpène class submarines bought from the French company DCNS may also be fitted with AIP technology.

Niche areas for next-gen technologies



- Nanotechnology, composite material and metal research
- Night vision
- Electronic miniaturisation
- Textile technology
- Defensive systems in satellites
- Cyber warfare

Measures to support ToT



- Increase FDI
- Promote R&D
- Allow offset for R&D in leading institutions like the IITs and IIS
- Improve transparency and lay down a detailed roadmap in TPCRs
- Incentives for development

Directed energy weapons (DEWs)

DEWs emit energy in an aimed direction without a projectile. This energy can be of various forms--particles with mass, sound and electromagnetic radiation. This is a developing technology, yet to be used effectively and being considered for operations like protecting the earth from asteroids. In time, this technology is expected to develop because of its many operational advantages. The DRDO has reportedly started work on DEWs such as a 25-kilowatt laser system to destroy incoming missiles in their terminal stage and a 100-kilowatt solid-state laser system to take out missiles in their boost phase itself.



Defence procurement procedure 2013: Catalyst for indigenisation

The revised DPP has provisions to promote transparency, accountability and accelerating the procurement processes. The key relevant highlights of the revised DPP are as follows:

- Prioritisation of 'buy (Indian)' and 'buy and make (Indian)' for capital acquisitions under defence procurement procedure
- Maintenance ToT (MToT) will no longer be through nomination but through bidding
- Advance consultations for 'make' procedure
- Simplification of 'buy and make (Indian)' procedure
- Clear definition of indigenous content
- Ensuring faster progress in 'make' and 'buy and make (Indian)' cases
- Enhanced delegation of financial powers for capital acquisitions
- Powers to DAC to approve all deviations from DPP

The key change in DPP 2013 has been the stipulation of a hierarchy of categorisation of any new defence procurement under 'buy (Indian)' and 'buy and make (Indian)' categories. 'Buy (Indian)' requires a minimum 30% of indigenous content on cost-basis. However, 'buy and make (Indian)' must have a minimum 50% indigenous content on cost-basis. It further provides that apart from the overall indigenous content being at least 30%/ 50% of the total contract value, a minimum 30% / 50% indigenous content will also be required in (i) basic cost of equipment; (ii) cost of manufacturers' recommended list of spares; and (iii) cost of special maintenance tools and special test equipment taken together.

DPP 2013 also lays down the method for computation of indigenous content. It broadly prescribes the cost of the equipment to be reduced by the cost of imported materials, cost of services received from non-Indian entities at all tiers. The definition of indigenous content in spirit is commendable and seeks to scan through the indigenous content in the entire supply-chain. However, ensuring compliance with the requirement at all the tiers is going to be extremely cumbersome for the entire industry. The indigenous content as it is currently worded may also be open to varied interpretation, example, the meaning of non-Indian entities, direct and indirect costs of services etc. Further, the Indian companies, even if they are indigenously manufacturing the core equipment, may get disqualified on a strict application of the definition of indigenous content. This may lead to re-categorisation of the procurements under 'buy and make with ToT' or 'buy global programmes and eventually defeat the objectives of the changes.

The affirmation of indigenous content at the trial stage is impractical and requires re-consideration. It is acknowledged that India does not have the current know-how and the infrastructure to manufacture high-end defence equipments and therefore, expecting the requirement to be fulfilled at the time of trials is unreasonable and impractical.

Challenges in indigenisation



In summary, while the recent initiatives taken by the DAC in revamping the defence procurement procedure are welcome, however, there will be challenges in complying with some of these new provisions requiring further deliberation. Further, though the DPP seeks to provide a level playing field to Indian private players, there are areas which are heavily lopsided in favour of DPSUs. A case in point being the ERV benefit being extended only to DPSUs in ab-initio single vendor cases or when nominated as a production agency.

Defence product list: Simplifying the licence regime

The industry has long been grappling with the issue of industrial licence. This has finally been clarified and a licence is not required for dual use goods. However, necessary sensitisation of this position is required so that there is consistency between the policy and its implementation by various arms of the government. It is also interesting to note that though the defence product list has been put up on the MoD's website, it refers to a 'dual-use' list which has not been made available to the public, hence providing only partial clarity.

FDI in defence: An imaginary bogey

The role of FDI in building a domestic industry and creating an enabling environment for transfer of technology from foreign OEMs cannot be over emphasised. The 26% cap has completely failed as the total inflows of FDI in the last 10 years in this sector have been a meagre five million USD and a handful of joint ventures, compared to over 280 billion USD that the country has received during the same period. Based on the experience in sectors such as automobiles, IT and other manufacturing sectors, there is an urgent need to allow 100% FDI in this sector and address security concerns separately as in most countries.

Concerns about IP protection

Protecting IP is a key concern in this sector and foreign OEMs are reluctant to transfer technology because of the 26% FDI cap as well as a perception of inadequate IP protection.

Given below is an overview of relevant intellectual property laws:

Indian Patents Act, 1970: Contains provisions with respect to grant of patent (an exclusive right granted for a new product or a process involving an inventive step and capable of industrial application) in India.

Designs Act, 2000: Aimed at protection of designs, it contains provisions in relation to registration of designs, copyright in registered designs, etc.

Copyright Act, 1957: Protects, inter alia, the rights in literary work, which includes computer programmes. It contains provisions, inter-alia, regarding what constitutes copyright and term of copyright, ownership of copyrights and rights of the owner, registration of copyrights, infringement of copyrights, remedies for it, etc.

Despite the age-old debate of what constitutes optimal IP norms for a developing country, usually challenges faced in relation to the transfer and licensing of technology in India do not arise due to any inadequacies in the legal framework of IP laws but due to the contractual terms governing such transfer between the seller and the buyer. For instance, contracts for transfer of technology, may not balance the risk between the buyer and seller or in relation to the defence sector, may be interpreted in the context of the prevailing procurement policy and the buyer's ultimate obligations thereunder, thus sometimes disregarding the contractual rights of the seller. In the event of a breach of contract by the buyer, the seller may also face practical challenges in enforcing its rights and remedies, like termination of contract, against the buyer if he or she has already absorbed the technology or know-how for innovative activity in a given technological area.

The general apprehension of foreign suppliers that Indian courts do not enforce contracts effectively and will adopt a pro-domestic market approach when determining intellectual property rights disputes between a foreign supplier and an Indian buyer and that wariness around IP rights in India is low, coupled with incidents of Indian courts rejecting requests of patent grants of a foreign company (as in a recent Supreme Court precedent in the pharma sector) creates a perception that the IP environment in India is vague, uncertain and unsafe. This along with the restricted FDI cap of 26% with no significant control over the company's affairs deters OEMs from sharing critical technology with Indian manufacturers.

Technology suppliers may thus need to consider steps to minimise the risk of losing IP while participating in the A&D business in India by ensuring that the IP rights in relation to the technology being shared are clearly understood by all stakeholders and suitably articulated in the contracts, particularly identifying and addressing issues not covered by any domestic legislation, checking for any possible conflicts with the policy and providing for potential violations of the IP rights.

Indirect tax

The government's initiative for indigenisation in the A&D industry in India, through the DPP 2013 requires complementary initiatives under the indirect tax regime. The focus of the initiative under the indirect tax regime can be on rationalisation of the tax structure and promoting greater value-additions in India. The current tax and duty regime in the country makes the Indian manufacturer uncompetitive and directly works against the indigenisation policy of the government.

Considering the multiple levies of indirect taxes in India, following are the key note comments on indigenisation in the A&D industry:

Customs duties: Effective rate of customs on the import of goods is 28.85 % (peak rate of customs). Subject to prescribed conditions, a majority of goods imported in relation to defence and commercial airlines are exempt from customs duties. For instance, customs duty is exempt on imports of aircrafts and parts imported for MRO related activities.

Key note: *With respect to the defence sector, these exemptions are typically available where the MoD or its contractors (private companies) are importers and unavailable where goods are imported by Indian offset partners for further processing and delivery to the ministry. This militates against the indigenisation policy. The benefits under these exemptions are not available even to goods imported by sub - contractors of foreign OEMs. Besides this, there are no such general exemptions from customs duty on the import of goods for use in the manufacture of defence related goods. Appropriate changes to remove this anomaly must be proposed to the government.*

Excise duty: Effective excise duty rate is 12.36% (inclusive of education cess) on manufacturing activity. Exemption from excise duty is available for aircrafts, if sold to the government or to commercial airlines engaged in specified activities.

Key note: *Goods supplied against international competitive bidding (ICB) are exempt from excise duty subject to prescribed conditions. The challenge is to ensure that these benefits actually accrue. With the government's plan on indigenisation, a blanket exemption needs to be carved out for the supply of goods to the A&D industry.*

VAT and CST: While an inter-state sale of goods is subject to central sales tax (CST), intra-state sale of goods is subject to VAT. The CST rate is 2 % if the prescribed statutory form (i.e. Form C) is issued by the purchaser. If no forms are provided, the VAT rate applicable in the originating state of the seller will be applicable. For most goods, the VAT rate ranges from 5 to 15 % depending on the nature of goods. Sale of spares under the MRO operations are charged to VAT which range from 5 to 15% across states. Typically, airline operators do not have the option to buy it at concessional rates of CST against usage of Form C as they do not meet the eligibility criteria for issuance of Form C.

Key note: *No general exemptions or concessions are available on the sale of goods to defence and commercial airlines. Accordingly, the relevant state VAT legislation should be examined and the possibility of special dispensation if required from the state government should be explored so that the domestic procurement of goods is economically at par with imports. Participants in India's MRO industry believe that the tax regime needs to change in order to enable India to positioning itself as an MRO hub.*

Service tax: With effect from 1 July 2012, the service tax regime in India had undergone a significant change whereby service tax has been made applicable on all services provided in India unless they fall under the negative list or are specifically exempt from payment of service tax. In addition, in terms of the recently introduced Place of Provision of Service Rules, 2012 the MRO services may not qualify as export of services from India since the aircraft will need to be in India for repair. Further, the service tax exemption for services provided to the government in relation to repair or maintenance of an aircraft has been withdrawn with effect from 1 April 2013.

Key note: *The burden of input taxes is reduced to the extent of service tax credit admissible to MRO customers. With the proposed procurement plan, exemptions or concessions from the service tax perspective need to be introduced for boosting the domestic service industry.*

Others: The states are also authorised to levy other local taxes such as entry tax, octroi and local body tax. Further, an R&D cess at 5% is also applicable on the import of technology in specified situations.



The continued focus by the MoD on greater private sector participation appears to be changing in favour of Indian companies, especially for MSMEs, which have hitherto been supplying to defence public sector undertakings. Offset requirements being imposed by the MoD including aspects such as transfer of technology and multiplier of offset credits for collaboration with MSMEs are compelling OEMs and other suppliers to source more components from domestic suppliers. This in turn leads OEMs to increasingly engage with smaller Indian players by establishing partnerships or JVs and in the process, playing a part in the growth of MSMEs in India.

The offset experience brings good news for MSMEs. Out of the 19 contracts signed in the A&D sector amounting to 4.54 billion USD since 2008, almost 26% have been received by MSMEs. However, it is pertinent to note that these have been received by only a handful of companies.

The MoD has set itself a goal of sourcing 70% of all equipment from Indian companies—public and private sector - by 2020 which could provide a further boost to MSMEs in this sector. The Indian government has announced the following measures in the last two years to enhance the role of MSMEs:

- Creating an MSME fund through SIDBI
- Facilitating certifications of MSMEs
- Promoting the PPP model with participation of MSMEs
- Creating aerospace clusters and earmarking special economic zones (SEZs) to include common infrastructure facilities for MSMEs
- Incentivising foreign players to collaborate with MSME's by allowing multipliers for collaborations with MSMEs for offset credit

Challenges faced by MSMEs

Notwithstanding the positive trends mentioned above, MSMEs in the Indian A&D sector continue to face challenges detrimental to the efforts of the MoD to indigenise:

- **Funding options:** Access to funds continues to remain the biggest challenge faced by small players as MSMEs are sensitive to a highly capital-intensive business characterised by long gestational periods and cyclical growth. Despite government steps to help MSMEs find the right funding options, the situation on the ground has not changed much over the last four to five years. Numerous delays in large programmes require financially robust MSMEs that can ably sustain time-lags. This issue can be solved only by continued government intervention and help assisting long-term sustenance.

Participation of MSMEs and their challenges

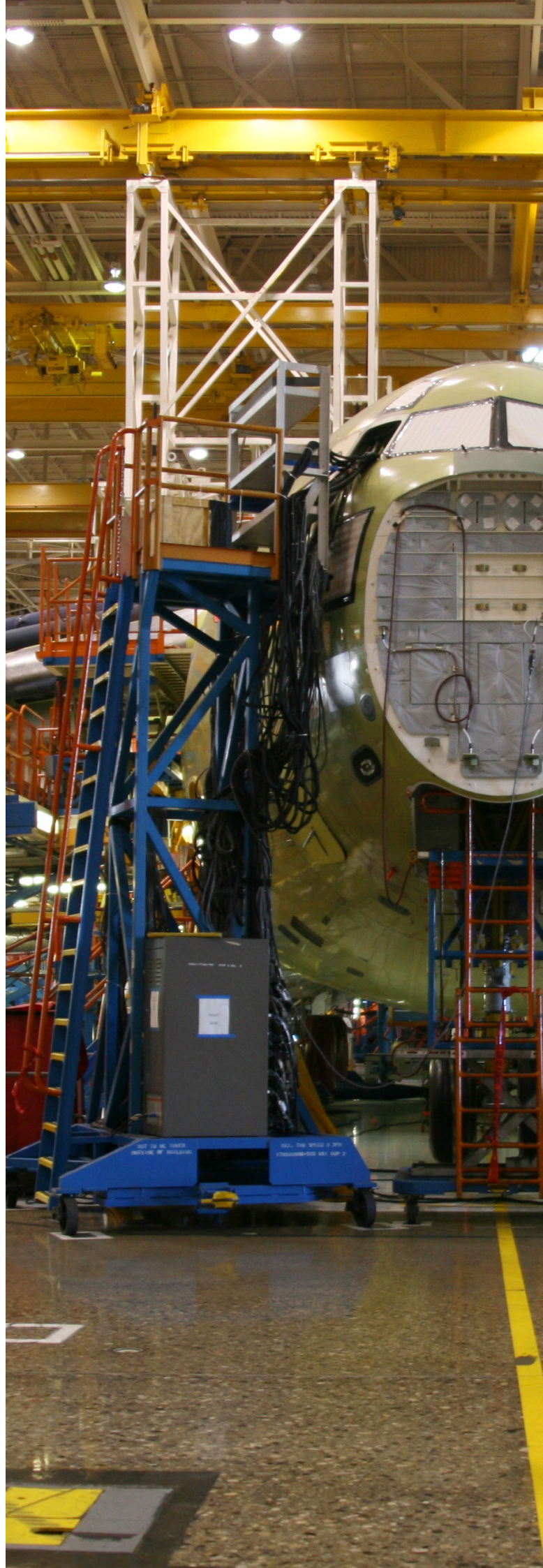


- **Technology:** The A&D sector is in the midst of a tremendous change for newer technologies forcing companies to innovate in order to remain competitive. R&D investments are generally considered high risk because of the long gestational periods. Private sector sources of financing are not always receptive to accepting such risks. These factors make small players highly risk-averse affecting R&D spends and hence their ability to build innovative technologies. As a consequence, most MSMEs struggle to provide sustained and high quality support to larger players adversely impacting efforts to indigenise.
- **Quality and L1 issues:** While Indian manufacturing has improved significantly in quality control over time, a mature supplier base is still in an early stage of evolution. Additionally, accreditation is time-consuming and expensive in this low-tolerance industry in which the buyer expects the highest quality of products and services at the lowest possible price.

Unfinished agenda

DPP 2013 creates an enabling framework for increased indigenisation. However, the success of the revised DPP largely depends on the extent to which the policy can be put in practice and support extended by other policy frameworks affecting the A&D ecosystem such as the FDI policy and indirect taxes. The following are some of the immediate steps that the government needs to take into account in order to accelerate the pace of indigenisation:

- Increasing the FDI limit in defence to encourage high-end technology transfers from foreign OEMs
- Security guidelines to allay security concerns while allowing higher FDI participation by foreign OEMs
- Ensuring adherence to 30 or 50% indigenisation requirements at trial stage to be re-considered as the requirement seems impractical
- Reconsidering the procedure proposed in DPP 2013 for calculating value of indigenous content as the process is complex and may discourage Indian vendors from participating in the procurement programmes
- Further alignment of the DPP to even out anomalies to provide level playing field to domestic private sector by addressing issues like benefit of ERVs
- Accelerating its efforts to work with MoF to address indirect tax issues to boost indigenous defence manufacturing as currently Indian manufacturers are un-competitive as far as the incidence of tax is concerned vis-à-vis foreign vendors
- Sponsoring R&D projects at private industry level to encourage R&D for developing critically advanced technologies and providing special tax incentives to R&D in defence.
- Extending the benefits of additional avenues for fulfilling offset obligations to the programs falling under previous DPP.





Abbreviations

AMCA	Advanced Medium Combat Aircraft
A&D	Aerospace & Defence
AIP	Air Independent Propulsion
CST	Central Sales Tax
CAGR	Compounded Annual Growth Rate
CSIR	Council for Scientific and Industrial Research
DAC	Defence Acquisition Council
DPP	Defence Procurement Procedure
DPSU	Defence Public Sector Undertaking
DRDO	Defence Research and Development Organisation
DST	Department of Science and Technology
DoS	Department of Space
DEWs	Directed Energy Weapons
ERV	Exchange Rate Variation
FGFA	Fifth Generation Fighter Aircraft
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IIT	Indian Institute of Technology
IT	Information Technology
IP	Intellectual Property
ICB	International Competitive Bidding
JV	Joint Venture
LTIPP	Long Term Integrated Perspective Plan
MRO	Maintenance Repair & Overhaul
MToT	Maintenance Transfer of Technology
MSMEs	Micro Small and Medium Enterprises
MoD	Ministry of Defence
MOES	Ministry of Earth Sciences
MoF	Ministry of Finance
OEMs	Original Equipment Manufacturers
PPP	Public Private Partnership
RFP	Request for Proposal
R&D	Research & Development
SIDBI	Small Industries Development Bank of India
SEZ	Special Economic Zones
SWOT	Strengths Weakness Opportunities & Threats
TPCR	Technology Perspective and Capability Roadmap
ToT	Transfer of Technology
UAV	Unmanned Aerial Vehicles
UCAV	Unmanned Combat Air Vehicle
UGV	Unmanned Ground Vehicles
VAT	Value Added Tax

Notes



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