Indian Defence Sector

The improving landscape for US business and Indo-US commercial enterprise

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Preface from KPMG

Investment in the emerging markets by global Aerospace and Defence companies has witnessed an increase, driven primarily by a search for low-cost manufacturing options, research and development capabilities and acquisition of engineering and related critical talent. The nature of the relationship between the major Aerospace and Defence companies and their investment into emerging markets has also undergone a transformation with these companies attempting to establish stronger presence locally. This is driven by factors associated with optimisation of their supply chains and forging stronger ties with such emerging economies, which are often potential customers for future defence sales.

The progressive policy level changes initiated by the government of India coupled with normalisation of India’s geopolitical relationships have provided a significant opportunity to Indian organisations to enter the defence manufacturing sector. This understanding is manifest in the large number of tie-ups forged by large Indian companies with global Aerospace and Defence companies in the recent past, as illustrated by the tie-up of Sikorsky aircraft with the Tata Group and the BAeS tie-up with the Mahindra Group, primarily with the twin objectives of broadening their market access to supply components to the Original Equipment Manufacturers (OEM) and global defence primes directly and also allowing them to adequately leverage their manufacturing capabilities domestically.

Taking note of these developments, US Aerospace and Defence companies, faced with declining or stagnant growth in developed markets, are increasingly focusing on the emerging markets. In this context, this report provides insights into the consequent broadening of the landscape for a potential Indo-US commercial enterprise focused on the defence sector.

1. www.sikorsky.com
2. www.baesystems.com
The KPMG-AMCHAM report, released in the backdrop of closer bilateral relations between United States (US) and India, speaks to the keen focus the two countries have on national security.

These closer ties have enabled US defence companies to offer a variety of defence products and technologies to the Indian defence forces. Currently, the national defence budget in 2010-2011 for India has been earmarked at USD 32 billion. Of this, USD 13 billion is to be spent on acquisitions for new weapons systems equipment and services. Indian defence procurement spending is expected to increase in the years to come, making it one of the most attractive defence markets in the world. And US defence companies can play a significant role in partnering India in its defence needs.

US is a relatively new player in the large international pie with domestic manufacturers meeting smaller needs. The ratio between domestic and international suppliers is expected to reverse in the future. US companies can partner India in developing the indigenous aerospace manufacturing industry into a global supply chain. This will also further India’s objective to create new avenues for employment, spur technology development, help India become a critical link in the international supply chain, and transform India into a self-reliant nation with indigenous aerospace and defence capabilities. India’s existing wealth of talent, technology and cost advantages together can help make defence products globally competitive.

A program on Indo-US Defence Cooperation was held on the eve of Def Expo 2010 with discussions around India’s offset policies and Defence Procurement Policy. The event was supported by senior representatives of the US Pacific Command and the US Embassy in New Delhi as well as by India’s Ministry of Defence and the defence industry. This program initiated further engagement as offset partners between US companies and the Indian suppliers.

I would like to commend AMCHAM and KPMG for their efforts in putting this report together. AMCHAM with its defence committee will play a significant role in expanding the defence industry in India.

Dr. Dinesh Keskar
President, Amcham in India
Evolution of Defence Industry in India

Expertise developed in precision manufacturing, quality control, project management and the skilled manpower accumulated in sectors like engineering, automobile and medical devices manufacturing, in conjunction with an enabling policy environment and economic growth, have allowed for a potential step up into defence manufacturing which can provide the foundation for a credible Indian defence industrial base.
The impetus for upgrading India’s defence manufacturing capabilities is provided by the country’s defence expansion cycle driven by the country’s extensive modernisation plans, an increased focus on homeland security, and India’s growing attractiveness as a ‘home market’ defence sourcing hub.

The foundations of India’s defence production base were laid in 1801 with the establishment of the Gun Carriage Agency in Kolkata by the East India Company. This has grown considerably over time to reach the present situation wherein the country has created a strong network of Defence Public Sector Undertakings (DPSUs) and other defence focused labs and research and development institutions. This has resulted in a strong talent pool that has developed over the preceding decades. Presently, the Defence Research and Development Organization (DRDO), a network of defence laboratories, have over 5,000 scientists and over 25,000 technical staff working on major projects. Another Indian DPSU, Hindustan Aeronautics Limited (HAL), is currently ranked 38th among the top global Aerospace and Defence companies and plays a major role in defence aviation in India. However, in spite of this dedicated infrastructure, India still has to rely on imports to meet more than 70 percent of its overall defence equipment requirements.

Post-independence, India had a limited defence capability. There were several attempts towards undertaking corrective action including diversification of defence procurement beyond the UK, focusing on licensed manufacture of defence equipment to boost self-reliance in defence production, establishment of Defence Public Sector Undertakings (DPSUs) such as Bharat Electronics Limited (BEL), Hindustan Aeronautics Limited (HAL) and Goa Shipyard Limited (GSL).

The setback in the Sino-Indian War of 1962 made the government take notice of the state of affairs and consequently, the 1960s witnessed significant forward momentum in the shape of creation of a separate Department of Defence Production under the Ministry of Defence (MoD). There was a rise in procurement of arms on highly subsidised terms from the erstwhile Soviet Union and, consequently, indigenous design and development programs receded to the background with licensed production becoming the central focus of arms acquisition policies. The change in the political scenario in the then Soviet Union during the 1990s led to yet another shift in India’s strategy for defence equipment procurement with India now starting to explore the possibility of expanding its defence procurement base by developing strategic defence relations with countries like the US, UK and Israel.

Defence policy reforms by the government of India
The decade of 1990s witnessed economic reforms and policies that were targeted towards inviting foreign investment to promote development of domestic industry through deregulation, privatisation, tax reforms, and inflation-controlling measures. These reforms were largely focused on the manufacturing sector and later on their purview was expanded to cover the telecom and infrastructure sectors. A need for similar reforms in the defence sector was felt post the armed conflict between India and Pakistan in 1999. This conflict exposed the state of obsolescence in the equipment used by the defence forces of the country. This underlined the need for broadening the defence industrial base beyond DPSUs using specific policy incentives in order to streamline equipment procurement process for modernisation of the equipment used by the defence forces.

Following the Kargil conflict and faced with increasing public criticism and scrutiny, the government formed the Kelkar Committee to suggest changes in the acquisition procedures and enable a greater participation of the private sector in defence production. The major recommendations of this Committee centred around facilitating the creation of a domestic defence equipment manufacturing capability through private sector participation to serve the defence needs of India in the long term by adopting a broad array of policy measures like the creation of defence-qualified private companies, investment funds available to fund defence innovation, and industry offsets. The Government

1. www.mod.nic.in
2. www.drdo.gov.in
3. Defence procurement: challenges and New Paradigm SHIFT by J.V. Singh
4. www.outlookindia.com
accepted most of its recommendations and with their full implementation, the defence industry in India should evolve under the purview of the ensuing reforms.

Creation of Defence Procurement Procedure (DPP) in 2002 to formalise the entire procurement process was a landmark step towards streamlining the procurement process. This policy was in the nature of a set of guidelines and attempted to categorise defence procurement programs under several distinct heads. Offset Policy was introduced for the first time in 2006 with the aim of promoting foreign investment in the Indian defence sector. The procedure continues to be a ‘work-in-progress’ and underwent constant evolution with a further iteration of the DPP in 2006, a revision undertaken in 2008 and further amendments to DPP 2008 issued in 2009, all of which were geared to strengthen the policy framework.

Present policy emphasises shortening the time frame of procurement cycle and on ensuring that the procurement is executed in a fair, objective and transparent manner. Over time, this should minimise the delays that have marred the Indian defence procurements to date. The policy has continued to evolve with a further iteration expected towards the end of 2010, a shift away from the mandated two year revision schedule. This is an encouraging recognition on the part of the MoD of the views of private industry.

### Policy Reforms Undertaken by the Government of India

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>100 percent private participation allowed</td>
</tr>
<tr>
<td>2002</td>
<td>Defence Acquisition Council (DAC) formed</td>
</tr>
<tr>
<td>2005</td>
<td>Formulation of defence offset policy</td>
</tr>
<tr>
<td>2006</td>
<td>Defence offset Facilitation Agency (DOFA) formed</td>
</tr>
<tr>
<td>2008</td>
<td>DPP 2008 lists 13 categories for offset</td>
</tr>
<tr>
<td>2009</td>
<td>Offset banking introduced</td>
</tr>
<tr>
<td>2010</td>
<td>“Buy and Make Indian” category introduced</td>
</tr>
<tr>
<td>2010</td>
<td>More transparent procurement process</td>
</tr>
</tbody>
</table>

**Source:** KPMG Analysis

Towards this end, the Government of India seems receptive to suggestions from the private industry, both domestic and global companies, on the defence procurement procedures, offset implementations, transfer of technology and other related issues, which will help bring the entire procurement policy in line with the industry expectations.

In this context, the Department of Defence Production, MoD, is currently framing the Defence Production Policy to encourage the establishment of a defence focused Military-Industrial Complex in India. The policy document states ‘the importance of self-reliance in defence is axiomatic. It is of vital importance for both strategic and economic reasons and has therefore been an important guiding principle for the government since independence. Government considers that the industrial and technological growth in the past decades has made it possible to achieve this objective by harnessing the emerging dynamism of the Indian industry, and the capabilities available in

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6. www.mod.nic.in
7. KPMG analysis

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the academia and Research and Development Institutions\(^1\). The overall policy objective is to achieve substantive self reliance in production of the required defence equipment in as early a time frame as possible. The policy seeks to give preference to indigenous design, development and manufacturing of defence equipment and also encourage indigenous research and development through adequate policy measures to motivate the relevant public and private sector entities to strengthen their research and development wings.

**Key strengths of Indian industry to step up into the defence sector**

The Indian industry has evolved rapidly over the last decade and has proved its manufacturing, technological and research and development prowess in automobile manufacturing, medical devices and IT industry. Expertise developed in these domains has now made it possible for the industry to look for diversification and upgrade opportunities. The in-house precision manufacturing expertise, stringent quality control mechanisms and highly skilled manpower accumulated by the Indian industry are being complemented by an enabling policy environment and economic growth, which could fuel the foray of the industry in to the defence manufacturing space through diversification or new entry.

Some of the key strengths of the Indian industry that are enabling a step up into defence sector and leading to the development of a military-technical industrial complex in India are:

- **Expertise and skills acquired by the Indian manufacturing industry to emerge as a manufacturing hub:** India has firmly emerged as an engineering hub with manufacturing and IT capabilities coupled with a highly skilled low cost workforce. Factors like availability of precision machining, fabrication, subassembly facilities, engineering design services, low infrastructure costs and strong managerial capability are some of the key factors that give India the competitive advantage in the manufacturing domain. Various global defence manufacturing primes have now formed joint ventures and entered into sourcing agreements with Indian industry players.

- **Enabling Policy Framework by Ministry of Defence:**
  Recent years have witnessed significant liberalisation of Foreign Direct Investment (FDI) policies in the country. Several enabling policy measures have been introduced, including the DPP which brought in transparency in the procurement process and Press Note 2 (2002) which removed defence manufacturing from the list of restricted sectors requiring prior government approval (currently, licensing requirements of Department of Industrial Policy and Promotion still apply to entities engaged in activities in this sector).

- **Human Capital Advancement:**
  The easy availability of a technically skilled workforce is a key strength of Indian industry today. India is amongst the youngest nations in the world (in terms of median age) and is expected to register the largest addition to the working age population in the world and the largest working age population worldwide by 2050. Estimates suggest that India adds over 2.5 million graduates to its workforce every year, including 300,000 engineers and 150,000 IT professionals\(^2\). Furthermore, the Indian education system, with its strong emphasis on mathematics and science, produces a large number of engineering graduates who are proficient in quantitative concepts. This skilled manpower is critical to establishing a military-technical industrial complex in India.

- **Infrastructural Progression:**
  The progression in availability of the industrial infrastructure is aiding the industrialisation of the country. Encouraged by the interest evinced by Indian and foreign industry players in setting up manufacturing bases in India, governments of different Indian States have taken steps to promote Special Economic Zones (SEZs) for developing an ecosystem where all core and ancillary activities related to defence manufacturing can co-exist. Dedicated industrial parks backed by supporting infrastructure and an enabling policy framework will further help enable India in emerging as a regional hub for defence manufacturing activity.

- **Political Stability:**
  India is today the world’s largest democracy and one of the world’s 10 fastest-growing economies. The country is seen to have an advantage of being an age-old civilisation as well as an emerging modern marvel. This has a critical bearing on industries like defence manufacturing, which are highly susceptible to the political risks reflected in the macro operating environment of a country, especially in the context of the large amount of resources required to set up such manufacturing facilities. Coupled with new economic policies and a stable political scenario, India is attracting strong global partnership opportunities in this sector.

These factors working in conjunction with normalisation of India’s geopolitic parameters, have led to the creation of an economic atmosphere wherein global defence companies could establish a presence in India and Indian private industry is equally keen to support the growth of this planned military-industrial complex with several major Indian entities like the Tata and the Mahindra Group having firmly set their eyes on emerging as complete system integrators of defence equipment\(^3\).

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1. Draft Defence Production Policy by the Department of Defence Production, Ministry of Defence
2. www.investmentcommission.in
3. Company websites

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Current Indo-US Geopolitical Relationship

The shared interests of India and US encompass humanitarian assistance, counter-terrorism cooperation, fighting violent religious extremism, maritime security activities, weapons proliferation monitoring, regional stability maintenance and related aspects. The defence relationship between India and the US seemingly underwent a transformation with the endorsement of the National Missile Defence Program by India in May 2001 and has grown substantially over the years, especially since the completion of the 2005 Defence Framework Agreement.1
The Indo-US defence relationship

The defence relationship between India and the US remained stagnant for a long time given factors like India’s strategic relations with the then USSR, US support to Pakistan and imposition of US sanctions on India post the Pokharan nuclear tests conducted by India in May 1998. Following the end of the Cold War and the collapse of the former Soviet Union, India undertook a review of its foreign policy. During this period, India and the US began to explore the possibility for a normalised relationship based on shared democratic values and converging economic interests. India also undertook significant economic policy reforms beginning in 1991, which were perceived positively by the US.

The defence relationship between India and the US began to undergo a transformation with the endorsement of the National Missile Defence Program by India in May 2001. India’s support to the US post the September 11, 2001 terrorist attacks seems to have acted as a powerful force in cementing ties between the two countries. This phase also witnessed removal of some of the sanctions against India by the US, imparting further momentum to the military ties between the two countries. The signing of the Framework Indo-US Defence Agreement on June 28, 2005 and the Indo-US Civil Nuclear Cooperation Agreement in 2008 further helped in strengthening the evolving relationship. 2010 saw the signing of Civil Nuclear Cooperation Agreement and the lifting of a majority of the sanctions on dual-use technologies paving a path for the free flow of US defence technologies to India and considerably aiding India’s quest for self-reliance in the weapons technology.

Convergence of interests between India and the US defence establishments

The shared interests of India and the US encompass humanitarian assistance, counterterrorism cooperation, fighting violent religious extremism, maritime security activities, weapons proliferation monitoring, regional stability maintenance and related aspects. The Indo-US defence relationship has grown substantially, especially since the completion of the 2005 Defence Framework Agreement which highlighted 10 areas of cooperation between the two countries.

Faced with an increasing threat of terrorist attacks, the United States and India began to perceive each other as strategic partners in the anti-terrorism war. The recent bilateral exchanges, joint military exercises, increasing economic trade and the expanding defence ties between the two countries represents a fundamental shift in their relationship. The growing defence trade is seen as a natural outcome of the overall expanding defence relationship.

Increasing proximity between the Indian and the US defence establishments is also highlighted by joint military exercises of increasing size and complexity carried out by the two countries. In fact, India and the US have held over 60 joint military exercises over the last decade. In 2009, the US and India conducted their largest ground combat joint exercise with the Indian Army code named ‘Yudh Abhyas’ in Uttar Pradesh while simultaneously conducting the Air Force exercise ‘Cope India – 09’ at Air Force Station, Agra. A statement by the US Ambassador to India, Timothy J. Roemer, said “the broadened and unprecedented scope of Yudh Abhyas stands as a testament to the growing people-to-people and military-to-military ties of the US and India, one of the key pillars of the expanded US-India strategic partnership. Yudh Abhyas signals the bold future of US-India relations marked by the growing confidence and trust shared by our two great democracies as, together, we face the challenges that lie ahead. Our two nations have made great strides in defence cooperation to help ensure peace and prosperity in the region.” In this context, the Indian defence personnel will also participate in the ‘Balance Iroquois’ wargames to be held in Alaska. Also, Indian Navy is likely to participate in the amphibious exercise “Habunag” in Japan with US Navy.

The increasing convergence between Indian and US defence establishments is manifested in the signing of several major procurement contracts between the two countries:

- P-8I Poseidon maritime reconnaissance aircraft
- The US government’s approval for supply of Boeing’s P-8I aircraft, meant to replace Indian Navy’s aging Tupolev Tu-142M maritime surveillance aircraft

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turboprops, was a watershed deal between the two countries. Valued at USD 2.1 billion, it has been deemed as the largest defence procurement deal signed between the two countries to date. Recently, the Defence Acquisition Council, the apex body managing the procurement of defence equipment in India, cleared the acquisition of another four of these long-range surveillance aircraft for the Indian Navy, thus boosting the overall value of this procurement contract over the USD 3 billion mark. The strategic significance of this deal stems from the fact that the Indian navy is the first international customer for Boeing Company’s P-8I aircraft.

- **Ultra light howitzers**: This contract is for supply of 145 ultra light howitzers by BAe Systems. The contract, valued at USD 647 million, is a direct government-to-government contract between the US and the Indian governments.

- **F414-GE-INS6 for the LCA**: GE Aviation has recently won the contract to supply the F414-GE-INS6 engines for India’s Light Combat Aircraft (LCA). The contract, worth USD 650 million, involves supply of 99 engines with an option for 49 more engines that can be exercised later. Eight engines will be bought off-the-shelf, while the other 91 will be manufactured in India under the transfer of technology.

- **Harpoon anti-ship missiles**: The latest procurement contract to be signed between the two countries is for 24 Harpoon Block-II anti-ship missiles, worth USD 170 million, to arm the maritime strike Jaguar fighters in IAF’s combat fleet.

- **C-130J transport aircraft**: The contract for the supply of 6 Lockheed Martin C-130J ‘Super Hercules’ aircraft for Indian Special Forces is worth USD 1 billion. As part of the contract, the US agreed to provide India with an entire solutions package including six aircraft, three years of initial support, training of aircrew and maintenance technicians, spares, ground support and test equipment and a team of technical specialists based in India during the three year initial support period.

These agreements underline the growing closeness between the defence establishments of the two countries. Together, these Indo-US equipment procurement contract have created offset obligations of over USD 1 billion, which now account for 42 percent of all international offset obligations since the DPP made offsets mandatory. This has created significant opportunities for the collaboration between the Indian and the US firms.

### Distribution of Offset Contracts Awarded by India (March, 2008 – October, 2010)
(Total Value of USD 2.65 billion)

<table>
<thead>
<tr>
<th>Company</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE Aviation</td>
<td>7%</td>
</tr>
<tr>
<td>Boeing</td>
<td>24%</td>
</tr>
<tr>
<td>Lockheed Martin</td>
<td>11%</td>
</tr>
<tr>
<td>US Companies</td>
<td>42%</td>
</tr>
<tr>
<td>Finmeccanica</td>
<td>9%</td>
</tr>
<tr>
<td>Rafael</td>
<td>3%</td>
</tr>
<tr>
<td>Israel Aerospace Industries</td>
<td>16%</td>
</tr>
<tr>
<td>Fincantieri</td>
<td>5%</td>
</tr>
<tr>
<td>EITA</td>
<td>3%</td>
</tr>
<tr>
<td>BAEs</td>
<td>1%</td>
</tr>
<tr>
<td>Rosonboron Export</td>
<td>10%</td>
</tr>
<tr>
<td>RAC/IG</td>
<td>11%</td>
</tr>
</tbody>
</table>

US companies account for 42 percent (by value) of total offset contracts awarded in India.

Source: KPMG Analysis

5. indiadefencenews.com
6. www.defpro.com
7. www.lockheedmartin.com
8. KPMG analysis
**Future outlook of Indo – US defence relationship**

The current size of the ongoing and planned acquisitions in the defence sector in India has attracted global attention. In fact, a statement from Boeing said that the planned acquisitions by India will allow it to bid for deals worth USD 31 billion by 2019.

Several US companies are competing to supply defence equipment to India as part of the Indian armed forces ongoing modernization program. This includes Boeing and Lockheed Martin’s involvement in the USD 10 billion competition for supplying 126 fighter aircraft to India.  

The Indian Ministry of Defence’s mission to become self-reliant and a net exporter of defence products is opening many doors for partnerships in the Indian defence industry. This has been evident in the increasing trend of joint ventures being formed by the US defence companies with Indian entities.

There are some challenges and roadblocks in sustaining this forward momentum in the evolving strategic relationship between India and the US. India has expressed specific concerns regarding the Logistics Support Agreement (LSA), Communication Interoperability and Security Memorandum of Agreement (CISMOA) and the Basic Exchange and Cooperation Agreement for Geo-Spatial Cooperation (BECA), that are required under the US domestic laws to transfer sensitive defence technology. In fact, the US insistence on signing the CISMOA and the Indian reluctance towards the same led to a special CISMOA and End-User Agreement being reached by the two countries for the sale of four VVIP Boeing aircraft. The Indian government has expressed skepticism at different forums about the intended use of these agreements. These misgivings from either side require priority attention and clarification in the interest of both nations.

### US companies involved in the ongoing major procurement programs

<table>
<thead>
<tr>
<th>Procurement program</th>
<th>Company</th>
<th>Contract value (in mn USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>127 Multi Mission Role Combat Aircrafts</td>
<td>Boeing, Lockheed Martin</td>
<td>10,000</td>
</tr>
<tr>
<td>15 Heavy lift Helicopter</td>
<td>Boeing/Sikorsky</td>
<td>700</td>
</tr>
<tr>
<td>10 C-17 Globemaster-III Giant Strategic Lift Aircraft</td>
<td>Boeing</td>
<td>3,000</td>
</tr>
<tr>
<td>22 Apache Attack Helicopter</td>
<td>Boeing</td>
<td>550</td>
</tr>
<tr>
<td>16 Multi Role Helicopter</td>
<td>Lockheed Martin/Sikorsky</td>
<td>300</td>
</tr>
<tr>
<td>Javelin Anti Tank missile</td>
<td>Raytheon/Lockheed Martin</td>
<td>900</td>
</tr>
<tr>
<td>510 CBU-105 Sensor Fuzed Weapons</td>
<td>Textron Systems</td>
<td>375</td>
</tr>
<tr>
<td>F125IN Engine for Jaguar Fighter Aircraft</td>
<td>Honeywell</td>
<td>670</td>
</tr>
<tr>
<td>Quick Reaction Surface to Air Missile Weapon</td>
<td>Raytheon</td>
<td>1,400</td>
</tr>
</tbody>
</table>

Source: KPMG Analysis
India is set to undertake one of the largest equipment procurement cycles in the world with an estimated spend of about USD 112 billion on capital acquisitions by the year 2016, which will create offset opportunities for the domestic industry worth USD 30 billion. In this regard, significant opportunities exists in engineering services, outsourcing activities, supply chain sourcing and associated maintenance, repair and overhaul-related activities.

1. KPMG internal analysis; Ministry of Defence
India’s defence spending has grown significantly in the past decade, rising from approximately USD 12 billion in 2000-01 to nearly USD 32.6 billion for 2010-11, thus emphasizing the increasing prioritization of this sector by the Indian government. The country is currently the ninth largest defence spender in the world with an estimated 2 percent share of global defence expenditure, but with the third highest growth rate. Due to the need for updated equipment, India is set to undertake one of the largest equipment procurement cycles in the world.

With this background, the government, through the offset clause contained in the DPP, aims to create offset opportunities for domestic industry worth USD 30 billion from the current procurement programs. Currently, offsets worth USD 2.65 billion having already been created.

Recent defence procurement contracts

<table>
<thead>
<tr>
<th>Procurement contract winning entity (March, 2008 - October, 2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount (in million USD)</td>
</tr>
<tr>
<td>Procurement contract winning entity</td>
</tr>
<tr>
<td>Boeing Company</td>
</tr>
<tr>
<td>Fincantieri</td>
</tr>
<tr>
<td>Rafael</td>
</tr>
<tr>
<td>Fincantieri</td>
</tr>
<tr>
<td>GE Aviation</td>
</tr>
<tr>
<td>Fincantieri</td>
</tr>
<tr>
<td>BAE Systems</td>
</tr>
<tr>
<td>Israel Aerospace Industries</td>
</tr>
<tr>
<td>Lockheed Martin</td>
</tr>
<tr>
<td>Boeing Company</td>
</tr>
</tbody>
</table>

Source: KPMG Analysis
Global defence companies are now looking at India for establishing partnerships for product design, development and testing and for sourcing components locally, thus making India a part of their global supply chain. From the perspective of these companies, the Indian defence opportunity is typically manifested through the engineering services outsourcing, supply chain sourcing and associated Maintenance Repair and Overhaul-related activities.

1. Supply chain sourcing opportunity

The global primes are looking at India with cautious optimism. Hitherto Indian firms were not fully equipped to serve the global companies from a supply chain perspective and lacked global competitiveness in engineering, quality and technology aspects required for Aerospace and Defence products. There has been some improvement in these areas which has led to the creation of a significant opportunity for Indian companies possessing precision manufacturing capabilities. An emerging trend is the entry of several large Indian companies to venture into component manufacturing with the stated vision of emerging as total system integrators themselves. The Tata Group, for example, has sought the necessary approvals and has already signed agreements with several international companies, including one to manufacture components for Boeing. It has further proceeded to acquire a one-third stake in Italy’s Piaggio Aero while Israel Aerospace Industries and Tata have established a new company, Nova Integrated Systems Limited to develop manufacture and support a wide range of defence and aerospace products. Such measures will allow the group to fulfill its vision of moving into full-scale aircraft assembly and production in both the civil and military markets.

The entry of Small and Medium Enterprises (SMEs) will further aid the development of a globally integrated defence supply chain in India. While these SMEs are currently involved in sub contracting work for DPSUs and larger companies, the government’s offset policy will result in spurring the growth of a domestic defence industry, with SMEs playing a key role in the supply chain.

Aerospace and Defence Special Economic Zones

Encouraged by the interest evinced by Indian and foreign industry players in setting up manufacturing bases in India, governments of different states have taken steps to promote SEZs for developing an ecosystem where all core and ancillary activities related to aerospace manufacturing can co-exist. State governments of Tamil Nadu, West Bengal, Maharashtra and Gujarat have already announced their plans for setting up such industrial parks and SEZs to provide an eco system for designing, building and maintaining all types of aircraft. These parks will result in creating the complete ecosystem which will be conducive for the growth of the domestic aviation industry. Furthermore, such industrial parks should have the potential to create significant direct and indirect employment and generate considerable foreign investment.

2. Maintenance Repair and Overhaul opportunity

Some of the leading global defence companies are now looking at India to set up maintenance, repair and overhaul (MRO) facilities, primarily driven by the improved infrastructure available in India for such activities, India’s geographic location in the South Asian region allowing access to pan-Asia, local availability of skilled workforce and associated cost advantages. Such MROs should allow these companies to serve their regional customers better while simultaneously leveraging their local presence for future sales opportunities.

Airbus, Boeing and the government of Singapore are understood to be considering setting up MRO facilities in India. Additionally, the US Defence firm Raytheon has signed an agreement with India’s Elcom Marine Company to provide spare support for the maintenance of Phalanx close-in weapon system on board Indian Navy’s INS Jalashwa amphibious warship. Eurocopter, has also announced that it would establish an MRO facility to serve the large Dauphin fleet being operated in India.

3. Engineering Services Outsourcing opportunity

Engineering Services Outsourcing (ESO) in India is growing rapidly with most of the major global Aerospace and Defence companies having established tie-ups with Indian IT companies. A majority of these tie-ups are geared towards product design, development and testing with the focus areas being CAD/CAM design, fluid dynamics, two and three D modeling, remote monitoring, system architecture development and associated technologies.

The ESO industry is set to achieve USD 55 billion in revenues by 2020. Currently out of the estimated USD 30 billion spent on engineering services in the Aerospace and Defence sector, only approximately USD 700 million is being off-shored so far. Traditionally low-end work like testing, validation and design documentation services have been outsourced and high end areas of engine control, navigation systems and air control management systems are still largely left untouched.
The sector has witnessed some mature outsourcing deals with the global defence primes like Boeing, Airbus, Raytheon, Pratt and Whitney, Northrop Grumman and Magellan Aerospace. Also, about 10 Aerospace and Defence companies have already set up captive centres in India with the objective of reducing their design costs by up to 30-40 percent and shortening their lengthy design cycles. The Indian IT prowess coupled with an inherent cost arbitrage is motivating these companies to expand their Research and Development pool beyond their home countries.

### Outsourcing Maturity in Aerospace

<table>
<thead>
<tr>
<th>Currently being undertaken by the Indian IT Vendors</th>
<th>Emerging outsourcing opportunities</th>
<th>Future outsourcing areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Detailed design for modeling</td>
<td>• Embedded development</td>
<td>• Engine control systems</td>
</tr>
<tr>
<td>• Manufacturing</td>
<td>• Control system design</td>
<td>• Air control management systems</td>
</tr>
<tr>
<td>• Drafting and field failure analysis</td>
<td>• Simulation</td>
<td>• Navigation systems</td>
</tr>
<tr>
<td></td>
<td>• High-level aeronautical system design</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Testing services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cockpit equipment support software</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Composite structuring</td>
<td></td>
</tr>
</tbody>
</table>

Source: Nasscom website
Expanding presence of some notable US Aerospace and Defence Companies to leverage the current market opportunity in India

India’s mission to become self-reliant and a net exporter of defence products is opening many doors for partnerships in the Indian defence industry. Increasing the number of American Aerospace and Defence companies are aiming to capture the Indian market and establish a manufacturing and sourcing presence locally to make India a home market.

The information gleaned from a survey and associated research undertaken by KPMG to understand the strategies of some of the top US companies aspiring to build a strong presence in India are given below:

BOEING COMPANY

“We are taking a long-term view of partnership with India and are establishing a strong footprint in the country. We are collaborating with the Indian public and private players to help achieve India’s aspirations to become self-reliant in indigenous defence capabilities and be a critical link in the global supply chain.”

Vivek Lall
Vice President and India Country Head,
Boeing’s Integrated Defence Systems

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7 Information gathered from a survey response sent to company representatives, Company websites, KPMG research.

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The close relationship between Boeing and India goes back over 60 years when India entered the jet age on the wings of Boeing commercial jetliners. Boeing established a wholly-owned Indian subsidiary - Boeing International Corporation India Private Limited (BICIPL) - in 2003 to support the growing demands of India’s aerospace industry. In 2008, Boeing subsidiary Aviall Inc. established its presence in India and is now in the process of opening India’s first aircraft parts distribution centre in Noida near New Delhi. Another Boeing subsidiary Jeppesen, a provider of flight navigation solutions, has also announced plans to establish its presence in Hyderabad in 2009. Today, Boeing also has Field Service offices in Mumbai and New Delhi and a representative office in Bangalore.

In January 2009, Boeing won a multibillion-dollar sale of eight Boeing P-8I long-range anti-submarine aircraft to the government of India. In early 2010, India sent the US government a Request for Information (RFI) on the potential purchase of 10 Boeing C-17 Globemaster III airifters, which was approved by the US Congress in May 2010, thus paving the way for negotiations to begin between the two governments on this Foreign Military Sale.

GE AVIATION

GE Aviation is looking forward to partner with the Indian industry (both public and private sector) as India embarks on modernization of its defence forces and develop the Indian aerospace manufacturing industry.

Nalin Jain
Country Director, GE Aviation

India’s Light Combat Aircraft (LCA), GE’s F404-GE-IN20 powers the LCA-Mki (Tejas) and the CFM56-7 engines will power the recently ordered Boeing P8I aircraft. GE is partnering with HAL and Indian Navy for the indigenous frigate and aircraft carrier programs with its LM2500 marine gas turbines.

GENERAL DYNAMICS

As India addresses its future defence and security requirements, General Dynamics is eager to become a partner in meeting the needs of the Indian Armed Forces and other elements of the Government of India and identify opportunities where our expertise may be of value in meeting India’s objectives.

William O Schmieder
Vice President International, General Dynamics

General Dynamics has two manufacturing facilities in India and is currently pursuing opportunities in India in the areas of communications, specialised vehicles for the defence and paramilitary forces, armaments, ammunition, rugged computing, naval systems and special mission aircraft. US and India are currently discussing the potential sale of General Dynamics made Stryker all-terrain vehicle to India at an estimated cost of USD 1.3 million per vehicle.

GE Aviation

GE Aviation has been present in India since 1982 when the first CF6 engines were delivered to Air India. Its association on the military side started in 1986 when the F404 was selected to power the technology demonstrator flight for the Light Combat Aircraft program. Since then GE Aviation has grown with India and now have over 400 engines in service and over 200 in backlog. In addition, it provides propulsion to the naval frigates with its LM2500 marine gas turbines, which provide the necessary fire power to India’s armed forces.

GE Aviation has recently won the contract to supply the F414-GE-INS6 engines for
GE has one of the largest research facilities in India located in Bangalore – John E Welch Technology Center - with over 5000 people including 500 researchers in GE Aviation who work with global teams to develop advanced technology products.

India’s National Carrier NACIL will be part of a niche network of MRO players who will be able to overhaul the GENx engine, which powers the Boeing 787. GE Aviation is also looking forward to partner with India as the Indian government embarks on modernization of its defence forces and developing aerospace manufacturing industry in India. GE Aviation is a key player for supplying the power plant and systems for the Medium Multi-Role Combat Aircraft (MMRCA) fighters and attack helicopters under consideration for the Indian Air Force.

HONEYWELL

"India is one of the most important strategic markets for Honeywell worldwide. In Aerospace and Defence, Honeywell continues to reinforce this commitment by evolving from a key supplier of Indian Aerospace and Defence sub systems to a strategic partner delivering innovative, reliable, and cost effective solutions aligned to the specific needs of India."

Anil Gupta
President, Honeywell India

Honeywell’s relationship with India’s Aerospace and Defence industry dates back over 25 years with the Normalair Garrett TPE 331 engines for the Dornier-228 aircraft of the Indian Navy and Coast Guard. Honeywell is a supplier of commercial and military avionics, auxiliary power units, enhanced ground proximity warning systems, collision avoidance systems and weather radar systems – for both fixed wing and helicopter aircraft, environmental control systems, flight control systems, flight displays and guidance systems, repair and overhaul services for a range of Honeywell systems across various platforms of the Indian Armed Forces. Honeywell also has an exclusive manufacturing relationship with HAL to source TPE 331 -10/-12 engines for its global customer base. Honeywell supports key platforms including Do-228, Advanced Light Helicopter, Light Combat Aircraft, Kiran, Jaguar, and Light Combat Helicopter and Cheetah/Chetak.

Honeywell is involved in providing solutions for several upcoming platforms such as Light Combat Helicopter, Light Utility Helicopter, Light Combat Aircraft mark II, Intermediate Jet Trainer; contents for Retrofit/Modification/Upgrade (RMUs), tactical and navigation grade missile guidance systems, 155 mm artillery gun modernisation, etc. Honeywell has significant content on recently acquired US defence platforms like maritime reconnaissance P8I and troop transport C130J. In addition, Honeywell is actively supporting Indian aviation infrastructure, including lighting for Delhi runway, video docking guidance systems in Chennai airport, terminal automation at Hyderabad and the Delhi airport.
L-3 COMMUNICATION

L3 MAPPS recognized the significance of the vast Indian market over 10 years ago when we established L3 India in 1999 to support the Indian Navy and regional customers. With the growing strategic relationship between our countries, we expect to grow our business by offering additional products from the vast portfolio of L3 technologies and continuing our indigenization strategy to meet the demanding requirements of our defence and civilian customers in India.

Rangesh Kasturi
Vice President of Marketing and Sales,
L-3 MAPPS

L3 India was established in April 1999 as the Asian Centre of Excellence, Development and Deployment centre for L-3 MAPPS (Montreal, Canada). Since its inception, L3 India has provided high-quality applications engineering and software development services to L3 MAPPS for ship control systems worldwide. More recently, L3 India has also become involved in supporting the development of power plant simulators for projects worldwide.

In 2009, L3 India became the prime contractor for a major Indian Navy project which required the establishment of additional capabilities locally in Bengaluru including program management, test and integration facilities. L3 India is leading the ship commissioning and integration support activities for L3 MAPPS projects in Asia with major projects being completed in Malaysia and South Korea.

LOCKHEED MARTIN

We see the on-time, on-budget delivery of India’s first C-130J aircraft as a watershed event for the US-India relationship, and evidence of the 30-plus year commitment for Lockheed Martin in India.

Roger Rose
Chief Executive,
Lockheed Martin India Private Ltd

Lockheed Martin India was formally established in 2006, but Lockheed and its acquired companies have been active in India for over 20 years. Its first success in India was the – USD 1 billion 130J FMS aircraft and DCS facilities contract with the IAF in 2006; the first aircraft will be delivered on time in Q1 of 2011.

Lockheed Martin is looking to expand its C-130J foot-print. Other major efforts include the Team Romeo (US Government, Lockheed Martin, Sikorsky) FMS bid of the MH-60R helicopter for the Indian Navy’s Multi-Role Helicopter, a pending FMS Letter of Request for Javelin missiles (a Raytheon-Lockheed Martin JV), and the FMS bid (with the US Air Force) of the F-16IN Super Viper for the Indian Air Force. It has smaller but equally important efforts in bids for providing the Indian Navy with an acoustic target and submarine antenna, a Deep Submergence Vehicle for the National Institute of Ocean Technology, and weapons and sensors for the Indian Army Apache Helicopter bid.
India represents one of Northrop Grumman’s largest potential growth markets for defence products in Asia. The presence of Joe Parsley and the recent appointment of Commodore Sharma reflect the importance we are placing on supporting India’s growing defence and aerospace requirements. Our objective here is to develop a business where capabilities can grow and shape the markets for our customers.

John Brooks
Vice-president, Business Development for Northrop Grumman Integrated Systems
President, Northrop Grumman International Inc.

Northrop Grumman Corporation has won a contract to supply integrated bridge systems for two new fleet tankers being built in Italy for the Indian Navy in March 2010. Northrop Grumman Corporation is outsourcing components of the F-16 APG-68(V)9 fire control radar from Bangalore-based Bharat Electronics Limited and Dynamatic Technologies Limited. Also, as part of a comprehensive co-production program, Northrop Grumman engineers work side-by-side with engineering teams from Bharat Electronics Limited and Dynamatic Technologies Limited providing training and support to ensure a smooth transition to production.

Raytheon has a history of supporting India in a variety of defence and civil applications. In 2002, Raytheon and the US government entered into a groundbreaking agreement in which India contracted to purchase 12 Fire Finder Weapon Locating Radars. Raytheon and the Indian Space Research Organization jointly developed the system – GAGAN (GPS Aided Geo Augmented Navigation) - that was successfully tested in July 2006. This is the first phase of the ISRO-AAI sponsored project to implement a space-based navigation system in Indian airspace. The follow on fully operational system is being implemented presently.

Raytheon has entered into business relationships with a number of Indian companies including Tata Power SED and L&T to jointly address major Indian defence acquisitions.

William L. Blair
President Raytheon India & VP Raytheon International Inc.
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William L. Blair
President Raytheon India &
VP Raytheon International Inc.

United Technologies Corporation Group companies have been involved in helping India meet its defence requirements for a long time. In 1954, Sikorsky Aircraft Corporation delivered its first helicopter to Indian Air Force. The company sold its first commercial helicopter in India in 2007. Sikorsky formed a JV with the Tata Group to manufacture Sikorsky S-92(R) helicopter cabins in India. Sikorsky is pursuing Indian Armed Forces requirements for various categories of helicopter.

Another group company, Pratt and Whitney, plans to expand its relationship with LandT, HAL, Infotech Enterprises Ltd. and Tata Advanced Materials Ltd. to outsource engine components, tools, design analysis work and composites and has firmed up plans to outsource over USD 100 million worth of components and design work to Indian vendors over the next five years. The company is exploring the potential for supplying engines to the IAF and is examining the possibility of setting up a MRO facility in India.

Hamilton Sundstrand, another UTC group company, signed a long term agreement with Titan Industries Ltd. to manufacture high precision components for auxiliary power units, ram air turbine, flap actuator systems, engine control, and environment control systems. It also signed a long term supply agreement with Infotech Enterprises Limited, a Hyderabad-based global technology solutions provider.

"The market is evolving. Sikorsky has a market presence and the product is well received. It is expected that a good number of machines will be added in the near future. Tata Advanced Systems Limited is producing Sikorsky S-92 cabin in their facility at Hyderabad. The first cabin is due for delivery in Nov/Dec, 10."

AVM (Retd) AJS Walia
Managing Director, India and South Asia,
Sikorsky Aircraft Corporation, a UTC Group Company

United Technologies Corporation
Both Foreign Military Sales and Direct Commercial Sales have a place in meeting the equipment and services needs of the Indian Armed Forces.
There are several modes of catering to the defence requirements of the Indian armed forces. The primary channels for selling the products in India include the direct government-to-government Foreign Military Sales, competitive bids by Indian MoD and working with DPSUs.

1. **Foreign Military Sales**

Foreign Military Sales (FMS) is a method for selling US defence equipment, services and training through direct interaction with other sovereign governments or international organizations. FMS can include deliveries of defence articles and services to a partner country from the United States Department of Defence inventory or via new procurement. Generally, the FMS route is followed for equipment and services that have already been inducted in the US forces.

The Defence Security Cooperation Agency (DSCA) administers the FMS program for the Department of Defence (DoD). The purchasing government interacts directly with the US government through the DSCA, which serves as an intermediary and manages the procurement, delivery and post-delivery product support.

The FMS process is based on a 'Total Package Approach' and uses the Letter of Offer and Acceptance (LOA), which is a government-to-government agreement between the US government and the partner country. The FMS process is initiated when the buyer nation forwards a Letter of Request (LOR) to the US government. This request is analysed and once approved, an LOA is sent to the requesting government, which serves as the FMS contract.

### Process flow for FMS

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter of Request (LOR) presented to the US Government</td>
<td>Internal review by the US DSCA and other procedural formalities</td>
</tr>
<tr>
<td>Letter of Offer and Acceptance (LOA)</td>
<td>Contracting</td>
</tr>
<tr>
<td>Case Implementation</td>
<td>Case Execution and Closure</td>
</tr>
</tbody>
</table>

India has made several defence procurements from the US through the FMS route since 2002. Recently, several major defence acquisitions through the FMS route are close to finalisation including the supply of 145 ultra light howitzers worth about USD 647 million, 10 C-17 transport aircraft worth over USD 2 billion and the Javelin 2.5-km range anti-tank guided missiles (ATGMs) worth USD 900 million.

Purchases through FMS can provide several potential benefits including optimal pricing based on economies of scale achieved through combining FMS purchases with the large volume purchases of the US military, availability of spare parts from US military stocks and availability of latest equipment developed and tested by the world leading research and development establishments. Critics of the FMS procurement channel, however, point to concerns related to the intrusive end use monitoring requirements built into the process and other concerns pertaining to the undue US interference in India’s national security.

In order to ensure compliance with the relevant US laws applicable to FMS, the US government established the ‘Golden Sentry End Use Monitoring’ (EUM) program to ensure authorised...
use and accountability for the equipment/services supplied to other parties through FMS over the entire lifetime of the equipment/service (commonly referred to as ‘cradle-to-grave’ monitoring).

2. Competitive bids by the Indian Ministry of Defence

These are in the nature of Direct Commercial Sales (DCS), which are pure commercial transactions between a buyer government and industry. In DCS, the US companies compete with producers from other counties to sell their products. As in an open global competition, all vendors are invited to field their equipment. Techno-commercial evaluation is carried out by the purchasing country as per the criteria laid down in the RFP, post which an order is placed with an entity.

The tenders for procurement of defence equipment launched by the Indian Ministry of Defence are governed by the DPP, which was created in 2002 to formalise the Indian procurement process. The different categories of defence procurement in the DPP are:

### Categorisation of proposals in DPP

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buy</strong></td>
<td>For outright purchase from foreign vendor</td>
</tr>
<tr>
<td><strong>Buy Global</strong></td>
<td>Purchase from Indian firms including JV with Global firm</td>
</tr>
<tr>
<td><strong>Buy Indian</strong></td>
<td>Purchase from an Indian vendor</td>
</tr>
<tr>
<td><strong>Buy Make (Global)</strong></td>
<td>Purchase from a foreign vendor followed by licensed production/indigenous manufacture</td>
</tr>
<tr>
<td><strong>Buy Make (Indian)</strong></td>
<td>Purchase from an Indian vendor only</td>
</tr>
<tr>
<td><strong>Make</strong></td>
<td>Production of strategic, complex &amp; security sensitive systems</td>
</tr>
<tr>
<td><strong>Acquisition Wing (Make)</strong></td>
<td>High technology complex systems</td>
</tr>
<tr>
<td><strong>Acquisition Wing (Buy)</strong></td>
<td>Low technology mature systems (Min 50 percent indigenous)</td>
</tr>
</tbody>
</table>

Source: KPMG analysis

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3. Ministry of Defence website

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• **Buy Procedure**: ‘Buy’ pertains to an outright purchase of equipment. Based on the source of procurement, this category would be classified as ‘Buy (Indian)’ and ‘Buy (Global)’. ‘Indian’ would mean Indian vendors only and ‘Global’ would mean foreign as well as Indian vendors. ‘Buy Indian’ must have a minimum 30 percent indigenous content if the systems are being integrated by an Indian vendor.

• **Buy and Make (Indian) Procedure**: ‘Buy and Make (Indian)’ relates to purchase from an Indian vendor including an Indian company forming a joint venture/establishing a production arrangement with an Original Equipment Manufacturer (OEM) followed by licensed production/indigenous manufacture in India. Buy and Make (Indian) must have a minimum 50 percent indigenous content on cost basis.

• **Buy and Make (Global) Procedure**: Acquisitions covered under the ‘Buy and Make (Global)’ decision would mean purchase from a foreign vendor followed by licensed production/indigenous manufacture in the country.

• **Make Procedure**: Acquisitions covered under the ‘Make’ decision would include high technology complex systems to be designed, developed and produced indigenously.

The defence procurement policies and processes in India are discussed at length in an earlier KPMG-CII publication titled ‘Opportunities in the Indian Defence Sector’. DPP lays down guidelines to govern the procurement process across all stages of procurement, from the initiation of a procurement program through RFIs to its final delivery.

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<table>
<thead>
<tr>
<th>Process Stage</th>
<th>Procurement Process</th>
<th>Time Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service requirements identified</td>
<td>Commencement of procurement process by issuing a Request for Interest which includes:</td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>• Services Qualitative Requirements (SQRs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Acceptance of Necessity (AoN).</td>
<td></td>
</tr>
<tr>
<td>Request for Proposals issued</td>
<td>Description of key requirements such as:</td>
<td>4 months</td>
</tr>
<tr>
<td></td>
<td>• Technical parameters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Quantity, acquisition category offset obligations, training requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Evaluation criteria</td>
<td></td>
</tr>
<tr>
<td>Field trials and technical</td>
<td>Evaluation of offers by Technical Evaluation Committee (TEC)</td>
<td>11-17 months</td>
</tr>
<tr>
<td>evaluations conducted</td>
<td>• Vetting of TEC report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Field trials</td>
<td></td>
</tr>
<tr>
<td>Commercial negotiations held and</td>
<td>• Technical Oversight Committee included for procurements over USD 75 million</td>
<td>4-11 months</td>
</tr>
<tr>
<td>concluded</td>
<td>• Negotiations with Commercial Negotiation Committee (CNC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Approval by authorities including Ministry of Defence, Ministry of Finance, Cabinet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Committee on Security</td>
<td></td>
</tr>
<tr>
<td>Contract signing and</td>
<td></td>
<td>24-36 months</td>
</tr>
<tr>
<td>conclusion</td>
<td></td>
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</tr>
</tbody>
</table>

Source: KPMG Analysis

The private industry’s involvement in fulfilling India’s defence requirements increased significantly post the economic liberalisation and the ensuing deregulation in the 1990s. This deregulation, in conjunction with the Indian government’s drive towards indigenization of defence equipment manufacturing, has provided significant boost to the industry. The result has been the mushrooming of companies in the SME segment focused on this sector.

3. Working with the Defence Public Sector Undertakings

India maintains an extensive defence industrial base with 40 Ordnance Factories and eight Defence Public Sector Undertakings (DPSUs) which are engaged in the manufacturing of state-of-the-art weapons and systems for the armed forces.

The Indian private sector has played a critical role in supporting the defence sector in India by acting as sub-contractors to DPSUs, OFBs, Base Workshops of Army and Base Repair Depots of Air Force and the Dockyards of the Navy, primarily for supplying raw materials, semi-finished products, parts and components. The DPSUs and OFBs outsource about 20-25 percent of their requirements from the private sector (mainly SMEs). About 25 percent of this requirement is met through small-scale sector

Besides this, a ‘Fast Track Procedure’ was promulgated in September 2001 to ensure expeditious procurement for urgent operational requirements foreseen as imminent or for a situation in which a crisis emerges without prior warning.

The DPSUs have also collaborated with many foreign companies towards designing high-end military use products. Some of them are as follows:

- **Ballistic Missile Defence (BMD) System:** With the help of Israel and France, Defence Research and Development Organization (DRDO) is developing a BMD system to be deployed by 2015. The system will be based on radar technology for tracking and fire control.

- **Indian Aircraft Carrier Project 71 INS Vikrant:** Fincanteri is currently a design consultant for integrating the propulsion system and Russian firm NDB is contributing to aviation technology to Cochin Shipyard Ltd. in this project that started in 2001-02.

- **Light Combat Helicopter (LCH):** The HAL is developing a 5.5-ton twin engine LCH is a derivative of Druv Advanced Light Helicopter (ALH) with tandem seating. Like the Druv ALH, the LCH is powered by two Shakti engines jointly developed with France’s Turbomeca

- **BrahMos Missile:** BrahMos is a supersonic cruise missile that can be launched from submarines, ships, aircraft or land. It is a joint venture between India’s DRDO and Russia’s NPO Mashinostroyenia, who have together formed the BrahMos Aerospace Private Limited.

- **Lockheed Martin, Boeing, Northrop Grumman, EADS, Rafael Advanced Defence Systems and Israel Aerospace Industries have entered into strategic partnership with Bharat Electronics Limited.**

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5. Ministry of Defence website

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Roadblocks in the Defence Sector

There is a sense of guarded optimism in the Indian and global defence industry regarding the market opportunity. Feedback from the industry highlights several factors associated with this opportunity which can potentially act as drags to the sector’s development in India.
While the overall industry feedback in India is upbeat about the potential opportunities in the Aerospace and Defence sector, DPSUs continue to have considerable advantages in the form of excise duty concessions, payment term considerations, contract award and offset preferences. The Indian private companies and SMEs would find the Indian government’s decision-making timeline and procurement processes onerous and may indeed be consistently non-price competitive relative to the DPSUs, given the advantages outlined above. In the case of foreign suppliers, the incumbency of DPSUs, Russian and Israeli suppliers, through-life program liability clauses and associated insurance costs, technology transfer and service taxes, Foreign Corrupt Practices Act (FCPA) risk, as well as the requirement to self-finance all DPP-mandated pre-contract tests and evaluations by the Indian government are outstanding issues to resolve.

All the same, the attitude of the larger industry, both domestic and global, with respect to leveraging this opportunity adequately can at best be described as being one of guarded optimism. This is primarily on account of several factors associated with the defence sector which can potentially act as drags to the sector’s growth in India.

Feedback from the industry provides the following cautions regarding the development of the defence industry in India

- **Lack of a coherent industrialization policy:**
  For India to realize its objective of building the military capabilities, the Government needs to develop a comprehensive industrialization strategy for defence to coordinate the use of offsets, transfer of technology, FDI and the public and private sector defence industry in India will be critical to this industrialization strategy

- **Lack of domestic capability to cater to the demand from global primes:**
  The domestic manufacturing industry will be hard pressed to cater to the demand from the global primes for components, which they will need to procure from India to discharge the potential offset obligations. This capacity constraint can be a potential deterrent to the foreign companies, especially when seen in light of efficient supply chain and program management which are at the core of such manufacturing projects

- **Taxation Issues:**
  India has a complex taxation regime with a large number of taxes applicable at different stages of the manufacturing process. The tax regime is perceived as aggressive and bureaucratic in its application. For example, while the indirect tax laws provide various exemptions and concessions from payment of custom duty (on imports) and excise duty (on domestic manufacturing) of capital goods, machinery, equipment, spares, tools, etc. for use by the Armed Forces and defence sector, such benefits are specific in nature and have been restricted to certain types of equipment, machinery, etc. or to various programs or development projects undertaken by the Ministry of Defence.

- **Restrictions on foreign investment:**
  Currently, 26 percent FDI is allowed in the defence sector which is regarded as highly restrictive by foreign defence companies. This limit does not allow the foreign company significant control over the Indian JV entity, which has direct implications for adequate management control

- **Limitation of liability:**
  The current policy framework and contractual issues relating to through-life product liability and indemnification are particularly onerous to domestic and foreign private companies. Under the current system, the liability of the supplier extends to the entire life cycle of the product, even when the product is not under the supplier’s care, and is potentially unlimited. These provisions can act as a potential deterrent to active involvement of foreign suppliers

- **Restrictions on dual use technologies:**
  The extent of qualifying offsets, which is currently limited to a list of 13 permitted categories of products manufactured by the Indian defence industries as contained in DPP 2008, is perceived as being limiting and restrictive. These provisions restrict an adequate realization of the policy objectives. Ideally, offset credit should be afforded to purchases from the Indian industry for products in sectors which have a direct bearing on the defence of the country, like commercial aerospace and homeland security. The ambit of this category can later be expanded to make the provisions more enabling

- **Inadequately trained manpower:**
  Defence acquisition is a highly specialized process and needs adequately trained manpower. In India, we lack a dedicated cadre of personnel for capital acquisitions along with any specific training programs for staff involved in the acquisition process. The creation of a separate and dedicated institutional structure to undertake the entire gamut of procurement functions is required to facilitate a higher degree of professionalism and cost-effectiveness in the defence procurement process.

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Conclusion

The renewed warmth in the Indo-US political relations and the large exposure of US defence companies to the Indian defence requirements has created unique opportunities for the two countries to jointly explore growth avenues in this sector.

US defence industry players are increasingly looking out to the East to establish manufacturing bases in order to take advantage of this region’s growing engineering design and low cost manufacturing capabilities. Going forward, moving to low cost bases is expected to be a major trend. On the other side, India has firmly emerged as a manufacturing and engineering hub and has witnessed marked success auto component and medical equipment manufacturing. This, combined with a strong presence in the IT sector, could lead to a natural step up to defence manufacturing.

The natural synergies at work here can not be overlooked by the US companies entering the defence manufacturing space in India. These companies will attain exposure to the rapidly growing defence procurement budget of a strategic partner. The benefit to the Indian industrial base would be in the form of upgrading of domestic infrastructure, capacity addition and research and development activities.

The emerging geopolitical realizations combined with sound economic rationale make collaborations between the US and Indian defence industries seem imperative. Most important, the collaboration in the respective defence industrial establishments of the two countries will create a firm foundation for enhancing an important friendship among two historical democracies with important responsibilities for like-minded regional populations in the 21st century.
The American Chamber of Commerce (AMCHAM) in India is an association of American business organizations operating in India. AMCHAM was established in India in 1992 and today has about 500 members, out of which US companies make up about 95 percent of the members and individuals or honorary members the remaining 5 percent.

AMCHAM - India is accredited to the Chamber of Commerce of USA, Washington DC, USA (COCUSA). It is also a full member of the Asia Pacific Council of American Chambers of Commerce (APCAC). AMCHAM enjoys proximity in relations with the US Embassy officials with the incumbent US Ambassador to India being the Honorary President of AMCHAM. It receives continuous support from the US Embassy in fulfilling its prime objectives of promoting activities that would encourage and stimulate investment by US companies in India, supporting ongoing business operations of its members and encouraging bilateral trade between India and USA.

AMCHAM fulfills these objectives in a variety of ways, such as providing a forum on an organized basis in which American business organizations in India can discuss and identify common issues and interests regarding their economic and commercial interests in India and/or the United States, maintaining Sectoral Committees to implement the primary objectives of these committees, undertaking advocacy on policies and procedures affecting AMCHAM members’ operations in specific sectors as well as affecting the growth of foreign direct investment in India, etc.

AMCHAM currently has the following sectoral committees which focus on specific sectors to achieve their prime objectives:

- Defence Equipment Committee
- Education Committees
- Energy Committee
- Finance, Banking and Insurance
- HR Forum
- ICT Committee
- IPR Committee
- Infrastructure Committee
- Medical Equipment and Devices Committee
- Tax & Tariff Committee

AMCHAM’s defence equipment committee is working towards the aim of building stronger relations between US and Indian defence sector, building partnerships and encouraging investments by US companies in India. Currently the committee has over 30 members who meet about once a month to share sector expertise, discuss the current defence scenario, brainstorm possible partnerships and engage the governments of both the countries to come together and help strengthen their relations.

The American Chamber of Commerce of the USA, India (AMCHAM) is a non-profit organization that represents the interests of US companies in India. It provides a platform for American businesses to network, exchange ideas, and influence policy decisions in India.

AMCHAM’s members are typically top-level executives from US companies operating in India. The organization facilitates business relationships between US companies and Indian businesses, offers advocacy on policy matters, and provides networking opportunities.

AMCHAM currently has a strong membership base consisting of companies from a wide range of sectors, including defense, technology, healthcare, and manufacturing. The organization is actively engaged in promoting trade and investment between the US and India, contributing to the bilateral economic relationship.

AMCHAM collaborates with various stakeholders, including the Indian government, Indian businesses, and other business groups, to address common concerns and advocate for a conducive business environment in India. The organization also provides support to its members through various initiatives, such as trade missions, informational events, and networking opportunities.

Overall, AMCHAM plays a crucial role in strengthening the business relationship between the US and India, fostering mutual understanding and collaboration in various sectors.
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“We at KPMG recognise the significant opportunity that the defence sector presents to our clients. We have a dedicated and specialist team to help clients and to provide a complete solution – from strategy formulation to execution.”

-Richard Rekhy, Head of Advisory - KPMG in India
Acknowledgement

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Vice President – Boeing International

**Vivek Lall**  
Chairman – Defence Equipment Committee, AMCHAM in India  
Vice President and India Country Head – Boeing Defence, Space and Security

**Roger Rose**  
Co-Chairman – Defence Equipment Committee, AMCHAM in India  
Chief Executive – Lockheed Martin, India
## List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AAI</td>
<td>Airports Authority of India</td>
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<tr>
<td>ALH</td>
<td>Advanced Light Helicopter</td>
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<td>BEL</td>
<td>Bharat Electronics Limited</td>
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<td>BMD</td>
<td>Ballistic Missile Defence</td>
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<tr>
<td>CAD/CAM</td>
<td>Computer Aided Design/Computer Aided Manufacturing</td>
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<tr>
<td>CoE</td>
<td>Centre of Excellence</td>
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<tr>
<td>DCS</td>
<td>Direct Commercial Sales</td>
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<tr>
<td>DPG</td>
<td>Defence Policy Group</td>
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<td>DPPG</td>
<td>Defence Procurement and Procedure Group</td>
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<tr>
<td>DPP</td>
<td>Defence Procurement Procedure</td>
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<tr>
<td>DPSU</td>
<td>Defence Public Sector Undertakings</td>
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<td>DRDO</td>
<td>Defence Research and Development Organization</td>
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<td>DSCA</td>
<td>Defence Security Cooperation Agency</td>
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<td>ESO</td>
<td>Engineering Services Outsourcing</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<td>FMS</td>
<td>Foreign Military Sales</td>
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<tr>
<td>GSL</td>
<td>Goa Shipyard Limited</td>
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<td>HAL</td>
<td>Hindustan Aeronautics Limited</td>
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<tr>
<td>IDSA</td>
<td>Institute for Defence Studies and Analysis</td>
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<tr>
<td>INS</td>
<td>Indian Naval Ship</td>
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<tr>
<td>ISRO</td>
<td>Indian Space Research Organization</td>
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<tr>
<td>JV</td>
<td>Joint Venture</td>
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<tr>
<td>LCH</td>
<td>Light Combat Helicopter</td>
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<tr>
<td>LOA</td>
<td>Letter of Acceptance</td>
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<tr>
<td>LOO</td>
<td>Letter of Offer</td>
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<tr>
<td>LOR</td>
<td>Letter of Request</td>
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<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
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<tr>
<td>MRO</td>
<td>Maintenance Repair and Overhaul</td>
</tr>
<tr>
<td>NASSCOM</td>
<td>National Association of Software and Services Companies</td>
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<tr>
<td>OEM</td>
<td>Original Equipment Manufacturer</td>
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<tr>
<td>RFI</td>
<td>Request for Information</td>
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<tr>
<td>RFP</td>
<td>Request for Proposal</td>
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<tr>
<td>SEZ</td>
<td>Special Economic Zone</td>
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<tr>
<td>SME</td>
<td>Small and Medium Enterprise</td>
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</table>
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