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GROWTH OF THE INDIAN PRIVATE DEFENCE AND AEROSPACE INDUSTRY

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INTRODUCTION

Aerospace can be defined as the technology and industry that deal with various elements of aviation and space flight. The defence industry holds critical importance due to the size of India's military forces. India imports more than 50% of its defence needs and over 12% of global defence production is routed to India. India's aim is to become a leader in technology research and production. To achieve its goal, it must reduce reliance on imports and become self-reliant. Ever since the government has begun to encourage the entry of private sector players into the Aerospace and Defence industry, a trend with increasing numbers of more MSMEs and business giants entering the market can be observed.

Private players can bring about structural changes through incentives and formalised regulations which in turn, could help form a smooth functioning mechanism. They can also increase accountability, reduce bureaucratic procedure, lighten the burden on the government and inculcate more discipline among the labourers. This would shift the focus from political threats to economic goals and create revenue, allowing the public sector to pay off old loans. The Aerospace and Defence industry in the country has grown at a greater rate ever since private sector players have taken over shared production responsibility and are working alongside the public sector to make the industry self-reliant. Increase in airline travel and rising geopolitical tensions will further support the growth of the Aerospace and Defence industry.

Aerospace companies usually look into both civil and defence requirements. The high demand for inexpensive air travel in developing countries like India has created a market for these prominent global players to set up shop within these countries, and fulfil the demand through collaborations with local players. Global Companies like Boeing and Airbus that have stepped into the Indian market, design, manufacture and sell airplanes, helicopters, military transport, rotorcrafts, rockets, satellites and missiles, launch vehicles as well as provide support services.¹

THE SET-UP

The industry has seen a rapid growth with rising activities in both the defence and civil sector. With an increase in India's Defence Capital Expenditure, more opportunities are also opening up for Defence Aerospace. Projections for Indian Aerospace and Defence market show a 70 billion US Dollar economy by 2030 driven by demand for infrastructure advancements and

¹ Carnegie Mellon University, *Aerospace and Defence Industry Report*, 2020.

government support.² The influence of industry players, innovators and researchers, along with state support has opened new opportunities for this industry. It now requires highly qualified workers along with precision and advanced equipment. New Delhi, Bangalore and Hyderabad are leading the rest of the country as Aerospace Clusters. Most labs and manufacturing set ups are placed in Bengaluru or Hyderabad marking their prominence in the Aerospace and Defence industry.

Aero India 2021 included India among the top five countries in the Aerospace and Defence industry with active participation from both public and private sectors.³ The industry has already seen FDI (Foreign Direct Investment) inflow of over 500 million US dollars as of 2020. Research and Development is flourishing under the Innovations for Defence Excellence Platform. It supports start-ups, MSMEs, innovators and institutes with funding to conduct research and development in order to prepare for India's future needs. Defence and Aerospace acts as a strong pillar for self-reliance of "Atma Nirbharta" that is being encouraged by the current government. Low costs of production, law and resources, supportive government and regulations provide huge opportunities. Participation of private sector, global players and India's own geographical location helps boost the industry in aspects of production and use.

THE INDUSTRY AND THE PLAYERS

Aerospace programs are complex in nature and their sustenance is expensive, making the development of these systems challenging. The Aerospace and Defence industry is interlinked. For instance, leading Aerospace companies have defence programs. India is the third largest military spender in the world, with its defence forces being the second largest in the world.⁴ Private sector has taken over the Aerospace industry and dominates technology and infrastructure. Even though no private sector company till date has produced a combat aircraft from scratch, many have shown an interest in doing so.

India decided to open its defence sector for 100% FDI which is likely to result in better access to modern technology.⁵ India may be one of the leading defence countries, in size and budget but it is still a few decades behind the rest of the world's leading countries. It has depended on heavy duty import of technology to make up this lag. Since FDIs preface long term commitments, it ensures lasting relations that are positive for both the foreign and local counterparts. Strategic partnerships initiated by the government can set the base for long term business relations between global manufactures and Indian firms leading to better funding for research, development and manufacturing.

² India Brand Equity Foundation, *Perspectives on India*, 2020.

³ IBEF, *Perspectives on India*, 2020.

⁴ Captain AK Sachdev, *Make in India and The Aerospace Industry* (Indian Defence Review) 2020.

⁵ Adhana, Deepak; Saxena, Mayank; *Foreign Direct Investment In Defence Sector: Security Concern of Strengthening India's Defence*. 2017.

Aerospace industry is the perfect example of intermixing business, economic, political and military networks. It also best exposes the shortages, fragilities and limitations of the current global economy.⁶ India undoubtedly has the potential to become one of the key players on an international level. Globalisation of the Aerospace industry has changed the face of its function since companies no longer manage complete chains of operations, rather it is now an arena of integrated interdependent players. Indian companies currently work with Airbus, Boeing and Thales to name a few. Moreover, engines of Rafale aircrafts are the result of a joint venture between Reliance Defence and Dassault.

Private Sector Firms include Tata, L and T, Mahindra and Mahindra, Infosys, Wipro, HCL and many others that tied up with government organisations such as Hindustan Aeronautics Limited (HAL), Indian Space Research Organisation (ISRO), Defence Research and Development Organisation (DRDO) and National Aerospace Laboratories (NAL) as well as international companies like Boeing, Lockheed Martin, Dassault, GE, EADS, and Sikorsky. Primary functions of the private sector include avionics, electrical systems, testing, small jet manufacture, IT solutions and much more. BrahMos Aerospace is another major player in India's Private Defence Industry.

Bangalore is one of the leading aerospace super clusters with the presence of HAL, ISRO, IISc (Indian Institute of Science) and NAL. Bangalore also has a large number of new technology firms allowing the Aerospace industry to flourish. Increasing market for aircrafts within the country, launching of research and development, growth of outsourcing by foreign aerospace companies has allowed Bangalore to be recognised for its potential. This is evidenced by the Aero India air shows conducted in the city every alternate year, where deals worth billions of US dollars are signed between Indian and Global Firms.⁷

The Airbus Engineering Centre India is one of the most important aircraft manufacturing enterprises. It focuses on the development of advanced capabilities, management systems, and production of high-performance aircrafts. Airbus works with local companies like TATA, Quest and HAL for manufacturing detail parts. It has also initiated many small engineering plans with HCL and Infosys. Boeing entered research with IISc to focus on nanotechnology, alloys, manufacturing and testing, collaborating with private Research and Development providers, universities, government organisations and other companies. Knowledge is crucial to innovation, and focus on it allows the evolving dynamic of technology.

REASONS FOR A FLOURISHING PRIVATE SECTOR

Public Defence and Aerospace Industry is plagued by bureaucratic red tapism, budgetary issues and parallel concerns which leads to sellers and investors facing uncertainty. This makes it

⁶ Moser, Roger; von der Grancht, Heiko A; Gnatzy, Tobias; *The Indian Aerospace Industry*, 2019.

⁷ Mani, Sunil; *The Flight from Defence To Civilian Space: Evolution of the Sectoral System of Innovation of India's Aerospace Industry*, 2010.

difficult to procure capital for capacity building and sustained funding to manage upgrades.⁸ India's shift from relying on imports to become self-reliant will follow resolved commercial issues, information security, intellectual property protection and flexible regulations. Private sector provides a quicker, more dedicated approach to the consumer which will allow the industry to bloom.

Low-cost engineers and scientists have opened the gates for global players to invest in India. Research hubs have been set up in IISc Bangalore and IIT Kanpur for aircraft design. Public-Private-Partnership has provided an extra boost with collaborations between and joint production. India imports almost all material for manufacturing, due to which it is limited to being a 3rd tier supplier to the industry with maximum focus on low-tech design and engineering activities.⁹ Since transfer of technology can only take India so far, there is a need for India to take control of the reins and develop an indigenous Defence and Aerospace platform with Public-private partnership. A better defence budget makes India's industry more attractive to global participation which will help it grow into a competitive market.

The Defence sector has grown in two phases - before 2001 and after it. While the initial phase depended on public sector research and development, private participation has brought in opportunities for manufacturing and large-scale production as well. Present Picture of the Indian Aerospace Industry has five driving forces - buyer power, supplier power, threat of new entrants, threat of substitutes and rivalry. These factors can be studied to understand the reasons for the current pace and can also be used to analyse future progress. Small size of buyers, low bargaining ability of suppliers, high levels of growth making room for old and new companies and lack of substitutes available for the use of commercial aircrafts.

The public sector defence companies are overburdened and the responsibility to make India's defence industry self-sufficient lies with the private sector.¹⁰ Through higher FDI, India can boost its technology and enhance economic benefits from this industry. Relaxed guidelines have made investment easier, since both the investors and the local industry can benefit from this increase. Thanks to this, Research and Development will see a boost as well.

The Defence Exposition organised biennially by the Department of Defence Production, Ministry of Defence, Government of India. It showcases the latest technologies and products in India, and provides an opportunity for leading defence manufactures to showcase their capabilities and conduct business. Indian companies are flourishing both internationally and nationally and are gradually reaching their competitive potential for quality standards, efficiency and manufacturing facilities. The private sector earlier played a supporting role by supplying raw materials and components. Since 2001, this has transformed into system integration and manufacturing defence equipment.¹¹ Indian firms have grown to be

⁸ Manufacturing Today, *Looking at growth for the aerospace industry in India*, 2019.

⁹ Moser, Roger; von der Grancht, Heiko A; Gnatzy, Tobias; *The Indian Aerospace Industry*, 2019.

¹⁰ Adhana, Deepak; Saxena, Mayank; *Foreign Direct Investment In Defence Sector: Security Concern of Strengthening India's Defence*. 2017.

¹¹ Defence Aerospace, *Growth of Private Defence Industry Encouraging*, Press Information Bureau of India, 2010.

transnational companies. Government has been pushing for indigenisation of defence production by the public and private sector. The focus is to both buy and make Indian.

Aero India Air Show 2019 is a testimony of growing Indian companies in the private sector. More than 600 Indian companies participated, with Tata taking the lead.

The TATA Group drew various synergies to design and produce equipment suitable for the Defence Forces under TATA Aerospace and Defence.¹² Private companies have proven to be reliable and cheaper alternatives. TASL is working on one of the biggest “Make in India” projects i.e., making F-16 fighter jets. Tata group has emerged as a global supplier, a trusted partner to the Ministry of Defence and also has a strategically important role to play. Tata group aims to consolidate five companies across the group to form a single entity, Tata Aerospace and Defence, the largest private initiative in the country.¹³ Not only will it provide for the Indian Defence Forces but the full range of integrated solutions by TATA Aerospace and Defence will include land mobility solutions, airborne platforms and systems, weapon systems and sensors. The consolidation will involve Tata Motor’s defence division, TAL Manufacturing Solutions Ltd., Tata Power’s strategic engineering division, Tata Advanced Materials Ltd and Tata Advanced Systems Ltd.

Similarly, Dassault Reliance Aerospace Limited is a subsidiary working on production of components for business jets. One of the most talked about purchases made by India is 36 Rafale multi-role fighter jets in fly away condition. This deal is executed by Dassault and its Indian partner companies from the private sector. Dynamic Technology is a Bengaluru based leading private R and D organisation. Similarly, Mahindra Aerospace, Larsen and Toubro, Wipro Infrastructure Engineering, the Kalyani group, Adani Group and Punj Llyod collaborated with Government and global players to develop and produce world class aircraft components and technology.

MAINTENANCE, REPAIR AND OVERHAUL (MRO)

The Indian MRO Industry is yet to match pace with the global multi-dollar industry. Maintenance, Repair and Overhaul essentially retain or restore an item to its optimal capabilities in order to perform required tasks, making MROs an essential, indispensable tool to the Aerospace and Aviation industry. The market for MRO sector is divided into four major segments,¹⁴ including heavy maintenance, engine maintenance, component maintenance and line maintenance. These services follow different time frames, where line maintenance may be done after 100 hours of flying and engine overhaul, after 5000.¹⁵ These services are performed by specialised agencies. Since India is in the process of becoming a large defence aircraft

¹² Indian Defence Review, *Private Sector in Aerospace and Defence: An evolving success story*, 2020.

¹³ TATA Press Release, *Tata Sons to form Tata Aerospace and Defence*, 2018.

¹⁴ Ritika Behal, *Indian Aircraft Maintenance, Repair and Overhaul Market*, 2017.

¹⁵ Ritika Behal, *Indian Aircraft Maintenance, Repair and Overhaul Market*, 2017.

market, the requirement for military MRO capabilities will also increase. This, however, requires exponential growth in India's MRO service sector to keep up with the demand of the Aerospace and Defence sector. Private manufacturers of the current age must offer service along with purchase for continued operational requirements.¹⁶ This would help the indigenous private sector take over the role of foreign MRO services and expand the industry in India. India could provide MRO facilities, not only for itself but for the entire region due to its geographic placement and the lack of overhaul services in West and South Asia.

COVID IMPACT

Covid has resulted in a drastic decrease in passenger demand, almost half of that in 2019. COVID-19 crisis has seen a drop in capacity due to banned travel to foreign countries, and loss of jobs for millions of employees in 2020. While the industry was on its way to generate millions of jobs and make large contributions to the GDP, COVID has reversed the progress trajectory. The pandemic has forced many governments to implement lockdowns which has had adverse impact on economies worldwide, including the Aerospace and Defence Industry. During this pandemic period, India has also dealt with many infiltrations and militant attacks reiterating the need for modern updated technology in defence. The Indian defence services have continued to fight even in this time, to protect the country against possible threats looming at the border.

India needs to maintain international collaborations and investment in order to keep the industry alive. With a drop in the demand, there is also lesser need for aircrafts which will have a domino effect on the need for employees in the aviation and aerospace industry. Rethinking of the Aerospace and Defence Industry is required to survive the pandemic. There is also a need for amendments in standard protocols to accommodate the new normal in order to facilitate safe travel when it resumes. Full recovery may be impossible, and so it is important to re-imagine development of the industry and its contributions with redefinition of both long term and short-term goals.

CONCLUSION

While FDI has increased exponentially, it is not enough to meet the potential of the Aerospace and Defence industry or to further the "Make in India" campaign and develop the industry. While India has high expectations of becoming a part of the Nuclear Suppliers Group (NSG), it imports more than half of its defence equipment and technology. India needs high quality technology and manufacturing to fulfil its self-reliance goals. During the 2000s, this industry first saw a shift towards privatisation and the transformation of state-owned undertakings slowly moved towards private Indian and foreign companies. Production in India can be boosted through a transfer of Technology and Research and Development. Indian defence

¹⁶ Ritika Behal, *Indian Aircraft Maintenance, Repair and Overhaul Market, 2017*.

industry is growing rapidly and needs modernisation, joint ventures and co-production of technologically advanced products to keep up this pace.

To increase private sector participation in the Defence industry, special provisions to stimulate growth is required which urgently calls for the procurement of capital equipment. Industry corridors to facilitate transportation and communication within the country and globally and revamped FDI policies to suit the direction of the industry as well as flexible regulations to reinstate the role of firms, the government and global market will be defining characteristics. The rapid growth of demand has put extreme pressure on the existing systems calling for modernisation of communications, navigation and surveillance as well as relevant sub-systems. Many private players such as Adani, TATA, Mahindra have tie ups with foreign defence manufacturing firms. They are committed to nurturing innovation and skill development in the country. Production facilities will also improve under the guidance of global leaders. Make in India is an excellent initiative, but has not reached its potential yet. Self-sufficiency is very important for steady growth of the industry, and to rise in global recognition.

Indian Aerospace and Defence industry is about to enter a new era of greater responsibility and production. With India developing into a manufacturing hub, its competitive nature and efficiency is improving to prove its skill and reliance. However, COVID-19 has had a catastrophic effect on the aerospace and defence industry, all over the world. Immediate action, in accordance with government regulations, needs to be taken in order to safeguard the existence and continued growth of this industry.