An Assessment of Aerospace and Consumer PEC Industry

November 14th, 2025

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Abbreviations

PEC - Precision Engineering Component

CY – Calendar Year

ECB - European Central Bank

FDI - Foreign Direct Investments

IIP – Index of Industrial Production

RCEP - Regional Comprehensive Economic Partnership

PLI - Production-Linked Incentive

GST - Goods and Services Tax

WPR – Workforce Participation Rate

NMP - National Manufacturing Policy

PMP - Phased Manufacturing Program

NIMZ - National Investment & Manufacturing Zones

IILB - India Industrial Land Bank

IPRS - Industrial Park Rating System

NSWS - National Single Window System

PDC - Project Development Cells

SEZ - Special Economic Zones

IoT – Internet of Things

AI – Artificial Intelligence

GMP – Good Manufacturing Practices

SAF – Sustainable Aviation Fuel

EHS – Environment, health, and Safety

UAM – Urban Air Mobility

NDT – Non-Destructive Testing

MSME – Micro, Small and Medium Enterprises

ZEZ – Special Economic Zone

CSF – Critical Success Factor

MRO – Maintenance, Repair, and Overhaul

OEM- Original Equipment Manufacturer

D2P – Detailed Parts Partner

PC – Personal Computer

EU – European Union

CPSIA – Consumer Product Safety Improvement Act

BIS – Bureau of Indian Standards

NPE – National Policy on Electronics

BIS – Bureau of Indian Standards

OSAT - Outsourced Semiconductor Assembly and Test

DLI – Design Linked Incentives

ATMP - Assembly, Testing, Marking, and Packaging

MRI – Magnetic Resonance Imaging

CVD – Chemical Vapor Deposition

ALD – Atomic Vapor Deposition

PVD – Physical Vapor Deposition

UAV – Unmanned Aerial Vehicles

Exchange Rates:

FY2020- 1 USD= 75.33 INR

FY2021- 1 USD= 73.20 INR

FY2022- 1 USD= 75.90 INR

FY2023- 1 USD= 82.18 INR

FY2024- 1 USD= 83.38 INR

FY2025- 1 USD= 85.42 INR

1.Global Macro Economy

1 Global Economic Section

1.1 Global Macroeconomic Overview

The global macroeconomic outlook for 2025 reflects a cautiously optimistic tone amid a complex backdrop of challenges and opportunities. Despite some headwinds, including trade uncertainties and geopolitical tensions, the world economy is demonstrating resilience, adaptability, and promising growth prospects across several regions.

Global GDP growth is projected to stabilize around 2.80% in 2025, just slightly below the 3.30% recorded in 2024, signalling a steady overall momentum. This performance reflects significant front-loading of economic activity ahead of tariff implementations, resulting in a more measured impact on trade as the year progresses. Financial conditions are improving in major economies, supported by fiscal expansions in key jurisdictions, which are fostering investment and consumer spending confidence.

Regionally, the outlook is varied but bright. Emerging markets, led by India, are powering growth with forecasts above 6.20% in 2025, buoyed by strong domestic demand, robust labor markets, and technological advancements. China's economy continues to show resilience despite a modest slowdown, fuelled by policy support and expanding innovation sectors. The European Union is poised for a moderate rebound, with growth expected to accelerate from subdued levels as energy prices ease and investment initiatives take effect.

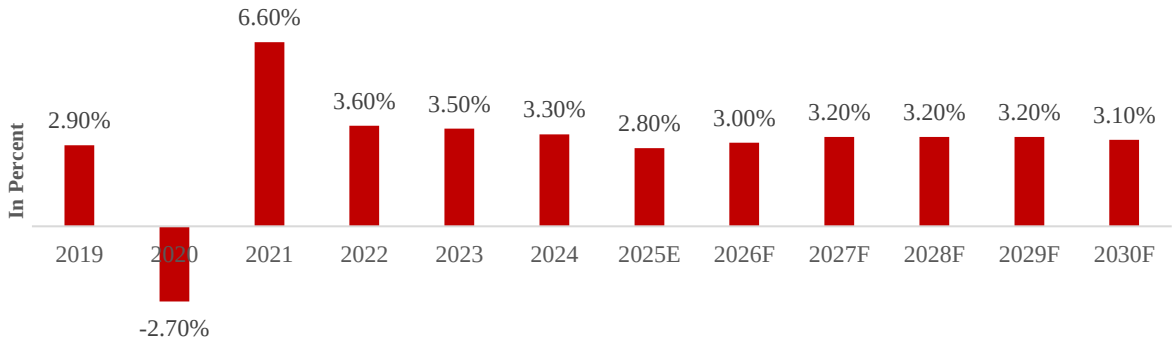
Trade policy uncertainty, though still a risk, is showing signs of easing as major economies engage in dialogue and negotiate tariff reductions. The EU-US trade agreement framework, a new political and economic arrangement announced in August 2025, establishes a 15% tariff on most EU exports to the US, with preferential zero-tariff access for a range of US agriculture, seafood, energy, and industrial goods. This renewed cooperation is helping to stabilize supply chains and reduce costs for businesses and consumers globally.

Geopolitical tensions, while persistent, have not significantly derailed investor confidence or financial markets, thanks to proactive policy measures and improved diplomatic engagement. This environment supports a constructive outlook for global commerce and innovation.

1.2 Global GDP Growth

Global GDP growth between 2019 and 2024 demonstrated significant volatility, influenced by periods of robust expansion, economic deceleration, and the impact of unprecedented global events. The global GDP is expected to grow at 2.80% in 2025.

Figure 1.1: Percentage Change in Global Real Annual GDP Growth Rate, 2019-2030F



Source: International Monetary Fund (IMF) | Note: The annual period for the above chart is Calendar Year (CY)

The pandemic in 2020 led to an unprecedented global recession, with GDP contracting by 2.70% due to widespread lockdowns, disruptions in production, and a dramatic decline in international trade and travel. In 2021, the world economy rebounded strongly with a 6.60% growth, driven by vaccine rollouts, stimulus measures, and the release of pent-up consumer demand as economies reopened. Despite this recovery, global growth moderated again in 2022, settling at 3.60%, as inflationary pressures and geopolitical tensions, particularly Russia's invasion of Ukraine, dampened economic activity. In 2024, global growth further decelerated to 3.30%, reflecting tighter monetary policies, supply chain issues. and an uncertain global economic environment. The global economy is

experiencing a new wave of tariffs and trade barriers, notably between major economies like the US, China, and the EU. The recent escalation of US tariffs (including on India and China) has had its impacts on production costs, disrupted supply chains, and dampened global trade growth, these are immediate short-term reactions. However, the long-term impacts are uncertain with countries engaged in continued diplomatic and dialogue. This trend reduces export opportunities and triggers business uncertainty, leading to postponed investments.

The International Monetary Fund (IMF) projects global GDP growth to remain relatively stable between 2026 and 2030, fluctuating narrowly around 3.00%-3.20% range.

The US GDP is expected to grow 1.80% in 2025, reflecting a moderate recovery amid easing inflation and supportive monetary policies, while ongoing trade tensions and tariff shocks could pose risks to growth.

The European economy is also expected to grow 1.20% in 2025. Growth is expected to remain stable at around 1.60% through 2027 and expected to reach 1.40% in 2030. This modest growth trajectory highlights ongoing challenges, including high public debt levels and geopolitical uncertainties affecting the region's economic stability.

Geopolitical risks, such as on-going conflicts and trade tariffs, contributed to price instability, particularly in energy and food markets. Central banks worldwide responded by tightening monetary policies, however the rates have now started to ease from their 2023–2025 highs.

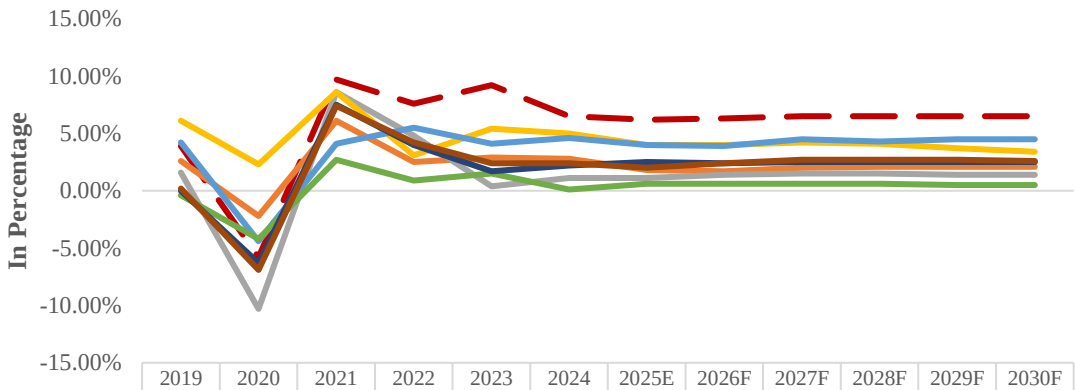
Inflation in the USA is 3.00% in 2025, with estimates suggesting a decline to around 2.20% by year-end. The Federal Reserve announced 0.25% points interest rate cut on 17th September 2025 with federal fund rates to fall in a range between 4.00% and 4.25%.

The Inflation in Europe is expected to reach 3.70% in 2025, with estimates suggesting a return to the European Central Bank's (ECB) target of around 2.10%, with projections indicating a further decline to 1.70% in 2026, followed by a modest uptick to 1.90% in 2027.

In emerging economies, inflation poses additional risks which could lead to increased debt burdens and potential currency depreciation. Conversely, in more developed markets, inflationary pressures are leading to shifts in consumer behaviour, with people adjusting spending patterns and focusing on savings.

1.3 GDP Comparison India VS Advanced Economies VS EM and developing economies

Figure 1.2: Real GDP Annual Growth Trends in Key Economies (In Percent), 2019-2030F



	2019	2020	2021	2022	2023	2024	2025E	2026F	2027F	2028F	2029F	2030F
India	3.90%	-5.80%	9.70%	7.60%	9.20%	6.50%	6.20%	6.30%	6.50%	6.50%	6.50%	6.50%
USA	2.60%	-2.20%	6.10%	2.50%	2.90%	2.80%	1.80%	1.70%	2.00%	2.10%	2.10%	2.10%
UK	1.60%	-10.30%	8.60%	4.80%	0.40%	1.10%	1.10%	1.40%	1.50%	1.50%	1.40%	1.40%
China	6.10%	2.30%	8.60%	3.10%	5.40%	5.00%	4.00%	4.00%	4.20%	4.10%	3.70%	3.40%
ASEAN	4.20%	-4.40%	4.10%	5.50%	4.10%	4.60%	4.00%	3.90%	4.50%	4.30%	4.50%	4.50%
Japan	-0.40%	-4.20%	2.70%	0.90%	1.50%	0.10%	0.60%	0.60%	0.60%	0.60%	0.50%	0.50%
South America	0.00%	-6.30%	7.50%	4.00%	1.70%	2.20%	2.50%	2.40%	2.50%	2.50%	2.50%	2.50%
LATAM	0.20%	-6.90%	7.40%	4.20%	2.40%	2.40%	2.00%	2.40%	2.70%	2.70%	2.70%	2.60%

Source: International Monetary Fund (IMF) | Note: The annual period for the above chart is Calendar Year (CY)

India

In 2019, the economy grew at 3.90%, reflecting a slowdown from previous years. The 2020 contraction -5.80% was caused by strict COVID-19 lockdowns. In 2025, a strong recovery is expected with 6.20% growth, driven by release of pent-up demand and government stimulus. India is expected to remain the world's fastest-growing economy between 2026 and 2030 with growth of about 6.50%. The increase will be driven by infrastructure development, digitalization, and growth in manufacturing through programs like *Make in India*.

USA

The economy is expected to grow 1.80% in 2025 and 1.70% in 2026, reflecting the characteristics of a mature economy with stable demand and well-developed markets. This period of consolidation allows the USA to strengthen its economic foundations and adapt to global shifts. By 2030, growth is expected to improve slightly to 2.10%, showcasing the country's resilience, supported by its leadership in innovation, strong services sector, and technological advancements. The ongoing trade tensions and tariff shocks could pose risk to growth in the short term

UK

Modest growth of 1.60% was recorded in the UK in 2019, but a significant contraction of 10.30% in 2020 was experienced, ranking among the worst globally due to strict lockdown measures and uncertainty surrounding Brexit. A rebound of 8.60% in 2021 was observed as restrictions were lifted and businesses resumed operations. In 2025 the economy is expected to grow by 1.10% and 1.40% by 2030, attributed to trade challenges related to Brexit, labour shortages, and inflationary pressures.

China

Strong economic growth was maintained in China before the pandemic, with a recorded expansion of 6.10% in 2019. However, a sharp slowdown occurred in 2020, as growth declined to 2.30% due to lockdown measures and

global trade disruptions. A significant rebound was observed in 2021, with growth reaching 8.60%, supported by exports, infrastructure investments, and government stimulus. Despite this recovery, the GDP is expected to grow by 4.00% in 2025 and a gradual slowdown, with estimates of 3.40% growth by 2030.

ASEAN

The ASEAN region experienced steady economic expansion, with 4.20% growth in 2019. However, a pandemic-induced recession led to a contraction of 4.40% in 2020. A moderate recovery followed in 2021, with growth reaching 4.10%, driven by improvements in trade, digital transformation, and foreign investments. The economic outlook remains strong, with growth of 4.00% in 2025, projected to reach 4.50% by 2030.

Japan

A mild economic contraction was experienced by Japan in 2019, with GDP declining by 0.40% The downturn worsened in 2020, as a 4.20% decline was recorded due to the pandemic's economic disruptions. A moderate recovery of 2.70% occurred in 2021, supported by government stimulus measures and rising exports. The economy is expected to grow by 0.60% in 2025 and further decline to 0.50% in 2030.

South America

Economic stagnation was recorded in 2019, with no significant growth observed. A deep recession followed in 2020, as GDP declined by 6.30%, largely due to the severe impact of COVID-19 on tourism, commodities, and industrial production. A recovery of 7.50% was registered in 2021, driven by improving exports and government assistance. The economy is expected to grow by 2.50% in 2025 and sustain the same growth rate of 2.50% in 2030.

Latin America

Economic growth in Latin America was limited in 2019, with only a 0.20 % increase recorded. A severe contraction followed in 2020, as GDP shrank by 6.90%, driven by economic shutdowns and a decline in exports. A strong rebound of 7.40% was observed in 2021, supported by increasing demand for natural resources and services. The economy is expected to grow by 2.00% in 2025 and 2.60% by 2030.

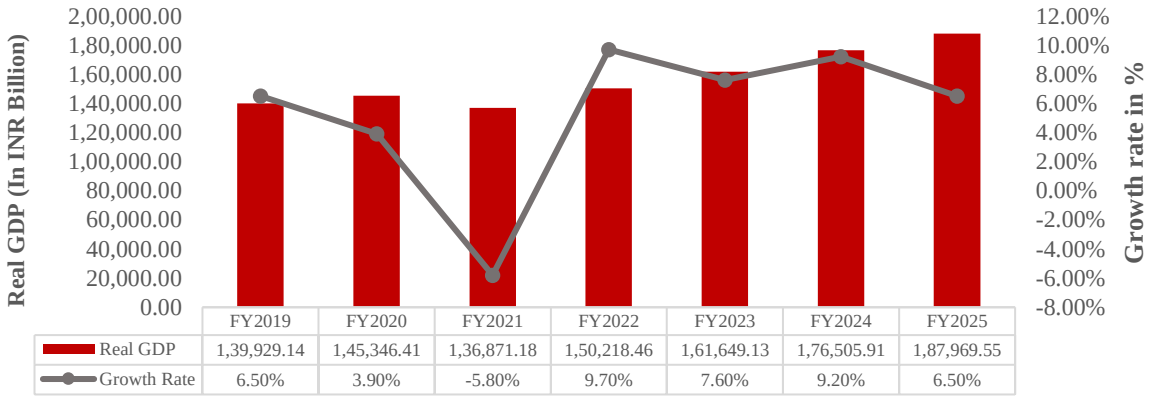
2. India Macro Economy

2 Indian Economic Overview

2.1 Indian Macro Economic Overview

Indian GDP grew at 6.50% in FY2025, driven by strong domestic consumption, a robust services sector, and increasing foreign direct investments (FDI). In FY2025, the real GDP reached INR 187,969.55 Bn, signalling a robust recovery and optimism for sustained economic expansion.

Figure 2.1: Indian Real GDP (In INR Bn) & Growth Rate (In Percentage), FY2018-FY2025



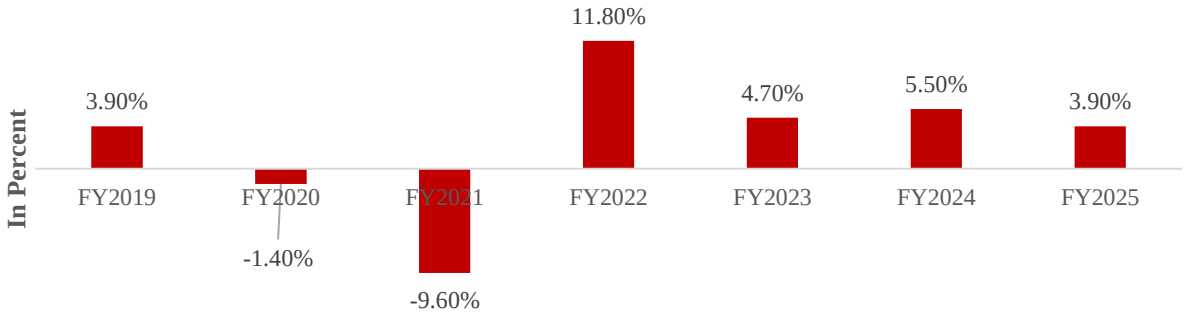
	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Real GDP	1,39,929.14	1,45,346.41	1,36,871.18	1,50,218.46	1,61,649.13	1,76,505.91	1,87,969.55
Growth Rate	6.50%	3.90%	-5.80%	9.70%	7.60%	9.20%	6.50%

Source: Ministry of Statistics and Programme Implementation (MoSPI) | Note: constant prices and base year of 2011-12 | Currency exchange rate taken as of 31st March for the respective year

2.1.1 Trends & factors for increase in IIP

The Index of Industrial Production (IIP) reflects the performance of key industrial sectors, including Mining, Manufacturing, and Electricity, along with the General Index. Manufacturing Index grew by 3.90% in FY2019 but experienced a contraction during the COVID period. The manufacturing IIP was quick to recover in the post COVID and grew 4.70% in FY2023 and 3.90% in FY2025. This momentum is expected to continue.

Figure 2.2: Growth Rate of IIP in Manufacturing Sector in India (In Percent), FY2019-FY2025

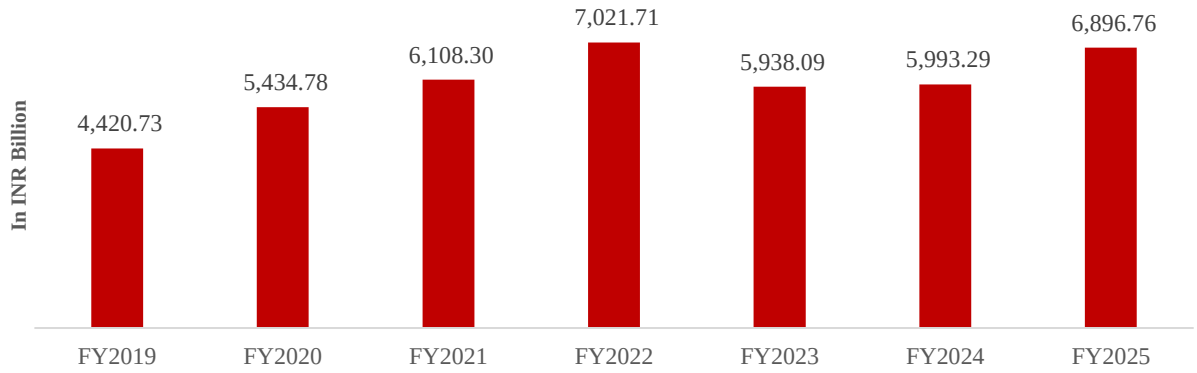


Source: Ministry of Statistics and Programme Implementation (MoSPI) | Note: constant prices and base year of 2011-12

2.1.2 FDI into India

Foreign Direct Investment (FDI) into India has been a key driver of economic growth, fostering advancements in infrastructure, manufacturing, and technology. With investor-friendly policies, a robust domestic market, and strategic initiatives, India continues to remain a favourable investment destination, drawing significant global capital owing to attractive investment opportunities. In FY2025 the FDI into India was around INR 6,896.76 Bn (USD 81.04 Bn). FDI equity inflows into the manufacturing sector increased by 70.00% between FY2014-FY2025, reaching USD 184.15 Bn.

Figure 2.3: FDI into India (In INR Bn), FY2019-FY2025



Source: Department for Promotion of Industry anf Internal Trade (DPIIT) | Note : Currency exchange rate taken as of 31st March for the respective year

2.1.3 Macro tail winds (China+1)/ Europe + 1

2.1.3.1 China+1:

The "China+1" strategy is a significant trend among multinational corporations aiming to diversify their manufacturing and supply chains beyond China. This approach has gained traction due to rising costs in China, tariff wars, geopolitical tensions, and disruptions caused by events like the COVID-19 pandemic. As companies seek to mitigate risks associated with over-reliance on a single country, several Asian nations are positioned to benefit from this shift. The beneficiary countries are mentioned below:

- **India:** India is increasingly recognized as a key manufacturing destination, especially for sectors including Pharmaceuticals, IT Services, Electronics and Electronic Components, Metals and Steel, Textiles and Semiconductors. The country presents a compelling manufacturing proposition via cost advantages, readily available technical talent pool, and pro-business government policies. As an example, Google plans to shift Pixel smartphone production from Vietnam to India. Since August 2024, Google has been assembling its Pixel 8 devices locally. The Pixel 8a has also been produced in the country. The entire Pixel 9 series is expected to be manufactured in India prompted by new tariffs on Vietnam. The company is ramping up production for the flagship Pixel 10 Series with Foxconn and Dixon Technologies. The company is also actively considering exports of Pixel devices assembled in India to global markets, including the USA, as part of a strategy to offset higher USA, tariffs on Vietnam and strengthening supply chain resilience.
- **Vietnam**: Vietnam has emerged as a primary destination for companies shifting operations due to its low labour costs and improving infrastructure. For instance, major firms like Dell and Apple are increasing their production capacities in Vietnam, with Dell planning for 20% of its laptops to be made in Vietnam.
- **Indonesia and Malaysia:** These countries are also benefiting from the China+1 strategy due to their favourable investment climates and participation in regional trade agreements like the Regional Comprehensive Economic Partnership (RCEP), which facilitates trade among member countries.

2.1.3.2 Europe+1

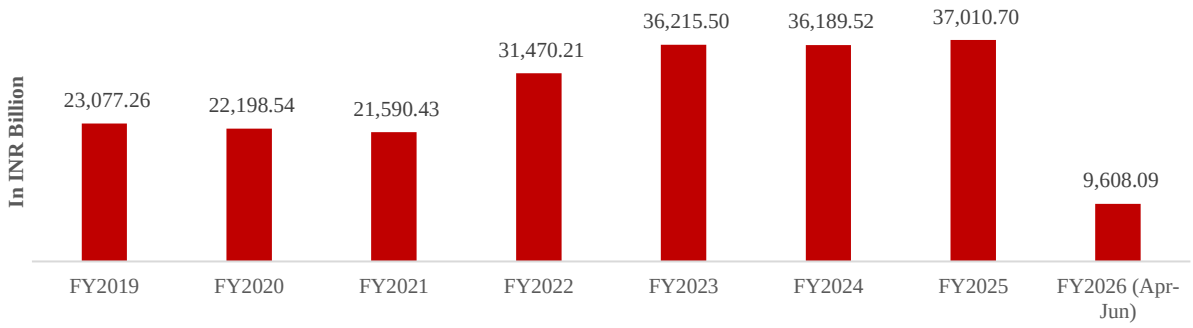
- The "Europe+1" strategy like the "China+1" approach, involves European companies diversifying their manufacturing and supply chains beyond Europe to mitigate risks associated with geopolitical tensions, rising costs, and supply chain vulnerabilities. This strategy is impacting various Asian countries in several ways:
- **India:** India is positioned as a major beneficiary of the Europe+1 strategy, attracting substantial foreign direct investment (FDI) from European companies in the manufacturing sector including Aerospace segment. EU had invested around USD 107.27 Bn between the period April 2000- December 2023 into sectors like manufacturing, technology, renewable energy, and services. The country's large domestic market, competitive labour costs, and improving ease of doing business make it an attractive destination for sectors such as electronics and other manufacturing. The Indian government's initiatives, including the Production-Linked Incentive (PLI) scheme, further enhance its appeal to European investors looking to establish or expand operations in the region. For example, global players such as Apple and Samsung are scaling up manufacturing capacity in India as part of this strategy, projecting India to account for up to 20.00% of their global production by end of 2025.

- **Vietnam:** Vietnam continues to be a favoured destination for European firms due to its established manufacturing base and competitive labour costs. The country has already signed free trade agreements with the EU, which facilitate smoother trade relations. Sectors such as textiles, electronics, and consumer goods are particularly benefiting from increased investment as companies relocate production from Europe and China.
- **Bangladesh:** Bangladesh is also experiencing growth in its textile and garment industry, which is a significant sector for European imports. The country's competitive pricing and capacity for large-scale production make it an attractive option for European brands seeking to diversify their supply chains.
- **Thailand:** Thailand is enhancing its role as a manufacturing hub for various industries, including automotive and electronics. The country's strategic location in Southeast Asia and its existing infrastructure supports its attractiveness to European companies looking to establish a presence in the region.
- **Indonesia:** Indonesia stands to benefit from increased investments in sectors such as agriculture, textiles, and electronics. The government's efforts to improve infrastructure and ease of doing business are making it a more viable option for European firms seeking alternatives to traditional manufacturing hubs.

2.2 Overview of Indian Manufacturing Sector & Export Trends

India's manufacturing sector is a key pillar of the economy, contributing 17.00% to GDP in FY2025. Key industries include automobiles, textiles, electronics, chemicals, and pharmaceuticals. Recent government initiatives, such as "Make in India" and production-linked incentives (PLI), have bolstered domestic production and global competitiveness. Exports from the sector have seen steady growth, with engineering goods, refined petroleum, and textiles leading the way. The engineering goods segment includes the engineering goods sector comprises metal products, industrial machinery and equipment, automobiles and their components, transport equipment, bicycles, medical devices, and renewable equipment. India is also emerging as a hub for electronics and pharmaceutical exports.

Figure 2.4: Indian Manufacturing Exports (In INR Bn), FY2019-FY2026 (Apr-Jun)



Source: Ministry of Commerce and Industry Department of Commerce | Note: The major manufacturing exports are: Engineering Goods, Petroleum Products, Gems And Jewellery, Organic & Inorganic Chemical,Drugs And Pharmaceuticals, Rmg Of All Textiles, Electronic Goods, Cotton Yarn/Fabs./Madeups, Handloom Products Etc., Plastic And Linoleum, Marine Products, Rice, Man-Made Yarn/Fabs./Madeups Etc.,Leather And Leather Manufactures, Mica, Coal And Other Ores, Minerals Including Process, Meat, Dairy And Poultry Products, Spices, Ceramic Products And Glassware, Iron Ore, Fruits And Vegetables, Handicrafts Excl. Hand Made Carpet, Cereal Preparations And Miscellaneous Processed Item, Carpet, Oil Seeds, Tobacco, Oil Meals, Tea, Coffee, Cashew, Jute Mfg. Including Floor Covering, Other Cereals and Others, Currency exchange rate taken as of 31st March for the respective year

The exports for FY2025 accounted to INR 37,010.70 Bn (USD 440.55 Bn). In FY2026, (3 months duration of April-Jun 2025), the exports have already reached INR 9,608.09 Bn (USD 109.12 Bn), indicating a strong trajectory for the year despite global economic uncertainties.

2.3 Indian manufacturers are becoming globally competitive

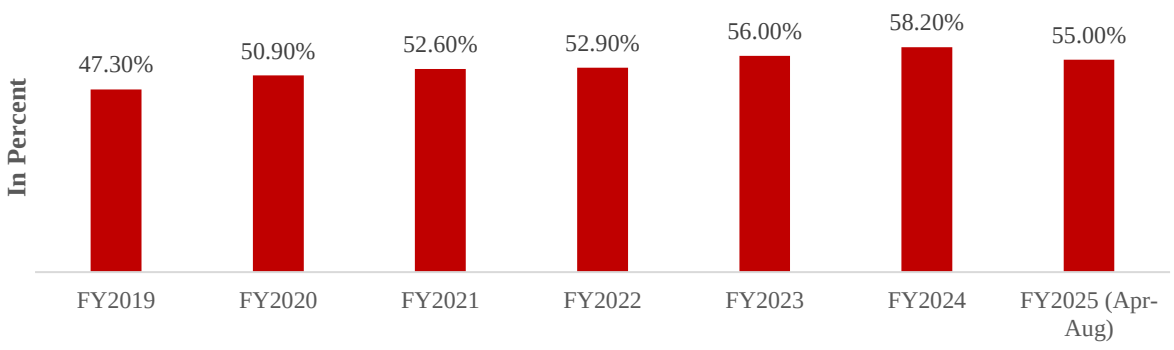
Indian manufacturers are enhancing global competitiveness through innovation, advanced technologies, strategic policies, and increased exports across key sectors.

- **Strategic Location:** India's location between the Middle East, Southeast Asia, and East Asia offers easy access to key global markets. Proximity to major shipping routes and well-developed ports like Mumbai and Chennai enhance trade efficiency. The Indian Ocean Rim provides access to fast-growing markets in Africa and the Middle East.
- **Skilled Workforce:** India's workforce is expected to have grown by 33.89 million, from 423.73 million in 2023 to 457.62 million in 2028. Around 44% of the workers are classified above Skill level 2, which indicates a strong proficiency in specific tools and machinery and capacity for performing precision work and technical understanding. India's substantial annual output of ~1.5 Mn engineering graduates bolsters its labour market, which is further supported by the nation's demographic advantage as the world's second-largest English-speaking population, comprising 129 million citizens.
- **Technological Advancements:** The integration of automation, robotics, and AI improves production efficiency, scalability, and cost-effectiveness. Industry 4.0 technologies, such as IoT, big data, and cloud computing, optimize operations and supply chains.
- **Improving Infrastructure:** Heavy investments in transportation networks, such as roads, railways, and ports, improve logistics and connectivity. Initiatives like the Delhi-Mumbai Industrial Corridor (DMIC) and NIMZs provide modern infrastructure tailored for manufacturing.
- **Government Initiatives:** Programs like "Make in India," and the Production Linked Incentive (PLI) scheme encourage domestic and foreign investment in manufacturing. The National Manufacturing Policy aims to increase manufacturing's GDP share and generate employment.
- **Ease of Doing Business:** Simplified business registration, digitized approvals, and reduced compliance burdens improve ease of operations. The Goods and Services Tax (GST) unify the tax system, enhancing logistics and supply chain efficiency.
- **Access to Raw Material:** India's abundant natural resources support various industries, offering a competitive edge in production and manufacturing.
- **Large Domestic Market:** The consumer spending in India is expected to increase to USD 4.30 Tn by 2030, the spending in 2024 was USD 2.40 Tn. The consumer spending is expected to increase around 46% and India would be the second largest global market.
- **Cost Competitiveness:** India benefits from its cost leadership compared to developed countries, enabling cost-efficient manufacturing.

2.3.1 Increasing Workforce Participation

India's workforce has experienced notable growth in recent years, evident from the consistent rise in the Workforce Participation Rate (WPR). In FY2019 the WPR was 47.30% and this had grown to 58.20% in FY2024, signifying increased economic activity and employment opportunities. In FY2025, India's workforce participation reached 55.00% during the period from April to August. India's demographic advantage, characterized by one of the world's youngest populations (50% of the population below 25 years) and increasing workforce participation rate (WPR), positions the country as a significant source of available talent.

Figure 2.5: Workforce in India (In Percentage), FY2019-FY2025 (Apr-Aug)

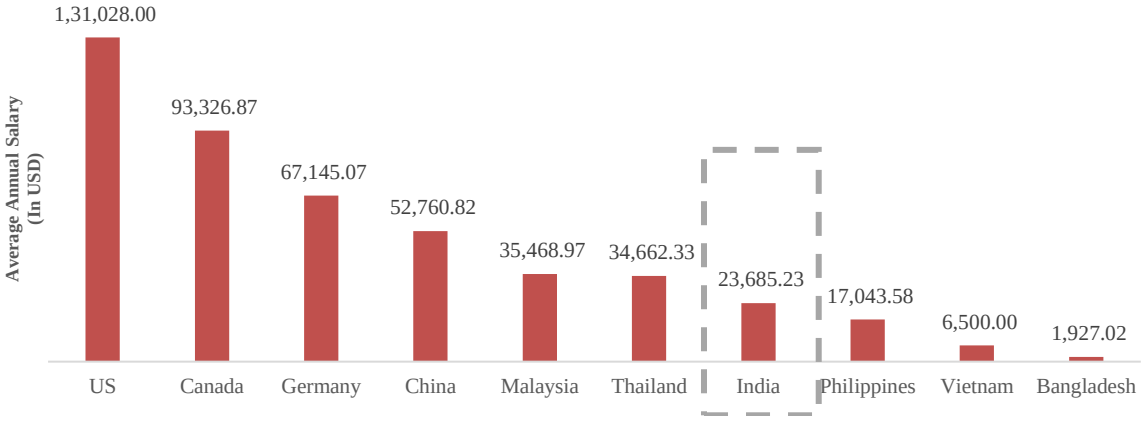


Source: Periodic Labour Force Survey, Ministry of Statistics and Programme Implementation (MoSPI). Quoted by PIB

2.3.2 Cost Competitiveness

Cost competitiveness in India's manufacturing sector is influenced by several factors, including labour costs, government policies, technological advancements, and infrastructure development.

Figure 2.6: Average Annual Salary by skilled labour Countrywise (In USD), 2025



Source: SalaryExpert | Note: The above annual salary is for Engineers with 8+ years of experience in manufacturing

Cost competitiveness is vital for businesses aiming to reduce production costs. India leads the cost competitiveness with an average salary of USD 23,685.23. The combination of availability of skilled workforce and low labour cost are driving companies to set up their manufacturing units in India.

2.3.3 Structural Reforms and Government initiatives

India's National Manufacturing Policies focus on improving the competitiveness of India's manufacturing sector and generating employment. Some of the key policies include:

Name of the Reforms/ Initiative	Objective	Key Feature
National Manufacturing Policy (NMP)	Increase manufacturing's GDP share to 25%, create 100 million jobs, promote global competitiveness, support SMEs	Establishment of NIMZs, regulatory simplification, skill development, green technology promotion
Make in India 2.0	- Transform India into a global manufacturing hub - Boost employment - Increase exports	- Sector-specific reforms on 27 sectors - Ease of doing business - FDI liberalization - Branding Indian products globally
Phased Manufacturing Program (PMP)	Promote domestic value addition in electronics, especially mobile phones, create jobs	Tax incentives for local manufacturing, phased localization, support for component ecosystem
National Investment & Manufacturing Zones (NIMZs)	- Increase manufacturing share in GDP	- Establish National Investment and Manufacturing Zones (NIMZs) - Simplify regulations - Focus on skill development and infrastructure

Name of the Reforms/ Initiative	Objective	Key Feature
	- Create 100 million jobs - Enhance global competitiveness - Promote sustainable growth	- Incentives for PPP infrastructure - Emphasis on clean, green technology
Production Linked Incentives (PLI)	Boost domestic manufacturing, reduce import dependency, enhance exports	Financial incentives for incremental sales in 14 key sectors, support for exports, FDI attraction
India Industrial Land Bank (IILB)	Facilitate industrial land access, support investment decisions, enhance transparency	GIS-enabled database of 4,000+ industrial parks, real-time data, land, and infrastructure details
Industrial Park Rating System (IPRS)	Enhance competitiveness and transparency of industrial infrastructure	GIS-based rating of industrial parks on infrastructure, business support, safety, environment
National Single Window System (NSWS)	Streamline business approvals, improve ease of doing business, attract investments	One-stop digital portal for 1,000+ approvals, real-time tracking, integrated central/state services
Project Development Cells (PDCs)	Facilitate investment projects, create investible project pipeline, support investors	Dedicated cells in ministries for project facilitation, regulatory support, investor handholding

Source: Frost & Sullivan

Electronics Component Manufacturing Scheme (ECMS): A government initiative aimed at improving India's self-reliance in electronics manufacturing by promoting large-scale domestic production of essential components. Introduced under the National Policy on Electronics 2019, the scheme offers financial incentives to companies that set up or expand facilities for producing semiconductors, sensors, displays, printed circuit boards (PCBs), and other vital electronic parts. These incentives are tied to capital investments to ensure long-term growth and competitiveness throughout the value chain.

In alignment with programs such as the Production Linked Incentive (PLI) and SPECS schemes, ECMS supports backward integration, technological innovation, and employment generation. By reinforcing supply chains and improving manufacturing capacity, the scheme is expected to lower import dependence and foster a strong domestic ecosystem. The ECMS serves as a key driver in realizing India's goal of building a USD 300.00 Bn electronics manufacturing industry by 2026, positioning the country as a prominent global centre for electronics production.

2.3.4 State Policy on Toys and Aerospace Manufacturing:

Karnataka has introduced targeted policies to advance its strengths in toys and aerospace manufacturing, highlighting a strategic emphasis on industrial development and employment generation. These initiatives are aimed at reinforcing the state's manufacturing foundation by fostering sector-specific growth, driving economic expansion, enhancing technological innovation, and creating job opportunities in key industries.

Karnataka Aerospace and Defence Policy (2022-2027)

Karnataka's Aerospace and Defence Policy aim to position the state as a global hub for aerospace manufacturing. Key features of this policy include:

Incentives for Investment: The policy offers various incentives for businesses involved in aerospace and defense, including tax breaks and subsidies to attract both domestic and international investments.

Infrastructure Development: The establishment of Special Economic Zones (SEZs) specifically for aerospace manufacturing, such as the one in Belagavi, provides essential infrastructure and facilities to support manufacturers. This SEZ has already attracted several companies involved in high-tech aerospace components.

1. **Skill Development Initiatives**: The state government is investing in skill development through training programs and partnerships with educational institutions to ensure a skilled workforce is available for the aerospace sector.

Koppal Industrial Cluster Scheme

In parallel, Karnataka is making significant strides in the toy manufacturing sector through initiatives like the Koppal Industrial Cluster Scheme. This initiative includes:

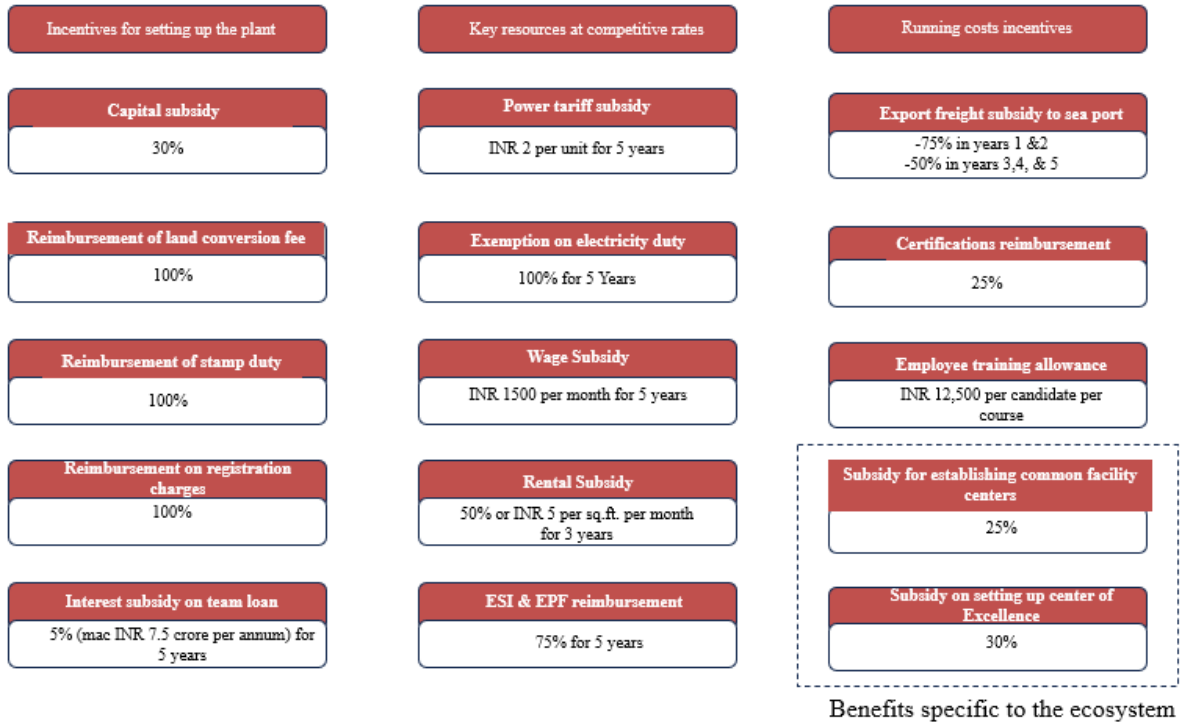
1. **Koppal Industrial Cluster Scheme**: Launched to create India's first dedicated toy manufacturing cluster, this scheme aims to consolidate the toy industry by providing state-of-the-art infrastructure over 400 acres. It is designed to support plastic and electronic toy manufacturers with facilities for design, moulding, assembly, and packaging.

2. **Investment Attraction**: The cluster is expected to generate around INR 5,000 crore in investments and create approximately 40,000 jobs within five years. It aims to attract global toy brands that currently rely on production hubs in countries like China and Vietnam.

3. **Supportive Ecosystem**: Karnataka's existing ecosystem includes tool manufacturing and precision engineering clusters that cater to the raw material needs of the toy industry. Moreover, the region's rich heritage in traditional toy-making provides a unique advantage in terms of skilled labour availability.

4. **Government Support**: The Karnataka government is enhancing support through various reforms, including labour reforms that allow for fixed-term employment, which is beneficial for the seasonal nature of toy manufacturing.

Figure 2.7: Economic Incentives provided by Koppal Industrial Cluster Scheme



Source: Frost & Sullivan Analysis

Overall, Karnataka's policies in both aerospace and toy manufacturing are designed not only to boost industrial output but also to create significant employment opportunities while positioning the state as a competitive player on the global stage

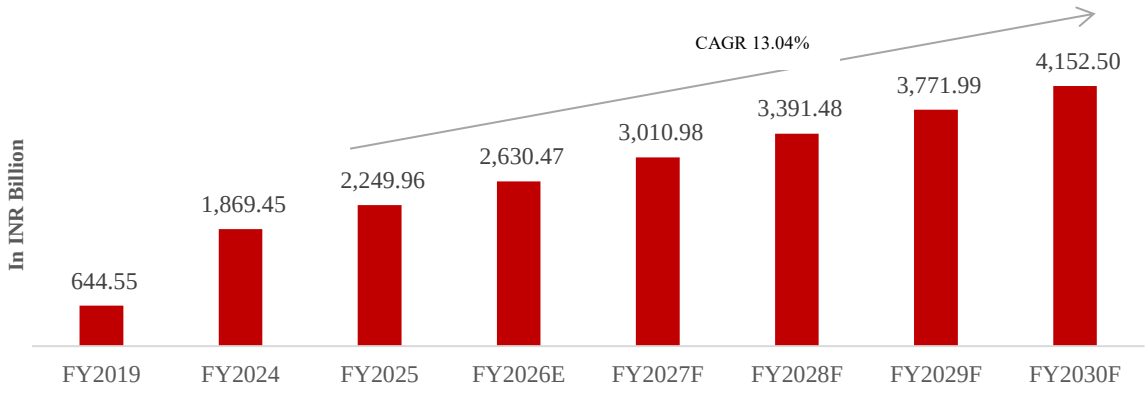
2.3.5 Contract Manufacturing Market in India

Contract manufacturing involves outsourcing of production processes by both domestic as well as international firms to vetted third-party manufacturers for cost efficiency, scalability, and access to specialized expertise. It is a widely adopted model across sectors such as pharmaceuticals, electronics and FMCG, positioning India as one of the leading manufacturing hubs globally. The increasing outsourcing by OEMs enables them to focus on their core offerings while relying on specialized suppliers, such as Aequs, for high-quality components. This shift from standalone suppliers to vertically integrated suppliers, combined with regulatory support and the rising role of India in manufacturing, positions Aequs to favourably capture a larger market share. The growing demand for wearables and personal electronic devices, coupled with OEMs' China+1 strategy, also positions India as an alternative supply base. India is positioned as a major beneficiary of the Europe+1 strategy, attracting substantial foreign direct investment (FDI) from European companies in the manufacturing sector including Aerospace segment.

Current Landscape of Contract Manufacturing in India

The contract manufacturing market in India is INR 2,249.96 Bn (USD 26.78 Bn) in FY2025, with a CAGR of 13.04% between 2025 to 2030, potentially reaching INR 4,152.50 Bn (USD 49.43 Bn) by FY203F.

Figure 2.8: Contract Manufacturing Market in India (In INR Bn), FY2019-FY2030F



Source: Frost & Sullivan Analysis | Note : Currency exchange rate taken as of 31st March for the respective year, 1 USD = 85.00 INR from 2025 Onwards

This growth is primarily fuelled by the rising demand for various products, particularly in the pharmaceutical, precision engineered components (including Aerospace and Defence components), consumer goods, automotive and auto components, and consumer electronics. Precision components are precise machine parts that are designed and manufactured to exact specifications and are commonly supplied to OEM customers and system integrators.

2.3.5.1 Contract Manufacturing Trends

Emerging trends in contract manufacturing in India reflect the evolving landscape driven by technological advancements, changing consumer preferences, and regulatory shifts. Here are some key trends shaping the industry:

1. Digital Transformation and Industry 4.0

The integration of digital technologies, automation including the Internet of Things (IoT), artificial intelligence (AI), and big data analytics, is revolutionizing contract manufacturing. These technologies facilitate real-time monitoring, predictive maintenance, and enhanced operational efficiency, allowing manufacturers to optimize production processes and reduce costs.

2. Customization and Personalization

There is a growing demand for personalized products among consumers. This trend is pushing contract manufacturers to adopt flexible production techniques that allow for mass customization without sacrificing efficiency. Technologies like 3D printing and modular manufacturing are enabling quicker production of tailored products to meet diverse consumer needs.

3. Sustainability and Green Manufacturing

Environmental concerns are prompting the industry to adopt sustainable practices. Contract manufacturers are increasingly implementing eco-friendly production methods, reducing carbon footprints, and minimizing waste through green principles. This shift not only meets regulatory requirements but also aligns with consumer expectations for sustainable products.

4. Supply Chain Resilience

The COVID-19 pandemic highlighted vulnerabilities in global supply chains, leading to a focus on resilience and flexibility. Companies are now prioritizing local sourcing and nearshoring strategies to enhance responsiveness to market changes while reducing lead times and transportation costs.

5. Enhanced Regulatory Compliance

Stringent regulatory requirements are driving the need for improved compliance in manufacturing processes. Companies are focusing on Good Manufacturing Practices (GMP) and ensuring data integrity through increased digitization in operations.

2.3.5.2 Key Players in Contract Manufacturing

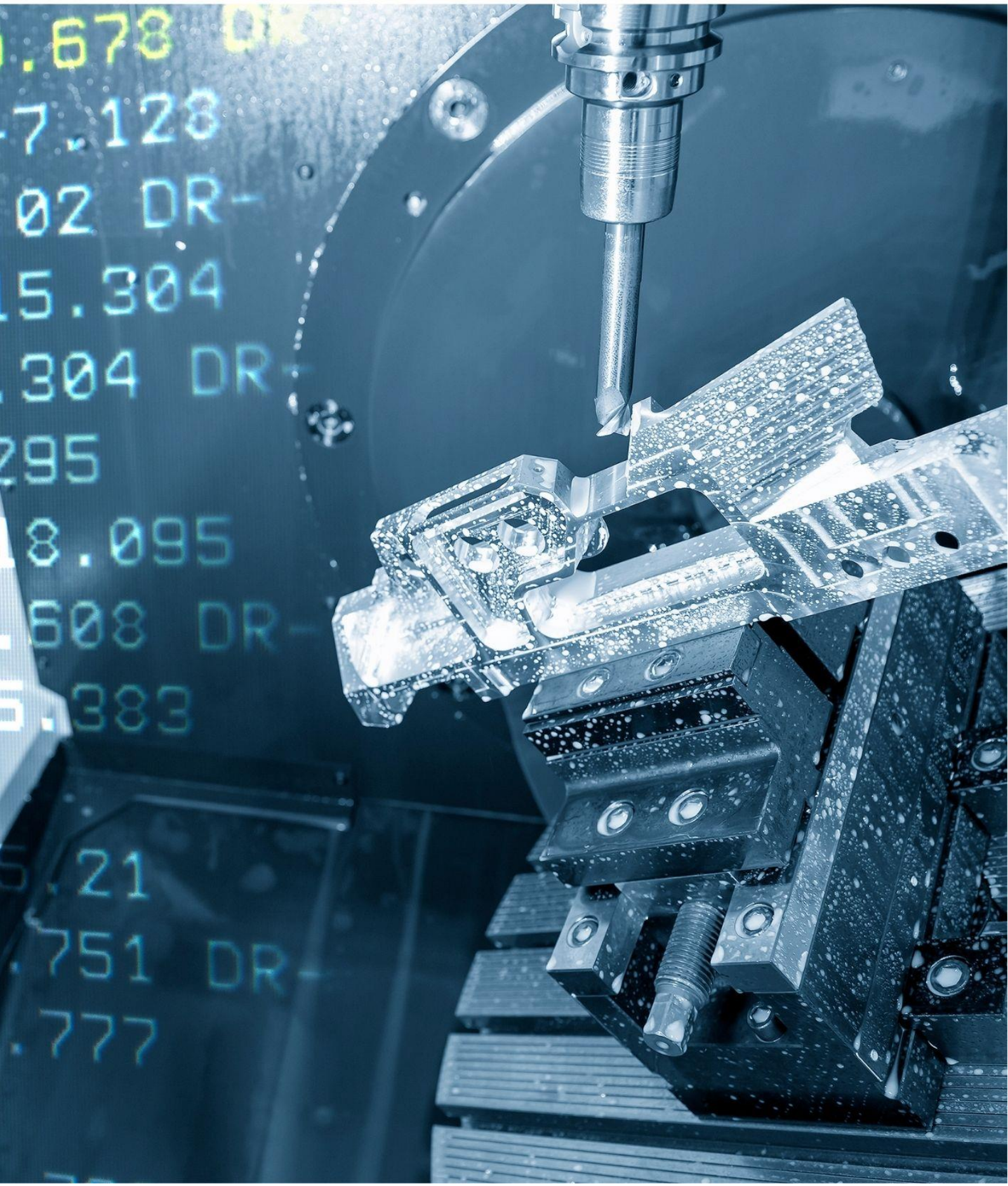
Aequs competes with major aerospace and consumer electronics component manufacturing companies, as well as major consumer durables companies, both domestic and foreign. Some of the key players operating in India include: -

- Foxconn India
- TATA Electronics
- Dixon Technologies
- Kaynes Technologies
- Aequs
- Unimech
- Azad Engineering
- PTC Industries

Some of the private players operating in the space are Mahindra Aerospace, Wipro Aerospace and some of the global names in the Aerospace contract manufacturing include Loar Group, Howmet Aerospace, HEICO and Transdigm.

Note: List not exhaustive

3 Global Aerospace Manufacturing Market



3 Global Aerospace Manufacturing Market

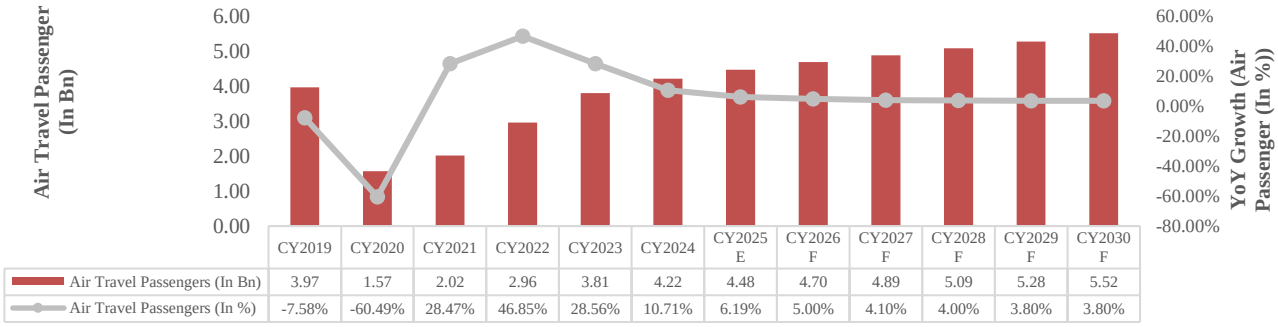
3.1 Overall Air Travel & Air Cargo Growth

Global air travel and air cargo have witnessed remarkable growth driven by rising demand and economic expansion. The air travel sector continues to recover post-pandemic, supported by increased connectivity and the expansion of low-cost carriers. Meanwhile, air cargo has surged due to e-commerce growth and the need for swift global logistics solutions. Emerging markets, particularly in Asia-Pacific, are driving significant demand in both sectors. Sustainability initiatives, fleet modernization, and digital transformation are shaping the future, as airlines strive to balance growth with environmental concerns, ensuring efficient and resilient air transportation networks worldwide.

3.1.1 Global Air Travel Growth

The Global Air Travel has experienced significant fluctuations in passenger growth over recent years due to the impact of the COVID-19 pandemic and subsequent recovery trends. The global air passenger traffic shrank by 60.49% in CY2020 as an aftermath of the pandemic. The market was quick to recover post pandemic witnessing a YoY growth of 28.47%, 46.85% and 28.56% for the years CY2021, CY2022 and CY2023, respectively. The air travel passengers in CY2024 are estimated at 4.22 bn with a YoY growth of 10.71%. The market is expected to surpass pre-covid levels in CY2025. The momentum of growth is expected to continue, and the market is expected to surpass 5.52 Bn passengers by CY2030. The key drivers for growth are Economic Growth and Rising Disposable Incomes, Increasing Global Connectivity, Recovery in Business and Leisure Travel, Rise of Low-Cost Carriers and Advancements in Air Travel Technology.

Figure 3.1: Global Air Travel Growth (In Bn & In Percentage), CY2019-CY2030F



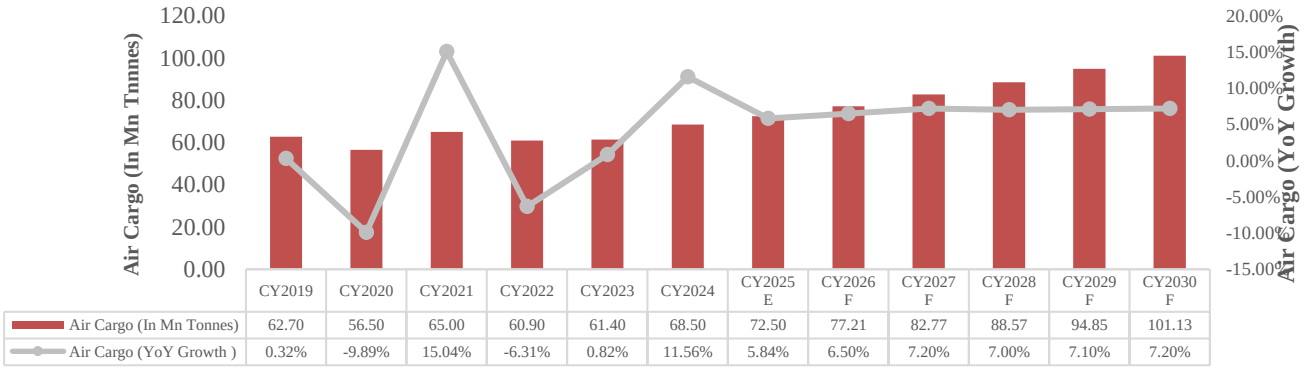
	CY2019	CY2020	CY2021	CY2022	CY2023	CY2024	CY2025 E	CY2026 F	CY2027 F	CY2028 F	CY2029 F	CY2030 F
Air Travel Passengers (In Bn)	3.97	1.57	2.02	2.96	3.81	4.22	4.48	4.70	4.89	5.09	5.28	5.52
Air Travel Passengers (In %)	-7.58%	-60.49%	28.47%	46.85%	28.56%	10.71%	6.19%	5.00%	4.10%	4.00%	3.80%	3.80%

Source: International Air Transport Association (IATA), International Civil Aviation Organization (ICAO) and Frost & Sullivan Analysis,

3.1.2 Global Air Cargo Growth

The global air cargo growth has witnessed significant volatility over recent years, influenced by economic shifts, the pandemic, and evolving supply chain dynamics.

Figure 3.2: Global Air Cargo Growth (In Mn Tonnes & In Percentage), CY2019-CY2030F



	CY2019	CY2020	CY2021	CY2022	CY2023	CY2024	CY2025 E	CY2026 F	CY2027 F	CY2028 F	CY2029 F	CY2030 F
Air Cargo (In Mn Tonnes)	62.70	56.50	65.00	60.90	61.40	68.50	72.50	77.21	82.77	88.57	94.85	101.13
Air Cargo (YoY Growth)	0.32%	-9.89%	15.04%	-6.31%	0.82%	11.56%	5.84%	6.50%	7.20%	7.00%	7.10%	7.20%

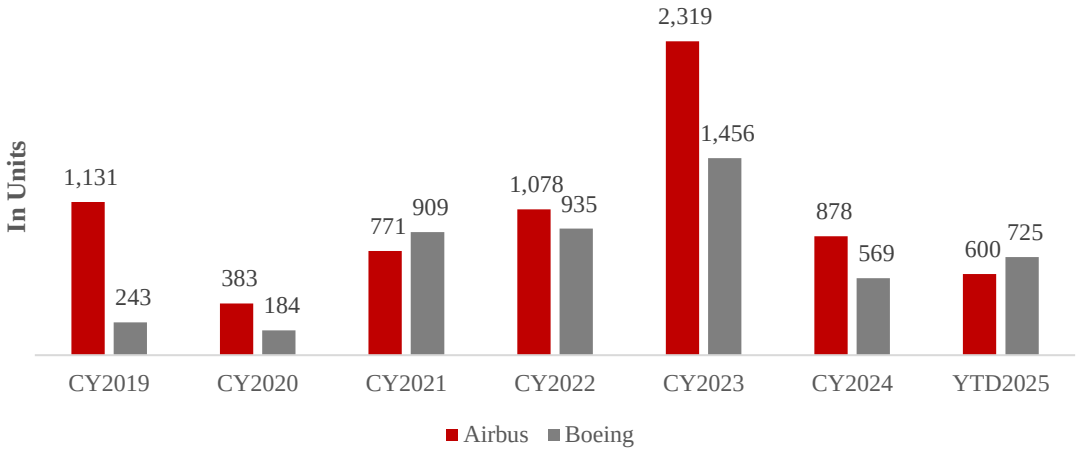
Source: International Air Transport Association (IATA), International Civil Aviation Organization (ICAO) and Frost & Sullivan Analysis

The air cargo market witnessed a moderate growth in CY2019, it grew at around 0.32%. The market experienced a decline of 9.89% in CY2020 due to the impacts of COVID. The cargo market grew 15.04% in CY2021 owing to the fulfilment of the backlog demand. Air Cargo Growth resumed in CY2023 at 0.82%, and CY2024 is projected to further expand at 11.56%. The air cargo market is expected to grow to 101.13 Mn tonnes by CY2030, this is supported by global economic growth.

3.2 Global Aircraft Orders

The increase in aircraft orders globally between CY2019-CY2025 reflected a notable shift in aviation industry's performance. In CY2019, Airbus and Boeing received 1,131 and 243 orders, respectively. However, in CY2020 Boeing's and Airbus orders sharply dropped to 184 and 383. On the back of global economic growth, the revenue realization by the airlines in the post COVID recovery period showcased optimism to the overall industry, which led to the increase in aircraft orders in CY2023 for both the OEMs.

Figure 3.3: Global Aircraft Orders (In Units), CY2019-YTD2025



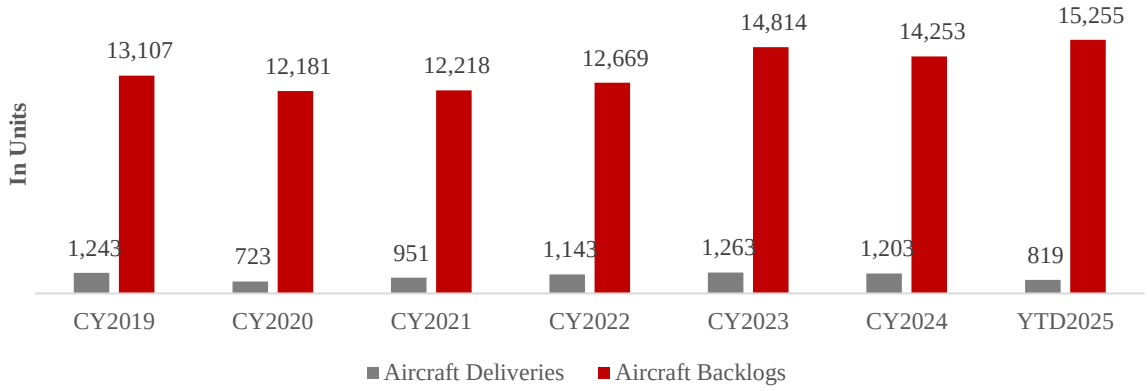
Source: Airbus & Boeing | Note: YTD 2025 data as on August 31st 2025

A strong recovery began in CY2021, as both companies experienced notable growth, with Airbus reaching 771 orders and Boeing surging to 909. The upward trend continued into CY2022, with Airbus securing 1,078 orders and Boeing slightly behind at 935. As on 31st August 2025, Airbus and Boeing had received 600 and 725 aircraft orders, respectively.

Due to the large order backlogs and stringent delivery timelines, it becomes even difficult for the OEMs to onboard a new supplier which creates an additional barrier to entry. The complexity involved with onboarding new suppliers coupled with the aggressive production plan increase by Airbus and Boeing results in the existing suppliers having a disproportionate share in the backlog.

3.2.1 Global Aircraft Deliveries

Figure 3.4: Growth in Aircraft Deliveries and Backlogs (In Units), CY2019-YTD2025



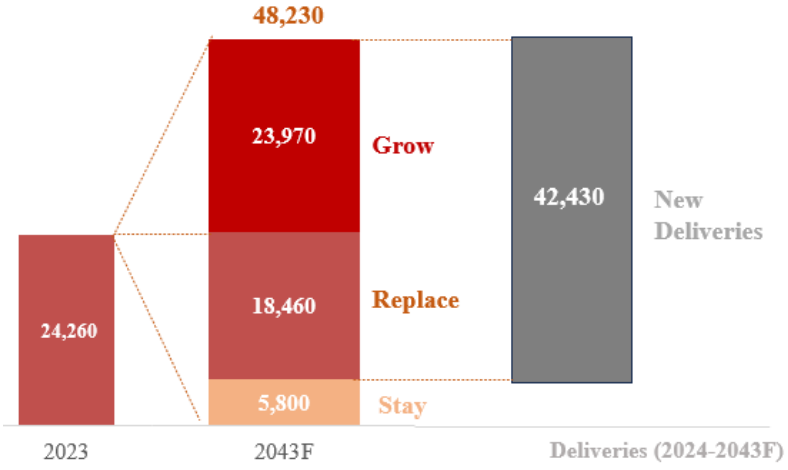
Source: Airbus & Boeing | Note: YTD2025 data as on August 31st 2025

In CY2019, aircraft manufacturers delivered 1,243 aircraft, which slightly declined to 819 by CY2025. At the same time, aircraft backlogs increased from 13,107 in CY2019 to 15,255 in YTD2025, highlighting sustained demand for new aircraft. The long-term outlook for the aircraft component suppliers looks optimistic. The aggressive expansion plans of Airbus and Boeing to increase the aircraft monthly production numbers over the next few years, gives these two companies limited flexibility to shift suppliers, owing to strict onboarding requirements and higher cost of switching. Boeing aims to produce 10,787 Dreamliners per month by 2026 an increase of 3 units compared to 2025. Similarly, it plans to increase its production to 50 aircraft by 2026, an increase of 12 from the existing production plan. Airbus also has plans to increase its A320 production to 75 per month by 2027.

3.2.2 Fleet Replacements

The expected number of new aircraft deliveries between 2024 and 2043 is 42,430, representing significant growth in the aviation industry over the next two decades. In 2023, there were 24,260 aircraft in operation, with the total expected to increase to 48,230 by 2043. Around 23,970 aircraft will be added to accommodate expanding demand, 18,460 aircraft will replace older models, and 5,800 aircraft will remain in service. This projection highlights the dual focus on both increasing capacities to meet rising global travel needs and modernizing existing fleets for improved efficiency and sustainability.

Figure 3.5: Fleet Replacement (In Units), 2023-2043F



Source: Airbus Global Market Forecast

3.3 Key Trends in the Aerospace Market

The global aerospace market is undergoing significant transformation, shaped by several critical trends:

Global Supply Chain: Outsourcing of component manufacturing is growing as companies recognize the potential for cost savings and access to specialized expertise. OEMs are increasingly concentrating on core design and final assembly, while increasingly relying on Tier-1 and Tier-2 suppliers to produce components.

Sustainability Focus: The aerospace industry is increasingly embracing eco-friendly technologies to minimize its environmental impact. The growing adoption of Sustainable Aviation Fuels (SAFs) is enabling airlines to reduce emissions while maintaining operational efficiency. To achieve cost savings and meet environmental targets, airlines are investing in fuel-efficient aircraft. Meanwhile, global OEMs are placing greater emphasis on Environment, Health, and Safety (EHS), driving the need for suppliers capable of manufacturing multiple components within a single facility. This is in line with the high5+ targets, wherein one of the parameters is to reduce the CO2 emissions by 65% by 2030, compared to 2015.The industry continues to focus on using sustainable materials, cutting emissions, and ensuring workplace safety to comply with international environmental standards. This shift from standalone suppliers to vertically integrated suppliers, combined with regulatory support and the rising role of India in manufacturing, positions Aequs favourably to capture a larger market share.

Digitalization and Industry 4.0: Integration of advanced technologies such as AI, big data, and IoT are improving aerospace manufacturing by enhancing efficiency, enabling predictive maintenance, and optimizing supply chains.

Geopolitical and Supply Chain Resilience: Global disruptions are pushing companies to build resilient supply chains through supplier diversification and flexible production strategies**.**

Autonomous and Electric Aircraft: Electric propulsion, drones, and autonomous flight systems are transforming air travel. Urban Air Mobility (UAM) concepts, like air taxis and delivery drones, offer faster, more efficient city transportation while reducing emissions.

3.4 Aerospace Component Value Chain

The aerospace component supply chain is a complex network of manufacturers, suppliers, and distributors that deliver components and materials required for the design, production, and maintenance of aircraft, spacecraft, and defense systems. It spans multiple countries and industries, including electronics, materials science, and precision engineering.

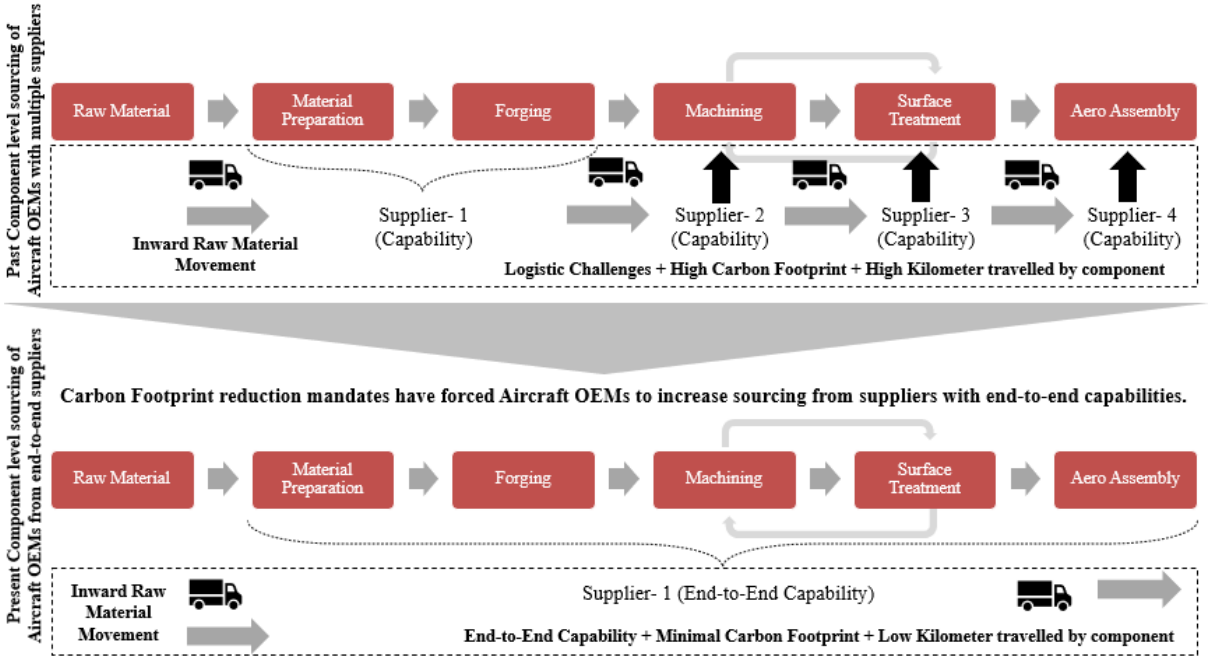
The aerospace component value chain involves several critical stages, each influencing cost and quality. The process begins with raw material procurement, where advanced metals, such as titanium, composites, and alloys are sourced. Very few manufacturers in India like Aequs have niche metallurgy capabilities, specializing in precision machining of high-end alloys, including titanium alloys for their aerospace clients. Material costs depend on availability, supplier reliability, and regulatory compliance. Maintaining quality at this stage requires stringent material testing and adherence to aerospace-grade standards. Extensive testing and validation processes required to fulfil very specific product requirements and stringent quality requirements by aerospace OEM customers create a significant barrier to entry for new market entrants. The value chain starts with sourcing of raw materials, followed by manufacturing at the component level, which are then assembled and integrated to small subsystems. The subsystems are then shipped out to the OEMs to be integrated into the aircraft systems.

Manufacturing and machining follow, where high-precision techniques such as CNC machining, additive manufacturing, and specialized coatings contribute to both cost efficiency and quality assurance. Advanced automation and robotics optimize production costs while ensuring accuracy and consistency. Quality control measures, including non-destructive testing (NDT) and real-time monitoring, help detect defects early, preventing costly rework or failures.

Assembly and integration further impact cost and quality. Rigorous validation processes, functional testing, and digital simulations ensure aerospace components meet safety and performance standards. While these steps add to manufacturing expenses, they reduce long-term operational costs by enhancing reliability.

Lastly, logistics and aftermarket services influence total lifecycle costs. Efficient supply chain management, optimized transportation, and predictive maintenance strategies help manage expenses while ensuring high-performance components. The aerospace component value chain requires a delicate balance between cost efficiency and uncompromised quality to meet industry and regulatory demands.

Figure 3.6: Aerospace Component Value Chain



Source:Frost & Sullivan Analysis

The aerospace component supply chain in this sector involves forging, machining, and surface treatment, followed by shipping for final aero assembly. To align with the carbon emission reduction mandates from Airbus and Boeing, these OEMs have Optimized operations by minimizing the movement of parts between supplier locations. This effort is part of their strategy to lower carbon footprint. Aircraft OEMs prefer suppliers with end-to-end capabilities over those with standalone capabilities. Aequs is a leading company within a single SEZ in terms of end-to-end manufacturing capabilities (machining, forging, surface treatment, and assembly) for the aerospace segment in India, based on the number of capabilities and approvals. Airbus, Boeing, and other aircraft integrators follow a rigorous supplier selection process, adhering to global standards and regular audits. The aerospace manufacturing ecosystem in Belagavi, Karnataka, hosts the Aerospace Processing India Private Limited (API) surface treatment plant, which is among the first few facilities in India to be approved by both Airbus and Boeing. API has NADCAP accreditation for chemical processing, surface enhancement, and non-destructive testing, all of which are critical capabilities across the aerospace industry. Aequs' aerospace manufacturing ecosystem in Belagavi, Karnataka hosts one of the largest precision machining capacities in India, at over 2.92 Mn consolidated machining/Moulding Hours (Annual Installed Capacity). Manufacturing aerospace components involves stricter processes and stringent quality control measures compared to automotive component production, as illustrated in the figure below.

Figure 3.7: Complexity Involved in Aerospace Components Manufacturing compared to Automotive Component Manufacturing

	Aerospace Components Manufacturing	Automotive Components Manufacturing
Precision Requirements	Requires ultra-high precision (up to 4 microns) due to strict safety standards.	Precision needed, but tolerances (10–50 microns) are generally more flexible
Complexity of Designs	Features intricate geometries and lightweight structures needing advanced machining.	Generally simpler designs focused on mass production efficiency.

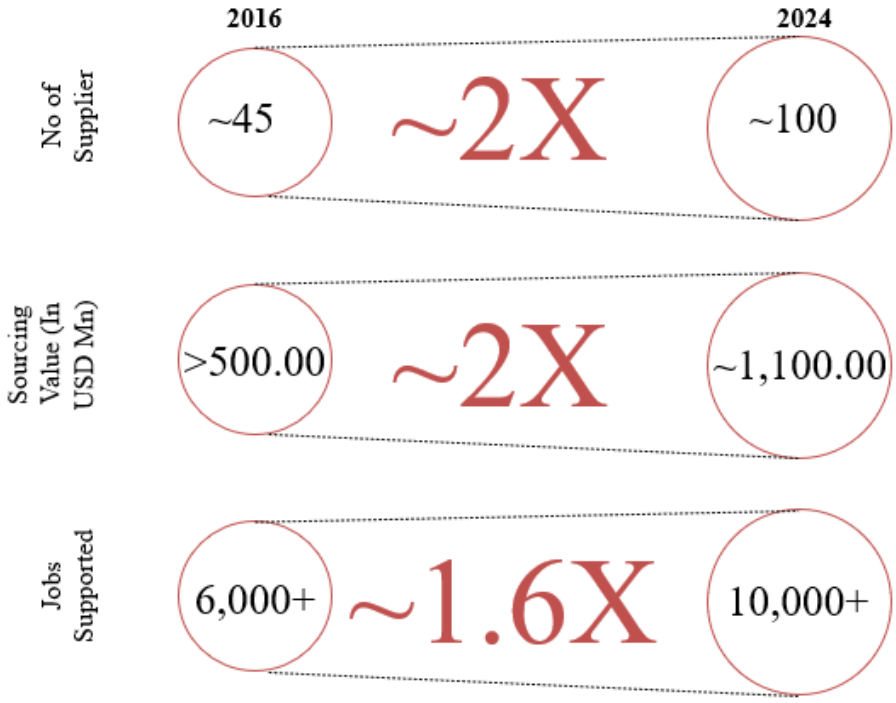
Materials Used	Utilizes high-performance alloys like titanium, requiring specialized machining.	Uses cost-effective materials like steel, aluminium, and plastics for high-volume use.
Manufacturing Technologies	Employs advanced tech like 5-axis CNC and additive manufacturing for complex parts	Relies on traditional CNC and automation; focus is on cost and efficiency
Vendor Onboarding and Timeline	Lengthy and certification-heavy (e.g., NADCAP); high entry barriers.	Faster onboarding with easier certification, driven largely by cost and specifications

Source:Frost & Sullivan Analysis

3.4.1 Sourcing of Airbus from India

Airbus has significantly increased its sourcing from India over the past decade, and this has helped India to evolve into a crucial player in the global aerospace supply chain. This growth is driven by a combination of strategic partnerships, government initiatives, and the country's expanding manufacturing capabilities. The below figure shows the expansion of Airbus sourcing from India between the period FY2016 to FY2024. The company has an order of around 1.000 aircraft from Indigo and Air India.

Figure 3.8: Sourcing of Airbus from India, FY2016- FY 2024



Source: Frost & Sullivan Analysis

3.4.2 Sourcing of Boeing from India

Boeing sources around USD 1.25 bn annually through its 300+ supplier from India, out of which over 25.00% are from the Micro, Small and Medium Enterprises (MSMEs) segment. The sourcing from India has grown from USD 250.00 Mn to more than USD 1.00 Bn between the period CY2014 to CY2024.

3.4.3 Global Aerospace Clusters – Introduction

Global aerospace clusters are geographic regions that specialize in aerospace and defense manufacturing, research, and development, fostering innovation, collaboration, and economic growth. These clusters often consist of a network of companies, research institutions, and government agencies that work together to advance aerospace technologies, share expertise, and drive industrial growth.

The United States is home to several major aerospace clusters, including the well-known "Aerospace Valley" in Southern California. This region is a hub for commercial, military, and space aerospace industries, hosting

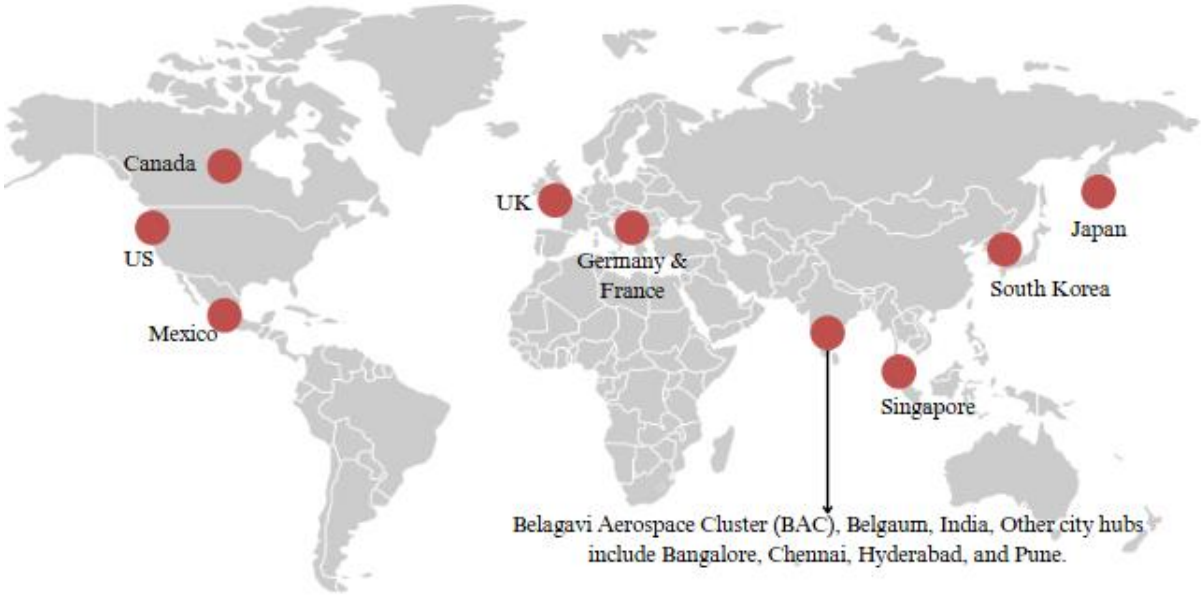
companies like Northrop Grumman, Boeing, and SpaceX. The Seattle area, with Boeing's large manufacturing facilities, is another key cluster, focusing primarily on commercial aircraft production.

In Europe, Toulouse, France, is a significant aerospace cluster, home to Airbus and several key suppliers. The city is a global leader in civil aviation manufacturing and innovation. The UK also has strong aerospace clusters, notably in the Midlands, where Rolls-Royce and other suppliers contribute to both civil and military aerospace developments.

In Canada, the Montreal region is a prominent aerospace hub, home to Bombardier and several major aerospace suppliers. This cluster specializes in civil aviation manufacturing, particularly regional jets, and is supported by strong research and development initiatives.

Emerging aerospace clusters are also found in Asia. For example, China is investing heavily in its aerospace sector, with clusters emerging in cities like Chengdu and Xi'an, aiming to become a major player in commercial and military aviation. Additionally, Belagavi Aerospace Cluster (BAC) in Karnataka, India, which is recognized as the country's first Precision Manufacturing Special Economic Zone (SEZ) and Aequs operates in this cluster. The integrated end-to-end manufacturing capabilities of Aequs in a single cluster have enabled their customers to reduce their transportation costs as Aequs is able to manufacture and supply products under one roof at their manufacturing cluster. Aequs is differentiated by their advanced manufacturing capabilities, including machining, forging, surface treatment, and plastic moulding, within a single SEZ which they have developed over the past 15 years

Figure 3.9: Global Aerospace Industrial Clusters, 2024



Source: Frost & Sullivan Analysis

3.4.4 Global Benefits of Aerospace Industrial Cluster

Aerospace industrial clusters offer numerous advantages that enhance the competitiveness and efficiency of companies operating within them, as listed below:

Clusters bring together a diverse range of specialized companies, research institutions, and skilled labour, fostering innovation and collaboration in aerospace technologies. The increasing emphasis by global OEMs on environmental, social and governance related issues, has resulted in their preference to work with suppliers with integrated, end-to-end manufacturing capabilities in a single cluster, such as Aequs, to reduce global carbon footprint.

1. Supply Chain Efficiency

Proximity to suppliers reduces transportation costs and lead times, enabling just-in-time manufacturing and improving overall supply chain responsiveness. Clusters enable companies to integrate more effectively into international supply chains, enhancing their ability to meet global demand for aerospace products. Aequs is the only precision component manufacturer in a single SEZ in India to offer fully vertically integrated manufacturing

capabilities in the aerospace Segment, which sets them apart from other contract manufacturers with selective manufacturing capabilities amongst the peers. They operate in three unique engineering-led vertically integrated precision manufacturing "ecosystems" in India

2. Competitive Advantage

The presence of multiple players within a cluster fosters competition, driving continuous improvement and innovation among companies, which ultimately benefits consumers. The aerospace component and consumer product industries are highly competitive, and Aequs competes with other aerospace component and consumer product manufacturers based on a variety of factors, including pricing, manufacturing capabilities, technology, innovation and product development time and service levels.

3. Access to Skilled Workforce

Aerospace clusters often have a well-developed talent pool, supported by local universities and training programs that produce highly skilled workers essential for the industry.

4. Cost Reduction

Local sourcing within clusters can lead to significant cost savings for aerospace manufacturers by minimizing logistics expenses and enhancing procurement processes.

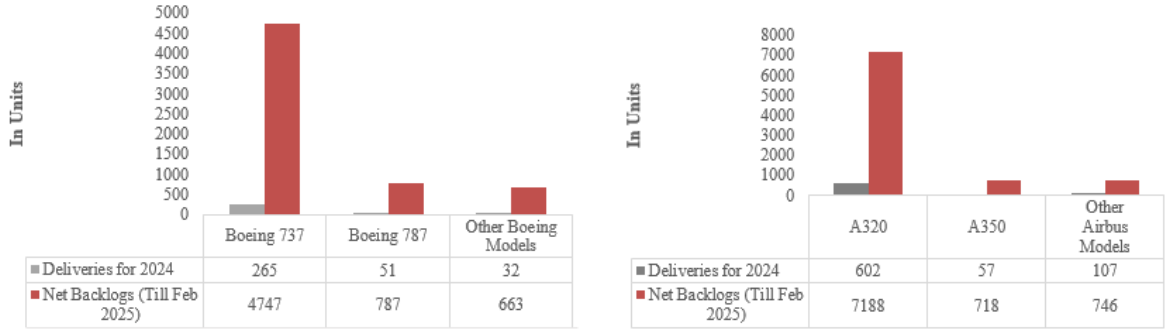
5. Economic Impact and Support

The economic activity generated by clusters can attract government support, including tax incentives and grants, which further stimulate growth and investment in the aerospace sector.

3.4.5 Global Commercial Aircraft Programs

The commercial aircraft manufacturing market is a duopolistic market with two dominant players, namely Boeing from the US and Airbus from Europe. The most successful models of Airbus and Boeing are A320 and B737, respectively. These models account for over 75.00% of the deliveries to both Airbus and Boeing.

Figure 3.10: Global Commercial Aircraft Programs



Source: Airbus & Boeing | Note: The backlog for is up to Febraury 2025

Airbus A320 Family: In 2024, Airbus delivered 766 aircraft across its major models, with the A320 series leading at 602 deliveries. The A350, a popular long-haul aircraft, recorded 57 deliveries, while other models, including the A330 and A220, accounted for 107 units. Despite these deliveries, Airbus continues to experience strong demand, as seen in its growing order backlog. As of February 2025, the A320 family has 7,188 pending orders, reinforcing its leadership in the narrow-body market. The A350 has 718 orders, reflecting its appeal for long-haul operations, while other Airbus models collectively hold a backlog of 746 aircraft.

Boeing B737 Family: In 2024, Boeing delivered 348 aircraft, with the 737 leading at 265 deliveries, followed by 51 units of the 787 and 32 from other models. Despite steady deliveries, demand for Boeing aircraft remains high, as seen in its growing order backlog. As of February 2025, the Boeing 737 has 4,747 pending orders, highlighting its dominance in the narrow-body segment. The 787, favoured for long-haul operations, has 787 orders in the pipeline. Other Boeing models, including the 777 and 767, account for 663 backlogged orders.

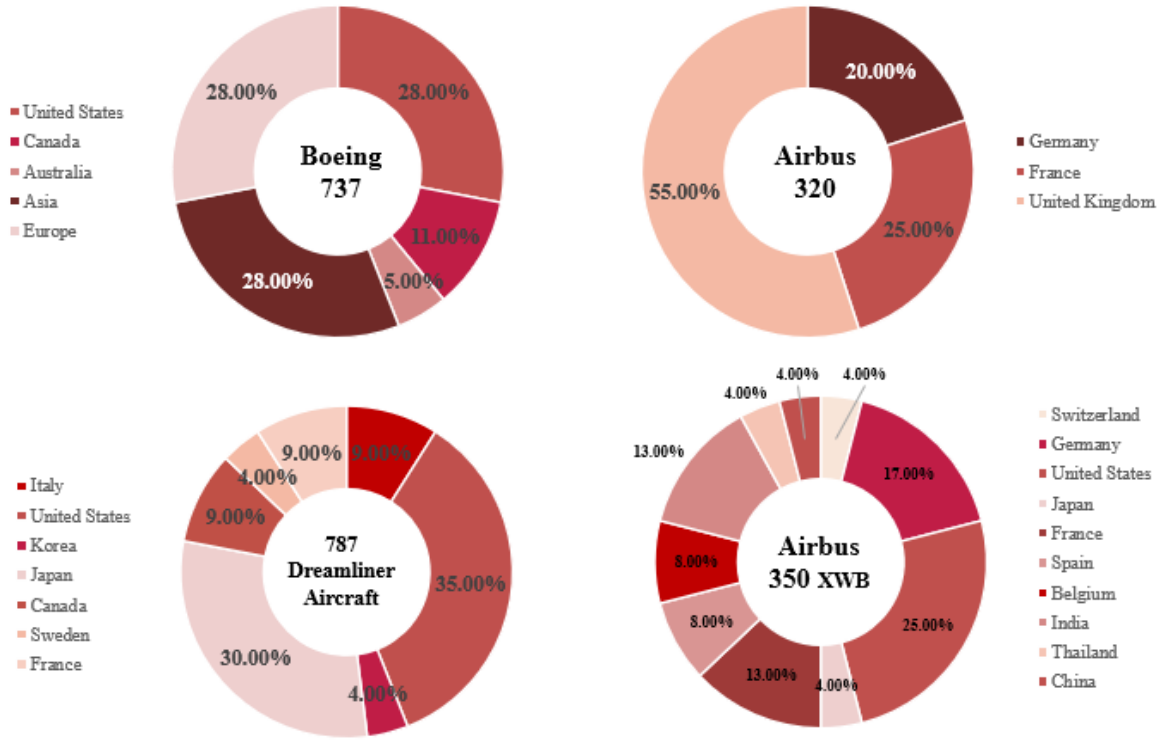
The aircraft manufacturing industry has high entry barriers for new suppliers due to stringent regulatory requirements, substantial capital investment, and long certification processes. Aerospace components must meet

strict safety, reliability, and performance standards, requiring extensive testing and approvals from authorities like the FAA and EASA. The industry demands advanced manufacturing capabilities, specialized materials, and precise engineering, making entry costly. Additionally, established OEMs prefer trusted suppliers with proven track records, creating challenges for newcomers. There is a high barrier to entry to enter precision manufacturing business segments, due to the substantial investment required to establish advanced precision manufacturing capabilities, develop proof of concept, and cultivate relationships with global OEMs. Long development cycles, rigorous quality control, and adherence to global aviation regulations further limit new entrants, making it difficult for new suppliers to enter the aerospace supply chain.

3.4.6 Region wise Sourcing of Key Global Commercial Aircraft programs

Aerospace supply chains are characterized by multiregional procurement i.e., sourcing materials, components, and services from multiple geographic regions to optimize cost, efficiency, and supply chain resilience.

Figure 3.11: Regionwise Sourcing of Key Global Commercial Aircraft Programs, CY2024



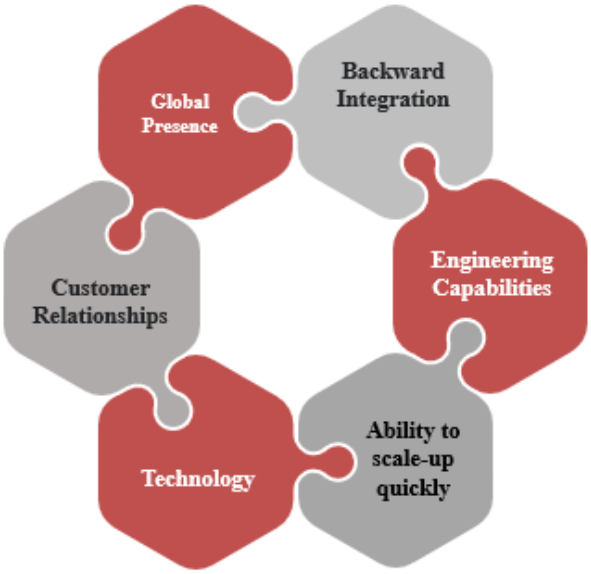
Source: Frost & Sullivan Analysis

Aerospace manufacturers often rely on global suppliers for a variety of components such as avionics, engine parts, landing gear, and composites, which are sourced from regions like North America, Europe, Asia, and others. As on 1 September 2025, the US will apply only the MFN tariff to specific European Union (EU) products, including unavailable natural resources (such as cork), all aircraft and aircraft parts, and generic pharmaceuticals along with their ingredients and chemical precursors. Both the United States and the EU further agree to evaluate additional sectors and products of mutual economic and strategic importance for possible inclusion under the MFN-only tariff treatment. This would ensure continuity of the aerospace supplies between US and EU there by avoiding any supply chain challenges. This would also ensure the stability of global aerospace supply chain. This approach allows companies to tap into specialized expertise, take advantage of lower labour costs, and secure high-quality materials. To mitigate these risks, aerospace companies adopt strategies like diversifying their supplier base, implementing robust risk management frameworks, and leveraging digital tools for supply chain visibility and tracking.

3.4.7 Critical Success Factors for Aerospace Component Manufacturers

The global aerospace component manufacturing market is marked by intense competition, requiring companies to succeed in key areas known as Critical Success Factors (CSFs):

Figure 3.12: Critical Success Factors for Aerospace Component Manufacturers



Source: Frost & Sullivan Analysis

Global Presence and Establishing Capacity Closer to the Customer: A global presence is crucial for reducing lead times, logistics costs, and operational inefficiencies. Locating production facilities near key customers ensures faster response times and fosters closer collaboration and regular interactions with key customers. This strategy also mitigates geopolitical risks, leverages local talent pools, and meets regional compliance requirements. By balancing global reach with local responsiveness, manufacturers enhance customer satisfaction and build a competitive edge in diverse markets.

- **Integrated Capabilities– Ability to Manufacture Components End-to-End:** Backward integration enables manufacturers to control quality, costs, and supply chain reliability. By managing processes from raw material sourcing to finished components, companies reduce dependence on external suppliers and streamline operations. Integration of value-addition supply chain also offers sustainability benefits, enabling customers to reduce their global carbon footprint. This approach ensures consistency, mitigates risks, and allows for customization to meet specific customer needs. Comprehensive capabilities like forging, machining, and surface finishing position manufacturers as reliable, one-stop solution providers. Global aerospace companies, such as Airbus and Boeing are focused on enhancing their supply chain efficiency and accordingly, prefer suppliers who are able to offer "one-stop-shop" capabilities to support their complex manufacturing and integration needs, due to the benefits associated with quality management, cost and working capital efficiencies (for instance, on account of reduced logistics and warehousing costs as a result of co-located facilities), reduced lead times and reduced global carbon footprint
- **Engineering Capabilities:** Engineering excellence is essential for aerospace manufacturers. Precision machining, metallurgical expertise, and the ability to work with complex alloys are critical. Robust R&D efforts ensure innovative, cost-effective solutions that meet stringent aerospace standards. These capabilities not only optimize component design and performance but also establish the manufacturer as a trusted partner for high-quality, customized solutions. Extensive testing and validation processes required to fulfil very specific product requirements and stringent quality requirements by aerospace OEM customers create a significant barrier to entry for new market entrants
- **Ability to Scale Up Quickly:** Rapid scalability is vital to adapt to market demands and new aerospace programs. Manufacturers must showcase access to resources like land, labour, capital, and raw materials. Flexible infrastructure, skilled workforces, and strong supplier networks enable quick expansion without compromising quality. Companies that demonstrate operational agility gain a competitive advantage by reliably meeting customer requirements and leveraging growth opportunities.
- **Technology – In-House as Well as Technical Collaborations/JVs:** Advanced technology drives efficiency and precision in aerospace manufacturing. Investments in automation, additive manufacturing, and Industry 4.0 practices enhance productivity and quality. Collaborations and JVs provide access to cutting-edge innovations, while certifications like AS9100 and NADCAP establish credibility. A strong

focus on technology and compliance ensures manufacturers stay competitive and meet evolving industry standards.

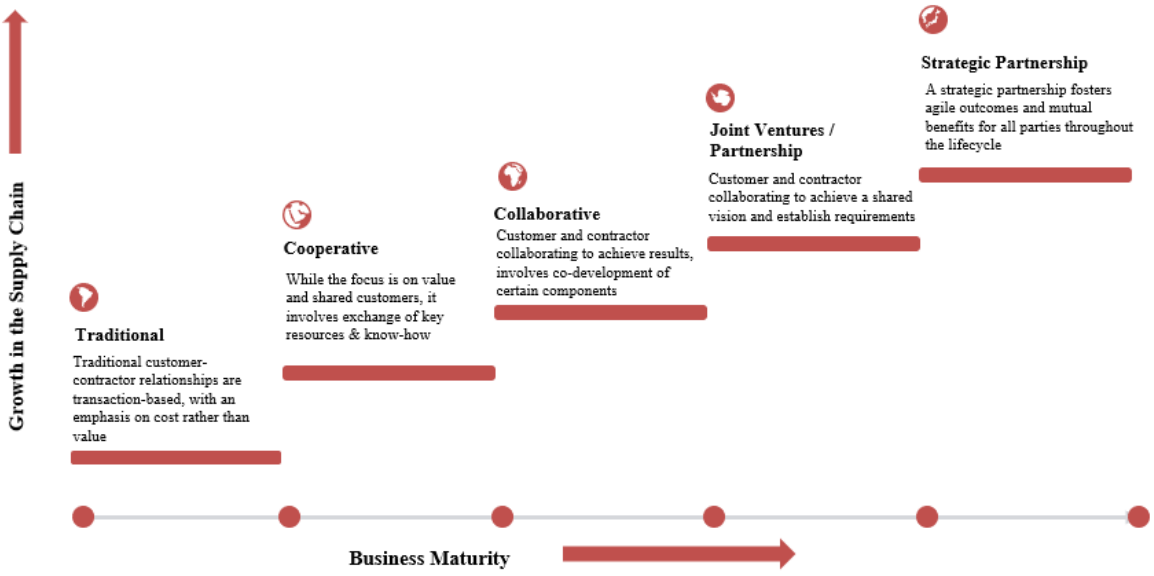
- **Customer Relationships:** Strong customer relationships are key to long-term success. Establishing LTAs provides demand visibility and resource planning stability. Cost pass-through mechanisms protect margins against material price fluctuations. Proactive communication, consistent quality, and problem-solving strengthen trust and collaboration. By aligning with customer needs, manufacturers secure repeat business and position themselves as preferred suppliers in a competitive aerospace component market. Aequs is one of the few precision component manufacturers in India in the aerospace segment with a presence in three continents, which enables access to skilled workforce with diverse backgrounds and expertise, apart from the closeness to the customer which helps in its long-term customer relationships.

Accordingly, Aequs has a significant market opportunity, driven by favourable industry trends, the unique approach to manufacturing, through the manufacturing ecosystems, and their diversified business model and product portfolio enable them to generate growth and profitability and enhance operational efficiency.

3.5 Evolving Business Models (Shift towards integrated players than multiple players)

The global aerospace manufacturing market is experiencing a major transformation, shifting from traditional business models to more integrated approaches. Traditionally, the industry functioned with various players—OEMs, suppliers, subcontractors, and service providers—each performing distinct roles with limited collaboration.

Figure 3.13: Evolving Business Models



Source: Frost & Sullivan Analysis

This model is evolving as companies increasingly pursue integration, fostering stronger relationships throughout the value chain.

- **Stage 1: Traditional Model/ Transaction Model**

In the conventional framework, aerospace manufacturers and suppliers operated independently, with clearly defined roles and minimal collaboration beyond contractual agreements. While this approach was effective in the past, it often resulted in inefficiencies and challenges in adapting to rapid industry changes or innovation demands.

- **Stage 2: Cooperative Model**

As competition intensified and globalization expanded, aerospace companies began adopting cooperative models. This strategy promotes collaboration among different entities within the supply chain, such as OEMs and tiered suppliers, to share resources, lower costs, and enhance operational efficiency. By working together, companies can leverage expertise, access new markets, and strengthen their global positions.

- **Stage 3: Collaborative Model**

The collaborative model further enhances cooperation by encouraging manufacturers and suppliers to work closely together and share information, technologies, and innovations for co-development. This integrated approach enables quicker responses to market demands, such as the push for more sustainable aircraft or advanced technologies. Collaboration often extends into product development, with joint teams focusing on design, testing, and production to achieve faster time-to-market and more tailored solutions.

- **Stage 4: Joint Venture/ Partnership Model**

In the partnership model, companies establish long-term strategic agreements that promote mutual growth and stability. This model typically involves shared risks and rewards as partners collaborate on specific projects or product lines. For instance, a supplier might form a long-term partnership with an OEM to secure the supply of critical components for a particular aircraft program. Such arrangements help stabilize the supply chain while ensuring both parties meet production schedules and quality standards.

- **Stage 5: Strategic Partnership Model**

Leading this evolution is the strategic partnership model, where aerospace companies forge deep alliances not only within the supply chain but also across industries. These partnerships often involve collaborations with technology firms or research institutions to drive innovation in areas like digitalization, sustainability, and advanced manufacturing technologies. Strategic partnerships focus on shared objectives such as enhancing product performance, minimizing environmental impact, and developing disruptive technologies like autonomous aircraft or electric propulsion systems. These collaborations are vital for maintaining competitiveness in a rapidly evolving industry by enabling manufacturers to combine expertise, reduce costs, and accelerate innovation.

3.6 Current Challenges in the Global Aerospace Sector

The aerospace sector is facing several significant challenges that are shaping its future, stemming from technological, regulatory, economic, and environmental pressures.

1. **Fulfilment of Order Backlog**

The total order backlogs as of end of 2024 was around 14,158 aircraft, out of which around 5,500+ aircraft account to Boeing and the rest 8,658 accounts to Airbus. These strong backlogs ensure a regular work flow from Airbus and Boeing to all its suppliers across it supply chain.

2. **Supply Chain Disruptions**

The global aerospace supply chain remains under strain, exacerbated by geopolitical tensions and trade conflicts. These disruptions have led to delays in the delivery of essential components, hindering production schedules and increasing costs. With aerospace manufacturing highly reliant on precise timing and quality, disruptions in any part of the supply chain can significantly affect the overall delivery timeline of aircraft.

3. **Availability of Skilled Manpower**

The aerospace industry is grappling with a severe manpower shortage, driven by rising demand, an aging workforce, and shifting workforce dynamics. As air travel rebounds and defense spending surges due to geopolitical tensions, the need for skilled workers has outpaced supply. The industry faces a growing skills gap, particularly in advanced digital roles like AI and robotics, while traditional technical expertise remains critical. In case of US, there is a demographic challenge: 25% of the workforce is nearing retirement age, taking with them institutional knowledge that is difficult to replace. Similarly, in the European Union, workers aged 55 and above account for around 16% of the workforce, with nations like Germany, Finland, and Sweden nearing 20% in this age group.

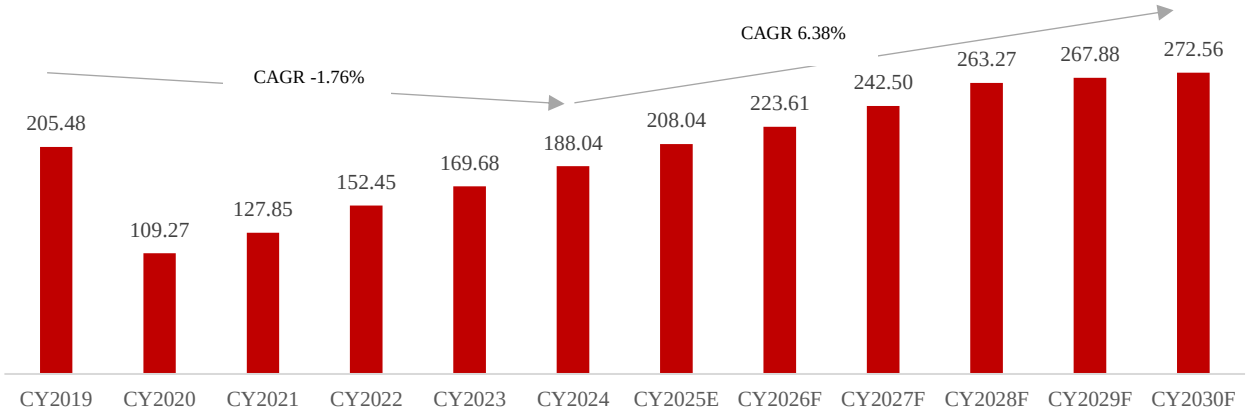
4. **Sustainability Pressures**

Environmental concerns are pushing the aerospace sector to reduce carbon emissions and improve fuel efficiency. The pressure to develop and adopt greener technologies, such as electric and hybrid-electric aircraft, is increasing. However, the development of these technologies remains challenging due to high costs, limited infrastructure, and the long development cycles required for new aircraft types.

3.7 Market Size- Global Aerospace Manufacturing

Global aerospace manufacturing is a critical industry that drives technological advancement and economic growth worldwide. This duopolistic market is dominated by Boeing and Airbus, the industry operates through a complex, interconnected global supply chain. Key trends shaping the sector include a focus on sustainability, with advancements in greener technologies, and the adoption of Industry 4.0 innovations such as AI, automation, and additive manufacturing. While challenges like geopolitical tensions and supply chain disruptions persist, the industry continues to adapt, fostering innovation and supporting aviation and space exploration. The global aerospace market was expected to grow from USD 188.04 Bn in CY2024 to USD 272.56 Bn in CY2030 at a CAGR of 6.38% between the given period.

Figure 3.14: Global Aerospace Market Size (In USD Bn),CY2019-CY2030F

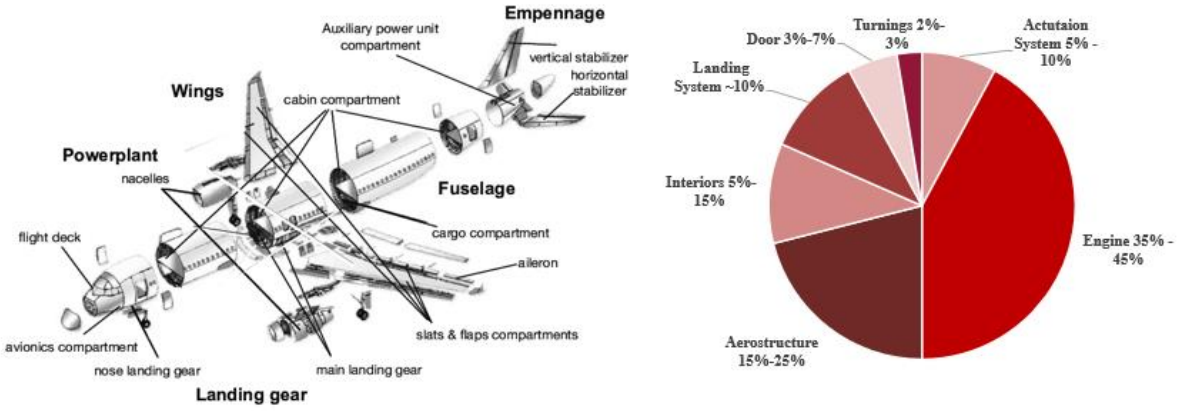


Source: Frost & Sullivan Analysis | Note: The above market is for commercial aircraft

3.8 Aircraft Breakdown by Sub-Systems

The aircraft sub-system had been broadly segmented into aerostructures, engines (powerplant), landing gears, interiors, electrical components, and communication & navigation systems. The aerostructures can be further segmented as fuselage, wings, and empennage. The engines account to around 40% of the total cost of the aircraft (this would vary based on the aircraft model). The rest of the approximate cost breakdown are shown in the figure below.

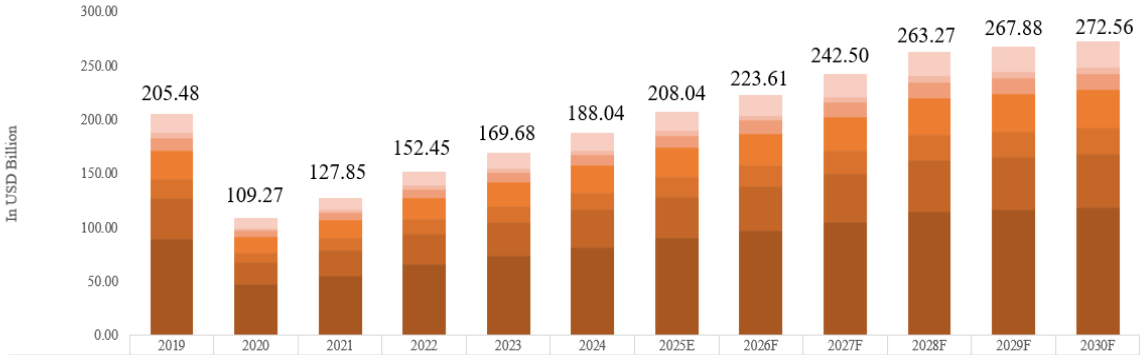
Figure 3.15: Aircraft Breakdown by Sub-Systems (In Percentage)



Source: Researchgate and Frost & Sullivan Analysis

The global aircraft components market, including engines, aerostructures, interiors, landing systems, doors, turnings, and actuation systems, has experienced fluctuations over recent years.

Figure 3.16: Aircraft Breakdown by Sub-Systems (In USD Bn), 2019-2030F

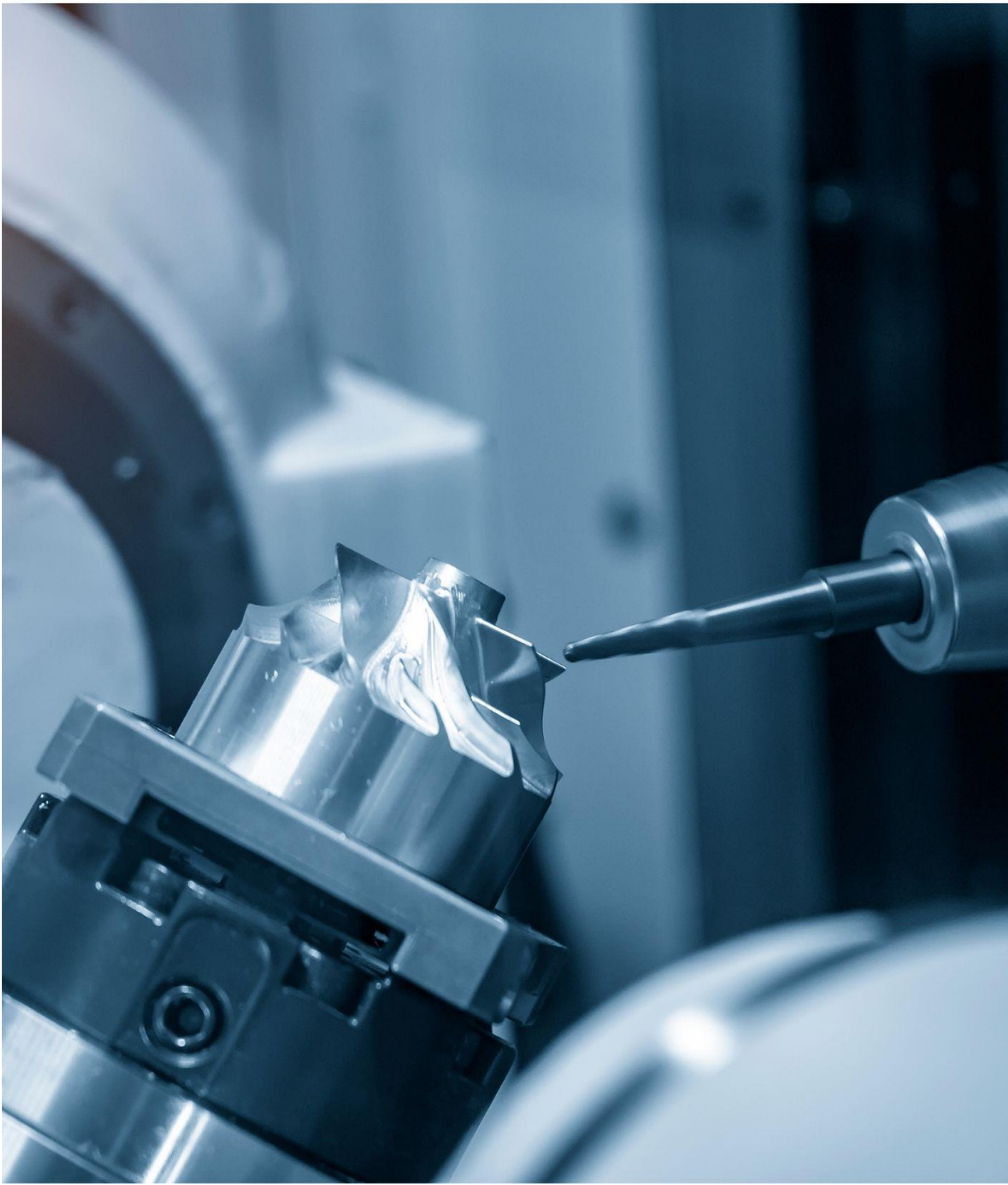


	2019	2020	2021	2022	2023	2024	2025E	2026F	2027F	2028F	2029F	2030F
Actuation Systems	17.87	9.50	11.12	13.26	14.75	16.35	18.09	19.44	21.09	22.89	23.29	23.70
Turnings	4.47	2.38	2.78	3.31	3.69	4.09	4.52	4.86	5.27	5.72	5.82	5.93
Doors	11.17	5.94	6.95	8.29	9.22	10.22	11.31	12.15	13.18	14.31	14.56	14.81
Landing Sytems	26.80	14.25	16.68	19.89	22.13	24.53	27.14	29.17	31.63	34.34	34.94	35.55
Interiors	17.87	9.50	11.12	13.26	14.75	16.35	18.09	19.44	21.09	22.89	23.29	23.70
Aerostructures	37.97	20.19	23.62	28.17	31.35	34.75	38.44	41.32	44.81	48.65	49.50	50.37
Engine	89.34	47.51	55.59	66.28	73.77	81.76	90.45	97.22	105.44	114.47	116.47	118.51

Source: Frost & Sullivan Analysis|

The aircraft sub systems are expected to grow from USD 188.04 in 2024 to USD 272.56 by 2030 at a CAGR of 5.55%. This growth is driven by increased global aircraft production, technological advancements, and the demand for more fuel-efficient and lightweight components. With rising air traffic and fleet modernization, manufacturers are investing in next-generation materials and automation to enhance efficiency and reduce operational costs.

4 Indian Aerospace Manufacturing Market



4 Indian Aerospace Manufacturing Market

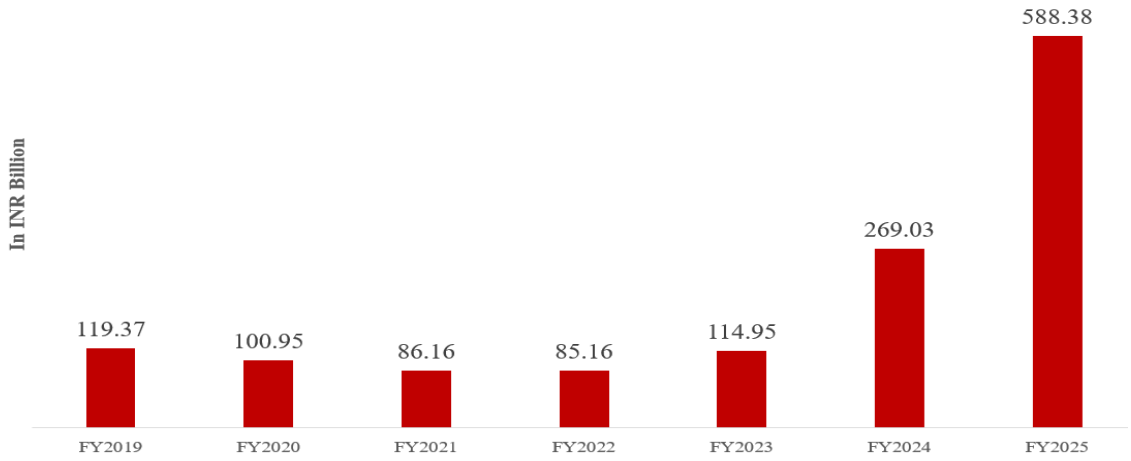
India's aircraft manufacturing market is rapidly growing, fuelled by rising air travel demand and e-commerce. The country is emerging as a key hub for aircraft manufacturing, assembly, and maintenance due to its strategic location and economic growth. A shift toward indigenous production is evident, with companies like Hindustan Aeronautics Limited (HAL) collaborating with global giants like Airbus and Boeing to enhance local manufacturing capabilities.

Increase in Export of Aerospace Engineered Components from India:

India's export of aerospace-engineered components had witnessed significant growth, reflecting the country's rising capabilities in precision manufacturing and its expanding role in the global aerospace supply chain. In FY2019, aerospace component exports accounted to INR 119.37 Bn (USD 1.71 Bn), driven by increased participation of Indian manufacturers in global aerospace programs, government initiatives like Make in India, and strategic partnerships with leading international aerospace firms.

In FY2025 the exports reached INR 588.38 Bn (USD 6.96 Bn). The push towards self-reliance in defense and aerospace, along with favourable policies and infrastructure development, is positioning India as a key supplier of high-quality aerospace components to global markets. Aequs has one of the largest portfolios of aerospace products in India, as of 31st March 2025.

Figure 4.1: Increase in Export of Aerospace Engineered Components from India (In INR Bn), FY2019-FY2025



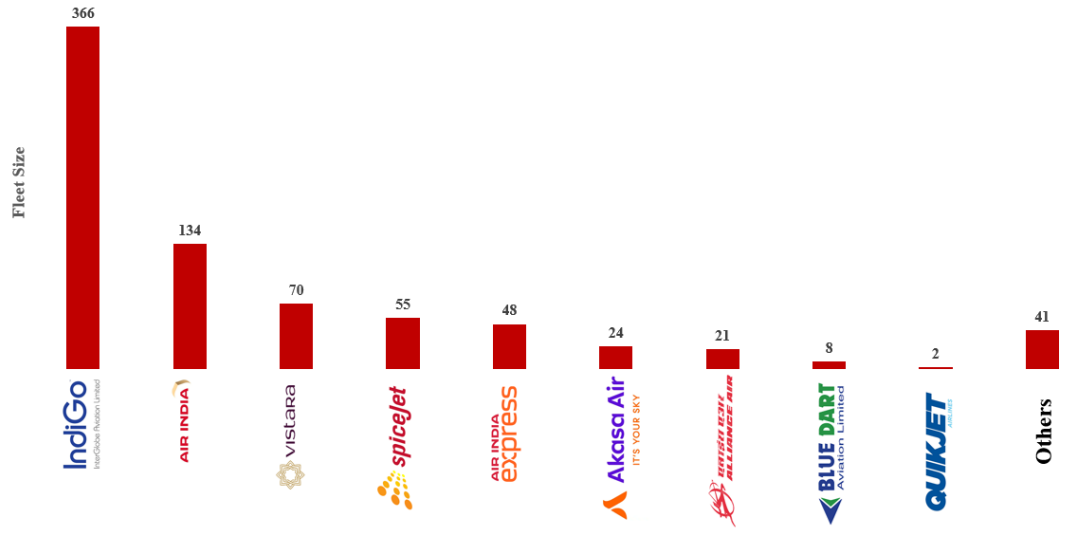
Source: Ministry of Commerce | Note: The above data inncludes Aircraft parts and space parts, Aircraft Orders- India

Aircraft Orders – India

India has emerged as one of the most significant markets for aircraft orders, reflecting the rapid growth of its aviation sector. A booming economy, increasing middle-class affluence, and expanding urbanization have driven the demand for air travel in India. These factors, coupled with a growing appetite for domestic and international travel, have spurred Indian airlines to expand and modernize their fleets significantly.

Major Indian carriers have been aggressively placing aircraft orders to meet this increasing demand. The major airlines which have placed orders from India are Air India, IndiGo, and Akasa Air. These aircraft orders are not just about expanding capacity; they also reflect the broader strategic goals of Indian airlines to modernize their fleets. In FY2024,IndiGo accounts for around 47.59% of the total Indian commercial aircraft fleet. Air India has the second largest fleet in India; it accounts for around 17.43% of the total Indian fleet. Majority of the orders are from three major airlines in India namely, IndiGo which has around 916 aircraft orders followed by Air India accounting to 344 aircrafts orders. The airline with the third largest aircraft order in India is Vistara at around 56. The total number of aircraft order backlogs from India accounted to approximately 1,260 as of June 2025.

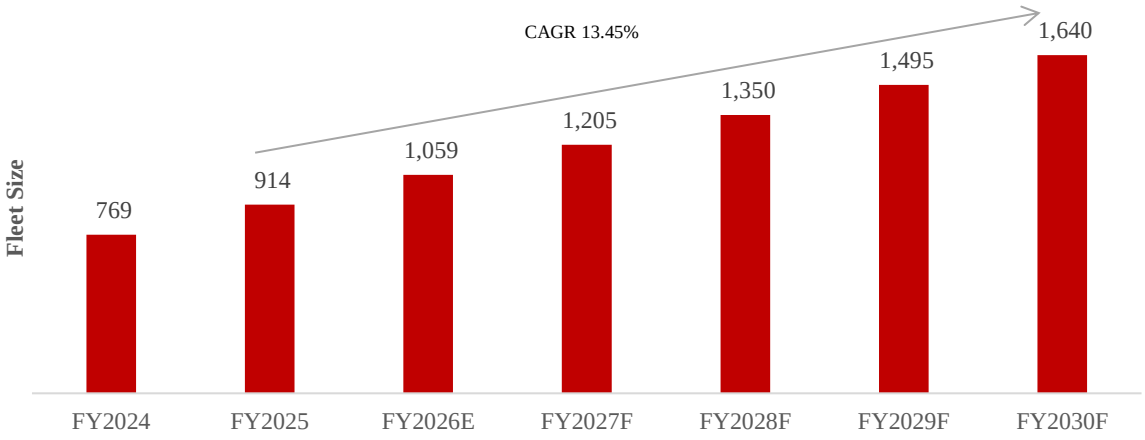
Figure 4.2: Total Indian Fleet, FY2024



Source: DGCA | Note: Others include AIX Connect, Fly 91, FlyBig, Indiaone Air, Start Air

The merger between Air India and Vistara was officially completed on November 12, 2024, creating a unified full-service airline under the Air India brand. This strategic consolidation enables the new entity to operate over 5,600 weekly flights to more than 90 destinations with a fleet of 208 aircraft. The integration aims to enhance operational efficiency and financial stability.

Figure 4.3: Total Indian Fleet, FY2024-FY2030F



Source: DGCA and Frost & Sullivan Analysis

The Indian commercial aircraft fleet size was 769 aircrafts in FY2024 and this is expected to grow at a CAGR of 13.45% and reach 1,640 by FY2030. The increase in Indian air travel is a key driver for the growth of the commercial aircraft fleet in India.

4.1 Government Initiatives & Reforms

The Make in India initiative, launched in 2014, has played a crucial role in advancing India's commercial aerospace manufacturing sector. The initiative aims to make India a global manufacturing hub by encouraging both domestic and foreign companies to establish production facilities within the country. These partnerships have facilitated the transfer of advanced technologies and expertise, enhancing India's ability to produce high-quality aerospace components such as fuselage sections, wings, engines, and landing gears.

Overall, Make in India has significantly strengthened India's position in the global aerospace market, driving innovation, investment, and the development of a competitive, self-reliant aerospace manufacturing ecosystem. A few successful projects as an outcome of the Make in India Initiatives are:

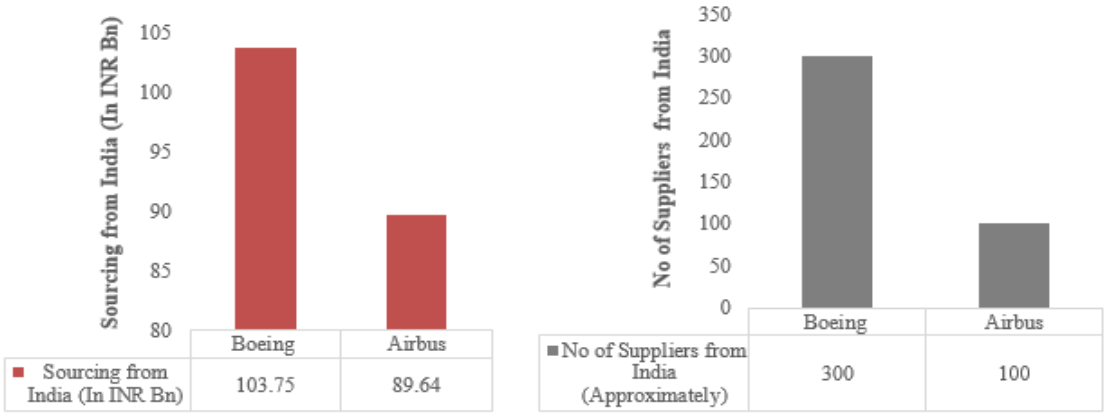
- GE Aerospace announce its plan to invest more than INR 2.40 Bn to expand its manufacturing facility in Pune, this was announced in 2024. This investment will enable the facility to undertake new projects and manufacturing processes, including the acquisition of machinery, equipment, and specialized tools, while also boosting the capacity for existing products.
- SAFHAL, a joint venture between Safran Helicopter Engines SAS and Hindustan Aeronautics Limited, focuses on the design, development, production, sales, and support of next-generation helicopter engines in India. This venture represents a major milestone for India's aerospace and defense sector, with the goal of strengthening the country's Aatmanirbharta self-reliance) in helicopter engine technology.
- Hindustan Aeronautics Limited (HAL) and Airbus have signed a contract to set up a Maintenance, Repair, and Overhaul (MRO) facility for the A320 (Airbus 320) aircraft family. This collaboration aims to enhance the support infrastructure for the A320 (Airbus 320) fleet in India, improving maintenance capabilities and ensuring better service for operators, thereby strengthening the aerospace sector in the country.

Specific initiatives under Make in India

- **PLI Scheme for Aerospace and Drone Sectors**: The Production Linked Incentive (PLI) scheme for drones, initiated on September 30, 2021, aims to enhance domestic manufacturing in the drone sector. It offers incentives amounting to Rs. 120 crores over three years, with a 20% incentive on value addition, thereby promoting indigenous development and reducing import dependency.
- **Bhartiya Vayuyan Vidheyak Bill 2024**: The Bhartiya Vayuyan Vidheyak Bill 2024 replaces the Aircraft Act of 1934, modernizing India's aviation regulatory framework. It establishes a robust governance structure for civil aviation, focusing on safety, security, and environmental sustainability while facilitating growth in the aviation sector through streamlined regulations and enhanced oversight.
- **Revised FDI Limit in Defense Manufacturing**: The revised Foreign Direct Investment (FDI) policy in defense manufacturing aims to attract more foreign investment by increasing the limit to 74% in certain sectors. This move is designed to bolster local manufacturing capabilities, enhance technology transfer, and support India's self-reliance in defense production by inviting global players to invest in the Indian market.

4.2 Indian Aerospace Supply Chain

Figure 4.4: Sourcing and No of Suppliers of Airbus and Boeing from India, FY2024



Source: Frost & Sullivan Analysis | Note : Currency exchange rate taken as of 31st March for the respective year

Global aircraft Original Equipment Manufacturers (OEMs) such as Boeing and Airbus sourced (which includes components and sub-assemblies) around INR 193.39 Bn from India in FY2024. Boeing sources from ~300 suppliers in India, contributing to a procurement value of INR 103.75 Bn. Similarly, Airbus engages with ~100 Indian suppliers, accounting for sourcing worth INR 89.64 Bn.

4.3 Airbus Suppliers from India

The Airbus procures aircraft flying parts and engineering service from India. Airbus is expanding its supplier base to increase procurement from India. There are more than 100 suppliers from India, which account to around USD 1.40 Bn in sourcing value for the year FY2025.

Detailed Parts Partner (D2P) aerospace suppliers in India play a crucial role in the global aviation and defense ecosystem. (There are around 100 D2P suppliers globally). Major players in aerospace component manufacturing in India include Aequs, Tata Advanced Systems, Hindustan Aeronautics Limited (HAL), Bharat Forge, Dynamatic Technologies, and Mahindra Aerospace. They cater to major OEMs like Boeing, Airbus, and Lockheed Martin. With India's focus on self-reliance (Atmanirbhar Bharat) and Make in India, the aerospace supply chain is expanding rapidly. These suppliers leverage advanced manufacturing, composites, and additive manufacturing to enhance efficiency and innovation, positioning India as a key global aerospace hub.

Figure 4.5: Airbus Parts Suppliers from India, FY2024

Source: Frost & Sullivan Analysis | Note: List not exhaustive

4.4 Challenges in the Indian Aerospace Manufacturing Supply chain

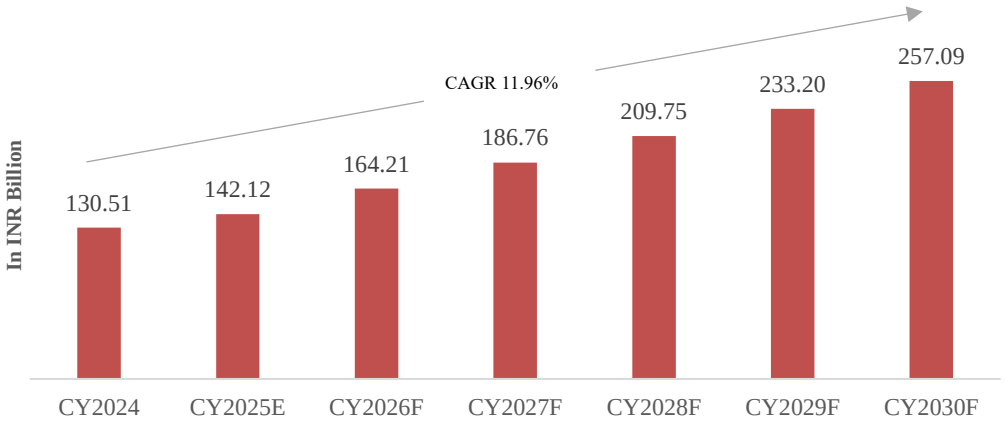
The Indian aerospace manufacturing supply chain faces several challenges:

1. **Dependence on Imports**: India relies heavily on imports for high-tech raw materials and advanced components like advanced composites, titanium, and avionics systems, leading to potential supply disruptions and increased costs. The strategic partnership would facilitate easier access to technology and international market which would result in higher margins compared to end users in India.
2. **Fragmented Supply Chain**: The presence of numerous Small and Medium-sized Enterprises (SMEs) with limited resources hinders their ability to integrate into larger global supply chains effectively, causing inefficiencies, delays, and higher costs. Aequs aim to leverage the existing ecosystems and their manufacturing capabilities to expand their market share in related precision-driven sectors among others, which are expected to be growing sectors in India, particularly considering the Government of India's push towards local manufacturing in India.
3. **Infrastructure Constraints**: India's aerospace manufacturing sector faces significant infrastructure constraints that limit its global competitiveness. These include a shortage of dedicated aerospace industrial zones, inadequate testing and certification facilities, and insufficient high-precision manufacturing capabilities. Many areas also suffer from unreliable utilities, weak last-mile connectivity, and fragmented supply chains, which increase production costs and lead times. Additionally, a lack of integrated logistics and proximity to airports or seaports often delays critical imports and exports. Aerospace clusters address these challenges by centralizing resources, fostering collaboration, and leveraging shared facilities. Clusters in regions like Bangalore, Hyderabad, and Tamil Nadu offer specialized industrial parks, dedicated aerospace SEZs, and advanced R&D centers. They ensure robust supply chains and access to skilled labor, while proximity to airports, rail, and ports streamlines logistics. Government support—through tax incentives, plug-and-play infrastructure, and certified testing facilities—lowers entry barriers for manufacturers. Public-private partnerships help develop essential utilities like power, water, and digital infrastructure. Co-locating OEMs with Tier-1 and Tier-2 suppliers within these clusters boosts efficiency, reduces costs, and accelerates the growth of India's aerospace sector

4.5 Market Size- Indian Aerospace Manufacturing

The Indian Aerospace manufacturing market is expected to reach INR 257.09 Bn (USD 3.06 Bn) in CY2030. The market is estimated at around INR 130.51 Bn (USD 1.55 Bn) in CY2024 and grow at a CAGR of 11.96% between the period CY2024 to CY2030.

Figure 4.6: Indian Aerospace Manufacturing Market Size (In INR Bn), CY2024-CY2030F



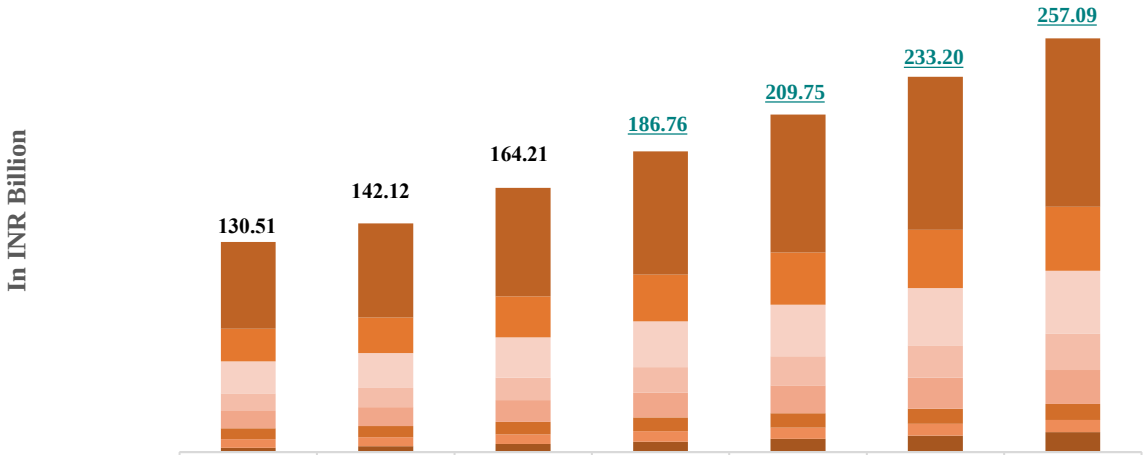
Source: Frost & Sullivan Analysis | Note: The above market is for commercial aircrafts, Note : Currency exchange rate taken as of 31st March for the respective year, 1 USD = 85.00 INR from 2025 Onwards

The Indian aircraft components market had witnessed a strong growth between CY2024 and CY2030. In CY2024, the engine segment was valued at INR 2.70 Bn (USD 0.03 Bn), while aerostructures stood at INR 53.95 Bn (USD 0.64 Bn). Interiors were recorded at INR 6.74 Bn (USD 0.08 Bn), landing systems at INR 20.23 Bn (USD 0.24 Bn), doors at INR 5.40 Bn (USD 0.06 Bn), turnings at INR 10.79 Bn (USD 0.13 Bn), and actuation systems at INR 10.79 Bn (USD 0.13 Bn).

By CY2030, significant growth is anticipated across all segments. The engine market is projected to reach INR 12.45 Bn (USD 0.15 Bn), aerostructures at INR 104.58 Bn (USD 1.24 Bn), and interiors at INR 9.96 Bn (USD 0.12 Bn). Landing systems are expected to grow to INR 39.84 Bn (USD 0.47 Bn), doors to INR 7.47 Bn (USD 0.09 Bn), turnings to INR 21.17 Bn (USD 0.25 Bn), and actuation systems to INR 22.41 Bn (USD 0.27 Bn).

The CAGR from CY2024 to CY2030 highlights notable expansion. Engines are set to grow at 29.03%, followed by actuation systems at 12.95%, aerostructures at 11.66%, and landing systems at 11.96%. Increasing aircraft production, technological advancements, and rising demand for lightweight and fuel-efficient components are driving this growth. Investments in next-generation materials and automation will further boost the sector.

Figure 4.8: Indian Aircraft Sub System Market In INR Bn), CY2024-CY2030F



	CY2024	CY2025E	CY2026F	CY2027F	CY2028F	CY2029F	CY2030F
Aerostructures	53.95	58.58	67.51	76.57	85.77	95.10	104.58
Landing Sytems	20.23	22.03	25.45	28.95	32.51	36.14	39.84
Others	19.91	21.68	25.05	28.49	31.99	35.57	39.21
Actuation Systems	10.79	11.86	13.83	15.87	17.98	20.16	22.41
Turnings	10.79	11.74	13.56	15.41	17.29	19.21	21.17
Interiors	6.74	7.02	7.75	8.40	8.99	9.51	9.96
Doors	5.40	5.57	6.09	6.54	6.92	7.23	7.47
Engine	2.70	3.63	4.98	6.54	8.30	10.27	12.45

Source: Frost & Sullivan Analysis | Note: The above market is for commercial aircrafts | Note: Others include components likes engine systems components, cables and wireharnesses, communication system components, to name a few, Note : Currency exchange rate taken as of 31st March for the respective year, 1 USD = 83.00 INR

4.6 India as an emerging destination

India is rapidly emerging as a key destination for aerospace manufacturing, driven by several strategic factors that position the country as an attractive hub for global aerospace companies and local manufacturers.

India offers a cost advantage, with competitive labor costs and lower overheads compared to other established aerospace manufacturing hubs like the US and Europe. This cost efficiency makes India an attractive destination for the Global Aerospace companies.

Additionally, India has made significant strides in developing a skilled workforce in aerospace engineering and manufacturing. The government's emphasis on education, training programs, and partnerships with aerospace companies ensures a steady supply of qualified professionals to meet the sector's growing needs.

Furthermore, India's growing air travel market and the expansion of regional airlines create a rising demand for aircraft, which encourages more local production and supply of aerospace components. Overall, India's combination of government incentives, cost efficiency, skilled labor, and strategic partnerships makes it a rapidly emerging destination for commercial aerospace manufacturing.

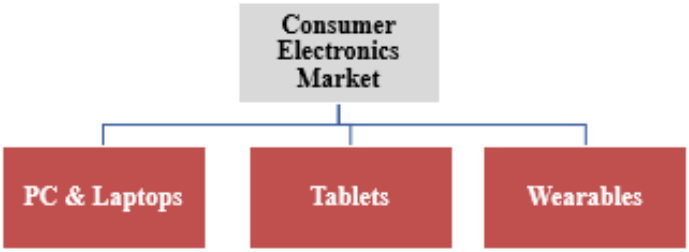
5 Consumer Section

The consumer section focuses on products and services tailored to meet customer needs across various industries. It includes categories such as electronics, apparel, home appliances, cookware, personal care, and entertainment. In this report, consumer section refers to consumer electronics, cookware, and toy market.

5.1 Global Consumer Electronics Market and Market Dynamics

The growth in global consumer electronics market which includes products such as laptops, tablets, and wearables devices, is driven by technological advancements and shifting consumer trends. Some of the key trends driving this growth include rapid urbanization and rising disposable incomes, shifts in lifestyle, education and work preferences, demand for connectivity and latest technology (rapid innovation in AI and 5G connectivity), and sustainable products. The sum of all three markets (PC & Laptop), Tablets and Wearables is projected to grow from USD 351.64 Bn in 2024 to USD 405.46 Bn in 2030 registering a CAGR of 2.89%.

Figure 5.1: Market Segmentation on Consumer Electronics Market



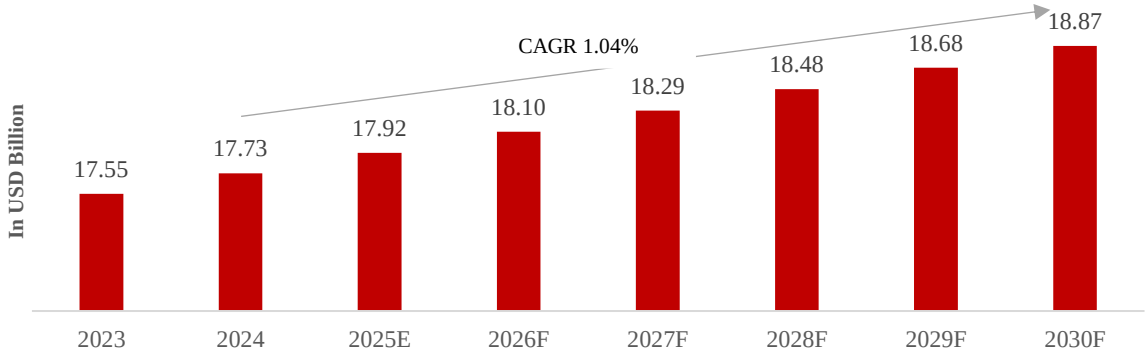
Source: Frost & Sullivan Analysis

Aequs aims to increase their proportion of consumer electronics products, which are higher-margin products as compared to other consumer products such as toys. Aequs' product portfolio for consumer electronics includes components for portable computers and smart devices.

5.1.1 Global Laptop Enclosures Outsourced Market

The global laptop enclosures market is experiencing strong growth, driven by the increasing demand for lightweight, durable, and visually appealing designs made from materials such as aluminium, carbon fibre, and high-grade plastics, designed to protect internal components from damage, dust, and moisture. These enclosures enhance portability and longevity while offering customizable, sleek designs. The market is projected to expand from USD 17.73 Bn in 2024 to USD 18.87 Bn by 2030, reflecting a CAGR of 1.04%. The laptop enclosures account to around 15.00% of the overall market by value. Most laptop enclosures for global brands (HP, Dell, Lenovo, Apple, Asus, etc.) are manufactured by large Taiwanese ODMs (Original Design Manufacturers) such as Foxconn, Compal, Quanta, Wistron, and Inventec, who have extensive manufacturing operations in China and Southeast Asia. Companies like Lian Li, Cooler Master and Sohoo Technology are recognized for their expertise in high-quality, often aluminium, chassis and enclosures, supplying both consumer and enterprise markets.

Figure 5.2: Global Laptop Enclosure Outsourced Market (In USD Bn), 2023-2030F

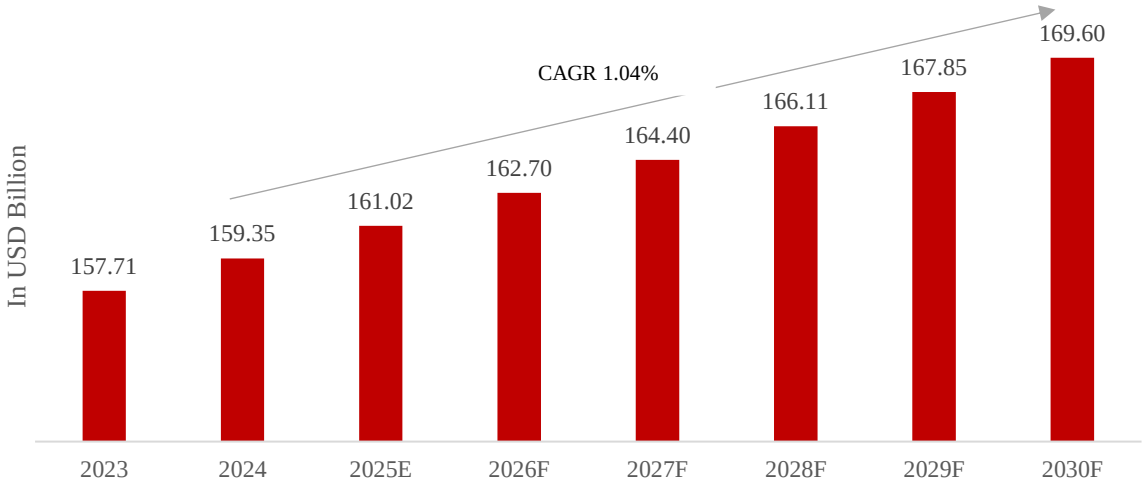


Source: Frost & Sullivan Analysis | Note: The above market is enclosures for laptops only

5.1.1.1 Global Laptop Market

This segment includes both personal computers (PC) and laptops. The rise of remote work, online education, and digital content consumption further supports market growth. The global laptop market is expected to increase from USD 159.35 Bn in 2024 to USD 169.60 Bn by 2030, registering a CAGR of 1.04%. The key players in the global laptop market are Lenovo, Dell, HP, Apple, and Asus to name a few.

Figure 5.3: Global Laptop Market (In USD Bn), 2023-2030F

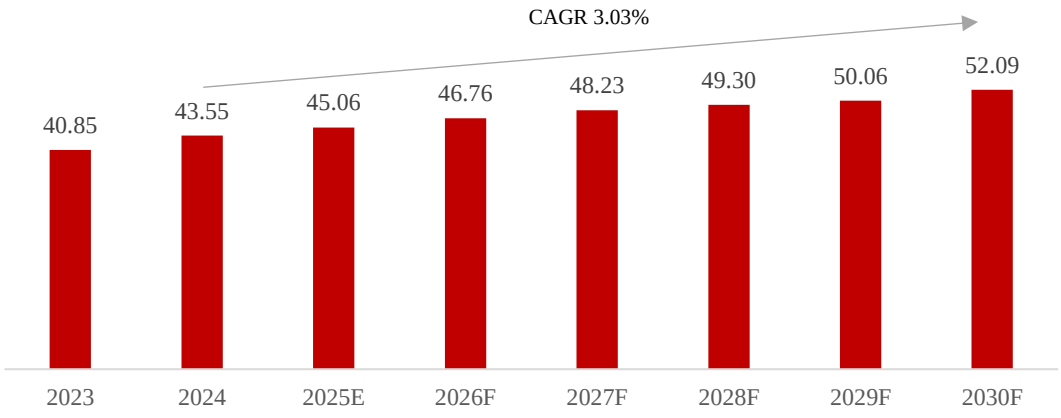


Source: Frost & Sullivan Analysis

5.1.2 Global Wearables Outsourced Market

The global wearables market includes wrist bands, smartwatch, ear wear, smart rings, and smart glasses Technological advancements in sensors, connectivity, and battery life improve product performance. The global wearables outsourced market is a significant and growing segment, underpinned by the expansion of the broader wearables industry and the increasing reliance on contract manufacturers for efficient, scalable, and cost-effective production. Asia remains the dominant region for outsourced manufacturing, with countries like China, India, and Taiwan at the forefront. The growing demand for wearables and personal devices, coupled with OEMs' China+1 strategy, also positions India as an alternative supply base. The global wearables market is expected to grow from USD 126.58 Bn in 2024 to USD 151.40 Bn by 2030. The global outsourced wearables market is projected to increase from USD 43.55 Bn in 2024 to USD 52.09 Bn by 2030, registering a CAGR of 3.03%. The outsourced segment is estimated to account for around 50% of the total market.

Figure 5.4: Global Wearables Outsourced Market (In USD Bn), 2023-2030F

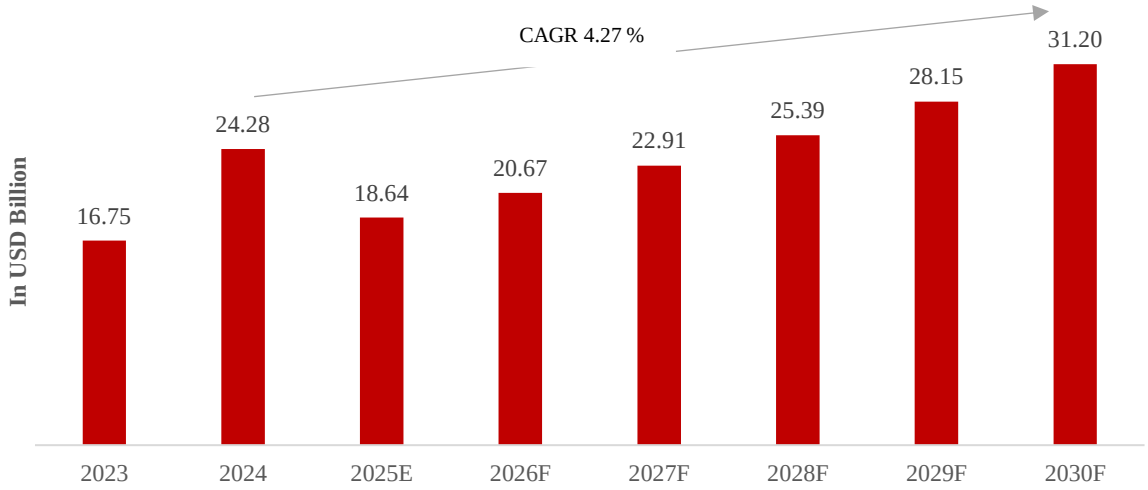


Source: Frost & Sullivan Analysis

5.1.3 Global Tablets Outsourced Market

The global tablets outsourced market is experiencing steady growth, driven by the increasing demand for portable, versatile devices for work, entertainment, and education. Outsourcing covers the entire tablet value chain, from product design and component sourcing to final assembly and logistics. This allows brands to focus on innovation and marketing while leveraging the scale and efficiency of specialized manufacturers. Companies like Foxconn, Pegatron, Compal, and Wistron are leading contract manufacturers for global tablet brands (Apple, Samsung, Huawei, Amazon, Lenovo etc.). Technological advancements in display quality, processing power, and battery life are enhancing user experience. The global market size of Tablet is expected to grow from USD 65.71 Bn in 2024 to USD 84.46 Bn in 2030. The global outsourced tablet market is projected to expand from USD 24.28 Bn in 2024 to USD 31.20 Bn by 2030, at a CAGR of 4.27%. The outsourced segment is expected to account for around 55% of the overall tablet manufacturing market.

Figure 5.5: Global Tablet Outsourced Market (In USD Bn), 2023-2030F



Source: Frost & Sullivan Analysis

5.2 Global Toy Market

The global toy market is experiencing several key shifts. A significant trend is the increasing demand for sustainable and ethically produced items, reflecting growing consumer awareness of environmental and social responsibility. Another key dynamic is the focus on inclusivity and representation, with manufacturers striving to create products that reflect the diversity of the global population. The market is also influenced by trends such as the growing importance of customization, seasonal trends, and cultural shifts further impact market performance, with certain periods seeing spikes in demand.

5.2.1 Key Market Drivers in Global Toy Market

The global toy market is influenced by several dynamic factors, including shifting consumer preferences, technological advancements, and evolving retail landscapes. One of the key drivers is the increasing demand for interactive and educational toys that engage children's learning and development. Additionally, the rise of technology has led to the proliferation of digital toys, smart devices, and augmented reality (AR) toys, which integrate gaming and physical play experiences. The key drivers in the Global toys market are:

Growing Demand for Educational and STEM Toys: Parents increasingly prioritize toys that encourage learning and skill development. STEM toys promote critical thinking, creativity, and problem-solving, making them a preferred choice. For example, LEGO Education kits and Osmo's interactive learning games.

Rising Disposable Income: Higher income levels, especially in emerging economies, enable families to spend more on premium and branded toys. This trend drives demand for high-quality, innovative, and diverse toys. For example, premium figures and Toy car from brands like Mattel.

Popularity of Licensed and Franchise-Based Toys: Toys based on popular movies, TV shows, and video games are in high demand among children and collectors. Franchises play a significant role in shaping purchasing decisions. For example, Marvel action figures, Frozen dolls, and Pokémon trading cards.

Technological Advancements and Smart Toys: Integration of technology, such as AI, AR, and VR, has created a new category of interactive and engaging toys that attract tech-savvy children and parents. For example, Pictionary Air with AR functionality.

Shift Toward Eco-Friendly and Sustainable Toys: With growing environmental concerns, parents are increasingly opting for toys made from sustainable materials, such as wood, recycled plastic, and biodegradable components. For example, Green Toys (Company based in California, US), which produce toy components from 100% recycled materials.

Expansion of E-Commerce Platforms: The convenience of online shopping and the availability of a wide range of toys with competitive pricing have boosted sales globally. E-commerce platforms also allow access to niche and international brands. For example, Amazon dominate toy sales market in the US with estimated sale in this category to reach USD 24.80 Bn, this accounts for around 60.00% to 65.00% of the US toys market.

Increased Focus on Indoor and Family-Oriented Toys: The pandemic-induced focus on at-home entertainment has spurred demand for puzzles, board games, and building kits, fostering family interaction and creativity. For example, Monopoly, Jenga, and Ravensburger puzzles experienced a surge in sales during lockdowns.

Cultural and Seasonal Influence: Cultural events, festivals, and holidays consistently drive toy demand. Regional preferences also shape toy trends, such as traditional toys during specific festivals or new launches during global holidays like Christmas. The surge in demand for plush toys during Valentine's Day and themed toys like Elf on the Shelf during Christmas.

5.2.2 Market Challenges

The global toy market faces several challenges, including rising raw material costs, which can affect production budgets and retail prices. Strict safety and regulatory standards across different markets require compliance, adding complexity to manufacturing and distribution for example, the CE mark is a mandatory certification for toys sold within the European Union (EU). The key challenges are discussed below:

- **Stringent Regulatory Frameworks:** The EU Toy Safety Directive requires toys sold in Europe to meet specific safety standards, including restrictions on harmful chemicals and mandatory CE marking. In the USA, the Consumer Product Safety Improvement Act (CPSIA) sets limits on lead and phthalates in toys. Compliance with these regulations requires costly testing and certification processes.
- **Environmental Constraints:** Environmental sustainability has become a key concern in the toy industry, with pressure mounting for manufacturers to reduce waste and environmental impact. For example, Hasbro, known for toys like Monopoly and Play-Doh, is also exploring the use of plant-based plastics. They have launched toys made with bioplastics in some product lines, aiming to reduce the environmental impact of their manufacturing processes. Their commitment to sustainable packaging also includes efforts to use recycled or plant-based materials

- **Digital Distraction:** As digital entertainment increasingly captures children's attention, traditional toy manufacturers face the challenge of staying relevant. Video games, apps, and streaming services like Netflix or YouTube offer an abundance of entertainment that often competes with physical toys. The toy manufacturers have realized that collaborating with digital platforms would help them compared to competing with them to gain the market. For example, toys like Barbie or Hot Wheels now incorporate digital elements, such as interactive apps or online features, to keep up with the trend. However, many traditional toy companies face declining sales as digital content consumes more of children’s leisure time.

- **Rising Production Cost:** The increasing cost of plastic in toy manufacturing is directly tied to the volatility of oil prices. As crude oil prices approach USD 100.00 per barrel, the cost of producing petroleum-based plastics rises significantly, potentially reaching USD 6.00 to USD 7.00 per kilogram. It is estimated that 1.90 kilogram of crude oil is required to produce 1.00 kilogram of plastic.[1] Since crude oil is a key raw material in plastic production, higher oil prices lead to increased manufacturing costs, which in turn affect toy pricing.

- **Cultural Sensitivity:** The Indian Monopoly set, launched by Hasbro, is a localized version of the classic board game tailored to reflect Indian culture, landmarks, and traditions. In this version, iconic properties, and locations from across India replace the traditional street names seen in the global version. For example, famous Indian locations like the Taj Mahal, Gateway of India, and Qutub Minar are used as properties, while Chennai and Delhi replace New York and other western cities. The game also incorporates Indian elements like currency (rupees), traditional foods, and vehicles such as the auto rickshaw. The aim was to make the

game more relatable to Indian players, infusing it with the local flavour while maintaining the classic gameplay.

5.2.3 Market Restraints

The key market restraints in the global toy industry are the following,

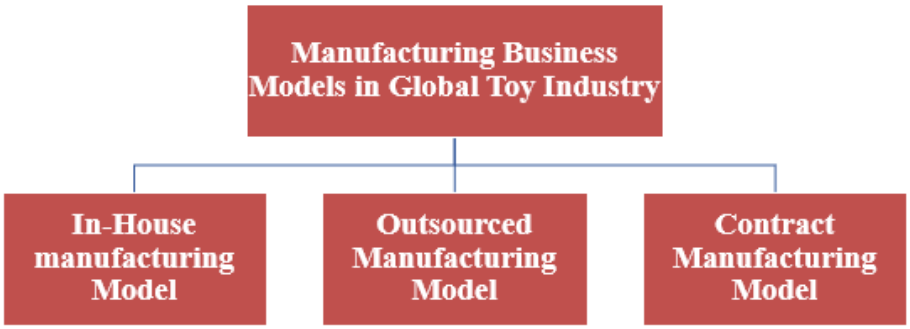
- **High Labor cost in Toy Manufacturing:** High labour costs in regions like Europe and the USA, present a significant challenge for toy manufacturers. For instance, companies producing handcrafted toys or intricate collectibles face rising wages, increasing their operational expenses. LEGO, based in Denmark, has invested heavily in automation to counter high labour costs while maintaining quality. Many manufacturers outsource production to lower-cost regions, such as China or Vietnam, to reduce expenses. However, this strategy can introduce risks such as supply chain disruptions and quality control issues

- **Counterfeit Products:** The proliferation of counterfeit toys undermines legitimate businesses and endangers consumers. For example, counterfeit Barbie dolls, often sold on online platforms, use substandard materials, and may contain harmful chemicals. These products violate intellectual property laws and erode consumer trust in well-known brands. In response, stricter enforcement of IP laws and partnerships with e-commerce platforms, such as Amazon's "Project Zero," help tackle this issue, protecting both consumers and legitimate manufacturer.

5.2.3.1 Business Model in the Toy Industry

There are three business models in the global toy industry which are explained in the figure and table below,

Figure 5.6: Manufacturing Business Model in the Global Toy Industry



Source: Frost & Sullivan Analysis

Global toy manufacturers predominantly prefer contract manufacturing or outsource manufacturing due to factors like Control Over Production, Flexibility, Cost Structure, Risk and Quality Control, Production Speed, Scalability, Labour and Workforce, Supply Chain Management, Capital Investment, and Innovation & Design.

5.2.3.2 Market Dynamics of the Toy Industry in terms of Contract Manufacturing

Contract manufacturing plays a significant role in the toy industry, influencing market dynamics in various ways. By outsourcing production to third-party manufacturers, toy companies can focus on product design, branding, and innovation while reducing costs related to manufacturing infrastructure and labour.

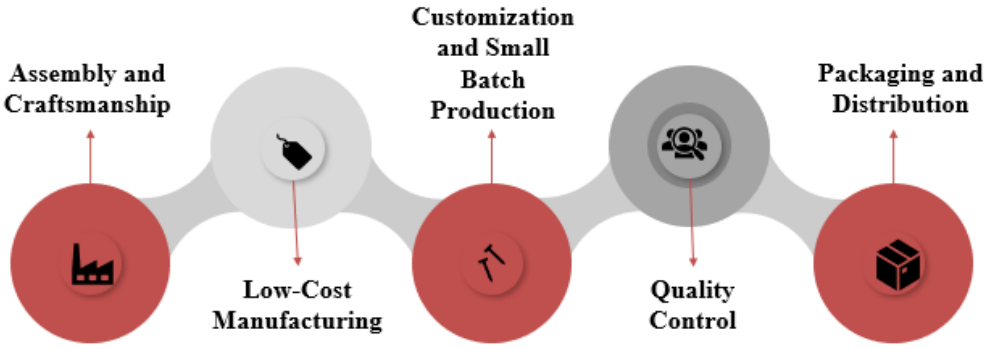
- **Cost Efficiency:** Contract manufacturing allows toy companies to reduce operational costs, especially in regions where labour and production costs are lower. This enables them to offer competitive pricing and increase profit margins.
- **Scalability and Flexibility:** Toy companies can scale production up or down based on seasonal demand or market trends without committing to large capital expenditures. Contract manufacturers offer flexibility in production volumes, making it easier for companies to manage inventory and respond to market fluctuations.
- **Global Reach:** Partnering with contract manufacturers in different regions facilitates access to international markets. This is especially crucial for toy companies seeking to expand their global presence while maintaining localized production capabilities.

- **Quality Control and Compliance:** Contract manufacturers often need to adhere to international safety standards and regulations, which has led to an increased focus on quality control processes. However, ensuring that contracted factories meet these standards remains a key responsibility for toy brands.
- **Innovation and Expertise:** Contract manufacturers often bring specialized expertise, especially in mass production, materials, and technology integration. This allows toy companies to leverage advanced manufacturing techniques, such as robotics or automated processes, without investing heavily in these capabilities themselves.

5.2.3.3 Labour-Intensive Touch Points in Toy Industry

The toy industry is traditionally a labour-intensive sector, especially in the production of mass-market toys. Several aspects of toy manufacturing contribute to its high labour intensity:

Figure 5.7: Labour-Intensive Touch Points in Toy Industry



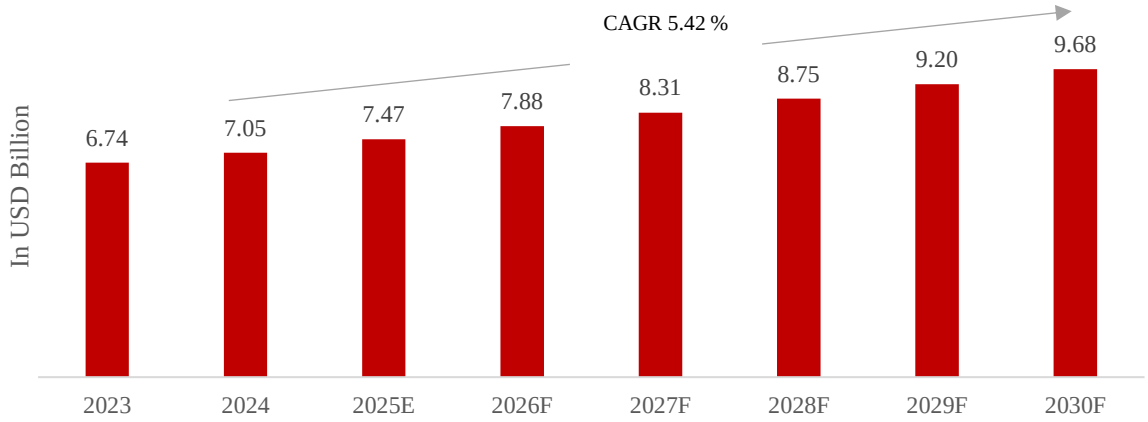
Source: Frost & Sullivan Analysis

- **Assembly and Craftsmanship:** Many toys require detailed, manual assembly, especially those involving intricate parts, packaging, or quality control. While automation is increasingly used in large-scale manufacturing, certain types of toys, particularly those with fine details or custom features, still require significant human labour.
- **Low-Cost Manufacturing:** In regions with low labour costs, toy manufacturers often rely on a large workforce to keep production costs low. This is particularly common in countries like China, India, and other parts of Asia, where a significant portion of global toy manufacturing is based.
- **Customization and Small Batch Production:** While mass production is common, the toy industry also produces limited-edition or customizable toys, which often require manual intervention for personalized features or smaller production runs.
- **Quality Control:** Ensuring that toys meet safety standards often involves extensive manual checks, inspections, and testing to verify compliance with global regulations. These processes are labour-intensive but crucial in maintaining quality and ensuring safety.
- **Packaging and Distribution:** Packing toys for shipment and ensuring proper labelling and distribution also require significant manual labour, especially for large shipments or when toys are customized or assembled for specific markets.

5.3 Global Toy Outsourced Market

The global outsourced toy market (includes figurines, vehicles, and outdoor toys) is estimated at USD 7.05 Bn in 2024 and is projected to grow USD 9.68 Bn by 2030. The cumulative market during the period 2024-2030 is expected to reach USD 58.34 Bn. The key players in the global toy market are LEGO Group, Mattel, Inc, Hasbro, Inc., Bandai Namco Holdings and Spin Master Corp., to name a few. The global toys market is expected to expand from USD 110.83 Bn in 2024 to USD 152.13 Bn by 2030 growing at a CAGR of 5.42%. The global toy outsourced market is estimated to be 70% of the total global toy manufacturing market. The figurines, vehicle and outdoor toys market is estimated to be around 20%-25% of the overall Global toys market.

Figure 5.8: Global Toy Outsourced Market (In USD Bn), 2023-2030F



Source: Frost & Sullivan Analysis | Note: The above market includes figurines, vehilces and outdoor toys

5.4 Global Consumer Durables Market

The global consumer durables market includes products such as home appliances, electronics, cookware, furniture, and automobiles to name a few. However, in this report this segment covers only cookware market, which includes non-stick cookware market. The rise in online shopping and e-commerce platforms has further increased accessibility to consumer durables globally. Additionally, sustainability concerns are pushing manufacturers to innovate eco-friendly products. As consumers seek convenience, durability, and modern features, the global consumer durables market continues to evolve, offering opportunities for both established and emerging brands.

5.4.1 Market Dynamics in the Global Cookware Market

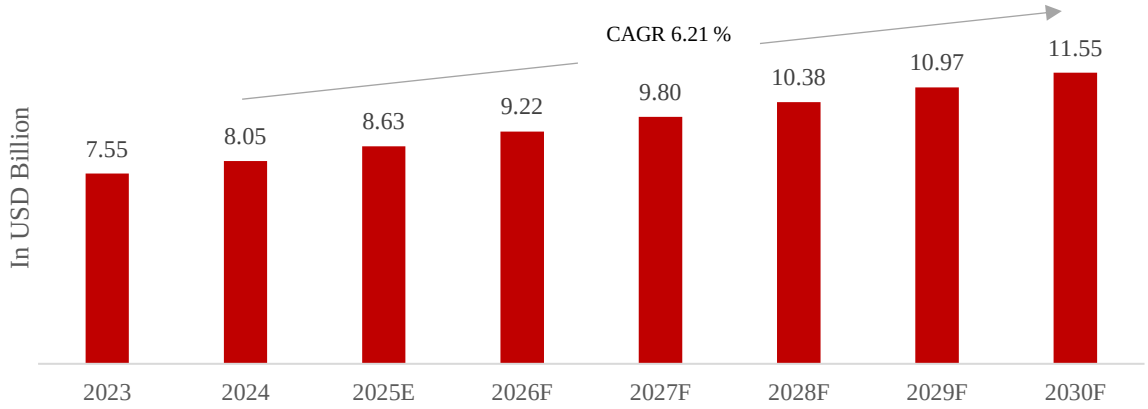
The global cookware market is a dynamic sector influenced by evolving consumer preferences, technological advancements, and economic factors. Health consciousness drives demand for specialized cookware like air fryers and non-stick options.

- **Sustainability and Eco-Friendly Cookware:** Growing consumer demand for environmentally responsible products is driving the development of cookware made from sustainable materials like recycled aluminium, bamboo and free from toxic chemicals like PFOA and PFAS.
- **Technological Innovations:** The rise of smart cookware with IoT features, such as temperature sensors and app connectivity, and the increased popularity of induction-compatible cookware are transforming the market.
- **Rise of Premium and Designer Cookware:** Consumers are gravitating toward premium, durable, and aesthetically pleasing cookware. Collaborations with celebrity chefs and influencers further elevate the appeal of these products.
- **Health-Focused Cooking Solutions:** Health-conscious consumers are driving demand for non-stick cookware, air fryer-compatible options, and tools designed for oil-free and low-fat cooking.
- **Growth of E-Commerce:** Online retail is reshaping the market, with brands adopting direct-to-consumer models and offering customizable cookware sets tailored to individual preferences.

5.4.2 Market Size- Global Outsourced Cookware Market 2023-2030F

The global cookware outsourcing market is closely linked to the broader cookware manufacturing sector, which is experiencing steady growth driven by rising consumer demand, technological innovation, and the expansion of manufacturing capabilities in Asia. The key countries within Asia which are preferred for outsourcing of cook ware are China, India, and Vietnam. The global cookware market is projected to grow from USD 29.52 Bn in 2024 to USD 42.37 Bn by 2030. The global outsourced cookware market is expected to expand from USD 8.05 Bn in 2024 to USD 11.55 Bn by 2030, registering a CAGR of 6.21%. The global cookware outsourced market is estimated to be 50% of the total global cookware manufacturing market.

Figure 5.9: Global Outsourced Cookware Market (In USD Bn), 2023-2030F

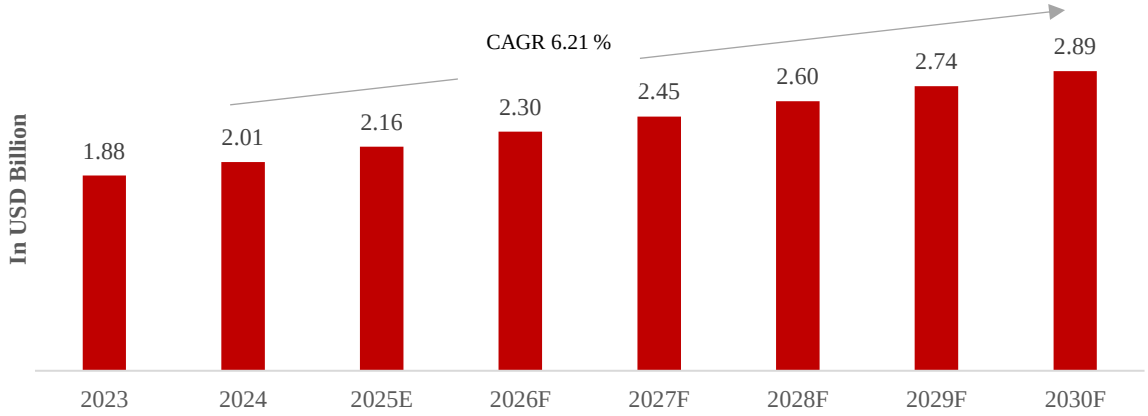


Source: Frost & Sullivan Analysis

5.4.3 Global Non-Stick Outsourced Cookware Market (Consumer Durables)

The Global Non- stick market is estimated at 25.00% of the global cookware market. The global non-stick cookware market is experiencing steady growth, driven by increasing consumer preference for convenience, health-conscious cooking, and ease of cleaning. Non-stick cookware, often made with Teflon or ceramic coatings, offers advantages such as reduced oil usage and effortless food release. Rising awareness about healthy cooking, along with innovations in non-toxic, eco-friendly coatings, is boosting market demand. Additionally, the expansion of the food service industry and growing interest in home cooking contribute to the market's growth. The global non-stick cookware market is expected to grow from USD 7.38 Bn in 2024 to USD 10.59 Bn by 2030F. The global non-stick outsourced cookware market is estimated to grow from USD 2.01 Bn in 2024 to USD 2.89 Bn by 2030, with a CAGR of 6.21%. The key players in the global non-stick cookware market are Tefal, Cuisinart, Tramontina, Calphalon and Scanpan to name a few. The global non- cookware outsourced market is estimated to be 50% of the total global non- cookware manufacturing market.

Figure 5.10: Global Non-Stick Cookware Market (In USD Bn), 2023-2030F



Source: Frost & Sullivan Analysis

5.5 Indian Consumer Electronics Market and Market Dynamics

The Indian consumer electronics market is experiencing robust growth, driven by rising disposable incomes, evolving consumer preferences, and rapid technological advancements. Increased adoption of smartphones, smart home devices, and wearables, coupled with expanding e-commerce platforms, is reshaping the market, offering significant opportunities for both domestic and international brands. The consumer electronics products that Aequs manufactures (portable computers and smart devices) have high barriers to entry.

The consumer electronics market in India is evolving rapidly, shaped by significant trends and initiatives.

- **Make in India**

The Make in India initiative has strengthened local consumer electronics manufacturing, reducing reliance on imports and fostering a self-sufficient industry. Global companies like Samsung and Xiaomi have established large production plants in India, creating products both for domestic consumption and exports.

- **PLI Schemes**

The Production-Linked Incentive (PLI) schemes provide financial rewards to electronics manufacturers, promoting local production of smartphones, laptops, and semiconductors. Companies such as Foxconn, Dixon and Kaynes have leveraged these incentives, boosting India's electronics manufacturing footprint.

- **Ease of Laptop and Tablet Import in 2025**

India's anticipated easing of import restrictions for laptops and tablets in 2025 aims to streamline supply chains and meet rising demand due to e-learning and remote work. The move balances consumer needs with efforts to support local manufacturing.

- **Rising Disposable Income**

As India's middle class grows and disposable income rises, consumers increasingly adopt premium electronics. High-end smartphones are witnessing a surge in demand driven by tech-savvy buyers.

- **Increase in E-Learning Platforms in India**

The growth of e-learning platforms has boosted demand for affordable electronics, including tablets, laptops, and accessories. These devices are essential for students and professionals as education continues its digital transformation across India.

- **Custom Tariffs**

Higher import duties on electronic products incentivize global companies to establish manufacturing facilities in India, ensuring competitive pricing and boosting the local production ecosystem.

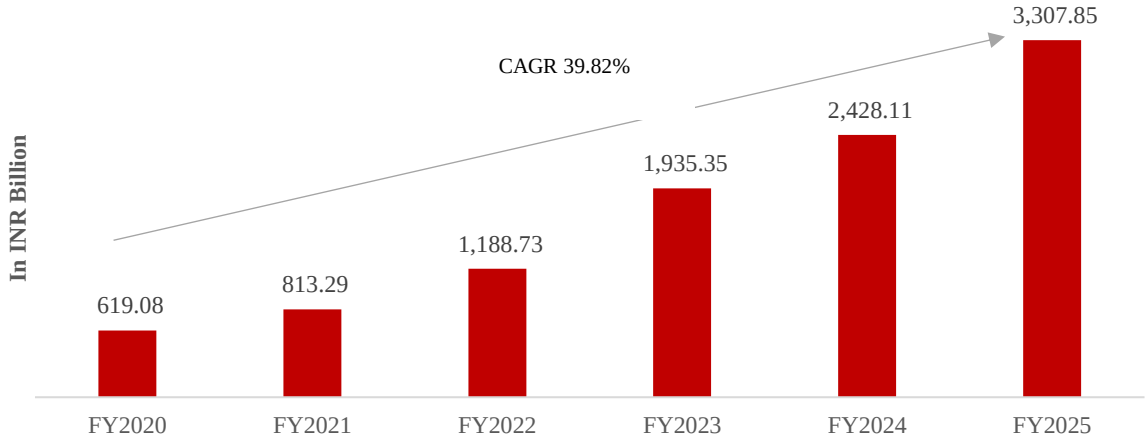
- **BIS Norms**

Bureau of Indian Standards (BIS) regulations enforce strict quality and safety standards for electronic products, enhancing consumer confidence and supporting the development of reliable, high-quality local goods.

5.5.1 Indian Electronics Exports

India’s electronics exports increase from INR 619.08 Bn (USD 8.22 Bn) in FY2020 to INR 3,307.85 Bn (USD 38.58 Bn) in FY2025, registering a CAGR of 39.82%. Increase in the exports can be primarily attributable to government schemes like PLI and indigenous capability development by player such as Aequs, Dixon and Kaynes, etc. Aequs aims to further diversify their business by expanding their portfolio of consumer electronics products. Aequs has started manufacturing and have commenced mass production shipments of components for portable computers from July 31, 2025 and intends to manufacture and commence mass production shipments of components for smart devices, targeting integration into the supply chain of a company that is among the largest global consumer electronics players by revenue in Financial Year 2024.

Figure 5.11: Indian Electronics Exports (In INR Bn), FY2020-FY2025



Source: PIB | Note : Currency exchange rate taken as of 31st March for the respective year

Laptop:

Taiwanese tech giant Asus is ramping up its investment in India, aiming to establish the country as a major manufacturing and export hub over the long term. As part of this effort, Asus has teamed up with VVDN Technologies to set up a new facility in Manesar focused on assembling enterprise laptops. This initiative builds on the company's existing manufacturing partnerships with Dixon and Flex, further advancing its "Make in India" vision. In addition to expanding production, Asus has set a bold target: to become the leading enterprise laptop brand in India within the next three years, surpassing American companies such as HP and Dell. Apple is also expanding its supply chain in India to expand their local partnership. Samsung has two factories in India, in Noida and Sriperumbudur to support the "Make in India" policy of the Indian Government. Lenovo has recently doubled its capacity in Puducherry facility with the induction of the third manufacturing line.

Following smartphones, personal computers including laptops have become a significant category in India's electronic exports, according to data from the commerce ministry. Exports of personal computers have seen robust growth in five key markets: the United Arab Emirates (UAE), Russia, Bangladesh, the United States, and Sri Lanka. This growth has been driven by government initiatives such as the Production Linked Incentive (PLI) scheme and efforts to improve the ease of doing business in the country. Among the top markets, the UAE emerged as the largest importer of laptops, palmtops, and handheld devices from India.

Tablets:

India is actively working toward self-sufficiency in the IT hardware sector by curbing imports from China, preserving foreign exchange, creating employment opportunities, and strengthening its domestic supply chain. While some policy measures like the recent licensing requirement for importing laptops, tablets, all-in-one PCs, and servers have faced criticism for being hastily introduced and have since been postponed, the overarching goal of building an Atmanirbhar Bharat (self-reliant India) in IT hardware remains strategically robust and timely. Under the National Policy on Electronics (NPE), India's total electronics production reached USD 133.00 Bn in FY2025. Beyond reducing dependence on China, the push toward domestic IT hardware production offers several additional advantages. The initiative could generate up to 5 lakh new jobs, contribute an estimated 1.26% to India's GDP by 2025, attract over USD 75.00 Bn in cumulative foreign exchange inflows, and draw investments exceeding USD 1.00 Bn potentially resulting in a manufacturing output valued at USD 100.00 Bn. Global companies like Lenovo have set up their manufacturing units in Tirupati with its global partner, Wingtech for manufacturing Tablets.

Wearables:

India's domestically manufactured electronic wearables could capture at least 8.00–10.00% of the global market share through exports by 2026. At present, India accounts for around 4.00–5.00% of the global market value for electronic wearables, with a significant portion still imported from China. As part of its broader vision to achieve USD 300.00 billion in electronics manufacturing by 2026, the Indian government expects the wearables segment to contribute USD 8.00 Bn Of this, exports are projected to generate USD 3.00 Bn.

India's rising wearables production is impacting Chinese manufacturing units, as top brands shift operations. Leading wearables companies like Boat and Gizmore are now producing most of their products—especially in the audio and smartwatch segments—through local electronics contract manufacturers such as Dixon Technologies and Optiemus Electronics. Boat revealed that about 75.00% of the company's audio devices and nearly 95.00% of its smartwatches are now made in India. As a result, the production capacity at the Chinese factories previously used by the company has reduced.

5.6 Indian Toy Market and Market Dynamics

The Indian toy market is evolving with increasing demand for innovation and variety. The industry sees a growing focus on educational toys that combine learning with play, promoting cognitive and motor skills development.

The rise of e-commerce platforms has transformed the shopping experience, offering a wide range of toys from global and local brands, enhancing accessibility. Licensing agreements with popular entertainment franchises continue to shape toy offerings, influencing trends in character-based merchandise. Seasonal demands, cultural influences, and evolving tastes also play a role in shaping market trends. Market Drivers

The Indian toy market is experiencing growth driven by several factors. The country's large and young population provides a substantial consumer base, while rising disposable incomes allow families to spend more on toys and leisure. The Indian toy market has witnessed remarkable growth in recent years due to the convergence of various socioeconomic and technological factors.

- **Rise in Disposable Income:** The steady rise in disposable income among Indian households has empowered families to spend more on children's entertainment and developmental needs. With better financial stability, parents are prioritizing high-quality and educational toys that enhance cognitive and motor skills, moving beyond traditional toys to branded and innovative options.

- **Increasing Urbanization:** Urbanization has transformed the lifestyle and preferences of Indian families. As more families migrate to cities, exposure to global trends and a fast-paced urban lifestyle have led to increased demand for modern, themed, and tech-savvy toys. Urban parents are also more inclined to purchase toys that align with international safety standards and advanced features.

- **Change in Family Structure:** The shift from joint families to nuclear family setups has led to increased focus on children within households. With fewer siblings and extended family members, parents and grandparents are more willing to spend on premium toys and games to engage, educate, and entertain children. This trend has significantly boosted per-child spending on toys.

- **E-Commerce:** The e-commerce boom has revolutionized toy retail in India, providing unparalleled convenience and variety to consumers. Online marketplaces offer extensive product catalogues, competitive pricing, doorstep delivery, and access to international brands, making toys more accessible across all demographics, including Tier 2 and Tier 3 cities.

- **Make in India:** The "Make in India" initiative has been a significant driver for the domestic toy industry. It encourages local manufacturing, reducing dependence on imports and fostering innovation among Indian toymakers. Government incentives, along with a focus on producing eco-friendly and educational toys, have created a favourable environment for indigenous brands. This initiative has also increased the global competitiveness of Indian toy manufacturers, helping them tap into export markets.

5.6.1 Market Challenges

The Indian toy market faces challenges such as a heavy dependence on imports, especially from China, which impacts local manufacturers and creates supply chain vulnerabilities. While the Indian toy market is growing rapidly, it faces several significant challenges that impact its overall potential.

- **Price Sensitivity:** Indian consumers are highly price-sensitive, especially in Tier 2, Tier 3 cities, and rural areas. Many families prioritize affordability over quality or brand, creating a tough competitive environment for premium and branded toys. This price sensitivity often leads to a preference for low-cost, locally made toys or imported alternatives, making it challenging for manufacturers to maintain profit margins while offering competitive pricing.

- **Regulatory and Safety Compliance:** Ensuring toys meet global safety and quality standards is a persistent challenge for Indian toy manufacturers. The Bureau of Indian Standards (BIS) has mandated

stringent safety norms, which often require significant investment in advanced manufacturing processes and materials. For smaller manufacturers, compliance with these regulations can be financially and logistically daunting, potentially limiting their growth or leading to non-compliance issues.

- **Counterfeit Products:** The prevalence of counterfeit and substandard toys in the Indian market poses a serious challenge for established brands. These low-quality knockoffs, often sold at much cheaper prices, not only erode the market share of authentic brands but also compromise consumer trust. Counterfeit toys can also fail to meet safety standards, endangering children and tarnishing the reputation of the toy market.

- **Infrastructure and Logistics Hindrances:** India's diverse geography and underdeveloped infrastructure in certain regions create logistical challenges for toy manufacturers and distributors. Poor road connectivity, high transportation costs, and inefficiencies in the supply chain make it difficult to reach consumers in remote or rural areas. Additionally, delays in the import and export processes due to bureaucratic red tape can disrupt operations for companies' dependent on global supply chains

5.6.2 Market Restraints

The Indian toy market encounters several constraints that impede its growth. A significant hurdle is the underdeveloped local manufacturing ecosystem, which restricts production capacity and compels companies to depend on imports for various toy components. While the market holds substantial growth potential, these challenges continue to restrict its overall development.

- **Lack of Brand Awareness:** In India, a significant portion of consumers remains unaware of branded toys and their benefits, especially in semi-urban and rural areas. Parents in these regions often prioritize affordability and functionality over brand recognition, leading to a preference for unbranded, locally made toys. This lack of awareness restricts the penetration of international and premium domestic toy brands, reducing the market's ability to command higher value.

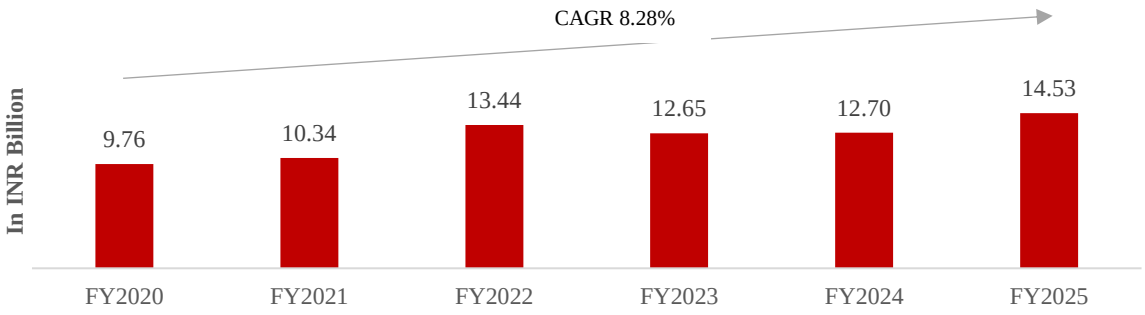
- **Urban Area-Centric High Disposable Income:** The concentration of high disposable income is predominantly in urban areas, creating an imbalance in demand. Urban families are more exposed to branded and educational toys, while rural and semi-urban regions, where most of the population resides, remain largely untapped. This urban-centric demand limits the overall growth potential of the toy market and creates a disparity in consumer access across geographies.

- **High Dependency on Imports:** India has traditionally relied heavily on imports, particularly from China, to meet domestic toy demand. Imported toys often dominate the market due to their competitive pricing and variety. However, this dependency exposes the industry to risks such as fluctuating exchange rates, trade restrictions, and quality concerns.

5.6.3 Indian Toy Exports

India's toy exports were INR 9.76 Bn (USD 129.60 Mn) in FY2020 and increased to INR 14.53 Bn (USD 169.46 Mn) in FY2025, clocking a CAGR of 8.28%. Indian toy exporters are seizing what they describe as a "golden opportunity" arising from the steep tariffs the US has imposed on Chinese imports. This comes amid rising inquiries from American buyers looking for alternative sources to reduce their dependency on Chinese goods. The Toy Association of India has identified approximately 40 firms capable of meeting the necessary compliance standards to export to the US market. Currently, around 20 Indian companies are exporting toys in bulk to the American market, according to Toy Association of India.

Figure 5.12: Indian Toy Exports (In INR Bn), FY2020-FY2025

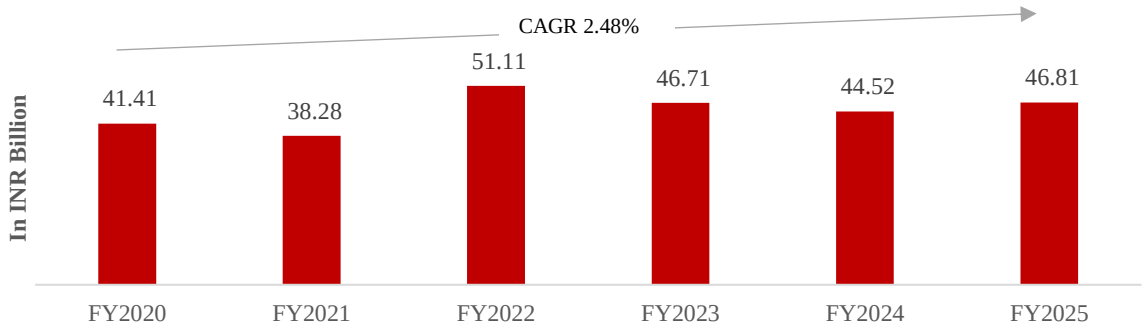


Source: Ministry of Commerce and Industry | Note: Currency exchange rate taken as of 31st March for the respective year

5.7 Indian Cookware Exports

The Indian Cookware was at INR 41.41 Bn (USD 549.76 Mn) in FY2020, and it reached to INR 46.81 Bn (USD 546.00 Mn) in FY2025 with a CAGR of 2.48%. A few Indian companies are exporting the cookware and Non-Stick cook ware, as an example, Stovecraft increased exports from 3% to 12%, and it is believed that in the next eight to ten quarters, this could rise to around 20%. Stovecraft are exporting under Pigeon brand and exploring various opportunities with retailers in North America. They collaborate with retailers there, and currently, they are exporting non-stick cookware. They are now expanding their export categories, which will significantly boost the exports.

Figure 5.13: Indian Cookware Exports (In INR Bn), FY2020-FY2025



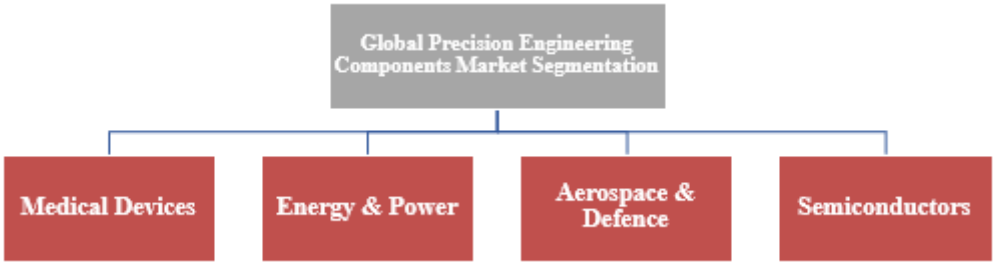
Source: Ministry of Commerce and Industry | Note: Currency exchange rate taken as of 31st March for the respective year

6 Global & Indian Precision Manufacturing Market

6.1 Global Precision Manufacturing Outlook - Size, Growth and Forecast

The global precision manufacturing involves the production of highly detailed and accurate components using advanced machining, additive manufacturing, and robotics and these components are called Precision Engineered Components (PEC). Critical sectors including Medical Devices, Semiconductors, Energy & Power, and Aerospace and Defence, are fundamentally reliant on precision-engineered components as a foundational requirement for their operational performance.

Figure 6.1: Global Precision Manufacturing Segments



Source: Frost & Sullivan Analysis

Key trend in PEC

Energy & Power: The energy sector often requires bespoke solutions tailored to specific operating environments, materials, and performance criteria. Precision engineering enables the design and manufacture of these custom parts.

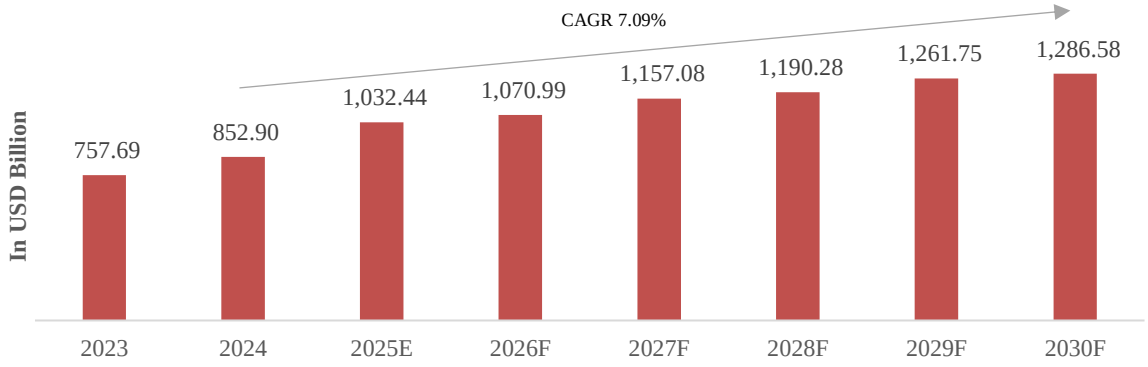
Medical Devices: The medical devices market, especially equipment like MRI and robotic surgery equipment, requires ultra-reliable, miniaturized precision components that meet strict regulatory standards.

Semiconductors: The proliferation of electronic devices is fuelling demand for microcontrollers, sensors, and flexible PCBs, all of which require high-precision manufacturing.

Defense and Aerospace: The defense sector is investing heavily in high-reliability, bespoke precision components, often produced in small batches to meet stringent performance and security requirements.

The global PEC market accounted to USD 852.90 Bn in 2024 and is projected to reach USD 1,286.58 Bn by 2030 with a CAGR of 7.09%.

Figure 6.2: Global PEC Market (In USD Bn), 2023-2030F



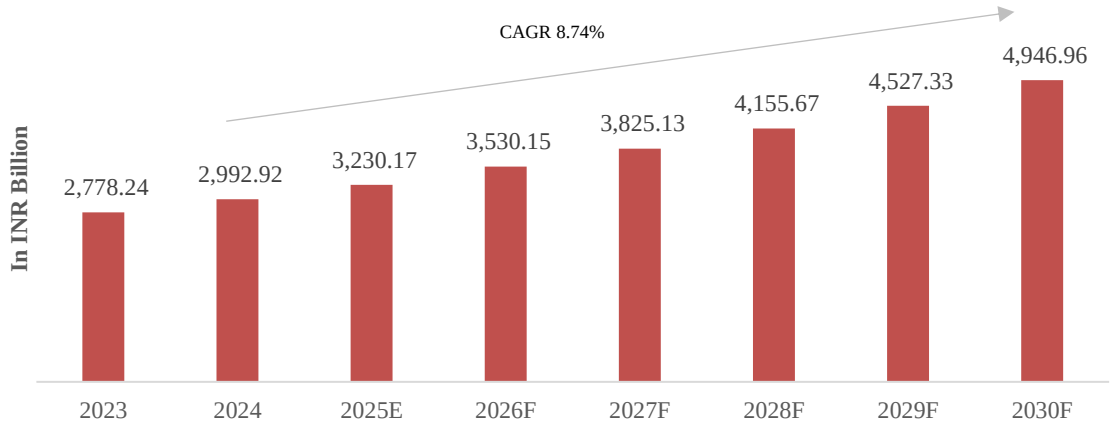
Source: Frost & Sullivan Analysis / Note: The above market is for PEC includes Energy & Power (Generation), Aerospace & Defense, Healtcare (Medical Devices) and Semiconductor manufacturing equipment

6.2 Indian Precision Manufacturing Outlook - Size, Growth and Forecast

India's precision manufacturing sector is rapidly expanding, driven by advancements in technology and increasing demand across industries such as automotive, aerospace, and electronics. A combination of factors such as manufacturing-led government initiatives, strong domestic demand, integration into global value chains (China

+1) and cost competitiveness and availability of skilled labour favourably position India within the global precision manufacturing landscape

Figure 6.3: Indian PEC Market (In INR Bn), 2023-2030F



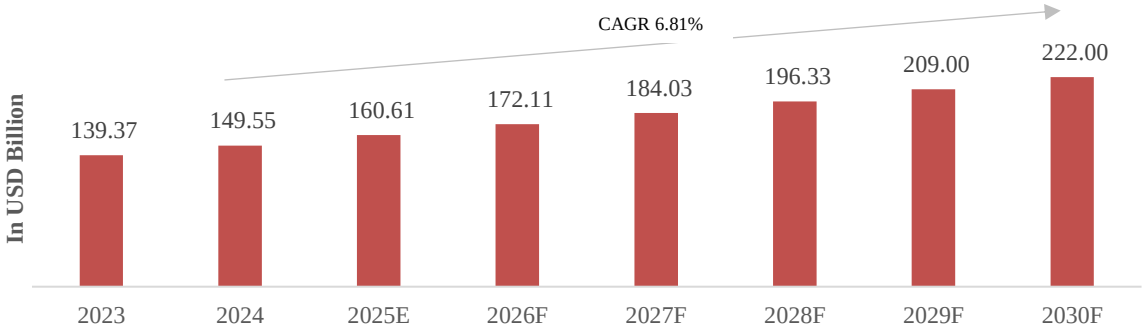
Source: Frost & Sullivan Analysis / Note: The above market is for PEC includes Energy & Power (Generation), Aerospace & Defense, Healtcare (Medical Devices) and Semiconductor manufacturing equipment | Currency exchange rate taken as of 31st March for the respective year, 1 USD = 85.00 INR from 2025 Onwards

The Indian PEC market was estimated at INR 2,992.92 Bn in 2024 and is expected to grow to INR 4,946.96 Bn in 2030 with a CAGR of 8.74%. The cumulative market is expected to surpass INR 27.01 Tn between the period 2024-2030.

6.2.1 Global Medical Devices Precision Engineering Component (PEC) Manufacturing Market 2023-2030F

Precision engineering components spearhead medical innovation, transforming healthcare through exceptional accuracy and reliability. These components form the backbone of advanced medical devices, including Advanced Diagnostic and imaging systems such as MRI and Robotic Surgery Systems, diagnostic systems, and implantable devices and wearable biosensors, and are crafted to meet stringent international standards and use advanced material. The global medical devices market accounted to USD 149.55 Bn in 2024 and is projected to grow to USD 222.00 Bn by 2030, with a CAGR of 6.81%.

Figure 6.4: Global Medical Devices PEC Market (In USD Bn), 2023-2030F



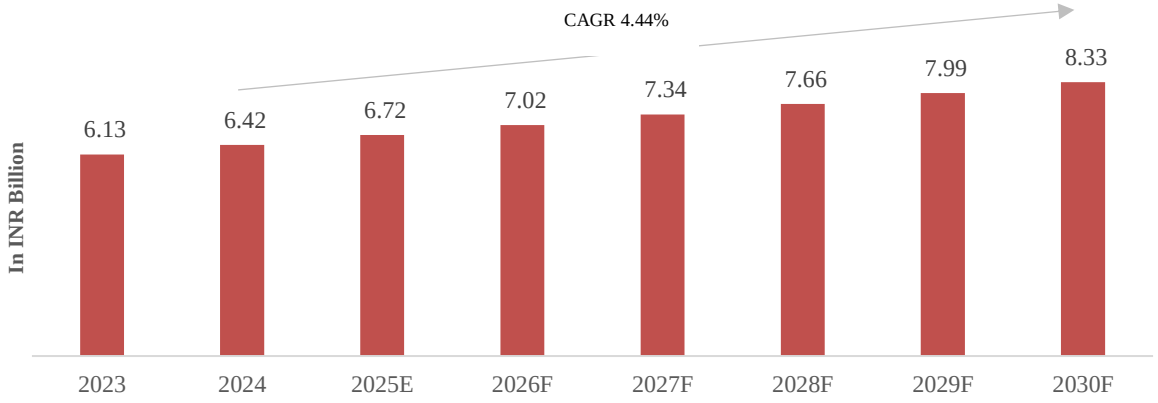
Source: Frost & Sullivan Analysis / Note: The above market covers Medical devices segment

6.2.2 Indian Medical Devices Precision Engineering Component (PEC) Manufacturing Market 2023-2030F

India is shifting from being import-dependent (with 60–70% of medical equipment imported and only around 30% manufactured domestically) to a potential global manufacturing hub. Programs such as Make in India, Aatmanirbhar Bharat, and the Production-Linked Incentive (PLI) Scheme for medical devices are driving local manufacturing, innovation, and value-added production. Indian medical device exports reached USD 3.8–4 Bn in 2023–24, with the US as the primary market. Exports are expected to grow to USD 15–20 Bn by 2030. Includes surgical instruments, diagnostic equipment, consumables, and imaging devices. Optical, medical, and surgical instruments are among the top export segments. The sector is characterized by innovation, meeting stringent

regulatory standards while catering to domestic and global markets. The Indian medical devices PEC Manufacturing market accounted to INR 6.42 Bn in 2024 and is projected to grow to INR 8.33 Bn in 2030, with a CAGR of 4.44%.

Figure 6.5: Indian Medical Devices PEC Manufacturing Market (In INR Bn), 2023-2030F

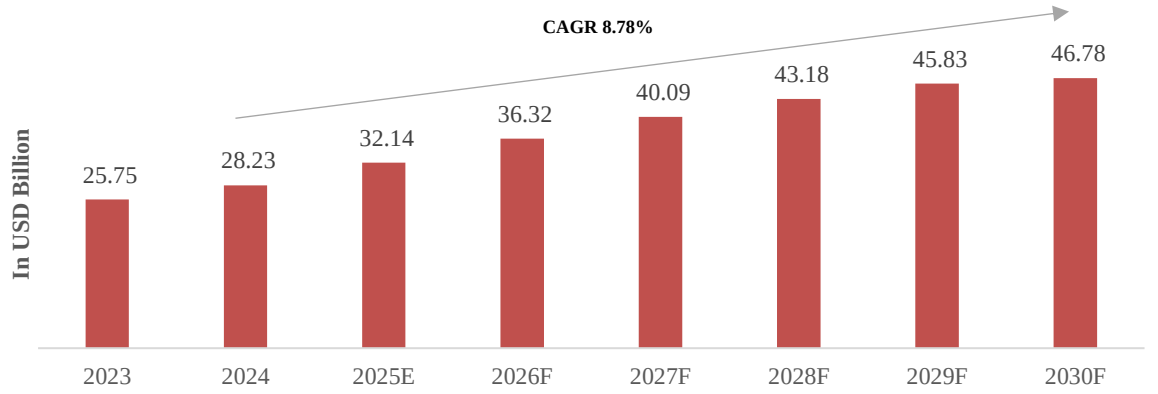


Source: Frost & Sullivan Analysis / Note: The above market covers Medical devices segment | Currency exchange rate taken as of 31st March for the respective year, 1 USD = 85.00 INR from 2025 Onwards

6.2.3 Global Semiconductor PEC Manufacturing Equipment Market 2023-2030F

This segment covers PECs used in the equipment to manufacture semiconductor chips. Miniaturization is the backbone of progress in the semiconductor industry, driving advancements in performance, cost, and new applications. As the industry continues to push the boundaries of how small and efficient chips can be, miniaturization will remain a central theme shaping the future of electronics. Semiconductor manufacturing is globally distributed, but Asia-especially Taiwan, Singapore, and South Korea-leads in advanced chip production. The US, China, Japan, and Europe are also major players, each with unique strengths in the semiconductor value chain. The growth of semiconductor machinery PEC is fuelled by rising demand for electronic systems, alongside breakthroughs in nanotechnology and automation. This sector plays a pivotal role in industries such as telecommunications, automotive, consumer electronics, aerospace & defense, and data processing, driving global innovation and progress. The market size was USD 28.23 Bn in 2024 and is projected to grow to USD 46.78 Bn in 2030 with a CAGR of 8.78%.

Figure 6.6: Global Semiconductors PEC Market (In USD Bn), 2023-2030F



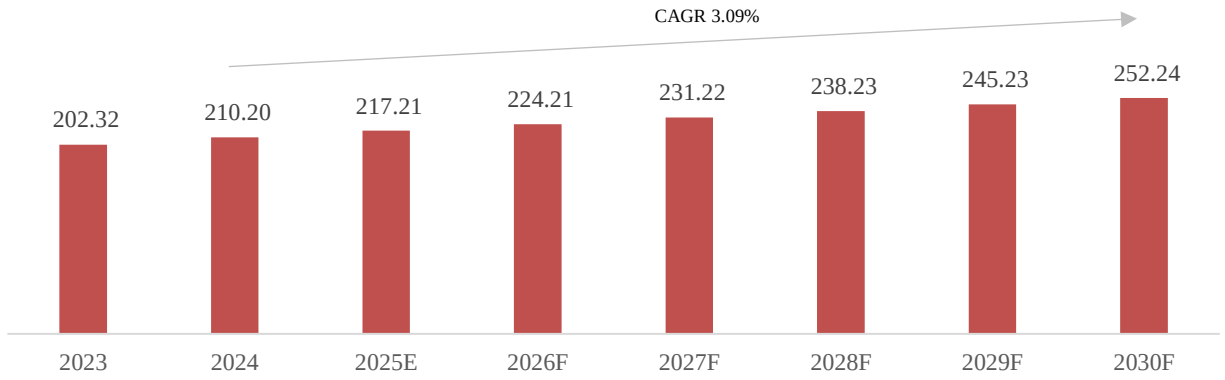
Source: Frost & Sullivan Analysis / Note: The above market covers Semiconductor Manufacturing Equipment

6.2.4 Indian Semiconductor PEC Manufacturing Equipment Market 2023-2030F

India's semiconductor precision engineering components market is growing rapidly, fuelled by advancements in electronics, automotive, and aerospace sectors. Major proposals include the Tata Group's partnership with Taiwan's Powerchip Semiconductor Manufacturing Corp (PSMC) for a USD 11.00 Bn fab in Gujarat, and Micron's USD 2.75 billion assembly and test facility. Several Outsourced Semiconductor Assembly and Test

(OSAT) and Assembly, Testing, Marking, and Packaging (ATMP) units are being set up by companies like Tata, Sahasra, and SPEL. Government initiatives like Semicon India Program, PLI Scheme and Design Linked Incentives (DLI) are expected to drive the domestic production. The Indian semiconductor PEC manufacturing market accounted to INR 210.20 Bn in 2024 and is expected to grow to INR 252.24 Bn by 2030 at a CAGR of 3.09%.

Figure 6.7: Indian Semiconductor PEC Market (In INR Bn), 2023-2030F

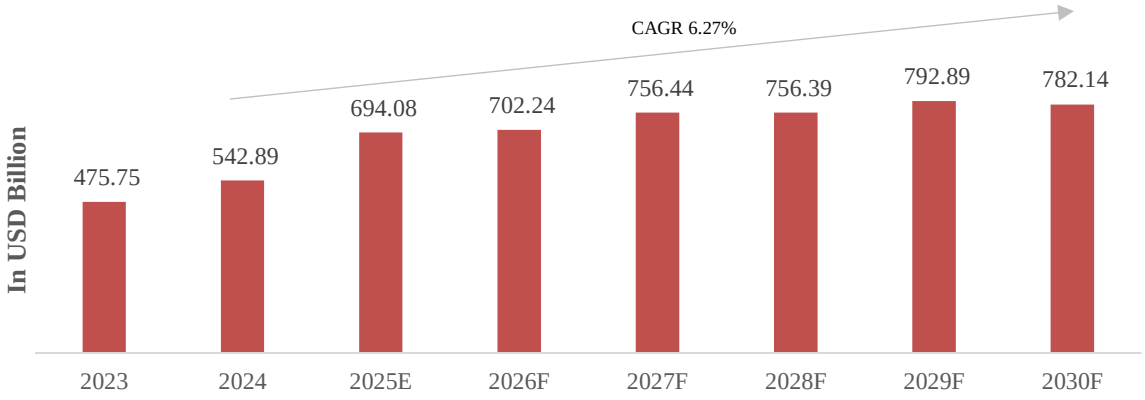


Source: Frost & Sullivan Analysis / Note: The above market covers Semiconductor Manufacturing Equipment | Currency exchange rate taken as of 31st March for the respective year, 1 USD = 85.00 INR from 2025 Onwards

6.2.5 Global Energy & Power PEC Market 2023-2030F

The global Energy & Power PEC market focuses on the production of highly accurate components and systems for the energy generation sector. This includes turbines, generators, transformers, nuclear power plant components, and energy storage devices, engineered to ensure efficiency, reliability, and safety in power generation, transmission, and distribution. The global Energy & Power PEC market was valued at USD 542.89 Bn in 2024 and is projected to grow to USD 782.14 Bn by 2030 at a CAGR of 6.27%.

Figure 6.8: Global Energy & Power PEC Market (In USD Bn), 2023-2030F

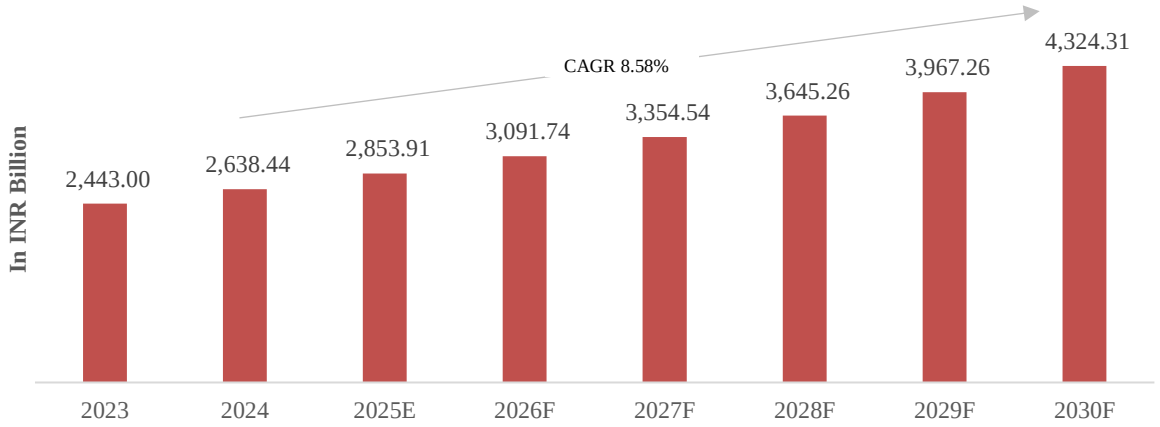


Source: Frost & Sullivan Analysis / Note: Power Generation segment

6.2.6 Indian Energy & Power PEC Market 2023-2030F

India's energy and power precision engineering components market is growing steadily, driven by increasing renewable energy projects and infrastructure upgrades. With a focus on efficiency and durability, these components support wind, solar, and thermal power systems. Government incentives and private investments are enhancing local manufacturing capabilities, boosting India's global competitiveness. The market is expected to grow to INR 4,324.31 Bn by 2030 at a CAGR of 8.58%. The market accounted to INR 2,638.44 Bn in 2024.

Figure 6.9: Indian Energy & Power PEC Market (In INR Bn), 2023-2030F

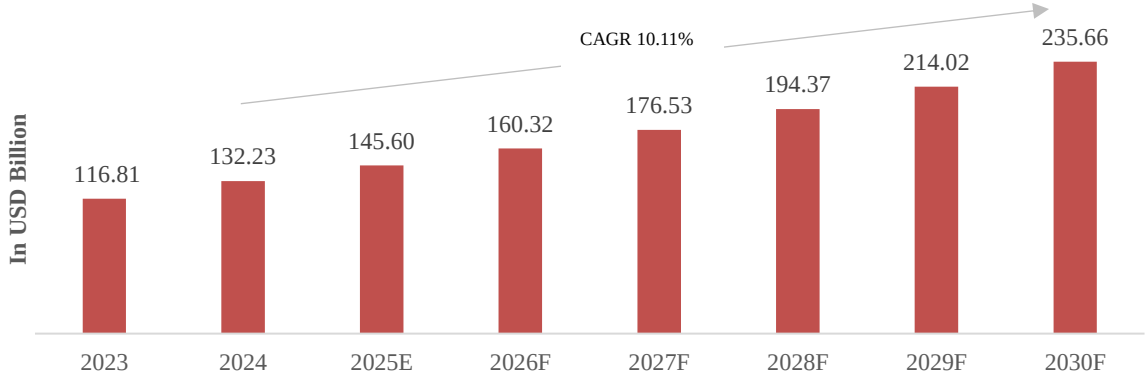


Source: Frost & Sullivan Analysis / Note: The above market covers Power Generation segment | Currency exchange rate taken as of 31st March for the respective year, 1 USD = 85.00 INR from 2025 Onwards

6.2.7 Global Aerospace & Defense PEC Market 2024E-2030F

The global Aerospace & Defense PEC market is integral to the production of high-performance components for the aerospace and defense industries. This segment covers parts for aircraft, defense systems, and military equipment, including engines, avionics components, propulsion systems, and structural components. It also includes PEC casted components used in missiles. The global aerospace & defense PEC market accounted to USD 132.23 Bn in 2024 and is projected to reach USD 235.66 Bn by 2030 at a CAGR of 10.11%

Figure 6.10: Global Aerospace & Defense PEC Market (In USD Bn), 2023-2030F



Source: Frost & Sullivan Analysis

6.2.7.1 Drone

Overview of Precision-Engineered Components in the Drone Market

The drone market is experiencing rapid growth, with projections estimating the global market will reach USD 58.04 Bn by 2026F, driven by technological advancements and expanding applications across industries such as agriculture, construction, public safety, and environmental monitoring. Central to this growth is the demand for precision-engineered components, which are critical for drone performance, reliability, and safety.

Importance of Precision Components

Precision engineering is essential in drone manufacturing due to the following factors:

1. Performance and Reliability: High-precision components ensure stable flight, efficient power usage, and responsiveness, which are vital for applications like aerial surveying, delivery, and cinematography.
2. Safety and Compliance: Accurate manufacturing is necessary to meet stringent regulatory standards and to minimize the risk of mechanical failures or flight instability.

3. Customization and Innovation: The ability to produce bespoke components tailored to specific drone designs and applications allows manufacturers to innovate and address unique client requirements in a competitive market

Key Precision-Engineered Components in Drone Industry:

Figure 6.11: Key Precision-Engineered Components in Drone Industry

Component	Role in Drone	Precision Requirements	Typical Materials
Frames	Structural backbone; balance & integrity	Tight tolerances for fit & weight	Aluminium, carbon fibre composites
Propellers & Rotors	Aerodynamic efficiency & stability	High accuracy for balance & shape	Composites, plastics, metals
Motor Mounts & Gears	Smooth operation & alignment	Exact dimensions for fit	Aluminium, titanium, plastics
Landing Gear	Robustness & shock absorption	Strength and dimensional accuracy	Titanium, stainless steel, plastics
Bearings & Shafts	Smooth rotation, load-bearing	Extremely tight tolerances	High-grade steel, ceramics
Sensor & Battery Housings	Protection & integration	Customization for fit & function	Plastics, composites, metals

Source: Frost & Sullivan Analysis

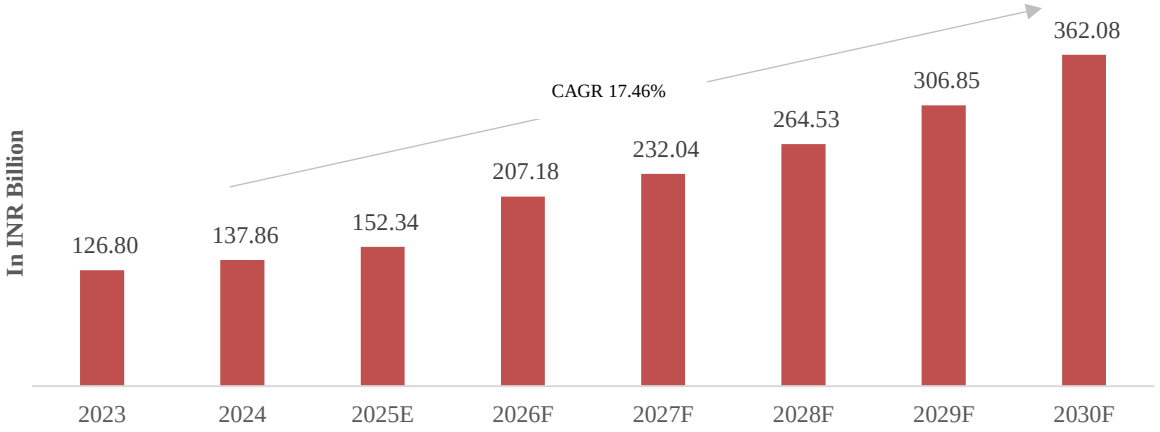
6.2.7.2 MRO

The global aerospace MRO (maintenance, repair, and overhaul) market is experiencing robust growth, driven by expanding commercial and military fleets, increased aircraft utilization, and technological advancements. In 2024, the aerospace and defense MRO market was valued at approximately USD 114.00 Bn and is projected to grow at a CAGR of 2.96% between the period 2024 to 2030 and reach USD 135.81 Bn, fuelled by rising defense budgets, fleet modernization rising fleet age and the growing complexity of aircraft systems. The commercial segment dominates, accounting for over 70% of the market, with narrow-body aircraft representing the largest share due to their prevalence in short- and medium-haul operations.

6.2.8 Indian Aerospace & Defense PEC Market 2024-2030F

India's aerospace and defense precision engineering components market is witnessing significant growth, driven by increased defense spending and the expansion of the domestic aerospace sector. Government initiatives like "Make in India" and offset policies are boosting local manufacturing capabilities, fostering innovation, and positioning India as a key global supplier. In 2024, the Indian aerospace and defense market was valued at INR 137.86 Bn and is projected to reach INR 362.08 Bn by 2030 at a CAGR of 17.46%.

Figure 6.12: Indian Aerospace & Defense PEC Market (In INR Bn), 2024-2030F

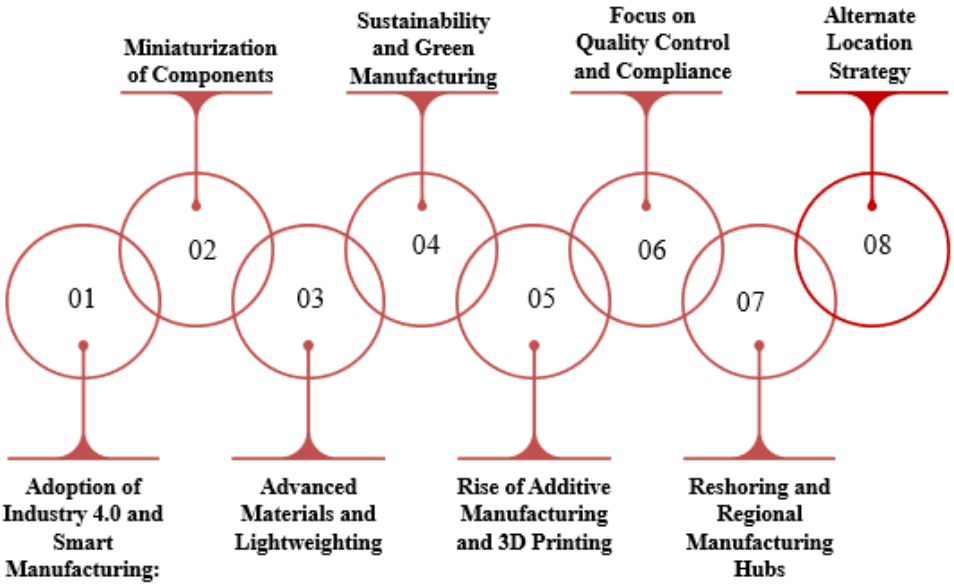


Source: Frost & Sullivan Analysis | Note : Currency exchange rate taken as of 31st March for the respective year, 1 USD = 85.00 INR from 2025 Onwards

6.3 Market Dynamics

The global precision manufacturing market is experiencing several key trends that are shaping its trajectory, driven by technological advancements, changing consumer demands, and global economic shifts. Here are the most significant market trends:

Figure 6.13: Global Precision Manufacturing Market Dynamics



Source: Frost & Sullivan Analysis

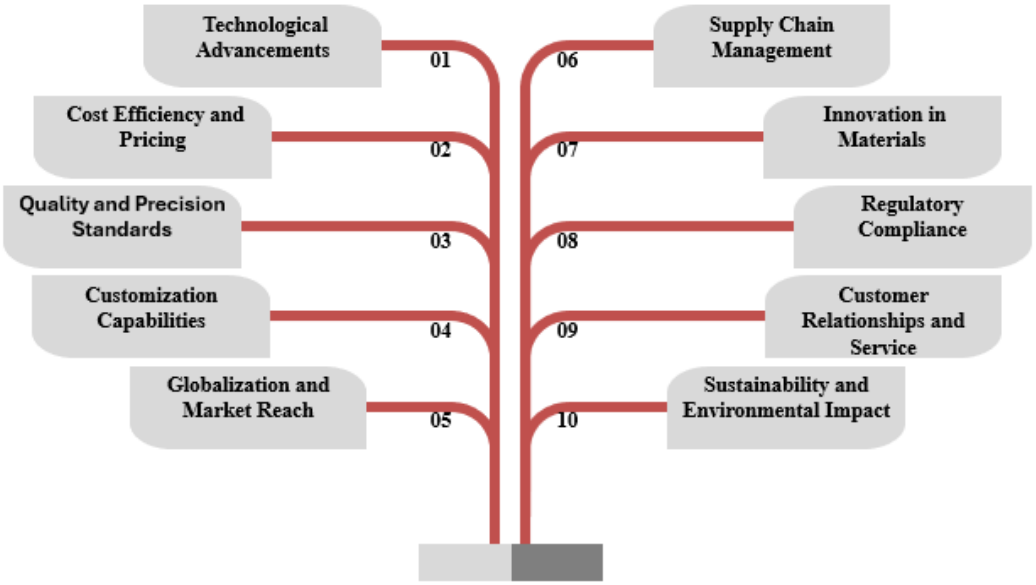
- **Adoption of Industry 4.0 and Smart Manufacturing:** The integration of Industry 4.0 technologies such as automation, IoT, big data analytics, increased adoption of robotics and automation, and artificial intelligence is expected to transform the PEC landscape. These technologies enable real-time monitoring, predictive maintenance, and enhanced efficiency, reducing costs and improving product quality across various industries. Manufacturers are optimizing their supply chains through digital tools and predictive analytics to reduce lead times, lower costs, and mitigate risks
- **Miniaturization of Components:** Miniaturization, particularly in electronics, medical devices, and aerospace & defense sectors, is driving demand for highly precise, small-scale components. These components require advanced manufacturing processes to maintain high performance while reducing size and weight, such as micro-UAVs and precision moulding components.

- **Advanced and Light Weight Material:** The push for lightweight, high-performance materials in sectors like aerospace, healthcare, and electronics is leading to innovations in material science. Manufacturers are increasingly using advanced materials such as carbon composites, titanium alloys, and other lightweight yet durable materials to meet stringent performance and efficiency requirements.
- **Sustainability and Green Manufacturing:** There is a growing emphasis on sustainable practices with aggressive target, which are closely monitored which is aimed at reducing the carbon footprint. Companies are adopting energy-efficient manufacturing processes, reducing waste, optimizing resource usage, and integrating sustainable materials into production. Eco-friendly manufacturing is becoming a key differentiator for companies aiming to meet regulatory requirements and attract environmentally conscious consumers.
- **Rise of Additive Manufacturing:** Additive manufacturing is revolutionizing how complex components are designed and produced. The ability to create intricate, customized parts quickly and cost-effectively is increasingly being applied to both prototyping and full-scale production, reducing lead times and material waste. This also helps in catering to customize requirements in industries like aerospace and defense. This technology is useful in defense forward bases where critical asset could be grounded due to lack of spares, the additive manufacturing technology has been proven successful to manufacture the spare part, thereby help in reducing the idle time of the asset due to non-availability of the component.
- **Focus on Quality Control and Compliance:** With the demand for highly accurate and reliable components, stringent quality control processes are essential. The use of advanced inspection techniques like 3D scanning, vision systems, and in-line sensors helps ensure that products meet the highest quality standards and comply with industry regulations, particularly in sectors like medical devices, aerospace, and automotive.
- **Reshoring and Regional Manufacturing Hubs:** The factors like geopolitical risks, supply chain disruptions, and rising labour costs in certain regions, companies are exploring reshoring or nearshoring their manufacturing operations. By bringing production closer to home or to more stable regions, companies can improve supply chain resilience, reduce transportation costs, and respond more quickly to changing market demands.
- **Alternate Location Strategy:** The PEC manufacturing reflects a global shift where companies are diversifying production to mitigate risks and reduce dependence on a single country. This approach addresses concerns like rising labour costs, geopolitical tensions, and supply chain vulnerabilities. Manufacturers are expanding to countries such as Vietnam, India, and Mexico, leveraging lower operational costs, government incentives, and proximity to emerging markets. In engineering components, this diversification ensures supply chain resilience and taps into regional expertise. By adopting the alternate location strategy, companies aim to balance efficiency and risk, strengthening their global competitiveness and operational stability.

6.4 Factors impacting Competitive Landscape

The competition landscape in PEC is influenced by several dynamic factors that shape market trends, pricing, technological advancements, and overall industry growth.

Figure 6.14: Competition Landscape Factors in PEC Manufacturing



Source: Frost & Sullivan Analysis

- **Technological Advancements:** Continuous innovation in manufacturing technologies such as CNC machining, additive manufacturing (3D printing), robotics, and automation significantly impacts competition. Companies with cutting-edge capabilities in these technologies can offer more precise, cost-effective, and faster solutions, gaining a competitive edge.
  For Example: Siemens use advanced CNC machining, robotics, and additive manufacturing to produce high-precision components. Siemens' integration of Industry 4.0 technologies into their manufacturing process enhances their ability to provide highly accurate and efficient components, giving them a competitive edge
- **Quality and Precision Standards:** The ability to meet stringent quality standards and tolerances is crucial in precision engineering. Companies that can consistently produce high-quality, defect-free components with minimal variation gain a competitive advantage. Meeting industry certifications (such as ISO, AS9100 for aerospace, or medical-grade certifications) is also a key factor in competition.
  For Example: Medtronic uses advanced precision engineering techniques to manufacture components for medical devices, ensuring they meet FDA standards for quality and performance. Their ability to meet the high standards required in healthcare products, enables them to dominate in the market segment.
- **Cost Efficiency and Pricing:** Price competition plays a major role in the PEC market. Firms that can optimize their production processes to reduce costs, while maintaining high-quality outputs, are better positioned to capture larger market share.
  For Example: Bosch leverages automation and lean manufacturing to drive down production costs while maintaining high-quality standards. This allows them to offer competitive pricing for high-precision parts used in power tools and automotive systems, helping them compete with low-cost suppliers globally
- **Customization Capabilities:** The ability to offer tailored solutions for specific customer needs—whether in terms of design, materials, or performance can differentiate a company. Customization in precision engineering components is particularly important for industries like aerospace, automotive, and medical devices, where each application may have unique specifications.
  For Example: DMG Mori offers highly customizable machinery for industries like aerospace and energy. The company's ability to tailor their solutions to specific customer needs, such as custom tooling for aircraft parts, has helped them to capture a larger share of niche markets.
- **Supply Chain Management:** Efficient supply chain management, including sourcing raw materials, logistics, and inventory management, impacts competitiveness. Companies with a strong, reliable supply chain can reduce lead times and ensure timely delivery of products, gaining an edge in industries where time-to-market is critical.
  For example: Rolls-Royce implements cutting-edge supply chain strategies, utilizing predictive analytics and digital technologies like Industry 4.0 to streamline sourcing, manufacturing, and distribution processes. Their strong, global network of suppliers ensures timely and high-quality deliveries, allowing

them to meet the rigorous demands of the aerospace and defense sectors while maintaining operational efficiency.

Globalization and Market Reach: The ability to expand into global markets or serve multinational clients influences competition. Companies with an international footprint or those that can scale production to meet global demands are more likely to capture larger market segments. One of the key criteria would also be the physical presence closer to the client location, an example of this would be the Indian Aerospace PEC companies having their physical offices in Europe.

For Example: GE Aviation has global manufacturing and R&D facilities, enabling them to supply precision components to the aerospace industry worldwide. Their international presence, with facilities in the USA, Europe, and Asia, allows them to cater to a diverse set of customers, ensuring competitive advantage through broader market reach.

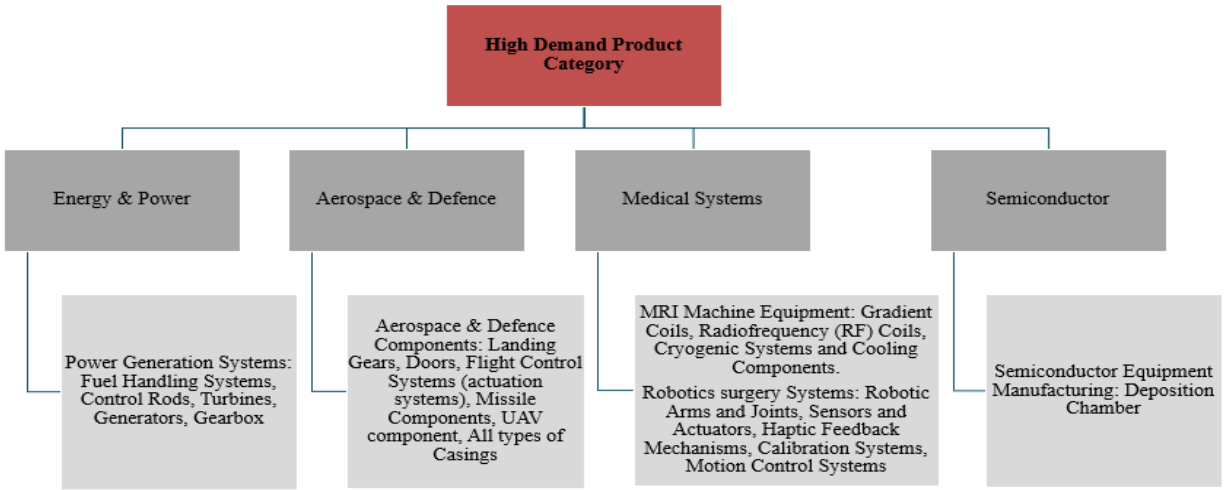
- **Innovation in Materials:** Advances in materials science, such as the development of lightweight alloys, biocompatible materials, or high-strength composites, can enhance the performance of precision components. Companies that invest in research and development to offer advanced material options are better positioned to meet evolving customer demands.

  For Example: Aircraft integrators incorporate titanium, carbon fibre composites, and high-performance alloys into aerospace components. By utilizing innovative materials that provide strength, lightness, and durability, the carbon footprint reduced despite increase in overall aircraft performance.
- **Regulatory Compliance:** Adhering to industry-specific regulations (e.g., FDA regulations for medical devices, FAA standards for aerospace components) is essential for competing in highly regulated sectors. Companies that demonstrate compliance with these standards can differentiate themselves by ensuring reliability, safety, and legal conformity. There is no specific example because all successful company need to be regulatory compliant, failing which the business cannot sustain.
- **Sustainability and Environmental Impact:** Increasing pressure for companies to adopt sustainable practices and reduce their environmental footprint is a growing factor in the competition landscape. Companies that implement eco-friendly manufacturing processes, use sustainable materials, and comply with environmental regulations are becoming more attractive to clients.

For example, Airbus focuses on making its supply chain more sustainable by engaging suppliers who adhere to environmental standards and with higher process capability. This involves sourcing more from suppliers who can do more than one process within the factory premises than physically moving the work in progress components from one location to another, which would result in increased carbon foot print.

6.5 High Demand Product Categories

Figure 6.15: High Demand Product Categories

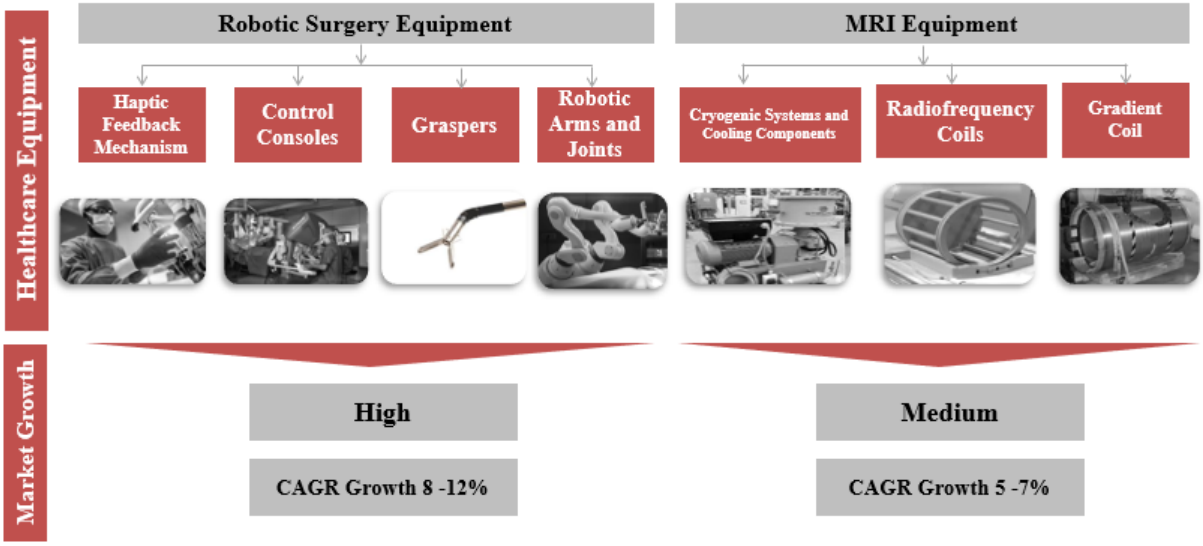


Source: Frost & Sullivan Analysis

6.5.1 High Demand Product categories in Medical Devices

In medical devices like MRI machines, precision engineering components are critical for ensuring high performance, reliability, and safety. The growth in demand for MRI machines is expected to drive the following PEC components which are used in MRI machines.

Figure 6.16: High Demand Product Categories in Medical Devices



Source: Frost & Sullivan Analysis

6.5.1.1 MRI Equipment

The global Magnetic Resonance Imaging (MRI) equipment market is projected to experience significant growth, with estimates indicating an increase in the number of MRI units from approximately 100 Mn to 150 Mn by 2030.

6.5.1.2 Robotic Surgery Systems

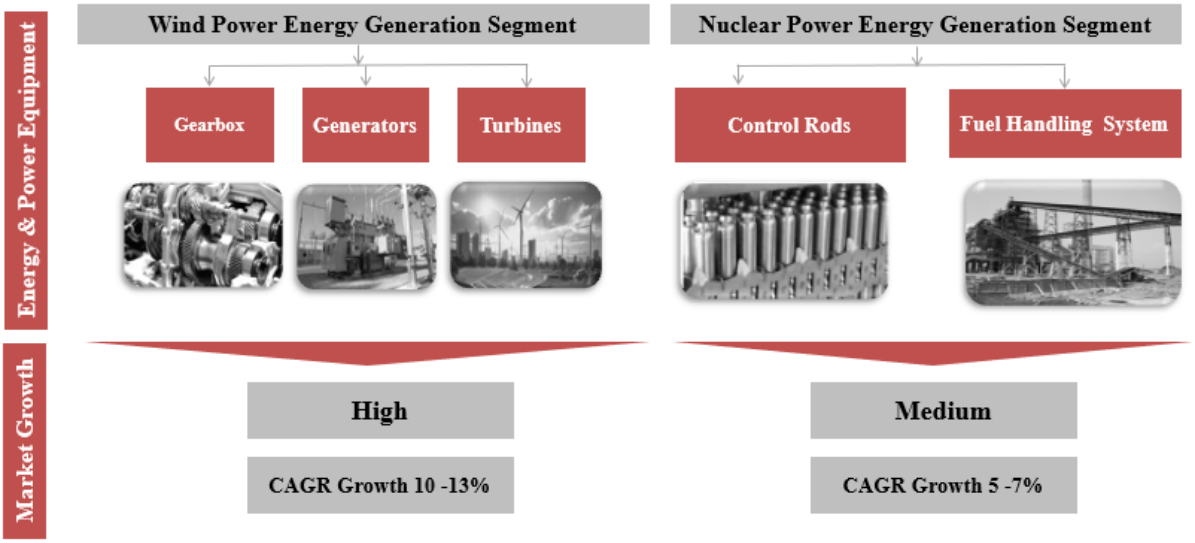
The number of robotic surgical systems is anticipated to increase dramatically, with estimates suggesting that there could be around 3X robotic surgical units installed globally by 2030. This reflects a significant rise from the current installations, which are estimated at approximately 7,500 units.

MRI equipment is expected to see medium growth due to its continued importance in diagnostic imaging for brain, spine, and tissue assessments. Technological advancements like AI-driven diagnostics and portable systems support demand, but high costs and market saturation in developed regions limit rapid expansion. On the other hand, robotic surgery equipment is set for high growth as hospitals increasingly adopt minimally invasive technologies that offer greater precision and faster recovery times. Improvements in robotic systems, broader applications across surgical procedures, and declining costs are driving adoption. Rising healthcare investments further boost the demand for robotic surgery solutions, fuelling significant market growth.

6.5.2 High Demand product categories in Energy & Power Generation

The high demand product categories in the Energy & Power Generation include:

Figure 6.17: High Demand Product Categories in Energy & Power



Source: Frost & Sullivan Analysis

6.5.2.1 Nuclear Power Generation Segment

The components used for setting up the Nuclear Power plants and the PEC components like Turbines, Generators and Gearbox are expected to drive this segment. The nuclear power reactors are expected to increase in the next 5 years. There are around 440 operational nuclear reactors, and 65 reactors are in various stages of their construction as of June 2025.

6.5.2.2 Wind Power Energy Generation Segment

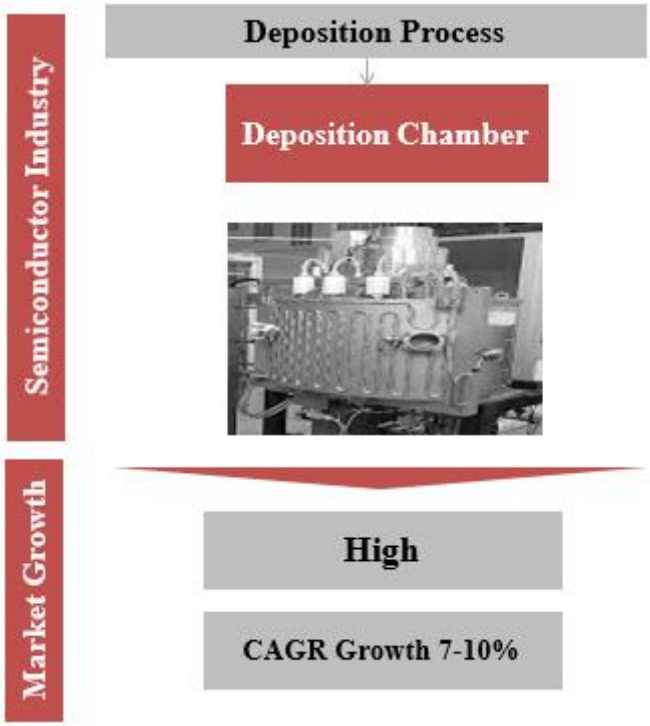
Wind power has emerged as a leading renewable energy source, contributing significantly to global efforts to reduce carbon emissions and combat climate change. By harnessing the kinetic energy of wind, modern turbines generate clean electricity, providing a sustainable alternative to fossil fuels. Technological advancements have improved turbine efficiency, making wind power more cost-effective and accessible. In 2024, the annual installed wind energy capacity was around 117 GW which is expected to increase to 194 GW with new capacity additions by 2030.

The nuclear power generation segment is expected to witness medium growth due to its ability to provide a stable and large-scale energy supply with low carbon emissions. However, concerns over safety, high construction costs, and lengthy approval processes limit its rapid expansion. In contrast, wind power generation is projected to see high growth as countries prioritize clean energy solutions to combat climate change. Technological advancements, declining costs, and supportive government policies are driving the adoption of wind energy. Offshore wind projects are gaining momentum, further accelerating growth in this segment as the world shifts toward sustainable and renewable energy sources.

6.5.3 High Demand product categories in Semiconductors

The set-up cost of one semiconductor unit is around USD 10 Bn to USD 20 Bn, around 10%-15% of the cost is estimated to account for deposition chambers. It is expected that 18 new Semiconductor Fabrication units are expected to start construction in 2025. By 2030, global investments in semiconductor fabrication facilities (fabs) are projected to reach approximately USD 1.00 Tn. This significant investment is primarily concentrated in regions such as Asia and the United States, with increasing funding also directed towards European projects.

Figure 6.18: High Demand Product Categories in Semiconductors



Source: Frost & Sullivan Analysis

6.5.3.1 Deposition Chambers

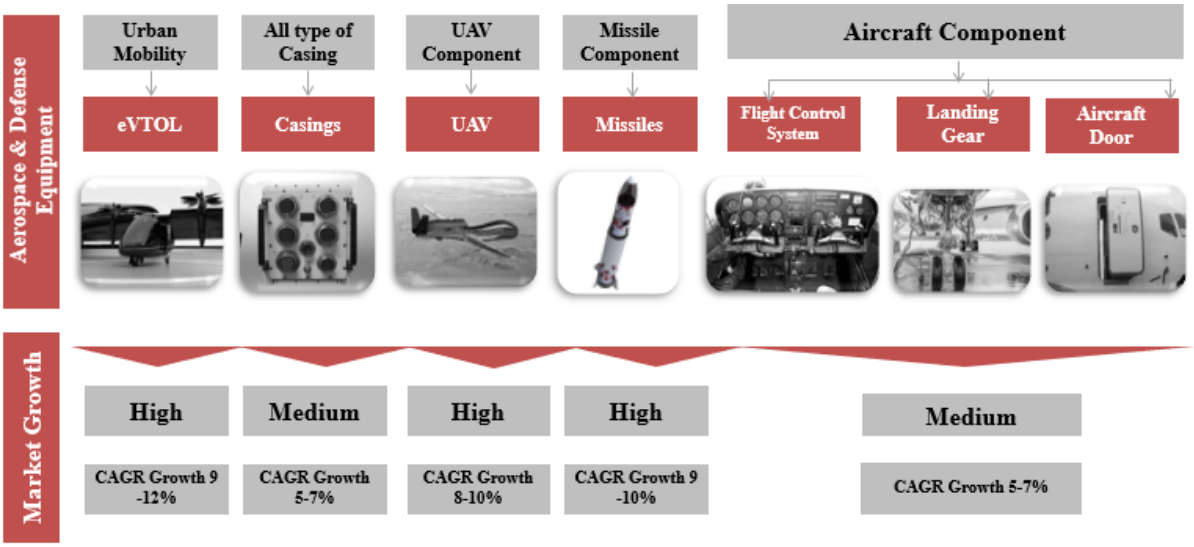
Deposition chambers are essential tools in semiconductor fabrication, enabling the precise application of thin material layers onto silicon wafers to create complex microchip structures. These chambers support processes like Chemical Vapor Deposition (CVD), Physical Vapor Deposition (PVD), and Atomic Layer Deposition (ALD), which are used to deposit dielectric, metallic, or semiconducting films. CVD utilizes chemical reactions to form uniform layers, while PVD uses physical methods like sputtering or evaporation for metal coatings. ALD, known for its precision, deposits materials one atomic layer at a time, ensuring high accuracy for advanced chip designs.

Deposition chambers operate in controlled vacuum environments to prevent contamination and maintain layer uniformity. Features like precise temperature regulation and automation for wafer handling ensure efficient and repeatable processes. They are critical for tasks such as creating transistor gates, insulating layers, and metal interconnects, forming the foundation for modern semiconductor devices' performance and reliability.

6.5.4 High Demand product categories in Aerospace & Defense

The key growth drivers in this segment include the growth in defense budget and the robust growth in air travel, thereby increasing the need for larger commercial fleet. The high demand product category in the Aerospace & Defense PEC are shown below:

Figure 6.19: High Demand Product Categories in Aerospace & Defense



Source: Frost & Sullivan Analysis

6.5.4.1 Aircraft Component

As on 31st July 2025, the global backlog of unfulfilled aircraft orders has reached approximately 15,241 (Airbus & Boeing) planes. It is estimated that at the current delivery rates the fulfilment of these orders would take approximately 14 years. This backlog represents a significant market opportunity for suppliers in the Commercial Aircraft Supply chain.

6.5.4.2 Missile Components

Aluminium components in missiles play a pivotal role in ensuring their performance, reliability, and efficiency. The lightweight yet strong properties of aluminium make it ideal for the structure, which houses propulsion, guidance, and payload systems. Aluminium alloys are also used in structural supports, fins, and casings, providing the required strength-to-weight ratio for optimal aerodynamic performance. These components are designed to withstand high temperatures, pressures, and forces experienced during flight. Precision engineering and advanced manufacturing techniques ensure that aluminium parts meet the stringent requirements of modern missile systems, enabling enhanced manoeuvrability and effective deployment in defense applications.

6.5.4.3 UAV Components

Unmanned Aerial Vehicles (UAVs) rely on aluminium components for their airframes, propulsion systems, and structural parts. Aluminium's lightweight and durable properties enable longer flight durations and higher payload capacities. In UAVs, aluminium alloys are used for frames, housing for motors, and protective casings for electronics. The volume of UAVs was around 4.00-5.00 Mn units in 2024 to 7.00-8.00 Mn units by 2030.

6.5.4.4 All Types of Casings

Casings are critical for protecting components in aerospace and defense systems, providing structural integrity, and shielding sensitive equipment from environmental factors. Engine casings are designed to endure high temperatures and pressures, while missile casings ensure durability and aerodynamics during flight. Electronic casings protect delicate systems from electromagnetic interference and physical damage. Hydraulic casings enclose high-pressure fluid systems, ensuring safety and efficiency. These casings are manufactured using materials like aluminium, and advanced composites to balance strength, weight, and thermal resistance.

6.5.4.5 Urban Mobility

eVTOL is an important element of urban mobility industry. The eVTOL market is expected to reach a fleet of 2,000 units in 2030 and then growing 6X to reach a fleet of 6,000 units by 2040. The eVTOL uses aluminium and its alloys for structural components.

The countries that have a good technical workforce and can execute production orders at a competitive rate would be the target countries for global companies. The low-cost belt countries, like India, Indonesia, Vietnam, Poland, and Thailand, are amongst the top countries of consideration for the PEC manufacturing segment.

7 Peer Benchmarking

7.1 Financial Benchmarking

Aequs competes with major aerospace and consumer electronics component manufacturing companies, as well as major consumer durables companies, both domestic and foreign

7.1.1 Revenue from Operations

Figure 7.1: Revenue from Operations (In INR Mn), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026	CAGR FY2023- FY2025
Aequs	8,121.32	9,650.74	9,246.06	4,589.73	5,371.59	6.70%
Azad Engineering	2,516.75	3,407.71	4,573.54	2,099.44	2,827.17	34.81%
Unimech Aerospace	941.66	2,087.75	2,429.26	1,206.56	1,249.70	60.62%
Amber	69,270.95	67,292.69	99,730.16	40,860.00	50,960.00	19.99%
Kaynes	11,261.14	18,046.19	27,212.52	10,760.94	15,796.84	55.45%
Dixon	1,21,920.10	1,76,909.00	3,88,601.00	1,81,138.80	2,76,907.00	78.53%
PTC Industries	2,192.62	2,567.89	3,080.74	1,192.33	2,217.72	18.53%

7.1.2 Year on Year (YoY) growth in Revenue from Operations

Figure 7.3 : Year on Year growth in Revenue from Operations (In %), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	53.48%	18.83%	(4.19%)	NA	17.03%
Azad Engineering	29.42%	35.40%	34.21%	NA	34.66%
Unimech Aerospace	159.06%	121.71%	16.36%	NA	3.58%
Amber	64.68%	(2.86%)	48.20%	NA	24.72%
Kaynes	59.45%	60.25%	50.79%	NA	46.80%
Dixon	13.98%	45.10%	119.66%	NA	52.87%
PTC Industries	22.52%	17.16%	19.93%	NA	86.00%

NA – Comparative data is not available

7.1.3 EBITDA

Figure 7.6: EBITDA (In INR Mn), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026	CAGR FY2023-FY2025
Aequs	630.56	1,455.10	1,079.69	578.22	841.06	30.85%
Azad Engineering	723.10	1,165.90	1,613.10	NA	NA	49.36%
Unimech Aerospace	345.63	791.86	920.60	488.50	383.40	63.20%
Amber	4,750.00	5,190.00	7,960.00	3,200.00	3,610.00	29.45%
Kaynes	1,683.00	2,542.00	4,107.00	1,490.00	2,610.00	56.21%
Dixon	5,184.00	7,202.00	15,278.00	6,760.00	15,410.00	71.67%
PTC Industries	661.00	860.00	1,094.00	NA	NA	28.65%

NA – Comparative data is not available,

7.1.4 EBITDA Margin

Figure 7.7: EBITDA Margin (In %), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	7.76%	15.08%	11.68%	12.60%	15.66%
Azad Engineering	28.73%	34.21%	35.27%	NA	NA
Unimech Aerospace	36.70%	37.93%	37.90%	40.49%	30.68%
Amber	6.86%	7.71%	7.98%	7.80%	7.10%
Kaynes	14.95%	14.09%	15.09%	13.80%	16.50%
Dixon	4.25%	4.07%	3.93%	3.70%	5.60%
PTC Industries	30.15%	33.48%	35.51%	NA	NA

NA – Comparative data is not availabl

7.1.5 Profit / (Loss) for the period / year

Figure 7.12 : Profit / Loss for the period / year (In INR Mn), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026	CAGR FY2023-FY2025
Aequs	(1,094.95)	(142.44)	(1,023.46)	(717.00)	(169.77)	(3.32%)
Azad Engineering	84.73	585.80	865.34	380.05	620.41	219.58%
Unimech Aerospace	228.13	581.34	834.57	386.81	347.95	91.27%
Amber	1,637.76	1,394.67	2,511.51	960.00	740.00	23.83%
Kaynes	951.96	1,832.89	2,934.33	1,109.85	1,960.26	75.57%
Dixon	2,550.80	3,749.20	12,325.80	5,514.00	10,257.20	119.82%
PTC Industries	258.15	422.16	610.19	222.02	232.94	53.74%

NA – Comparative data is not available

7.1.6 PAT Margin

Figure 7.13 : PAT Margin (In %), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	(13.48%)	(1.48%)	(11.07%)	(15.62%)	(3.16%)
Azad Engineering	3.37%	17.19%	18.92%	18.10%	21.94%
Unimech Aerospace	24.23%	27.85%	34.35%	32.06%	27.84%
Amber	2.36%	2.07%	2.52%	1.40%	2.30%
Kaynes	8.45%	10.16%	10.78%	10.31%	12.41%
Dixon	2.09%	2.12%	3.17%	3.04%	3.70%
PTC Industries	11.77%	16.44%	19.81%	18.62%	10.50%

NA – Comparative data is not available

7.1.7 Cash Conversion Cycle

Figure 7.18 : Cash Conversion Cycle (In Number of days), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	157	203	253	293	232
Azad Engineering	179	220	NA	NA	NA
Unimech Aerospace	275	117	NA	NA	NA
Amber	NA	NA	NA	NA	NA
Kaynes	NA	NA	NA	NA	NA
Dixon	NA	NA	NA	NA	NA
PTC Industries	NA	NA	NA	NA	NA

NA – Comparative data is not available

7.1.8 Return on Equity (RoE)

Figure 7.18 : Return on Equity (In %), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	(40.68%)	(1.49%)	(14.30%)	(9.68%)	(2.07%)
Azad Engineering	NA	NA	NA	NA	NA
Unimech Aerospace	46.70%	53.53%	33.08%	19.80%	9.90%
Amber	8.80%	6.90%	11.30%	NA	NA
Kaynes	24.90%	22.80%	19.40%	17.60%	14.20%
Dixon	22.40%	25.20%	47.50%	NA	NA
PTC Industries	16.17%	NA	NA	NA	NA

NA – Comparative data is not available

7.1.9 Return on Capital Employed (ROCE)

Figure 7.2: Return on Capital Employed (In %), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	(3.72%)	2.84%	0.87%	0.67%	1.81%
Azad Engineering	12.99%	19.00%	11.30%	NA	NA
Unimech Aerospace	42.87%	54.36%	25.16%	19.50%	6.50%
Amber	15.00%	12.61%	19.50%	NA	NA
Kaynes	24.20%	22.00%	19.20%	18.60%	16.70%
Dixon	33.40%	38.00%	48.50%	NA	NA
PTC Industries	NA	NA	NA	NA	NA

NA – Comparative data is not available

7.1.10 Net Debt to Equity Ratio

Figure 7.20: Net Debt to Equity Ratio, FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	2.54	0.55	0.99	0.86	0.98
Azad Engineering	1.22	0.00	NA	NA	NA
Unimech Aerospace	NA	NA	0.11	NA	NA
Amber	0.30	0.29	0.34	NA	NA
Kaynes	0.05	0.10	0.20	0.20	0.10
Dixon	(0.05)	(0.03)	(0.02)	NA	NA
PTC Industries	0.55	0.07	(0.09)	NA	NA

NA – Comparative data is not available

7.1.11 Consolidated Machining/Moulding Hours - Annual installed capacity (# hours per annum)

Figure 7.21 : Consolidated Machining/Molding Hours - Annual installed capacity (# hours per annum), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	27,99,736	28,68,185	29,19,058	13,65,574	14,57,184
Azad Engineering	5,79,814	6,00,000	NA	NA	NA
Unimech Aerospace	1,25,100	2,22,990	6,33,840	NA	NA
Amber	NA	NA	NA	NA	NA
Kaynes	NA	NA	NA	NA	NA
Dixon	NA	NA	NA	NA	NA
PTC Industries	NA	NA	NA	NA	NA

NA – Comparative data is not available

7.1.12 Capacity utilization (% per annum)

Figure 7.22: Capacity utilization (% per annum), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	39.19%	44.40%	41.77%	44.47%	43.63%
Azad Engineering	86.23%	88.51%	NA	NA	NA
Unimech Aerospace	NA	NA	57.00%	NA	NA
Amber	NA	NA	NA	NA	NA
Kaynes	NA	NA	NA	NA	NA
Dixon	NA	NA	NA	NA	NA
PTC Industries	NA	NA	NA	NA	NA

NA – Comparative data is not available

7.1.13 Total Assets

Figure 7.23: Total Asset (In INR Mn), FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	13,216.91	18,229.83	18,598.40	18,635.00	21,343.51
Azad Engineering	5,892.08	7,970.79	18,606.98	9,728.79	19,554.64
Unimech Aerospace	933.41	1,756.34	8,072.55	NA	NA
Amber	62,433.24	65,931.98	84,280.98	64,270.00	91,440.00
Kaynes	14,187.32	32,651.77	46,412.17	37,962.39	67,333.41
Dixon	46,794.30	69,914.50	1,67,668.70	1,61,206.80	1,96,505.20
PTC Industries	5,529.13	8,956.85	15,838.37	15,281.25	17,460.77

NA – Comparative data is not available

7.1.14 Fixed Asset Turnover Ratio (FATR)

Figure 7.24 : Fixed Asset Turnover Ratio, FY2023-FY2025

Companies	FY2023	FY2024	FY2025	6MFY2025	6MFY2026
Aequs	1.36	1.65	1.84	0.82	0.75
Azad Engineering	NA	NA	NA	NA	NA
Unimech Aerospace	3.51	5.16	2.30	4.90	1.90
Amber	NA	NA	NA	NA	NA
Kaynes	NA	NA	NA	NA	NA
Dixon	NA	NA	NA	NA	NA
PTC Industries	NA	NA	NA	NA	NA

NA – Comparative data is not available

Notes:

1. *For notes and definitions of KPIs related to our company, please see "Key performance Indicators ("**KPIs")***
2. *The revenue from operations, EBITDA, Profit / (loss) for the period / year, Cash Conversion Cycle, ROCE, ROE, Net debt to equity ratio, Annual installed capacity (in machining hours), Capacity utilization (%), Total Assets and Fixed asset turnover ratio are traced from the Annual reports or investor presentation or publicly available documents on the company's website or submitted to the stock exchanges for the respective fiscal period / year*
3. *EBITDA Margin for listed peer is calculated as EBITDA as per Annual reports or investor presentation or publicly available documents on the company's website or submitted to the stock exchanges for the respective fiscal period / year as a percentage of revenue from operations of respective company for the respective fiscal period / year*
4. *PAT margin is calculated as Profit / (loss) for the period / year as per Annual reports or investor presentation or publicly available documents on the company's website or submitted to the stock exchanges for the respective fiscal period / year as a percentage of revenue from operations of such listed peer company for the respective Fiscal year / period*

7.1.15 PEC Sector Threats and Challenges

-Threats

There is a growing trend towards customized and energy-efficient products, resulting in increased demand for smaller batch sizes. Manufacturing small batches of precision components is time-consuming and expensive, making it difficult for manufacturers to recover their capital investment quickly. This risk is particularly acute for businesses lacking the scale to absorb such costs.

High Capital Investment and Operational Complexity:

Adopting state-of-the-art automation and precision manufacturing systems involves substantial upfront investment, which can be prohibitive for Small and Medium-sized Enterprises (SMEs). Managing and maintaining sophisticated equipment also requires specialized knowledge and working capital, because breakdowns can result in costly downtime.

Growing Miniaturization and Tighter Tolerances:

The push for miniaturized components to improve energy efficiency requires manufacturers to achieve tighter tolerances and higher precision. This necessitates continuous investments in advanced, often more expensive, machinery and need to upskill workers to achieve higher level of technical skill. Any discrepancies in quality can lead to significant operational failures, increasing the pressure on manufacturers.

Technological Obsolescence:

Technological obsolescence poses a significant threat to the Power, Energy, and Construction (PEC) sector, where rapid advancements can render existing systems and equipment outdated. As innovation accelerates, older technologies may no longer meet efficiency, safety, or environmental standards, leading to increased operational costs and regulatory non-compliance. This can result in stranded assets, reduced competitiveness, and the need for costly upgrades or replacements. Furthermore, workforce skills may lag evolving technologies, creating a knowledge gap. Companies that fail to adapt risk falling behind more agile competitors. Staying updated with technological trends is crucial for long-term sustainability and performance in the PEC sector.

Cybersecurity Risks:

Increased reliance on automation and digital systems exposes manufacturers to cyberattacks, which can disrupt operations and compromise sensitive data. The financial impact of such attacks is projected to rise, with the cost of cyberattacks in Indian manufacturing expected to reach USD 1 Bn by 2025.

Policy and Infrastructure Constraints:

While Government initiatives such as ‘Make in India’ have fostered manufacturing growth, however, India infrastructure still lags that of leading global manufacturing powers, there remains a lack of comprehensive policy support for widespread automation adoption, particularly for SMEs. Challenges in accessing markets, reliable distribution, and efficient local resources can also hinder growth and competitiveness.

Fluctuating Global Demand and Competition:

Precision engineered components manufacturers in India face stiff competition from global players, especially those with advanced technology and established market presence. Fluctuations in global demand, trade policies, and foreign exchange rates can further impact export-oriented businesses.

Impacts of Trump Tariff on Exports from India to US

- Cookware Exports - Indian cookware faces higher US tariffs, rising to nearly 50% after the cutoff date. Though this could impact the sale of Indian cookware in the US due to reduced cost competitiveness, it is too early to ascertain the long-term impacts due to the tariff.

- Toy Exports - A 50% tariff effective August 27, 2025, is expected to cause cancellations and delays of Indian toy shipments to the US in the short-term. With the US accounting for 40% – 50% of exports in FY2025, volumes may decline 8% –10% initially. It would be a challenge to assess the long-term impacts due to the tariffs in the current scenario.

- Electronic Enclosures Exports - Currently exempted from the Trump tariff

- Engineering Goods Exports - India's annual engineering product exports to the US accounted to USD 18.28 Bn in FY2025, out of which around USD 12.50 Bn worth of engineering products are now subject to 50% duties, which is a risk in the short term.

-Challenges

Raw Material Price Volatility:

The primary input for precision components especially Steel, Titanium, Alloys, and Composites are subjected to significant price fluctuations due to global events and macroeconomic factors. For instance, geopolitical disruptions such as the Russian invasion of Ukraine have led to sharp increases in steel prices, raising production costs and affecting demand.

Skill Shortages:

The sector faces a persistent shortage of skilled labour, particularly in areas like robotics, automation, and advanced machining.

Higher Cost of Compliance:

Clients, particularly in aerospace and defense, demand extremely tight tolerances, and stringent quality standards. This requires continuous investment in processes, documentation, and testing alongside investments in advanced equipment, skilled manpower, and robust quality control systems, leading to higher burden and costs of compliance for the firms.

Continuous Technological Upgradation Requiring Capital Investment:

Setting up and maintaining state-of-the-art facilities with advanced automation, robotics, and CNC machinery requires significant capital investment. Small and medium-sized contract manufacturers may struggle to access the necessary funding for setting up these facilities or facility upgrades / modifications

Reliable Supply Chain and Distribution:

Efficient local sourcing of materials, strategic plant locations, and reliable distribution services are critical. Delays or disruptions in the supply chain can impact the ability to meet contract deadlines and quality requirements.

FROST & SULLIVAN

Independent Market Research - Aequs Private Ltd

December 6 2024

TABLE OF CONTENT

Frost & Sullivan: Introduction

Founded in 1961, we are a global company with 40+ offices on 6 continents. Frost & Sullivan has the broadest industry coverage of any company globally - covering 10 key industries, 35 sectors, and 300 markets. As the market leader in growth consulting, we deliver a global perspective that companies need to be successful in a truly global economy.

Frost & Sullivan's focus is to help companies achieve real and sustainable growth. Our market intelligence, customized growth consulting, growth strategies, and IPO support enable CEOs and their growth teams to identify growth opportunities, effectively evaluate which have the highest probability for success, and create highly effective collaborative teams that deliver results.

Frost & Sullivan works closely with companies and their management teams to accelerate growth and achieve best-in-class growth, innovation, and leadership positions. The Company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages over 47 years of experience partnering with Global 1000 companies, emerging businesses, and the investment community.

i. Market Intelligence Services
ii. Growth Consulting Services
iii. Growth Implementation Services

Frost & Sullivan Global Reach:

What makes Frost & Sullivan unique?

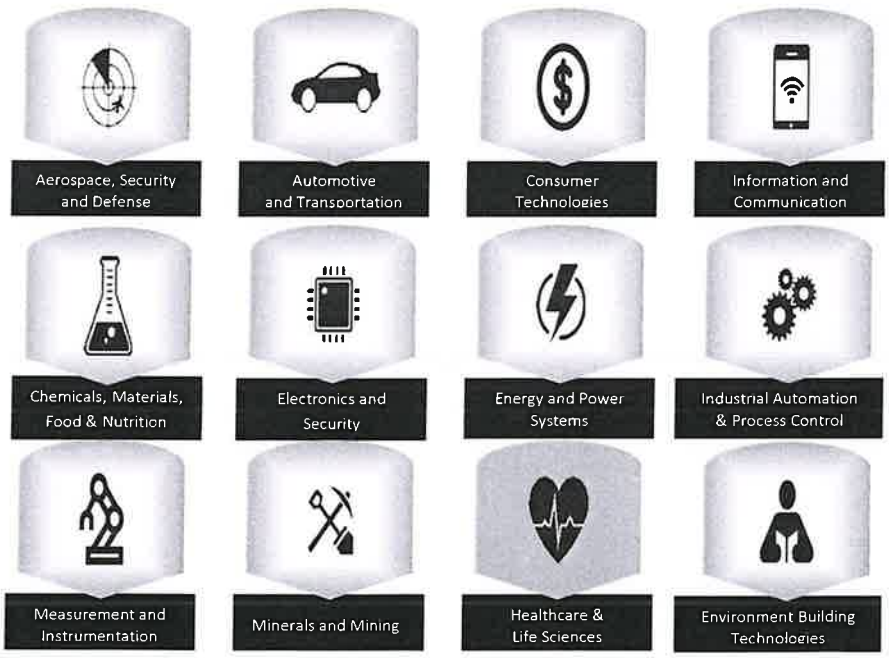
- **Focused Exclusively on Growth** – Frost & Sullivan works with clients to develop innovative growth strategies based on market intelligence, best practices, and industry thought leadership.
- **Broadest Industry Coverage of any Company Globally** – Today, more than ever, it is essential that companies look at more than just their industry. Economic shifts and emerging technologies are creating both competition and growth opportunities every day, and successful companies must look at several industries and markets in which to build successful growth strategies.
- **Global Team of Analysts and Consultants** – With over 1,800 industry analysts and consultants in 40 offices covering 80 countries, Frost & Sullivan is well-positioned to ensure clients have a timely understanding of global and regional industries and markets. We offer global support, coverage, and perspectives, allowing clients to operate effectively in today's global marketplace.
- **Industry and Career Focus** – Frost & Sullivan understands that executives need more than just industry information; they need to capture best practices to make their contribution to their companies more effective. Researching and capturing best practices brings together industry thought leaders with the most encompassing market intelligence.
- **360 Degree Perspective** – Frost & Sullivan's proprietary approach integrates 7 key research methodologies to significantly enhance the breadth and accuracy of decision-making capabilities.
- From Market Research and IPO Support to implementation of marketing programs- Building on our comprehensive research base covering market, technology, economic, and customer research, Frost & Sullivan works closely with clients to create successful integrated marketing programs to enhance our clients' brands, create powerful demand generation programs and support revenue generation programs. Continuous Market Monitoring – Frost & Sullivan produces a market information database considered one of the best collections of high-technology information, market research, and intelligence worldwide. Our leading industry analysts add to this daily from our global research offices.

Industries & Markets

Frost & Sullivan gives our clients visibility to the most extensive range of growth opportunities because we have the broadest industry and market research coverage of any company globally. With over 1,800 analysts and consultants on the ground in global markets, we are your global partner.

Our proprietary Methodology helps us track multiple industries seamlessly and provides our clients with information on their industries and their support and servicing industries. Our Methodology enables a client to have

- Continuous access to leading global research that encompasses economic, technology, industry, competitive, customer, and best practices information to make critical growth decisions
- Market information and analysis across a broad industry spectrum that ensures clients maintain a close eye on their markets, as well as complementary and converging markets
- Access to global Industry Analysts and Thought Leaders to personally discuss critical growth issues and gain a more in-depth perspective on the markets
- Real-time technology intelligence, including emerging and disruptive technologies, new R&D breakthroughs, and technology forecasting and impact analysis
    - Comprehensive analysis of key growth markets to provide clients with financial, marketing, and business development information on current trends and issues that impact investment and financial decisions



Background

Aequs is a diversified contract manufacturing company providing vertically integrated product solutions across the Aerospace and Consumer Goods industries. The company is intending to go public and has requested Frost & Sullivan for a proposal for an independent market research

Product Scope

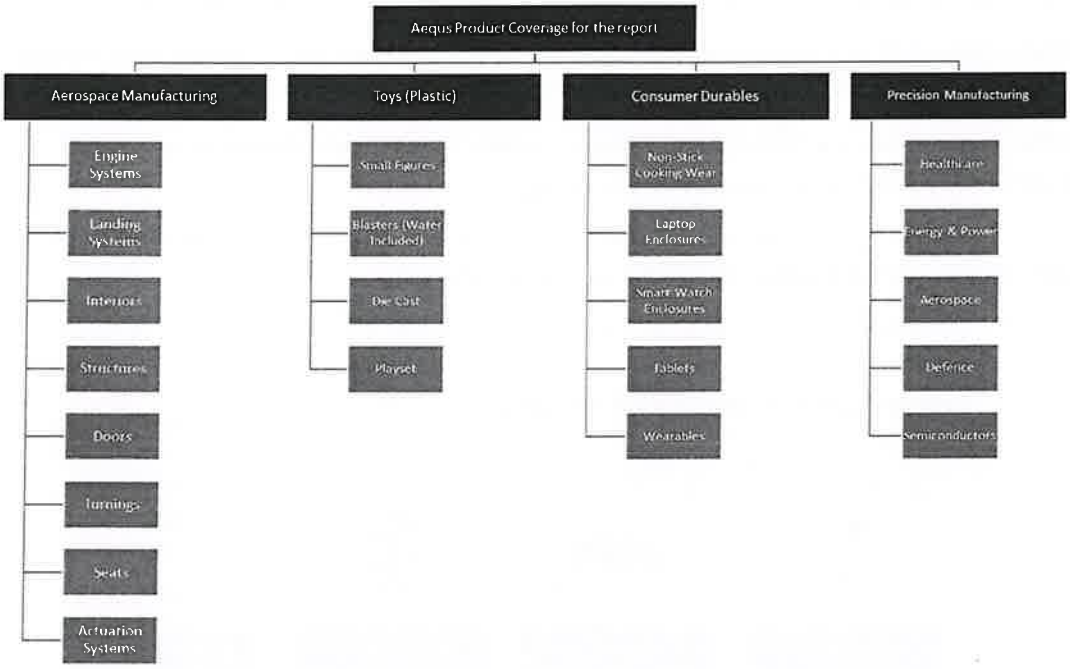


Table of Contents

2.8 India is a critical part of manufacturing

2.9 Contract Manufacturing Market in India

3. Global Aerospace Manufacturing Market

The section on Air Cargo, Aircraft Orders, Aircraft Production, other drivers including Aircraft Replacement fleet, new routes, new airports would be covered in this section, not limited to the above. The key trends in the aerospace segment, the aerospace value chain (Indian/ Global) and the critical success factor would be covered in this section. The Global seat and actuation systems segment has been added. The shift from multiple players to integrated players would be covered in the evolving business models section.

3.1. Overall Air Travel & Air Cargo Growth

3.1.1 Global Air Travel Growth

3.1.2 Global Air Cargo Growth

3.2. Global Increase in Aircraft Orders

3.2.1 Aircraft Production

3.2.2 Growth in Aircraft Deliveries

3.2.3 Fleet replacements

3.2.4 New routes

3.2.5 New airports

3.3. Aerospace Supply Chain

3.3.1 Key Trends in the Aerospace Market

3.3.2 Aerospace Value Chain (Indian/ Global)

3.3.3 Critical Success Factors

3.4. Evolving Business Models (Shift towards integrated players than multiple players)

3.5. Current Challenges in the Aerospace Sector

3.6. Market Size- Global Aerospace Manufacturing

3.6.1. Engine Systems

3.6.2. Landing Systems

3.6.3. Interiors

3.6.4. Structures

3.6.5. Doors

3.6.6. Turnings

3.6.7 Seats

3.6.9 Actuation Systems

4. Indian Aerospace Manufacturing Market

The Government Initiatives & Reforms will be covered apart from offset obligations, the segments aircraft seats and aircraft actuation systems will be covered in this section, not limited to the above alone.

4.1. Increase in Air Travel in India

4.2. Aircraft Orders- India

4.3. Indian Offset Obligations & Policies

4.4 Government Initiatives & Reforms

4.5. Indian Aerospace Supply chain

4.6. Challenges in the Indian Aerospace Manufacturing Supply chain

4.7. Make in India Initiative

4.8 India as an emerging destination

4.9. Market Size- Indian Aerospace Manufacturing

4.9.1. Engine Systems

4.9.2. Landing Systems

4.9.3. Interiors

4.9.4. Structures

4.9.5. Doors

4.9.6. Turnings

4.9.7 Seats

4.9.9 Actuation Systems

5. Consumer Section

The section has been combined to consumer section and the segments have been reordered/ renamed as Consumer Electronics, Toys and Consumer Durables Market. The section of wearables, tables and laptops would be covered in this section, not limited to these segments alone.

5.1 Global Consumer Electronics Market

5.1.1 Market Dynamics in the Global Consumer Durables Market

5.1.3 Global Laptop Enclosures Market

5.1.4 Global Smart watch enclosures Market

5.1.5 Global Wearables Market

5.1.6 Global Tablets Market

5.4 Indian Consumer Durables Market

5.4.1 Market Dynamics in the Indian Consumer Durables Market

5.4.2 Indian Non-Stick Cooking Ware Market

5.4.3 Market Size- Indian Cookware Market FY 2024- FY 2030

6. Global Precision Manufacturing Market

The Global Precision Manufacturing Market including emerging markets like Healthcare, Semiconductors, Energy & Power and Defense would be covered in this section, apart from Aerospace market.

6.1. Global Precision Manufacturing Outlook - Size, Growth and Forecast

6.2. Market Dynamics

6.3. Competition Landscape

6.4. Current and emerging product categories

7. India Precision Manufacturing Market

The Indian Precision Manufacturing Market including emerging markets like Healthcare, Semiconductors, Energy & Power and Defense would be covered in this section, apart from Aerospace market.

7.1. Indian Precision Manufacturing Outlook - Size, Growth and Forecast

7.2. Market Dynamics

7.3. Competition Landscape

7.4. Current and emerging product categories

8. Competitive Landscape

A competitive analysis table would be added in this section, it would compare part by part aerospace manufacturing capability across its competitors, there by resulting in a good positioning statement of the Shift towards integrated players than multiple players.

8.1. Indian Aerospace Manufacturing Companies

8.2. Indian Toys Manufacturing Companies

8.3. Indian Consumer Durables Companies

Timeline:

6- 7 Weeks (Excluding public holidays) from the date of signing of the LoA.

- On completion, specific chapters will be shared by F&S for client feedback.
- The project will commence 3 days from receipt of confirmation.
- The timeline does not include delays stemming from third-party dependencies.

Commercials

INR 34,50,000/ + Applicable Taxes

The investment is restricted to the current scope only.

Invoicing Terms:

- 50%- Project kick off
- 30% - Interim deliverable tentatively including section B and C in Week 3
- 20% Final deliverable including all the sections and consent letter in Week 5

Terms & Conditions:

- All invoices are due upon receipt. Unpaid invoices not paid within 30 days will be subject to a 1.5 percent late fee per month past due.
- Any change in the scope or content of work from that stated in the project scope will be reflected in a change of work order, agreed upon by both the Client and Frost & Sullivan. The revised scope may reflect additional billing as required and may result in a revised invoice or be reflected in a time and expenses billing. This additional work will begin only when the change order signed by the Client is received by Frost & Sullivan.
- The stated project fee includes the delivery to the Client at the project's completion of electronic copies of the research deliverables for this project in PowerPoint, Word, or Excel formats.
- Frost & Sullivan will undertake an update within the scope of the study based on queries from the Client to one or two sections of the study based on recent updates published in the public domain within 90 days from the report's delivery date. Any updates exceeding the above will be reviewed by Frost & Sullivan at additional cost.
- Frost & Sullivan retains the right to use market-related knowledge from this project as part of its ongoing research, except for confidential materials that provide or relate to Client information, customized metrics, and strategic recommendations developed specifically for the Client in the context of this project.
- Written deliverables may be reproduced in printed and electronic format for distribution within the client organization or any appropriate stakeholders for the IPO purpose. Any part of this report used in public domain communications (e.g., press releases) is reviewed and approved by Frost & Sullivan before publication. It is to assure that any data or conclusions are presented in the proper context, to avoid any misunderstanding by the reader or audience, and to ensure the accuracy of the data.

- Neither the Client nor its parent or any subsidiary organization will actively solicit to employ any Frost & Sullivan employee connected to this project for 12 months after completion. Should such an event occur, The Client agrees to damages of two times the person's annualized salary, due and payable immediately to Frost & Sullivan.
- Frost & Sullivan will always strive to provide first-rate work. However, there is no representation of certainty, express or implied, by Frost & Sullivan, except in the case of demonstrable negligence on the part of Frost & Sullivan. This is because the markets we study have varying degrees of fragmentation. The Client acknowledges this and accepts this point. The Client waives any claim to actual, consequential, or punitive damages against Frost & Sullivan based on their reliance on Frost & Sullivan's work, except in the case of demonstrable negligence on the part of Frost & Sullivan.
- Some data may be considered proprietary or sensitive by companies and/or individuals to be interviewed or surveyed, and they may be unwilling to divulge any given piece of information or data to Frost & Sullivan. Therefore, all research and analysis will be executed on a "best efforts" basis.
- The Client shall have 10 business days following the final presentation of the project results to request clarifications or submit reasonable questions within the project's original scope. Additional work beyond the project's scope or the 10 business days will be billed on a time and expenses basis.
- The Client may terminate this agreement provided there is a reasonable basis, and both parties sign an agreement in writing. Work on the engagement will cease on the day that the request to terminate is received by Frost & Sullivan. The Client agrees to pay Frost & Sullivan
    - a pro-rata fee for tasks accomplished plus related direct expenses incurred before termination
    - Any costs Frost & Sullivan has incurred and/or any non-refundable portion of committed costs incurred before Frost & Sullivan received the engagement termination request.
- Frost & Sullivan shall not be liable for delays or failures in performing its obligations resulting from any cause beyond Frost & Sullivan's reasonable control. In case of any material delay, Frost & Sullivan will notify the Client and specify the revised schedules as soon as practicable.
- Both parties must agree upon any change, extension, or reduction in the project's scope in writing. The revised scope will be reflected via either a letter of engagement or a time and expenses billing, reflecting additional billing required to complete additional work.
- The Client may request Frost & Sullivan to make additional presentations of the results of this project beyond what has been specified in the project scope. Frost & Sullivan will bill the Client on a time and expenses basis, including preparation, presentation, and time.
- All of our material is, by default, written in English unless it has been specifically agreed in the context of the project definition that our material would be written in another common language. If the Client wishes to have our material translated into an additional language, all translation costs will be charged to the Client.
- The Parties represent and warrant to each other that they have the requisite authority to enter into this Agreement and that the execution, delivery and performance of the terms contained herein have been duly authorized by all requisite action on its behalf.
- The Frost & Sullivan agrees to indemnify and hold harmless Client from any and all claims, damages, losses, and expenses arising out of or in connection with breach of terms of this Agreement including but not limited to gross negligence, fraud, misrepresentation and willful misconduct. This indemnity obligation shall survive the termination of this Agreement

- This Agreement will benefit and be binding upon the parties hereto and their respective successors and assigns. This Agreement is be governed by and construed in accordance with the laws of India, and subject to the jurisdiction of the courts in Bengaluru.
- This Agreement constitutes the entire understanding between the parties with respect to confidential information provided by Client in connection with the transactions and supersedes all prior and contemporaneous negotiations, discussions and understanding of the parties, whether written or oral, between the parties with respect to confidential information provided in connection with the transactions and Frost & Sullivan shall not disclose confidential information of client to any third party except with prior written consent. No amendment or modification of this Agreement will be valid or binding unless made in writing and executed by the parties. Should any of the provisions of this Agreement be found void, invalid or otherwise unenforceable, the remainder of this Agreement will still be in effect. Any failure or delay by either party to exercise a right or remedy hereunder will not result in a waiver of that, or any other right or remedy.
- This Agreement may be executed by manual or electronic signatures and in two (2) or more identical counterparts, each of which will be deemed to be an original and all of which taken together will be deemed to constitute one and the same Agreement when a duly authorized representative of each party has signed a counterpart. Each party agrees that the delivery of this Agreement by facsimile or electronic delivery will have the same force and effect as delivery of original signatures. Neither party may assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the other party.

Letter of Agreement:

By signing this agreement, both parties commit to the project as laid out in its entirety in the proposal dated December 2024 and the terms and conditions outlined in this document.

Engagement Title	Independent Market Research - Aequs Private Ltd
Project Value (Excluding Tax)	INR 34,75,000/ + applicable taxes
Invoicing Terms	• 50%- Project kick off • 30% - Interim deliverable • 20% Final deliverable
Payment Terms	**Due Now**
Whether the Client mandates PO before sending the invoice	**No**
Parties to this Contract:	
Frost & Sullivan (India) Private Limited ASV Hansa, No. 53 Greams Road Thousand Lights, Chennai – 600 006, Tamil Nadu Phone: 91.44.61606666 Fax: 91.44.42300369 CIN-U74140TN1999PTC079226 GSTIN*: 33AAACF4252A1ZE	**Company Name:** Aequs Private Limited **Company Address:** No 55, Whitefield Bengaluru **GST Details:** 29AACCM3073E1ZL **TAN Details:** BLRM02575G CIN: U80302KA2000PTC026760
Signature: Shylesh Narayanan Digitally signed by Shylesh Narayanan Date: 2024.12.10 13:48 +0530	**Signature:**
Name: Shylesh Narayanan	**Name:** Dinesh Iyer
Title: Vice President & Country Head – South Asia	**Title:** Authorized Signatory
Date: 10.12.2024	**Date:** 10 December 2024

Aequs Private Limited

FROST & SULLIVAN

Update on Independent Market Research - Aequs Limited *(formerly known as Aequs Private Limited)*

September 8 2025

Timeline:

3 Weeks (Excluding public holidays) from the date of signing of the LoA.

Commercials

INR 15,00,000/ + Applicable Taxes

The investment is restricted to the current scope only.

Invoicing Terms:

- 50% upon acceptance of the EL
- 50% upon submission of final report
-

Terms & Conditions:

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Frost & Sullivan's work, except in the case of demonstrable negligence on the part of Frost & Sullivan.

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- This Agreement will benefit and be binding upon the parties hereto and their respective successors and assigns. This Agreement is be governed by and construed in accordance with the laws of India, and subject to the jurisdiction of the courts in Bengaluru. This Agreement constitutes the entire understanding between the parties with respect to confidential information provided by Client in connection with the transactions and supersedes all prior and contemporaneous negotiations, discussions and understanding of the parties, whether written or oral, between the parties with respect to confidential information provided in connection with the transactions and Frost & Sullivan shall not disclose confidential information of client to any third party except with prior written consent. No amendment or modification of this Agreement

will be valid or binding unless made in writing and executed by the parties. Should any of the provisions of this Agreement be found void, invalid or otherwise unenforceable, the remainder of this Agreement will still be in effect. Any failure or delay by either party to exercise a right or remedy hereunder will not result in a waiver of that, or any other right or remedy. This Agreement may be executed by manual or electronic signatures and in two (2) or more identical counterparts, each of which will be deemed to be an original and all of which taken together will be deemed to constitute one and the same Agreement when a duly authorized representative of each party has signed a counterpart. Each party agrees that the delivery of this Agreement by facsimile or electronic delivery will have the same force and effect as delivery of original signatures. Neither party may assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the other party.

Letter of Agreement:

By signing this agreement, both parties commit to the project as laid out in its entirety in the proposal dated September 8 2025 and the terms and conditions outlined in this document.

Engagement Title	Update Independent Market Research - Aequs Private Ltd
Project Value (Excluding Tax)	INR 15,00,000/ + applicable taxes
Invoicing Terms	• 50% upon acceptance of the EL • 50% upon submission of final report
Payment Terms	**Due Now**
Whether the Client mandates PO before sending the invoice	**No**
Parties to this Contract:	
Frost & Sullivan (India) Private Limited Olympia Platina 5th Floor, Plot No. 33B, South Phase Guindy Industrial Estate, Guindy Chennai – 600032, Tamil Nadu Phone: 91.44.61606666 Fax: 91.44.42300369 CIN-U74140TN1999PTC079226 GSTIN*: 33AAACF4252A1ZE	**Company Name: Aequs Limited** **Company Address:** No.437/A, Aequs SEZ, Hattargi Village, Hukkeri Taluka, Belagavi 591243 **GST Details:** 29AACCM3073E1ZL **TAN Details:** BLRM02575G
Signature: PMohan	**Signature:**
Name: Prerna Mohan	**Name: Dinesh Iyer**
Title: Associate Partner	**Title: Group CFO**
Date: 9th Sept 2025	**Date: September 08, 2025**

FROST & SULLIVAN

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CIN No: U74140TN1999PTC079226

Date: November 14, 2025

To

The Board of Directors
Aequs Limited
Aequs Tower
No. 55, Whitefield Main Road
Mahadevapura Post
Bengaluru, 560 048
Karnataka, India
("the **Company**")

Dear Sir/Ma'am,

Re: Proposed initial public offering of equity shares of face value of ₹ 10 each ("Equity Shares") of Aequs Limited (the "Company" and such initial public offering, the "Offer")

With reference to the captioned matter, we Frost & Sullivan (India) Private Limited hereby accord our no-objection and our consent to be named as an "expert" in terms of the Companies Act, 2013, as amended, to our report titled "*An Assessment of Aerospace and Consumer PEC Industry*" dated November 14 2025 (the "**Report**") and its contents or any extract thereof, which has been commissioned and paid for by the Company as included in **Annexure C** being included in any document issued by the Company in connection with the Offer, including the updated draft red herring prospectus- II ("**UDRHP-II**") intended to be filed by the Company with the Securities and Exchange Board of India (the "**SEBI**") and any relevant stock exchange(s) where the Equity Shares are proposed to be listed (the "**Stock Exchanges**"), and the red herring prospectus ("**RHP**") and the prospectus ("**Prospectus**", and together with the UDRHP-II and RHP, the "**Offer Documents**") that the Company intends to file with the Registrar of Companies, Karnataka, at Bengaluru (the "**RoC**") and with the SEBI and the Stock Exchanges in respect of the Offer, and in any other document to be prepared, issued, used or filed in relation to the Offer, including in any international supplements of the foregoing, international wraps, publicity material, annual or research report, press/media release, presentation, any marketing material or other document issued in connection with the Offer by the Company or its advisors (collectively, the "**Offering Materials**").

We agree that such disclosures would be made only as deemed fit by the Company and the book running lead managers appointed in connection with the Offer ("**BRLMs**") and this letter does not impose any obligation on the Company and/or the BRLMs to make any or all the disclosures in any Offering Materials for which consent is being sought and is granted in terms of this letter.

We confirm that we were engaged by the Company to provide the report "*Aerospace and Consumer PEC Industry*" through our engagement letter dated September 8, 2025.

We also give our consent to include this letter of consent, the engagement letters dated **December 10, 2024, and September 8, 2025,** entered into with the Company (included as **Annexure B**) and the Report as part of the section titled "*Material Contracts and Documents for Inspection*" in the Offer Documents and on the Company's website which will be available to the public for inspection in accordance with applicable law. Further, we also give consent to upload the engagement letter, the Report and this letter, as applicable, on the repository portal of the Stock

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Exchanges as required pursuant to the SEBI circular dated December 5, 2024 and the subsequent requirements by the Stock Exchanges, if required.

We confirm that we have reviewed the section titled "***Industry Overview***" included in the UDRHP - II, and to be included in other Offer Documents, and confirm that the contents of this section has been accurately and adequately reproduced from the Report.

We confirm that we are not, and have not in the past, been engaged or interested in the formation, or promotion, or management, of the Company. Further, we are an independent agency and neither the Company, nor its directors, promoters, key managerial personnel, senior management, any subsidiary, and any selling shareholders participating in the Offer (as listed in **Annexure A**) nor the BRLMs to the Offer, is a related party to us as per the definition of "related party" under the Companies Act, 2013 and the Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015, each as amended, as on the date of this letter. We confirm that the information in relation to us is true, correct, adequate and not misleading in any material respect.

We further confirm that there are no further consents, permissions, approvals or intimation required for reproducing our name or the information contained in the Report in any Offering Materials, provided that it is ensured that disclaimer (as provided below) is also reproduced with such Offering Materials.

We declare that we do not have any direct/ indirect interest in or relationship with the Company or its promoters, key managerial personnel, senior management, directors or management as of the date of this letter, and also confirm that we do not perceive any conflict of interest in such relationship/ interest while issuing this letter and the Report. We confirm that we and our associates do not hold any Equity Shares of the Company.

We also confirm that we will participate in due diligence calls in relation to the Report, if and when requested.

We confirm that all information contained in the Report has been obtained by us from sources believed by us to be true and reliable and after exercise of due care and diligence by us. We further confirm that we have, where required, obtained requisite consent in relation to any information used by us in the Report.

We represent that our execution, delivery and performance of this consent have been duly authorized by all necessary actions (corporate or otherwise).

We hereby consent to this letter being disclosed by the BRLMs, if required (i) by reason of any law, regulation or order of a court or by any governmental or competent regulatory authority, or (ii) in seeking to establish a defense in connection with, or to avoid, any actual, potential or threatened legal, arbitral or regulatory proceeding or investigation.

This letter may be relied upon by the Company, the BRLMs and the legal advisors in relation to the Offer. This letter and the Report may be delivered or furnished to any governmental or regulatory authority, as may be required. Further, we also authorize you to deliver this letter of consent to the RoC pursuant to the provisions of Section 26 and 32 of the Companies Act, 2013 and rules and regulations made thereunder, or SEBI, Stock Exchanges.

We undertake to inform you promptly, in writing, of any changes within our knowledge, to the above information until the Equity Shares commence trading on the Stock Exchanges, pursuant to the Offer. In the absence of such communication from us, the above information should be considered as updated information until the Equity Shares commence trading, on the Stock Exchanges, pursuant to the Offer.

We agree to keep the information regarding the Offer, your request and this consent strictly confidential.

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All capitalized terms referred to herein, unless specifically defined therein, shall have the meanings ascribed to them in the Offering Materials.

You agree and undertake not to misrepresent, make any changes to, obliterate or tamper with the Report or present any part thereof out of context or in violation of applicable laws and regulations, if any. Further, you acknowledge and agree that to the extent permissible under applicable law, Frost & Sullivan (India) Private Limited does not accept responsibility for the Offer Documents subject to the below stated disclaimer. You also agree to reproduce the Report on an 'as is where is basis' clearly mentioning the document source & date of release, and to ensure that the Report consisting of charts/graphs also contains the relevant texts explaining the charts/graphs.

Given below is the disclaimer to be used in the Offering Materials.

*Frost & Sullivan has taken due care and caution in preparing the report ("**F&S Report**") based on the information obtained by Frost & Sullivan from sources which it considers reliable ("**Data**"). The F&S Report is not a recommendation to invest / disinvest in any entity covered in the F&S Report and no part of the F&S Report should be construed as an expert advice or investment advice or any form of investment banking within the meaning of any law or regulation. Without limiting the generality of the foregoing, nothing in the F&S Report is to be construed as Frost & Sullivan providing or intending to provide any services in jurisdictions where Frost & Sullivan does not have the necessary permission and/or registration to carry out its business activities in this regard. Aequs Limited will be responsible for ensuring compliances and consequences of non-compliances for use of the F&S Report or part thereof outside India. No part of the F&S Report may be published/reproduced in any form without Frost & Sullivan's prior written approval."*

Yours faithfully,

For and on behalf of Frost & Sullivan (India) Private Limited

Authorized Signatory
Name: Prerna Mohan
Designation: Associate Partner
Place: Chennai, India

Cc:

Book Running Lead Managers

JM Financial Limited
7th Floor, Cnergy
Appasaheb Marathe Marg
Prabhadevi
Mumbai – 400 025

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Maharashtra, India

IIFL Capital Services Limited (*formerly known as IIFL Securities Limited*)
24th Floor, One Lodha Place
Senapati Bapat Marg, Lower Parel (W)
Mumbai – 400 013
Maharashtra, India

Kotak Mahindra Capital Company Limited
27BKC, 1st Floor
Plot No. C-27, G Block
Bandra Kurla Complex, Bandra (East)
Mumbai – 400 051
Maharashtra, India

Legal Counsel to the Company as to Indian Law

Shardul Amarchand Mangaldas & Co.
24th Floor, Express Towers
Nariman Point, Mumbai – 400 021
Maharashtra, India

Legal Counsel to the Book Running Lead Managers as to Indian Law

Trilegal
6th Floor, Marks Square
61, St. Marks Road
Bengaluru – 560 001
Karnataka, India

International Legal Counsel to the Book Running Lead Managers

Sidley Austin LLC
Level 31, Six Battery Road
Singapore – 049 909

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Annexure A

Directors

Sr. No.	Name of Director	Director Identification Number	Designation	Start Date
1	Aravind Shivaputrappa Melligeri	00787735	Executive Chairman and Chief Executive Officer	March 27, 2000
2	Rajeev Kaul	01468590	Managing Director	November 2, 2011
3	Ajay Aravind Prabhu	00477195	Non-Executive Director	July 31, 2003
4	Eberhard Klaus Richter	07427610	Independent Director	June 24, 2021
5	Vidya Sarathy	01689378	Independent Director	January 31, 2025
6	Anup Wadhawan	03565167	Independent Director	April 25, 2025

KMP

Sr. No.	Name of KMP	Designation
1	Aravind Shivaputrappa Melligeri	Executive Chairman and Chief Executive Officer
2	Rajeev Kaul	Managing Director
3	Dinesh Venkatachalam Iyer	Chief Financial Officer
4	Ravi Mallikarjun Hugar	Company Secretary and Compliance Officer

SMP

Sr. No.	Name of SMP	Designation
1	Dr. Ravi Guttal	Chief Technology Officer & Senior Vice President - Engineering & Quality
2	Vikas Goel	President, Advanced Technology Products of ACPPL
3	Kapil Mahajan	Chief Human Resource Officer of the Company
4	Mohamed Bouzidi	President – Aerospace of AAF

Promoters

Sr. No.	Name of Promoter
1	Aravind Shivaputrappa Melligeri
2	Aequs Manufacturing Investments Private Limited
3	Melligeri Private Family Foundation
4	The Melligeri Foundation

Subsidiaries

Sr. No.	Name of Subsidiaries
1	AeroStructures Manufacturing India Private Limited
2	Aerospace Manufacturing Holdings Private Limited

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3	AeroStructures Assemblies India Private Limited
4	Aequs Oil and Gas LLC
5	Aequs Force Consumer Products Private Limited
6	Aequs Consumer Products Private Limited
7	Aequs Toys Private Limited
8	Aequs Engineered Plastics Private Limited
9	Aequs Aerospace B. V.
10	Aequs Aerospace LLC, USA
11	Aequs Aero Machine Inc.
12	Aequs Holdings France SAS
13	Aequs Aerospace France SAS
14	Aequs Toys Hong Kong Private Limited
15	Koppal Toys Molding COE Private Limited
16	Aequs Rajas Extrusion Private Limited

Joint Ventures:

Sr.No.	Name of Joint Venture
1	Aerospace Processing India Private Limited
2	SQuAD Forging India Private Limited
3	Aequs Cookware Private Limited

Selling Shareholders

Sr. No.	**Name of Selling Shareholders**
1	Amicus Capital Private Equity I LLP
2	Amicus Capital Partners India Fund I
3	Amicus Capital Partners India Fund II
4	Aequs Manufacturing Investments Private Limited
5	Melligeri Private Family Foundation
6	Ravindra Mariwala
7	Vasundhara Dempo Family Private Trust
8	Girija Dempo Family Private Trust
9	Raman Subramanian

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Annexure B

(Annexed Separately)

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Annexure C

(Annexed Separately)