

Hi-tech

Manufacturing in India

Enhancing manufacturing competitiveness
for domestic and export markets



Contents

Foreword	2
Introduction	3
Electronics	6
Other key industries : Aerospace and Medical Devices	13
Conclusions and Recommendations	17
Abbreviations	20
References	22

Foreword

In Spring 2019, the USISPF Board decided to launch an initiative comprising of senior global executives from different industries to develop a set of recommendations as the Government of India advances a hi-tech manufacturing ecosystem in India.

India is primarily viewed as a software and services industry base, while countries like China, USA, and Germany are considered as the global manufacturing hubs. India has been a strong player in select industries like Automobile and Food Processing, but lags the hi-tech manufacturing sectors, contributing less than 3% of the global output. Over the last few years, the Government of India (GOI) has placed emphasis on increasing India’s manufacturing competitiveness. USISPF and its members support GOI’s endeavors, such as Make in India, aimed at making India a global manufacturing hub. While the Government has initiated reforms to achieve the goals of increasing the manufacturing sector contributions from 16% to 25% of the Gross Domestic Product (GDP) by 2025, industry members have found certain challenges that need to be addressed urgently.

India’s high-tech sectors (such as electronics, aviation, medical devices) have the potential to offer an additional investment of USD 21 billion and create 550,000 direct jobs and 1,400,000 indirect jobs over the next 5 years. Given the significance of the increasing role of high-tech industry sectors in the global market and India’s vast potential in the sector, USISPF members have conducted a study to examine the factors that are impacting India’s competitiveness for companies planning to setup manufacturing operations in India, and how these challenges can be addressed to make India a dynamic player in the global value chain.

Based on the collective inputs from the USISPF members, some of the major challenges identified include the need for a strong supplier ecosystem, reduction in logistics cost, enhance skilled workforce, and enabling regulatory policies. To address these challenges and to enhance India’s competitiveness, a set of policy changes for the near and long-term have been recommended for further consideration by the Government. Industry looks forward to working with the Government to make India a world-class manufacturing hub that can strengthen domestic manufacturing as well as support India’s export sector to create the much-needed jobs for Indians.

Mukesh Aghi
President & CEO
US-India Strategic Partnership Forum

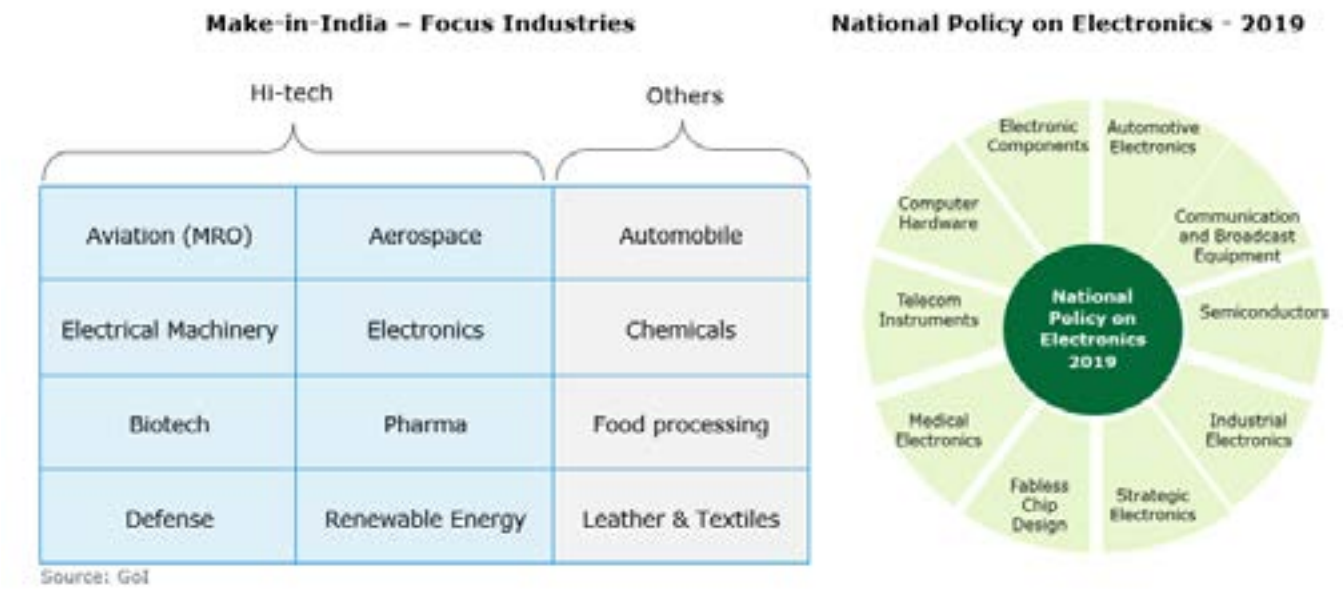
Introduction

Hi-tech manufacturing is typically characterized by recurring large spend on R&D and willingness to invest in innovation, technology, and associated infrastructure by companies.

Some of the key characteristics of hi-tech manufacturing include:

- High spend on R&D
 - Recurring large investments into R&D
 - R&D spend typically>3% of revenues
- High innovation rate
 - Relatively higher proportion of businesses undertaking technological innovation in the industry
- Significant technological endowment in final product
 - Products with intelligent devices embedded
- Large capital investments in technology and infrastructure
- Requirement for a diverse pool of highly skilled personnel

From among the industries that qualify as hi-tech, the Government of India (GoI) is focusing on select ones and segments through its flagship programmes.



From the above, Electronics, Aerospace and Medical Devices have witnessed the entry of various global MNCs into India for manufacturing. But India’s share in global production within these sectors is less than 3%.

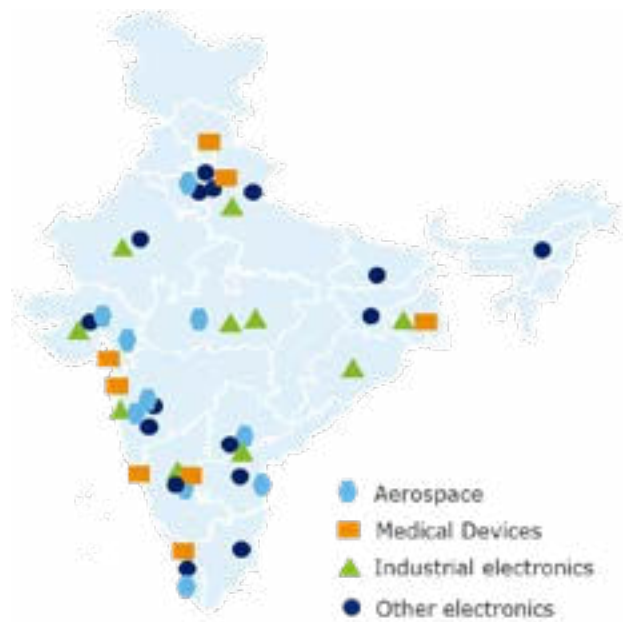
Performance of key hi-tech manufacturing industries

Dimension	Industry				
	Consumer Electronics & Telecom	Computer & Networking	Industrial Electronics	Aerospace	Medical Devices
Major players in India					
Global industry size (FY17, USD billion)	1700	255	191	323	250
India’s share in global manufacturing (FY17, USD billion)	3%			<3%	1%
Domestic manufacturing growth (CAGR) (FY14-20)	27%	5%	11%		14%
Domestic consumption (FY17, USD billion)	29	11			4
Domestic production (FY17, USD billion)	23	3	10		2
Exports (FY17, USD billion)	1	0.2		2	1
Imports (FY17, USD billion)	8	7		8	3

Source:– UN Comtrade Database, Electronics Manufacturing Summit 2018, US Department of Commerce, Deloitte Study on A&D, GoI, Allied Market research, Assocham Report on Electricals and Electronics Manufacturing in India & Ministry of Electronics, Deloitte & NatHealth Making in India, A lead for healthcare, Export.gov (US commerce), Ibis world – Revenue (2019). Note: FY17 refers to Financial Year period of Apr’16 to Mar’17

A significant share of the domestic consumption is currently through imports. Of the remaining manufactured in India, the manufacturing locations are primarily in the Western and Southern parts of the country, besides the National Capital Region.

Major manufacturing locations for hi-tech manufacturing industries



Source: Deloitte

Potential for the future

While the key hi-tech industries currently have significant imports with limited manufacturing done in India, there is immense potential for the future given the Government’s focus and sector specific incentives, aiming to make India a global manufacturing hub.

The sectors of electronics, aerospace and medical devices alone have the potential to offer an additional investment of ~USD 21 Bn and create 550,000 direct jobs and 1,400,000 indirect jobs over the next 5 years. While significant interest exists among the global companies to set up/ scale up manufacturing in India, there are dimensions that need to be addressed.

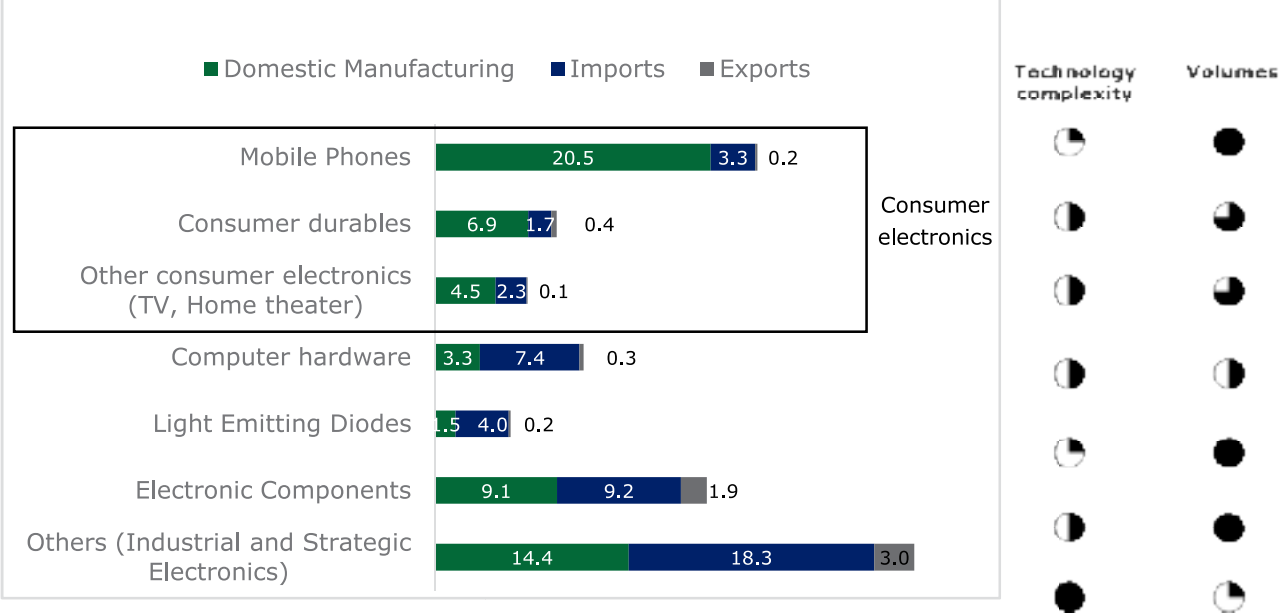
In the subsequent pages we shall address the key factors that are impacting the competitiveness for companies planning to setup manufacturing operations in India. Aligned to these, the support required from the Government of India (GoI) for the near-long term has been indicated.

Electronics

Overview

Consumer electronics (mobile phones, consumer durables) forms about 50% of the total electronics industry in India, with mobile phone manufacturing accounting for 21%.

Indian Electronics Industry - Segments (FY18, USD Bn)



Source: MeitY, Deloitte

During the period FY15-17, imports grew at a CAGR of 7.9%, while domestic manufacturing grew at 23.3%. Exports have remained constant at USD 6 billion over the same period. While domestic value addition has grown significantly in the mobile phones segment, it has remained low in other segments. This has led to imports being significantly more in the other segments; especially those that have a higher technology complexity.

A combination of nation-wide initiatives, policy changes, demographic drivers and positive collateral impact from other factors is creating demand for domestically manufactured electronics products. Some of the nation-wide initiatives undertaken by the Government include

- **UIDAI**
 - Expected to boost demand for biometric applications with focus on encouraging digital payments
- **Digital India**
 - Aims to transform India into a digitally enabled society and achieve net zero import in electronics by 2020
- **National Knowledge Network**
 - To provide a unified high speed network backbone for educational institutions in India
- **National Optic Fibre Network**
 - To provide broadband connectivity to 200,000+ gram panchayats and enable e-services and e-applications nationally

Additionally, demand drivers such as increasing urbanization, young population with growing incomes and an increasing need for automation to improve efficiencies have positively impacted the industry. To accelerate the demand drivers various policies have been introduced by the Government

- **Preferential Market Access (PMA)**
 - Provides a minimum quota of 30% for domestic players in the procurement of electronic goods by the Government
 - Applicable for all ministries other than Defense and for products that are manufactured by companies registered in India
- **Export incentives scheme**
 - Merchandise Export from India Scheme (MEIS) focused on increasing the exports by providing incentives which are payable as a percentage (2, 3, 4, 5 or 7%) of realized FOB value (in free foreign exchange). Scheme was applicable for 237 electronics products
 - Since there was a concern of the MEIS scheme being non-compliant with WTO norms, a new scheme that would be compliant with WTO norms is being evaluated by the Government
- **GST implementation and revision in BCD**
 - Multiple taxes and cascading effect of taxes eliminated
 - Reduced cost of manufacturing and logistics
 - Exemption to capital goods required for manufacture of specific electronic products
 - New scheme proposed for inviting global companies to set up mega manufacturing plants in advanced technology such as semi-conductor fabrication, lithium batteries, laptops, computer servers, etc.
 - BCD exemption on machines used for manufacturing of semi-conductor devices, electronic IC or flat panel display

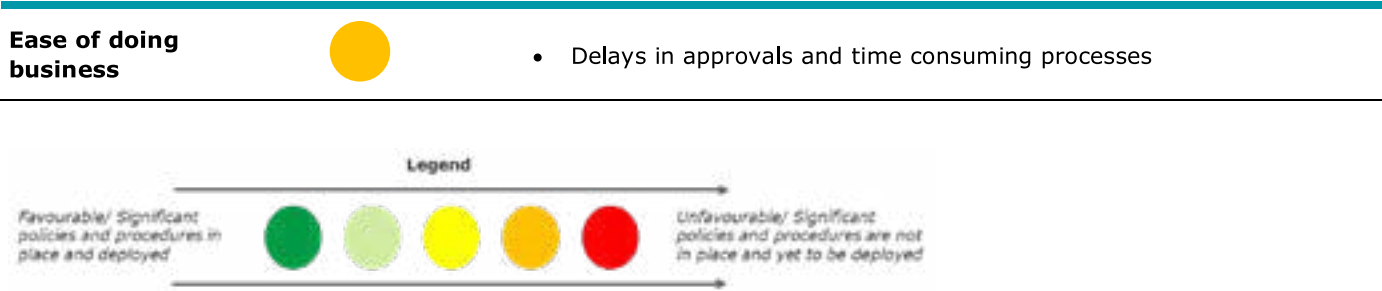
In summary, the demand side factors provide a very positive outlook for the industry and segments such as 'high-volume low-complexity' products (Eg: mobile phones) have been able to leverage them to a significant extent. Products categorized by high volume segments have been relatively easier to localize driven by lower operating cost and proximity to customer base (reduced logistics cost). On the other hand, 'low-volume high-complexity' products require consolidation of the demand for multiple geographies and making India an export node (India for the World) for the manufacturing facility to be viable. In the subsequent section we shall evaluate the factors that have been impacting the competitiveness of the industry, and inhibiting additional investments by global companies into this industry in India.

Factors impacting manufacturing competitiveness in India

Summary

An analysis of the major factor conditions and regulatory policies indicates challenges across most dimensions impacting competitiveness

Dimension	Summary rating	Details
Supplier ecosystem	<div></div>	<ul style="list-style-type: none">• 50-85% of components (by value) need to be imported
Logistics	<div></div>	<ul style="list-style-type: none">• ~5-15% additional cost due to distance from component sources and higher freight rates
Labour costs and availability	<div></div>	<ul style="list-style-type: none">• Costs are cheaper than countries like China and Taiwan• However, availability of skilled labour is a major concern
Supporting infrastructure	<div></div>	<ul style="list-style-type: none">• Poor public infrastructure and delays in execution of projects
Incentives/ schemes for cost competitiveness	<div></div>	<ul style="list-style-type: none">• Exports are not cost competitive due to higher landed costs• Unable to leverage schemes for domestic procurement due to absence of robust supplier ecosystem
Regulatory policies	<div></div>	<ul style="list-style-type: none">• High tax and antiquated labour laws



Details across each of the above dimensions have been provided in the subsequent sections.

Supplier ecosystem and cost of components

Domestic production is expected to cater to only about 25% of the total demand by 2020. This is primarily due to a weak supplier ecosystem for components, affecting particularly the high-complexity, low-volume product segments.

Dimension	Applicable sub-sectors	Details
Availability of local suppliers for components	All	<ul style="list-style-type: none">• Key components contributing to significant portion of the material cost are unavailable in India• India lacks a component manufacturing hub or cluster for electronics which can aggregate the component suppliers and make it cost effective for sourcing the entire value chain requirements from one place
Average share of product cost that needs to be imported	Industrial electronics	<ul style="list-style-type: none">• ~50-65%
	Others	<ul style="list-style-type: none">• ~80-85%
	Consumer electronics	<ul style="list-style-type: none">• Semiconductor• Display and panel• Plastic resins
	Networking	<ul style="list-style-type: none">• Semiconductor• Specialty electronics
	Industrial electronics	<ul style="list-style-type: none">• High-quality electronic controls• Active components• LCD/LED displays• PV Cells• Application Specific Integrated Circuit (ASIC)
Key components required to be imported	PCB/ PCBA	<ul style="list-style-type: none">• Key raw materials for PCB manufacturing• Manufacturing equipment and support/repair service

Source: USISPF

An illustrative BOM (Bill-of-Material) for a Set Top Box, which is an example of high-complexity low-volume product, has been detailed below. In this example, nearly 85% of the components (by value) are being imported due to weak supplier ecosystem in India.

Illustrative Bill-of-Material breakup for a Set Top Box (STB)

Commodity Category	Component	Suppliers (including global leaders)	Manufactured in India?
Plastics and mechanicals	<ul style="list-style-type: none">Mechanical fabrication (base cover, sheet metal)Plastic fabricationCables/wires	<ul style="list-style-type: none">Flextronics, SupremeRosti, G-Plast, NyproAmphenol, Molex, FCI, Volex	Y
			Y
			Y
Electro-mechanical (including specialty 'discrete' tech)	<ul style="list-style-type: none">Caps and resistors (thru-hole)Heat sinksBatteries and power suppliesInter-connectorsPrinted Circuit Boards (<4 layer)	<ul style="list-style-type: none">VishayAuto Ancillary (Eg: Jindal Extruders)Laird Tech, MurataTyco, Molex, FCI, AmphenolAT&S, Epitome, Ascent	Y
			Y
			Y
			Y
			Y
	<ul style="list-style-type: none">Caps and resistors (SMT)Inductors and magnetics	<ul style="list-style-type: none">Belfuse, Delta, Lineage, PanasonicDelta, Jan Mao	N
Semiconductor (Silicon)	<ul style="list-style-type: none">Communications moduleLogic, MemoryChipsets; Logic devicesDiodesLinear Voltage RegulatorTiming devicesTransistor	<ul style="list-style-type: none">Broadcom, Marvell, MaximNXP, Hynix, Samsung, Fairchild, Texas Instruments	
		<ul style="list-style-type: none">Freescall, Fairchild, Broadcom, PMC	N
		<ul style="list-style-type: none">Diodes Inc, Fairchild, ST Micro	N
		<ul style="list-style-type: none">Maxim, Texas Semiconductors, National Semi, Linear Tec.	N
		<ul style="list-style-type: none">Maxim, Pericom, Kyocera, Analog	N
		<ul style="list-style-type: none">Fairchild, Central Semiconductor	

Source: USISPF

Logistics

Across sectors, the additional impact on product cost due to logistics is 5-15%. This is primarily because of the incremental cost incurred for importing components into India, along with higher freight rates owing to lower import/export volumes.

Dimension	Applicable sub-sectors	Details
Inbound and outbound freight	Consumer electronics	<ul style="list-style-type: none">Additional cost of 12-15% for products like cell phonesHigher as compared withChina/Taiwan
	Networking	<ul style="list-style-type: none">Additional cost of ~5% for inbound and ~4% for outboundIndia is far away from component factoriesShipping rates are expensive and unstable due to lower volume flowing into and out of India
	Industrial electronics	<ul style="list-style-type: none">~ 10% additional costIndia is far from export markets
Source: USISPF	PCB/ PCBA	<ul style="list-style-type: none">Additional cost of 10-12% for air and 5% for sea as raw materials need to be imported from China/Taiwan

Conversion factors and support infrastructure

While labour costs are low compared with countries like China and Taiwan, the current advantage that India has as a global engineering hub is weakening (compared with South East Asia / MEA) due to relatively higher wage inflation and short supply of skilled labour.

Dimension	Applicable sub-sectors	Details
Labour costs	All	<ul style="list-style-type: none">Overall lower costs.However, higher costs incurred initially due to training/ learning curveHigh wage inflation; current cost benefits expected to be negated over the next 1-2 years
Skilled manpower availability	All	<ul style="list-style-type: none">Limited labour force as compared with Taiwan/ South Korea/ Japan where the electronics industry is much more developedShortage of qualified engineers with electronics manufacturing backgroundShortage of skill sets for large-scale manufacturing
Power	All	<ul style="list-style-type: none">Disruptions due to power outagesHigher costs due to lack of scale for low-volume, high-complexity products
Infrastructure	All	<ul style="list-style-type: none">Poor infrastructure/ service such as road, harbour, waste water treatment, power plant, etc.Delays in completion of infrastructure projectsLack of flexibility in logistics reduces the efficiency and quality of the production lines

Source: USISPF

Incentives and regulatory policies

Though the Government has announced numerous schemes/policies to support the companies setting up manufacturing operations in India, there are still some areas to be addressed as these are not on a par with major manufacturing hubs such as China.

Incentives/ schemes for cost competitiveness

Dimension	Applicable sub-sectors	Details
Exports	All	<ul style="list-style-type: none">Cost disparity of exports from India as compared with existing global benchmarks due to unfavourable inbound and outbound freight ratesLack of infrastructure, and constraints due to regulations, trade restrictions and quality are reducing India’s competitiveness to manufacture for exports
	Low-volume high-complexity	<ul style="list-style-type: none">Domestic consumption is not sufficient for setting up large scale operations
Imports / Customs	All	<ul style="list-style-type: none">Loopholes arising out of anomalies between HSN (Harmonized System Nomenclature) and notification to be plugged to ensure uniform duty structure across commoditiesMore realistic benefits should be given to AEO status holders depending upon the level of accreditation obtained. Current benefits are not commensurate with efforts and time involved in obtaining AEO certificationComplying with import clearances such as Import Licenses for select products

Dimension	Applicable sub-sectors	Details
		<ul style="list-style-type: none">efforts and time involved in obtaining AEO certificationComplying with import clearances such as Import Licenses for select products
	Networking	<ul style="list-style-type: none">Ambiguity around HSN classification w.r.t Indian Customs laws, resulting in risk of violation of concessions provided under Information Technology Agreement (1996)
Government Procurement	Networking	<ul style="list-style-type: none">The Preferential Market Access (PMA) policy prescribes a specified percentage of procurement from domestically manufactured goods. However, the component supply base is non-existent in India which makes the prescribed levels unachievableThe current PMA value addition norms are also unachievable for any manufacturer seeking to make investment due to lack of a local electronics supply and manufacturing ecosystemThe PMA policy prescribes domestic manufacturing criteria at a “product” level which demands all products to be manufactured in India. This may not be feasible from technology, infrastructure, and commercial points of view for any manufacturer willing to make in India
Cost of capital	All	<ul style="list-style-type: none">Significantly higher interest rate as compared withChina, Vietnam, and Thailand, affecting the ability of SMEs/suppliers to reinvestHigher cost of capital and limited access to sources of capital result in higher cost of operations; this hinders private investments

Source: USISPF

Regulatory policies and ease of doing business

Dimension	Applicable sub-sectors	Details
Taxation	All	<ul style="list-style-type: none">High tax burden; GST rate of 18-28% for majority of the products/ componentsConcerns exist about Deemed Dividend and Dividend Distribution tax to enable free cash flow at Group levelConvergence between Transfer Pricing and Customs requiredInadequate litigation resolution mechanism (e.g. HS custom classification disputes to benefit from lower tax incentives)Income tax benefits related to R&D are declining, and are expected to continue declining through 2021For companies which do not have operations in India currently, there are concerns about the rules and interpretation related to GST (on some specific issues like cross charge within different units of company), fixed asset taxes, and preferential policies of income tax
Labour and factory laws	All	<ul style="list-style-type: none">Compliance with antiquated employment laws and resulting operational inefficiencies<ul style="list-style-type: none">Constraints on labour re-trainingLimited flexibility regarding working hoursLengthy processes for plant restructuringRequirement for factory inspector approvals
Pollution/ Environment	PCB/ PCBA	<ul style="list-style-type: none">Standards not aligned to global norms - concerns regarding zero emission policy and the emission standards for waste water and waste gas

Dimension	Applicable sub-sectors	Details
Ease of doing business	All	<ul style="list-style-type: none">Delays in land acquisition, construction permits and property registrationBureaucracy and complexity associated with the execution of schemesUnexpected costs incurred during project execution<ul style="list-style-type: none">Power connectionsPermit delaysCommercial dispute litigation process is cumbersome and needs accelerationReliance on L1 bidding process by Government-owned enterprises is an impediment to<ul style="list-style-type: none">Using better and more efficient technologyLeveraging the skilled talent available

Source: USISPF

Other key industries: Aerospace and Medical Devices

Overview – Aerospace

Indian aerospace industry has been growing annually at a rate of 20% (2018). While the aerospace industry’s value chain consists of four stages, in India the industry is mainly concentrated in Design and Engineering & IT solutions.

Value chain of Aerospace Industry



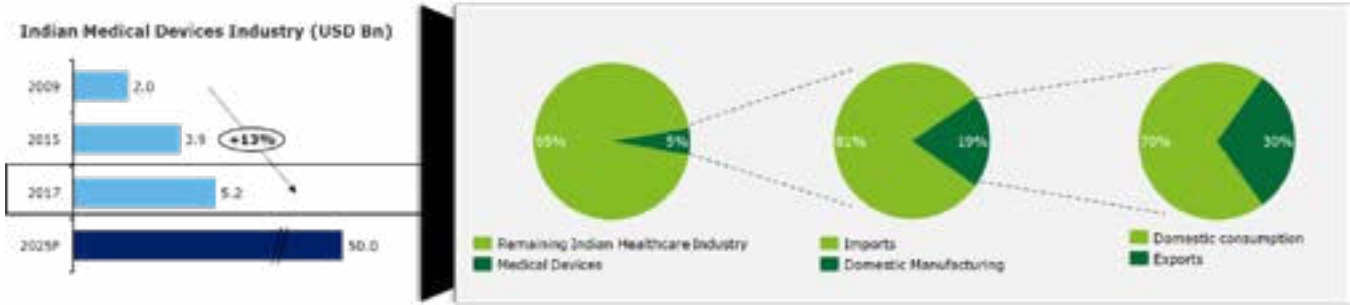
India’s aerospace manufacturing industry is still in its nascent stage as it is traditionally dominated by defense-related manufacturing. Indian Aerospace & defense market to reach more than USD 23 Bn by 2024, and is currently dominated by Hindustan Aeronautics Limited (HAL) and associated suppliers.

During the last couple of years, tier II and tier III suppliers have started making components for the global commercial aerospace market. Increasing global airline traffic, replacement of old fleet in mature markets like Europe, and addition of new aircraft in growing markets like India are some of the key demand drivers for the civil aviation sector. By 2020, passenger traffic at Indian airports is expected to increase to 421 million from ~309 million in 2017-18 (CAGR of 17%, fastest growing domestic aviation market in the world). On a long term basis, leisure travel spending is expected to grow at 7.1% while business travels spending to grow at 7.0% (2018-28).

MRO is also emerging as a major sector with OEMs, airlines, and private MRO service providers setting up their businesses in India. By 2028, the MRO industry is likely to grow over USD 2.4 Bn from USD 0.8 Bn in 2018.

Overview – Medical Devices

Indian medical devices industry is around ~USD 5.2 Bn (2017) and is expected to grow to USD 50.0 Bn by 2025.



Medical devices industry accounts for 5% of the Indian healthcare industry with imports forming ~81% of the total consumption, and 30% of the domestic manufacturing (~USD 0.3 Bn) is targeted for exports. While 750-800 medical devices manufacturers are present in India their average revenue is in the range of USD 6 – 7

Mn. Equipment and instruments account for 54% of the total industry (by revenue), but only ~10% of the same are domestically manufactured.

Currently, per capita medical device spending in India is USD 3 as compared to USD 7 in China and USD 42 in Russia. With growing incomes and expansion of Government schemes like Ayushman Bharat, coverage and access to healthcare is expected to significantly increase over the next few years. Additionally, changing lifestyles have resulted in an increase in chronic diseases (like diabetes) while the share of population above 65 years of age is projected to be 7% by 2020. All these factors are expected to contribute to the growth of medical devices industry in India over the next decade.

Factors impacting manufacturing competitiveness in India

Summary

Similar to Electronics industry, availability of a strong supplier ecosystem is one of the major factors impacting the competitiveness of aerospace and medical devices industries in India.

Dimension	Summary rating	Details
Supplier ecosystem	<div></div>	<ul style="list-style-type: none">50-65% of components (by value) need to be imported
Logistics	<div></div>	<ul style="list-style-type: none">~10% additional cost for importsExport costs are on par with China/ Taiwan
Labour costs and availability	<div></div>	<ul style="list-style-type: none">Costs are cheaper than countries like China, Taiwan and MalaysiaShortage of skilled labour
Incentives/ schemes for cost competitiveness	<div></div>	<ul style="list-style-type: none">Withdrawal of MEIS and high offset (defense) requirements
Ease of doing business	<div></div>	<ul style="list-style-type: none">Documentation delays and ambiguity in interpretation of laws



Details across each of the above dimensions have been provided in the subsequent sections.

Supplier ecosystem and cost of components

Majority of the components required need to be imported, especially for the aerospace industry.

Dimension	Applicable industries	Details
Availability of local suppliers for components	Aerospace	<ul style="list-style-type: none">Lack of good quality suppliers for aerospace
	Medical Devices	<ul style="list-style-type: none">Heavy dependence on global semiconductor suppliers for electronic components
Average share of product cost that needs to be imported	Aerospace	<ul style="list-style-type: none">~60 – 65%
	Medical Devices	<ul style="list-style-type: none">~50%

Dimension	Applicable industries	Details
Key components that require to be imported	Aerospace	<ul style="list-style-type: none">Aerospace grade TitaniumTechnologies for investment castings (Hipping etc.)Raw material production (Nickel based alloys, Titanium based alloys)Special Processes Aerospace technologies – Laser Fuse Welding, Inertial Welding, Flame Sprays, Thermal Sprays, HVOFs
	Medical Devices	<ul style="list-style-type: none">Power electronics (IGBT)Display technologies (Touch screen, capacitive touch etc.)X-Ray detectorsLarge bearingsCryogenic farming (Liquid Helium filling with recovery for MRI)RF amplifiersComposites (Resins for Industrial applications)

Source: USISPF

Logistics
The relatively high share of imports in the components increases the overall cost of products manufactured in India. Besides the additional costs, there are concerns on the time spent on material movement.

Dimension	Applicable industries	Details
Inbound and outbound freight	Aerospace, Medical Devices	<ul style="list-style-type: none">Incremental cost of up to 10% for imports depending on the size of shipmentsImport duty of ~8% in select casesAdditional time for material movementExport freight costs are on par with China/Taiwan

Source: USISPF

Conversion factors and support infrastructure
Labour costs in India are lower than most of the other countries, though availability of skilled workforce is a concern.

Dimension	Applicable industries	Details
Labour costs	Aerospace, Medical Devices	<ul style="list-style-type: none">Competitive labour costs as compared with China, Malaysia and TaiwanCosts are on a par with Indonesia and Vietnam
Skilled manpower availability	Aerospace, Medical Devices	<ul style="list-style-type: none">Skilled workforce is in short supply for both the industries
	Aerospace	<ul style="list-style-type: none">Shortage of skilled resources: Quality, Welders, Technical experts

Source: USISPF

Incentives and ease of doing business

Dimension	Applicable industries	Details
Exports	Medical Devices	<ul style="list-style-type: none">Merchandise Exports from India (MEIS) scheme is being withdrawn to comply with WTO normsLack of clarity on substitute incentive scheme that would be compliant with WTO norms
Defense offset policy	Aerospace	<ul style="list-style-type: none">High offset requirements resulting in increased costs
CapEx	Medical Devices	<ul style="list-style-type: none">While the M-SIPS scheme for CapEx is beneficial, the norms are inflexible and changes are time consuming
Ease of doing business	Aerospace	<ul style="list-style-type: none">High lead time for documentation and ambiguity in interpretation of laws make repairs and service less attractive

Source: USISPF

Conclusions and Recommendations

Given the strong demand drivers across all the focus industries, additional support from the Government in terms of policy changes would significantly improve the competitiveness of manufacturing in India. This would aid investments in manufacturing across the focus industries of electronics, aerospace and medical devices. And in the next 5 years, the expected investments and job creation is ~USD 21 Bn, 550,000 direct jobs, and 1,400,000 indirect jobs.

The policy changes that would be required to drive these investments and attract global companies have been summarized under two areas (near-term and long-term) for further consideration by the Government.

Policy changes required to impact industry conditions in the near-term

Dimension	Applicable industries	Details
Leveraging benefits from Government procurement	Electronics	<ul style="list-style-type: none">Link PMA to exports and rationalize/ align local value-addition norms to achievable targets. Revisions to PMA policy by<ul style="list-style-type: none">Incorporating the 'Substantial Transformation' rules for value-addition as per global norms which adds another option of measuring local value add rather than only based on Bill-of-Material (BOM) %Providing deemed domestic manufacturing credits to OEMs for 100% of their manufacturing volume - independent of product, export / domestic consumption. Credit to be used for supply of imported portfolio products against PMA contracts
	Aerospace (Defense)	<ul style="list-style-type: none">Removal of cap on OEM offset obligation for Tier 1 suppliers and their subsidiariesProvide more incentives along with a standard approach to valuing technology transfer and skillingReduced penalties
Incentivizing CapEx	Electronics	<ul style="list-style-type: none">Extension of M-SIPS (Modified-Special Incentive Package Scheme) to help leverage the advantages in CapEx investment
	Aerospace	<ul style="list-style-type: none">Comprehensive incentive scheme to maximise CapEx investment
	Medical Devices	<ul style="list-style-type: none">Flexibility in M-SIPS norms and improve ease of making changes
Tax reforms	All	<ul style="list-style-type: none">Widen GST coverage by bringing in products/ sectors presently excluded from GST. Eg: Petroleum, Electricity, Real estate, etc. Would help reduce cascading impact of taxes and manufacturing costIn the interim refund of indirect tax on above items and GST on supplies ineligible for credit to be provided for improving cost competitivenessHigher tax benefits for R&D

Imports / Customs	Electronics	<ul style="list-style-type: none">Uniform duty structure across commodities by eliminating anomalies in HSNAppropriate classification of products to mitigate the risk of classification disputesContinue exemption in the form of zero duty for routers and other products as indicated vide the Information Technology Agreement (1996)
	Networking	<ul style="list-style-type: none">Waive PCBA tariff (currently at 10%) to stimulate system integration
	All	<ul style="list-style-type: none">Digitization of import clearance documents for faster clearances with less human intervention
Pollution/ Environment regulations	Electronics	<ul style="list-style-type: none">More comprehensive water discharge policy for the PCB industry considering the low domestic volumes (and resultant scale of operations) expected

Source: USISPF

Policy changes required to impact industry conditions in the long-term

Dimension	Applicable industries	Details
Development of supplier eco-system/SMEs	Electronics	<ul style="list-style-type: none">PMA credits for MNCs sourcing from India for their Global/Indian factories; supports the creation of a viable component eco-system in IndiaTariffs and incentives to be rationalized/ revised in a gradual manner aligned to supplier ecosystem development and production volume pick-up; especially for high-complexity low-volume products
	Aerospace	<ul style="list-style-type: none">Allow OEM's Tier 1 suppliers to support offset obligations uncapped<ul style="list-style-type: none">Would enable India to become a global centre of excellence in specific areas and become more globally integrated throughout the supply chainIncentivise investments in raw material production
	All	<ul style="list-style-type: none">Reduction in interest rates to enable re-investment by SMEs/suppliers
Skilled workforce development	All	<ul style="list-style-type: none">Revision in curriculum for engineering/diploma courses to impart more employability skills for large-scale manufacturing
Factory Acts and labour laws	All	<ul style="list-style-type: none">Reforms in Industrial Dispute Acts, Factory Acts and old labour laws<ul style="list-style-type: none">Remove constraints in re-training and working hoursSmoothen/ hasten process for factory restructuring and approvals from factory inspectors
Tax reforms	All	<ul style="list-style-type: none">Reforms to address Deemed Dividend and Dividend Distribution tax for free cash flow at Group levelImproved litigation resolution mechanismIncentivise foreign investments into India by relaxing foreign exchange controls to enable free movement of capital in and out of the country

Ease of doing business and support infrastructure	All	<ul style="list-style-type: none">• Consistency in policies and expediting of approval processes• Incentives to be worked out at Central & State levels with a 3-5 year horizon for supporting the operations• Enforcement mechanism to ensure Central and State Governments are aligned• Competitive bidding for Government procurement• Improve public infrastructure focussing on ports, road/ rail connectivity, and power availability to reduce costs and improve productivity• Implementation of Trade Facilitation Agreement in complete form to maximize benefits w.r.t ease of doing business• Outreach to Tier-I Electronics Manufacturing Services (EMS) and address concerns for expanding operations in India
--	-----	---

Source: USISPF

Abbreviations

Abbreviation	Details
A&D	Aerospace and Defence
AEO	Authorized Economic Operator
ASIC	Application Specific Integrated Circuit
AT&S	Austria Technologie & Systemtechnik
BCD	Basic Customs Duty
Bn	Billion
BOM	Bill of Materials
CAGR	Compound Annual Growth Rate
EMS	Electronics Manufacturing Services
FCI	Framatome Connectors International
FOB	Freight on Board
FY	Financial Year
GoI	Government of India
GST	Goods and Services Tax
HAL	Hindustan Aeronautics Limited
HS	Harmonized System
HSN	Harmonized System Nomenclature
HVOF	High-Velocity Oxygen Fuel
IC	Integrated Circuit
IGBT	Insulated Gate Bipolar Transistor
IT	Information Technology
L1	Lowest Bidder
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MEA	Middle East and Africa
MEIS	Merchandise Export from India Scheme
MNC	Multinational Corporation
MRI	Magnetic Resonance Imaging
MRO	Maintenance Repair and Overhaul

Abbreviation	Details
M-SIPS	Modified Special Incentive Package Scheme
NXP	Next eXPerience
OEM	Original Equipment Manufacturer
PCB	Printed Circuit Box
PCBA	Printed Circuit Box Assembly
PMA	Preferential Market Access
PV	Photovoltaic
R&D	Research and Development
RF	Radio Frequency
SME	Small and Medium-sized Enterprise
SMT	Surface Mount Technology
ST	STMicroelectronics
STB	Set Top Box
TI	Texas Instruments
TV	Television
UIDAI	Unique Identification Authority of India
UN	United Nations
US	United States
USD	United States Dollar
USISPF	United States - India Strategic Partnership Forum

References

- <https://www.cii.in/sectors.aspx?enc=prvePUj2bdMtgTmvPwvisYH+5EnGjyGXO9hLEcVTuNtzD8aRMyMwXWIukeRiZBns>
- <https://www.ibef.org/download/Aviation-July-2017.pdf>
- <https://www.iata.org/pressroom/pr/Pages/2018-09-04-02.aspx>
- <https://www.iata.org/pressroom/pr/Pages/2018-09-04-02.aspx>
- https://www.researchgate.net/profile/Roger_Moser2/publication/257331755_The_Future_of_the_Indian_Aerospace_Industry_-_A_Delphi-based_Analysis_of_the_Political_Technological_and_Economic_Context_2019/links/56cc534b08aee3cee5436b3d/The-Future-of-the-Indian-Aerospace-Industry-A-Delphi-based-Analysis-of-the-Political-Technological-and-Economic-Context-2019.pdf
- <https://www.financialexpress.com/infrastructure/airlines-aviation/aerospace-industry-growth-in-india-over-two-times-of-gdp-says-md-of-aequs-aerospace/1310231/>
- <http://makeinindiadefence.gov.in/admin/webroot/writereaddata/upload/recentactivity/Indian-Aerospace-Taking-Off.pdf>
- <https://www.bdo.in/en-gb/insights/publications/indian-aerospace-manufacturing-ecosystem>
- <https://www.marketwatch.com/press-release/india-aerospace-defense-market-to-reach-more-than-usd-23-billion-by-2024-growing-at-5-cagr-2018-09-20>
- <https://www.ibef.org/download/Aviation-May-2019.pdf>
- <https://www.export.gov/article?id=India-Healthcare-and-Medical-Equipment>
- <https://www.ibef.org/industry/semiconductors.aspx>
- <https://www.investindia.gov.in/sector/medical-devices>
- <https://www.ifpma.org/wp-content/uploads/2017/02/IFPMA-Facts-And-Figures-2017.pdf>
- <https://www2.deloitte.com/global/en/pages/manufacturing/articles/global-a-and-d-outlook.html>
- <https://esdmindia.in/esdm>
- <https://www.alliedmarketresearch.com/factory-automation-market>
- https://in.nec.com/en_IN/pdf/ElectricalsandElectronicsManufacturinginIndia2018.pdf
- <https://www.ibef.org/industry/consumer-durables-presentation>
- https://www.ibef.org/download/consumer-durables-may_2019.pdf
- <https://www.techsciresearch.com/report/india-led-lighting-market-by-type-led-bulbs-lamps-batten-lights-downlights-etc-by-end-use-sector-commercial-residential-etc-by-application-outdoor-lighting-indoor-lighting-etc-competition-forecast-opportunities/1102.html>
- https://www.skpgroup.com/data/resource/skp_the_medical_device_industry_in_india_.pdf
- <http://www.makeinindia.com/article/-/v/sector-survey-medical-devices>
- http://www.nishithdesai.com/fileadmin/user_upload/pdfs/Research_Papers/The_Indian_Medical_Device_Industry.pdf
- https://www.advamed.org/sites/default/files/resource/medical_industry_in_india_-_the_evolving_landscape_opportunities_and_challenges_white_paper.pdf



Washington DC • New York • Silicon Valley • New Delhi • Mumbai