



सत्यमेव जयते

GOVERNMENT OF GUJARAT

Aerospace and Defence Sector Profile



India Scenario

The image features a dark blue background with the text "India Scenario" centered in a white, serif font. Below the text, there is a large, abstract graphic composed of several overlapping, wavy bands. The colors of these bands include bright yellow, orange, and purple, creating a sense of movement and depth. The bands curve across the bottom half of the image, with the purple band being the most prominent and extending towards the right edge.

Aerospace & Defence Sector Overview : India



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- India has the 3rd largest armed forces in the world
- India ranks 5th globally in military expenditure \$ 63.9 billion (2017) (3.8% of the global military expenditure)
- India's Defence budget for 2018-19: \$ 45.46 billion (INR 2,95,511 crore)
 - Capital Expenditure : \$ 15.32 billion (INR 99,564 crore)
- India's Defence procurement: 60% from foreign sources; 40% from indigenous sources
- The domestic defence manufacturing has been largely dominated by defence public sector units (DPSUs) and ordnance factories, which together make up approximately 90% of the indigenous defence manufacturing output.
- **'Make in India'** program is helping in facilitating investments and fostering innovations for the defence manufacturing sector
- **'Strategic Partnership Model'** will help in enhancing and broadening the role of private sector across various military platforms on a long-term basis; Partnerships between global OEMs and Indian companies can be a faster go-to-market route
- **Government of India has introduced conducive policy reforms for the Ease of Doing Business: Defence Procurement Procedure (DPP 2016), Liberalization of FDI Policy, simplification in Industrial Licensing process, Requirement of single largest Indian ownership of 51% of equity removed, portal for Defence Production (www.makeinindiadefence.com) launched which provides information on policy and procedural processes etc.**
- The **Defence Production Policy 2018 (DProP 2018)** announced by the Ministry of Defence, Government of India aims to put India amongst the top defence production countries, promote domestic production by public sector, private sector and MSMEs as well as establish two defence industrial production corridors
- **Two Defence Industrial Production Corridors planned : Uttar Pradesh and Tamil Nadu**

Aerospace & Defence Sector Overview : India



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- India is world's largest importer accounting for 13% of the total global arms import between 2012- 2016
- Government of India is seeking to expand procurement through indigenous sources, from the current 40% to the target 70% over the next decade
- Major export destinations for India include : Kenya, Bhutan, Ethiopia, Israel, Taiwan, United Kingdom, Nepal, Belgium, Vietnam and Philippines
- Major defence items exported include: personal protective gear, turbo-chargers and batteries, electronic systems, and light engineering mechanical parts, etc.
- Export obligation period for export items for defence, military store, aerospace and nuclear energy has been increased to 24 months from the date of issue of authorization or co-terminus with contracted duration of the export order

Key global exporting and importing countries of major weapons (2012- 2016)

Exporter		Global Share %	Importer		Global Share %
1	USA	33	1	India	13
2	Russia	23	2	Saudi Arabia	8.2
3	China	6.2	3	UAE	4.6
4	France	6	4	China	4.5
5	Germany	5.6	5	Algeria	3.7
6	UK	4.6	6	Turkey	3.3
7	Spain	2.8	7	Australia	3.3
8	Italy	2.7	8	Iraq	3.2
9	Ukraine	2.6	9	Pakistan	3.2
10	Israel	2.3	10	Vietnam	3

India's key import sources (2016)

Rank	Country	Share
1	Russia	68% (\$ 12 bn.)
2	USA	14% (\$ 2.5 bn.)
3	Israel	7% (\$ 1.5 bn.)
4	UK	4% (\$ 0.8 bn.)
5	France	2.5% (\$ 0.44 bn.)
6	Ukraine	1.5% (\$ 0.3 bn.)
7	Canada	0.70% (\$ 0.12 bn.)
8	Germany	0.60% (\$ 0.1bn.)
9	Switzerland	0.40% (\$ 0.07 bn.)
10	South Africa	0.35% (\$ 0.06 bn.)

India's incremental defence exports

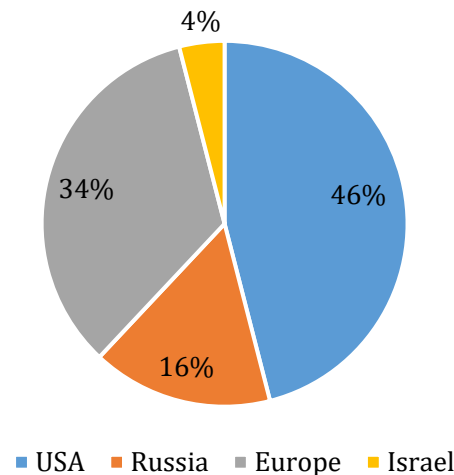
2013-14	\$ 169 mn. (Rs. 1100 crore)
2014-15	\$ 243 mn. (Rs. 1582 crore)
2015-16	\$ 316 mn. (Rs. 2060 crore)
2016-17*	\$ 170 mn. (Rs 1105 crore)



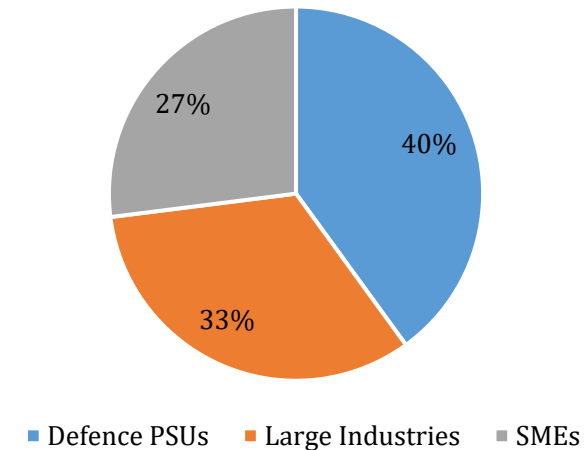
Defence Offset : Overview

- The key objective of the Defence Offset Policy is to leverage capital acquisitions to develop Indian defence industry by:
 - (i) fostering development of internationally competitive enterprises
 - (ii) augmenting capacity for Research, Design and Development related to defence products and services and
 - (iii) encouraging development of synergistic sectors like civil aerospace, and internal security.
- Offset contracts worth \$ 5 billion have been signed with Indian offset industry
- The cumulative opportunity is expected to be between \$ 160-250 billion with a opportunity of around \$ 75 billion as part of the 30% offset obligation for domestic companies

Offset Contracts – Region spread



Offset contracts – Sector spread



Defence Production Policy 2018 (DProP 2018)



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The Defence Production Policy 2018 aims to make India one of the top five manufacturers of defence platforms by creating an environment that encourages a dynamic, robust and competitive defence industry with active participation of public and private sectors

Target to achieve self-reliance across 12 military platforms and weapons systems for production in India by 2025 including fighter aircrafts, helicopters, tanks, warships, guns etc. by creating a tiered defence industrial ecosystem in the country

Aim to achieve a turnover of US\$ 26 bn. (Rs.1.7 trillion) and arms exports to the tune of US\$ 5.38 bn. (Rs.35,000 crore) from defence goods and services by 2025 through additional investment of US\$ 10.77 bn. (Rs.70,000 crore) and creating employment for nearly 2 to 3 million people

Set up Defence Innovation Hubs and facilitate faster absorption of technology to transform India into a “global leader in cyberspace and Artificial Intelligence technologies by capitalizing on India’s IT strengths

FDI up to 74% under automatic route to be allowed in niche technology areas (currently 49%); Licensing process for defence industries to be liberalized and the list of items requiring licenses will be reviewed and pruned

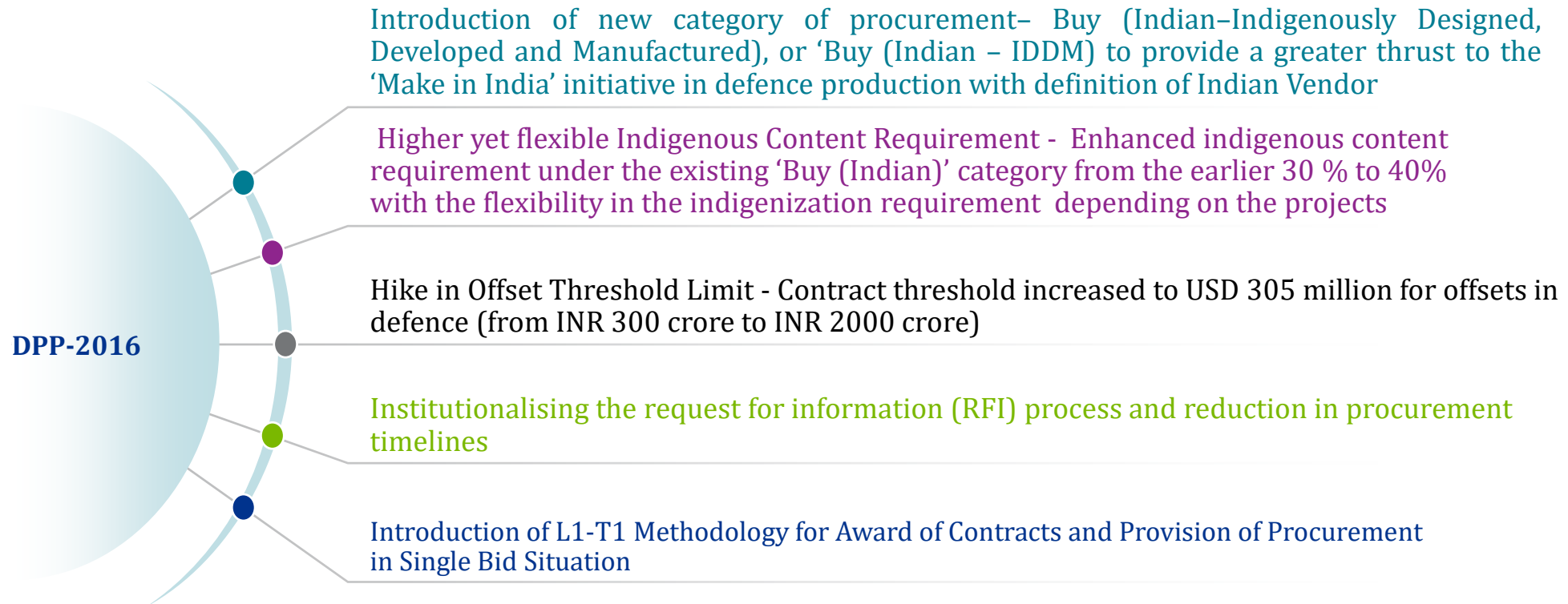
Tax regime to be rationalized to make domestic manufacturing attractive by ensuring there is no tax inversion; taxes on import of capital goods and services, inputs and components used in defence production will be rationalized

DProP 2018



Defence Procurement Procedure-2016

The Defence Procurement Procedure 2016 aims to ensure timely procurement of military equipment, systems, and platforms as required by the Armed Forces in terms of performance capabilities and quality standards, through optimum utilization of allocated budgetary resources





Policy / Regulation Overview

Defence Procurement Procedure (DPP)

- Defence procurement is governed by the DPP; the latest revision of DPP was released in March 2016
- The DPP governs all Capital Acquisitions undertaken by the MoD, Defence Services and Indian Coast Guard
- Defence Procurement Procedure (DPP) 2016 focuses on achieving the 'Make in India' vision by according priority to 'Buy (Indian – IDDM (Indian Designed, Developed and Manufactured)), 'Buy (Indian)' and 'Buy & Make (Indian)' categories over Buy (Global) category of capital procurement

Offset policy

- Mandatory offset requirements of a minimum of 30% for procurement of defence equipment in excess of INR 2000 (USD 307.69 million) from foreign company have been envisaged under "buy" and "buy and make" categories
- Foreign vendors can finalize Indian Offset Partners (IOPs) and offset product details one year prior to the intended offset discharge or undertake the offset activity and submit claims thereafter

Industrial licensing policy

- Defence sector is subject to industrial licensing under Industries (Development & Regulation) Act 1951 and Arms Act, 1959
- Industrial Licenses are granted by Licensing Committee in Department of Industrial Policy and Promotion (DIPP), which takes into account the security clearance of Ministry of Home Affairs (MHA)
- The validity period of industrial licenses has been increased from 3 years to 15 years with a provision to grant extension for a period of 3 years

Foreign Direct Investment (FDI) policy

- 100% FDI permitted if foreign defence firms are willing to provide full technology transfer
- Foreign investment up to 49% is permitted under the automatic route, foreign investment beyond 49% is permitted through government approval route in cases leading to access to modern technology or for other reasons to be recorded
- Requirement of single largest Indian ownership of 51% of equity and lock-in period of 3 years on equity transfer removed
- Lock-in period of three years on equity transfer has been done-away with in FDI for defence

Foreign trade policy

- Barring some specific items, defence equipment can be exported either after obtaining a license from the DGFT for items in the SCOMET list or after obtaining a NOC from the Ministry of Defence
- Standard Operating Procedures (SOPs) for issue of NOC for export of military stores has been simplified and specific timelines prescribed

Gujarat Scenario

The image features a dark blue background with a decorative graphic at the bottom. The graphic consists of several overlapping, wavy bands of color. From left to right, the colors transition from yellow and orange to a deep purple. The bands are layered, creating a sense of depth and movement. The overall composition is clean and modern.

Aerospace & Defence Sector Overview : Gujarat



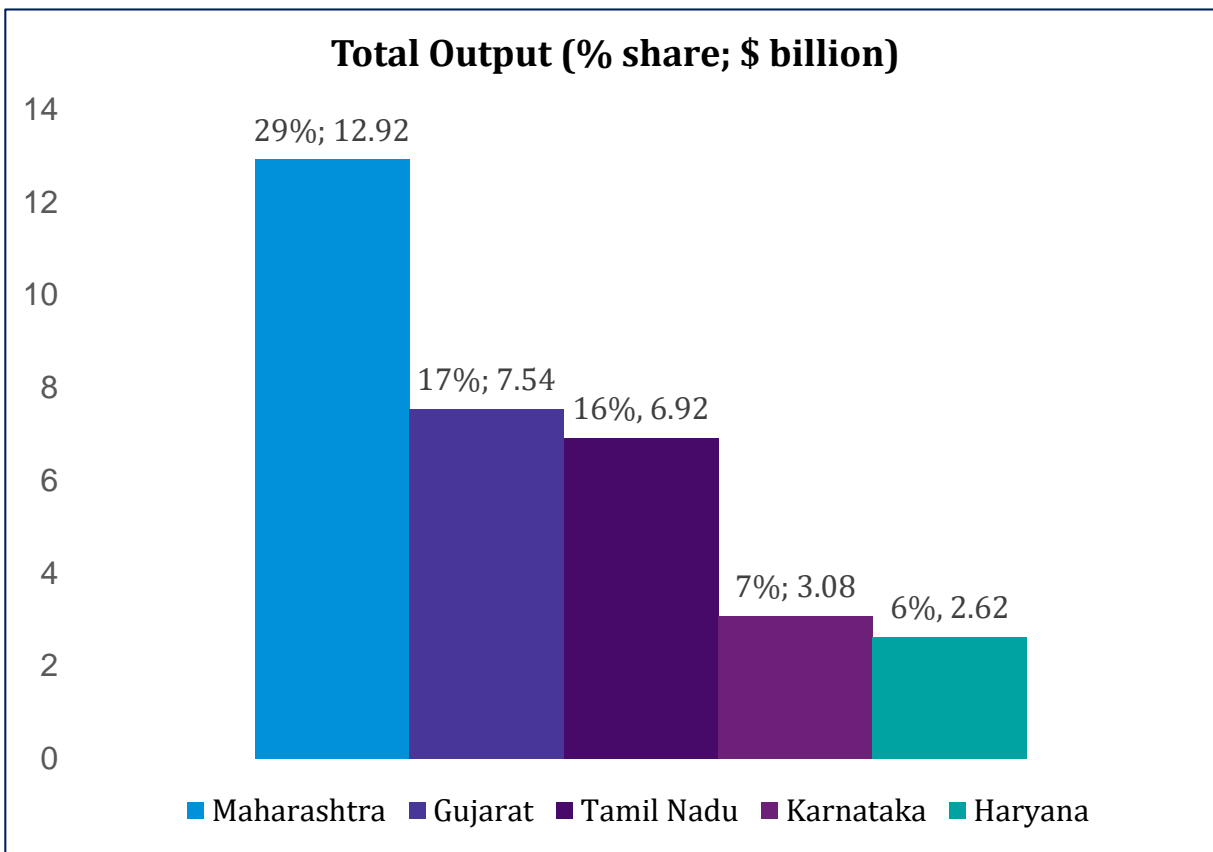
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- As part of the “Make in India” initiative and to promote defence manufacturing sector in Gujarat, Government of Gujarat launched the Aerospace & Defence Policy 2016
- Gujarat’s fundamental strength in the Aerospace and Defence sector is due :
 - integrated industrial facilities with robust infrastructure
 - existing engineering and precision engineering industry as well as due to the presence of a large number of MSME’s which can further supply to the defence offset requirement
 - extensive number of operational shipbuilding yards and dry docks
 - availability of contiguous land parcels for testing range
- Private companies have received 20 licenses for setting up A&D manufacturing units in Gujarat ; the companies would set up the defence manufacturing bases in districts such as Dholera, Kutch, Bhavnagar, Amreli, Kheda, Vadodara etc.
- Gujarat State Aviation Infrastructure Company Ltd (GUJSAIL) is conducting feasibility study to setup an aviation park in Bagodara near Ahmedabad. The park is expected to have facilities such as an airstrip, helipad, training school, and space for setting up small manufacturing units
- With skilled intensive manufacturing capabilities and a robust infrastructure, Gujarat has the right ingredients to become a key link in the Indian defence supply chain

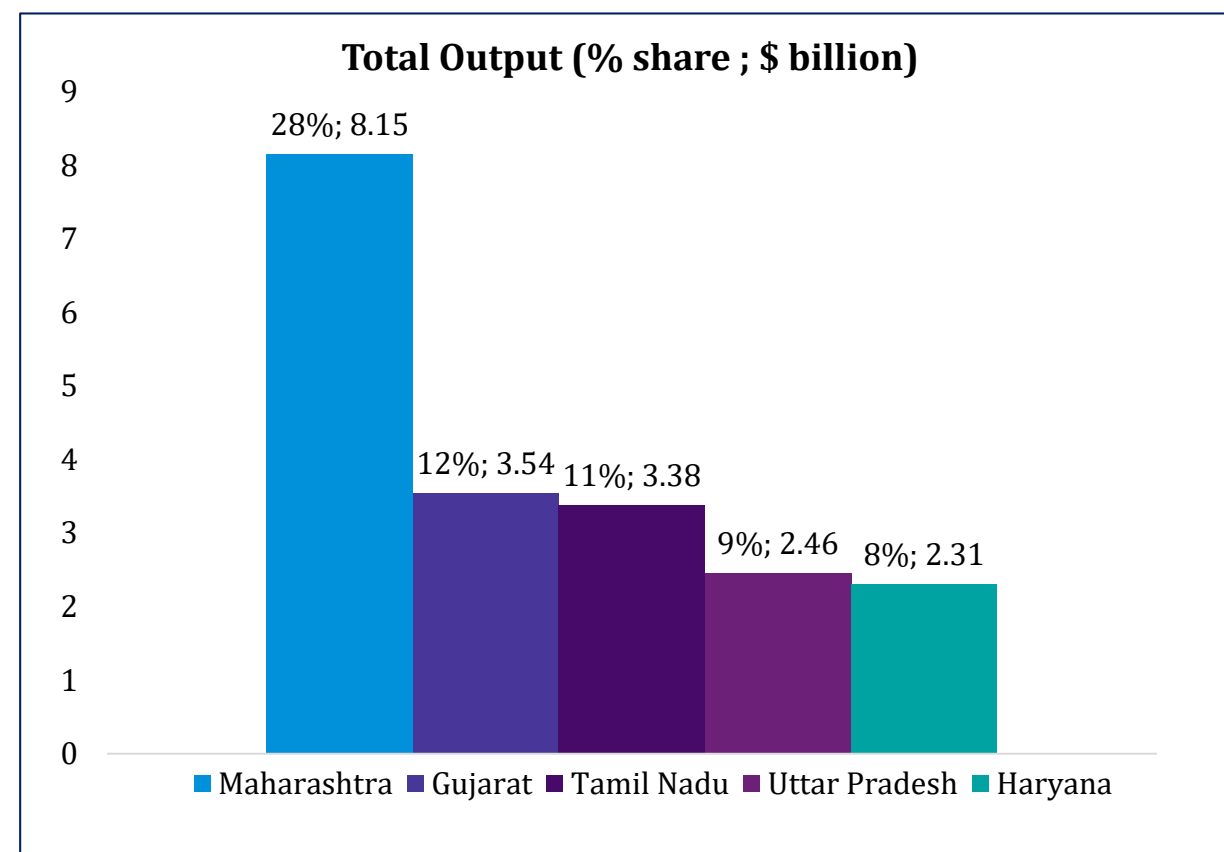
Advantage Gujarat: Manufacturing of machinery and equipment



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Manufacturing of machinery and equipment n.e.c



Manufacturing of fabricated metal products except machinery and equipment



Focus sectors under Gujarat A&D Policy



Artillery



Automotive



Shipbuilding



**Aircraft
Assembly and
Manufacturing**



**Ammunition &
Small Arms**



**Defence-tech
fabrics and
Composites**



**Electronic
Systems**



**Casting &
Forging
Products**



**Maintenance,
Repair &
Overhaul**

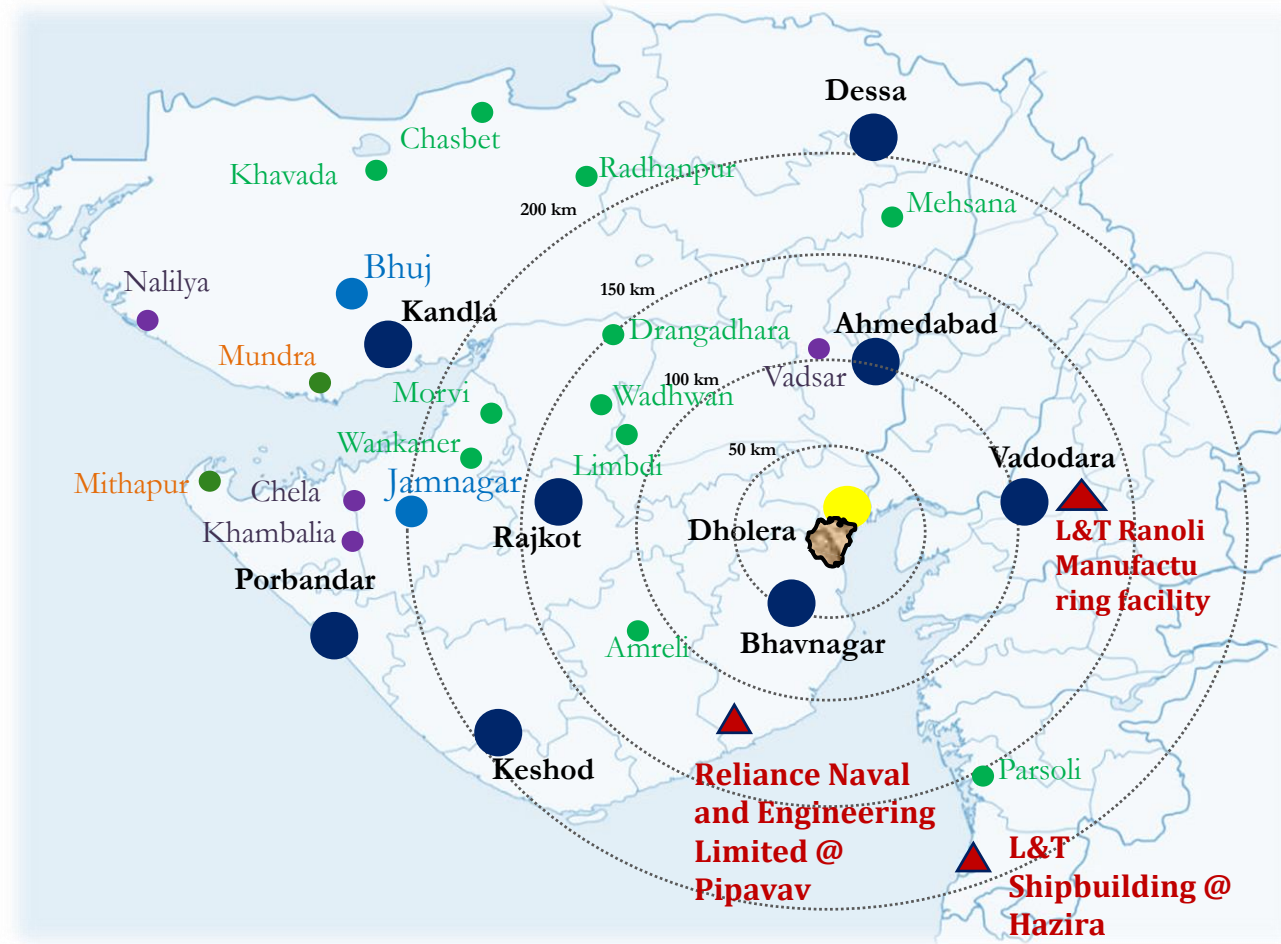


**Research &
Development**



A&D: Key locations in Gujarat

- ▲ Existing private sector defence facilities
- Dholera – Proposed Location for A&D sector development
- Defence Airports
- Airforce Base
- Passenger and Cargo
- State Govt. Airstrips
- Private Airstrips





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Dholera Special Investment Region

Dholera SIR to be the biggest beneficiary of DMIC and DFC

DSIR Advantages:

- Total Notified Area: 920 sq.km.
- Total Developable Area: 422 sq.km.
- World Class Plug & Play and Future Proofed infrastructure for business profitability
- Availability large and contiguous land parcels
- Transparent and Easy Land Allotment Policy Assures Possession within 90 days with dynamic land prices for different land uses
- Best in Class ICT enabled smart infrastructure
- Integrated planning with holistic approach for urban living
- Liveable city planning with high end social infrastructure
- Excellent connectivity with major economic centres

Declared as National Investment Manufacturing Zone (NIMZ)



Gujarat Forensic Sciences University



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- State of the art ISO 9001:2015 certified research center in the field of forensic ballistics has been established at Gujarat Forensic Sciences University (GFSU)
- This is among the first of its kind center in India authorized for testing and reporting of ballistic resistant materials and vehicles
- The ballistic range renders timely services for the defense establishments and various agencies of personal security in the country for the testing of the body protection materials
- GFSU also has a Cyber Defence Centre that is used for cyberwarfare training and cyber-technology development used by government and defence agencies.
- Advanced research laboratories for Cyber Security as well as Chemistry and Biotechnology Forensics established to provide the research environment in the Institute

**BALLISTICS RESEARCH
CENTRE & TESTING RANGE**



Cyber Defence Centre



**Cyber Security and Forensics
Research Laboratory**



**Forensic Chemistry, Forensic
Biotechnology and
Toxicology Laboratory**



Prominent Aerospace & Defence companies in Gujarat



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Larsen & Toubro (L&T) : L&T has 2 state-of-the-art facilities at Ranoli and at Hazira in Gujarat specializing in defence equipment manufacturing & development of defence electronic systems contributing significantly to several strategic programs of the Government of India

- **Hazira Manufacturing Complex (HZMC)** is L&T's state-of-the-art manufacturing facility near Surat in Gujarat. It is one of the world's largest forging facilities
- The '**K9 Vajra T**' artillery guns for the Indian Army are being manufactured by L&T at this facility. **The hull of the nuclear-powered ballistic missile submarine INS Arihant** was also built at the Hazira Facility
- **Vadodara Heavy Engineering Works at Ranoli** - is a specialized facility for Nuclear, Defence and Aerospace industries and is a significant contributor to many strategic programmes and weapon platforms of the Government of India
- The facility has gained expertise in building primary structures for subsonic and supersonic articles and supplies highly critical assemblies for BrahMos cruise missile

Reliance Defence and Engineering Limited (RNAVAL): formerly Pipavav Defence and Offshore Engineering Company Limited) has state-of-the-art shipbuilding infrastructure suitable for construction of a wide range of warships and submarines - Frigates, Corvettes, Patrol Vessels, Destroyers, Aircraft Carriers, ship/ rig repair & conversion, offshore construction & heavy engineering in Gujarat.

- **RNAVAL** is in the process of design and construction of 5 Naval Offshore Patrol Vessels for the Ministry of Defence; Production of first two vessels has commenced and pre-production activities for the other three ships are in progress



Prominent Aerospace & Defence companies in Gujarat



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Adani Aero Defence Systems & Technologies Ltd. is part of the diversified conglomerate Adani Group with interest in design, technology development, technical collaboration, system integration services for Aerospace & Defence equipment and systems

- Collaboration with Israel's Elbit-ISTAR and India's Alpha Design Tech to explore opportunities in the field of Unmanned Aircraft Systems (UAS)
- Collaboration with Punj Lloyd and US-based Rave Gears to manufacture high precision aerospace gears
- Collaboration with SAAB AB of Sweden for the design, development and manufacturing of Gripen fighter aircrafts in India along with other high-tech aerospace and defence products

Investment & Precision Castings Ltd. (IPCL) : The company is engaged in manufacturing a range of machined and ready-for-use steel cast parts and offers products for automotive, aerospace, agricultural, dairy & food processing equipment, defence, instrumentation, pumps and valves, electrical and instrumentation, Earth Moving Equipment, Nuclear and general engineering.

- The company supplies the following parts for Aircrafts & Satellite Launch Vehicles:
 - ✓ Gimbal Box
 - ✓ Pedestal Unit
 - ✓ Structural Castings
- IPCL is the first foundry in India to have received the prestigious "TYPE APPROVAL CERTIFICATION' from 'CENTRE FOR MILITARY AIRWORTHINESS & CERTIFICATION" (CEMILAC), DRDO, Ministry of Defence, Government of India to supply Aluminum Castings (Gimbal Box & Pedestal Unit), to be fitted onboard Light Combat Aircraft "TEJAS"

Prominent Aerospace & Defence companies in Gujarat



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Jaivel Aerospace is an aerospace manufacturing firm that develops manufacturing technologies for structures, engines, actuation systems, landing gears as well as satellites. Jaivel's Intelligent Manufacturing Engineering & Smart Tooling solutions has helped it inspire the trust of Global 100 aerospace clients.

- Jaivel Aerospace has setup an Integrated Aerospace Manufacturing Facility in Gujarat
- Collaboration with Boeing for aerospace manufacturing skill development initiative in Gujarat aimed at accelerating skill development of front-line workers in micro, small and medium enterprises (MSMEs) in the aerospace industry

eInfochips: eInfochips is a solutions provider in critical avionics for commercial, business, military and UAV programs with expertise in DO-254, DO-178B, DO-178C, DO-160 and ARP-4754 compliant avionics systems

- The company is associated with 5 of the world's top 10 commercial aerospace corporations with experience across civil & military systems spanning Level A to Level E criticality
 - DO-178B/C Firmware/Software Development
 - DO-254 ASIC/FPGA/Board Design
 - Mechanical Engineering for avionics systems
 - Testing Services
 - R&D Services
 - Model-based Design and Development compliant with EUROCAE ED-12C/RTCA,
 - PCB/Board Design, Prototyping and Testing

Incentives under Gujarat's Aerospace & Defence Policy 2016



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- Graded interest subsidy for External Commercial Borrowings (ECB) and Domestic Borrowings
- Reimbursement of taxes (SGST)
- Electricity Duty and Power Tariff Incentive
- Capital Investment Cash Subsidy to MSMEs on eligible fixed capital investment
- Reimbursement of training cost of employees as part of Skill Development initiative
- Incentive for setting up R&D centres; Customized incentive packages for Mega and Large A&D Units



Investment Opportunities : Defence capital overview

- \$ 10 bn. (INR 65,000 crore) – Value of Equipment and platforms to be acquired through the “Make in India” or “Buy & Make” route
- Investments in emerging technologies will be one of key areas bolstering growth in the aerospace and defence sector

India's defence project pipeline	
Army	\$ 41.855 bn.
Navy	\$ 69.910 bn.
Airforce	\$ 51.742 bn.
Total	\$ 163.507 bn.

Land Based Systems	Naval Systems	Aerospace	Defence Electronics
<ul style="list-style-type: none"> • \$ 8 billion Futuristic Infantry Combat Vehicle (FICV) program for the Indian Army to produce around 2600 vehicles • Proposal to purchase 7.40 lakh assault rifles, 5,719 sniper rifles and light machine guns @ \$ 2.46 billion • BAE Systems awarded contract for 145 M777 lightweight Howitzers (>\$ 700 million) • L&T awarded contract for 100 self-propelled howitzers 	<ul style="list-style-type: none"> • \$8 billion ‘Project-75 India’ P75(I) programme of the Indian Navy that entails building six advanced submarines • \$ 4.9 billion mine-hunting warships procurement • \$ 3.3 billion naval utility helicopters procurement 	<ul style="list-style-type: none"> • Govt. of India has issued Request for Information for procurement of 110 fighter aircrafts (82 single-seat and 28 twin-seat) with an estimated cost between \$15 billion to US\$20 billion • India has signed a deal to buy 36 Rafale fighter jets from France for around to \$ 8.7 bn. • Procurement of Multi-Role Carrier Borne Fighters (MRCBF) for aircraft carriers 	<ul style="list-style-type: none"> • India’s aerospace and defense electronics market is expected to be worth \$70-72 billion by 2028-29* • Procurement of active towed array sonar systems for the navy at an estimated cost of \$ 70 mn.

Source: Ministry of Defence, Govt. of India; 1 US\$ = Rs. 65 ; India Electronics and Semiconductor Association (IESA), Roland Berger

*surface vessels include destroyers, frigates, cruisers, corvettes, aircraft carriers, auxiliary ships and landing ships



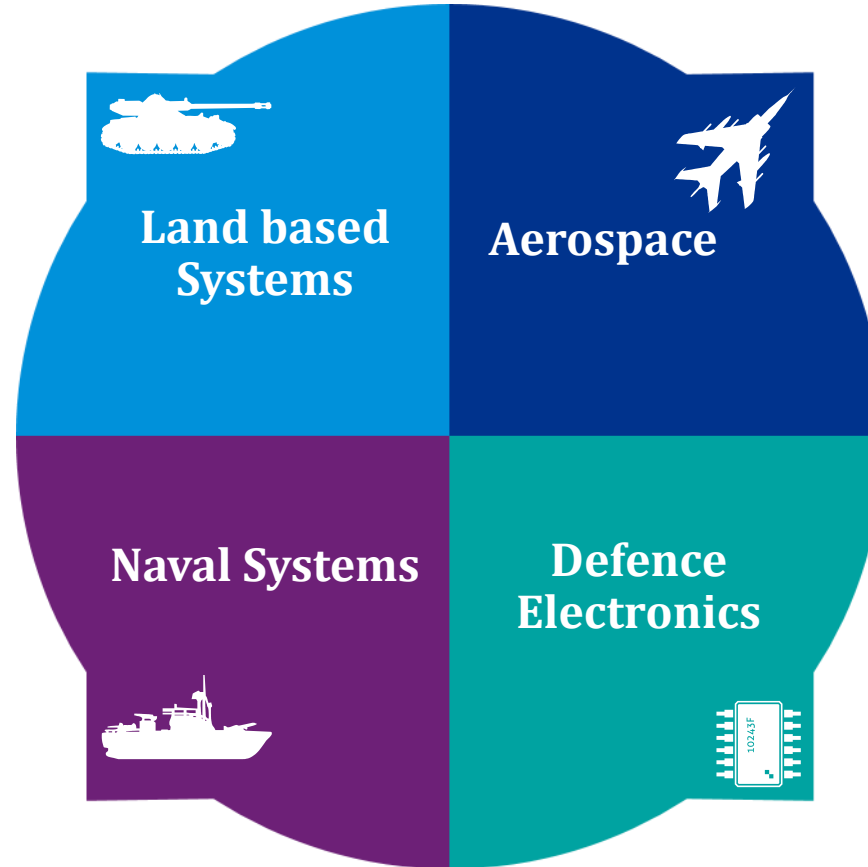
Investment Opportunities

Land Based Systems

- Tanks
- Artillery Systems
- Armored Fighting Vehicles
- All Terrain Combat Vehicles(ATCV)
- Missile Systems
- Multi-barrel rocket launchers
- Arms & Ammunitions

Naval Systems

- Aircraft carriers
- Destroyers
- Frigates
- Cruisers
- Submarines
- Offshore Support vessels
- Torpedoes



Aerospace

- Multirole Fighter Aircrafts
- Trainer Aircrafts
- Weaponized Utility Helicopter
- Reconnaissance & Surveillance Helicopter
- Transport Aircrafts
- UAVs, Pilotless Target Aircraft

Defence Electronics

- Radars
- Infrared Optical Systems, Sonar
- Land- Airborne- Naval based Electronic Warfare Systems,
- Avionics
- Military Communication
- Sensors & Simulators
- Surveillance equipment

For additional information connect us @



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Thank you

