



Uttar Pradesh Aerospace & Defence

**The State with Compelling Investment Opportunities in
Aerospace & Defence Sector**

Aerospace and Defence (A&D) Sector Overview (1/2)

India's A&D industry has transitioned to a globally competitive sector, driven by variety of growth factors...

1 Increasing Capex in Defence

- India's Capex in Defence has grown at a **CAGR of ~12% over last 6 years**
- **Geopolitical situation, modernization and changing defence technologies** are the drivers for increased defence budget
- R&D spends has increased **3x over 10 years**
- In FY25 (BE), **82% of the capital outlay** is allocated towards modernization budget.

2 Growth of Defence ecosystem

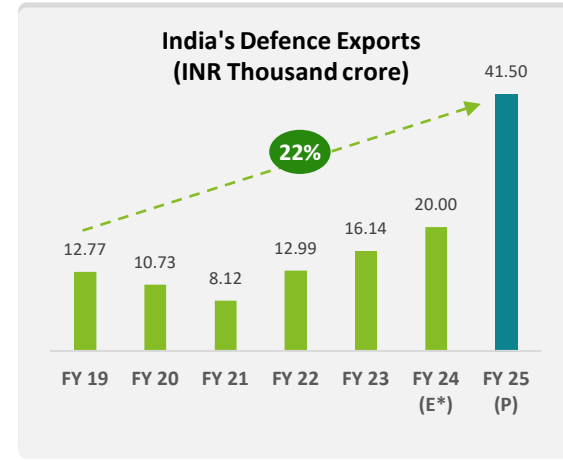
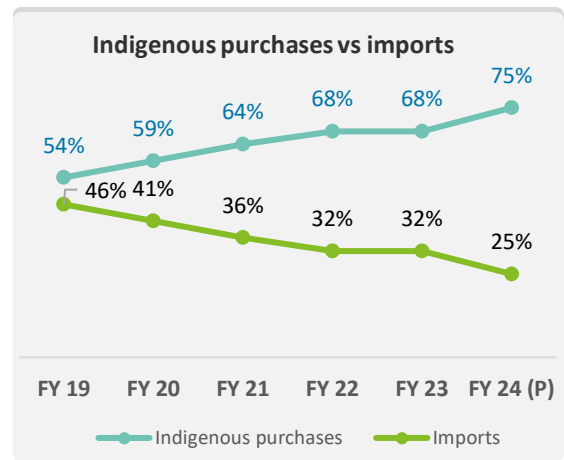
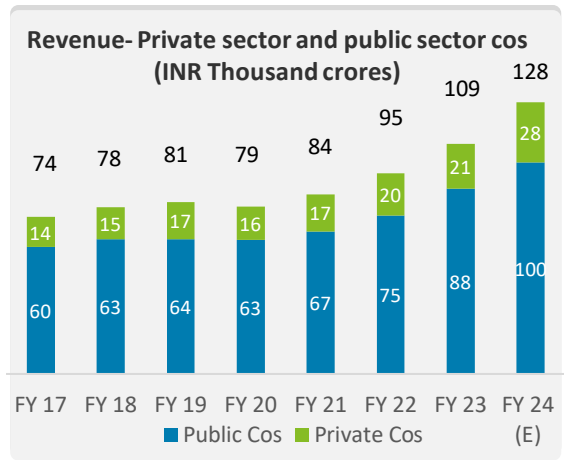
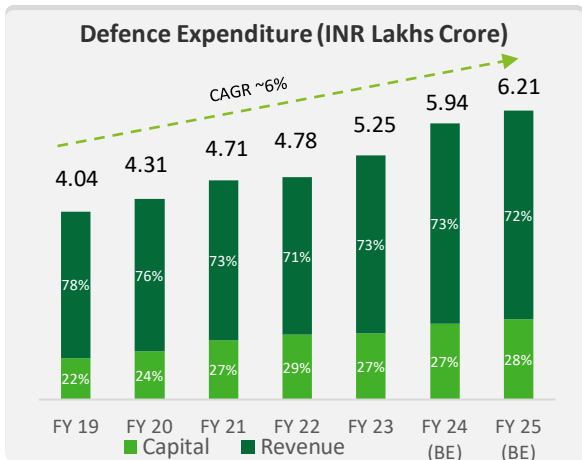
- Share of private companies is increasing with a **CAGR of 7.1% since 2017**
- **65% component and sub-systems** delicensed for private sector
- 7 existing airports with **MRO hubs** in India and 2 upcoming MRO hubs near Jewar.
- India to **spend INR 1 lakh crore on airport infrastructure** with airline carriers placing orders more than 1,600 aircraft

3 Import Substitution

- A&D manufacturing to reach **~INR 2 lakh crore in 2025 with CAGR of ~14%**
- 68% of total capital contract in value terms awarded to domestic vendors in FY23, **target 75% in FY24.**
- Favorable policies like Buy India, import embargo to result in **INR 4.15 lakh crore contract to domestic vendors** in next 5-7 years

4 Export Growth

- India's defence exports increased **8X over 8 years.**
- Defence Exports is estimated to reach **~INR 41,500 by FY 2025.**
- Exports defence equipment to **85+ countries led by 100+ domestic firms** majorly include Dornier-228, 155 mm Advanced Towed Artillery Guns, Brahmos Missiles, Akash Missile System.



Note: Values taken from Defence Production Dashboard
Source: Equity research reports, news run, Department of defence production, MOD

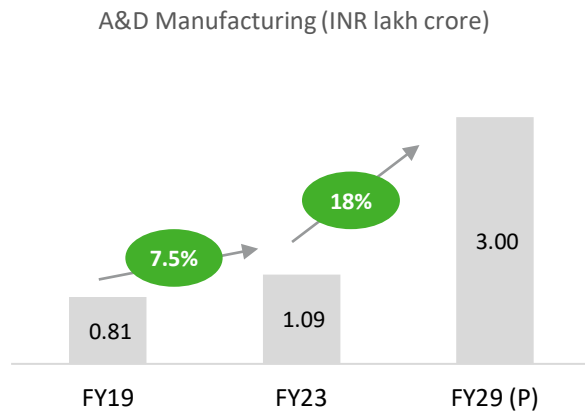
*Target exports for FY 24 as per DDP dashboard

Aerospace and Defence Sector Overview (2/2)

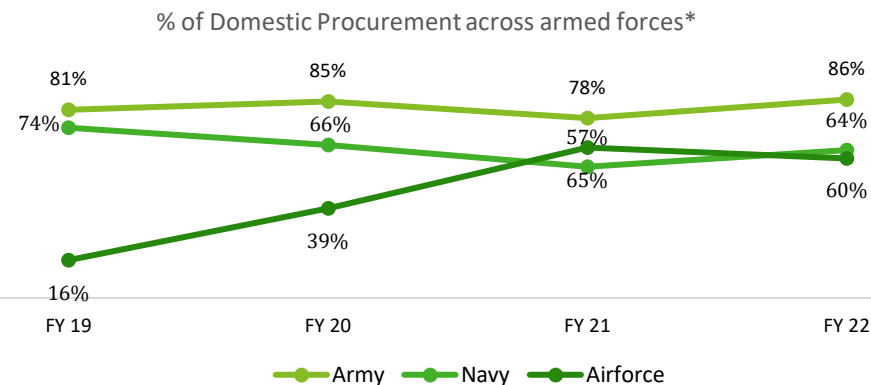
...and a strong push for indigenization led by favorable policies...

1 Focus on indigenous manufacturing with an aim to be self reliant.....

- 122 contracts have been signed for capital procurement of defence equipment, out of which **100 contracts (87%)** have been signed with Indian Vendors during FY 20-21 to FY 22-23,
- **Over 30,000 items** have been listed on SRIJAN portal for indigenization inviting participation from industries



2 ...with all three defence services offering large opportunity for indigenization



*Expenditure incurred on domestic procurement as a % of total modernization budget

3 ..with government policies supporting domestic manufacturing



509 platforms

Under Positive Indigenisation List (PIL)



23 LATOT*

By DRDO till Feb 24



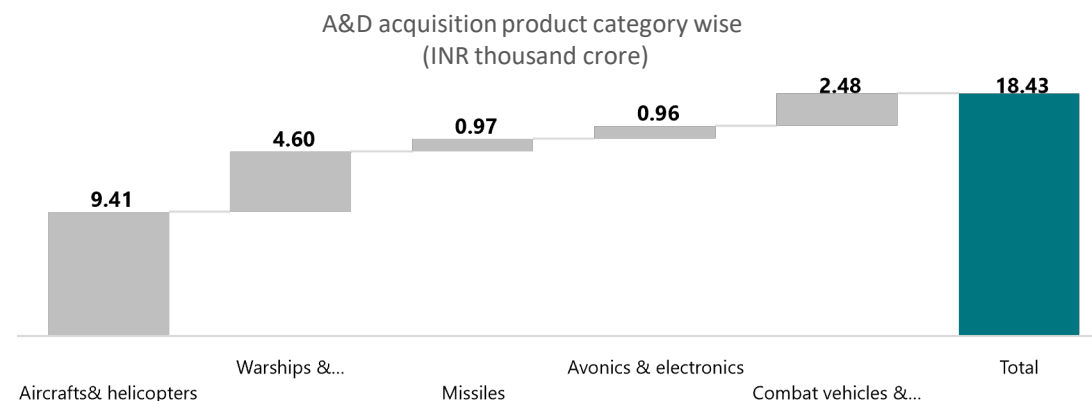
4,666 components

Under Positive Indigenisation List (PIL)



606 industrial licenses issued to **369 companies**

4 ...resulting in substantial order pipeline for the domestic companies in India in next 5-7 years

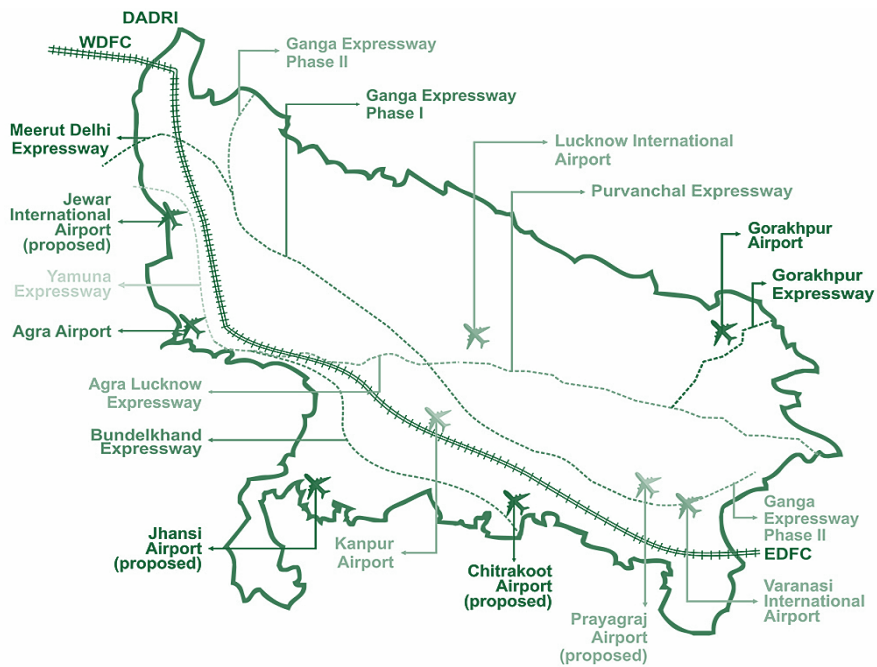
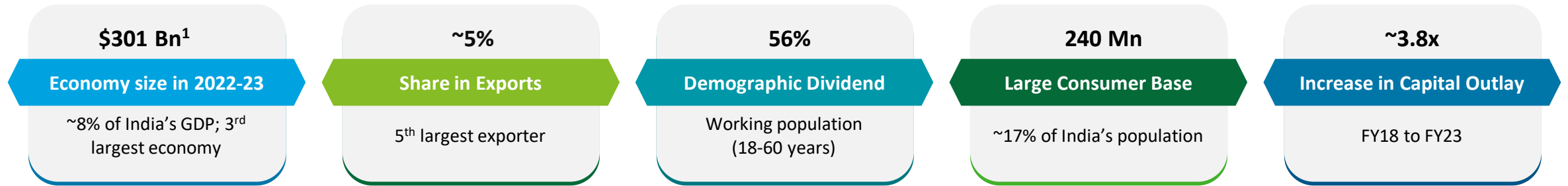


*LATOT : Licensing Agreement for Transfer of Technology

Source : New Articles, Ministry of Defence

UP : A State with Robust and Resilient Economy

UP has the potential to be a prominent manufacturing destination due to its connectivity and demographic advantages...



- 2nd largest** network of roads and expressways (> 400,000 kms)
- Largest railway network** (> 16,000 kms)
- Highest number of **international airports**
- 1st to have **multi modal waterways terminal** on river ganga (5 freight villages planned)
- Eastern **Dedicated Freight Corridor** (~57%) & Western **Dedicated Freight Corridor** (~10%)

Key Enablers

- 1st Rank:** Good Governance Index 2021
- 2nd Rank:** Export Preparedness Index* 2021
- Achiever State:** Doing Business ranking across Indian states
- Achiever State:** Logistics ranking across Indian states 2023

Investor Facilitation Systems

- Nivesh Sarathi:** Dedicated one-stop portal managing each stage of investor lifecycle (from intent to investment grounding)
- Nivesh Mitra:** Single window investor facilitation to provide NOCs/ Clearances/ Licenses
- Online Incentive Management System (OIMS):** For processing, sanctioning and disbursement of incentives

¹Exchange rate assumed as \$1 = ₹75

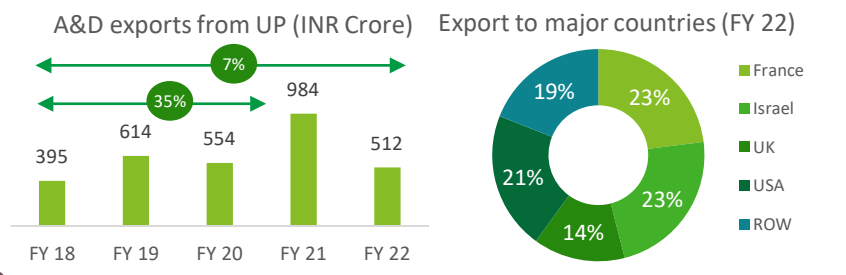
*Among landlocked states

UP : Aerospace and Defence Ecosystem (1/2)

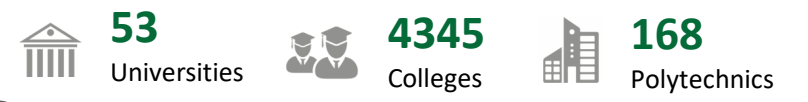
...emerging as an A&D cluster having the necessary infrastructure and expertise..



1 A&D exports from UP



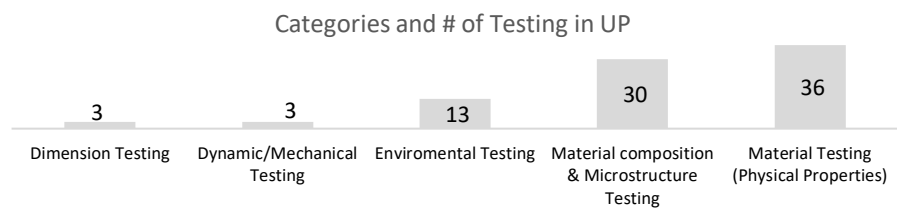
2 Skilled manpower



3 R&D Ecosystem

- DRDO Aerial Delivery Research and Development Establishment, Agra
- DRDO Defence Materials and Stores Research and Development Establishment, Kanpur
- HAL - Aerospace Systems & Equipment R & D Centre, Lucknow
- IIT-Kanpur Aerospace division
- IIT BHU, Varanasi

4 Testing facilities



Source: Equity research reports

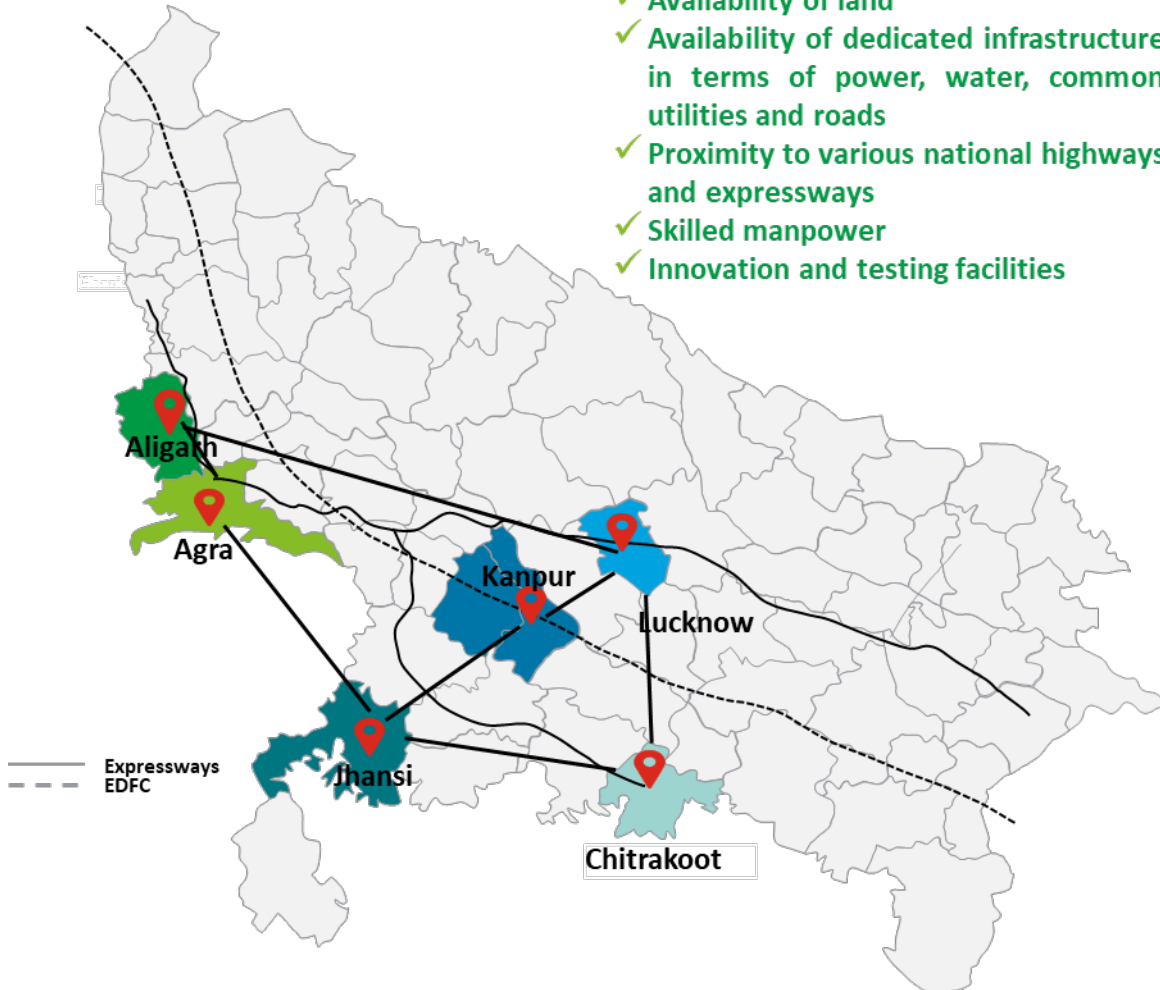
UP : Defence Ecosystem (2/2)

...presenting compelling investment opportunities in UP Defence Industrial Corridor (UPDIC)

6 nodes of the UPDIC

Each node of the Defence Corridor has its unique attributes and strategically selected considering various factors :

- ✓ Availability of land
- ✓ Availability of dedicated infrastructure in terms of power, water, common utilities and roads
- ✓ Proximity to various national highways and expressways
- ✓ Skilled manpower
- ✓ Innovation and testing facilities



Planned Domains in UPDIC

Space	Electronics	Aircraft
Arms & Ammunitions	MRO	Advanced textiles in defence
AI-Based Platforms	Defence testing	Propellants
Precision Manufacturing	Drones	Land Systems and Missiles

MOUs signed and investment confirmed as on March 2024

114 Industrial MOUS confirmed **25** Institutional MOUS confirmed
41 Industries to whom land is allotted **72** MOU Pipeline (under evaluation)

Node	Proposed Investment INR Cr
Kanpur	9,360
Lucknow	2,909
Aligarh	3,237
Jhansi	6,747
Agra	709
Chitrakoot	100

Please refer the next slides for details on each node

UP DIC : Kanpur Node

An industrial and educational centre, Kanpur is becoming a major A&D manufacturing hub with highest investments...

1 Location Advantage

Available Land (in Hectors)	158*
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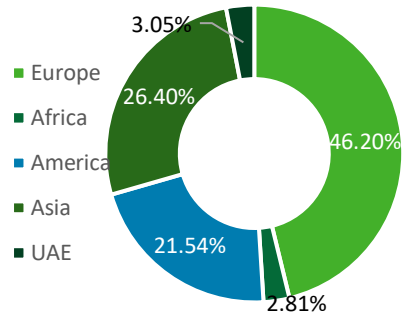


2 Existing Ecosystem

- Presence of companies in :
- Small Arms & Ammunition
 - Defence Textiles and special clothing
 - Manufacturing Aerospace parts

3 Exports from Kanpur

c. INR 500 crore exports of components and parts of Aircrafts, space craft and Arms & Ammunition for FY 22



4 Existing Testing facilities

Defence testing facilities located at 30 – 40 kms from Kanpur node includes :

- Dynamic, Mechanical and Environmental testing – 1
- Material Composition and Micro- Structure Testing - 21
- Material Testing Physical properties – 12

Investment Opportunities

Small Arms & Ammunition

- **Single Window clearance** and license under Nivesh Sarathi
- **Strategic location:** Water supply (Yamuna and Ganga river) and connectivity to railway, national highways and expressways
- Existing **MSMSE ecosystem**
- **Testing facilities of AWEIL** focused on material testing, Chrome plating, crack detection, Spring load testing and fire-proof range
- **Modernization requirements** of armed forces and **import embargo** opens up manufacturing prospects
- Notified under the export list presents **export opportunities**

Bullet Proof Jackets and Special Clothing

- **Strategic location** : Connectivity to railway major national highways, airports and state-owned airstrips
- Proximity to **Kanpur cantonment**
- **Large export share** indicating strong ecosystem of large and MSME players
- Material and fabric **testing facilities of Troops Comfort Ltd**
- Proximity to **R&D institutes**
- **Included in PIL** - presents opportunities for local manufacturing

Precision Manufacturing - Aerospace

- **Strategic location:** Connectivity to railway major national highways, expressways, airports and state-owned airstrips
- Existing **MSME ecosystem**
- **Testing and process facilities of HAL** focused on testing of petroleum and mechanical properties of metals, Non-Destructive Testing etc
- **Included in PIL** - presents opportunities for local manufacturing
- **Acquisition pipeline of INR 9.41 thousand crores** across aircrafts and helicopters

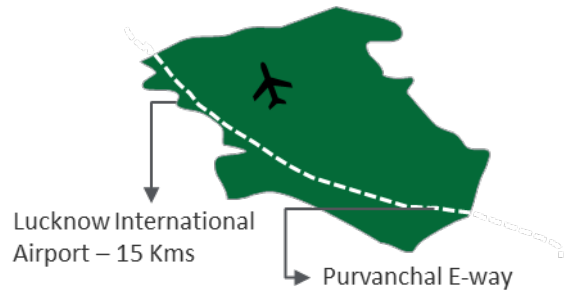
*Due to high demand, GoUP has approved additional acquisition of land at Kanpur- 200 Ha

UP DIC : Lucknow Node

The capital and largest city of UP, Lucknow's presents significantly untapped opportunities in A&D manufacturing..

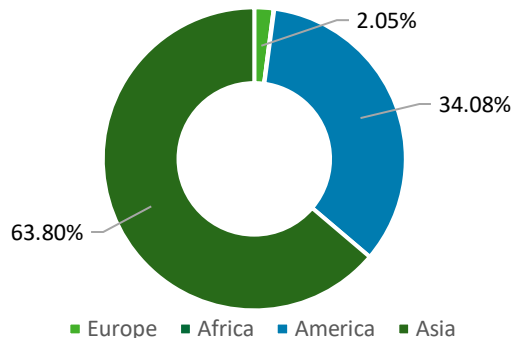
1 Location Advantage

Available Land (in Hectors)	118.73*
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3 Exports from Lucknow

c. **INR 300 Lakhs** exports of components and parts of Aircrafts, space craft; Arms & Ammunition; Ship boats and floating structures for FY 22



2 Existing Ecosystem

- Presence of companies in :
- Missiles manufacturing
 - Aircraft systems, accessories & aeroengine
 - Engineering components and sub-system, Optronics devices
 - Automotive, Machine Tools, Steel, Plastics

4 Proposed Ecosystem

- Under development Aerospace Hub and Aero engine cluster
- Upcoming Defence Testing Infrastructure Scheme
- Upcoming Defence Technology & Test Center (DTTC)
- Missile propulsion & modern production facility

Investment Opportunities

UAV

- **Strategic location:** Connectivity to railway, national highways and expressways
- Existing **startups and MSMSE ecosystem**
- **Education hub - availability of skilled employees** specializing in technology and engineering
- Fixed Wing Mini UAVs, Long range UAV (Hale) **included in PIL** – presents opportunity for local manufacturing
- **Centre of Excellence – Drone Technology (CEDT)** set up in Gautam Buddha University (Greater Noida)

Precision Manufacturing - Aerospace

- **Strategic location:** Connectivity to railway major national highways, expressways, airports and state-owned airstrips
- Existing **MSME ecosystem**
- **Testing and process facilities of HAL** focused on testing of mechanical properties of metals, Non-Destructive Testing, Hot and cold chambers, Rain, Sand and Dust chambers etc
- **Included in PIL** - presents opportunities for local manufacturing
- **Acquisition pipeline of INR 9.41 thousand crores** across aircrafts and helicopters

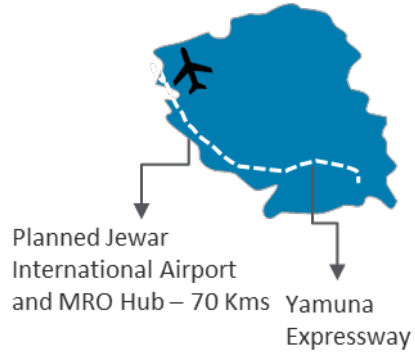
*Due to high demand, GoUP has approved additional acquisition of land at Lucknow- 100 Ha

UP DIC : Aligarh Node

With its strategic significance, Aligarh has the potential for becoming MRO hub and manufacture UAV & Electronics..

1 Location Advantage

Available Land (in Hectors)	90.76*
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3 Proposed A&D industry

- Unmanned Aerial Systems
- Component manufacturing
- Precision manufacturing
- Small arms and metal works
- Defence Packaging
- Electronic Warfare System design, development, manufacturing and integration
- Satellite Space Port

2 Existing Ecosystem

Presence of :

- 20+ MSMEs are in Gautam Buddha Nagar district, focused on manufacturing of Avionics, Defence Electronics and Communication Equipment, Engines, UAVs, etc.
- In Ghaziabad, Advanced electronic products manufacturer and Composites manufacturer
- Metal works and hardware manufacturing

4 Existing Testing facilities

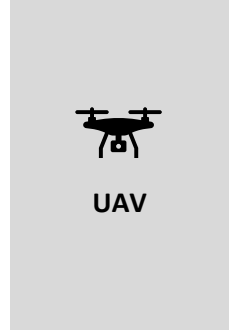
Defence testing facilities located near Lucknow node includes :

- Nearest testing facility at Ghaziabad around 120kms for Dynamic, Mechanical and Environmental testing - 15
- Muradnagar around 130kms for Material Composition and Micro-Structure Testing – 2

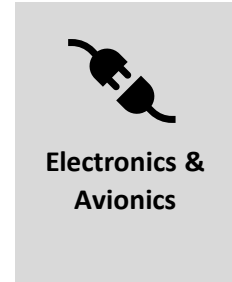
Investment Opportunities



- **2 MRO hubs planned at Jewar International Airport** to be operationalized by 2025
- **MRO policy, 2022** by UP Govt offering subsidies and incentives
- Plans to **set up training institution** to support the MRO facility



- **Strategic location:** Connectivity to railway, national highways and expressways
- Existing **startups and MSMSE ecosystem**
- **Education hub - availability of skilled employees** specializing in technology and engineering
- Fixed Wing Mini UAVs, Long range UAV (Hale) **included in PIL** – presents opportunity for local manufacturing
- **Centre of Excellence – Drone Technology (CEDT)** set up in Gautam Buddha University (Greater Noida)



- **Strategic location:** Connectivity to railway major national highways, expressways, airports and state-owned airstrips
- Existing **MSME ecosystem**
- **Included in PIL** - presents opportunities for local manufacturing
- **Acquisition pipeline of INR 0.96 thousand crores** across electronics and avionics

*Due to high demand, GoUP has approved additional acquisition of land at Aligarh – 100 Ha

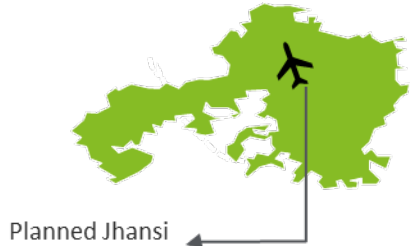
UP DIC : Jhansi, Agra and Chitrakoot Nodes

Available land in Jhansi and strategic location of Agra makes these nodes attractive for investment

Jhansi Node

1 Location Advantage

Available Land (in Hectors)	541.91
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Planned Jhansi Airport

2 Existing Ecosystem


Presence of :

- Missile Propulsion systems
- Portable Bunkers, UAVs, Multi Grenade launcher & Ammunition

3 Proposed A&D industry

- Land systems, arms, ammunition and MRO

Investment Opportunities




Small Arms & Ammunition

- **Single Window clearance** and license under Nivesh Sarathi
- **Strategic location:** Water supply (Pahuj river) and connectivity to railway, national highways and expressways
- Existing **MSME ecosystem**
- **Modernization requirements** of armed forces and **import embargo** opens up manufacturing prospects
- Notified under the export list presents **export opportunities**

Agra Node

1 Location Advantage



Agra Airport

Nearby:

- Yamuna E-way
- Agra Lucknow E-way
- Bundelkhand E-way

2 Existing Ecosystem


Presence of :

- Leather, Textile and Rubber manufacturing

3 Existing Testing facilities

- Nearest testing facility at Hazratpur (Material Composition and Micro-Structure Testing)

Investment Opportunities




Electronics & Avionics

- **Strategic location:** Connectivity to railway major national highways, expressways, airports and state-owned airstrips
- Existing **MSME ecosystem**
- **Included in PIL** - presents opportunities for local manufacturing
- **Acquisition pipeline of INR 0.96 thousand crores** across electronics and avionics

Chitrakoot Node

1 Location Advantage

Available Land (in Hectors)	70
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Planned Chitrakoot Airport

2 Existing Ecosystem

Presence of :

- Avionics system manufacturing near Korwa
- Woodwork manufacturing

3 Proposed A&D industry

- Testing Facilities

Key interventions in UP A&D sector

Uttar Pradesh is implementing several key interventions to promote and enhance Aerospace & Defence sector

Logistics Network Advantage



- 15% of Delhi-Mumbai Industrial Corridor (DMIC) catchment area and 57% of Amritsar-Kolkata Industrial Corridor (AKIC) are located in UP
- Road network of >4 lakhs Km; development of six expressways: the Yamuna Expressway, Agra – Lucknow Expressway, Purvanchal Expressway, Bundelkhand Expressway, Gorakhpur Link Expressway, and Ganga Expressway

Ease of Doing Business



- Single Window approvals and clearances to A&D manufacturing units
- Labor Permits: Govt of UP will permit flexible employment conditions, working hours, employment of women in 3-shifts and hiring of contractual workers, subject to the requisites of respective laws
- Quality Power: 24*7 reliable, quality power to A&D industry as per provisions in Industrial Investment & Employment Promotion Policy



A&D Ecosystem





- UP Govt to establish a Unmanned Aerial Vehicle (UAV) campus in Aerospace Hub, providing exclusive area for UAV OEMs and its component manufacturer
- An integrated testing facility for Unmanned Aerial Systems (UAS) is planned near Kanpur

Support from Government: Key Policy Benefits for Aerospace & Defence Projects

Uttar Pradesh Defence Aerospace Unit and Employment Promotion Policy 2022



Key Policy Highlights

-  **Capital Subsidy** of 7% upto INR 500 cr to all D&A units setting up in Aligarh, Agra, Lucknow and Kanpur nodes of UPDIC.
-  **Capital Subsidy** of 10% upto INR 500 cr to investors in Jhansi and Chitrakoot node of UPDIC's Bundelkhand Region.
-  **Transport Subsidy** for Anchor units- subsidy of 50% of cost, the overall ceiling of INR 2 cr.
-  **Transfer of Technology-** Anchor D&A units shall be reimbursed 75% of the cost.

Other Incentives

- Reimbursement for setting up an Effluent Treatment Plant (ETP) by the D&A units – 20% reimbursement on project cost for setting up ETP upto maximum INR 1 crore.
- 100% reimbursement of patent fees for domestic patent registration.
- 50% reimbursement of the patent fees for international patent registration.
- Trademark Registration application fee reimbursement.



UP FDI and Fortune 500 Policy 2023 – Fiscal Incentives

Major benefits

Capital subsidy

- 25% of *ECI (excluding land cost) in Gautam Buddha Nagar and Ghaziabad regions
- 30% of ECI (excluding land cost) in Paschimanchal and Madhyanchal regions
- 35% of ECI (excluding land cost) in Bundelkhand and Purvanchal regions

Capital Subsidy will be provided in 7 equal annual instalments with annual capping of INR 100 crores

SGST reimbursement/ refund

- **Option A - Net SGST reimbursement on sales:**
 - 100% of net SGST paid for 10 years
 - Annual capping: Upto 10% of ECI, Overall capping: Upto 100% of ECI (excluding land cost and capital subsidy)
- **Option B - Input SGST refund on capital goods:** 100% SGST refund in 5 annual instalment (Applicable only in case of inverted duty structure)

Note: Option to choose any one out of A and B is available

Land subsidy

- Upto 75% in Paschimanchal and Madhyanchal region
- Upto 80% in Bundelkhand and Purvanchal region

Other fiscal benefits

- **Stamp Duty & Registration Fees:** 50% - 100% exemption/ reimbursement

- **Electricity Duty:** 100% exemption from for 5 years

- **Skill development subsidy:** Upto INR 5,000 p.m. per person for 5 years (max. 500 persons)

- **Green Industry Incentives:** 50% capital subsidy on the cost of Effluent Treatment Plant capped at INR 2.5 crores

- **Industrial Housing Incentives:** Reimbursement upto 10% of the cost of development of workers' housing or dormitory for 7 years overall capped at INR 10 crores

- **R&D incentives:** Reimbursement upto 25% of the cost of standalone R&D centre capped at INR 10 crores (with minimum capital investment of INR 20 crores)

- **Centers of Excellence (CoE):** Grant upto 50% of the project cost capped at INR 10 crores per project
Note: Option to choose any one out of above is available

- **Logistics Subsidy:** Reimbursement upto 50% of the transportation cost on import capped at INR 12 crores per unit (in case of shifting of existing plant from international or domestic locations to UP)

- **Patent cost:** Reimbursement upto 75% of the cost capped at INR 10 lakh (for domestic) and INR 20 lakh (for international)

*ECI – Eligible capital Investment

Glossary/Abbreviations

A&D	Aerospace and Defence
AASSC	Aerospace and Aviation Sector Skill Council
AFV	Armored Fighting Vehicles
AME	Aircraft Maintenance Engineer
AOPV	Advanced Offshore Petrol Vessel
ASERDC	Aerospace Systems & Equipment R & D Centre
AWEIL	ADVANCED WEAPONS AND EQUIPMENT INDIA LIMITED
BCIC	Bangalore Chamber of Industry and Commerce
BDL	Bharat Dynamics Limited
BEL	Bharat Electronics Limited
BN	Billion
C4ISR	Command, Control, Communications, Computers (C4) Intelligence, Surveillance and Reconnaissance (ISR)
CAAS	Civil Aviation Authority of Singapore (CAAS)
CAGR	Compounded Annual Growth Rate
DGCA	Directorate General of Civil Aviation
DIO	Defence Innovation Organization
DIC	Defence Industrial Corridor
DISC	Defence India Startup Challenges
DMSRDE	Defence Materials and Stores Research and Development Establishment
DPSU	Defence Public Sector Undertaking
DRDO	Defence Research and Development Organization
DTIS	Defence Testing Infrastructure Scheme
DTTC	Defence Technologies & Test Centre
EASA	European Union Aviation Safety Agency
EDFC	Eastern Dedicated Freight Corridor
EOL	End of Lease
ETP	Effluent Treatment Plants
FCI	Fixed Capital Investment
GCAA	General Civil Aviation Authority (GCAA) of UAE
GDP	Gross Domestic Product
Gol	Government of India
GPS	Global Positioning System
HAL	Hindustan Aeronautics Limited
IAF	Indian Airforce
ICT	Information & Communication Technology
IIT	Indian Institute of Technology
IN	Indian Navy
INR	Indian Rupee

IT	Information Technology
ITeS	Information Technology enabled services
MAOI	MRO Association of India
MBT	Main Battle Tanks
Mn	Million
MOD	Ministry of Defence
MOU	Memorandum of Understanding
MRFA	Multi-Role Fighter Aircraft
MRO	Maintenance Repair and Overhauling
MSME	Micro, Small and Medium Enterprises
NOCs	No Objection Certificates
NSDC	National Skill Development Corporation
OC	Open Challenges
OEM	Original Equipment Manufacturer
PSU	Public Sector Undertaking
PWD	Public Works Department
PIL	Positive Indigenization List
R&D	Research and Development
SIATI	Society of Indian Aerospace Technologies and Industries
SME	Small and Medium Sized Enterprises
SPV	Special Purpose Vehicle
TN	Tamil Nadu
UAS	Unmanned Aerial Systems
UAV	Unmanned Aerial Vehicles
UP	Uttar Pradesh
UPEIDA	Uttar Pradesh Expressways Industrial Development Authority
USD	US Dollar
WDFC	Western Dedicated Freight Corridor
YEIDA	Yamuna Expressway Industrial Development Authority