Fortifying India's I&L Landscape with a New Manufacturing Growth Formula

REPORT

CBRE RESEARCH
September 2024

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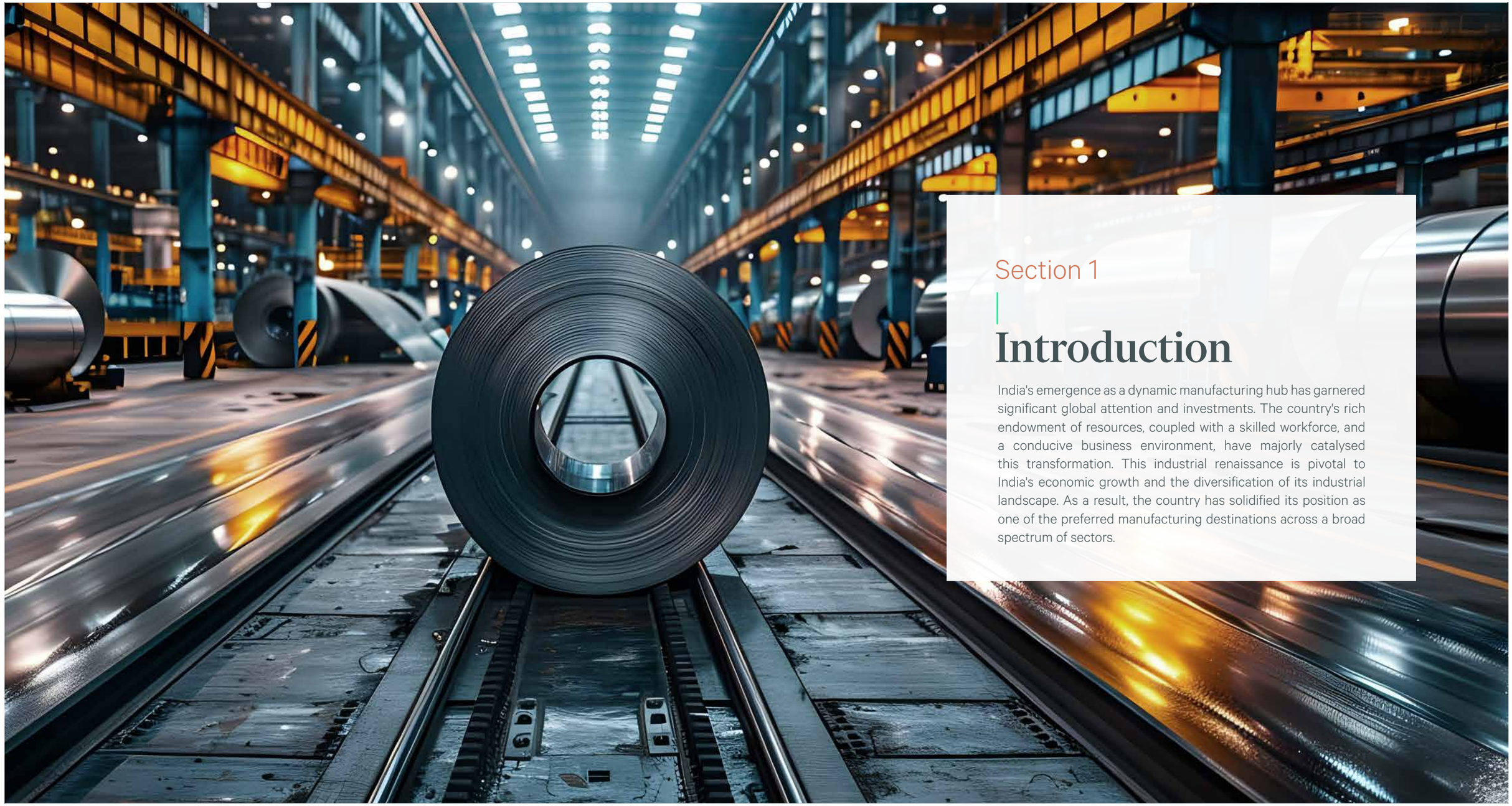

Section 1

Introduction

India's emergence as a dynamic manufacturing hub has garnered significant global attention and investments. The country's rich endowment of resources, coupled with a skilled workforce, and a conducive business environment, have majorly catalysed this transformation. This industrial renaissance is pivotal to India's economic growth and the diversification of its industrial landscape. As a result, the country has solidified its position as one of the preferred manufacturing destinations across a broad spectrum of sectors.

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"The manufacturing sector generates 14% of India's GDP and employs a workforce of over 27 million people."

Amidst an evolving global geopolitical landscape and macroeconomic challenges, India presents a compelling opportunity for growth. The country's manufacturing sector is on the cusp of a transformative journey, attracting significant interest on the global stage. It accounts for a share of 14% of the country's GDP and employs a workforce of over 27.3 million** people. Fuelled by a projected growth rate of 6-7%, India aims to ascend to the coveted position of the world's third-largest economy by 2027[1]. This remarkable trajectory is driven by a combination of factors, including a stable investment environment, strategic government initiatives, and a thriving domestic market. CBRE Research delves into the crucial factors driving India's manufacturing excellence and potential to become a global leader.

Source: CBRE Research, Q3 2024
1. India's March onto the Global Stage, Jeffries Equity Research, February 2024
2. India's push for Infrastructure Development, Invest India, February 2024
3. Digital India: Technology to transform a connected nation, McKinsey, March 2019
4. Ministry of Science & Technology, September 2023
5. Ministry of Power, Government of India
6. Ministry of Commerce & Industry, February 2024
Note. *Household Consumption Expenditure Survey 2022-23, The National Sample Survey Office of India
**As of FY2023-24, MoSPI, May 2024

Figure 1.1: Why India is poised to become a global economic powerhouse

Economic Potential

GDP expected to touch USD 5 trillion, making it the third-largest economy by 2027, overtaking Japan and Germany[1]

Infrastructure Development

Work in progress: 2 lakh-km national highway network by 2025, 23 waterways by 2030, 35 multi-modal logistics parks (MMLPs), and 220 airports[2]

Demographic Dividend

With a 68% working age population, India is set to add 152 million to its middle age population (30-60 yrs), potentially driving savings and investments[1]

Digital Transformation

IT, digital communication services, and electronics manufacturing likely to double their GDP contribution to USD 355-435 billion by 2025[3]

Climate Action

Net zero target by 2070[4]

Renewable Energy Push

500GW non-fossil fuel target by 2030[5]

Manufacturing Boost

Investment of INR 1.07 lakh crore till December 2023 under the production-linked incentive (PLI) scheme[6]

Increased Consumption

Shift towards higher non-food expenditure and a narrowing rural-urban divide; food expenditure in urban areas fell from 42.6% in 2011-12 to 39.2% in 2022-23*

Hydro and Renewable Energy Push

Aims to increase its hydropower capacity by over 50% to reach 67 GW by 2030[5]

Increased Private Investments

Improved private investments driven by sectors including energy & renewables, engineering & construction, real estate, healthcare & life sciences and banking, financial services, and insurance

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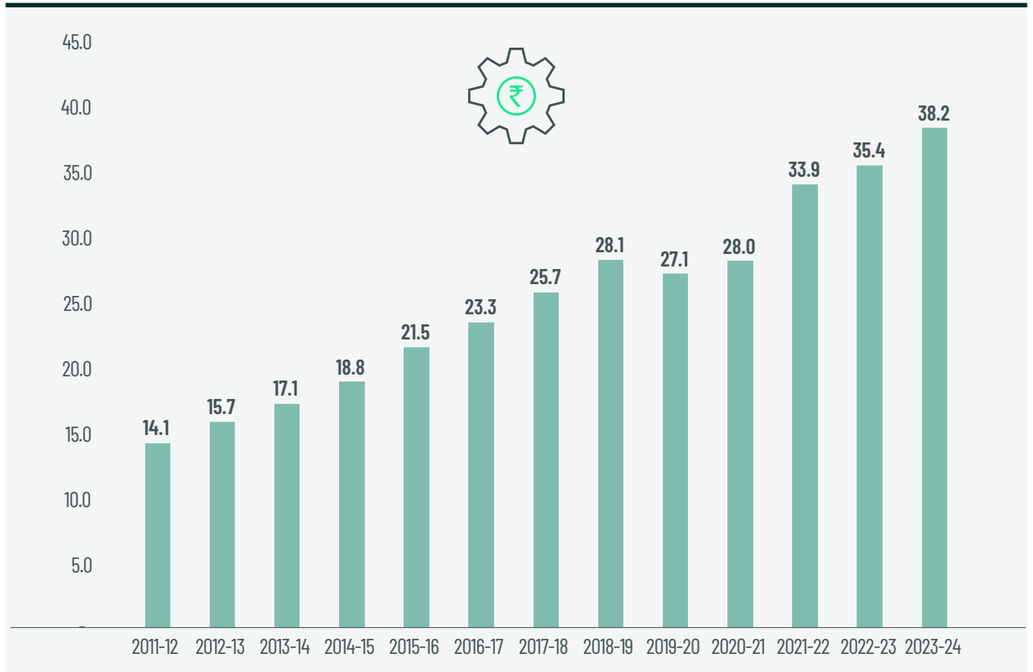
Understanding the Evolution of India's Manufacturing Landscape

India's manufacturing landscape has witnessed a paradigm shift over the last few decades. The 1960s experienced a prioritisation of import substitution strategies aimed at establishing foundational industries to achieve self-sufficiency. However, the 1990s brought in a phase of economic liberalisation and opened doors to private investments and foreign collaborations. This led to a growth in the technology, telecommunications, and automotive sectors, setting the stage for India's manufacturing prowess. During the 2010s, the country strategically leveraged its strengths, including a skilled workforce, a vast consumer market, and competitive advantages in certain industries, to emerge as a formidable manufacturing player.

Figure 1.2: Annual estimates of manufacturing sector's GVA at current prices (INR lakh crore)



Source: Ministry of Statistics and Programme Implementation (MoSPI), CBRE Research, Q3, 2024

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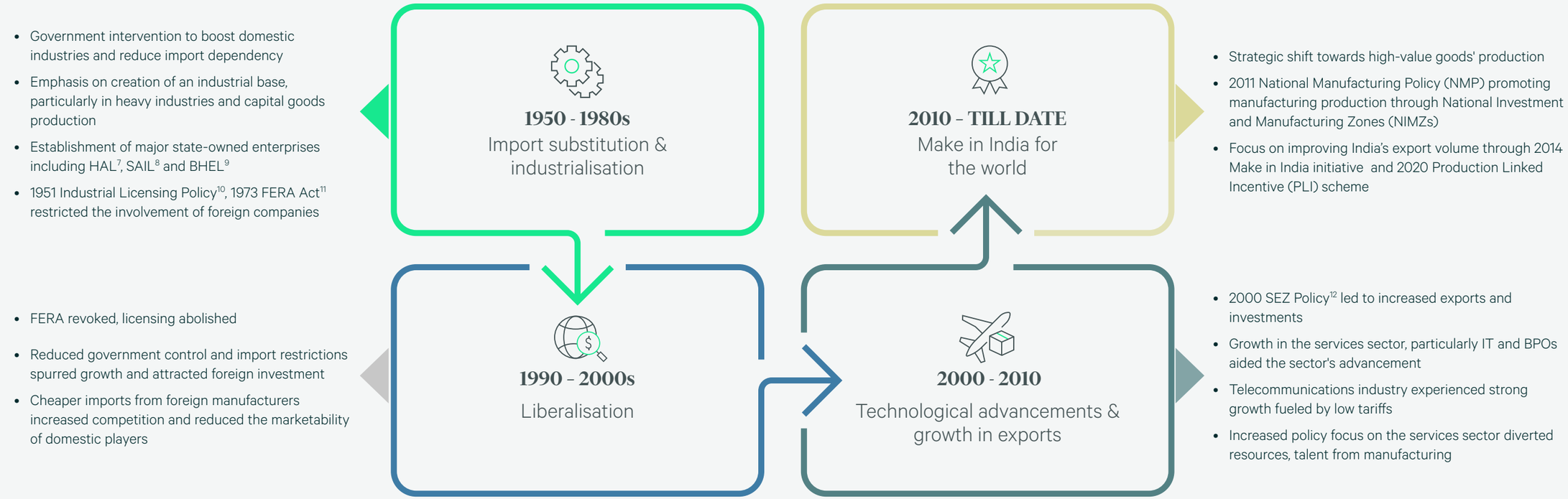
Figure 1.3: Key phases in the evolution of India's manufacturing sector



Source: CBRE Research, Q3, 2024
7. Hindustan Aeronautics Limited
8. Steel Authority of India Limited
9. Bharat Heavy Electricals Limited
10. 1951 Industrial Licensing Policy regulated the entry and exit of industries, making it mandatory to obtain a license to establish a new factory
11. The Foreign Exchange Regulation Act (FERA) was a legislation passed in India in 1973 that imposed strict regulations on payments, foreign exchange transactions, securities dealings, and activities related to the import and export of currency, aiming to control and monitor these aspects
12. The purpose of the 2000 SEZ policy was to attract investments, boost exports, and accelerate industrial development in designated areas by providing special incentives and streamlined processes for companies operating within SEZs

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Section 2

Analysing Manufacturing Growth Catalysts

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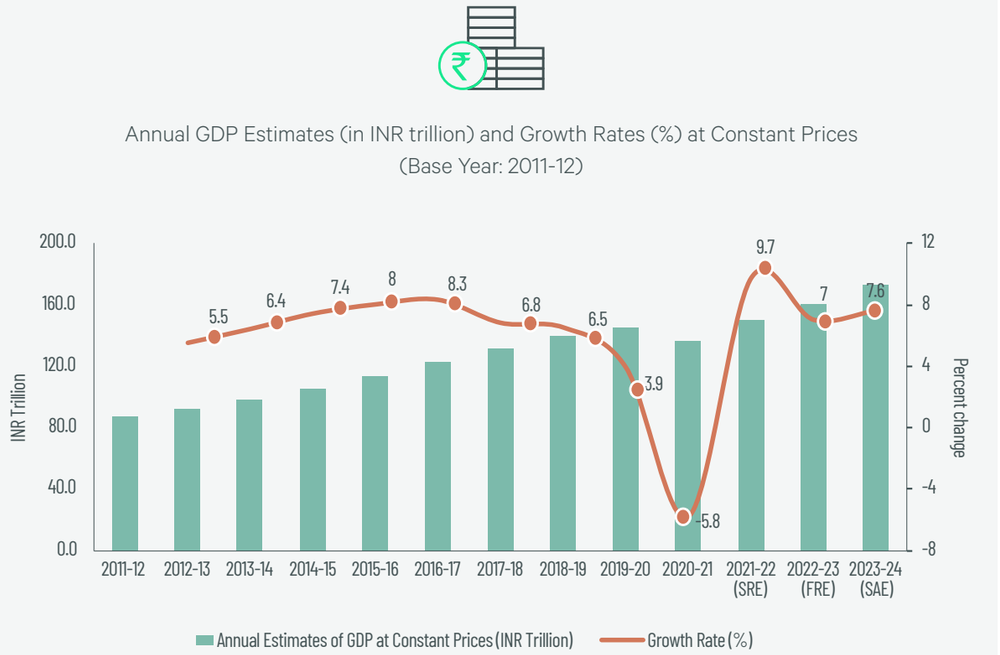
Catalyst #1
A Resilient Economy

India's economy continues to demonstrate resilience, exhibiting sustained growth underpinned by several positive indicators. These include a narrowing current account deficit, near-record foreign exchange reserves, and a healthy fiscal position. The government's commitment to fiscal consolidation, coupled with the Reserve Bank of India's disciplined monetary policy, has established a strong foundation for continued economic expansion. Furthermore, healthy balance sheets across the central government, banking sector, and financial institutions, along with targeted government incentives, are anticipated to set a fresh capex cycle in motion.

With a surging GDP in 2023 and a projected growth rate of 6.5-7% over 2024-2026[13], India emerges as one of the frontrunners in the global economic race. This ambitious goal appears increasingly attainable due to a decade of successful policy reforms that have propelled economic growth. India's economic trajectory is poised for substantial growth, with projections indicating that its GDP will surpass USD 34.7 trillion by 2047. This remarkable expansion is anticipated to translate into a considerable elevation in individual prosperity, as evidenced by a projected per capita income of USD 21,000.[14]

13. What Modi 3.0 means for India's economy, Capital Economics, June 2024
14. Viksit Bharat @2047, PHD Chamber of Commerce and Industry, April 2024

Figure 2.1: India's GDP growth over the years



Source: Ministry of Statistics and Programme Implementation (MoSPI)
Note: Growth rates calculated with respect to previous year - FRE: First Revise Estimate; SRE: Second Revised Estimates; SAE: Second Advance Estimates

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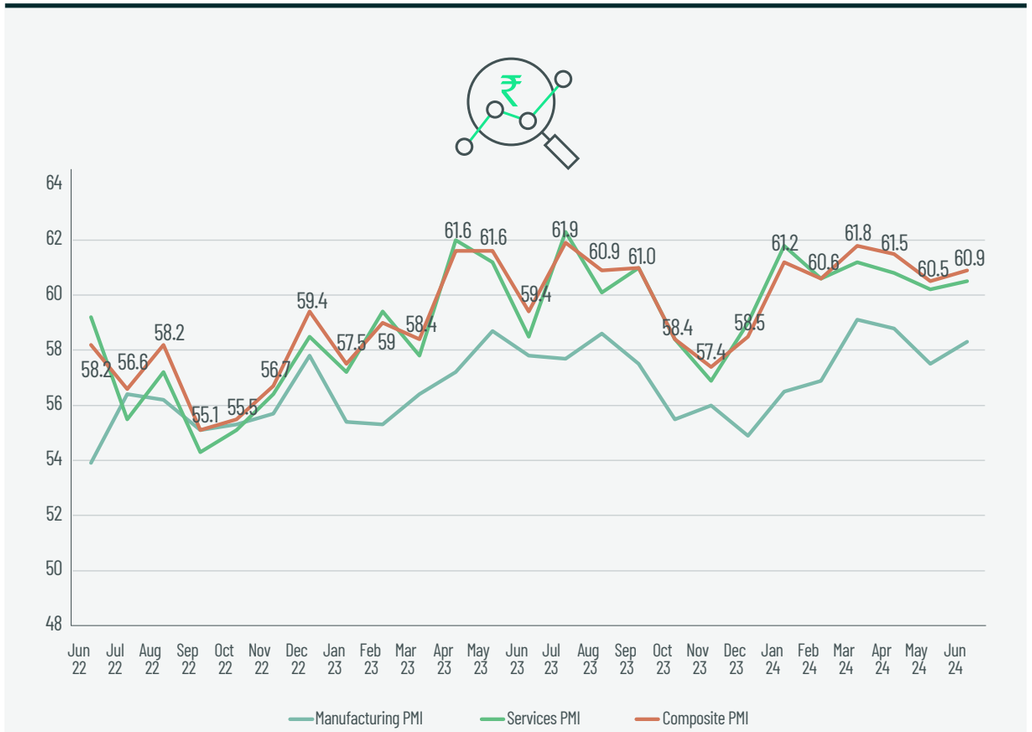
In June 2024, the Services Purchasing Managers' Index (PMI) reached 60.5, indicating the strongest growth rate in approximately 14 years. Similarly, the Manufacturing PMI stood at 58.3, reflecting expansion and the strongest growth in three-and-a-half years. Notably, the consumer services segment experienced the sharpest increase in input costs, reflecting the challenges faced by businesses in managing rising expenses. Despite this, both the manufacturing and service sectors benefited from robust domestic demand, contributing to their growth.

Figure 2.2: India's manufacturing, services and composite PMI trends



Source: S&P Global and HSBC; CBRE Research, July, 2024
Note: A PMI above 50 signifies expansion compared to the previous month, while a PMI below 50 represents contraction. A reading of 50 indicates no change. The greater the deviation from 50, the more significant the level of change.

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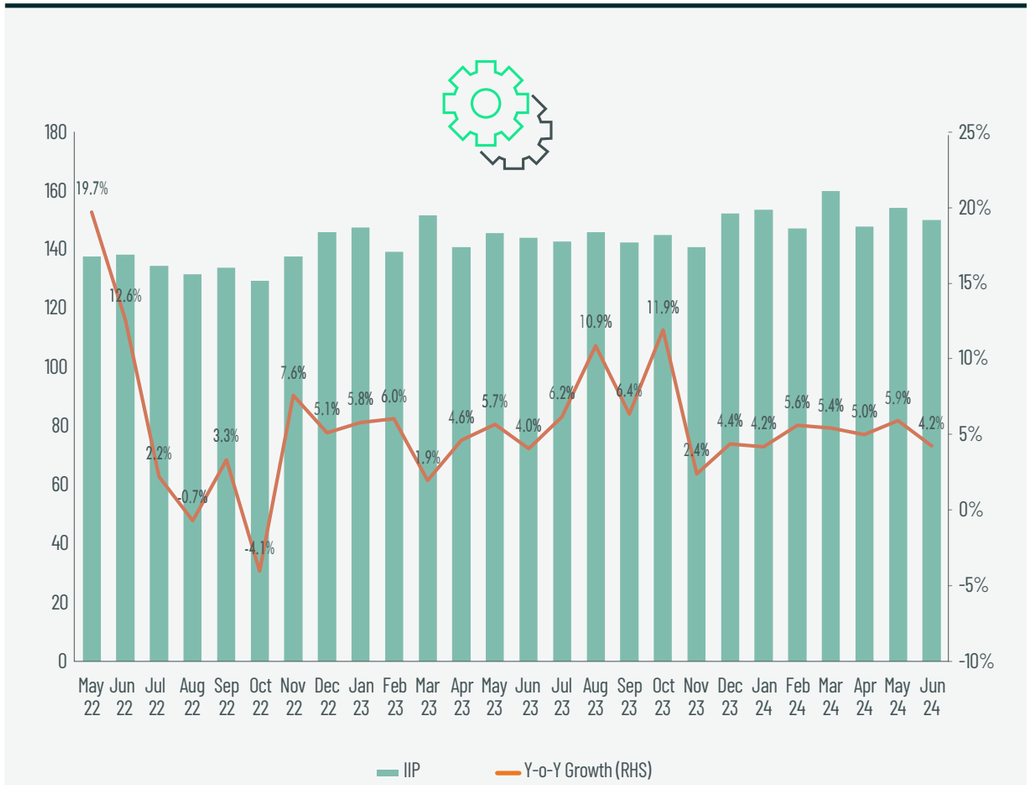
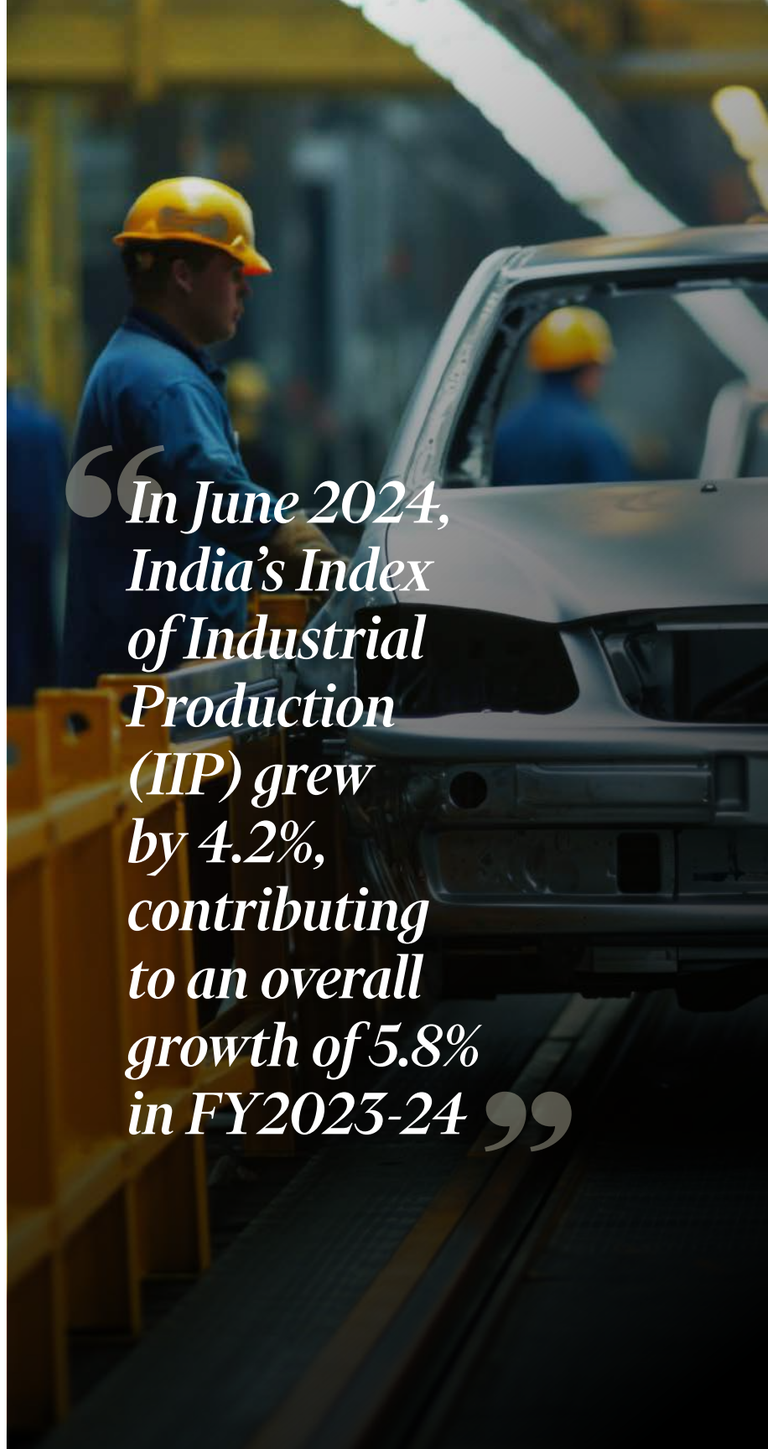
Furthermore, in June 2024, India's Index of Industrial Production (IIP) grew by 4.2%, contributing to an overall growth of 5.8% in FY2023-24. The mining sector witnessed a growth of 10.3%, while the electricity sector registered a growth of 8.6% during the month. The manufacturing sector, with the highest weightage in the IIP (77.63%), grew by 2.6% during the month.

Overall, India's industrial sector exhibits positive momentum, characterised by a surge in production, particularly within the manufacturing sector. This robust performance extends to the mining and electricity sectors as well. These trends collectively paint a promising picture of a favourable economic environment and signify the ongoing advancements propelling the country's industrial landscape forward.

Figure 2.3: India's Index of Industrial Production over the years



Source: MoSPI, Government of India; July, 2024



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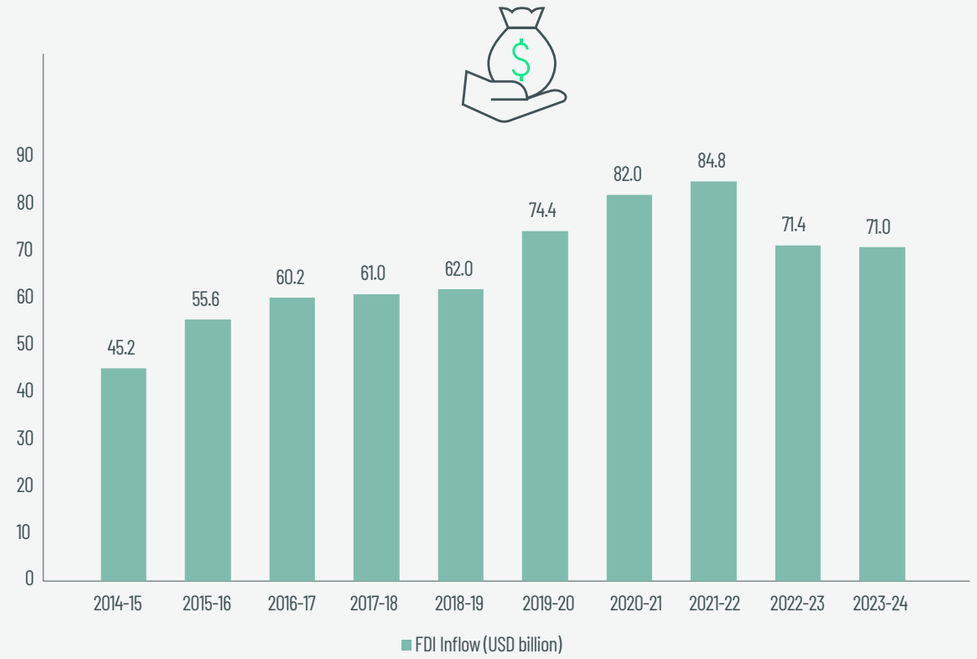
The country has experienced a steady influx of foreign direct investment (FDI) over the years, further strengthening its economic position. One key factor is the streamlined regulations implemented by the government to create a favourable business environment[16] by reducing bureaucratic hurdles and simplifying compliance procedures. Additionally, the digitisation of processes has played a crucial role in enhancing India's attractiveness to foreign investors. The widespread adoption of digital technologies and online platforms has facilitated smoother and faster transactions, making it easier for investors to navigate various processes, such as company registration, tax compliance, and obtaining permits. The digitisation drive has not only improved efficiency but has also increased transparency and reduced corruption risks, further boosting investor confidence.

Figure 2.4: FDI inflows in India[15]



15. Department for Promotion of Industry and Internal Trade, Annual Report 2022-23
16. Business Environment Ranking by the EIU (Economist Intelligence Unit) assesses the overall business climate in different countries and evaluates factors such as political stability, regulations, infrastructure, and market conditions. The ranking helps businesses and investors understand the opportunities and challenges in specific countries, aiding decision-making and risk assessment.

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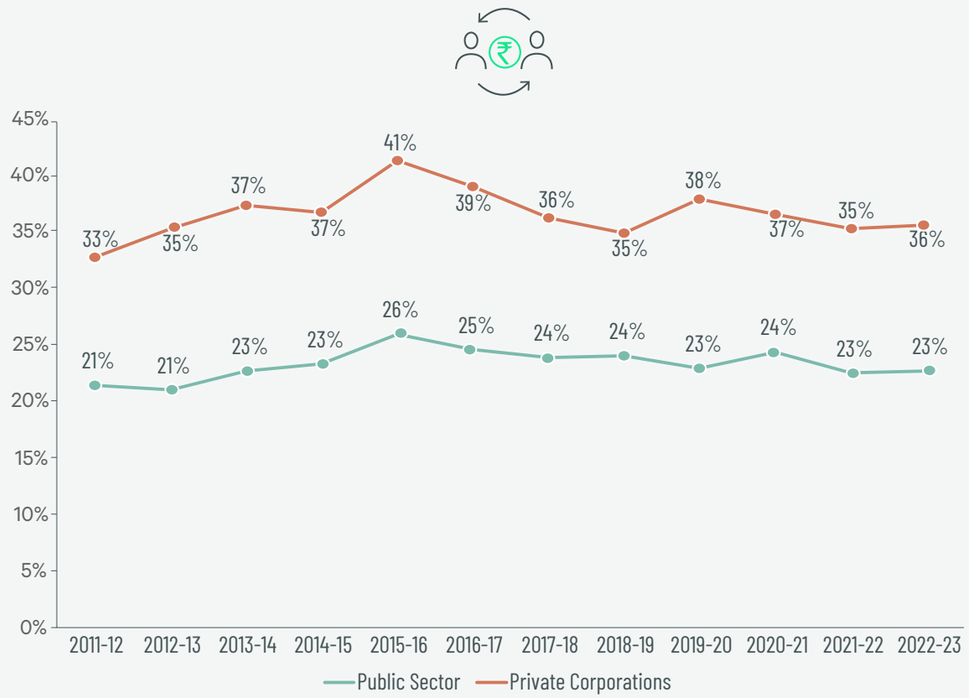
India's Gross Fixed Capital Formation (GFCF) reached approximately 30% of GDP in FY2023-24. The government's strategic response to the economic fallout from the COVID-19 pandemic has centred on a significant expansion of infrastructure spending, focusing on roads, railways, and airports, among other large-scale infrastructure projects. While private investment has exhibited slower growth, the ongoing momentum in government-led capital expenditure is gradually attracting and stimulating private sector participation. This positive trend is anticipated to persist, with the private sector poised to accelerate its contribution to sustaining the economy's growth trajectory.

Figure 2.5: Public and private contributions to the overall GFCF



Source: MoSPI

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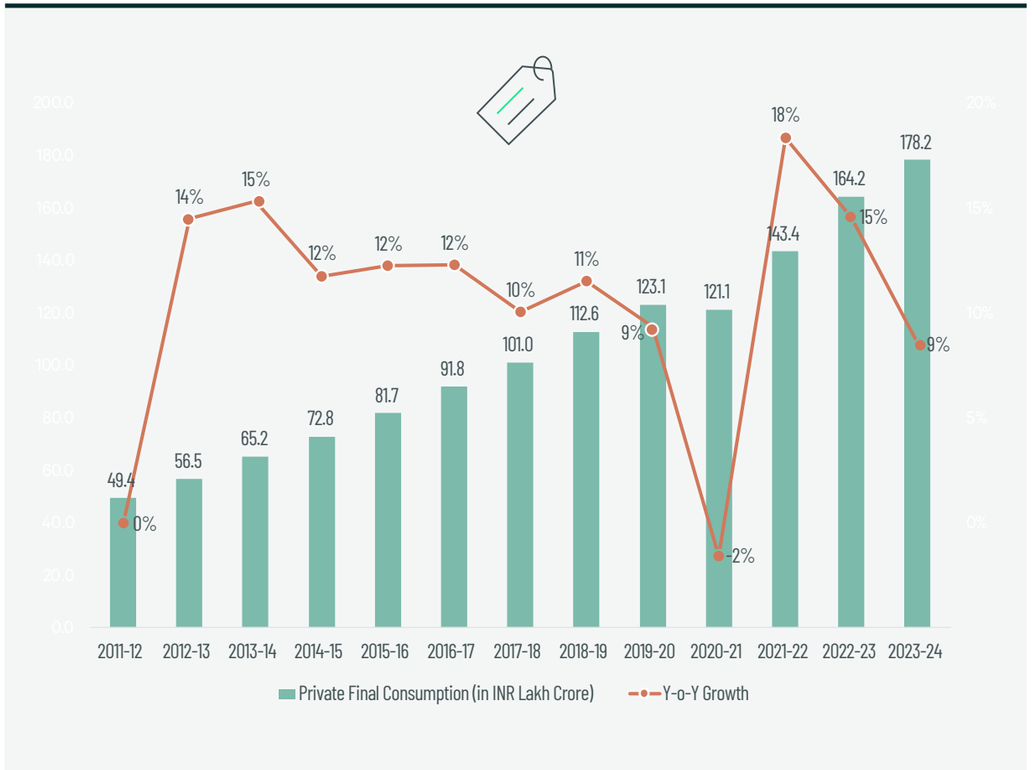
Private Final Consumption Expenditure (PFCE) as a share of GDP has risen from 56.5% in FY2011-12 to 60.3% in FY2023-24, highlighting its pivotal role in driving economic growth. The private consumption bolstered by favourable demographics, rising disposable incomes, and a young, aspirational population, is poised for continued expansion. While there are some concerns around moderating consumer confidence in the broader economic situation, employment, and price stability, the overall outlook remains optimistic. Digitalisation and urbanisation continue to drive demand, positioning the sector for sustained growth in the coming years.

Figure 2.6: PFCE trends over the years



Source: MoSPI

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Catalyst #2

Manufacturing-Focused Policy Enablers and Infrastructure Initiatives

To foster a more competitive manufacturing landscape in the country, the government has implemented a multi-pronged strategy to tackle production costs. This approach encompasses several key policy and infrastructure initiatives.

Tax reforms:

Measures such as reduced corporate tax rates and the implementation of the unified Goods and Services Tax (GST) system liberate capital for manufacturers, enhancing their financial flexibility.

Regulatory streamlining:

Streamlined regulations and expedited approval processes minimise time and resource expenditure for businesses.

Targeted incentives:

Government programmes such as the Production Linked Incentive (PLI) scheme and the Phased Manufacturing Programme (PMP) directly incentivise domestic production, fostering growth within the sector.

Infrastructure development:

Investments in industrial corridors and multi-modal transportation systems contribute to reduced logistics costs and create a business-friendly environment.

The synergistic interplay of these policies is gradually contributing towards decreasing production costs, thereby bolstering India's competitive position within the global manufacturing landscape.

Figure 2.7: Key policies aiding lower production costs

Source: CBRE Research, Q3, 2024

17. ULIP enables seamless access to secure information from multiple ministries, enhancing cargo movement across the country.

18. ELOG is a digital platform that facilitates collaboration between industry associations and the government, ensuring transparency and accessibility in addressing logistics sector issues.

19. SIG focuses on enhancing communication between ministries and advises the government on amendments to cargo movement laws for improved efficiency.

20. MMLPs are integrated logistics hubs that facilitate efficient and seamless movement of goods across different transportation modes, optimising supply chain operations.

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Figure 2.8: Fiscal incentives for manufacturing players

Corporate Tax Cuts

Reduced corporate tax rate to 15% (plus applicable surcharge and cess) for any new domestic manufacturing company incorporated on or after October 1, 2019, and commencing production on or before March 31, 2023. A reduced rate of 22% from 30% for existing domestic companies *(refer to page no. 16 for a comparison of corporate tax across major APAC economies)*

Capital Investment Incentives

Manufacturing companies investing in certain eligible categories of plant and machinery can claim tax benefits under Section 32AC of the Income Tax Act, allowing for an additional deduction of 15% of the actual cost of new assets acquired and installed for manufacturing purposes

Startup Incentives

Startups registered with the Department of Industrial Policy and Promotion (DIPP) eligible for 100% tax exemption during the initial three years. The Union Budget 2024-25 recommended the abolition of angel tax on startups

Research and Development (R&D) Tax Benefits

Manufacturing companies engaged in R&D activities can avail tax deductions for expenditures incurred on scientific research, development, and innovation which includes deductions on expenses related to in-house R&D facilities, contributions to approved research institutions, and other related expenses

Export Promotion Incentives

Manufacturing companies involved in exports can benefit from tax incentives such as the Merchandise Exports from India Scheme (MEIS) and the Export Promotion Capital Goods (EPCG) scheme. Provision of duty credits, exemptions, or concessions on imported raw materials, capital goods, and other inputs used in the manufacturing process through these schemes

Source: CBRE Research, Q3, 2024

Figure 2.9: Sectoral investments through the PLI scheme

Incentives worth USD 29 billion have been budgeted over 5-10 years; investments worth USD 44 billion have been committed in FY 2022-23

	Incentives budgeted (USD billion)	Investments committed (FY23; USD billion)
Semiconductors	9.1	2.5
Mobile	4.9	1.3
Automobile	3.1	9.3
Food processing	1.3	0.7
White goods	0.75	0.8
Solar	0.5	11.7
Pharmaceuticals	1.8	2.7
Telecom	4.5	0.5
Textiles	1.3	2.3
IT hardware	0.6	0.3
Medical devices	1.3	0.1
Advanced chemistry cells	2.1	5.6
Speciality steel	0.75	5.3
Drone & drone components	0.6	0.6

Source: Advantage India: What makes India ready for global manufacturing investments?, PwC, 2023

To attract investments and stimulate economic growth, various Indian states are proactively pursuing specific manufacturing sectors. These states are implementing a range of policy measures, including simplifying approval processes for new factory setups, and offering financial incentives such as tax incentives and subsidies, to entice manufacturers.

This targeted approach aims to establish dedicated hubs for particular industries, fostering knowledge exchange, infrastructure advancement, and a skilled workforce within those sectors. *(refer to page no. 17 for a few key state policies driving manufacturing growth in India).*

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Figure 2.10: Corporate tax comparison across major APAC economies (FY2023-24)

Source: Extending concessional corporate tax rate: A significant boost for India's manufacturing ecosystem, KPMG website, January 2024
Indonesia Corporate Income Tax Rate, HSBC website, December 2023
ACCLIME-Malaysia website
Thailand – Corporate taxes on Corporate Income, PWC website, February 2024 Vietnam Briefing
Note: Corporate tax is a direct tax levied on a corporation's profits, collected by a government as a source of income

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State-wise Policies Driving Manufacturing Growth

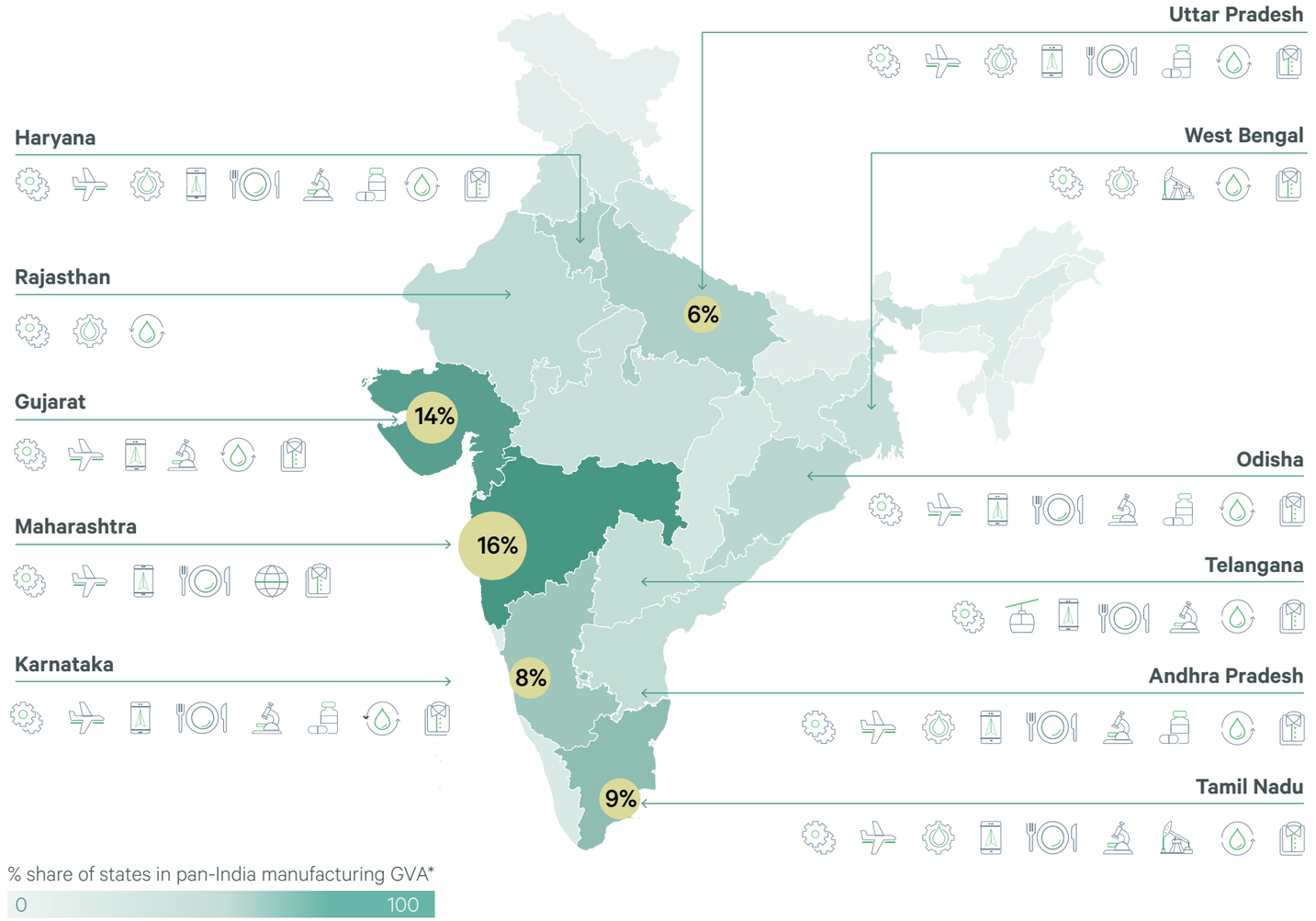
India's manufacturing ecosystem has been experiencing rapid and exponential growth across diverse sub-sectors, including automobiles & auto components, chemicals, medical devices, pharmaceuticals, telecommunication, electronic systems etc. To foster consistent growth and enhance productivity, numerous state governments have proactively adopted dedicated policies for the manufacturing sector. These states have developed a comprehensive range of targeted incentives and recommended regulatory frameworks, as illustrated in figure 2.11

LEGEND

- Automobile & auto components
- Aviation
- Chemicals
- Drone & drone components
- Electronic systems
- Food processing
- Medical devices
- Metals & mining
- Pharmaceuticals
- Renewable energy
- Textiles & apparel
- Telecommunication

% Indicates % share of the top 5 states contributing to the pan-India manufacturing GVA*

Figure 2.11: An overview of states with dedicated policies for various manufacturing sectors



Source: Annual Survey of Industries, Ministry of Statistics and Program Implementation (MoSPI), GoI, 2021-22; Respective state government websites; CBRE Research, Q3, 2024

Note: *Gross Value Added (GVA) is the value that states have added to the goods and services bought

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Top Five States Contributing to India's Manufacturing Sector

1st largest contributor to India's GSDP as of FY 2021-22

1st In terms of attracting FDI as of Oct-19 - Dec-23

11% % share of factories in India

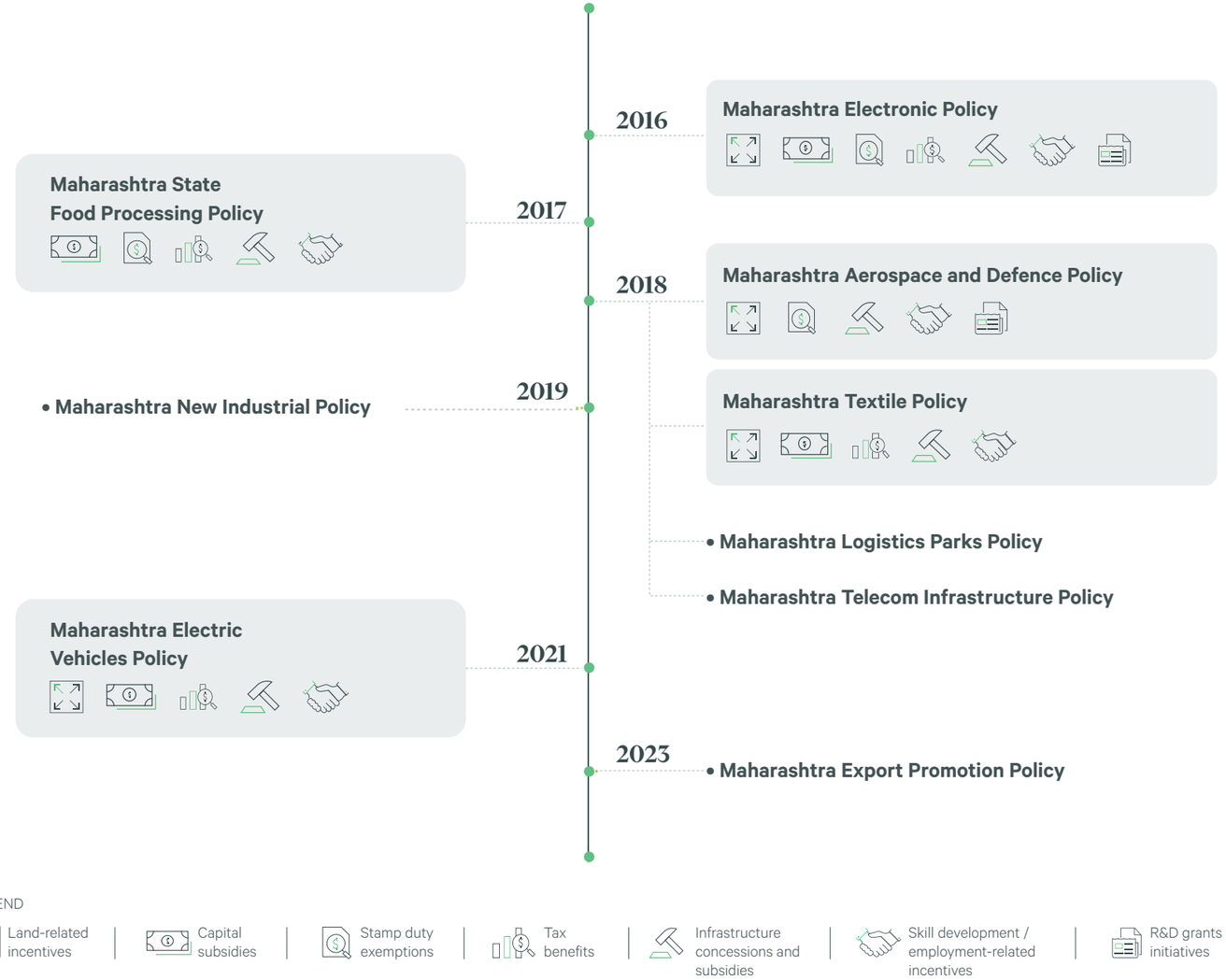
11% % share of workers in India

14% % share of India's total manufacturing output

Maharashtra

Source: Annual Survey of Industries, MoSPI, GoI, 2021-22, 2021-22, Oct-19-Dec-23; CBRE Research, Q2 2024

Figure 2.12: Maharashtra: A few key manufacturing-oriented policies



Source: Maharashtra Industry, Trade and Investment Facilitation Cell (MAITRI), Government of Maharashtra, 2024; CBRE Research, Q3, 2024

Note: In a few cases, though the policies do not directly mention about a particular incentive, an indication of indirect initiatives have been considered

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Top Five States Contributing to India's Manufacturing Sector

2nd
largest contributor to India's GSDP as of FY 2021-22

3nd
In terms of attracting FDI as of Oct-19 - Dec-23

12%
% share of factories in India

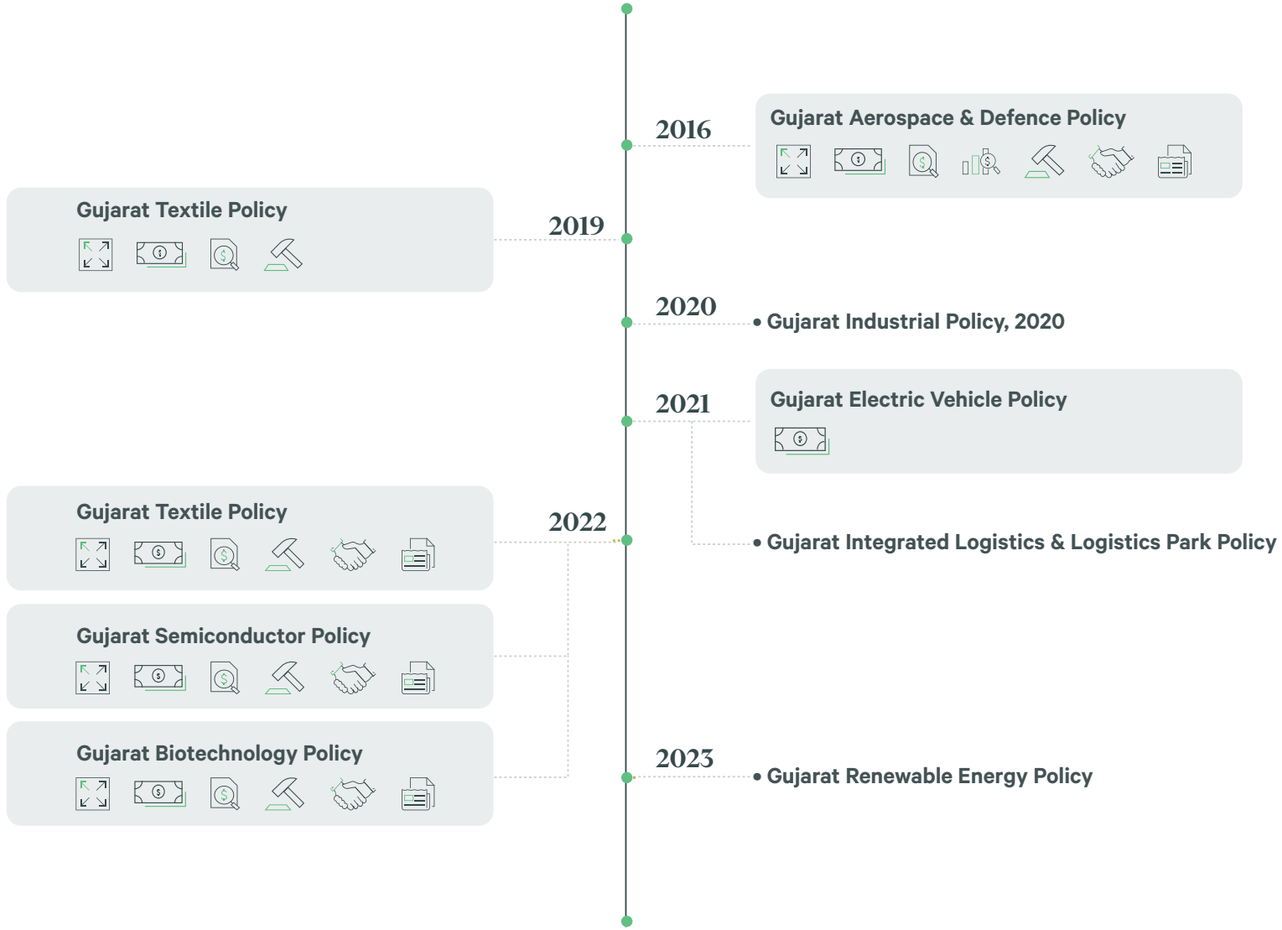
12%
% share of workers in India

18%
% share of India's total manufacturing output

Gujarat

Source: Annual Survey of Industries, MoSPI, GoI, 2021-22, 2021-22, Oct-19-Dec-23; CBRE Research, Q2 2024

Figure 2.13: Gujarat: A few key manufacturing-oriented policies



Source: Invest India, GoI, 2024; Guidance Gujarat, Government of Gujarat 2024; CBRE Research, Q3, 2024

Note: In a few cases, though the policies do not directly mention about a particular incentive, an indication of indirect initiatives have been considered

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Top Five States Contributing to India's Manufacturing Sector

3rd
largest contributor to India's GSDP as of FY 2021-22

5th
In terms of attracting FDI as of Oct-19 - Dec-23

16%
% share of factories in India

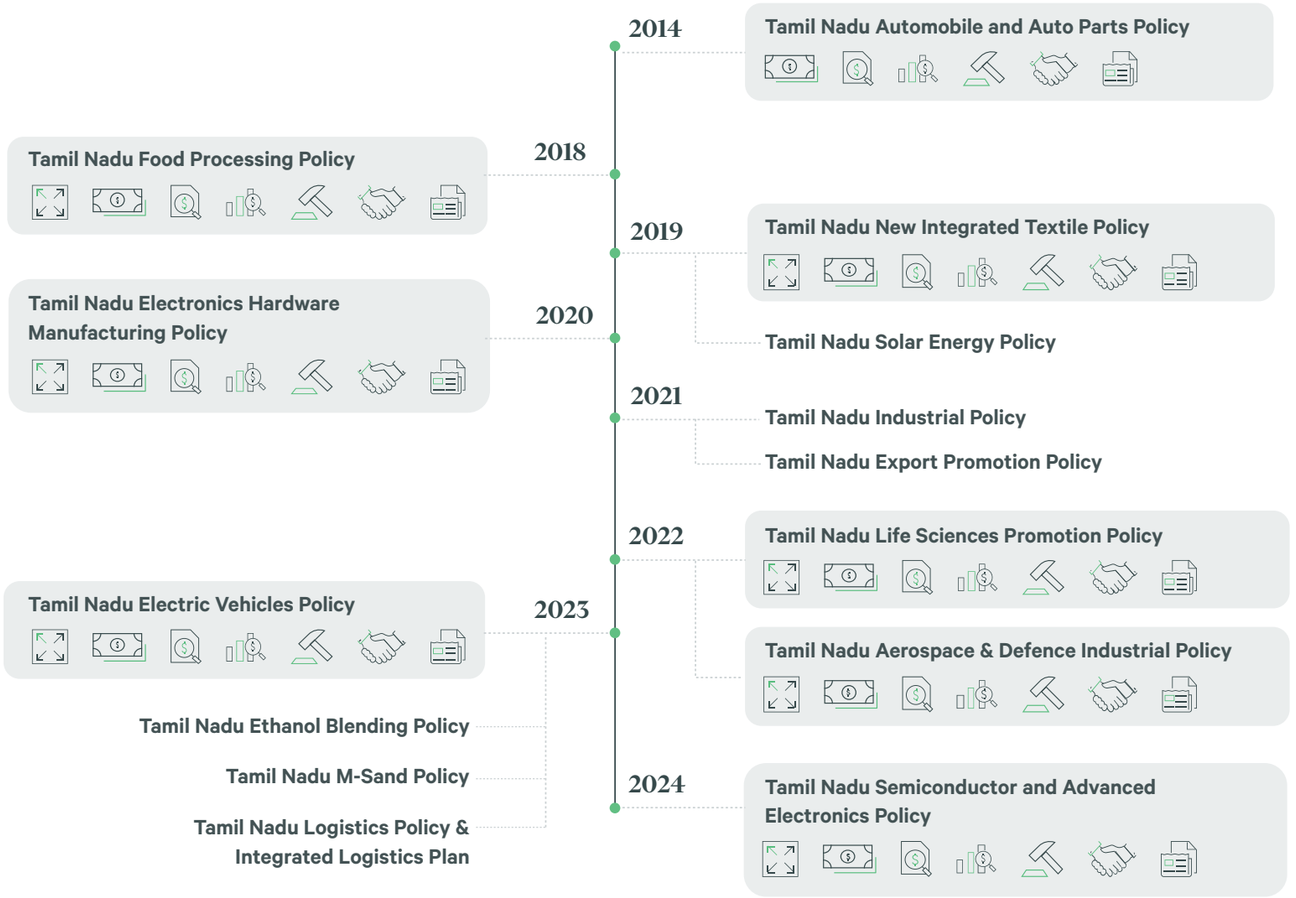
16%
% share of workers in India

10%
% share of India's total manufacturing output

Tamil Nadu

Source: Annual Survey of Industries, MoSPI, GoI, 2021-22, 2021-22, Oct-19-Dec-23; CBRE Research, Q2 2024

Figure 2.14: Tamil Nadu: A few key manufacturing-oriented policies



LEGEND

Land-related incentives | Capital subsidies | Stamp duty exemptions | Tax benefits | Infrastructure concessions and subsidies | Skill development / employment-related incentives | R&D grants / initiatives

Source: Invest India, GoI, 2024; Guidance Tamil Nadu, Government of Tamil Nadu, 2024; CBRE Research, Q3, 2024

Note: In a few cases, though the policies do not directly mention about a particular incentive, an indication of indirect initiatives have been considered

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Top Five States Contributing to India's Manufacturing Sector

4th
largest contributor to India's GSDP as of FY 2021-22

2nd
In terms of attracting FDI as of Oct-19 - Dec-23

6%
% share of factories in India

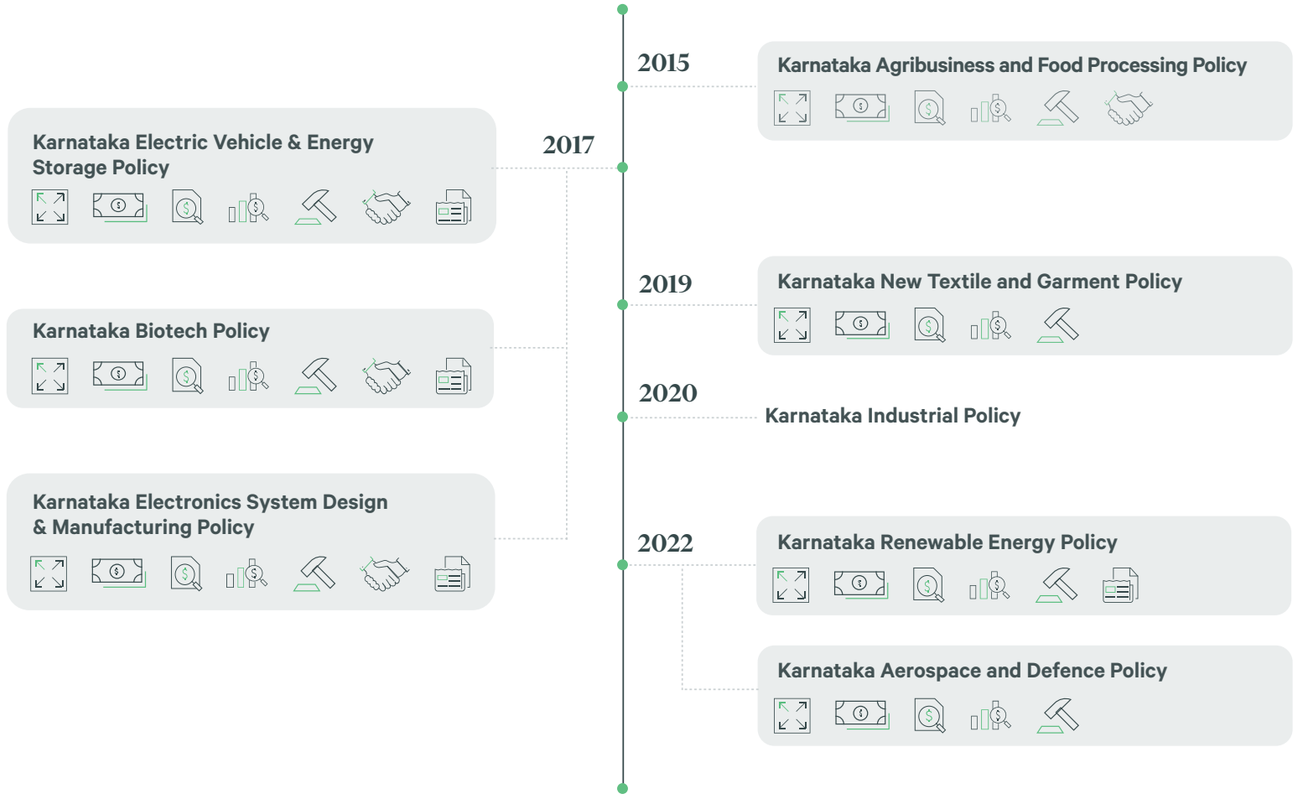
6%
% share of workers in India

6%
% share of India's total manufacturing output

Karnataka

Source: Annual Survey of Industries, MoSPI, GoI, 2021-22, 2021-22, Oct-19-Dec-23; CBRE Research, Q2 2024

Figure 2.15: Karnataka: A few key manufacturing- oriented policies



LEGEND

Land-related incentives | Capital subsidies | Stamp duty exemptions | Tax benefits | Infrastructure concessions and subsidies | Skill development / employment-related incentives | R&D grants / initiatives

Source: Invest India, GoI, 2024; Invest Karnataka, Government of Karnataka, 2024; CBRE Research, Q3, 2024

Note: In a few cases, though the policies do not directly mention about a particular incentive, an indication of indirect initiatives have been considered

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Top Five States Contributing to India's Manufacturing Sector

5th
largest contributor to India's GSDP as of FY 2021-22

11th
In terms of attracting FDI as of Oct-19 - Dec-23

7%
% share of factories in India

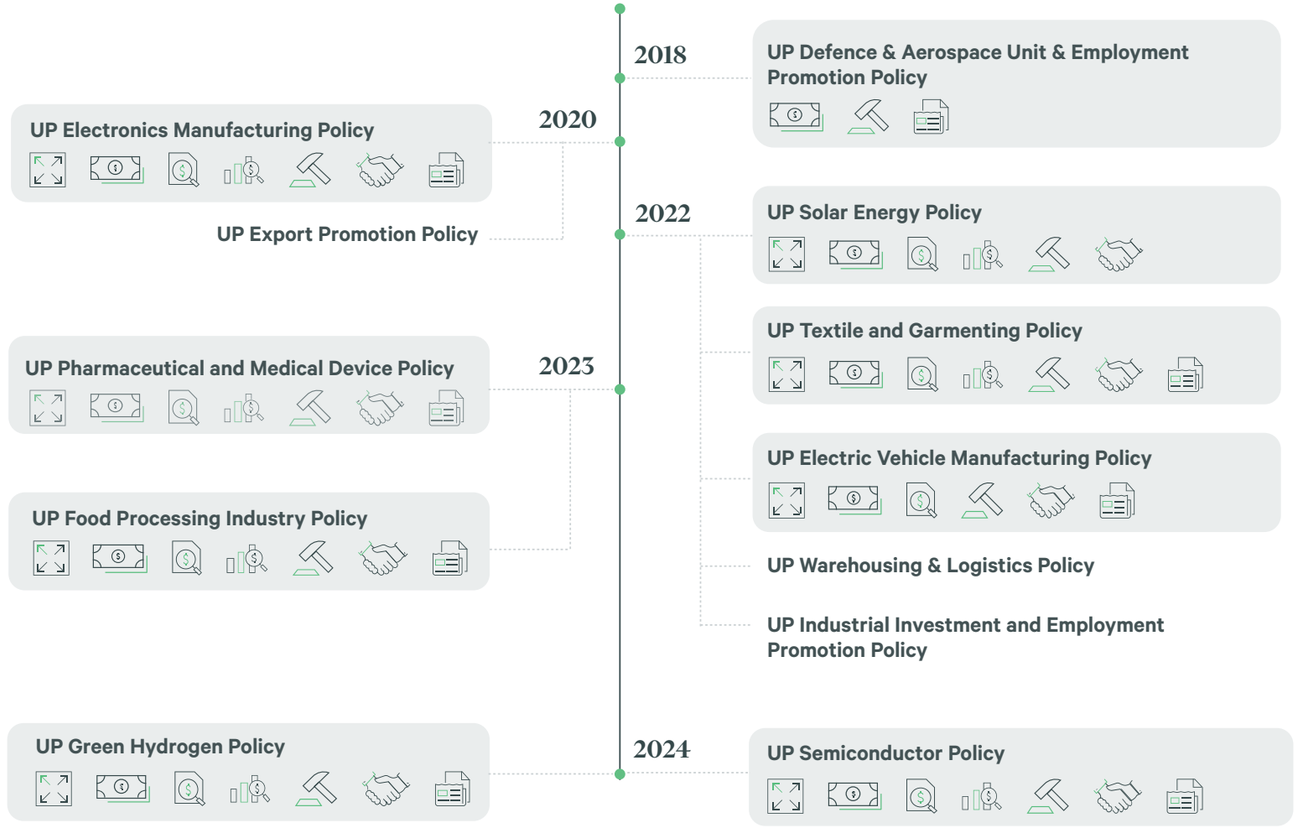
8%
% share of workers in India

7%
% share of India's total manufacturing output

Uttar Pradesh

Source: Annual Survey of Industries, MoSPI, GoI, 2021-22, 2021-22, Oct-19-Dec-23; CBRE Research, Q2 2024

Figure 2.16: Uttar Pradesh: A few key manufacturing-oriented policies



LEGEND

Land-related incentives | Capital subsidies | Stamp duty exemptions | Tax benefits | Infrastructure concessions and subsidies | Skill development / employment-related incentives | R&D grants / initiatives

Source: Invest India, GoI, 2024; Invest UP, Government of Uttar Pradesh, 2024; CBRE Research, Q3, 2024

Note: In a few cases, though the policies do not directly mention about a particular incentive, an indication of indirect initiatives have been considered

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Driving India's Manufacturing Ecosystem Through Strategic Infrastructure Initiatives

India's high average lead freight distance of 500 km highlights a strategic misalignment between manufacturing centres and consumption areas, significantly raising manufacturing costs and hampering export potential. The country's freight movement is also heavily dependent on road transportation. To address this imbalance, the government is actively exploring strategies to optimise modal distribution and shift towards more cost-effective and sustainable modes of transportation.

Figure 2.17: India's transportation and logistics landscape

Modal split-freight movement in India in 2022[21]			
Road	**Rail**	**Shipping**	**Air**
3.05 trillion ton-km	0.82 trillion ton-km	1,108 million metric ton	2,068 million ton-km
65%+	30%+	~3%	~1%

Infrastructure present			
Road	**Rail**	**Water**	**Airport**
66.71 lakh km[22]	1.26 lakh km 7,355 stations[22]	12 major, 200+ non-major[23]	135+ airports[22]

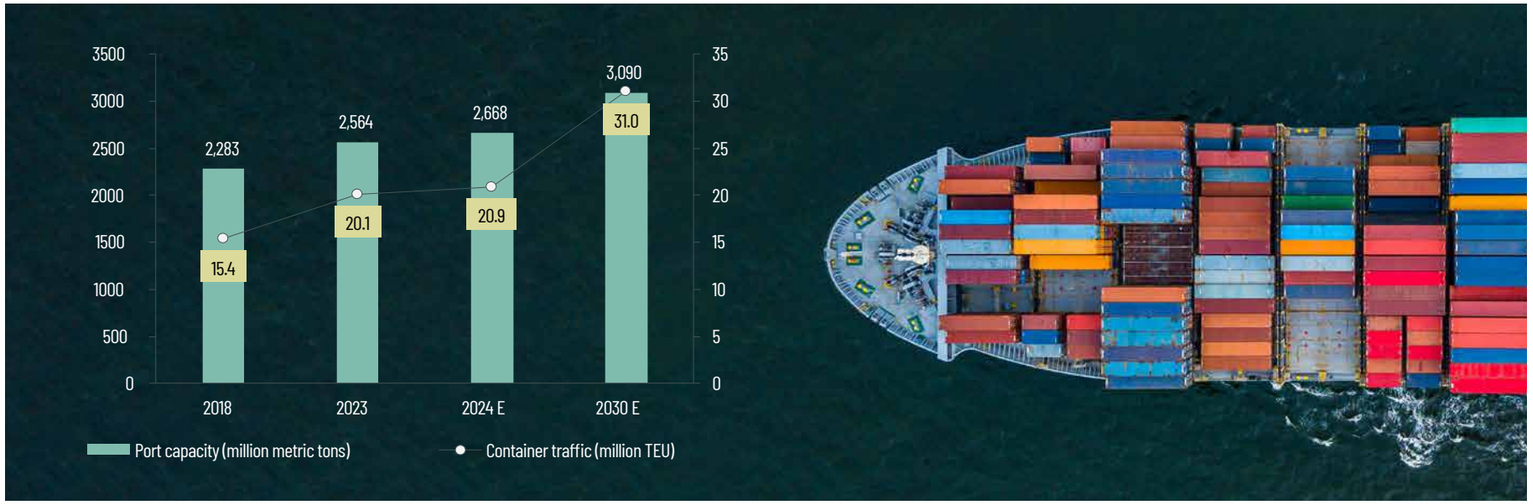
Source: CBRE Research, Q3, 2024

21. Envisioning the future of Indian logistics@2047, EY, April 2023
22. Invest India, 2024
23. Ministry of Ports, Shipping and Waterways, GoI

Figure 2.18: Containers, EXIM, rails (%)

Source: 'Make In India' Manufacturing Push Hinges on Logistics Investments, S&P Global, August 2023
Note: EXIM denotes export-import

Figure 2.19: India's port capacity and container traffic trends



Source: 'Make In India' Manufacturing Push Hinges on Logistics Investments, S&P Global, August 2023
Note: TEU denotes twenty-foot equivalent

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India's skewed modal mix, heavily tilted towards road transport, has prompted the government to undertake multiple initiatives to enhance the coordination and efficiency of its logistics sector. These include the GatiShakti National Master Plan and the National Logistics Policy, among others. The focus is on adopting green practices, leveraging technological advancements, promoting transparency, and integrating various stakeholders to optimise supply chains. These initiatives aim to improve the overall performance of the logistics sector and bring it on par with global standards.

A

National Infrastructure Pipeline

Duration: **2019 - 2025**[24]

Number of Projects: **9,744**[24]

Total Project Cost: **USD 1,826.81 billion**[24]

The National Infrastructure Pipeline (NIP) is a comprehensive roadmap that outlines the planned infrastructure projects across 58 sectors[24] and is a long-term vision that identifies and prioritises projects in sectors such as energy, transportation, water and sanitation, digital infrastructure, social infrastructure, and more. It provides a holistic view of infrastructure investment opportunities, estimated project costs, and timelines, helping guide policy decisions and attract both domestic and foreign investments.

The NIP encompasses projects from the central government, state governments, and the private sector, with a primary objective of boosting private investment. The primary aim is to improve the preparation of infrastructure projects, mitigate aggressive bidding practices, minimise project failures, and enhance access to finance by inspiring investor confidence. To ensure effective oversight, the NIP has proposed the establishment of three committees responsible for monitoring, implementing, and addressing project delays. Additionally, the India Investment Grid website offers real-time data on the progress of NIP projects, serving as a valuable resource for prospective investors.

B

GATI Shakti Master Plan

Duration: **2021 - 2025**[25]

Total Project Cost: **USD 1.2 trillion**[25]

GATI Shakti primarily focuses on developing and optimising logistics infrastructure, which encompasses establishing multi-modal logistics parks, dedicated freight corridors, and improvements in last-mile connectivity. It is designed as a National Master Plan for multi-modal connectivity, utilising a digital platform that brings together 16 central ministries, including railways, civil aviation, electronics and information technology, shipping, and road transport.

The plan leverages advanced technologies such as spatial planning tools, satellite imagery from the Indian Space Research Organisation (ISRO), and open-source technologies for secure hosting and data integration. This enables the creation of a comprehensive database of ongoing and future projects across various ministries, integrated with geographic information system (GIS) layers. The GIS platform offers analytical tools that enhance cross-sectoral project visibility, review, and monitoring, enabling data-driven decision-making.

It aims to strengthen manufacturing, boost exports, create futuristic economic zones, and position India as a logistics infrastructure hub. It also targets increasing cargo handling capacity, reducing turnaround time, and enhancing overall efficiency and competitiveness in the logistics sector.

C

Industrial Parks, Industrial Corridors and Dedicated Freight Corridors (DFCs)

Industrial parks, also known as industrial estates or zones, are specially designed areas that house clusters of commercial and industrial activities. Their primary purpose is to support the creation of new businesses, streamline operations, and enable business expansion, driving economic growth.

According to the Department for Promotion of Industry and Internal Trade (DPIIT), India boasts a vast network of industrial parks, estates, and Special Economic Zones (SEZs), encompassing approximately 3,800 locations spread across 4.68 lakh hectares. These industrial parks promote the concept of clustering, wherein similar firms converge to capitalise on shared opportunities and foster collaboration. Alongside robust infrastructure, these parks offer essential ancillary services that are pivotal in nurturing innovation and entrepreneurship. These services include business incubators, skill development centres, and collaborative R&D facilities.

24. Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GoI
25. Invest India, 2024

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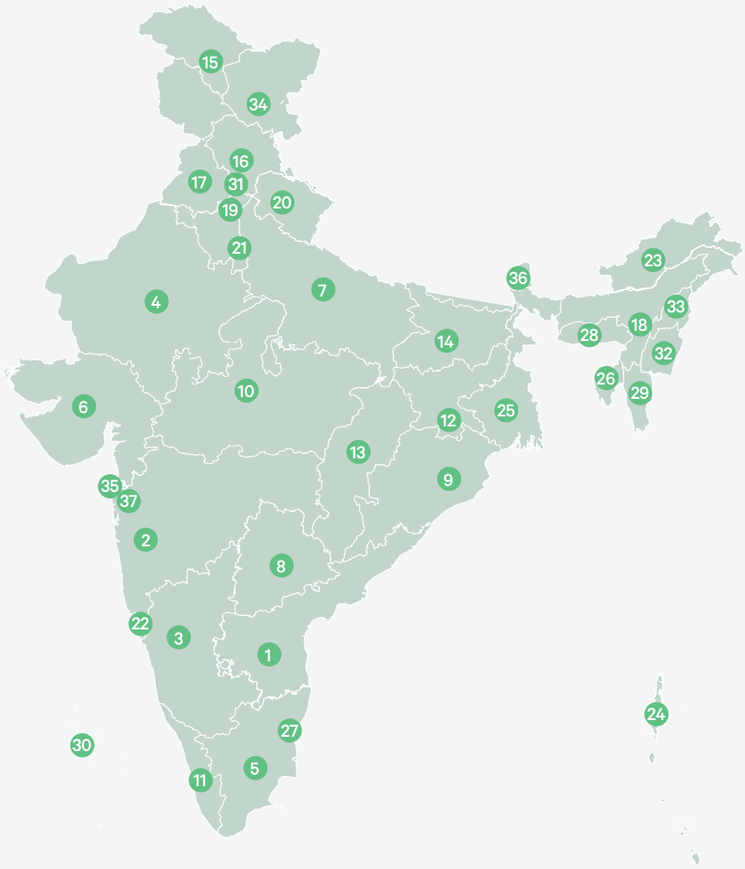
An Overview of India's Industrial Parks

Industrial parks are designated areas developed to promote industrial growth by providing infrastructure, services, and facilities for manufacturing and other industrial activities. These parks are strategically located to attract investments, create job opportunities, and foster economic development.

They offer essential infrastructure such as roads, power, water supply, and telecommunications, making it easier for industries to operate. Many industrial parks focus on specific sectors, such as IT, textiles, or chemicals, offering tailored facilities and services. Industrial parks often receive support from state and central governments, including tax incentives, subsidies, and relaxed regulations to attract domestic and foreign investors. These parks play a crucial role in boosting employment and regional development, especially in underdeveloped areas.

Figure 2.20: State-wise distribution of industrial parks

No. of Industrial Parks	State or Union Territory	
859	Andhra Pradesh	1
790	Maharashtra	2
384	Karnataka	3
379	Rajasthan	4
369	Tamil Nadu	5
312	Gujarat	6
227	Uttar Pradesh	7
169	Telangana	8
147	Odisha	9
145	Madhya Pradesh	10
133	Kerala	11
131	Jharkhand	12
96	Chhattisgarh	13
82	Bihar	14
69	Jammu & Kashmir	15
64	Himachal Pradesh	16
64	Punjab	17
53	Assam	18
46	Haryana	19



	State or Union Territory	No. of Industrial Parks
20	Uttarakhand	41
21	Delhi	40
22	Goa	31
23	Arunachal Pradesh	24
24	Andaman & Nicobar	19
25	West Bengal	15
26	Tripura	11
27	Puducherry	10
28	Meghalaya	10
29	Mizoram	8
30	Lakshadweep	7
31	Chandigarh	6
32	Manipur	6
33	Nagaland	6
34	Ladakh Ut	5
35	Daman & Diu	4
36	Sikkim	4
37	Dadra & Nagar Haveli	1
	Grand Total	**4753**

Source: The India Industrial Land Bank, September 2024

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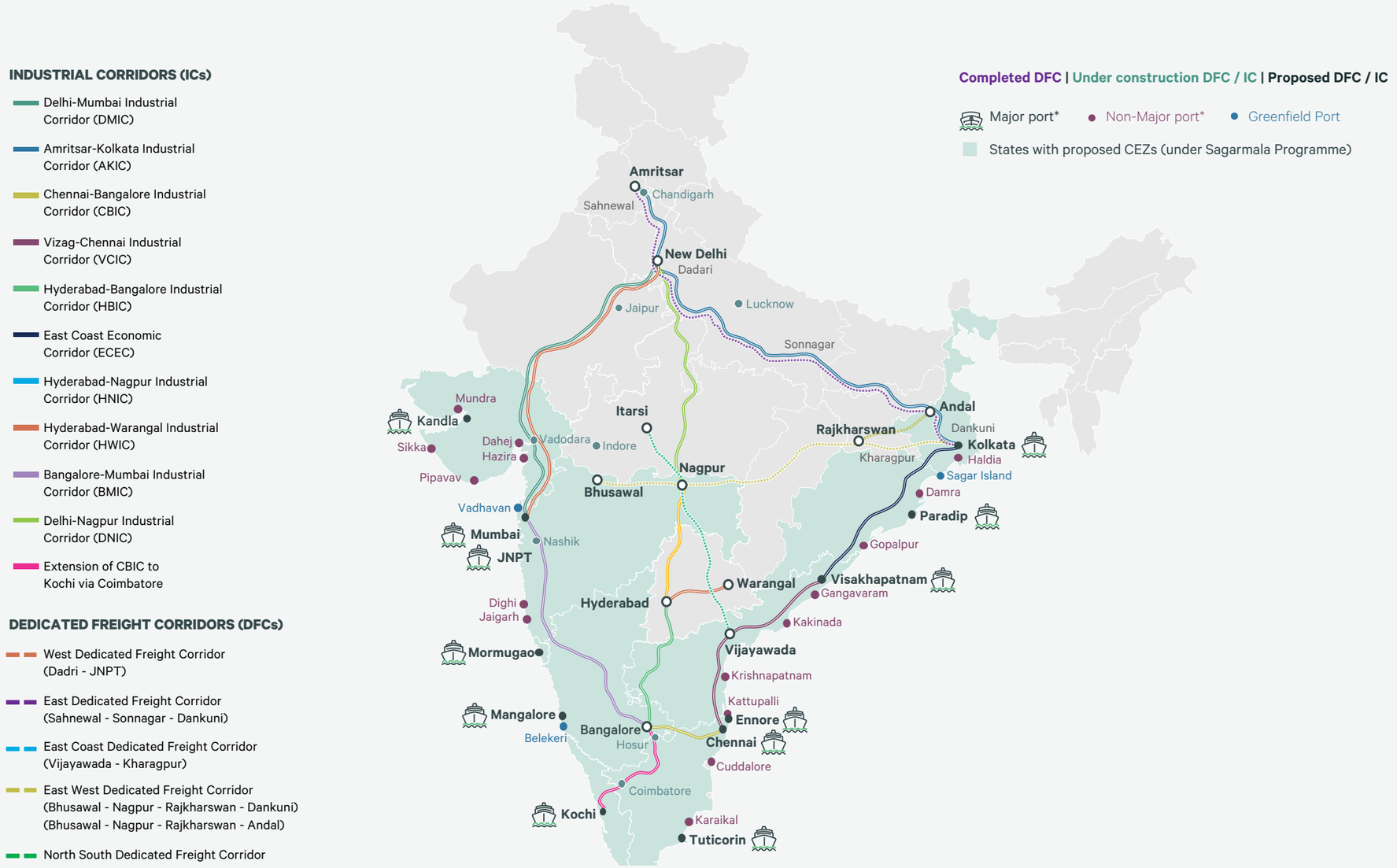
India's Industrial Corridors - A Primer

India's industrial landscape is undergoing strategic expansion through the development of eleven industrial corridors spearheaded by the National Industrial Corridor Development Corporation (NICDC). These corridors benefit from high-speed Dedicated Freight Corridors (DFCs), ensuring efficient logistics and connectivity. Complementing this initiative, the Sagarmala programme fosters port-led industrial development. Fourteen Coastal Economic Zones (CEZs) are earmarked for development, alongside ambitious plans to attract investments exceeding USD 123 billion across over 415 projects[25] nationwide.

By establishing self-sustaining integrated industrial and economic nodes along these corridors and within CEZs, these initiatives aim to create a multiplier effect, propelling the emergence of new industrial hubs throughout India. These nodes, upon completion, will serve as catalysts for sustained growth within the manufacturing sector.

Figure 2.21: Industrial Corridors and DFCs



Source: National Industrial Corridor Corporation, GoI, 2024; Dedicated Freight Corridor Corporation, GoI, 2024; Ministry of Ports, Shipping & Waterways, GoI, 2024; Invest India, GoI, 2024; CBRE Research, Q2 2024
Note: This map is not to scale and is for representation purposes only; the solid / dotted lines & circles on this map represent the approximate features of the ICs / DFCs / ports / cities
*Major ports considered as given by the Ministry of Ports, Shipping & Waterways

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The government has approved 12 new projects under the National Industrial Corridor Development Programme (NICDP) with an investment of INR 28,602 crore*.

These projects, spanning ten states and aligned along six major corridors, are anticipated to transform India's industrial landscape by establishing key industrial nodes and cities. The industrial areas would be located in Uttarakhand, Punjab, Maharashtra, Kerala, Uttar Pradesh, Bihar, Telangana, Andhra Pradesh, and Rajasthan.

Figure 2.22: Key Industrial parks and corridors that serve as a lever for the manufacturing sector

PM Mitra Parks for Textiles and Apparels

- The Ministry of Textiles has introduced the PM Mega Integrated Textile Regions and Apparel Parks (MITRA) Scheme to address various challenges and propel the Indian textile industry towards further growth. The scheme aims to establish large-scale, modern infrastructure that can accommodate expanded operations and foster global competitiveness.
- These integrated parks will house the entire textile value chain - spinning, weaving, processing, garmenting, and machinery production - all in one location, significantly slashing logistics costs.
- The scheme further aims to attract fresh investments with its world-class facilities and streamlined environment, fostering job creation and ultimately boosting India's textile exports.

Defence Industrial Corridors

- The government has established two defence industrial corridors, one each in Uttar Pradesh and Tamil Nadu, that marks a strategic move to bolster domestic defence manufacturing.
- These corridors aim to transform India's defence sector by fostering indigenous production of defence and aerospace equipment, thereby reducing reliance on imports.
- This enhanced production capability is expected to position India as a potential exporter, strengthening its global standing and generating revenue.
- These corridors will likely create substantial employment opportunities, both directly and indirectly, while nurturing the growth of private domestic manufacturers, MSMEs, and start-ups within the defence and aerospace sectors.

Medical Device Park – by YEIDA**

- The UP government is offering a range of incentives offers a range of incentives and supportive infrastructure to encourage the establishment of manufacturing plants at medical device parks.
- The government has introduced fast-track clearance and approvals to expedite the investment process.
- The focus on attracting investment aims to make India a notable hub for medical device manufacturing, ultimately propelling growth within the domestic healthcare sector.

Mega Food Parks

- The Ministry of Food Processing Industries (MoFPI) has launched the Mega Food Park (MFP) initiative, encompassing a wide range of food products, including fruits, vegetables, grains, pulses, and dairy. This ensures a holistic approach to food processing across various segments.
- These parks are strategically located to ensure easy access to raw materials. This, combined with the integrated processing facilities, creates a streamlined value chain – "from farm to market."
- The MoFPI has approved 41 MFP projects, signifying the program's ambitious scope. Currently, 24 of these parks are operational, with the remaining 17 under implementation.

Drug Parks

- The government's Bulk Drug Park initiative tackles a crucial challenge: reducing reliance on imported Active Pharmaceutical Ingredients (APIs) and Key Starting Materials (KSMs) for the pharmaceutical sector.
- The objective is to revitalise the domestic production of bulk drugs and APIs within India, which will not only strengthen the pharmaceutical sector but also enhance national self-reliance in the crucial domain of medicine.
- By fostering domestic production, India is anticipated to become less susceptible to disruptions in the global supply chain for essential pharmaceutical ingredients. This ensures greater control and predictability in the availability of critical medicines.
- The parks are designed as integrated ecosystems housing multiple units dedicated to producing bulk drugs and APIs.
- The parks will provide a comprehensive support system for pharmaceutical companies. This includes essential infrastructure, common facilities such as testing labs, and shared resources such as utilities, all within a well-maintained environment.

Source: Gujarat Industrial Development Corporation, Ministry of Textiles, Yamuna Expressway Authority website, Make In India Defence website, Indextb Report "Development of Bulk Drug Park at Bharuch", Invest India Report - India: Pharmacy to the World
Note. *National Industrial Corridor Development Programme, August 2024
** YEIDA stands for the Yamuna Expressway Industrial Development Authority, UP

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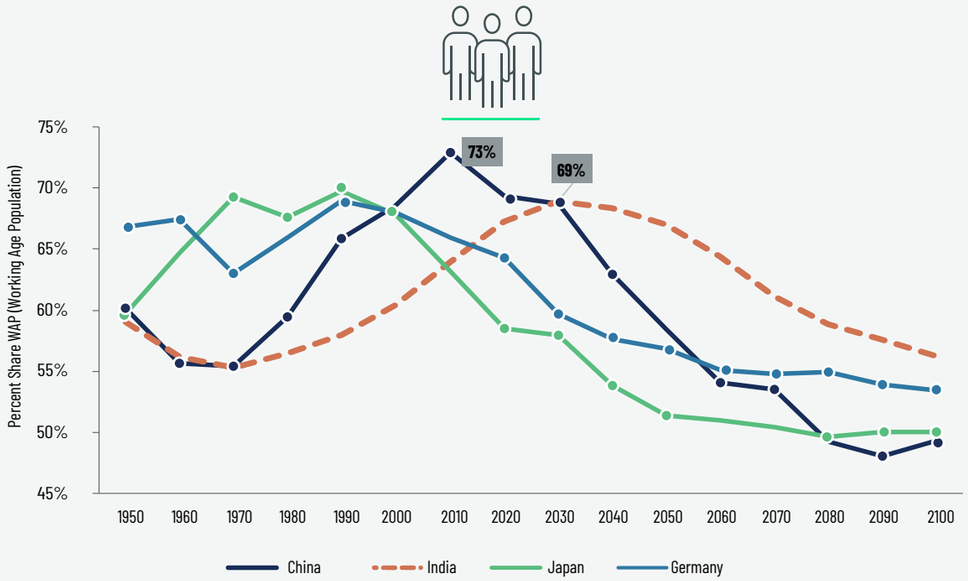
Catalyst #3

India's Demographic Dividend

The size and age composition of a nation's workforce substantially influences its economic growth trajectory. When these demographic factors are complemented by modern skills and a robust entrepreneurial ecosystem, the potential for economic expansion intensifies. According to United Nations, India overtook China as the world's most populous country in 2023.[26] Crucially, the proportion of India's working-age population (15-64 years) is projected to reach a record high of 69% by 2030.[27] In absolute terms, this translates to a massive workforce of 1.04 billion by that year.[27] This demographic advantage would also lead to a historically low dependency ratio (the ratio of non-working to working-age population) of 31% by 2030.[27]

India is poised to be the world's leading provider of human resources, a vital asset considering the rapidly ageing populations in developed nations, which face potential labour shortages. A young workforce not only strengthens the country's position in the services and manufacturing sectors, but also fuels a powerful engine of domestic consumption. A young population has a greater propensity for discretionary spending, which can further propel economic growth.

Figure 2.23: India's working age population (WAP, 15 – 64 years) to total population ratio is anticipated to be one of the highest among the large economies



21%
India's share in the global working-age population in the next decade[28]

28 Years
India's median age – lower than China by 11 years[28]
Aspirational movement anticipated from low-wage agricultural to manufacturing jobs[28]

26. World Population Prospects 2022,
27. Department of Economic and Social Affairs, United Nations, July 2022; CBRE Research, Q3, 2024
28. Advantage India: What makes the country a competitive global manufacturing powerhouse, PwC, June 2023

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Catalyst #4

Geopolitical Disruptions Leading to Production Shifts

Over the past few years, a series of disruptive events, including trade wars, the COVID-19 pandemic, natural disasters, supply bottlenecks, Brexit, the war in Ukraine, and assertive industrial policies, have profoundly impacted the global manufacturing landscape for exports. These developments are fundamentally reshaping the map of global manufacturing.

Figure 2.24: Geopolitical risks and conflicts reshaping global supply chains

Source: Top Geopolitical Risks of 2024, S&P Global

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With its competitive cost structure, abundant labour resources, and growing capabilities across diverse industries, India is rapidly emerging as a future powerhouse for export manufacturing. The country also benefits from having a potentially enormous domestic market, adding to its overall appeal. This presents a golden opportunity for India's manufacturers to break free from the dominance of the services sector and capture a larger share of the global manufacturing pie.

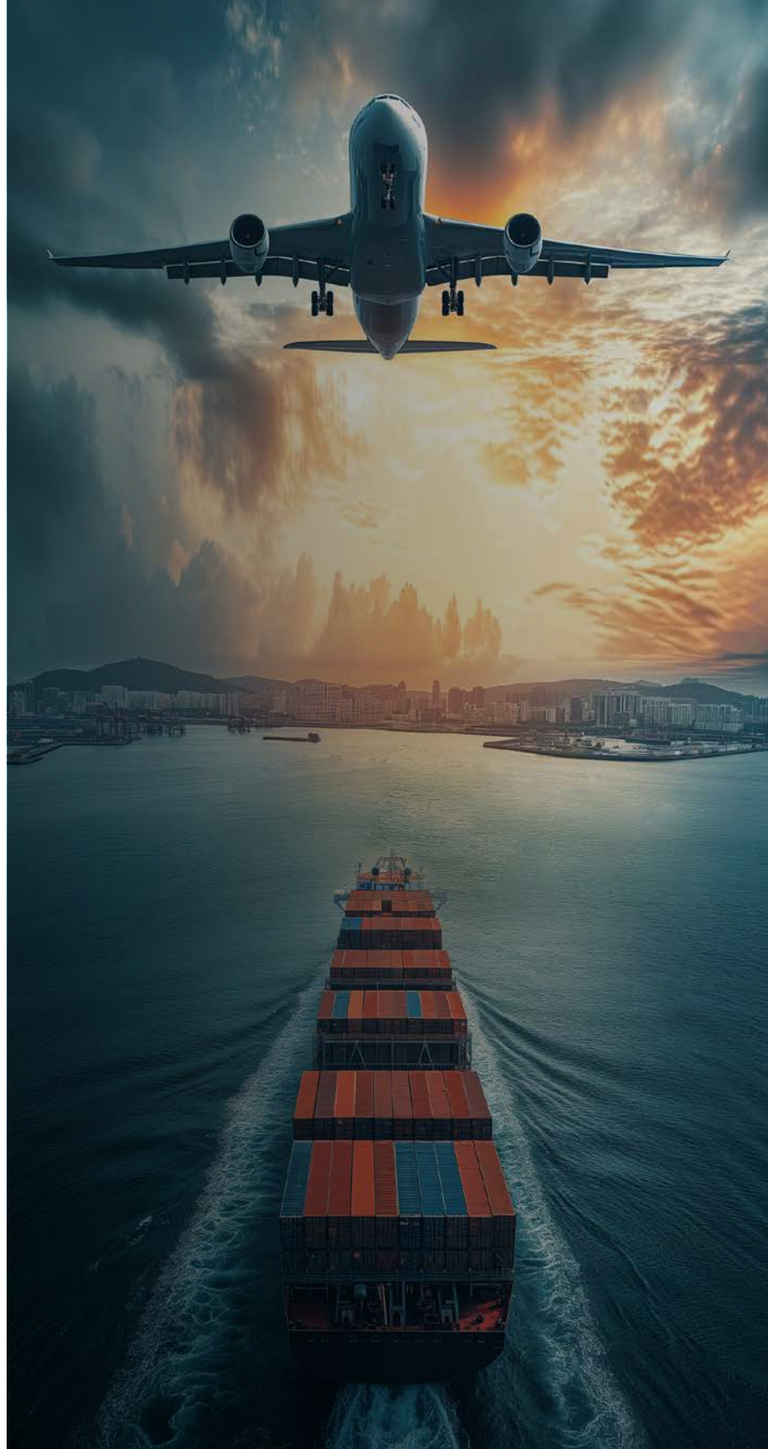
Data on US goods imports from 2018 to 2022 (adjusted for inflation) reveals a clear shift in manufacturing sources. While imports from China fell by 10% during this period, imports from India surged by a significant 44%. This trend suggests a potential redistribution of global manufacturing activity.

Figure 2.25: How are global production shifts reconfiguring trade flows?

Change in US Goods Imports, 2018 - 2022 (USD billions, % change)	Consumer Electronics	Semiconductors & Materials	Auto Components	Mechanical Machinery	Total US Imports
Total imports	**218**	**55**	**255**	**164**	**2643**
China	3 bn (-2%)	1.3 bn (-29%)	5 bn (-12%)	10.8 bn (-28%)	55 bn (-10%)
ASEAN	17.9 bn (124%)	4.8 bn (22%)	7.8 bn (90%)	9.5 bn (61%)	118 bn (65%)
India	**1.2 bn (392%)**	**0.1 bn (143%)**	**2.6 bn (65%)**	**0.9 bn (70%)**	**23 bn (44%)**
Mexico	0.1 bn (-1%)	0.1 bn (-5%)	12 bn (17%)	2.9 bn (21%)	58 bn (18%)
European Union	1 bn (8%)	1.5 bn (61%)	2.8 bn (8%)	2.3 bn (7%)	69 bn (17%)
Rest of World	5.4 bn (17%)	6 bn (52%)	5.8 bn (8%)	6.9 bn (14%)	127 bn (16%)
Total	**22.6 bn (12%)**	**11.1 bn (26%)**	**26 bn (11%)**	**11.7 bn (8%)**	**340 bn (15%)**

Figures are in **USD**

Source: Harnessing the Tectonic Shifts in Global Manufacturing, Boston Consulting Group, September 2023



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Rising demand within India and multinational companies' desire to diversify their production beyond China by establishing low-cost plants in other countries are fuelling the country's manufacturing sector.

India emerges as the only large economy in the world demonstrating promising economic metrics. The country offers a compelling combination of scale and attractive prospects for future expansion.

Figure 2.26: Why are OEMs (original equipment manufacturers) setting up factories in new countries?

	OEM	New factory site	Reasons for relocating from China
	US high-tech electronics manufacturer	**India**	Supply chain disruptions, Geopolitical issues
	US software company	Vietnam	Supply chain disruptions, Geopolitical issues
	US online consumer retailer	**India**	Supply chain disruptions, Geopolitical issues
	US chip company	Vietnam	Supply chain disruptions
	Greater China high-tech electronics manufacturer	Vietnam	Supply chain disruptions, Geopolitical issues
	East Asian automaker	**India**	Supply chain disruptions, Geopolitical issues
	Eastern European automaker	Vietnam	Supply chain disruptions
	North European automaker	Slovenia	Geopolitical issues
	US tool and hardware manufacturer	US	Geopolitical issues
	US toy and game manufacturer	**India**	Geopolitical issues, Rising costs
	US toy manufacturer	Mexico	Supply chain disruptions

Source: Harnessing the Tectonic Shifts in Global Manufacturing, Boston Consulting Group, September 2023

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Catalyst #5

India's Strategic Trade Partnerships

India's focus on trade agreements holds immense potential for its manufacturing sector. These agreements act as catalysts by:

Opening Doors:

Greater market access and reduced trade barriers allow manufacturers to export more competitively and reach new customers.

Streamlining Supply Chains:

Integration with global supply chains facilitates access to vital inputs and raw materials from partner countries, boosting efficiency and reducing costs.

Attracting Investment & Technology:

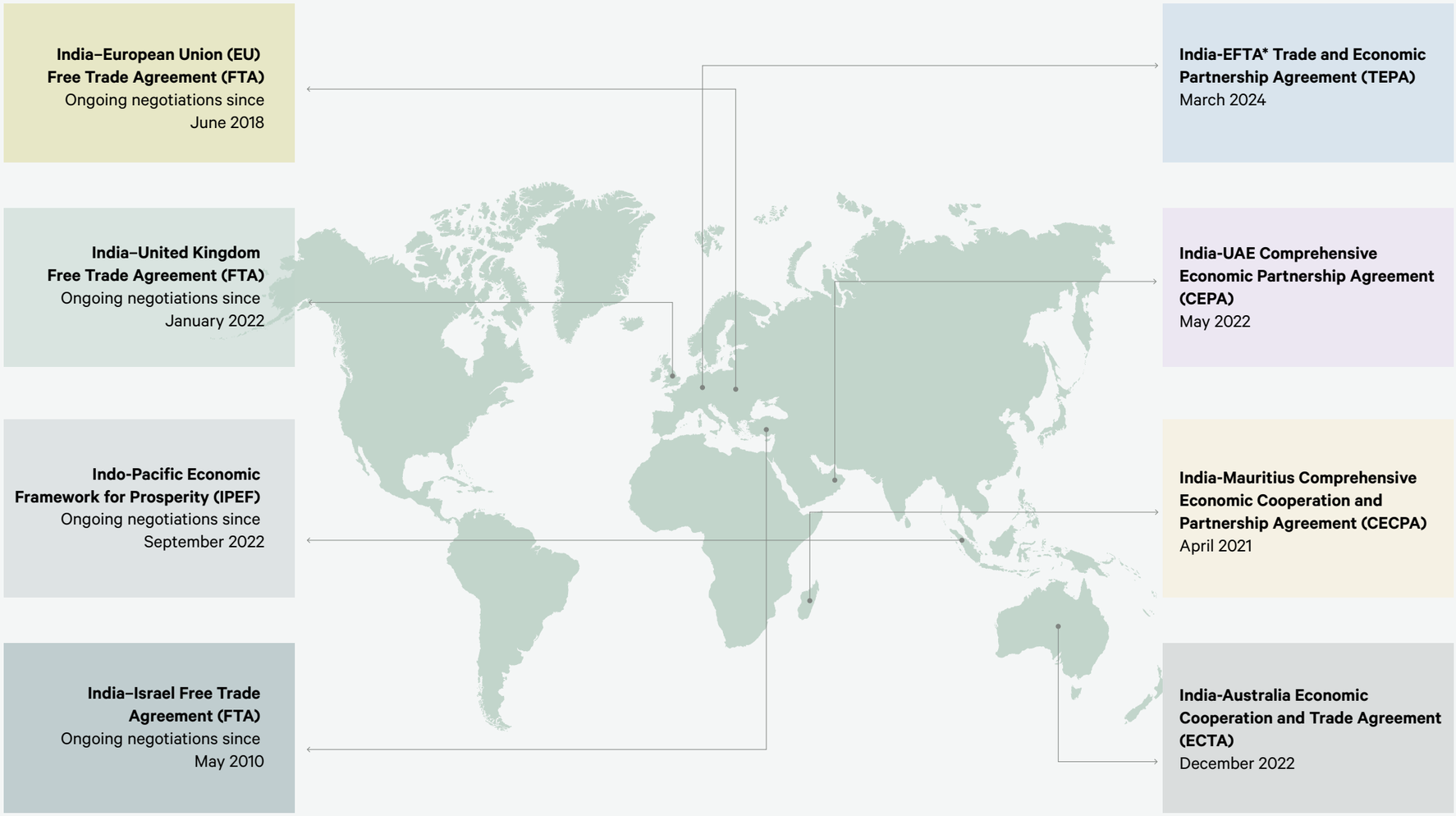
Trade agreements often encourage foreign investment and technology transfer, bringing advanced techniques and know-how to Indian manufacturers.

Fostering Innovation:

The collaboration and knowledge sharing fostered by these agreements can lead to the development of industry standards and innovation clusters, further propelling sectoral growth.

By creating a more favourable manufacturing environment, trade agreements can significantly expand opportunities, stimulate investments, and drive the sector's overall development.

Figure 2.27: At a glance - India's key trade partnerships



Source: CBRE Research, Q3, 2024
***EFTA** – European Free Trade Association

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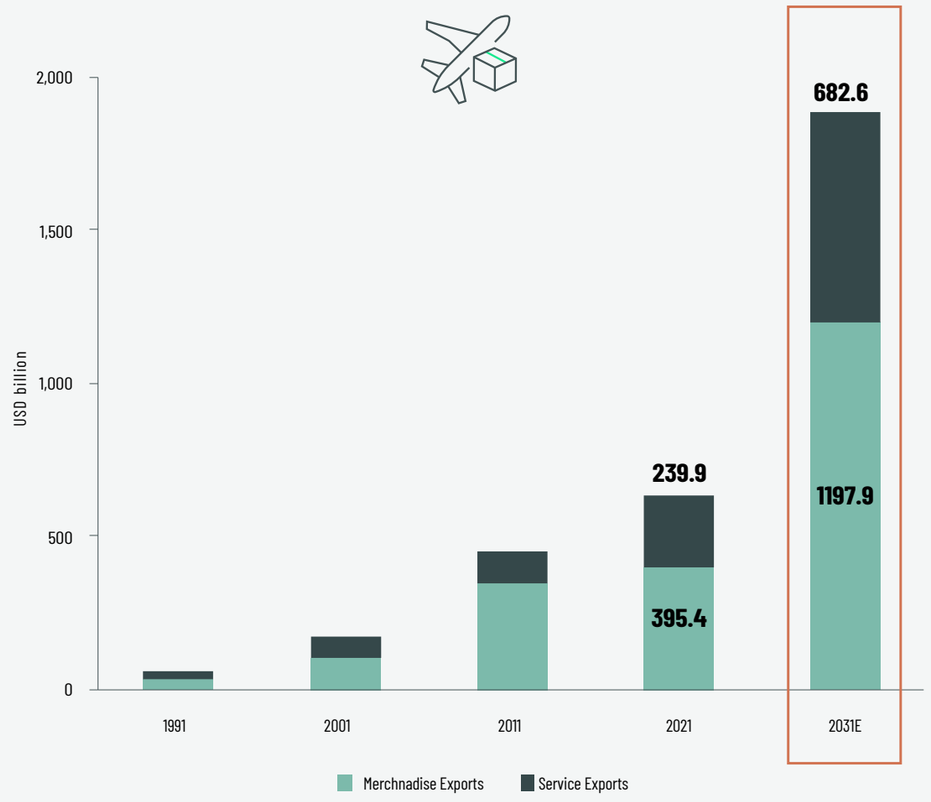
Catalyst#6

Key Sectors Propelling Manufacturing Growth

India's Electronics Manufacturing Revolution

India's expanding export market share *(refer to Figure 2.28)* is underpinned by a structural shift in its export profile, with manufactured products increasingly dominating the mix. The country's rise as a dominant player in electronics and engineering, especially high-value segments, is fuelled by a synergistic interplay of government support, a skilled workforce, and a strategic focus on exports. The PLI scheme plays a pivotal role, offering companies financial incentives for ramping up domestic manufacturing and exports of electronic products. This encourages companies to set up manufacturing units in the country and leverages its abundant talent pool. India boasts a large number of skilled engineers and technicians, nurtured by top universities. This skilled workforce makes the country a magnet for multinational corporations seeking to establish R&D centres and manufacturing facilities.

Figure 2.28: India's export market share projected to increase exponentially by 2031



Source: Source: Why is this India's Decade, Morgan Stanley, October 2022

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The advent of the Silicon Age, driven by globalisation and the proliferation of the internet, has fuelled an unprecedented demand for electronic commodities. In this increasingly digitalised era, the electronics industry has emerged as one of the fastest-growing sectors globally, with no signs of slowing down in the global electronic trade. The COVID-19 pandemic has further accentuated the importance of "electronics security," as supply chain disruptions have stalled the production of components across various sectors, ranging from automobiles to healthcare devices, resulting in a shortage of electronic components. This has highlighted the need for energy security and a resilient electronics supply chain.

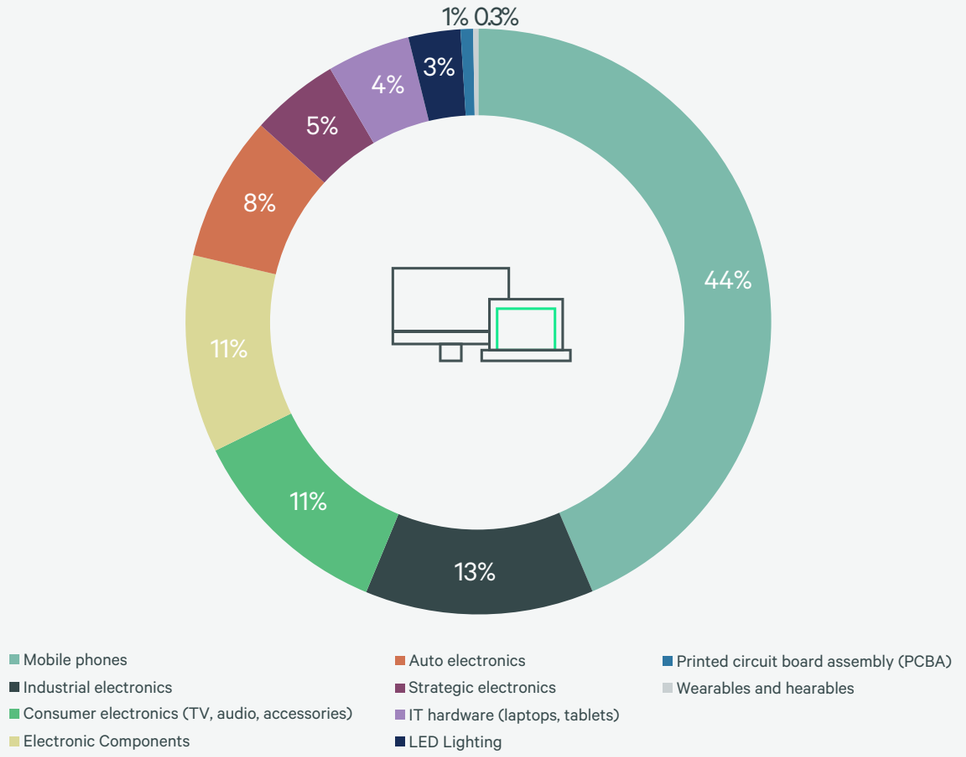
Today, the electronics system design and manufacturing (ESDM) industry has become one of the fastest-growing sectors worldwide, driven by the explosion of the digital era lifestyle. This surge has led to a rapid expansion in the demand for cost-effective manufacturing, primarily fulfilled by electronics manufacturing services (EMS) companies located in cost-competitive regions of East and Southeast Asia.

The global EMS market is projected to reach USD 1,145 billion by 2026, with a CAGR of 5.4% between 2021 and 2026. Concurrently, India's domestic demand for consumer electronics is witnessing substantial growth, expected to reach USD 21.18 billion by 2025 from USD 9.8 billion in 2021.[29]

The country's organic growth in electronics consumption, coupled with the government's ambitious target of achieving USD 300 billion* worth of domestic electronics manufacturing by 2025-26, presents a unique opportunity for global firms to consider India a manufacturing hub for the Silicon Age. India has demonstrated its manufacturing capabilities across four major segments – mobile phones, consumer electronics, IT hardware, and electronic components – accounting for over 70% of the country's domestic manufacturing profile.

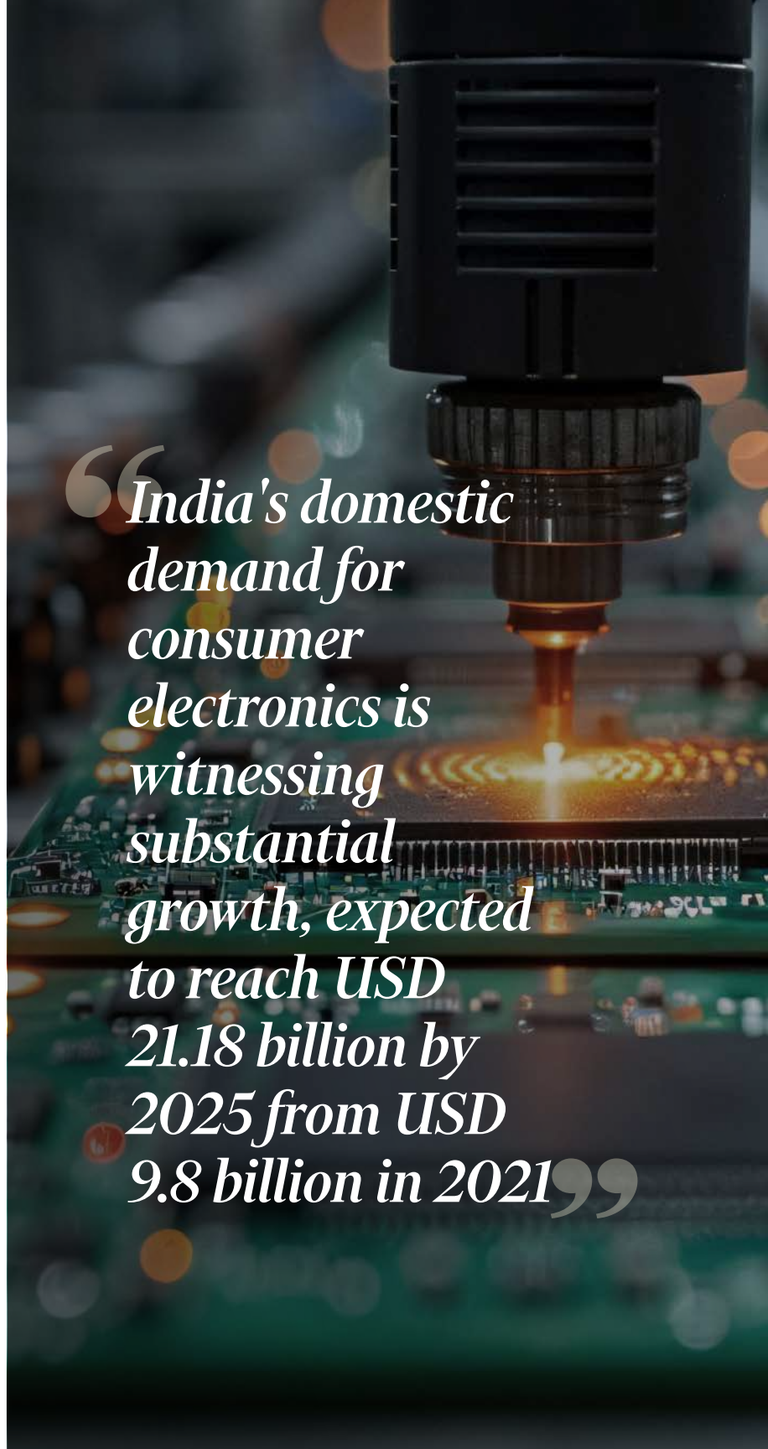
Note: *The government has now extended this target to USD 500 billion by FY2029-30

Figure 2.29: Production profile of India's electronics sector



Leveraging India's established manufacturing capabilities, global firms can establish electronics manufacturing operations within the country to achieve supply chain diversification and production scale. India's proven track record in global manufacturing, cost competitiveness, and supportive government policies position it as a compelling destination for electronics manufacturing in the digital age.

Source: Annual Report 2022 – 23, Ministry of Electronics and Information Technology, April 2023
29. Invest India, 2024



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India’s Defence Sector Emerging As A Global Powerhouse

This is a growth story highlighting India's strategic advancements in the defence sector, driven by increased manufacturing capabilities and private sector involvement. It illustrates how the country is transforming into a key player in the global defence landscape through its commitment to building a robust and self-reliant defence infrastructure. The government has designated the Defence and Aerospace sector as a key focus under the Aatmanirbhar Bharat initiative, with a significant emphasis on establishing indigenous manufacturing infrastructure, supported by a robust research and development ecosystem. For FY2024-25, the Ministry of Defence (MoD) has been allocated INR 6.22 lakh crore in the Union Budget, the highest allocation among all ministries.

Figure 2.30: An overview of India's defence sector

3.3%
of GDP allocated to defence spending in FY2023-24

12.9%
of the total Union Budget for FY2024-25 dedicated to defence

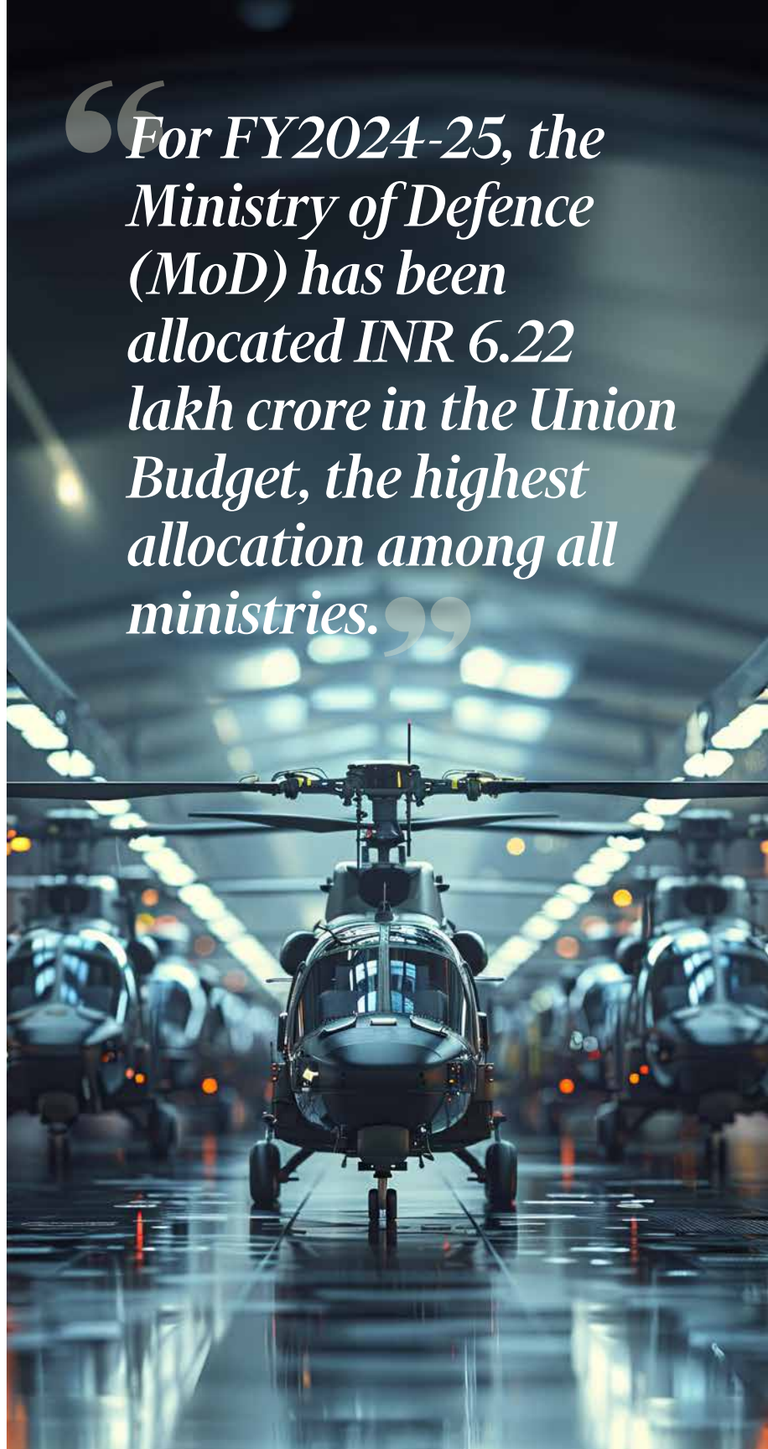
USD 2.63 billion
in defence exports for FY2023-24, a record high with a 32.5% increase from the previous year

INR 1.26 lakh crore
Current value of defence production for FY2023-24

Increased private sector involvement with key players such as Tata, Mahindra, L&T, and Godrej leading the charge

The strong presence of automotive ancillary industries has further enabled the aerospace and defence sector, as many of the components used in automotive manufacturing can be adapted for aerospace applications with minimal modifications. India is emerging as a critical junction in the global supply chain for aerospace components and parts, fuelled by its technical expertise, skilled workforce, and the ability to produce high-quality products at competitive costs.

Source: Invest India, August 2024



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India’s Burgeoning Food Sector

The growth of the food sector in India is driven by an expanding middle class and rising disposable incomes, which are increasing demand for processed foods. Additionally, the steady rise in organized and online retail further propels industry expansion. India’s food ecosystem provides ample investment opportunities, bolstered by supportive economic policies and attractive fiscal incentives.

India’s role in global food security is substantial. The country is not merely a food producer but also a significant player in food processing. By enhancing its processing capabilities, India adds value to its agricultural produce, reducing post-harvest wastage and improving the efficiency of the global food supply chain. This advancement is crucial in mitigating global food shortages and strengthening India’s position in international food markets.

Figure 2.31: An overview of India's food processing industry

18%
Share of Gross Value Added (GVA) from Agriculture and Allied Sectors in the total economy (2022-23)

12%
Share of total employment

USD 51 billion
Value of agricultural and processed food exports in 2022-23

However, the sector faces notable challenges, including inadequate cold chain infrastructure, outdated logistics, and insufficient modern storage facilities. These issues contribute to high levels of post-harvest wastage, which hampers the sector’s efficiency and its potential to meet both domestic and global demands.

Source: Invest India, August 2024

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Section 3

India's Manufacturing Landscape - An Industrial and Logistics Overview

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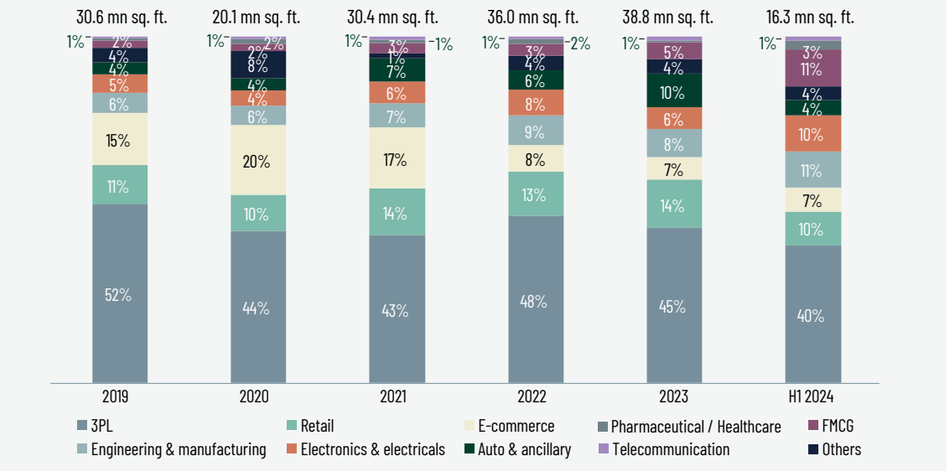
Over the last few years, the engineering and manufacturing sector has experienced exceptional demand for warehousing space. Several factors have contributed to this growth, including the adoption of the China + one strategy by many global manufacturing players, along with policy enablers such as the Production Linked Incentive (PLI) scheme, which now covers 14 sectors.

As a result, the share of sectors catering to the manufacturing space within the total warehousing demand has substantially increased, growing from 15% in 2019 to 24% in 2023, and most recently reaching 25% in H1 2024. This surge in demand for warehousing facilities is a direct consequence of the sector's expansion.

Delhi-NCR remains the dominant market, while cities such as Pune and Chennai are emerging as significant players in warehousing and industrial demand activity. Delhi-NCR has consistently accounted for the largest share of space take-up, increasing from 16% in 2019 to a peak of 24% in 2022, albeit declining slightly to 18% in H1 2024. Chennai witnessed a steady 12-14% growth between 2019 and H1 2024, peaking to 14% in 2023. Pune has witnessed fluctuations; however, its space take-up share rose significantly from 6% in 2019 to 13% in H1 2024.

Note: *This analysis covers only select privately owned industrial spaces across key cities. This excludes industrial estates owned by the government and related bodies.

Figure 3.1: Sectoral distribution of leasing in India's warehousing space over the years



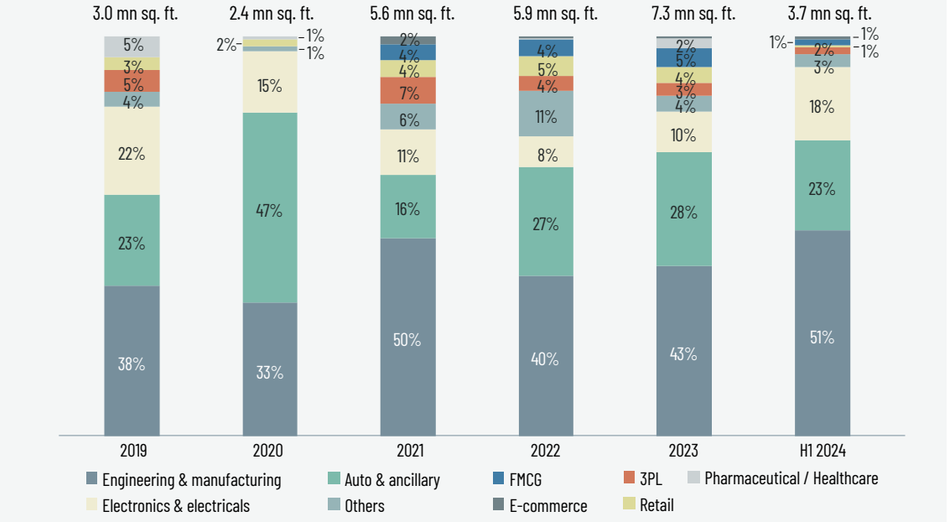
Top manufacturing sub-sectors in the warehousing leasing space (2019 - H1 2024)

DOMESTIC APPLIANCES | AUTO COMPONENTS | AUTOMOBILE

Source: CBRE Research, Q2 2024

Similarly, the share of sectors catering to the manufacturing space within the total industrial demand has also increased exponentially.

Figure 3.2: Sectoral distribution of leasing in India's industrial space over the years*



Source: CBRE Research, Q2 2024

Figure 3.3: Top sub- sectoral distribution of leasing in the industrial space (2019 – H1 2024)*

ENGINEERING & MANUFACTURING

- Metals & Mining
- Advanced Chemistry Cell (ACC) Battery
- Steel

AUTO & ANCILLARY

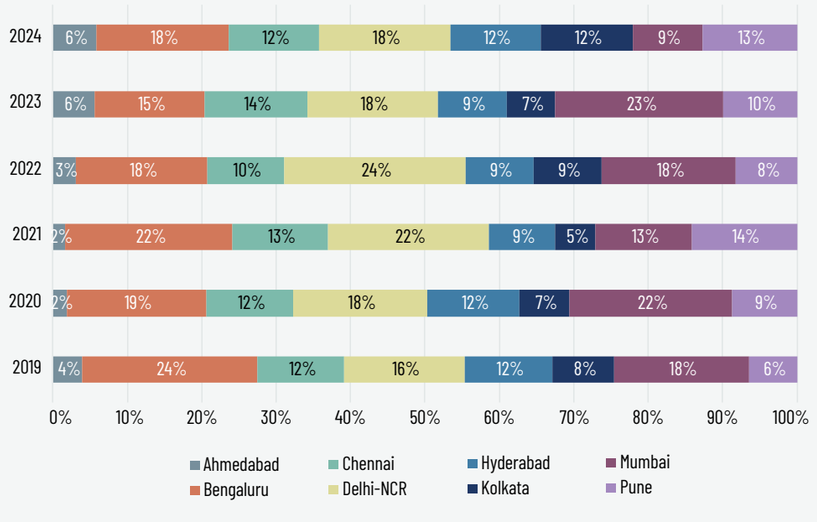
- Auto Components manufacturing
- Automobiles

ELECTRONICS & ELECTRICALS

- Domestic Appliances
- White Goods (ACs and LEDs)
- Mobile manufacturing

Source: CBRE Research, Q2 2024

Figure 3.4: City-wise distribution of warehousing & industrial space take-up by manufacturing players*



Source: CBRE Research, Q2, 2024

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Figure 3.5: Top sub-sectoral distribution of leasing in industrial space across major cities*

Ahmedabad

- Advanced Chemistry Cell (ACC) Battery
- Automobiles
- Health & Personal Care

Mumbai

- Metals & Mining
- Domestic Appliances
- Large conglomerates with presence across multiple sectors

Pune

- Auto Components Manufacturing
- Metals & Mining
- Domestic Appliances

Bengaluru

- Auto Components Manufacturing
- Automobiles
- Metals & Mining

Delhi-NCR

- Domestic Appliances
- Homeware & Departmental Store
- Mobile Manufacturing

Hyderabad

- Domestic Appliances
- Automobiles
- Metals & Mining

Chennai

- Auto Components Manufacturing
- Domestic Appliances
- White Goods (ACs and LEDs)

Source: CBRE Research, Q2, 2024.
Note: *This analysis covers only select privately owned industrial spaces across key cities. This excludes industrial estates owned by the government and related bodies.

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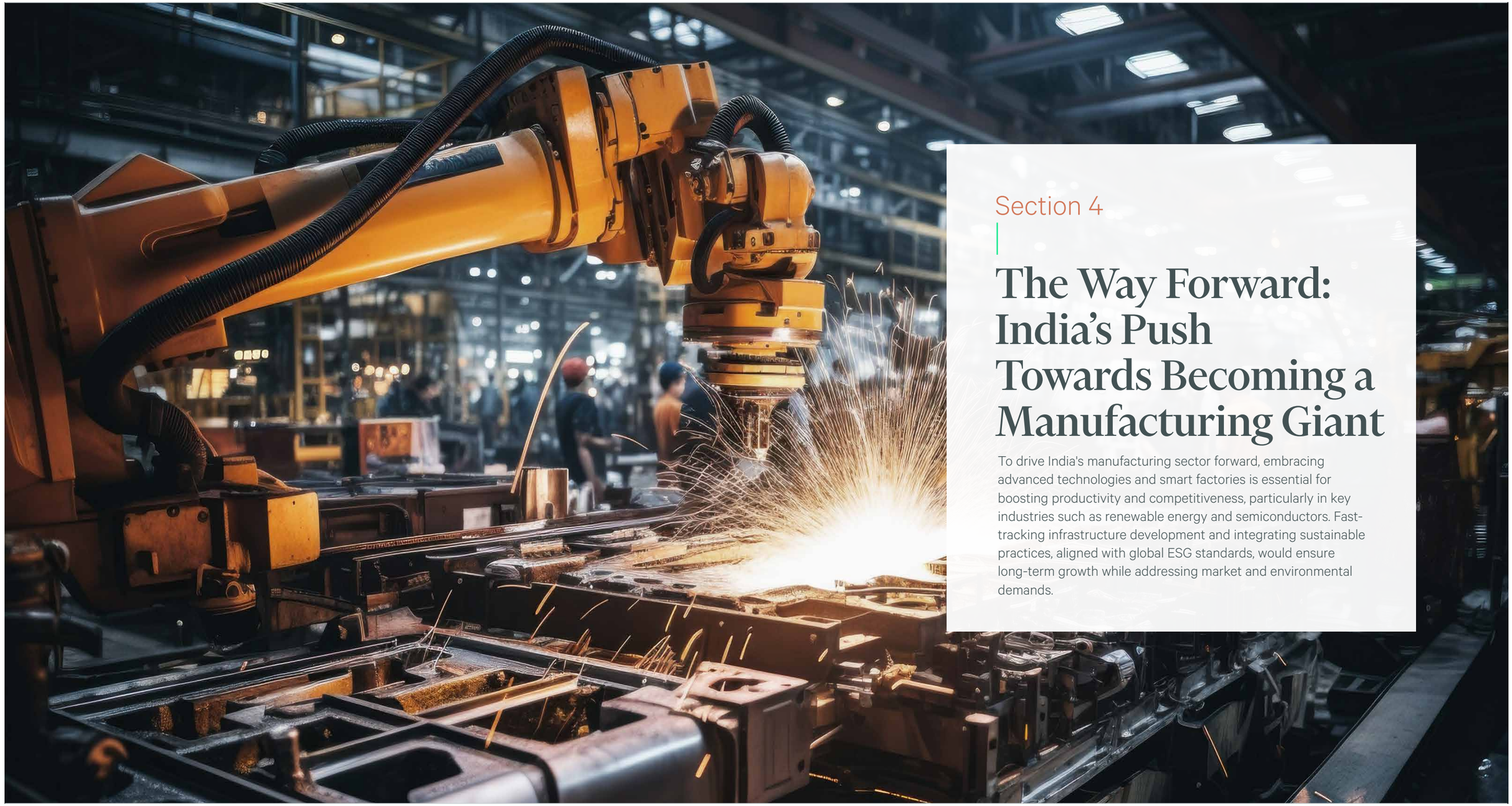

Section 4

The Way Forward: India’s Push Towards Becoming a Manufacturing Giant

To drive India's manufacturing sector forward, embracing advanced technologies and smart factories is essential for boosting productivity and competitiveness, particularly in key industries such as renewable energy and semiconductors. Fast-tracking infrastructure development and integrating sustainable practices, aligned with global ESG standards, would ensure long-term growth while addressing market and environmental demands.

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1. Unlocking Advanced Manufacturing Opportunities

Advanced manufacturing leverages state-of-the-art technologies to streamline and optimise every aspect of the production process. By embracing these cutting-edge techniques, companies gain a significant competitive advantage, enhancing their productivity, efficiency, and adaptability. This approach is particularly vital in key industries such as renewable energy, electric vehicles, batteries, and semiconductors, where advanced manufacturing plays a pivotal role in driving innovation and meeting the market's evolving demands.

Figure 4.1: Key drivers of advanced manufacturing

Robust expansion of domestic consumer markets

Continued economic development in both leading and emerging Asia Pacific markets is likely to boost consumer demand for manufactured goods and further fuel the growth of the region's manufacturing sector.

Global competitiveness in advanced manufacturing supply chain

With the focus of many Asia Pacific economies on digital optimisation, pivots to more advanced manufacturing and continued emphasis on cost optimisation, global competitiveness continues to be a key differentiator for the Asia Pacific region.

Expanded trade liberalisation

Broadening trade ties through free trade agreements, such as the Regional Comprehensive Economic Partnership (RCEP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), will boost growth momentum for manufacturing exports across Asia Pacific.

Figure 4.2: Top four investment destinations for each sector (2018 – 2023)

	Semiconductors	Renewable Energy	Electric Vehicles (EV)
1	China	Australia	China
2	India	India	India
3	Japan	Vietnam	Thailand
4	Malaysia	Philippines	Vietnam

Source: CBRE Asia Pacific Consulting, FDI Markets 2023

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Promoting Smart Factories

Smart factories are a key manifestation of advanced manufacturing. They integrate advanced technologies and digital systems to create highly efficient and interconnected production environments. These factories leverage technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), robotics, cloud computing, and data analytics to optimise manufacturing processes and enhance overall operational performance.

A highly optimised smart factory operates with minimal manual intervention and ensures high reliability. By incorporating automated workflows, synchronised assets, improved tracking and scheduling, and optimised energy consumption, smart factories have the potential to significantly increase yield, uptime, and product quality, while reducing costs and wastage. In addition, they provide a direct pathway for manufacturers to excel in a competitive and dynamic marketplace.

According to Rockwell Automation's 2024 report, 95% of over 1,500 manufacturers across 17 countries are expected to evaluate / use smart manufacturing technologies in 2024. This trend is driven by the need to mitigate risks associated with inflation and rising energy costs. Figure 4.3 illustrates the key features of a smart factory that play a crucial role in enabling manufacturers to make more informed decisions and improve their production processes.

Figure 4.3: Key features of a smart factory

Connectivity

- Real-time data enabling collaboration with stakeholders
- Gather traditional datasets along with IoT sensors and location-based datasets

Optimisation

- Increased asset uptime and production efficiency
- Automated production and material handling with minimal human interaction
- Minimized cost of quality and production

Transparency

- Greater visibility across the facility
- Accurate decision-making by providing tools such as role-based views, real-time alerts and notifications, and real-time tracking and monitoring

Proactivity

- Automated restocking and replenishment
- Real-time safety monitoring
- Early identification of supplier quality issues

Flexibility

- Adapt to schedule and product changes with minimal intervention
- Configure factory layouts and equipment

Source: CBRE Research, Q3, 2024

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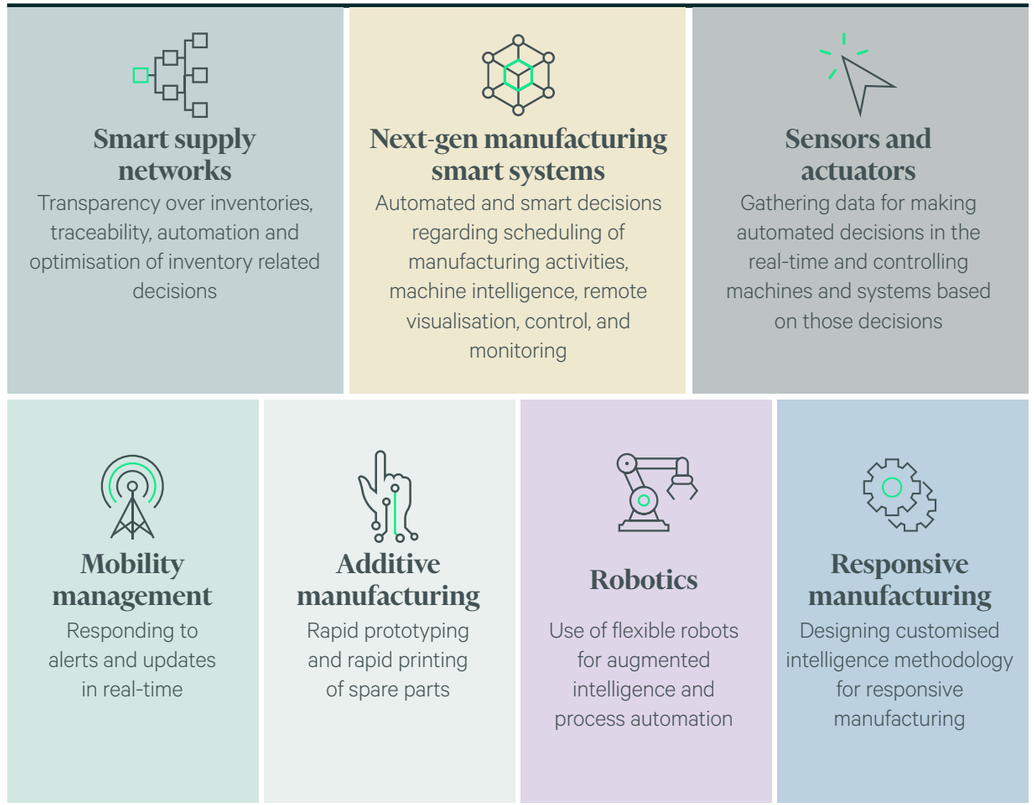
In recent years, the Indian manufacturing sector has experienced a significant transformation, driven by the advent of the Fourth Industrial Revolution (Industry 4.0 / 4IR). This has brought about a fundamental change in manufacturing practices, introducing interconnected systems, automation, and real-time data analysis to create intelligent, adaptable, and digitally-driven production environments. This shift represents a pivotal moment in the manufacturing landscape, where advanced technologies converge to revolutionise traditional manufacturing processes.

Embracing smart manufacturing practices *(refer to Figure 4.4)* is likely to be an imperative for manufacturers in India in the future. Aided by the policy push from the central government, the adoption of Industry 4.0 technology is gaining momentum across diverse sectors nationwide *(refer to Figure 4.5)*.

Figure 4.4: Components of a smart factory



Source: Confederation of Indian Industry, 2017; CBRE Research, Q3, 2024

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Figure 4.5: Smart Factories: How different sectors are deploying advanced automation in their industrial units

Engineering & manufacturing

Auto & ancillary

Electrical & electronics

Pharmaceutical / healthcare

FMCG

Auto and ancillary manufacturers are increasingly leveraging advanced technologies to enhance their manufacturing processes, product offerings, and overall competitiveness. They are adopting additive manufacturing (3D printing) for rapid prototyping and optimising complex parts, digital twins for virtual modelling and simulation, robotics and automation for tasks such as assembly and welding, and connectivity solutions such as the Internet of Things (IoT) for real-time data exchange and advanced telematics services. Artificial Intelligence (AI) and Machine Learning (ML) are being utilised to optimise supply chains and quality control, as well as automate designs and engineering tasks. Augmented Reality (AR) is being explored to enhance in-vehicle displays. At the same time, advanced safety features such as adaptive cruise control and autonomous emergency braking are being integrated to improve vehicle safety. Additionally, these manufacturers are investing heavily in research and development (R&D) and collaborations to access new technologies, develop proprietary knowledge, and produce technologically advanced and complex products, enhancing their competitiveness, pricing power, and profitability.

Apart from 3D printing, digital twins, robotics and automation, advanced manufacturing techniques such as surface mount technology, wave soldering, and conformal coating are being employed by electronics and electrical manufacturers to produce high-quality electronic assemblies and printed circuit boards. Additionally, these manufacturers offer full lifecycle support, from ideation and prototyping to overhauls and repairs, ensuring optimal product performance and longevity. The adoption of these advanced technologies enables electronics and electrical manufacturers to enhance efficiency, quality, reliability, and innovation while minimising errors, costs, and time-to-market.

Similarly, pharmaceutical / healthcare manufacturers are sourcing advanced materials, including biomaterials, and developing smart devices, implants, and bionics integrated with digital platforms for precision healthcare. Moreover, diagnostic and informatics platforms are being explored to accelerate pharmaceutical and medical technology solutions, leveraging data inputs from smart devices and implants.

Despite the promising trajectory, challenges persist, particularly for medium, small, and micro enterprises (MSMEs), grappling with issues related to scale, funding, and leadership in digital adoption. These challenges often hinder their ability to fully leverage the benefits of digitalisation and remain competitive in an increasingly digital landscape.

Source: CBRE Research, Q3, 2024

Figure 4.6: Challenges in adoption of smart factories

Availability of skilled workforce

Cybersecurity

Availability of uninterrupted power supply

Interoperability between devices

Lack of adequate project specifications

Inaccurate change management procedures

Nevertheless, Industry 4.0 presents a transformative opportunity for the Indian manufacturing sector, enabling the adoption of smart, digital, and interconnected production systems. As key players accelerate their smart manufacturing initiatives, the industrial ecosystem in India is poised to achieve enhanced efficiency, agility, and innovation, fostering sustainable growth in the era of the Fourth Industrial Revolution. This technology-forward shift holds immense potential for revolutionising traditional manufacturing practices and positioning India as a competitive global player in the digital age.

Source: CBRE Research, Q3, 2024

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2. Leveraging Specialised Industrial Infrastructure

India's robust industrial infrastructure has been crucial in driving its manufacturing sector forward. It emphasises the nation's appeal for ease of business, encourages collaboration, and enhances productivity. Furthermore, it has attracted foreign direct investments (FDIs), driven export growth, and created substantial employment opportunities, cumulatively contributing to the manufacturing sector's expansion. Industrial infrastructure refers to the integrated set of physical, technological, and organisational structures, including:

- INDUSTRIAL PARKS WITH SHARED FACILITIES
- CONNECTIVITY-ENHANCING INDUSTRIAL CORRIDORS
- UTILITIES AND ENERGY SUPPLY
- COMPREHENSIVE TRANSPORTATION NETWORKS
- ADVANCED COMMUNICATION AND IT INFRASTRUCTURE
- SUPPLY CHAIN AND LOGISTICS SYSTEMS
- ESSENTIAL SUPPORT SERVICES
- DEDICATED RESEARCH AND DEVELOPMENT (R&D) FACILITIES

3. Fast-Tracking Infrastructure Development

The government has augmented its budgetary allocations, acknowledging the significance of enhancing and constructing new infrastructure such as roads, railways, ports, and more. Additionally, the government is taking steps to attract private capital and implement administrative reforms to streamline the planning and execution of infrastructure investments, aiming to improve efficiency. However, despite these efforts, several key challenges persist in expediting infrastructure initiatives.

Figure 4.7: Strategies for streamlining infrastructure development

Challenge	Recommendations
Project timelines and profitability impacted by delays in land acquisition and obtaining necessary clearances	• Nationwide single window clearance system • Expedite land acquisition and environmental clearances • Dedicated committees to oversee project planning and implementation • Securing land and other necessary approvals prior to issuing project tenders
Complex infrastructure financing	• Undertake more comprehensive longer-term planning by all levels of government • Develop suitable investment vehicles and products to attract institutional investors • Generate revenue streams for new / existing projects
Lack of inter-department coordination delaying clearances / approvals	• Set clear objectives for all stakeholders and decisions makers • Establish an accountability matrix and a timebound dispute resolution mechanism
Complex regulatory landscape	• Adopt a uniform and simplified tax structure for infrastructure projects • Develop resilient processes to decode and address complex regulations
Limited connectivity of industrial complexes	• Adopt 'comprehensive industrial clusters' instead of individual parks such as textile clusters, chemical clusters, etc • New port infrastructure development planning to include integrated industrial zones and comprehensive last-mile road and rail connectivity
Lack of a domestic container manufacturing ecosystem	• Include the manufacturing of Corten steel as an integral part of the policy essential to make the production of containers cheaper in India • Rework the PLI scheme for container manufacturing

Source: CBRE Research, Q3, 2024

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4. Adopting Green Manufacturing Strategies

In today's business landscape, achieving sustainability transcends mere product development. Companies increasingly recognise their entire value chain's environmental and social impact. A confluence of external forces drives this shift. Consumers demonstrate a growing preference for sustainable offerings, often willing to pay a premium. Investors prioritise environmentally and socially conscious companies (those adhering to Environmental, Social and Governance principles). Finally, governments are implementing stricter regulations, particularly regarding emissions. This convergence presents a strategic opportunity for businesses to integrate ESG considerations into their core operations, fostering a more sustainable and responsible future.

Figure 4.8: Green strategies for manufacturers - A CBRE view

Asset maintenance & management for performance optimisation

- Mapping processes, identifying gaps, and enhancing turnaround times
- Utilizing Overall Equipment Effectiveness (OEE) and capacity evaluation identify areas for improvement
- Identify wastes and bottlenecks

Eco-efficient manufacturing processes

- Develop well-defined policies, identify key stakeholders and performance metrics
- Minimise non-value-added (NVA) activities, such as overproduction and overprocessing

Leverage technology in building sustainable solutions

- Utilise advanced technologies by leveraging automation, robotics, and artificial intelligence to optimise processes
- Promote digital knowledge through upskilling and change management initiatives

Integrate sustainable norms into organisation's strategic objectives

Create a process team which monitors KPIs to measure the impact of sustainability initiatives, gather feedback from operational teams on areas with optimisation potential

Source: CBRE Research, Q3, 2024

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Section 5

Annexure

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Figure 5.1: World Bank's Global Logistics Performance Index (overall) - A comparison between key APAC economies (1=low to 5=high)

Source: World Bank,February 2024

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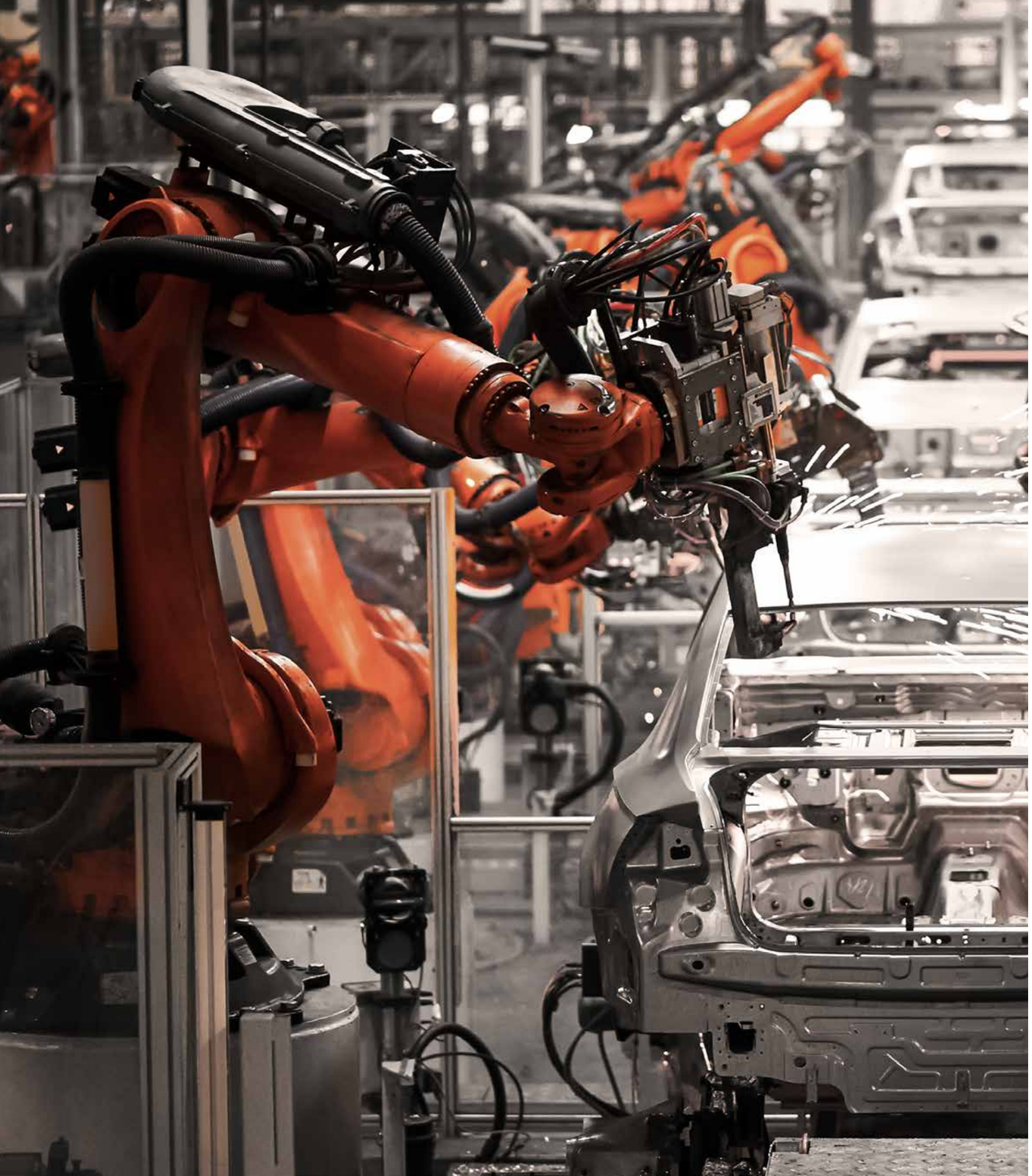

Occupiers consider several factors when setting up a manufacturing facility. These factors can vary depending on the industry and business' unique requirements and circumstances. While cost considerations are important, it is crucial to prioritise operational requirements, efficiency, and strategic location when designing and selecting a site for manufacturing facilities.

Figure 5.2: Key considerations while setting up a manufacturing facility

Flow, Layout and Space Utilization

- One-way flow principle for efficient movement of materials, people, and traffic to avoid cross-flows, high traffic density areas, prioritization of free movement over storage capacity
- Efficient use of vertical space and clear heights, maximum space allocated for operational storage and stock processing

Strategic Location

- Proximity to major suppliers, producers, and customer markets to reduce lead times and transportation costs
- Access to key infrastructure networks
- Availability of skilled workforce

Utilities and Infrastructure

- Availability and costs of utilities such as electricity, water, internet / communication services among others
- Robust power supply and backup systems for manufacturing operations
- Access to supporting infrastructure like roads, drainage, waste management facilities

Regulatory Support and Environmental Factors

- Local zoning laws, regulations, and requirements for any specific industry
- Environmental regulations, waste management, and sustainability considerations

Costs and Incentives

- Land / building costs, rental / lease rates, taxes in the area
- Local government incentives / tax benefits for the manufacturing sector

Site / Building Considerations and Scalability

- Availability of suitable land / buildings of the required size and specifications,
- Ability to scale up operations / expand the facility
- Local factors such as weather conditions, natural disaster risks, traffic patterns

Manpower / Labour availability

- Significant pool of potential workers for manufacturing sector
- Cost competitiveness, as wages in India tend to be lower compared to many developed countries

Source: Source: CBRE Research, Q3, 2024

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- LOGISTICS & DISTRIBUTION HUB EASTERN PROVINCE
- RIYADH BIOTECH CITY
- INTEGRATED LOGISTICS PARK, JEDDAH

UAE
- JEBEL ALI TERMINAL 1 REDEVELOPMENT PROJECT
- ABU SHABI DERIVATIVES AND CONVERSION PARK
- ABU DHABI REGIONAL PLAN ECONOMIC STRATEGY
- RAS AL KHAIMAH ECONOMIC ZONE
- SHARJAH AIRPORT FREE ZONE
- FUJAIRAH FREE TRADE ZONE
- INDUSTRIAL CITY OF ABU DHABI (ICAD)
- ABU DHABI OIL & GAS SERVICES COMPLEX

OMAN
- GREEN HYDROGEN DERIVATIVE PARK, DUQM
- INDUSTRIAL CLUSTERS IN SHINAS AND KHASAB
- 'AIRPORT INDUSTRIAL CITY' - SALALAH AIRPORT

AFRICA

SENEGAL
- DAKAR SPECIAL ECONOMIC ZONE

GUINEA
- CONAKRY ECONOMIC TOWNSHIP

KENYA
- KENGEN INDUSTRIAL PARK IN NAIVASHA

REPUBLIC OF CONGO
- POINTE NOIRE PORT BASED SEZ
- OYO OLLOMBO AGRO SEZ

NIGERIA
- OGUN AIRPORT ECONOMIC ZONE
- LAGOS FREE TRADE ZONE
- EKITI SPECIAL AGRO INDUSTRIAL PROCESSING ZONE
- INTEGRATED ECONOMIC CITY OF ABIA
- SEZS KWARA AND MAKURDI

GABON
- NATIONAL INDUSTRIAL DEVELOPMENT PLAN

IVORY COAST
- PORT BASED ECONOMIC ZONE

EGYPT
- ALEXANDRIA INDUSTRIAL ZONE
- INDUSTRIAL PARK - BORG EL ARAB

TANZANIA
- INVESTMENT ADVISORY FOR GOVERNMENT FUND

SOUTH & SOUTH EAST ASIA

INDONESIA
- JAMBI RIVER PORT SEZ & INDUSTRIAL PARK

MYANMAR
- THILAWA SEZ
- KYAUK PHU SEZ

SRI LANKA
- GREATER HAMBANTOTA REGION

VIETNAM
- LONG HAU INDUSTRIAL PARK
- YEN BINH INDUSTRIAL PARK
- FUTALAND INDUSTRIAL TOWNSHIP

LAOS
- VIENTIANE SMART INDUSTRIAL CITY DEVELOPMENT

SINGAPORE
- INDUSTRIAL PARK AT TERENGGANU
- PERAK HI-TECH INDUSTRIAL PARK

MALAYSIA
- HIGH - TECH SPACE CITY

CAMBODIA
- REAM CITY, SIHANOUKVILLE

INDIA

- MARUBENI NEXGEN INDUSTRIAL PARK
- NICDC - MANUFACTURING CLUSTER IN AGRA
- NICDC - RAJPURA PATIALA MANUFACTURING CLUSTER
- NICDC - JODHPUR PALI MARWAR INDUSTRIAL AREA
- NICDC - ORVAKKAL MEGA INDUSTRIAL HUB
- NICDC - PALAKKAD MANUFACTURING CLUSTER
- NICDC - DHARWAD MANUFACTURING CLUSTER
- NICDC - RATLAM-NAGDA INVESTMENT REGION
- NICDC - AURANGABAD INDUSTRIAL TOWNSHIP
- NICDC - PITHAMPUR DHAR MHOW INVESTMENT REGION
- DMIC PERSPECTIVE PLAN
- ECONOMIC MASTERPLANNING FOR EXPRESSWAY
- NICDC AURIC FOOD PARK IN MAHARASHTRA
- WANDA INDUSTRIAL NEW CITY - HARYANA
- KHED CITY, PUNE
- TATA GOPALPUR SEZ, ODISHA
- AMRAVATI PLAN - NEW CAPITAL OF ANDHRA PRADESH
- GMR KRISHNAGIRI SEZ
- GMR KAKINADA SEZ
- GMR HYDERABAD INTERNATIONAL AIRPORT
- ADANI MUNDRA PORT SPECIAL ECONOMIC ZONE
- JINDAL STEEL SEZ, ODISHA
- KULPI SEZ, WEST BENGAL
- DANKUNI INDUSTRIAL TOWNSHIP, WEST BENGAL

EASTERN EUROPE & CIS

RUSSIA
- TOMSK INNOVATION PARK
- PSKOV MULTIPRODUCT INDUSTRIAL SEZ
- PSKOV FOOD PARK

KAZAKHSTAN
- ALMATY HI-TECH SEZ (PIT)
- ASTANA INDUSTRIAL & INNOVATION SEZ

SOUTH AMERICA

BRAZIL
- ITAJAI INDUSTRIAL INNOVATION PARK
- REGIONAL STRUCTURAL PLAN - SANTA CATARINA

MEXICO
- LAZARO CARDINAS SEZ

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• Sector Opportunities / Product Identification & Assessment (ISIC 3rd Level)	• Utilities Demand Assessment (Power, Water, Sewage, CETP)	• Public Private Partnership (PPP) Structuring	• Governance Model & Management Concept	• Marketing Strategies For Anchors And MSME
• Sector / Product Assessment (Value Chain / Product Life Cycle)	• Common Infrastructure Assessment (MSME Competitive USPs)	• Industrial Master Developer Equity Structuring	• Functions & Process Framework & Flows	• Marketing Budgets & Outreach Assessment
• Sector Wise Value And Volume	• Industrial Demand Assessment (Land, SDF/ LMU Built Up)	• P&L, Balance Sheet And Project Cash Flows	• Organization Structure & Manpower Planning	• Anchor Tenant Interactions And Outreach
• Assessment (Industrial Output & Cargo)	• Park Zoning Inputs, Regional Plan Inputs, Country Industrial Master Plan Inputs	• Government Subsidy Assessment/ Subsidy Deployment Handholding	• E-Land Management Systems/ Single Window Clearance Processes	• Investor / Master Developer Outreach
• Strategic Sector Entry (VRIO & SWOT Along With Porters 5 Forces)	• Industrial Master Planning Principles & Considerations	• Sector Rental Assessment And Reconversion Of Sector Strategies	• Functional Manpower Assessment	• Investment Promotion/ Event Management
• BAU & BIS (Business As Usual/ Business Induced)	• Global Benchmarking	• Feasibility/ Pre-feasibility / Go No Go Decisions	• Transaction Advisory/ Bid Process Management	• Marketing Collateral Design & Development
• Industrial Policy Assessment & Recommendations	• Socio Economic Impact Assessment & Performance	• Industrial SEZ/ FZ To Industrial Park Conversion DPRs	• Performance Evaluation/ KPI Setting	• Advertising/ PR Firm Programme Management
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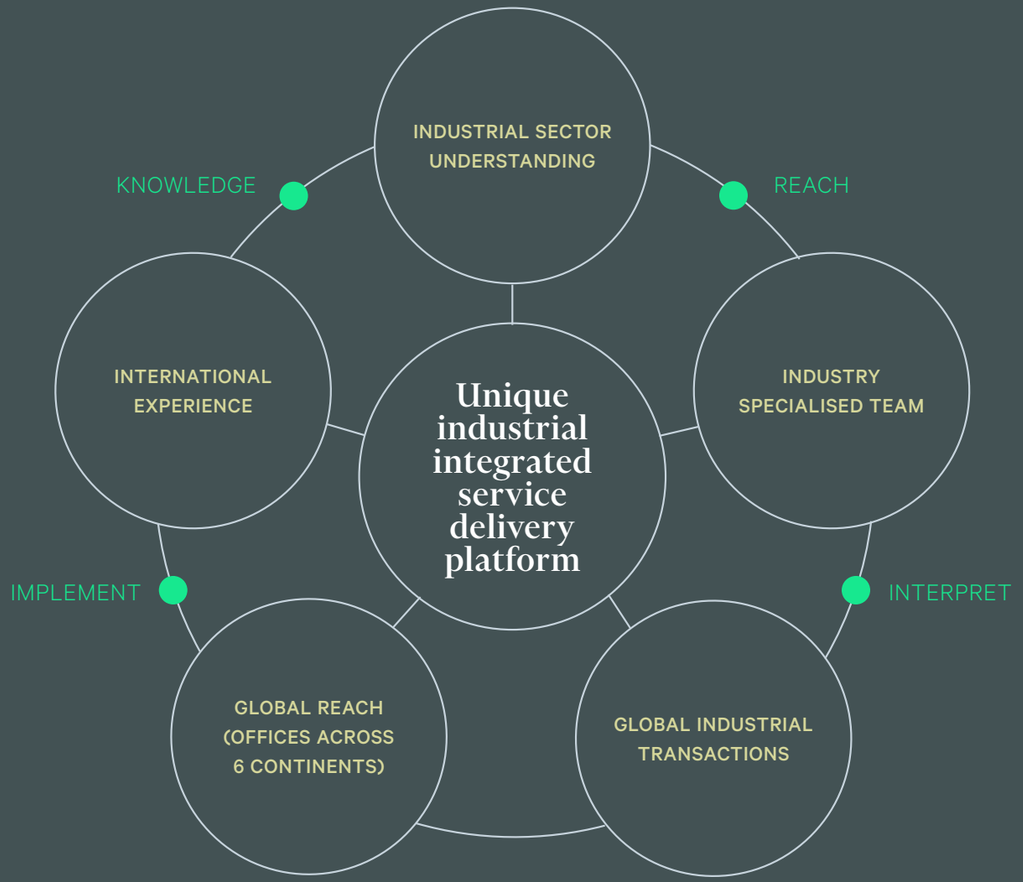
Integrated industrial expertise across sectors



INDUSTRIAL & LOGISTICS

01
HIGH TECH PARKS & INNOVATION ZONES

02
INDUSTRIAL TOWNSHIP

03
INDUSTRIAL CORRIDORS/ REGION

04
RESEARCH & DEVELOPMENT ZONE

05
PORT/AIRPORT INDUSTRIAL HUBS

06
SPECIAL ECONOMIC ZONES/ FREE ZONES

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- Energy
- Oil & Gas
- Chemical & Petrochemicals
- Pharmaceuticals
- Automotive
- Textiles
- ICT
- Defense
- Research & Development

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