

Date: 3rd August, 2026

To,

The Board of Directors
Zetwerk Manufacturing Businesses Limited
#84/ground and 1st Floor
Vaishnavi Sovereign
Green Glen Layout
Bellandur, Bangalore
Bangalore South
Karnataka, India, 560 103

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

Aventus Capital Private Limited
Platina Building, 9th Floor 901, Plot No C-59
Bandra Kurla Complex, Bandra (East)
Mumbai 400 051
Maharashtra, India

Goldman Sachs (India) Securities Private Limited
9th and 10th Floor, Ascent – Worli
Sudam Kalu Ahire Marg
Worli, Mumbai 400 025
Maharashtra, India

HSBC Securities and Capital Markets (India) Private Limited
52/60, Mahatma Gandhi Road
Fort, Mumbai 400 001
Maharashtra, India

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

Morgan Stanley India Company Private Limited
Altimus, Level 39 & 40,
Pandurang Budhkar Marg,
Worli, Mumbai 400 018
Maharashtra, India

Pantomath Capital Advisors Private Limited
Pantomath Nucleus House,
Saki Vihar Road, Andheri East,
Mumbai – 400072,
Maharashtra, India

(Kotak Mahindra Capital Company Limited, Aventus Capital Private Limited, Goldman Sachs (India) Securities Private Limited, HSBC Securities and Capital Markets (India) Private Limited, JM Financial Limited, Morgan Stanley India Company Private Limited and Pantomath Capital Advisors Private Limited, are collectively referred to as the “Book Running Lead Managers” or the “BRLMs”)

Ladies and Gentlemen

Subject: Proposed initial public offering of equity shares of face value of Rs. 1 each (“Equity Shares”) by Zetwerk Manufacturing Businesses Limited (the “Company”) and such offering (the “Offer”)

With reference to the captioned matter, we Redseer Strategy Consultants Private Limited (“**We/Redseer**”), hereby accord our no-objection and our consent to: (i) use of and references to our names to the extent of the information provided by us in our report titled “Overview of Durable Goods Procurement and Manufacturing Platform Market ” dated 3rd August 2026 and enclosed herewith as **Annexure A** (the “**Report**”) (ii) quoting of information or reproduction of content in relation to our Report including its contents or any extract thereof, being included in the updated draft red herring prospectus-I (“**UDRHP-I**”), updated draft red herring prospectus-II (“**UDRHP-II**”), proposed to be filed by the Company with the Securities and Exchange Board of India (the “**SEBI**”), the BSE Limited (the “**BSE**”) and the National Stock Exchange of India Limited (the “**NSE**”, and together with BSE, the “**Stock Exchanges**”) and the red herring prospectus (the “**RHP**”) and the prospectus (the “**Prospectus**” collectively, with UDRHP-I, UDRHP-II, RHP and Prospectus the “**Offer Documents**”), each of which the Company proposes to file with the Registrar of Companies, Karnataka at Bengaluru (the “**RoC**”) and thereafter with the SEBI and the Stock Exchanges and in any addenda, corrigenda, supplements or notices to the Offer Documents and any international supplement(s) of the foregoing, preliminary international wrap and/or final international wrap for distribution to investors outside India and in any other documents including investor presentations, research reports or other material prepared by the Company or the BRLMs in connection with the Offer and in accordance with applicable law (collectively, with the Offer Documents, the “**Offer Materials**”).

We also confirm that we are independent consultants and we do not have any relation with the Company, its subsidiaries, associates/ joint ventures, promoters, members of the promoter group, directors, key managerial personnel, members of senior management and selling shareholders, as listed out in **Annexure B**, and the BRLMs to the Offer and their affiliates, except for preparation of the Report.

We confirm that we are not, and have not in the past, been engaged or interested in the formation, or promotion, or management, of the Company. We also confirm that we do not have any other business relationship with the Company, its subsidiaries or its joint ventures/associates, other than as set out in the engagement letter dated 13th November 2025. We confirm that as per our records, none of the Company, its directors, its promoter(s), its members of promoter group, its subsidiaries, its joint ventures/associates, its key managerial personnel, members of senior management, its group companies, as listed out in **Annexure B** or the BRLMs to the Offer or their affiliates, is a related party with respect to us, as per definition of “related party” provided under the Companies Act, 2013 and the Securities and Exchange Board of India (Listing and Disclosure Requirements) Regulations, 2015, each as amended, as on date of this letter.

We also give our consent to include the Report and this letter as part of the section titled “*Material Contracts and Documents for Inspection*” in the Offer Documents which will be available for public inspection from the date of filing of the RHP until the Bid/Issue Closing Date and have no objection with you sharing the Report with any governmental, regulatory or judicial authority as required by applicable law and/or regulations in relation to the Offer. Further, we consent to the Report and this consent letter being made available on the Company’s website and inclusion of a weblink to the Report and this consent letter in the Offer Documents in order to enable access thereto on the website of the Company.

We also consent to disclose the date of our appointment pursuant to engagement letter dated 13th November 2025 for the purpose of preparing/commissioning this Report, in the Offer Documents. We further consent to this letter and the Report being included for the records to be maintained by the BRLMs in connection with the Offer and in accordance with applicable law, and to the upload of this consent letter and the Report as part of the back-up documents to be retained in relation to the Offer on the online document repository platform established by each of the Stock Exchanges, in accordance with SEBI Circular No. SEBI/HO/CFD/CFD-TPD-1/P/CIR/2024/170 dated December 5, 2024.

We also agree that such disclosures would be made only as deemed fit by the Company and the BRLMs and this letter does not impose any obligation on the Company to include in any Offer Materials, all or any part of the information with respect to which consent for disclosure is being granted pursuant to this letter.

Subject to compliance with the terms hereof, we further confirm that there are no further consents, permissions, approvals or intimation required for reproducing the information contained in the Report in any Offer Documents. This consent will remain valid unless withdrawn in writing by us.

We confirm that we and our associate company/ies (as defined under the Companies Act, 2013) do not hold any Equity Shares of the Company.

We confirm that all information contained in the Report has been obtained by us from sources believed by us to be true and reliable and after exercise of due care and diligence by us. We further confirm that we have, where required, obtained requisite consent that may be required from any authority or any other person in relation to any information used by us in the Report, including consent from publisher or copyright holder in relation to source of information used by us, where applicable. We further confirm that the above information in relation to us is true, fair and correct and there is no untrue statement or omission which would render the contents of this consent letter misleading in its form or context. The Report is not a recommendation to invest/disinvest in any entity covered in the Report and the Report should not be construed as investment advice within the meaning of any law or regulations. RedSeer has prepared this report in an independent and objective manner, and it has taken all reasonable care to ensure its accuracy and completeness.

To the best of Redseer's knowledge, the "Industry Overview" section in the UDRHP - I, UDRHP - II, RHP and Prospectus, shall represent a fair and true view of the comparable industry scenario basis available information. We have taken reasonable care to ensure that the same is neither exaggerated nor has any underlying assumptions that have been willfully omitted for investors to make an informed decision.

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

We confirm that we will immediately communicate any changes in writing in the above information to the Company, BRLMs until the date when the Equity Shares that are allotted and/ or transferred in the Offer, commence trading on the Stock Exchanges. In the absence of any such communication from us, the Company, the BRLMs and the legal counsels, each to the Company and the BRLMs, can assume that there is no change to the above information until the Equity Shares commence trading on the Stock Exchanges pursuant to the Offer.

For the sake of clarity, this consent letter does not provide the right to the Company to name us as an expert on the Offer Documents.

Please ensure that wherever information from the Report is used in the Offer Materials or such other presentations, (i) proper reference of the Report as the source of such information is cited along with; and (ii) the Company should ensure that the information is presented in the same context as that in the Report and should not be selectively extracted and used in a manner that distorts the views expressed by us in the Report.

This consent letter can be relied on by the Company, the BRLMs including their affiliates and the legal advisors to each of the Company and the BRLMs. We hereby consent to the submission and disclosure of this consent letter and the Report as may be necessary to the SEBI, the Stock Exchanges, and any other legal, governmental, regulatory or judicial authorities and/or for any other litigation as may be required or pursuant to an order or request from such authorities.

We agree to keep the information regarding the Offer, your request and this consent letter in relation to the offer are strictly confidential.

This consent letter, including any annexures hereto, is for information and for inclusion (in part or full) in the Offer Documents or any other Offer-related material.

All capitalized terms used herein and not specifically defined shall have the same meaning as ascribed to them in the Offer Documents, as the case may be.

Yours faithfully,

For Redseer Strategy Consultants Pvt Ltd



Authorised Signatory

Name: Rohan Agarwal

Designation: Partner

CC:

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

Shardul Amarchand Mangaldas & Co.

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Karnataka, India

Annexure A

OVERVIEW OF DURABLE GOODS PROCUREMENT AND MANUFACTURING PLATFORM MARKET

Executive summary

- Manufacturing is a foundational pillar of global economic activity, contributing ₹1,430.12 trillion (US\$16.82 trillion) to global GVA in CY2024 and accounting for 16-19% of total output. It underpins employment generation, global trade, and technological advancement, and remains central to value creation across economies
- Global manufacturing is undergoing a structural transition driven by supply chain diversification, policy-led re-industrialisation, and shifting cost dynamics. Production is gradually redistributing across regions as companies reduce concentration risk, with emerging manufacturing hubs such as India gaining share alongside established markets
- This realignment is not uniform across industries and is shaped by the interaction between manufacturing demand growth and the pace of geographic diversification. Sectors such as electric vehicles, renewable energy, consumer electronics, and industrial machinery are witnessing both strong demand expansion and increasing diversification of production, driving manufacturing activity across multiple regions
- India and the United States represent two distinct manufacturing trajectories within this evolving landscape. India's manufacturing sector is expanding through capacity addition, localisation, and rising domestic demand, supported by policy initiatives and increasing integration into global supply chains. In contrast, the United States is witnessing a policy-led re-industrialisation cycle focused on technology-intensive industries, reshoring, and modernisation of existing capacity
- As manufacturing activity scales across industries, demand for procurement of durable goods, including production equipment and engineered components, is increasing in both scale and complexity. Manufacturing procurement of durable goods in India is projected to grow from ₹9.42 trillion (US\$110.85 billion) in FY2021 to ₹37.54-42.57 trillion (US\$441.61-500.78 billion) by FY2031P, while the United States market is expected to expand steadily from ₹46.01 trillion (US\$541.26 billion) to ₹57.92-66.97 trillion (US\$681.38-787.89 billion) over the same period.
- Despite this demand expansion, manufacturing supply remains constrained by structural fragmentation. Capacity is distributed across a large base of small and mid-sized suppliers, limiting visibility, coordination, and consistency in execution. This results in delays in time-to-market, variability in quality, and inefficiencies in capacity utilisation across the manufacturing ecosystem
- These structural gaps have led to the emergence of manufacturing platforms that aggregate demand and orchestrate fragmented supply networks. By standardising processes, improving capacity utilisation, and enabling coordinated execution, these platforms are positioned to address key inefficiencies in manufacturing procurement. As of FY2026, Manufacturing Platforms have a total addressable market (TAM) of ₹ 10.26-12.57 trillion (US\$120.65-147.91 billion) and ₹ 2.07-6.26 trillion (US\$ 24.32-73.60 billion) in India and US respectively.

Section 1: Structural significance of manufacturing in the global economy

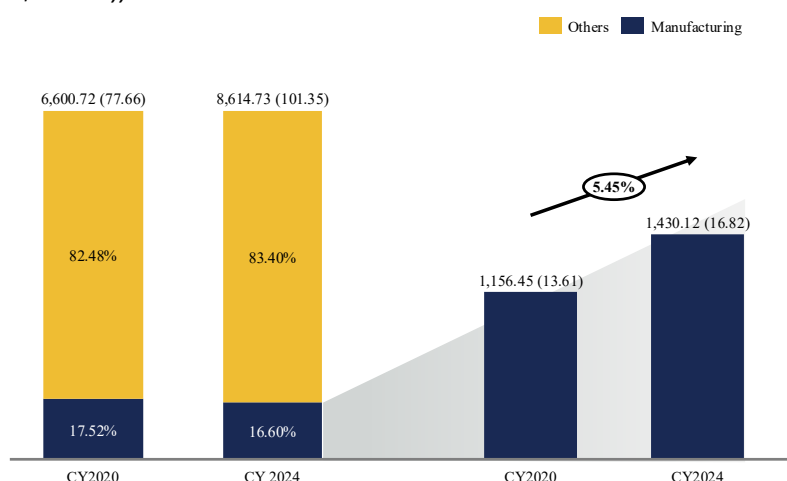
Manufacturing plays a central role in driving economic growth, employment, trade, and technological advancement globally. Over the last century, leadership in manufacturing has transitioned across successive industrial super-cycles from the United Kingdom to the United States, Japan, and most recently China. As the manufacturing landscape further evolves, countries such as India are actively positioning themselves as alternative manufacturing destinations

1.1. Manufacturing is a key engine of global economic growth, driving employment, trade, and technological progress globally

Manufacturing is a foundational pillar of global economic development that enables technological diffusion, supports employment across value chains, and drives international trade. It supports a broad network of interlinked industries, from raw materials and machinery to logistics and services, and is central to value creation in both developed and emerging markets. According to the World Bank, global manufacturing Gross Value Added ("GVA") to global economy reached ₹1,430.12 trillion (US\$16.82 trillion) in Calendar Year ("CY") 2024, up from ₹1,156.45 trillion (US\$13.61 trillion) in CY2020 growing at a Compound Annual Growth Rate ("CAGR") of 5.45%. Additionally, between CY2020 and CY2024, manufacturing's share of global economy GVA remained stable ranging between 16-19%, reinforcing the sector's scale and significance.

Exhibit 1: Manufacturing GVA as a % of Global Economy GVA and Global Manufacturing GVA size and growth

(CY2020-CY2024, share of global manufacturing GVA as a % of global economy GVA, global manufacturing GVA in ₹ trillion (US\$ trillion))



Note(s): 1. Others comprise of all non-manufacturing sectors including agriculture, construction, mining, utilities, trade, transport, financial services, public administration, and other service industries. 2. Gross Value added is the contribution to the economy by manufacturing sector, which is estimated by the total value of output produced and deducting the total value of intermediate consumption of goods and services used to produce that output. Source(s): World Bank

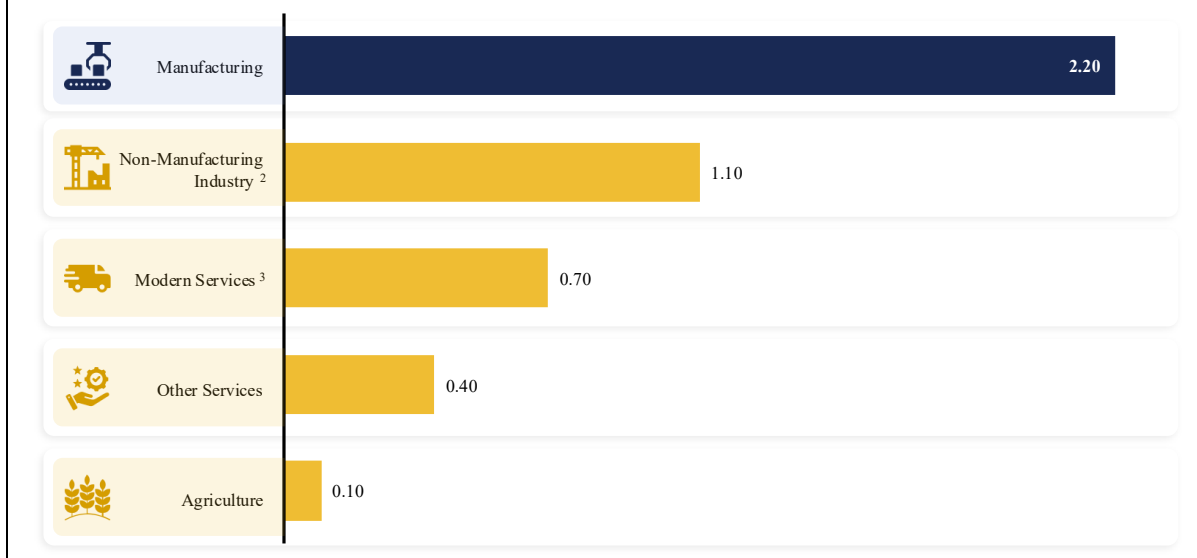
Manufacturing supports global economic expansion through three principal channels: employment generation, trade integration, and technological advancement:

1. Employment Generation

Manufacturing is one of the largest sources of employment globally, accounting for 12.10% of total employment in CY2025 and has the highest job-creation multiplier among major sectors.

Exhibit 2: Multiplier effect of additional employment generated in other sectors for each direct employment created in a given sector - across sectors¹

(CY2020, multiplier in absolute number)



Note(s): 1. The bars in the graphs represent the total employment multipliers, which indicate how many additional jobs are created in other sectors for each direct job generated within a given sector. The multipliers cover 76 countries in 2020 and are estimated by using Input-Output techniques. 2. Non-manufacturing sector includes mining, utilities and construction (ISIC codes B, D and E). 3. Modern services includes transport, communication, finance and business services (ISIC codes H, J, K, L, M and N).

Source(s): United Nations Industrial Development Organisation ("UNIDO")

2. Facilitating trade between countries

Manufacturing is key to global trade flows, with manufactured goods accounting for 69.49% of world merchandise exports in CY2024. As of CY2024, manufactured goods formed 55.65% of total merchandise exports from the United States ("US"), 91.16% from China, 67.10% from India, 84.13% from Germany, and 87.29% from Republic of Korea, highlighting manufacturing's predominance in global trade.

3. Driver of Technological Advancement

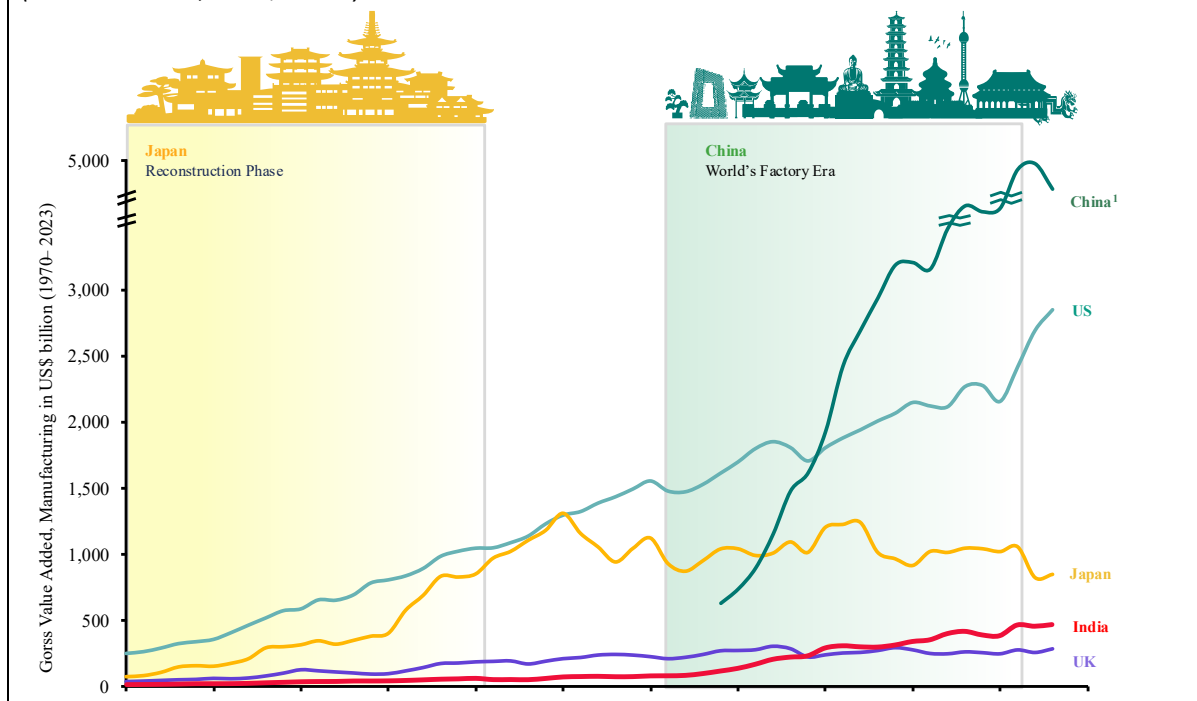
Manufacturing is the largest driver of global enterprise research & development (R&D) expenditure as innovation in products, materials, automation, and production processes is deeply embedded in how goods are made. Manufacturing accounts for a majority share of enterprise R&D across leading manufacturing economies in terms of GVA, with 54.71% of total enterprise R&D expenditure in the US (CY2023), 77.34% in Germany (CY2023), 76.94% in China (CY2024), 88.55% in the Republic of Korea (CY2024), and 40.80% in India (CY2021).

Manufacturing is foundational to the global economy GVA and its scale along with its interdependence across sectors make it central to value creation. Over time, shifts in technology, resource advantages, and policy priorities have periodically redefined the global manufacturing landscape, with leadership moving across regions and economies.

1.2. Evolving manufacturing super-cycles have led to shifting centers of global manufacturing leadership

Over the past century, global manufacturing has moved through multiple super-cycles that reshaped global production. The following periods trace how successive economies built and expanded manufacturing ecosystems, setting the foundation for today's globally integrated industrial base.

Exhibit 3: Manufacturing Gross Value Added - US, UK, Japan, China, India
(CY1971-CY2024, in US\$ billion)



Notes: 1. UN reports China data from 2004 onwards.

Source(s): UN

- 1. United Kingdom - The colonial wave (1900-1940):** Britain's manufacturing dominance grew during the colonial supercycle of the 20th century, when mechanisation combined with access to colonial markets and raw materials drove industrial expansion. By CY1913, UK contributed around 13.60% of global manufacturing output, with large sections of the workforce employed in steel, textiles, and shipbuilding.
- 2. US - Post-World War II industrial wave (1940-1970):** In the decades after World War II, the US became the center of global industrial production, supported by unmatched capital investment and domestic demand. Through the 1950s, manufacturing consistently contributed around 25-30% of US Gross Domestic Product ("GDP"), transitioning US into a modern, consumption-led industrial economy with global reach.
- 3. Japan - Reconstruction and export-led expansion (1960-1990):** Japan's recovery phase evolved into an export-driven super-cycle through precision engineering, lean production, and focus on quality. Between 1960 and 1980, industrial value increased significantly, lifting manufacturing's share to its GDP above ~28%.
- 4. China - The "World's Factory" era (2000-2020):** China's manufacturing rise was driven by a combination of policy liberalization, large-scale infrastructure investment, and integration into global supply chains following its accession to the WTO in 2001. China emerged as the world's largest manufacturing hub, accounting for ~28% of global manufacturing output in CY2024 and contributing ~25% of GDP of China as of CY2024.

Global manufacturing is entering a new phase of re-industrialisation and strategic rebalancing. While earlier industrial cycles were driven by export competitiveness and deep global integration, the current decade is defined by resilience, supply security, and geographic diversification. Governments across major economies are advancing industrial policy to strengthen domestic manufacturing bases, while companies are expanding production footprints beyond traditional hubs to mitigate concentration risk. Countries such as India are actively

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Exchange Rate: US\$ 1 = ₹ 85

positioning themselves as alternative manufacturing destinations, attracting investment as firms seek to build more distributed and resilient supply chains.

Section 2: Policy-led re-industrialisation in the global manufacturing landscape

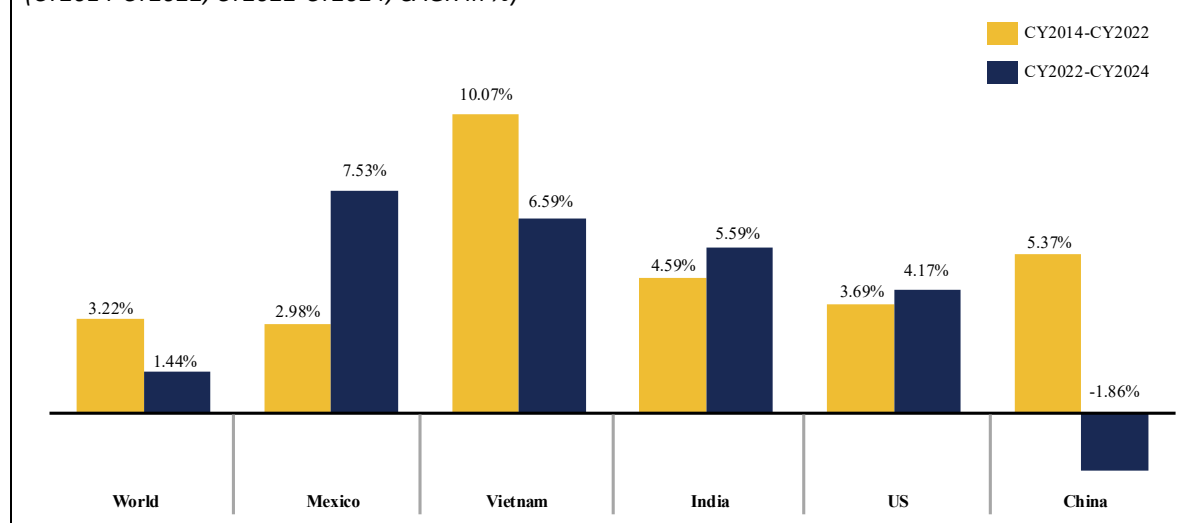
Global manufacturing is undergoing a structural shift with emerging economies like India, Vietnam, and Mexico rapidly growing their manufacturing bases through policy support, cost advantages, and capability development. Re-industrialisation is set to be based on aligning manufacturing products and processes with industrial demand and industrial diversification velocity. India is progressing from assembly to production-led manufacturing, while the US is experiencing a policy-driven manufacturing resurgence centered on technology-intensive industries.

2.1. The global manufacturing landscape reflects emerging realignment trends

The global manufacturing ecosystem is undergoing a structural realignment, driven by supply chain diversification, evolving industrial policies, and shifts in regional cost competitiveness. In recent years, China's manufacturing growth has moderated amid rising input costs, maturing export segments, and broader global trade realignments. Between CY2014 and CY2022, China's manufacturing GVA increased from ₹270.66 trillion (US\$3.18 trillion) to ₹411.40 trillion (US\$4.84 trillion), reflecting a CAGR of 5.37%. However, over CY2022 to CY2024, its manufacturing GVA declined at a CAGR of 1.86%, indicating a moderation in growth momentum and gradual adjustment in its share of global manufacturing output.

Against this backdrop, the global "China+1" strategy has accelerated in the post-COVID period, as manufacturers particularly those headquartered in the United States have begun actively diversifying their supply chains away from China toward alternative manufacturing hubs such as India, Vietnam, and Mexico to mitigate concentration risks and enhance supply chain resilience.

Exhibit 4: Growth in manufacturing GVA - World, China, US, India, Mexico, Vietnam
(CY2014-CY2022, CY2022-CY2024, CAGR in %)



Notes: World Bank reports India's data on FY basis

Source(s): World Bank

While macro-level growth trends indicate evolving geographic distribution of manufacturing output, the implications of this realignment vary significantly by industry. Understanding how product complexity, process intensity, and industry growth interact within the broader manufacturing ecosystem requires moving beyond aggregate output metrics.

2.2. Manufacturing diversification reflects the alignment between process capabilities and industry demand dynamics

The global realignment of manufacturing is not playing out uniformly across industries. The extent to which countries benefit from supply-chain diversification depends on how well their underlying manufacturing process capabilities align with the specific demand dynamics and diversification patterns of different end-use sectors.

Manufacturing industries rely on distinct combinations of core processes - casting, machining, fabrication, surface treatment, electronic and electro-mechanical assembly, among others - with each product category requiring its own mix of primary and secondary processes. A country's ability to participate in supply-chain diversification is therefore closely tied to the depth and breadth of its process capabilities. Industries with higher growth and diversification momentum tend to reward countries that can execute multiple process types reliably and at scale. Understanding which industries are experiencing both strong demand growth and active geographic diversification provides the analytical basis for assessing where manufacturing rebalancing is most likely to occur.

Manufacturing demand framework: Identifying industries where growth prospects align with speed of diversification

The manufacturing demand framework links process capabilities with demand conditions in end-use industries and observed diversification patterns.

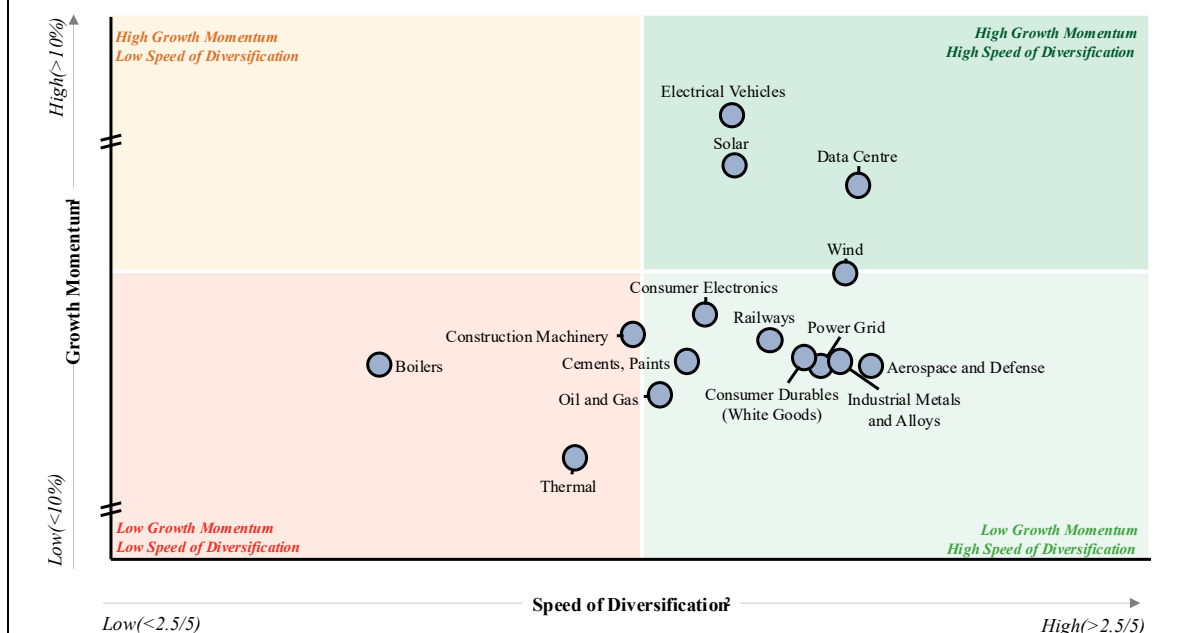
The framework is structured around two complementary dimensions: (i) manufacturing demand growth and (ii) speed of manufacturing diversification

- **Manufacturing demand growth:** it represents the projected CAGR in manufacturing demand for different industries between CY2024 and CY2030P, reflecting expected changes in industry output over the period
- **Speed of manufacturing diversification:** it assesses the extent to which industries are redistributing production and trade linkages across geographies and captures both the changes in export distribution of each industry and regional policy support. This incorporates:
 - a) **Changes in export distribution:** it measures the dispersion of exports within each industry over a five-year period, indicating the reliance on one region. The dispersion of exports over a five-year period is measured using the change in the Herfindahl-Hirschman Index ("HHI"), a concentration metric that evaluates the top five countries' share in global exports for each industry. A decline in HHI signals increasing diversification, suggesting that manufacturing and trade activity are spreading across more regions.
 - b) **Regional policy support:** it assesses the strength and design of industrial policy interventions, including production incentives, fiscal subsidies, clean energy credits, and localization programs, that collectively promote domestic manufacturing expansion and export competitiveness.

Given the cyclical nature of manufacturing industries, a temporary slowdown often precedes a strong rebound as inventory restocking, investment cycles, and policy support take effect. For instance, global semiconductor output declined by ~10% (Y-o-Y) in CY2023 but expanded by ~22% (Y-o-Y) in CY2025 to reach about ₹67.63 trillion (US\$795.64 billion). Similarly, machinery and equipment production typically follows a 3-5-year investment cycle, showing periodic surges aligned with capital expenditure peaks. Considering this inherent cyclicity, and the relatively stable nature of diversification speed over the medium term, the framework identifies industries on the right-hand side of Exhibits 5a and 5b, those with high diversification speed, as presenting stronger and more resilient growth prospects over the medium term.

Exhibit 5a: Manufacturing Demand Framework: Manufacturing Demand CAGR vs. Speed of Manufacturing Diversification - India

Descriptive



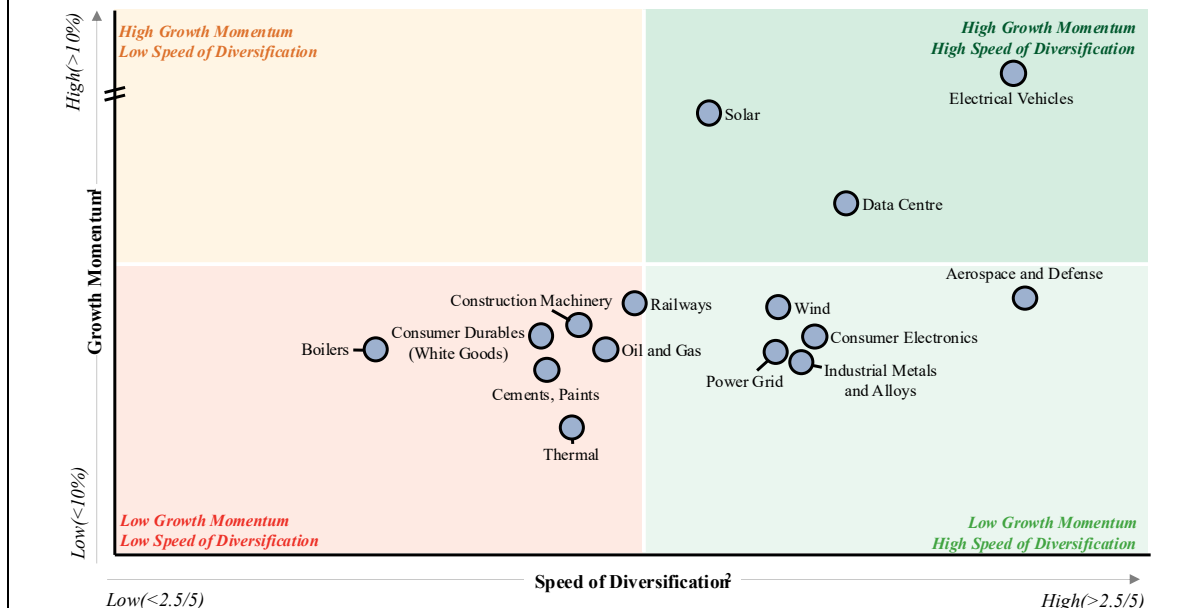
Note(s): Manufacturing demand: Represents the relative growth outlook for each industry, based on projected market-size CAGR. Each industry is rated on a comparative 1-5 scale reflecting its expected growth trajectory; Speed of manufacturing diversification: Represents the change in export concentration of the industry's end products and regional policy initiatives favouring the industry. Equal weightage is assigned to 1. the degree of export concentration and 2. the level of policy support, and industries are rated relatively on a 1-5 scale.

Source(s): Redseer research and analysis

In India, electric vehicles, solar, data center, wind, consumer electronics, railways, power grid, industrial metals and alloys and aerospace and defense are the industries of interest basis growth prospects of the manufacturing demand and high speed of manufacturing diversification

Exhibit 5b: Manufacturing Demand Framework - Manufacturing Demand CAGR vs. Speed of Manufacturing Diversification - US

Descriptive



Note(s): Manufacturing Demand: Represents the relative growth outlook for each industry, based on projected market-size CAGR. Each industry is rated on a comparative 1-5 scale reflecting its expected growth trajectory; Speed of Diversification: Represents the change in export concentration of the industry's end

products and regional policy initiatives favouring the industry. Equal weightage is assigned to (i) the degree of export concentration and (ii) the level of policy support, and industries are rated relatively on a 1-5 scale.

Source(s): Redseer research and analysis

Based on the manufacturing demand framework for the United States, certain industries demonstrate relatively higher manufacturing demand growth alongside greater levels of diversification. These include electric vehicles, solar, data centres, aerospace and defence, railways, wind, consumer electronics, power grid equipment, and industrial metals and alloys.

As manufacturing activity varies across industries and regions, participation may depend on the feasibility of domestic production capabilities and alignment with evolving end-market demand and diversification trends. The extent of manufacturing expansion across geographies may be influenced by how domestic manufacturing ecosystems align with these industry-level dynamics.

2.3. Structural growth drivers are sustaining manufacturing expansion in India and the United States

Among the economies positioned to benefit from this realignment, India and the United States represent two distinct but complementary manufacturing trajectories - India driven by rapid capacity addition, localization, and rising domestic demand, and the US by policy-led re-industrialization, reshoring, and technology modernization. Both markets are supported by a combination of policy frameworks, demand conditions, and supply-side developments that are reinforcing sustained manufacturing expansion.

2.3.1. India: From assembly to production-led manufacturing

India's manufacturing sector has expanded over the past decade. As of CY2024, India's manufacturing GVA stood at ₹41.68 trillion (US\$490.40 billion), compared to ₹26.11 trillion (US\$307.21 billion) in CY2014, reflecting a CAGR of approximately 4.79% over the period. During the same timeframe, global manufacturing GVA grew at a CAGR of approximately 2.86%, indicating a comparatively higher growth rate (~1.7 times) for India relative to the global average. India's manufacturing profile has expanded beyond assembly-led activities toward greater domestic production of components and intermediate goods, supported by policy initiatives such as the Phased Manufacturing Programme ("PMP") and the Production Linked Incentive ("PLI") scheme, which have increased domestic value addition. In addition, global firms are diversifying their production bases as part of broader supply-chain strategies, with India emerging as one of the destinations across sectors such as electronics, automotive, and renewables.

India's ongoing manufacturing upcycle is being sustained by three structural growth drivers.

Government push and favourable policy environment: A multi-year policy-led capital-expenditure cycle is driving renewed manufacturing activity across industries. PLI schemes covering 14 industries including electronics, automotive, and renewables have attracted cumulative commitments exceeding ₹1.97 trillion (US\$26.00 billion) as of CY2025, with over ₹1.88 trillion (US\$22.50 billion) in realised investments and 2.10 million jobs created. The National Infrastructure Pipeline ("NIP") has attracted investments worth ₹31.10 trillion (US\$365.88 billion) during CY2020-CY2025 across energy, transport, and industrial parks. Thermal power installed capacity in India expanded at a CAGR of ~1% between FY2021 and FY2026, growing from 234.73 GW in FY2021 to 249.27 GW in FY2026 and estimated to grow further to 315.91 GW in FY2033. Industry average lead times for power transformer manufacturing range from 30-36 months in India to 36-42 months in the United States, reflecting the extended procurement cycles associated with energy infrastructure expansion in both markets. Make in India and Atmanirbhar Bharat initiatives have driven localisation and MSME participation, with electronics manufacturing growing from ₹5.47 trillion (US\$64.30 billion) in FY2020 to ₹11.30 trillion (US\$132.94 billion) in FY2025. India also implemented over 3,000 regulatory reforms from FY2015 to FY2020, improving its World Bank Ease of Doing Business ranking from 142nd in CY2014 to 63rd in CY2020. Complementing these measures, the National Logistics Policy ("NLP"), launched in CY2022 in coordination with the PM Gati Shakti

initiative, focuses on improving multimodal connectivity, reducing logistics costs, and strengthening supply-chain efficiency.

Demand-side drivers: India is experiencing a significant middle-class expansion, with the share of upper-middle and high-income households (annual income beyond ₹0.80 million) projected to rise from 35% in FY2026 to ~43% in FY2031P, while lower-income households (annual income below ₹0.30 million) are projected to decline from ~33% to ~26% during the same period. With a median age of ~29 years and a working-age share of ~68% as of CY2025, India is set to add nearly 110 million people to its labour force this decade. Urbanisation has reached 35.38% in CY2024, up from 32.23% in CY2014, expanding demand for housing, automobiles, and consumer durables. On the export side, India has emerged as a key alternative under the global “China+1” strategy, with Foxconn committing ~₹136.00 billion (US\$1.60 billion) in CY2023 and Toyota, Honda and Suzuki committing ~₹975.00 billion (US\$11.50 billion) in CY2025. India has also signed five major trade agreements and Economic Cooperation and Trade Agreements (ECTAs) since 2021, reducing tariff barriers on Indian goods.

Supply-side drivers: India’s manufacturing supply base has expanded through higher private capital expenditure, foreign investment, and faster technology adoption. Private-sector investment in manufacturing reached ₹1.50 trillion (US\$17.69 billion) in FY2025, up 16.66% from ₹1.29 trillion (US\$15.17 billion) in FY2022. FDI inflows into manufacturing totalled ₹1.62 trillion (US\$19.04 billion) in FY2025 with Y-o-Y growth of 18%. Seasonally adjusted manufacturing capacity utilisation has strengthened from 68.30% in the quarter ending FY2020 to 77.70% in the quarter ending FY2025, highlighting sustained improvement in absorption of installed capacity. Concurrently, rapid adoption of automation, IoT, and AI-based process optimisation has improved productivity and quality performance across production networks.

As stated above, manufacturing in India has multiple secular tailwinds, such as China+1 diversification, 'Make in India,' defence indigenisation, and large infrastructure spending on public and private capital expenditure, but faces challenges around supply fragmentation, thereby creating reliability issues.

2.3.2. The United States: Policy-driven re-industrialization and reshoring

The US manufacturing GVA increased from ₹170.82 trillion (US\$2.01 trillion) in CY2014 to ₹247.61 trillion (US\$2.91 trillion) in CY2024, reflecting stable expansion at a CAGR of ~3.78%. Manufacturing maintained its contribution of around 10.23% to total GVA and accounted for 55.65% of US merchandise exports for CY2024. Supported by robust private investment and sustained consumer demand, US manufacturing output has remained stable as a share of the overall economy, even as its composition has shifted toward technology-intensive and clean-energy industries.

The ongoing capital-expenditure cycle in US manufacturing is being propelled by two principal forces.

Policy push and import substitution measures: The US has imposed targeted tariffs on steel, aluminium, automobiles, auto parts, and solar panels in CY2025-26 to protect domestic industries and address supply-chain risks. Three landmark legislations collectively anchor the current industrial policy framework: the CHIPS and Science Act (CY2022) allocates ~₹38.25 trillion (US\$450.00 billion) for domestic semiconductor manufacturing and research; the Inflation Reduction Act (“IRA”, CY2022) includes ~₹31.37 trillion (US\$369.00 billion) in energy and climate incentives boosting EV, battery, and clean-tech production; and the Infrastructure Investment and Jobs Act (“IIJA”, CY2021) earmarks ₹102.00 trillion (US\$1.20 trillion) for infrastructure upgrades, logistics networks, and supply-chain resilience. US spending on AI and data centre infrastructure is projected to reach ~2% of GDP in CY2026, with investment levels well above those of other countries. Buy American provisions under federal procurement guidelines mandate preference for domestically produced goods in public contracts, while Foreign Entity of Concern (“FEOC”) rules under the IRA restrict Chinese-linked sourcing in EV batteries, accelerating allied supply-chain localization. Targeted anti-dumping and countervailing duty (“AD-CVD”) measures further protect domestic industries from subsidized imports.

Supply-side drivers: US manufacturers are leading global adoption of automation, robotics, additive manufacturing, and AI-enabled production systems, driving productivity gains and improving cost efficiency across industrial facilities. Reshoring announcements exceeded ₹144.50 trillion (US\$1.70 trillion) in value by CY2024, led by semiconductor fabrication, EV batteries, and renewable-energy components. The manufacturing project pipeline remains strong, with announced investments since CY2021 surpassing ~₹85 trillion (US\$1 trillion), largely concentrated in semiconductors, EV-battery, and clean-energy industries.

The rapid adoption of Generative AI is driving strong demand for AI infrastructure. Technology companies are investing heavily in AI data centres, which require advanced cooling systems, robust power infrastructure, and server racks to support high-performance computing. At the core of these data centres are Graphics Processing Units ("GPUs"), which provide the computational power for AI training and inference. Demand for GPUs is growing rapidly, with the semiconductor market projected to increase from ₹67.63 trillion (US\$795.6 billion) in CY2025 to approximately ₹128.46 trillion (US\$1.51 trillion) by CY2026.

The convergence of policy support, demand expansion, and supply-side investment across India and the United States is driving sustained growth in manufacturing output. As production capacity scales across high-growth industries identified earlier in this section, including electric vehicles, solar, aerospace and defence, consumer electronics, and data centres, the associated demand for procurement of production equipment, precision components, and intermediate materials is expanding in both scale and complexity.

Section 3: Manufacturing procurement of durable goods in India and the US

Manufacturing procurement of durable goods is driven by capital expenditure and material consumption in operating expenditure. Procurement growth, however, varies significantly across industries, with a limited set of industries growing above the overall growth rate of manufacturing procurement of durable goods. India's manufacturing procurement of durable goods is expanding rapidly from ₹9.42 trillion (US\$110.85 billion) in FY2021 to ₹17.37 trillion (US\$204.37 billion) in FY2026 and ₹37.54-42.57 trillion (US\$441.61-500.78 billion) by FY2031P, driven by policy-led capacity addition, localisation, and rising domestic demand. In contrast, the US procurement market for durable goods is witnessing steady growth from ₹46.01 trillion (US\$541.26 billion) in FY2021 to ₹53.12 trillion (US\$624.90 billion) in FY2026 and ₹57.92-66.97 trillion (US\$681.38-787.89 billion) by FY2031P, anchored in re-industrialisation and technology-driven modernisation of an established manufacturing base.

3.1. Manufacturing procurement flows through two distinct channels of fulfilment

Procurement in manufacturing typically spans two stages of the manufacturing lifecycle: prototype design, and manufacturing operations.

- Prototype design supports early-stage product development, validation and customization. Demand at this stage is generally high-mix and low-volume, with a focus on testing, iteration and design refinement rather than large-scale production
- Manufacturing operations represent the scaled production phase of the lifecycle and account for a significant share of industrial demand. Procurement in this phase is influenced by (i) capital expenditure aimed at expanding or upgrading production capacity and (ii) recurring operating consumption required to sustain ongoing output.

Manufacturing capital expenditure ("Capex"):

Manufacturing capital expenditure refers to investments made to establish, expand, upgrade, or maintain production facilities. At a broad level, this includes spending on plant infrastructure, engineering and utility systems, and production equipment. Such investments support both greenfield capacity creation and brownfield expansion and are typically undertaken by asset owners.

For example, a solar panel manufacturing facility involves multiple layers of capital investment. This includes plant infrastructure such as factory buildings, cleanrooms, and warehousing; engineering utilities such as high-capacity power supply, water purification systems, and compressed air systems; and production equipment including wafer processing lines, cell fabrication systems, automated module assembly machinery, and integrated testing platforms.

Production equipment forms the core component of capital expenditure in manufacturing. It includes processing and fabrication equipment, forming machinery, assembly and material-handling systems, as well as quality control, testing, and inspection equipment used to enable scaled production.

Capital expenditure is largely project-based, with demand being non-recurring in nature and closely linked to macroeconomic cycles. During the COVID-19 pandemic, a sharp contraction in discretionary capital spending across the industries highlighted the limitations of the project-driven model, as it can lead to sudden volatility in order flows and prolonged periods of idle capacity.

Manufacturing operating expenditure ("Opex"):

Manufacturing operating expenditure refers to the recurring costs incurred during production activities. At a broad level, this includes expenditure on material consumption, labor and contract services, utilities and energy consumption, and other production-linked services.

In an electric vehicle manufacturing facility, for example, material consumption typically represents the largest recurring component and includes battery materials and electronics, utilities and energy costs include electricity, water supply, and compressed air, labor and contract services comprise wages for production workers, engineers, quality personnel, and outsourced facility staff, and other production-linked services include logistics, safety compliance, and environmental management. systems, structural components, and engineered assemblies incorporated into the finished vehicle.

Material consumption forms the core of recurring manufacturing procurement. It includes inputs ranging from standardized materials defined by grade and form factor to engineered components specified through detailed drawings, tolerances, and functional requirements, where value addition is linked to manufacturing precision and supplier process capability.

For instance, in precision electronics manufacturing, OEMs typically specify defect thresholds in parts per million (ppm), requiring suppliers to maintain rigorous process control and inspection systems to meet acceptance standards. A typical quality benchmark for components such as washing machine controllers is 500 ppm.

Unlike capital expenditure, which is project-driven, operating expenditure is linked to the continuity and scale of production. As manufacturing output expands, firms require a steady flow of input to sustain throughput and maintain operational efficiency. As a result, operating expenditure generates recurring procurement demand that is more stable and predictable compared with project-based investment cycles.

As these expenditures are related to sustained production continuity, operational procurement is typically led by original equipment manufacturers (OEMs) responsible for maintaining throughput and efficiency.

Exhibit 6: Characteristics of Manufacturing Procurement Demand

Parameter	Prototype Design	Manufacturing Operations	
		Capital Expenditure	Operating Expenditure
Frequency	Occasional / on-demand	Linked to investment / expansion cycles	Constant, daily/weekly
Product Mix-Volume	High Mix – Low Volume	High Mix – Low Volume	Low Mix- High Volume
Nature of manufacturing spend	Custom	Non-recurring, tender-driven	Stable, Bill of Materials (“BOM”) driven
Project lifecycle duration	Short, iterative (days to weeks)	Medium-term (weeks-months)	Long-term (multi-year, typically 2-5 years)
Examples	- Transformer trial unit - Turbine blade prototype - Engine housing trial part	- Boilers - Heat Exchangers - Transformers	- PCBA - Bearings - Fasteners
Functional impact	Enables innovation	Enables capacity creation	Drives scalable value creation

Source(s): Redseer research and analysis

Manufacturing procurement further can be broadly categorized into durable and consumable goods

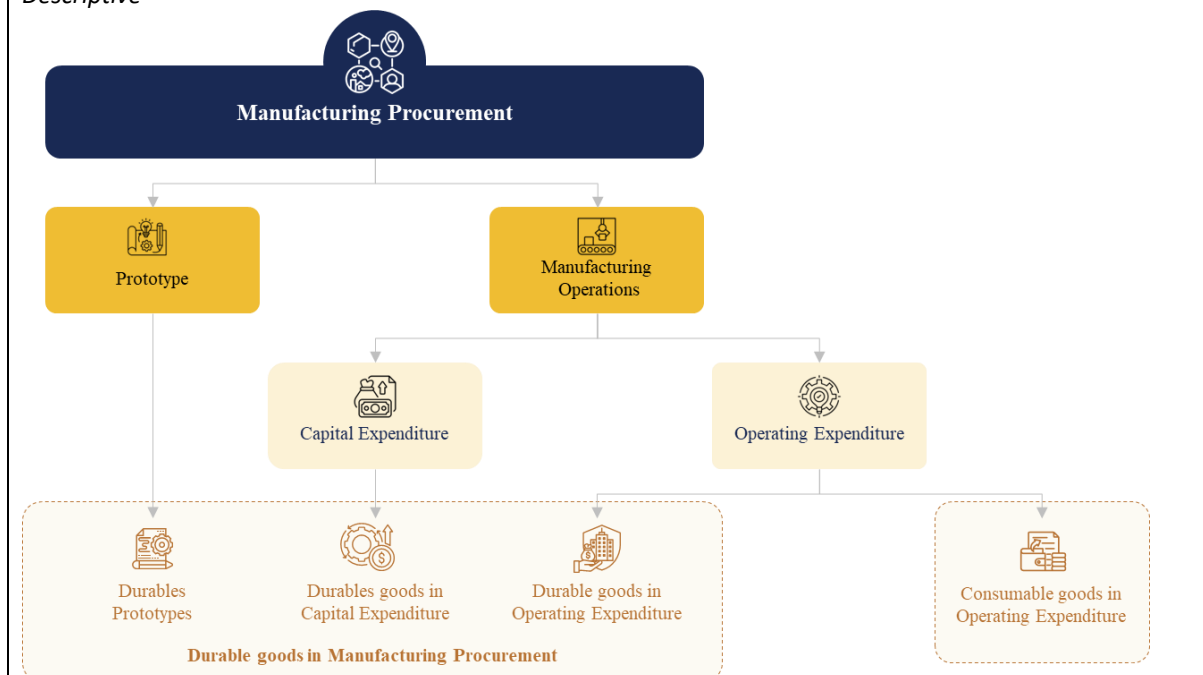
- Durable goods:** These are physical products or components with a long usable life that exist as discrete, identifiable parts or assemblies and are typically specified through part numbers, drawings, dimensions, tolerances, or performance specifications. For example, in wind turbine manufacturing, blades, gearboxes, nacelle housings, and control systems are durable goods that form engineered assemblies within the final asset

- **Consumable goods:** These are inputs that are used up, transformed, or depleted during normal production and do not exist as discrete engineered assemblies. Their value derives primarily from chemical, biological, or thermal processing rather than part-level engineering, and they are specified by grade, formulation, or composition rather than drawings or functional part specifications. For example, in food, beverage, and tobacco manufacturing, ingredients such as sugar, flour, flavouring agents, oils, tobacco leaf, and processing additives are consumable goods that are continuously used and replenished during production

The role of durable goods procurement varies across industries. In sectors such as automotive, consumer electronics, and aerospace & defense, durable goods are procured both as capital equipment and as engineered components and assemblies embedded within final products. In these industries, durable procurement spans both capital expenditure for production infrastructure and recurring procurement of production components used in scaled manufacturing.

Exhibit 7: Manufacturing Procurement - by Type

Descriptive



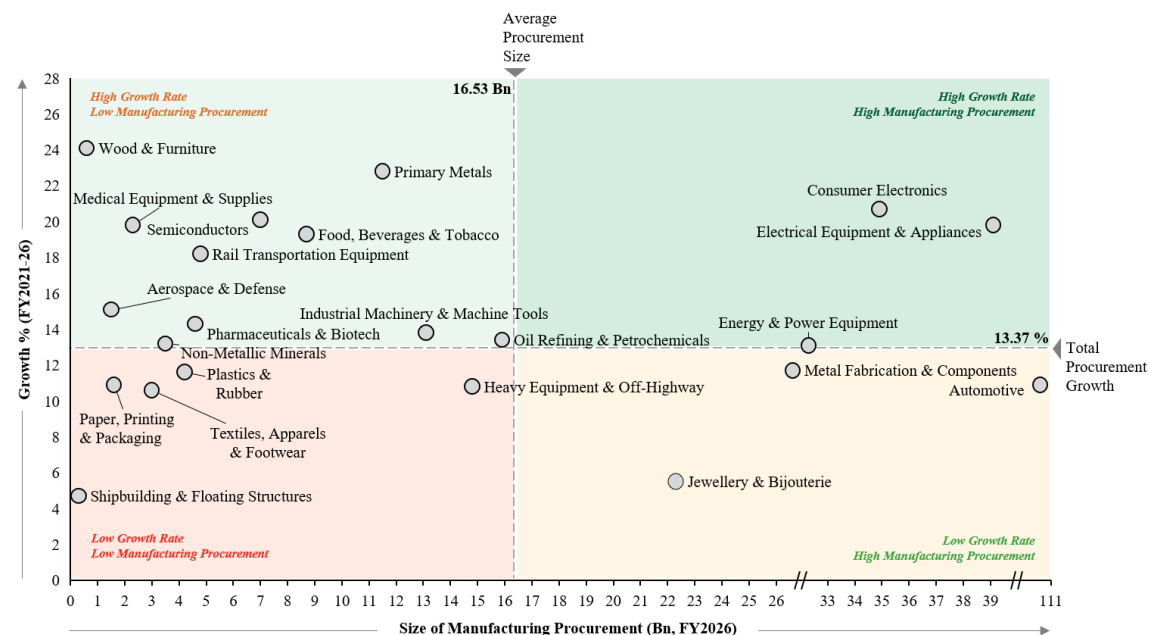
Source(s): Redseer research and analysis

Durable goods procurement is shaped by engineering intensity and manufacturing complexity across industries. As durable goods are integrated into production systems or finished assets and typically have longer usable lives, they represent a distinct segment of manufacturing procurement. Accordingly, the subsequent analysis focuses on this segment of manufacturing procurement.

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Exhibit 8: Manufacturing Procurement Landscape: Industry-wise Size and Growth of Manufacturing Procurement of Durable Goods in India (USD Bn, %)

Descriptive



Note(s): X Axis: Size of manufacturing procurement for durable goods has been estimated, aggregating expenditure on production equipment (capital expenditure) and operating expenditure on material consumption for industries like Aerospace & Defense, Automotive, Electrical Equipment & Appliances, Energy & Power Equipment, Heavy Equipment & Off-Highway, Consumer Electronics, Industrial Machinery & Machine Tools, Metal Fabrication & Components, Semiconductors, Jewellery & Bijouterie, Rail Transportation Equipment, Medical Equipment & Supplies, Shipbuilding & Boats; and (ii) considering expenditure on production equipment (capital expenditure) only for remaining industries. Y Axis: Growth represents the CAGR for FY2021-2026 of the size of manufacturing procurement for durable goods calculated for each industry individually. Total size of procurement of durable goods won't be equal to the sum of procurement size of durable goods for all industries individually as it would lead to double counting as these industries occupy different layers in the manufacturing value chain.

Source(s): MoSPI, Redseer Research and Analysis

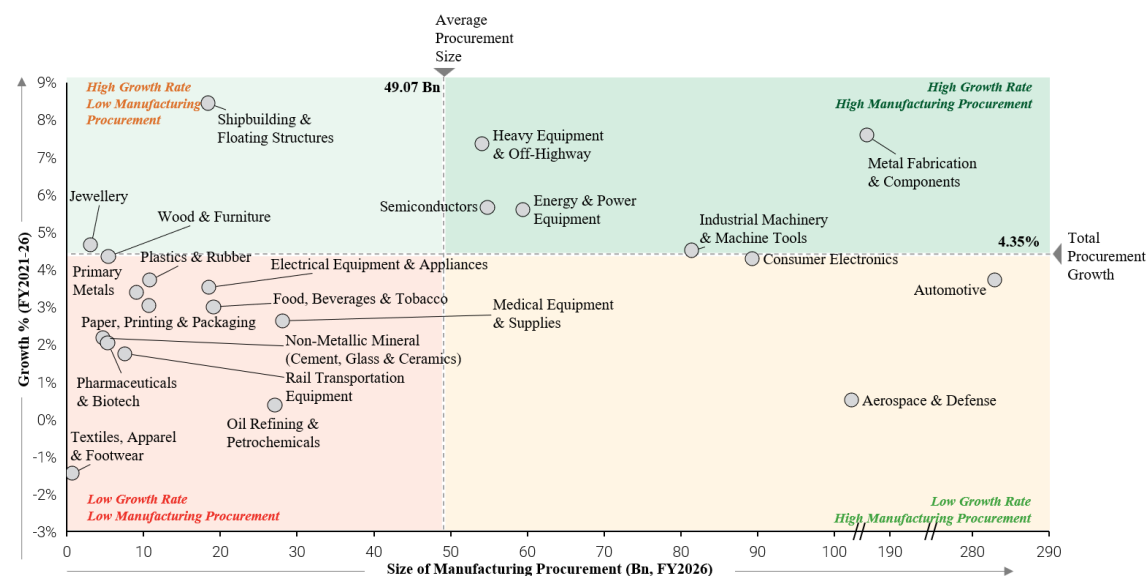
There exists a clear cluster of industries which are growing above the overall growth rate of manufacturing procurement of durable goods in India. These high-growth industries can be grouped into two categories.

- High-growth industries with large procurement bases include Electrical Equipment & Appliances, Consumer Electronics, Energy & Power Equipment.
- High-growth industries expanding from smaller procurement bases include Aerospace & Defense, Industrial Machinery & Machine Tools, Pharmaceuticals & Biotech, Rail Transportation Equipment, Medical Equipment & Supplies, Food, Beverages & Tobacco, Wood & Furniture, Non-Metallic Minerals, Primary Metals, Semiconductors, Oil Refining & Petrochemicals.

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Exhibit 9: Manufacturing Landscape: Industry-wise Size and Growth of Manufacturing Procurement of Durable Goods in US (USD Bn, %)

Descriptive



Note(s) : X Axis: Size of manufacturing procurement for durable goods has been estimated, aggregating expenditure on production equipment (capital expenditure) and operating expenditure on material consumption for industries like Aerospace & Defense, Automotive, Electrical Equipment & Appliances, Energy & Power Equipment, Heavy Equipment & Off-Highway, Consumer Electronics, Industrial Machinery & Machine Tools, Metal Fabrication & Components, Semiconductors, Jewellery & Bijouterie, Rail Transportation Equipment, Medical Equipment & Supplies, Shipbuilding & Boats; and (ii) considering expenditure on production equipment (capital expenditure) only for remaining industries. Y Axis: Growth represents the CAGR for FY2021-2026 of the size of manufacturing procurement for durable goods calculated for each industry individually. Total size of procurement of durable goods won't be equal to the sum of procurement size of durable goods for all industries individually as it would lead to double counting as these industries occupy different layers in the manufacturing value chain.

Source(s): US Census, Redseer Research and Analysis

Similarly for US, high-growth industries can be grouped into two categories

- High-growth industries with large procurement bases include Metal Fabrication & Components, Heavy Equipment & Off-Highway, Semiconductors, Energy & Power Equipment, Industrial Machinery & Machine Tools, Consumer Electronics.
- High-growth industries expanding from smaller procurement bases include Wood & Furniture, Jewellery and Shipbuilding & Floating Structures.

Procurement demand across industries eventually comes from different macro industry context and growth drivers across India and United States.

Exhibit 10: High Growth Industries with High Procurement Bases- India & US

Industry	India	US
1. Consumer Electronics	Manufacture of computers, communication equipment, measuring and control instruments, medical electronics, optical devices, watches, storage media, and consumer electronics.	
	• India's electronics production expanded six-fold from ₹1.90 trillion (US\$22.35 billion) in FY2015 to ₹11.30 trillion (US\$132.94 billion) in FY2025. • Mobile phone production reached ₹5.45 trillion (US\$64.12 billion) by FY2025,	• US electronics shipments grew from ₹27.08 trillion (US\$318.63 billion) in CY2020 to ₹32.20 trillion (US\$378.88 billion) in CY2025. • Smartphone ownership exceeds 90% and PC penetration 80% as of CY2021; demand is

	supported by PLI and Semicon India Programme initiatives.	driven by upgrades, 5G, AI features, and ecosystem integration.
2. Energy & Power	Manufacture of turbines, pumps, compressors, fluid power equipment, motors, generators, transformers, control systems, and batteries supporting generation, transmission, and energy storage infrastructure.	
	- India's installed power capacity reached ~513 GW by CY2025, with peak shortages falling to ~0.1% in FY26 - Renewable capacity grew from 78 GW in CY2015 to 250 GW in CY2025 among which solar capacity expanded from ~6 GW in CY2015 to ~135 GW in CY2025	- The US operates ~1,230 GW installed capacity with stable reserves, targets modernization and resilience under the Inflation Reduction Act and Bipartisan Infrastructure Law. - Renewable capacity expanded from ~196 GW in 2015 to ~468 GW in CY2025, led by solar growing from ~24 GW to ~211 GW and wind from ~72 GW to ~158 GW.
3. Electrical Equipment & Appliances	Manufacture of fibre optic cables, electric wires and cables, wiring devices, lighting equipment, domestic appliances, and other electrical equipment supporting industrial, residential, and infrastructure applications.	
	- India's electrical equipment manufacturing is expanding rapidly, with IIP showing ~29% year-on-year growth in September 2025. - Appliance exports grew by ~15% CAGR to ₹55.22 billion (US\$0.65 billion) in FY2024; PLI White Goods scheme has committed over ₹111.98 billion (US\$1.32 billion) to domestic manufacturing.	Not Applicable
4. Heavy Equipment & Off Highway	Manufacture of machinery for mining, quarrying and construction, agricultural and forestry machinery	
	Not Applicable	- US construction machinery shipments rose from ₹2.61 trillion (US\$ 30.55 billion) in CY2020 to ₹3.99 trillion (US\$ 46.98 billion) in CY2024, supported by Infrastructure Investment and Jobs Act - Farm and agricultural machinery shipments rose from ₹2.55 trillion (US\$ 30.06 billion) in CY2020 to ₹3.11 trillion (US\$ 36.60 billion) in CY2024, supported by federal farm modernization programs and tax incentives.
5. Industrial Machinery & Machine Tools	Manufacture of metal-forming machinery, metallurgy equipment, processing machinery, furnaces, power tools, lifting systems, and special-purpose industrial production equipment supporting advanced manufacturing.	
	Not Applicable	- US industrial machinery shipments increased from ₹3.08 trillion (US\$ 36.27 billion) in CY2020 to ₹3.78 trillion (US\$ 44.49 billion) in CY2025, reflecting steady baseline expansion. - CHIPS and Science Act investments exceeding ~₹38.25 trillion (US\$450.00 billion) are

		accelerating automation-heavy manufacturing, precision machinery and advanced production systems.
6. Metal Fabrication & Components	Manufacture of structural metal products, tanks, forged components, coated and machined metals, hand tools, hardware, and fabricated industrial assemblies used across industries.	
	<i>Not Applicable</i>	- US fabricated metal shipments increased from ₹30.32 trillion (US\$ 356.66 billion) in CY2020 to ₹41.68 trillion (US\$ 490.41 billion) in CY2025, reflecting ~7% CAGR and strong industrial recovery. - Infrastructure, defence, energy transition, and re-industrialisation are increasing technical complexity, driving demand advanced forming, and integrated metal assemblies.
7. Semiconductor	Manufacture of integrated chips, wafers, microprocessors, and advanced electronic components.	
	<i>Not Applicable</i>	- US semiconductor manufacturing capacity share is projected to rise from ~10% in 2022 to ~14% by 2032. - On January 15, 2026, the US and Taiwan reached a trade agreement offering Taiwanese chipmakers reduced tariffs on semiconductor exports. In return, Taiwanese companies will invest ₹21.25 trillion (US\$ 250.00 billion) in US with ₹8.50 trillion (US\$ 100.00 billion) already committed.

Source(s): Ministry of Power, Press Information Bureau ("PIB"), MoSPI, US Census

Together, these industry growth drivers explain where procurement momentum is concentrated, but understanding their economic significance requires translating into measurable procurement value.

3.2 Manufacturing procurement is scaling rapidly in India, while growing steadily in the US, reflecting different stages of industrial maturity

Manufacturing procurement of durable goods exists across all industries but buyers (like OEM's) in one industry procure durable goods for production equipment under capital expenditure or operating materials from upstream or midstream supplier industries.

For example, a smartphone brand procures precision moulds and testing equipment as production equipment under capital expenditure from Industrial Machinery and Machine Tools industry and sources displays, semiconductor chips, camera modules, and control boards as operating materials from suppliers in Semiconductor industry.

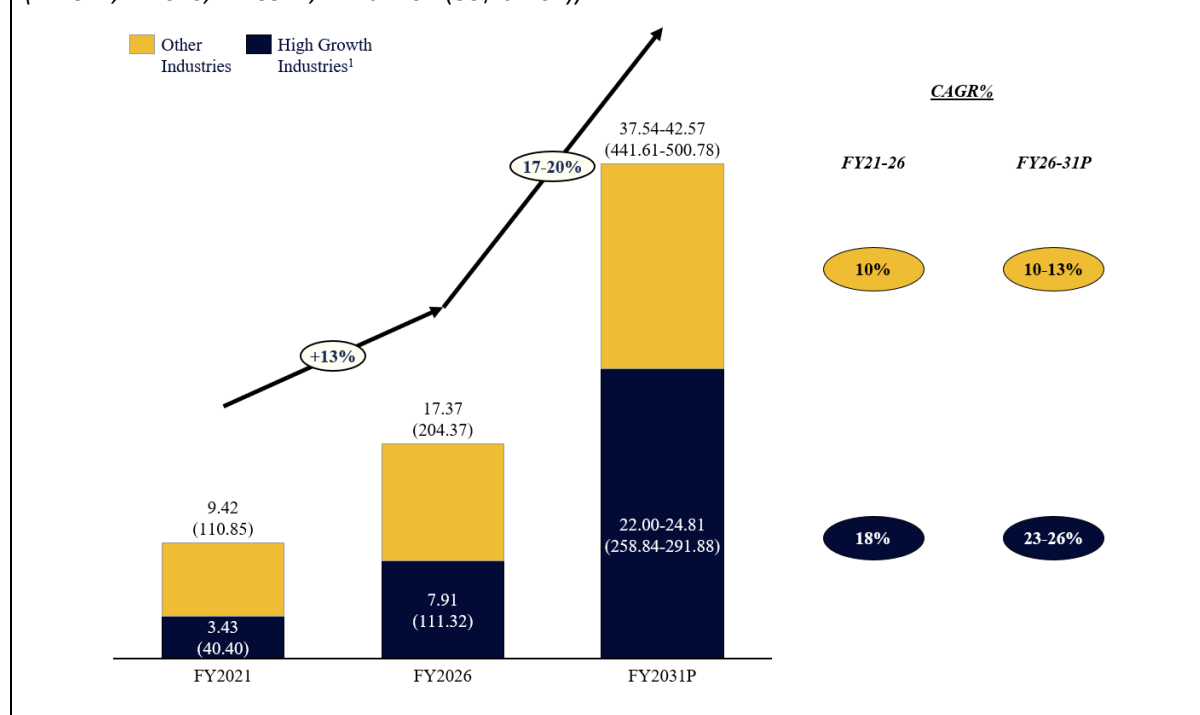
Thus, market size of durable goods procurement in material consumed under operating expenditure in end-use industries such as Automotive, Consumer Electronics, Aerospace and Defence, Energy and Power Equipment will also include the durable goods procured by upstream or midstream supplier industries in their material consumed under operating expenditure.

For example, when a smartphone brand in the consumer electronics industry records procurement of semiconductor chips as operating expenditure, the chip manufacturer in the semiconductor industry has already

procured silicon wafers, deposition materials, and precision fabrication components under its own material consumption in operating expenditure. The value embedded in the semiconductor chips therefore includes durable goods previously procured by upstream industries in their own material consumption in operating expenditure

Hence, total procurement of durable goods is measured as the sum of total value of production equipment under capital expenditure across all industries and material consumed under operating expenditure for end-use industries.

Exhibit 11: Size of Manufacturing Procurement of Durable Goods: India
(FY2021, FY2026, FY2031P, in ₹ trillion (US\$ billion))

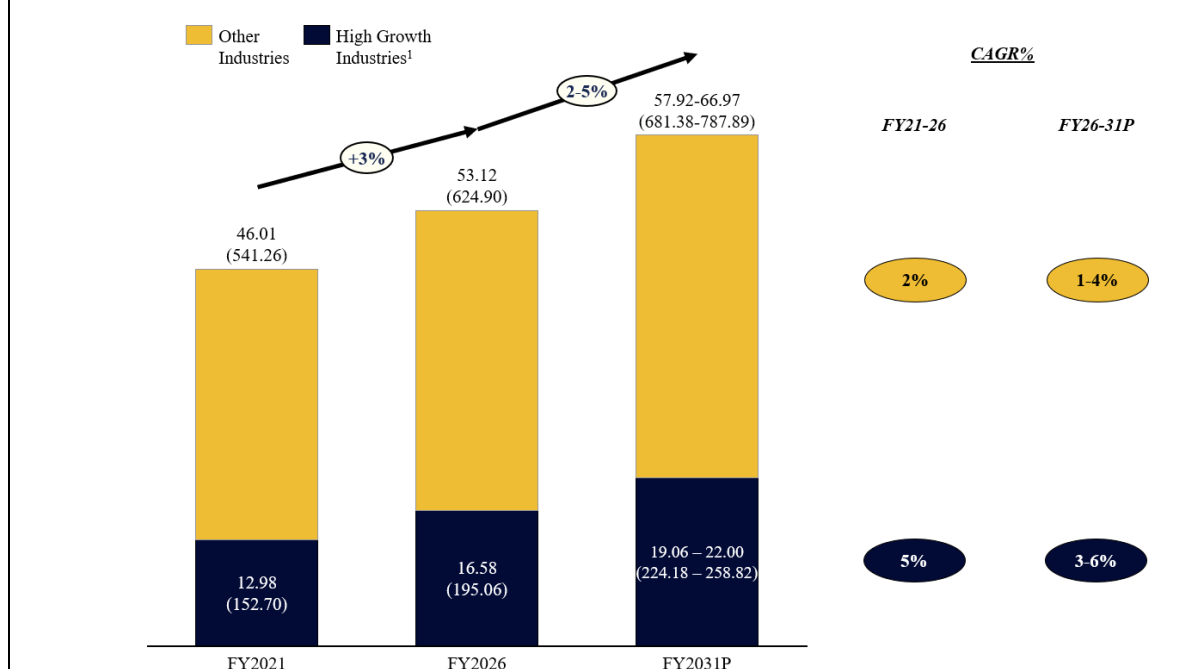


Note(s): 1. High Growth Industries include industries which are growing above the overall growth rate of manufacturing procurement of durable goods. These include Electrical Equipment & Appliances, Consumer Electronics, Energy & Power Equipment, and Oil Refining & Petrochemicals, Aerospace & Defense, Industrial Machinery & Machine Tools, Pharmaceuticals & Biotech, Rail Transportation Equipment, Medical Equipment & Supplies, Food, Beverages & Tobacco, Wood & Furniture, Non-Metallic Minerals, Primary metals and Semiconductors. Size of manufacturing procurement for durable goods has been estimated, aggregating expenditure on production equipment (capital expenditure) and operating expenditure on material consumption for industries like Aerospace & Defense, Automotive, Electrical Equipment & Appliances, Energy & Power Equipment, Heavy Equipment & Off-Highway, Consumer Electronics, Industrial Machinery & Machine Tools, Metal Fabrication & Components, Semiconductors, Jewellery & Bijouterie, Rail Transportation Equipment, Medical Equipment & Supplies, Shipbuilding & Boats where an end-use industry factor has been applied and (ii) considering expenditure on production equipment (capital expenditure) only for remaining industries

Source(s): Redseer Research and Analysis, MoSPI, US Census

In India, manufacturing has scaled up over the past five years through capacity expansion across various industries, supported by favourable policy initiatives such as PLI and Make in India and rising domestic consumption, and a sustained public-private capital expenditure cycle. Going forward, manufacturing growth is expected to be driven by urbanisation-led demand, accelerated infrastructure investment and global supply-chain realignment towards India.

Exhibit 12: Size of Manufacturing Procurement of Durable Goods: US
(FY2021, FY2026, FY2031P, in ₹ trillion (US\$ billion))



Note(s): 1. High Growth Industries include industries which are growing above the overall growth rate of manufacturing procurement of durable goods. These include Metal Fabrication and Components, Heavy Equipment & Off-Highway, Semiconductors, Energy and Power Equipment, Industrial Machinery and Machine Tools, Consumer Electronics, Wood & Furniture, Jewellery and Shipbuilding & Floating Structures. Size of manufacturing procurement for durable goods has been estimated, aggregating expenditure on production equipment (capital expenditure) and operating expenditure on material consumption for industries like Aerospace & Defense, Automotive, Electrical Equipment & Appliances, Energy & Power Equipment, Heavy Equipment & Off-Highway, Consumer Electronics, Industrial Machinery & Machine Tools, Metal Fabrication & Components, Semiconductors, Jewellery & Bijouterie, Rail Transportation Equipment, Medical Equipment & Supplies, Shipbuilding & Boats where an end-use industry factor has been applied and (ii) considering expenditure on production equipment (capital expenditure) only for remaining industries

Source(s): Redseer Research and Analysis, MoSPI, US Census

In contrast, in the US, growth in manufacturing procurement is driven primarily by re-industrialisation and technology upgradation rather than net capacity expansion. As a result, growth remains steady and is anchored in the modernisation and upgrading of existing capacity rather than large-scale expansion.

High growing industries undergoing technological transformation, including renewable energy, artificial intelligence infrastructure, aerospace and defence are increasing their procurement of durable goods to support both capital investment in greenfield and brownfield capacity expansion and the recurring material consumption required to sustain scaled production. However, procurement in these industries is frequently constrained by limited access to scalable and high-quality manufacturing capacity.

Manufacturing capacity is often globally fragmented, with production typically carried out in uncoordinated, discrete facilities characterised by variable quality and inconsistent service levels, making scaling inefficient and unreliable. This challenge is particularly pronounced in new, high-growth industries such as renewable energy, artificial intelligence, defense, aerospace, and space exploration, where rapid growth in demand for manufactured goods is often bottlenecked by supply chain constraints. Industry average lead times for power transformer manufacturing range from 30-36 months in India to 36-42 months in the United States, reflecting the extended procurement cycles associated with energy infrastructure expansion in both markets. Additionally, for other products as well such as EV battery enclosures and data center module development the procurement time is 8-16 weeks and 24-28 weeks respectively in India.

The supplier ecosystem remains structurally fragmented, with manufacturing capacity distributed across numerous specialised suppliers rather than concentrated among a limited number of scaled manufacturers. As

a result, buyers often need to engage multiple suppliers to meet production requirements. This fragmented structure reduces visibility into available supplier capacity, complicates coordination across the supply chain, and can lead to inconsistencies in quality, delivery timelines, and overall execution.

Section 4: Despite rapid procurement growth, manufacturing capacity remains constrained by MSME-led fragmentation of the supply base

Demand procurement is growing, but time-to-market delays, quality escapes, and delivery overruns persist. Manufacturing capacity in both India and the US exists at scale but is distributed across many small and mid-sized suppliers, resulting in a structurally fragmented supply base. Fragmentation drives low-capacity utilisation as limited demand visibility, peak-driven capacity planning at individual suppliers, and the absence of mechanisms to pool or reallocate demand across industries leave a large share of installed assets idle for significant periods. The fragmented supplier base also creates persistent financial constraints driven by low working capital buffers and limited access to flexible financing. Over time, workforce ageing, limited inflow of new technical talent, and ownership succession gaps compound these constraints, weakening supplier's ability to renew skills and support scalable growth.

4.1 Despite growing demand for durable goods in manufacturing, execution risk persists

Procurement demand for durable goods across manufacturing industries continues to expand, supported by increased outsourcing, rising product complexity, geographic diversification, and shorter innovation cycles. Buyers are sourcing higher volumes, across a wider range of categories and regions. However, growth in procurement intensity has not fully translated into consistent and reliable supply outcomes, and execution challenges remain.

4.1.1 Time-to-Market delays undermine buyers' competitiveness by widening the gap between procurement demand and stable supply output

Buyers increasingly operate within compressed product cycles where speed to market is critical. Procurement timelines, however, are often extended due to prolonged supplier discovery and onboarding, limited visibility into available capacity, iterative negotiations, and multiple validation and production trial cycles.

As a result, there is frequently a lag between order placement and stable production supply. In fast-evolving industries such as consumer electronics, such delays can defer product launches, disrupt downstream planning, and weaken competitive positioning in markets where responsiveness and reliability are important. This is particularly evident in segments such as Printed circuit board ("PCB") assembly, electric vehicle ("EV") components and industrial automation parts, where speed-to-market determines competitive positioning in fast-moving markets, are supply constrained.

4.1.2 Time overruns disrupt production schedules, delay downstream operations, and increase overall system-level costs.

Even after ramp-up, deviations from committed delivery timelines remain common. Milestones shift, batch shipments are delayed, and production schedules require adjustment.

These delays disrupt downstream assembly operations, create idle capacity, and affect tightly sequenced manufacturing schedules. In capital-intensive sectors such as aerospace, heavy equipment, and energy infrastructure, repeated timeline deviations may delay project completion and increase cost exposure. To mitigate uncertainty, buyers often maintain higher safety stock and inventory buffers, which increases working capital requirements and reduces overall supply chain efficiency.

4.1.3 Quality variability increases operational and commercial risk

Quality consistency remains uneven across supplier networks, where process maturity varies significantly. Buyers frequently encounter inconsistent process controls, uneven operator skill levels, deferred maintenance and tooling upgrades, and limited investment in advanced quality management systems, resulting in variability across batches and production runs. Such variability is particularly consequential in precision-sensitive segments, where quality thresholds are stringent.

These capability gaps lead to quality escapes, where defects are detected downstream during assembly, integration, or at the end-customer stage. Beyond rework costs, such failures increase warranty exposure, disrupt production schedules, strain buyer-supplier relationships, and create material reputational and commercial risk.

While these issues appear at the buyer level as delays and fulfilment risk, they often reflect broader structural fragmentation and uneven capability across the manufacturing ecosystem.

4.2. While aggregate manufacturing capacity exists, supply remains fragmented and unevenly organised

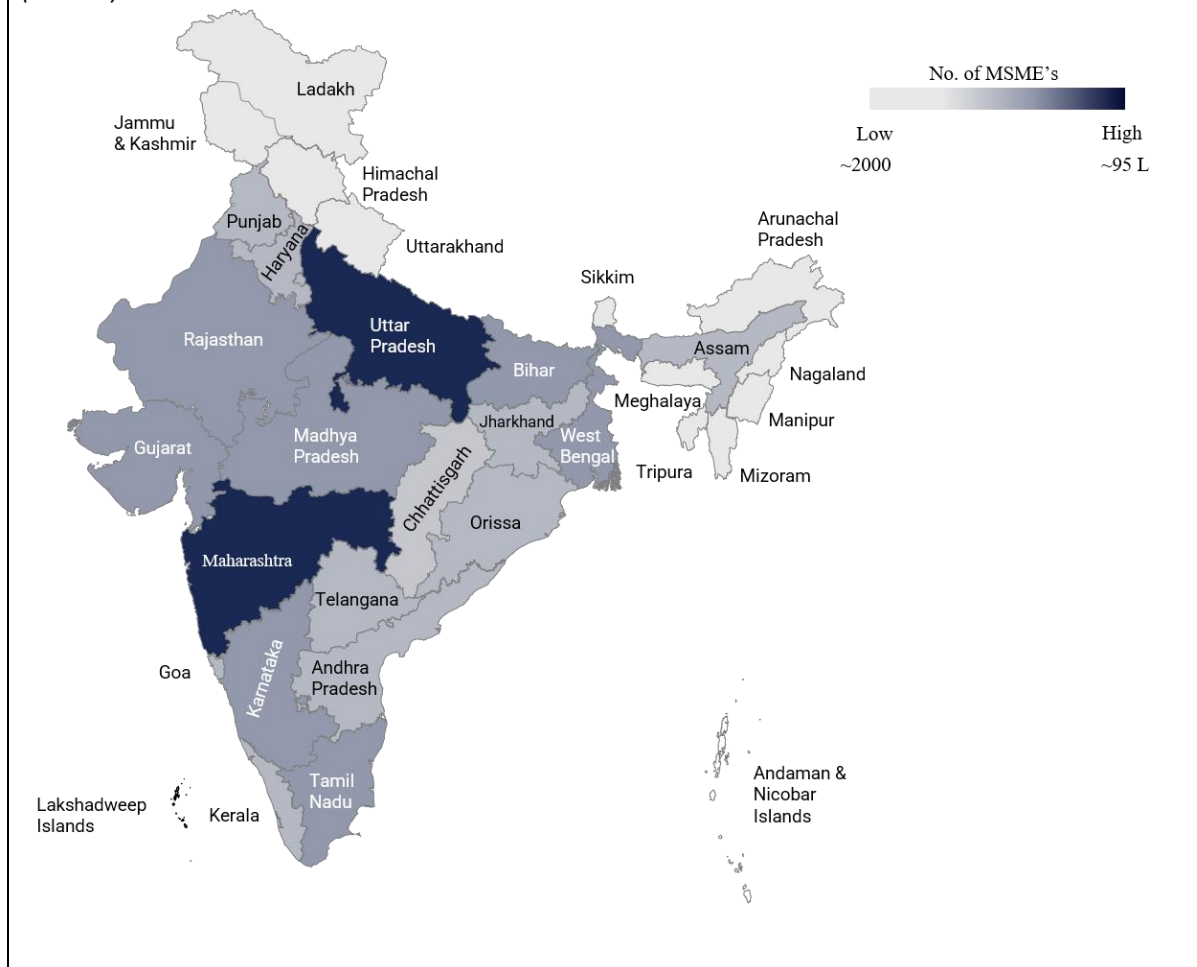
Manufacturing capacity across major industrial economies exists in aggregate. However, it is dispersed across a large number of small and mid-sized suppliers, resulting in a structurally fragmented supply landscape.

In India, Micro, Small and Medium Enterprises (“MSMEs”) account for a significant share of manufacturing output, reflecting their role within domestic value chains.

- As of CY2025, India has approximately 76.11 million registered MSMEs, of which nearly 21% operate in the manufacturing sector. As of FY2022, manufacturing MSMEs contributed ~35% of India’s total manufacturing output where reliability and quality are often inconsistent.
- Manufacturing capacity is widely dispersed across regional clusters, making cross-cluster sourcing difficult. In automotive, upstream inputs concentrate in Odisha and Gujarat, midstream assembly in Pune and Chennai, and downstream ecosystems near major consumption centres. This geographic spread creates aggregate capacity that remains siloed and inefficient to mobilize at scale.

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Exhibit 13: State-wise distribution of MSME's in India
(CY2025)



Source(s): Ministry of MSME Annual Report

A similar structural pattern is visible in the US, where manufacturing output across multiple industrial segments relies heavily on tiered supplier networks and specialised small firms

- In CY2020, the US had ~33.27 million small businesses, including ~592,500 small manufacturing enterprises. These firms represent ~97% of all manufacturing establishments, indicating that the country's industrial system is anchored in a highly fragmented, small business-led supplier base.
- In the US aerospace ecosystem, clustering spans all value chain layers. Upstream materials and avionics suppliers concentrate in Texas and Arizona, midstream aircraft manufacturing anchors in Washington and California, and downstream maintenance and servicing hubs sit near major aviation corridors, limiting cross-regional coordination and flexible capacity deployment.

As a result, this fragmentation translates into (i) structurally low utilisation of installed capacity, (ii) working capital and financing constraints that limit reinvestment and modernisation, and (iii) progressive ageing of the supplier base, including workforce and ownership succession gaps.

4.2.1. Large installed capacity remains structurally under-utilised due to idle assets, peak-driven planning, and limited cross-industry load balancing

Fragmentation of the supplier base constrains how manufacturing capacity is planned and allocated at individual suppliers. This prevents efficient pooling and routing of demand, leading to uneven utilisation and persistent underutilisation across the system.

Exhibit 14a: Overall utilization of manufacturing facilities- India
(CY2022-CY2025, in %)

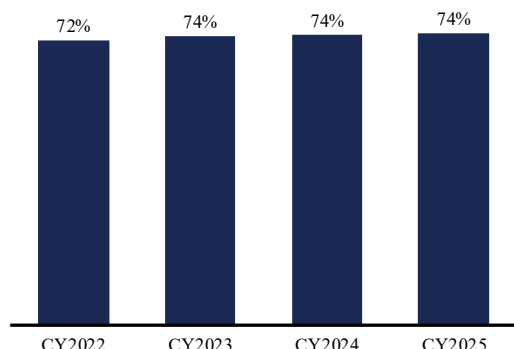
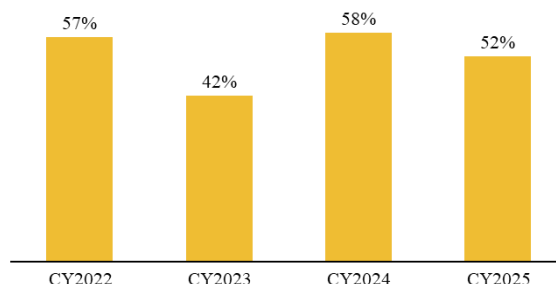


Exhibit 14b: MSME utilization of manufacturing facilities- India
(CY2022-CY2025, in %)



Note(s): Capacity utilisation data is reported at the Small, Medium Enterprises ("SME") level for every Q1 of calendar year. MSME capacity utilisation has been assumed to be like SME utilisation

Source(s): ASSOCHAM, RBI

1. Limited Demand Visibility:

MSMEs/Small Businesses are fragmented and geographically dispersed, with visibility only into their own limited order books and lack of insight into aggregate industry demand. The absence of shared demand signals and standardised operating processes reduces demand predictability, leading to volatile order flows, uneven production schedules, and structurally low utilisation levels across the supplier base.

2. Peak Driven Capacity Planning:

In this unpredictable environment, suppliers are compelled to plan capacity conservatively rather than optimise it at a system level. Capacity is typically sized to accommodate peak or surge demand even though such peaks occur only intermittently. As a result, machines, labour, and shop-floor resources remain idle for significant periods, with realised order volumes falling below peak assumptions. While rational at the level of an individual supplier, this approach structurally depresses average utilisation across the manufacturing ecosystem.

3. Limited Cross-Industry Utilisation:

At the same time, fragmentation prevents efficient reallocation and cross-industry utilisation of capacity. Differences in technical requirements, approvals, operating processes, and commercial terms mean that idle capacity at one supplier within one industry cannot be readily redeployed elsewhere. During the automotive slowdown in India triggered by the semiconductor chip shortage, many automotive component manufacturers operated significantly below capacity, leaving high-value CNC machining assets idle. Yet these same machines were technically capable of producing precision components for aerospace applications, where demand remained comparatively resilient.

Taken together, these dynamics convert fragmentation into a structural utilisation gap, whereby effective capacity remains materially below installed capacity, constraining scalable manufacturing growth.

4.2.2. Fragmented and small suppliers face persistent working capital and financing constraints, limiting reinvestment, modernisation, and scale-up

The fragmented, MSME-led structure of the supplier base results in weak financial foundations across a large part of the manufacturing ecosystem. Many suppliers operate at small scale and depend on a limited number of

buyers, constraining bargaining power and exposing cash flows to uneven payment cycles and irregular order patterns. Over time, this limits earnings accumulation and leaves suppliers with low financial resilience, even during periods of stable demand. These vulnerabilities are compounded by limited access to flexible financing, as credit for small and mid-sized suppliers remains largely collateral-based and limited, while working capital solutions that can absorb demand and production volatility are scarce.

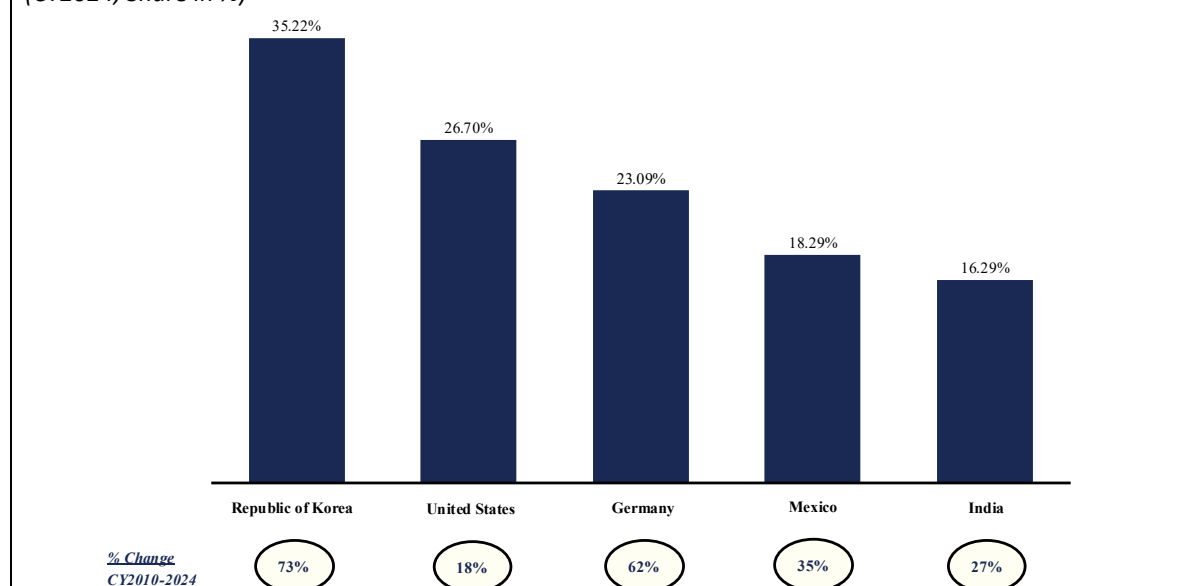
These financial constraints directly shape supplier behaviour. Production planning is often dictated by available cash rather than demand visibility or machine efficiency, leading to short planning cycles and fragmented schedules. Suppliers therefore avoid long production runs, hesitate to take large orders that strain working capital, and limit inventory build-up without confirmed demand. At the same time, suppliers postpone capital expenditure decisions. Investments in maintenance, tooling replacement, process stabilisation, automation, and quality systems are postponed not due to low returns, but because available capital is consistently tied up in day-to-day operating needs.

Over time, these behaviours reduce the usable manufacturing capacity in the system. Machines and factories stop running continuously with a steady production plan and are used only when orders come in, like a backup buffer. This leads to consistently low and unstable utilisation, and processes become less reliable because maintenance and upgrades are repeatedly delayed. As a result, many suppliers enter each business cycle with weak finances and limited ability to handle demand swings or operational disruptions.

4.2.3. Ageing workforce and succession gaps are further weakening the reliability and depth of the supplier base

Workforce ageing is emerging as a less visible, but structurally significant, constraint on manufacturing ecosystems. Across major industrial economies such as the US, India, Republic of Korea, Germany and Mexico, the share of ageing individuals (aged 55+ years) within the labour force has increased rapidly, reflecting limited inflow of younger technical talent and accelerating workforce ageing across the supply base.

Exhibit 15: Percentage share of individuals aged 55+ in labour force¹ - Republic of Korea, Germany, US, Mexico, India
(CY2024, Share in %)



Note(s): The labour force is the sum of all people of working age who are either employed or unemployed but actively seeking and available for work during a specified reference period.

Source(s): International Labour Organisation

This demographic shift is weakening the manufacturing system's ability to renew skills and support scalable growth in following ways:

- i. **Limited entry of new workers:** Unpredictable order volumes and limited demand visibility constrain suppliers' willingness to invest in workforce development, resulting in a lower intake of younger workers and a steadily ageing manufacturing workforce.
- ii. **Declining availability of skilled operators:** As experienced workers retire faster than new talent is trained, the pool of skilled operators required to run equipment, ensure quality, and ramp production continues to shrink, making scale-up slower, less reliable, and more execution-risk prone.
- iii. **Increasing concentration of supplier capabilities:** In complex, certification-intensive industries, this talent attrition disproportionately affects small and mid-sized suppliers, slowing supplier renewal and accelerating the concentration of production and know-how within a limited set of large vendors, most visibly in aerospace, defence, and semiconductor industries

Alongside workforce ageing, ownership succession is increasingly emerging as a structural risk across the supplier base. Most small and mid-sized suppliers are owner-operated, often with ageing promoters and limited succession planning. As these owners retire without clear successors, firms frequently downsize, are acquired, or exit operations altogether, progressively shrinking the effective manufacturing capacity.

4.3 Fragmentation has been observed across major manufacturing hubs at different stages of industrial development

Supplier fragmentation is not unique to India. It has been observed across several manufacturing economies, including China, South Korea, and Italy, particularly during earlier phases of industrial expansion when production capacity was distributed across numerous small and mid-sized enterprises.

In these markets, manufacturing ecosystems initially comprised large numbers of dispersed suppliers operating at varying levels of scale and capability. Over time, as industrial systems expanded and matured, supplier networks evolved toward greater coordination and integration. Historical experience across major manufacturing hubs indicates that supplier bases were initially dispersed before becoming more organised over time. Greater coordination has generally coincided with improvements in utilisation and operational efficiency.

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Section 5: The expanding role of *Manufacturing Platforms* in addressing structural procurement and supply fragmentation

Manufacturing Platforms have emerged within manufacturing ecosystems characterised by fragmented supplier bases, rising coordination intensity, and increasing pressure on procurement execution. By aggregating demand and orchestrating distributed supply networks, these platforms aim to improve utilisation, reliability, and execution consistency. As of FY2026, Manufacturing Platforms has total addressable market (TAM) of ₹ 10.26-12.57 trillion (US\$120.65-147.91 billion) and ₹ 2.07-6.26 trillion (US\$ 24.32-73.60 billion) in India and US respectively.

5.1. Manufacturing platforms aggregate demand and orchestrate fragmented supply networks to improve time-to-market reliability and quality consistency

As growth accelerates across end-user industries, the pace of product launches, model refreshes, and capacity expansion has intensified. This expansion places structural pressure on manufacturing procurement to deliver standardised, high-quality durable goods at greater speed and scale. However, the underlying manufacturing ecosystem remains unevenly organised, limiting its ability to respond efficiently to rising demand.

On the demand side, buyers face increasing pressure to compress time-to-market, ensure schedule reliability, and maintain quality consistency across expanding product portfolios. Procurement processes are often decentralised, with heterogeneous specifications and limited visibility into supplier capacity, increasing coordination effort and execution risk.

On the supply side, fragmented supplier networks struggle to synchronise capacity, absorb demand volatility, and maintain delivery performance. Dispersed MSME-heavy ecosystems, limited process standardisation, and uneven operational maturity contribute to persistent asset underutilisation, stretched working capital cycles, and recurring bottlenecks.

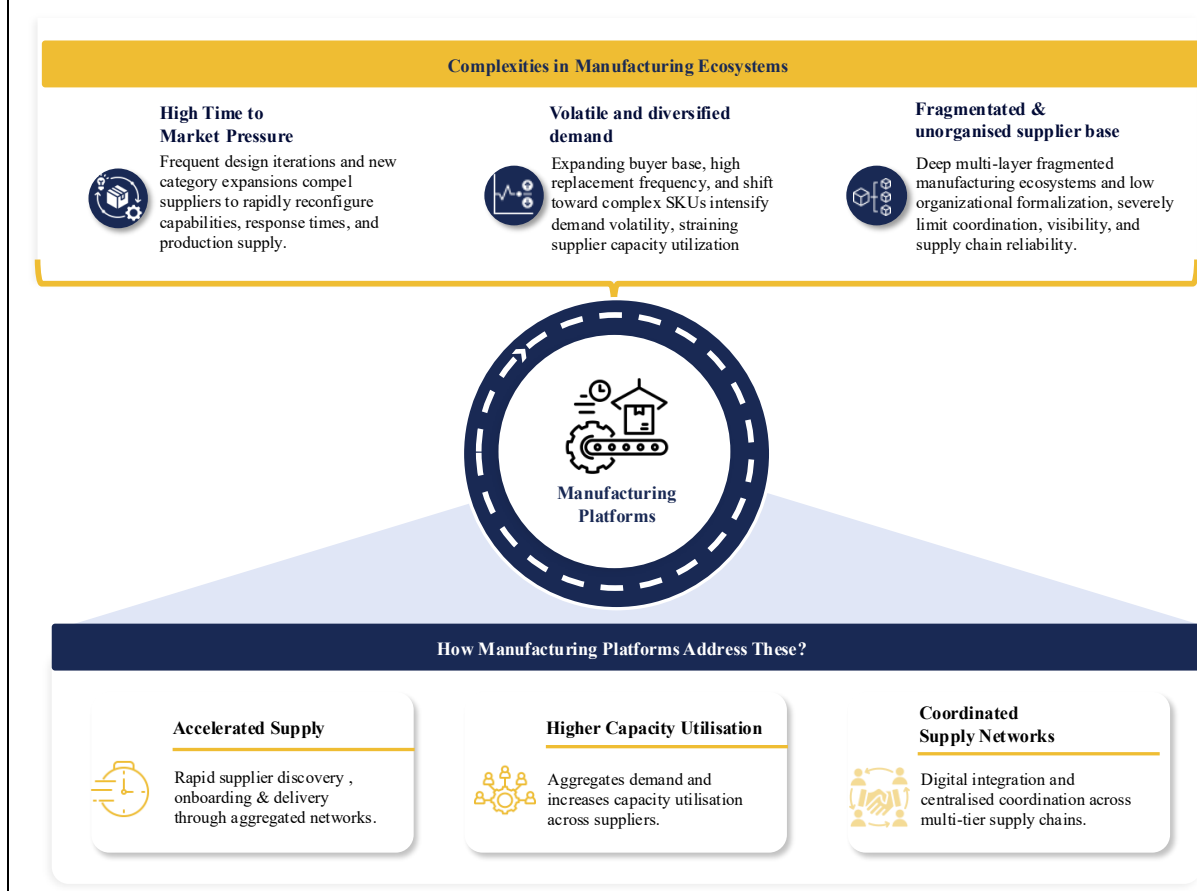
As order volumes scale, these demand- and supply-side frictions compound. Rather than unlocking aggregate capacity, rising demand can amplify embedded inefficiencies across dispersed supplier bases, widening structural supply-demand gaps.

Manufacturing Platforms function as a digital aggregation and orchestration layer that connects buyers with distributed suppliers and standardises how manufacturing work is specified, allocated, executed, and monitored. Without owning production assets, they aggregate demand across buyers, pool fragmented capacity, and institutionalise common processes, data flows, and quality governance frameworks to enable more coordinated and scalable execution across multi-tier networks.

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Exhibit 16: Value creation levers of a Manufacturing Platform

Descriptive



Source(s): Redseer research and analysis

The relevance and addressability of *Manufacturing Platforms* vary meaningfully across industries and are shaped by three structural factors: (i) time to market intensity, (ii) demand diversification, and (iii) supply fragmentation

- 1. Time to Market:** Time-to-market intensity reflects the degree to which competitive advantage within an industry is driven by rapid product launches, frequent upgrades, and compressed innovation cycles. Higher time-to-market intensity increases coordination complexity across suppliers, as frequent product refreshes require rapid tooling adjustments, process reconfiguration, supplier onboarding, and validation cycles. Time-to-market intensity manifests in two dimensions:
 - **Depth of product refresh cycles:** Indicates how frequently products undergo redesigns or upgrades, influencing how often suppliers must refresh tooling, processes, or capabilities to stay aligned
 - **Breadth of product expansion:** Captures the extent to which new product categories or variants are introduced, shaping the diversity of components suppliers must handle
- 2. Demand Diversification** represents how widely a product is adopted, how frequently it is consumed or replaced, and how value shifts within the category. Strong demand diversification places sustained pressure on suppliers to scale reliably and match OEM production cycles. It depends on three underlying parameters:
 - **Penetration & Customer Base:** Describes the scope for reaching new users or geographies, indicating the runway for continued manufacturing expansion.

- **Consumption Intensity:** Reflects how often products are used, replenished, or replaced, influencing production frequency and the steadiness of supplier volumes.
 - **Price & Mix:** Shows whether demand is shifting toward more complex or higher-value SKUs, which typically require deeper supplier capabilities and tighter process control.
3. **Supply Fragmentation:** The multi-tiered nature of an industry's supply chain reflects the number of layers between raw materials and finished goods, as well as how broad the supplier base is at each stage. Industries with deep or wide supply tiers often have more coordination points and greater variability in supplier performance, increasing the potential for fragmentation. The multi-tiered structure depends on two parameters:
- **Tier Depth:** The number of upstream and downstream layers involved in producing a finished component or assembly, each layer adding interdependencies that require coordination.
 - **Tier Breadth:** The diversity and volume of suppliers within each layer, influencing the complexity of managing specifications, quality, and capacity across the supply chain.
 - **Degree of Organisation:** The level of process standardisation, digital integration, financial robustness, and maturity governance within the supplier base. Highly organised ecosystems with consolidated players and standardised processes exhibit lower coordination friction, whereas fragmented, MSME-led systems with heterogeneous capabilities face higher variability, limited transparency, and weaker system-level optimisation.

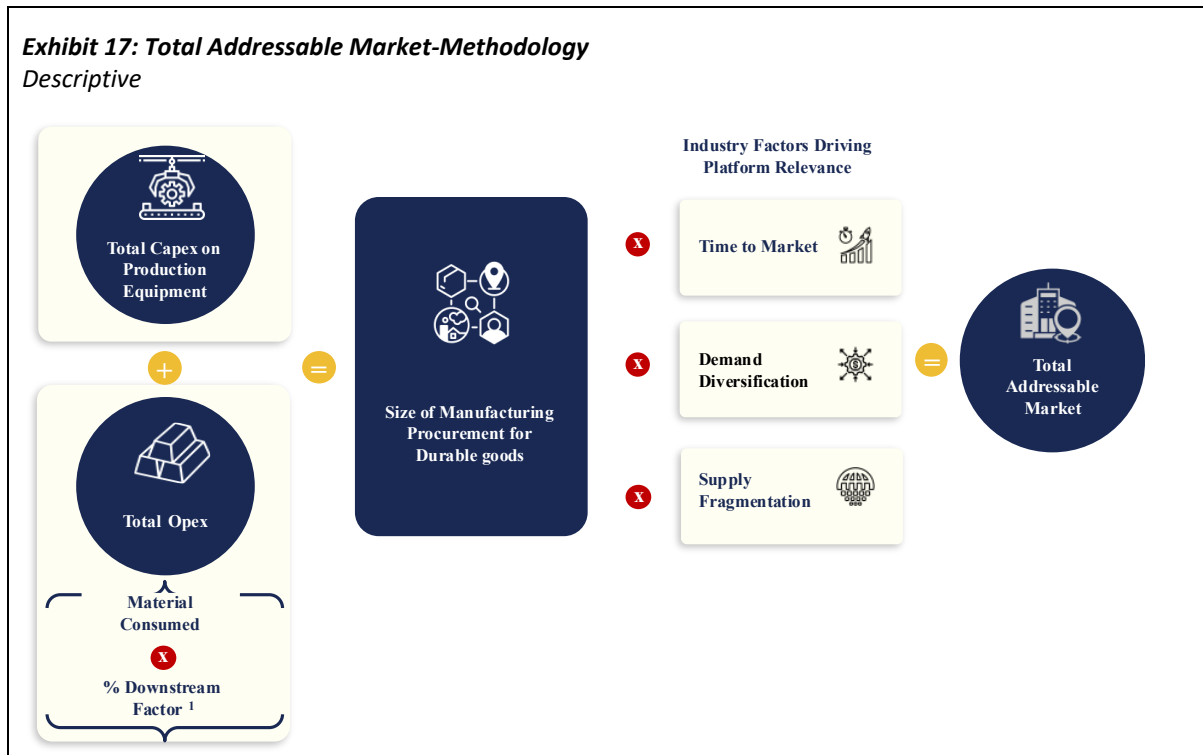
The intensity with which these structural factors manifest varies significantly across industries, shape both the relevance and the scale of opportunity for *Manufacturing Platforms*. Industries characterised by demand led capacity expansion, compressed product cycles, and complex multi-tier supplier ecosystems tend to exhibit higher coordination requirements and therefore greater platform relevance.

In particular, customers in rapidly expanding industries such as Grid and Power equipment, AI and Data centre infrastructure, and Precision Industrial components characterised by large capital investments are increasingly partnering with effective yet cost-efficient *Manufacturing Platforms* to ensure reliability and speed amid compressed product cycles.

The total procurement market for manufacturing durable goods does not translate uniformly into platform opportunity. Its effective addressability is shaped by how these three structural factors manifest across different industries.

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Exhibit 17: Total Addressable Market-Methodology
Descriptive



Note(s): Downstream Factor % measures the share of manufacturing output that is final, terminal demand rather than inputs or capital goods for other industries.

Source(s): Redseer research and analysis

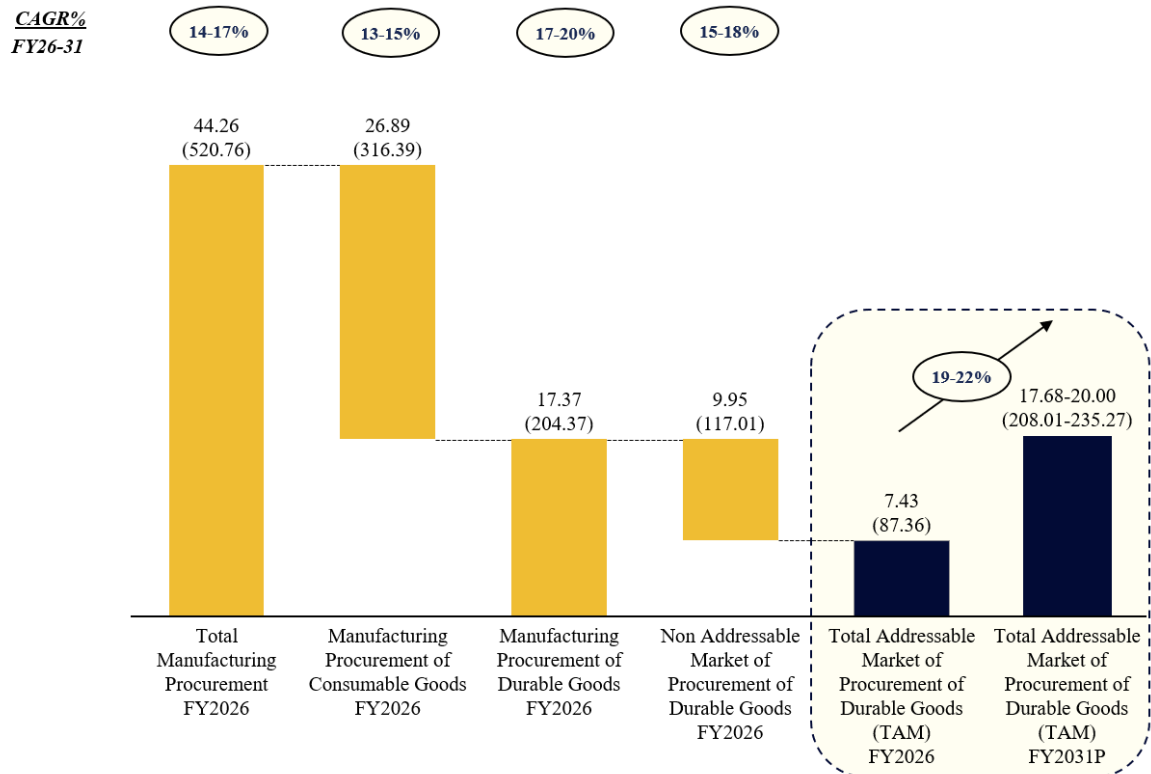
The total manufacturing procurement pool comprises both capital expenditure on production equipment and operating expenditure on materials required to sustain production. A significant share of this spend relates to procurement of durable goods, physical products or components with long usable lives that exist as discrete, identifiable parts or assemblies, typically defined through part numbers, drawings, dimensions, tolerances, or performance specifications.

However, platform relevance within this pool is not uniform across industries. Addressability of *Manufacturing Platforms* expands to ecosystems characterised by rapid product evolution, diversified demand patterns, and multi-tiered supply chains requiring active coordination.

Accordingly, the Total Addressable Market reflects manufacturing procurement of durable goods concentrated in industries where *Manufacturing Platforms* can enhance capacity utilisation, reliability, and execution consistency, rather than the entirety of manufacturing procurement.

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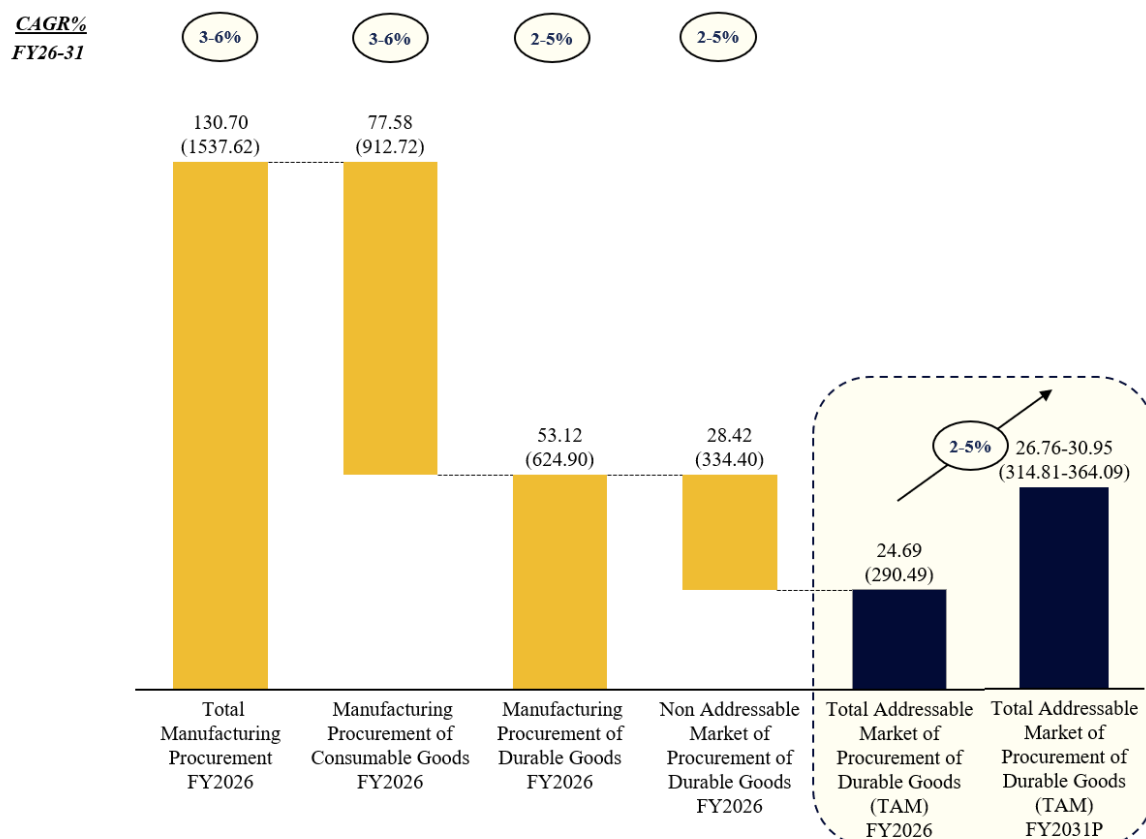
Exhibit 18a: Market Opportunity Funnel for Manufacturing Platforms - India
FY2026, FY2031P, in ₹ trillion (US\$ billion)



Source(s): Redseer research and analysis

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Exhibit 18b: Market Opportunity Funnel for Manufacturing Platforms - US
FY2026, FY2031P, in ₹ trillion (US\$ billion)



Source(s): Redseer research and analysis

The role of *Manufacturing Platforms* in addressing structural supply-demand gaps reflects a broader evolution in how manufacturing capacity is organized. As coordination intensity increases across fragmented ecosystems, execution capabilities and network orchestration become more central to performance than standalone asset ownership. Platform-led models represent one structural response to these coordination requirements, built around aggregation, standardization, and distributed execution.

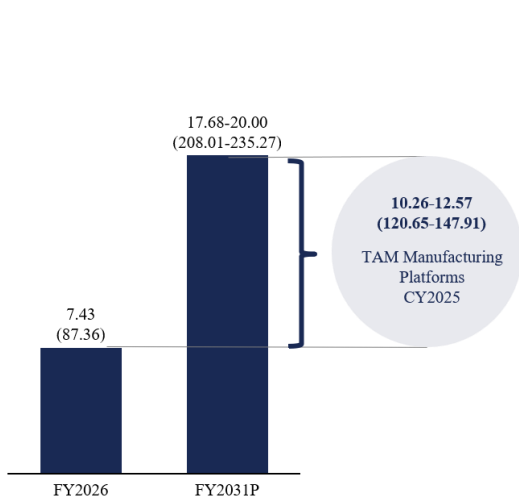
In FY2026, manufacturing procurement of durable goods in TAM (Exhibit 19a & 19b) is served through a combination of traditional manufacturers and emerging *Manufacturing Platforms*. *Manufacturing Platforms* typically serve the growth in the demand for manufacturing procurement of durable goods. Looking ahead to FY2031P, procurement growth is expected to occur in segments characterised by higher coordination complexity, faster product cycles, and multi-tier supply structures. In such environments, traditional models encounter rising coordination friction, limited cross-network visibility, and scalability constraints.

Manufacturing Platforms are positioned to address these frictions by aggregating decentralised demand, pooling fragmented capacity, and institutionalising standardised execution frameworks across distributed supplier networks.

As of FY2026, *Manufacturing Platforms* has total addressable market (TAM) of ₹ 10.26-12.57 trillion (US\$120.65-147.91 billion) and ₹ 2.07-6.26 trillion (US\$ 24.32-73.60 billion) in India and US respectively.

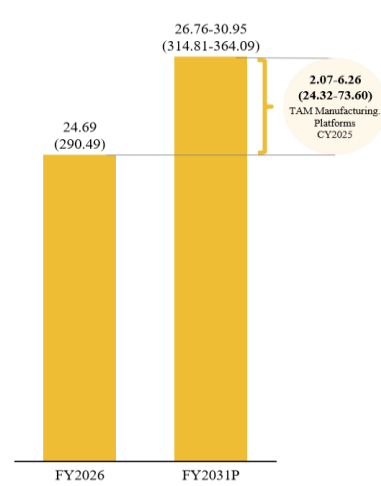
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Exhibit 19a: Total Addressable Market of Manufacturing Procurement for Durable Goods for Manufacturing Platforms- India
(FY2026, FY2031P, in ₹ trillion (US\$ billion))



Source(s): Redseer research and analysis

Exhibit 19b: Total Addressable Market of Manufacturing Procurement for Durable Goods for Manufacturing Platforms- US
(FY2026, FY2031P, in ₹ trillion (US\$ billion))



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Section 6: Key players in durable goods manufacturing and their competitive positioning across different manufacturing models

Competitive advantage in manufacturing increasingly depends on how effectively capacity is organized, coordinated, and scaled across fragmented ecosystems. Manufacturing Platforms turn fragmented supplier networks into a coordinated operating system, improving efficiency, reliability, and capital productivity while building long-term advantages through diversification, and execution control.

6.1 Manufacturing models differ in asset ownership, coordination structure, and capital deployment

The way manufacturing capacity is organized - whether through owned facilities, contracted production, or coordinated supplier networks - has direct implications for capital intensity, scalability, and long-term return on invested capital. Each model represents a distinct way of converting supplier capability into finished industrial output, with measurable differences in how capital is deployed, risk is distributed, and production is scaled.

- 1. Vertically Integrated (Captive) Manufacturing:** Under this model, company own and operate dedicated production facilities designed around specific product lines or process capabilities, placing asset ownership primarily within the firm. Production planning, procurement, quality control, and logistics are managed internally within the organization. Supplier relationships exist primarily at the raw-material or subcomponent level, while final assembly and critical processes remain within captive plants. Capacity expansion occurs through direct capital investment, and operational decisions are governed by internal production schedules.
- 2. Contract Manufacturing:** In this model, a specialized manufacturing firm owns and operates production facilities, while producing goods on behalf of external brands. Asset ownership is concentrated with the manufacturer, whereas product design, intellectual property, branding, and market access remain with the client company. Coordination between the brand and manufacturer is bilateral and contract driven. The brand defines product specifications, quality standards, delivery timelines, and volume forecasts, while the contract manufacturer executes production within agreed parameters. Capacity expansion is driven by long-term client commitments, demand visibility, or aggregation of orders across multiple brands, and typically involves investments in new production lines, automation, geographic expansion, or facility scaling.
- 3. Manufacturing Platform:** In this model, production assets remain largely owned by independent suppliers, while a centralized platform provides the coordination layer that governs how those assets are utilized. The platform aggregates demand from multiple buyers and allocates work across a distributed supplier network, resulting in high coordination intensity driven by standardized execution protocols and real-time monitoring. Supplier onboarding, quality systems, procurement, and logistics are managed through shared digital infrastructure that provides system-wide visibility and control. The capital architecture remains predominantly asset-light at the platform level, with growth achieved by aggregating and optimizing supplier capacity rather than through extensive ownership of manufacturing assets, although some platforms may maintain limited captive facilities to support specialized capabilities or quality control.

Traditional manufacturing models, including vertically integrated and contract manufacturing firms, are typically capital intensive, as increasing production requires additional investment in plant, machinery, and working capital.

As a result, companies operating through owned manufacturing facilities may face limits in scaling revenue, as capacity expansion requires incremental capital investment. Conversely, pure marketplaces often lack the control and execution certainty required for complex, high-value manufacturing, *Manufacturing Platforms* actively coordinate production through centralized execution systems that synchronize capacity, financing, and

delivery across a distributed supplier network. Additionally, other *manufacturing platforms* globally focus on custom manufacturing for buyers and suppliers (for example Xometry).

Manufacturing Platforms and contract manufacturers are increasingly expanding into product design, engineering, and development through Original Design Manufacturing (ODM) models. ODM and associated design, engineering and product development provides an opportunity where customers pay a premium for design and co-creation capabilities beyond just production. For example, customers whose products have been designed through an ODM process also face switching costs, as replacement would require re-engineering. ODM relationships also enable direct engagement with end customers rather than working through OEM intermediaries, improving both margins and market intelligence.

Manufacturing models differ in how they deploy capital, coordinate supplier networks, and scale production. These structural differences translate into measurable variation in capital intensity, scalability, utilization efficiency, coordination control, risk distribution, and long-term capital productivity.

Exhibit 20: Manufacturing Model Benchmarking Across Key Parameters

Dimension	Vertically Integrated	Contract Manufacturing	Manufacturing Platform
Capital intensity¹	High; brand-owned assets	High for manufacturer; low for brand	Low; supplier-owned assets
Scalability²	Constrained by brand-led capex cycles	Dependent on contract manufacturer's expansion pace and industry demand	Rapid scaling via supplier network aggregation
Utilization efficiency³	Tied to internal demand, risk of idle capacity	Higher utilization via multi-brand order aggregation	Dynamic load balancing across distributed supplier base
Coordination control⁴	Fully internalized planning and execution control	Bilateral coordination between brand and manufacturer	Central orchestration across multi-supplier network
Risk distribution⁵	Operational and capacity risk concentrated within brand	Shared risk between brand and manufacturer	Risk distributed across supplier network; platform bears coordination risk
Capital productivity⁶	Moderate; capital locked in fixed assets	Moderate to high (for manufacturer) via multi-client asset leverage	High asset productivity via asset-light scaling

Notes: 1. Level of investment required in factories, machinery, and equipment to operate the model. 2. Ability of the model to increase production capacity in response to rising demand. 3. Extent to which manufacturing assets are actively used instead of remaining idle. 4. Degree of control over planning, quality, timelines, and execution across the manufacturing system. 5. Allocation of operational, capacity, and demand risks among the participating entities. 6. Revenue or profit generated per unit of capital invested in manufacturing assets.

Source(s): Redseer research and analysis

These structural differences in capital deployment and coordination translate into measurable financial performance variations across companies operating under different manufacturing models.

6.2. Financial and capital efficiency benchmarking across manufacturing archetypes

Traditional manufacturing companies typically operate within specific product segments or end-use industries, with their financial profile shaped by the capital intensity, margin structure, and demand cyclicality of that segment. To assess how differences manifest in financial performance, listed manufacturing companies have been classified into three archetypes based on their primary product focus - energy, precision, and capital goods.

The following exhibit compares key financial and capital efficiency metrics across these groups.

Exhibit 21: Manufacturing Model Benchmarking Across Key Parameter - by Archetype of companies²

Financial Metric		Sector/ product manufacturing focus		
		Energy ³ first companies	Precision ⁴ component first companies	Capital goods ⁵ companies
Revenue from operations ¹	(FY2026, ₹ billion)	1,840.48	1,837.48	462.65
	(FY2025, ₹ billion)	1,351.19	1,498.30	415.61
EBIDTA ⁶ margin	(FY2026, in % of revenue)	16%	11%	18%
EBIDTA ⁶ margin	(FY2025, in % of revenue)	14%	11%	20%
Change in EBIDTA / Change in Revenue	(FY2024-26, in %)	21%	9%	32%
	(FY2023-25, in %)	16%	10%	32%
Change in EBITDA/ Change in Capital Employed ⁷	(FY2024-26, in %)	30%	18%	22%
	(FY2023-25, in %)	23%	23%	56%
Change in Revenue/ Change in Capital Employed ⁷	(FY2024-26, in %)	147%	193%	68%
	(FY2023-25, in %)	147%	226%	175%

Note (s): 1. Revenue for the companies considered has been taken on a consolidated basis. 2. We have considered scaled companies with revenue more than ₹ 25 billion and growing at a CAGR > 13.37% in FY2023-25. The companies considered for the classification by archetypes are: Precision: Craftsman Automation Ltd., Dixon Technologies (India) Ltd., Kaynes Technology India Ltd., Lumax Industries Ltd., Motherson Sumi Wiring India Ltd., Sandhar Technologies Ltd., Sansera Engineering Ltd., Shriram Pistons & Rings Ltd., Sona BLW Precision Forgings Ltd., Syrma SGS Technology Ltd., PG Electroplast, Fiem Industries, Uno Minda, Pricol, Rane Madras, ASK Automotive, JBM Auto, Banco Products, Tube Investments of India Ltd. and Amber Enterprises; Energy: CG Power and Industrial Solutions Ltd., GE Vernova T&D India Ltd., Hitachi Energy India Ltd., Inox Wind Ltd., Premier Energies Ltd., Schneider Electric Infrastructure Ltd., Suzlon Energy Ltd., Vikram Solar Ltd., Polycab India, KEI Industries, RR Kabel, Apar Industries, Precision Wires India, Ram Ratna Wires, Genus Power Infrastructures, Skipper Limited, Waaree Energies Ltd.; Capital Goods: Cummins India, Ion Exchange India, Action Construction Equipment, Texmaco Rail & Engineering, Welspun Corp, Man Industries and Shakti Pumps Ltd.; 3. Equipment, and components whose primary designed purpose is renewable energy generation or public electricity transmission and distribution infrastructure. A component qualifies only if it is purpose-built for these systems and would not be a standard catalogue item for general industrial use; 4. High-tolerance components and sub-assemblies manufactured for electronics, automotive, and consumer device applications 5. Capital Goods are heavy engineered equipment, fabricated structures, and industrial machinery manufactured for capital expenditure projects in infrastructure and industrial sectors such as chemicals, metals, mining, manufacturing and oil & gas, excluding equipment specifically designed for renewable energy generation or power transmission systems. 6. EBITDA is calculated by adding interest, taxes, depreciation, and amortization to net profit, based on consolidated figures for all companies. 7. Capital Employed is calculated by taking total assets and subtracting current liabilities, based on the consolidated figures for considered companies. The metrics presented above may not be directly comparable, as the scope of inclusions within Revenue, EBITDA, and Capital Employed varies across companies. Financials for GE Vernova T&D India Ltd & Hitachi Energy India Ltd. haven't been released for FY2026 thus FY2025 financials have been used instead for FY2026.

Source(s): Player filings, Redseer Analysis

Industrial end-markets are inherently cyclical, with demand driven by commodity prices, government policy, technology adoption curves and macroeconomic conditions. A manufacturing company concentrated in any single end-industry or geography faces revenue volatility as cycles turn. However, *Manufacturing Platforms*

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serving multi-industry customers allows them to leverage secular trends such as large-scale industrialisation across India and the U.S., defence modernisation in India, the U.S., and Europe, and the clean energy transition. This multi-industry presence reduces dependence on any single end-market cycle while providing sustained access to demand driven by long-term policy and investment commitments across geographies.

In the normal course of business, *Manufacturing Platform's* structural advantage becomes more pronounced as it scales where each incremental unit of capital invested generates more revenue and higher returns than asset-heavy manufacturers, leading to superior long-term returns on invested capital.

Beyond financial benchmarking, the durability of competitive advantage in manufacturing depends on the depth of the operating system that governs supplier coordination, demand allocation, and execution reliability.

6.3 Operating capabilities of Manufacturing Platforms: coordination, intelligence, and execution

OEMs today face greater complexity in managing cross-border, multi-party supply chains and coordinating multiple suppliers across pricing, timing, and inconsistent quality. *Manufacturing Platforms* build durable competitive advantage through three reinforcing capabilities: platform intelligence, a diversified supply base, and precision execution capability, all anchored by end-to-end operating control. Together, these pillars allow the platform to translate demand into coordinated production, allocate work dynamically across suppliers, and maintain execution reliability for complex or high-spec procurement. This integrated operating stack creates a unified system across fragmented supplier networks, reducing execution risk for OEMs while embedding the platform deeply into customer supply chains.

Exhibit 22: Core Strategic Advantages- Manufacturing Platforms

Descriptive



Source(s): Redseer research and analysis

Platform intelligence forms the backbone of *Manufacturing Platforms* by consolidating data across demand signals, supplier capacity, costs, quality, and execution performance. This unified data layer enables better forecasting, faster decision-making, and dynamic allocation of orders across suppliers. Over time, repeated execution strengthens learning effects, allowing platforms to standardise processes, optimise supplier selection, and continuously improve reliability and efficiency at scale.

A diversified supply base provides the second structural advantage. *Manufacturing Platforms* aggregate and actively manage supplier networks across regions while serving customers across multiple industries. By maintaining diversified supplier bases and demand pools, platforms reduce dependence on any single geography or end-market. Through dynamic allocation of demand across suppliers, locations, and industries, platforms are able to sustain utilisation levels, ensure continuity of supply, and provide greater delivery predictability for OEMs even during periods of market volatility.

Precision execution capability provides the third pillar. For high specification, regulated, or technically complex components, integrated platforms often maintain limited in-house precision manufacturing capabilities. These facilities are deployed selectively for prototyping, early production runs, compliance-critical programs, or capacity backstops where third-party suppliers may face constraints. Rather than replacing the broader supplier ecosystem, these capabilities enhance platform credibility, ensure execution reliability, and expand the range of manufacturing programs the platform can support. As of FY2026, Zetwerk - Manufacturing's process capabilities are diverse and extensive compared to SME manufacturers, which typically have 2 to 5 manufacturing process capabilities.

These capabilities collectively position *Manufacturing Platforms* to capture a growing share of the manufacturing procurement opportunity described in earlier sections, with structural advantages in scalability and capital efficiency relative to traditional manufacturing models. As procurement complexity increases across high-growth industries and geographies, the coordination, intelligence, and execution depth embedded in platform operating systems become increasingly difficult to replicate through conventional manufacturing arrangements.

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Section 7: Threats and Challenges

While the manufacturing procurement industry in India and United States is witnessing significant growth, structural and external risks could influence the trajectory and stability of the industry and its participants.

1. Macroeconomic and policy risks

- a. Capital expenditure cyclicality: Manufacturing procurement volumes are closely tied to industrial capex and production cycles. Economic slowdowns or deceleration in capacity expenditures can defer procurement of capital goods, particularly in capex-intensive industries.
- b. Commodity price volatility: Fluctuations in the prices of key raw materials such as steel, aluminium, zinc and copper, driven by geopolitical developments and supply chain disruptions, can create uncertainty in contract pricing and compress margins across the procurement value chain. Recent geopolitical conflicts, including the West Asia conflict, have further disrupted global commodity markets, leading to supply shortages, higher prices and increased volatility across commodities such as crude oil, LNG, fertilizers, petrochemicals and aluminium.
- c. Trade policy and regulatory changes: Shifts in tariff regimes, local content requirements, and evolving compliance norms under GST and public procurement guidelines can alter sourcing economics and increase operational complexity for procurement intermediaries.

2. Operational and supply-chain risks

- a. Vendor concentration and quality risks: Manufacturing supply chains for precision-engineered components often rely on a limited set of qualified vendors. Capacity constraints or quality variability can disrupt production schedules and affect end-customer outcomes.
- b. Quality liability in critical applications: Procurement of components for sectors such as aerospace, defence, and energy carries elevated quality assurance requirements. Supply-chain quality failures could create reputational and contractual exposure for intermediaries.
- c. Working capital intensity: Manufacturing procurement involves significant float between supplier payments and buyer collections. Elongation of payment cycles or customer defaults during periods of economic stress could impact liquidity for intermediaries.

3. Competitive and adoption risks

- a. Competition from incumbent procurement channels: Traditional manufacturing procurement remains relationship-driven, with established OEM-vendor networks and in-house procurement teams. Platform-based models must continue to demonstrate faster time to market, sustained cost, quality, and reliability advantages to drive adoption.
- b. Digital readiness of the supplier base: A significant share of India's manufacturing suppliers, particularly MSMEs, operate with limited digital infrastructure and documentation practices, which can constrain the pace at which technology-led procurement models scale.

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Annexure B

[List of subsidiaries, associates/joint ventures, directors, key managerial personnel, promoters, members of the promoter group, selling shareholder(s), & members of senior management]

S. No.	Particulars
Subsidiaries	
1.	ZetFab India Private Limited
2.	Zetwerk Aerosystems Private Limited
3.	Sharp Tanks and Structurals Private Limited
4.	Zetwerk Electronics Private Limited
5.	Zet Town India Private Limited
6.	Smile Electronics Limited
7.	Zetchem Supply Chain Services Pvt Ltd
8.	GLR Natural Resources Private Limited
9.	Apple Engineers India Private Limited
10.	VRR Investments Private Limited
11.	Terra91 International Private Limited
12.	Zap91 Solar India Private Limited
13.	Zetwerk Manufacturing USA Inc
14.	Zetwerk Manufacturing SG Pte. Ltd.
15.	Zetwerk Holdings ME&A Limited
16.	Zetwerk Impex FZE
17.	Unimacts Global LLC
18.	Unimacts Manufacturing MX, LLC
19.	Unimacts Manufacturing Spain, S.L.
20.	Unimacts Monterrey MX, LLC
21.	Unimacts Supply Chain Management
22.	Zetwerk- Trenzet JV
23.	ZMBPL- YFC JV LLP
24.	Zetwerk RGB JV LLP
25.	Terra91 International SG Pte Limited
26.	Sapphire Clothing Company India Private Limited
27.	Kryfs Power Components Limited
28.	Kryfs Transformers Private Limited
29.	Kryfs Fabrications Private Limited
30.	Zetsol Energy Private Limited
31.	2011 Angelina Manufacturing LLC
32.	Zetsol Energy US Inc.
33.	JZNEE Renewable Energy Technology Inc,
34.	Winsharp Electronics Private Limited
35.	KJV Alloy Conductors Private Limited
Joint Ventures	
36.	Zetwerk Kinetix Technologies Private Limited
37.	SIPL- ZMBPL Joint Venture
38.	SIPS- Lumino -Zetwerk (JV EPC-04)
39.	CVK- Zetwerk JV
40.	JPPL- ZMBPL Joint Venture
41.	Zetwerk KEE Joint Venture
42.	Chapter Brand Group Limited
43.	Zetbits Electronics Components Private Limited
44.	Projekt Indigo Studio Limited
45.	ZB Power Private Limited
Associates	
46.	Pinaka Aerospace Solutions Private Limited

47.	Sharanga Technologies Private Limited
48.	Vyomagen System Private Limited
49.	Spectrum Elektrotechnik Gmbh
Directors	
50.	Amrit Pratik Acharya
51.	Srinath Ramakkrushnan
52.	Sanjiv Rangrass
53.	Vinod Kumar Dasari
54.	Jai Shankar Krishnan
55.	Aruna Sundararajan
56.	Prayank Swaroop
57.	Shailesh Lakhani
Key Managerial Personnel	
58.	Amrit Pratik Acharya
59.	Srinath Ramakkrushnan
60.	Ankit Fatehpuria
61.	Mania Sarkar
Members of Senior Management	
62.	Shreerang Godbole
63.	Rahul Agarwal
64.	Vadim Yakubov
65.	Subba Raju Komaravolu
66.	Ginu Nair
67.	Siddharth Seshan
68.	Vishal Chaudhary
69.	Manish Agarwal
70.	Dhanraj Dagar
Promoters	
71.	Amrit Pratik Acharya
72.	Srinath Ramakkrushnan
Members of Promoter Group	
73.	Sharanya Nedungadi Haridas
74.	Arabinda Acharya
75.	Dharitri Dwivedy
76.	Kadampottu Covilakam Haridas
77.	Meera Haridas
78.	Anamika Haridas
79.	T.V Lalitha
80.	Aadhi L Srinath
81.	Ramakkrushnan Balaraman
82.	Jeyanthi Ramakkrushnan
83.	Rubini Ramakkrushnan
84.	Vasanth T.S
85.	Parilmalam G
86.	T.V Prasad
87.	Aadhi Family Trust
88.	Anukul Holdings
89.	Arabinda Dharitri Family Trust
90.	Boaad Enterprise
91.	Creovate Innovation Private Limited
92.	Infimomentum Venture
93.	Verkenner Business Associates Private Limited
94.	Zetspeed Kommerce Connect Private Limited
95.	Anukul Holding LLP

96.	Maoma Family Trustee LLP
97.	Maoma Family Trust
98.	Srinath Ramakkrushnan Family Trust
Selling Shareholders	
99.	Amrit Pratik Acharya
100.	Srinath Ramakkrushnan
101.	Accel India V (Mauritius) Limited
102.	Lightspeed Venture Partners Select IV Mauritius
103.	Lightspeed India Partners II, LLC
104.	Lightspeed India Partners III, LLC
105.	Kalysta Capital Fund II (Mauritius)
106.	Peak XV Partners Growth Investments III (formerly known as SCI Growth Investments III)
107.	Peak XV Partners Investments V (formerly known as SCI Investments V)
108.	Kae Capital
109.	Nitin Mahajan
110.	Andrew Richard Woglom
111.	Can Köseoğlu
112.	Cem Garih Nahmiyas
113.	Matthew H. Arnold
114.	Daniel Bachelet
115.	Saifuddin Fakhruddin Qureishi
116.	Arun Venkatachalam
117.	Subbiah Vellayan
118.	Bikram Kandhari
119.	Creovate Innovations Private Limited
120.	Rahul Sharma
121.	Vishal Chaudhary
122.	Ankit Fatehpuria
Group Companies	
123.	Zetwerk Kinetix Technologies Private Limited
124.	Projekt Indigo Studio Limited
125.	Creovate Innovations Private Limited
126.	Pinaka Aerospace Solutions Private Limited