

PROLOGUE

EXECUTIVE INTELLIGENCE BRIEF

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# India in Global Engineering & Industrial Components

*A Strategic Assessment for OEMs, Buyers,  
and Manufacturers — Capability, Clusters,  
and Sourcing & Partnership Pathways*

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## PROLOGUE

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## Preface and Scope

This paper is a strategic assessment of India's position in the global engineering and industrial-components value chain — castings, forgings, fasteners, valves, machined parts, and engineered components — written for the firms on both sides of that chain: international original-equipment manufacturers and industrial buyers evaluating India as a sourcing and manufacturing base, and Indian manufacturers and their investors assessing where the value chain is heading and how to position within it.

It is intended to be read as a single, self-contained document. It moves from the structure of the industry and the economics of its sub-segments, through the cluster and supplier landscape that frames counterpart selection, to capacity and investment dynamics, the China+1 reallocation of sourcing, and the sourcing and partnership pathways through which engagement proceeds. It closes with the principal risks and the strategic implications for each audience.

Historical and reported figures are drawn from official and public sources, which are cited. Forward estimates, projections, and growth rates represent Prologue Research estimates, developed from public data and the firm's own analysis. Company references are drawn from public disclosures and are illustrative of structure — not exhaustive, evaluative, or endorsements. Monetary figures are reported in the source currency.

A note on method. Quantitative reported figures are stated as published by the cited source. Where the paper presents an estimate, projection, or qualitative positioning, this reflects the firm's analysis and is indicative; such figures are identified as estimates.

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## 1. Executive Summary

1.1 India occupies a large and strengthening position in the global engineering and industrial-components value chain. Engineering goods are India's single largest export category, and the country combines deep, cost-competitive manufacturing capacity in castings, forgings, fasteners, valves, and machined components with rising quality, engineering capability, and an established export track record into the most demanding markets. For international OEMs and buyers it is increasingly a sourcing and manufacturing base; for Indian manufacturers and their investors it is a platform from which to move up the value chain into higher-precision, higher-margin work.

1.2 The industry is in structural transition on three reinforcing fronts. Indian manufacturers are migrating from commodity castings and fasteners toward precision-machined, assembly-ready, and engineered components. Capacity, automation, and capital are flowing into quality and precision, supported by infrastructure and capital-goods demand and by policy. And supply-chain diversification is redirecting OEM sourcing toward India, particularly in the United States and the European Union, India's principal engineering markets.

1.3 For both audiences, the strategic question is how to position — which sub-segments, which clusters and suppliers, and which structure: sourcing, build-to-print and contract manufacture, joint venture, technology partnership, or acquisition. The industry is highly fragmented, with thousands of suppliers of widely varying capability, which makes supplier identification, quality tiering, and qualification the decisive disciplines. This paper sets out the structure, the economics, the cluster and supplier map, and the pathways to inform that decision, and concludes that the binding determinant of success is not cost — which India offers broadly — but positioning, supplier selection, and qualification.

## 2. The Structure of the Industry

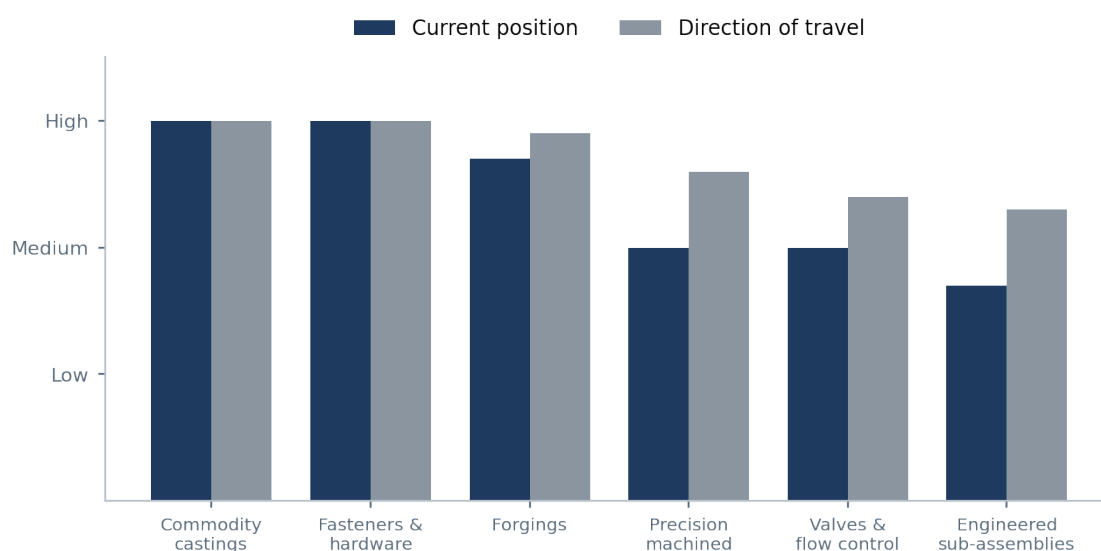
2.1 Engineering goods are the cornerstone of India's export economy, accounting for roughly a quarter of total merchandise exports. India's engineering goods exports reached a record of approximately USD 122 billion in FY2025–26, on official data, with the United States the largest destination at around a fifth of the total and Germany, Italy, and the United Kingdom among the leading European markets.<sup>1</sup> The capital-goods sector that underpins this contributes close to 2 per cent of national GDP and has roughly doubled its production over the past decade.

2.2 Within engineering, the industrial-components segments of direct relevance to international OEMs — castings, forgings, fasteners, valves, and machined parts — are large and globally significant. India is the second-largest producer of castings in the world, with a foundry industry of approximately USD 20 billion in turnover and exports in the order of USD 3.5 billion, supported by some five thousand foundries.<sup>2</sup> Prologue Research estimates the Indian industrial fasteners market at approximately USD 11 billion in the mid-2020s, growing at around 8 per cent a year toward roughly USD 18 billion by 2030. These are Prologue Research estimates, developed from observed demand and export trends, and are indicative.

2.3 The industry is structured in tiers of capability. At the base are commodity castings, forgings, and fasteners, where competition is on cost and volume and the supplier base is

vast and fragmented. Above them sit precision-machined and quality-certified components, where capability and consistency command premium and the credible supplier set narrows. At the apex are engineered, assembly-ready, and sub-system components — increasingly for automotive, electric-vehicle, aerospace, and defence applications — where engineering capability and certification create durable position. The structural story of the past decade is Indian manufacturers climbing these tiers. Figure 1 sets out the firm's assessment.

**Figure 1. Indian capability by component tier: current position and direction**



*Note: Prologue Research assessment. Bars indicate current relative position (left) and assessed direction of travel (right); qualitative and indicative.*

### 3. Sub-Segment Economics

3.1 Industrial components are not a single market but a set of sub-segments with materially different economics. The strategic distinction for an OEM or manufacturer is between segments competing on cost — where the Indian supplier base is vast and margins thin — and segments where precision, certification, or engineering content sustain margin and narrow the field. Table 1 sets out an indicative view.

**Table 1. Component sub-segments: indicative economics and India's position**

| Sub-segment                   | Margin character                    | India's position and direction       |
|-------------------------------|-------------------------------------|--------------------------------------|
| Engineered sub-assemblies     | High;<br>engineering-protected      | Emerging; EV, aerospace, defence-led |
| Precision-machined components | Moderate-high;<br>certification-led | Rising; quality investment going in  |
| Valves & flow control         | Moderate;<br>application-specific   | Established; export-competitive      |
| Forgings                      | Moderate;<br>capability-tiered      | Strong; net exporter, moving up      |
| Castings                      | Moderate-low; scale-led             | Global No. 2; cost-competitive       |
| Fasteners & hardware          | Low; cost-competed                  | Large, fragmented, margin-pressured  |

*Source: Prologue Research assessment; public data and disclosures. Indicative.*

3.2 Two patterns follow, one for each audience. For international OEMs, value is greatest where India offers capability and certification rather than only cost — precision machining, valves, engineered sub-assemblies — where the relationship is durable and the qualified supplier set manageable. For Indian manufacturers, the strategic imperative is to migrate from cost-competed commodity work toward these capability-protected segments, where defensible margin and OEM stickiness are found. The two movements meet in the same precision and engineered segments.

3.3 A caution applies to both. The advantage in cost-led segments is contestable as other low-cost geographies expand capacity and as input-cost and currency movements shift; durable advantage rests on climbing into capability-protected work. The segments attracting the heaviest quality and automation investment are precisely those where position must be defended by continuous capability advance, not occupancy alone.

## 4. The Cluster and Supplier Landscape

4.1 India's components industry is organised into long-established geographic clusters, each with a characteristic specialisation and quality profile. For an OEM, the cluster a supplier sits in is an informative first signal of its capability and orientation. Table 2 sets out the principal clusters.

**Table 2. Principal Indian industrial-components clusters**

| Cluster                     | Specialisation                         | Best-fit sourcing                          |
|-----------------------------|----------------------------------------|--------------------------------------------|
| Coimbatore (Tamil Nadu)     | Castings, pumps, motors, precision     | Castings, machined and precision parts     |
| Rajkot (Gujarat)            | Castings, forgings, auto components    | Castings, forgings, cost-competitive parts |
| Ludhiana (Punjab)           | Fasteners, auto and cycle parts        | Fasteners, hardware, light components      |
| Pune / Chakan (Maharashtra) | Auto, precision, engineered components | Precision and engineered sub-assemblies    |
| Belagavi / Kolhapur         | Foundries, precision castings          | Quality castings and machined parts        |
| Chennai / Hosur             | Auto, valves, engineered components    | Valves, flow control, assemblies           |

*Source: Prologue Research; industry cluster data. Indicative.*

4.2 Two structural features matter for OEMs and investors. First, the supplier base is highly fragmented: of the country's several thousand foundries, the large majority are small units, with a minority of medium and large organised players accounting for most quality export capability. This fragmentation is the central sourcing challenge — and the central reason that supplier identification and qualification create value. Second, the leading organised manufacturers are increasingly capable, certified, and globally engaged, with a tier of them moving into precision and engineered work and, in some cases, acquiring capability and capacity at home and abroad.

## 5. The Supplier Map and Counterpart Selection

5.1 Counterpart selection is the most consequential decision in any India engagement, and in this fragmented industry it is decisive. The landscape can be read along two axes: by component segment and cluster, and by supplier type and quality tier. A counterpart's position on both determines its fit. The right counterpart depends on the objective — spot sourcing, build-to-print supply, contract manufacture, joint venture, or acquisition — and on the segment, precision tier, certification standard, and volume required.

5.2 Read by supplier type, the landscape sorts into categories that suit different engagement structures, set out in Table 3. The match between supplier type and engagement structure is the core of counterpart selection.

**Table 3. Supplier types and engagement fit**

| Supplier type                     | Character                            | Best-fit engagement                        |
|-----------------------------------|--------------------------------------|--------------------------------------------|
| Tier-1 organised manufacturer     | Certified, OEM-experienced, scaled   | Build-to-print, JV, long-term supply       |
| Precision / engineered specialist | Deep in a component class; certified | Engineered supply, technology JV           |
| Mid-tier foundry / forge          | Capable, scaling quality             | Contract manufacture, build-to-print       |
| Commodity / MSME supplier         | Cost-competitive; variable quality   | Spot and cost-led sourcing, with oversight |

Source: Prologue Research assessment. Indicative.

5.3 Combining the two axes gives the practical method. A tier-1 organised manufacturer or precision specialist suits an OEM seeking certified, durable, build-to-print or engineered supply, but the credible set is a manageable minority of the total base and qualification is essential. A mid-tier foundry or forge offers cost-competitive contract manufacture with capability that is rising but must be verified. The commodity and MSME base offers the lowest cost but the widest quality variance, suiting cost-led spot sourcing only with active oversight. The discipline is to begin from the component, precision tier, and objective, identify the qualified supplier set within the relevant cluster, then verify against fit — rather than starting from a broker's list or an available contact.

5.4 This is the point at which the industry differs most from less fragmented sectors. The gap between the best Indian suppliers and the median is wide; the value of getting to the qualified minority, and avoiding the unqualified majority, is correspondingly high. Supplier identification and qualification is not an administrative step but the core of a successful India sourcing strategy.

## 6. Capacity, Quality, and Investment Dynamics

6.1 The clearest evidence of the structural shift is in quality and capacity investment. Leading manufacturers are investing in automation, precision machining, metrology, and certification (ISO, IATF, and sector-specific aerospace and defence standards), moving the organised tier up the capability ladder. Cumulative foreign direct investment into the mechanical and engineering sectors runs into billions of dollars, and 100 per cent foreign investment is permitted through the automatic route, easing partnership and acquisition.<sup>3</sup>

6.2 Demand reinforces the direction. A sustained national infrastructure and capital-goods build-out, the expansion of domestic automotive and electric-vehicle manufacture, and emerging aerospace and defence sourcing are pulling the supplier base toward higher precision and certification. Recent transactions and capacity moves — including investment and consolidation in heavy forgings and the build-out of new high-technology manufacturing — signal organised players scaling capability rather than only volume.<sup>4</sup>

6.3 For an OEM or investor, the signal is twofold. The direction of capital confirms the segment-economics view: investment is flowing into precision and certification, where margin and stickiness are. And the rising organised tier means the qualified supplier set is widening over time — but unevenly, which keeps identification and qualification central.

## 7. The China+1 Reallocation

7.1 The external force accelerating the shift is the diversification of global manufacturing sourcing away from single-country concentration. International OEMs and buyers are building India-based sourcing as an alternative and complement to existing arrangements, particularly in castings, forgings, precision machining, and engineered components, where India's cost and capability combination is strongest. The reallocation is visible in India's record engineering exports and in the deepening of OEM relationships from spot purchase toward build-to-print and dedicated supply.

7.2 India's appeal rests on cost-competitive capacity, a broad and deep supplier base, rising quality and certification, English-language engineering capability, and improving logistics, reinforced by trade liberalisation that lowers duties into key markets. The dynamic is not automatic: it depends on suppliers meeting quality, certification, and delivery standards, and on OEMs identifying and qualifying the right counterparts in a fragmented base. It is a structural tailwind that rewards deliberate sourcing strategy over opportunistic purchase.

## 8. Sourcing and Partnership Pathways

8.1 For both audiences, the operative question is structure. Engagement across the India-global components value chain proceeds through a spectrum of arrangements, each with a distinct risk, control, and commitment profile. Table 4 sets them out.

**Table 4. Sourcing and partnership pathways**

| Pathway                            | What it offers                              | Best suited to                              |
|------------------------------------|---------------------------------------------|---------------------------------------------|
| Spot / catalogue sourcing          | Lowest-cost, low-commitment supply          | Commodity parts; testing the base           |
| Build-to-print supply              | Manufacture to OEM drawings and spec        | Qualified, repeatable component supply      |
| Contract / dedicated manufacture   | Capacity and capability under specification | Volume programmes without capital           |
| Joint venture                      | Shared manufacture, market, and risk        | Durable local capacity; technology exchange |
| Technology partnership / licensing | Process or product capability transfer      | Upgrading supplier capability to OEM need   |

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|                              |                                 |                                            |
|------------------------------|---------------------------------|--------------------------------------------|
| Acquisition / minority stake | Control or position in capacity | Consolidators and investors on either side |
|------------------------------|---------------------------------|--------------------------------------------|

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*Note: Prologue Research assessment.*

8.2 The choice turns on what each side seeks. An OEM wanting repeatable, certified supply is served by build-to-print or dedicated manufacture with a qualified tier-1 supplier rather than spot purchase; one seeking secure capacity or capability, by joint venture, technology partnership, or acquisition. An Indian manufacturer seeking OEM relationships, technology, and scale may prefer a JV or dedicated-supply relationship; one seeking growth, an acquisition or investment. The pathways are not mutually exclusive, and relationships frequently deepen along the spectrum over time — from spot, to build-to-print, to dedicated manufacture, to joint venture.

8.3 The common determinant of success across all pathways is counterpart selection and qualification: matching capability, certification, capacity, and intent on both sides, and constructing an arrangement that aligns incentives and assures quality across two operating environments. In a fragmented, quality-variable industry, this is where most value is created or lost.

## 9. Qualifying a Supplier or Partner

9.1 Selection narrows the field; qualification confirms fit. Across any pathway, qualification spans capability and capacity verification; quality systems and certification (ISO, IATF, and sector-specific aerospace, defence, and pressure standards); metrology and process control; on-time-delivery and logistics reliability; financial and governance standing; customer-concentration and related-party exposure; and, for partnership or acquisition, cultural, governance, and integration alignment. Plant-level verification matters more here than in many industries, because quality variance between suppliers is wide and not always visible on paper.

9.2 The most common errors are to source by price or broker introduction rather than by qualified capability, and to under-weight delivery reliability and quality-system maturity, which determine whether a programme runs. Rigorous, plant-level qualification is where value is protected — and it is the discipline that distinguishes a durable supply relationship from a costly failed trial.

## 10. Risks and Sensitivities

10.1 Several factors qualify the assessment. The export and market projections are sensitive to global industrial demand, the pace of supply-chain reallocation, and competition from other low-cost manufacturing geographies. Input-cost movements — steel, aluminium, energy — and currency movement between the rupee, the dollar, and the euro affect cost position and the value of trade flows. Quality and delivery variance across a fragmented base is a persistent execution risk that qualification mitigates but does not eliminate.

10.2 On execution, sourcing and partnership outcomes depend on suppliers meeting and sustaining certification and delivery standards, and on governance and integration alignment in partnerships and acquisitions. Logistics and lead-time reliability, while improving, remain a consideration for time-sensitive programmes. None of these alters the structural reallocation under way, but each shapes the rate, the distribution, and the



durability of the gains — and each is a reason for deliberate supplier selection and qualification rather than speed alone.

## 11. Strategic Implications and Outlook

11.1 India's place in the global engineering and industrial-components value chain is being redefined from low-cost supplier toward qualified manufacturing partner. The migration up the capability ladder, the capital flowing into precision and certification, and the supply-chain reallocation toward India are mutually reinforcing. The value chain is integrating across borders rather than simply trading across them, and the pace is set by capability and qualification, not by cost alone.

11.2 For international OEMs and buyers, the implication is to engage deliberately in the segments where India offers capability and certification, through the structure that matches their intent, and to invest in supplier identification and qualification — the decisive discipline in a fragmented base. For Indian manufacturers, the implication is to continue the migration toward precision and engineered work, to build the certification, metrology, and delivery reliability that OEM relationships require, and to weigh organic, partnership, and acquisitive routes to scale and capability. For investors, the implication is that the opportunity and the risk lie in the same place — the organised tier climbing into precision work — and that segment and supplier selection determine which is realised.

11.3 For all three, the binding determinant is not cost, which India offers broadly, but positioning and qualification: choosing the right segment, the right supplier or partner, and the right structure, and qualifying rigorously before committing. That is a question of strategy and diligence — and it is the question this paper is intended to inform. Prologue's role is to bring the segment-level intelligence, supplier identification and qualification, and structuring support that turn this assessment into a decision.

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<sup>1</sup> Engineering Export Promotion Council (EEPC India); DGCIS, Government of India — engineering goods export data, FY2025-26.

<sup>2</sup> India Brand Equity Foundation (IBEF); Institute of Indian Foundrymen — foundry and castings sector data.

<sup>3</sup> Department for Promotion of Industry and Internal Trade (DPIIT); Invest India — FDI and policy data.

<sup>4</sup> Public company disclosures and announcements, 2024-2025. Cited as illustrative of capacity and consolidation, not as evaluation of any company.

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*This paper has been prepared by Prologue Research for an OEM, buyer, manufacturer, and investor audience. Quantitative figures represent Prologue Research estimates, developed with reference to a range of public, official, and industry sources and to the firm's own analysis. Company references are drawn from public disclosures and are illustrative of structure, not evaluative. This paper does not constitute investment advice. Correspondence: [business@prologuet.com](mailto:business@prologuet.com).*