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COMPENDIUM OF PAPERS

September 2, 2026

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Beyond Boundaries: Co-creating Future Automotive Value Chain

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CONTACT US :

Mr. Lokesh Raina

ACMA Mobility Foundation

6th Floor, "The Capital Court", Olof Palme Marg, New Delhi - 110067, India

Telephone : +91-9873369695 | Email : lokesh.raina@acma.in

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Compendium of Papers

September 2, 2026
Taj Palace, New Delhi

Automotive Component Manufacturers Association of India
6th Floor, The Capital Court, Olof Palme Marg, Munirka, New Delhi - 110 067, India
Phone : 91-11-4352 0361-64 • E-Mail : amf@acma.in • www.acma.in



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Ms. Shikha Tripathi, Director (Government Affairs & Public Policy) at shikha.tripathi@acma.in
and / or
Mr. Binny Tomy, Deputy Director at binny.tomy@acma.in

About ACMA

The Automotive Component Manufacturers Association of India (ACMA) is the apex body representing India's vibrant automotive component industry and serves as a key catalyst in strengthening the country's manufacturing competitiveness. With a membership of over 1,100 leading manufacturers, ACMA works at the intersection of industry, government and global markets to promote innovation, technology adoption, sustainable manufacturing and business growth.

The Indian automotive industry is one of the country's most significant economic pillars, contributing nearly 49% of manufacturing GDP, around 6% of the national GDP and supporting the livelihoods of over 30 million people. At the heart of this ecosystem, the automotive component industry continues to demonstrate remarkable resilience, technological advancement and sustained growth, reinforcing India's position as a preferred global manufacturing destination.

In FY2025–26, the Indian auto component industry achieved its highest-ever turnover of **INR 7.59 lakh crore (USD 85.9 billion)**, registering a robust **12.7% growth** over the previous year. Supplies to OEMs grew by **16.3%** to **INR. 6.63 Lakh crore (USD 75 billion)**, reflecting higher vehicle production and increasing localisation across vehicle segments. The domestic aftermarket expanded by **9% to INR. 1.85 Lakh crore (USD 12.3 billion)**, supported by a growing vehicle parc and the continued formalisation of the repair and service ecosystem.

India's auto component exports reached **USD 24 billion (INR. 2.13 Lakh crore)**, with Europe emerging as the fastest-growing market, while engine components and drive transmission & steering systems together accounted for more than half of total exports. Imports increased to **USD 25.4 billion (INR. 2.25 Lakh crore)**, driven primarily by demand for advanced technologies and specialised components. Electric vehicle components (excluding lithium-ion batteries) now account for **4.6%** of domestic OEM supplies, reflecting the industry's accelerating transition towards future mobility.

As the industry's apex association, ACMA plays a pivotal role in enabling this growth by fostering an ecosystem that enhances global competitiveness. The Association works closely with policymakers, government agencies, OEMs, technology providers, academia and international partners to drive policy advocacy, research, capability development and industry collaboration.

Beyond advocacy, ACMA actively drives manufacturing excellence through a wide range of programmes that improve quality, productivity, sustainability, operational efficiency and technological capability across the industry. The Association also facilitates business development through international collaborations, investment promotion, buyer-seller meets, technology partnerships and global trade exhibitions, creating new opportunities for Indian manufacturers to integrate into global value chains.

Today, ACMA's engagement extends across more than **40 international industry associations**, enabling deeper global partnerships and expanding market access for its members.

Committed to shaping the future of mobility, ACMA remains dedicated to positioning India among the world's most competitive and trusted hubs for automotive component manufacturing, innovation, sustainability and advanced mobility solutions.



ACMA Mobility Foundation

Head Office
6th Floor, The Capital Court, Olof Palme Marg,
Munirka, New Delhi - 110 067, India
Tel.: +91-11-4352 0361-64
Email: amf@acma.in

REGIONAL OFFICES

Northern Region

6th Floor, The Capital Court, Olof Palme
Marg, Munirka, New Delhi 110 067
Tel: +91-11-4352 0361-64
E-mail: acmanr@acma.in

Eastern Region

Room No, 4, Centre for Excellence,
Jubilee Road, Jamshedpur 831001
Tel: t91-44-28330968, 28330949
Telefax: +91-44-28330590
E-mail: acmaer@acma.in

Western Region

Office No. C, 10th Floor, Godrej Eternia "C",
B-wing, Old Mumbai-Pune Highway, Wakdewadi,
Shivaji Nagar, Pune- 411 005, Maharashtra, India
Tel: 1219/20 | Fax: +91-20 6606 1220
E-mail: acmawr@acma.in

Southern Region

1 -B, "Crystal Lawn", 20 Haddows Road,
1st Street, Chennai 600 006
Tel: +91-44-28330968,, 28330949
Fax: +91-44-28330590
E-mail: acmasr@acma.in

ZONAL OFFICES

Southern Region

(Karnataka & Hosur)
Shop No. 1, 1st Floor,
NGV Commercial Complex,
National Games Village,
Koramangala,
Bangalore 560 047, Karnataka
Tel: +91 80-2570 2855
Fax: +91-80-40939689
E-mail: acmakh@acma.in

Western Region

(Mumbai)
80, Dr. Annie Besant Road,
Worli, Mumbai - 400 018,
Maharashtra, India
Tel: +91-20-6606 1219/20
Fax: +91-20 6606 1220
E-mail: acmawr@acma.in

(Gujarat)
801 "Matrix",
Near Vodafone House,
B/H Divya Bhaskar,
Corporate Road,
Ahmedabad - 380015, Gujarat
Tel: +91-20-6606 1219/20
Fax: +91-20 6606 1220
E-mail: acmawr@acma.in

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Indian Auto Component Industry FY 2025-26

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Automotive Component Manufacturers Association Of India

An Update on the Indian Auto Components Industry

FY 2026

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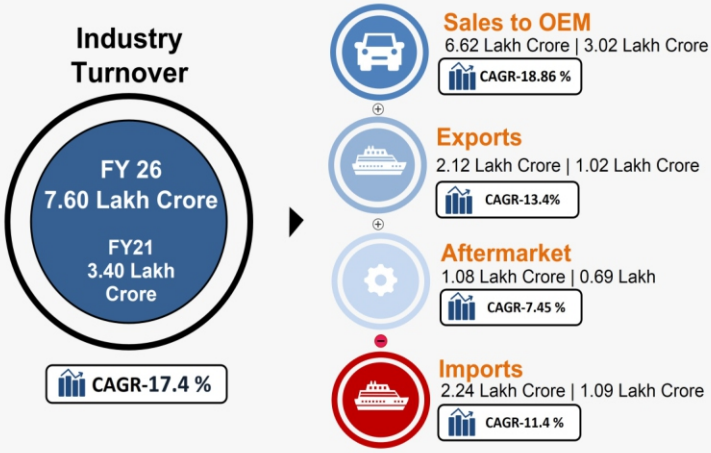
Indian Auto Component Industry-A key driver of Indian Economy

Industry turnover doubled, growing at a CAGR of 17 % from FY21 to FY26



Strong domestic demand continues to drive revenue expansion across the auto-component sector.

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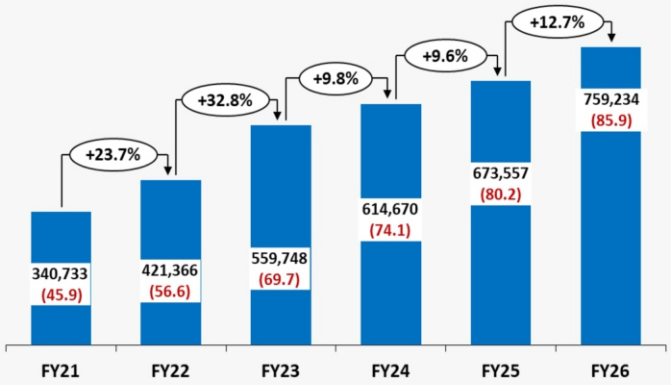
FY 2026: Auto Component Industry Performance

Size of industry[1] | INR Cr (USD Bn)

Includes Sales to OEMs, Aftermarket, and Balance of Trade



Growth % taken against INR Values

Source: PwC research, CRISIL, SIAM, includes Tractors, Construction Equipment

FY26 – Auto components industry performance

- Auto component industry grew 12.7% *(in INR)* in FY26
- Supply to OEMs grew by 16.3% due to significant growth in production volumes of vehicles
  - Passenger Vehicles ~ 10%
  - Commercial Vehicles ~13%
  - Two-wheelers ~12%
- Aftermarket grew by 9% supported by growing vehicle base and formalization of the market
- Exports grew by 5% and imports by ~13%
- Trade deficit stood at USD 1370 million
- Supply to EV segment accounts for 4.6% of sales to OEMs

Notes: 1 - Excludes tyres, paints, powder coating, batteries & consumables
2 - EVs include only Li ion battery operated vehicles. Cost of Li ion battery excluded from component consumption calculations
3 - USD/INR rate for FY26 has been considered at 88.46 ,based on the average exchange rate data for FY26

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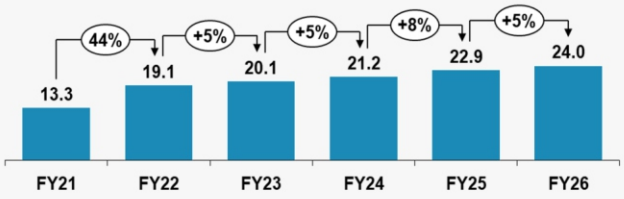
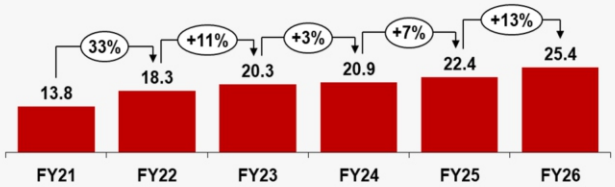
FY 2026: Exports & Imports - Balance of Trade

Total Exports | $ Bn.



Total Imports | $ Bn.



FY26 EXIM performance

- Exports grew by 5% and imports by 13%.
- Europe saw the highest increase in exports, on expectations of a favorable FTA and European OEMs expanding procurement offices in India
- Engine components and Drive Transmission & Steering, account for more than half of exports.
- China, Japan and Germany were the leading sources of auto-component imports into India.
- Drive Transmission & Steering, alongside Engine, account for 56% of imports

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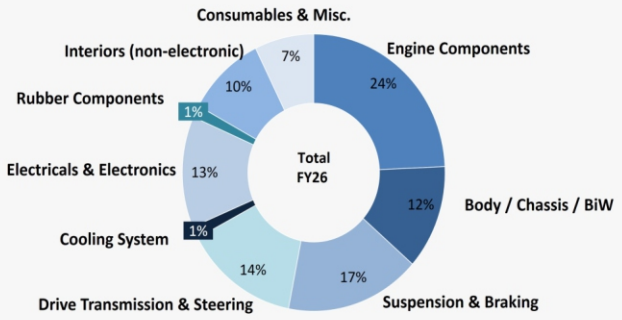
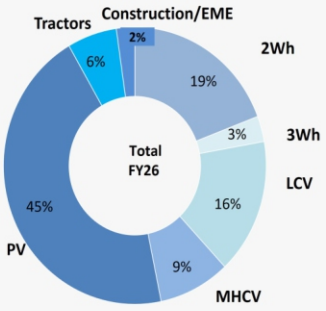
FY 2026 : Sales by Category & Revenue from OEMs

Overall Component Sales By Category:



Component Sales to OEMs By Segment:



Total Supply to OEMs: INR 6,62,893 Cr. (USD 75 Bn)

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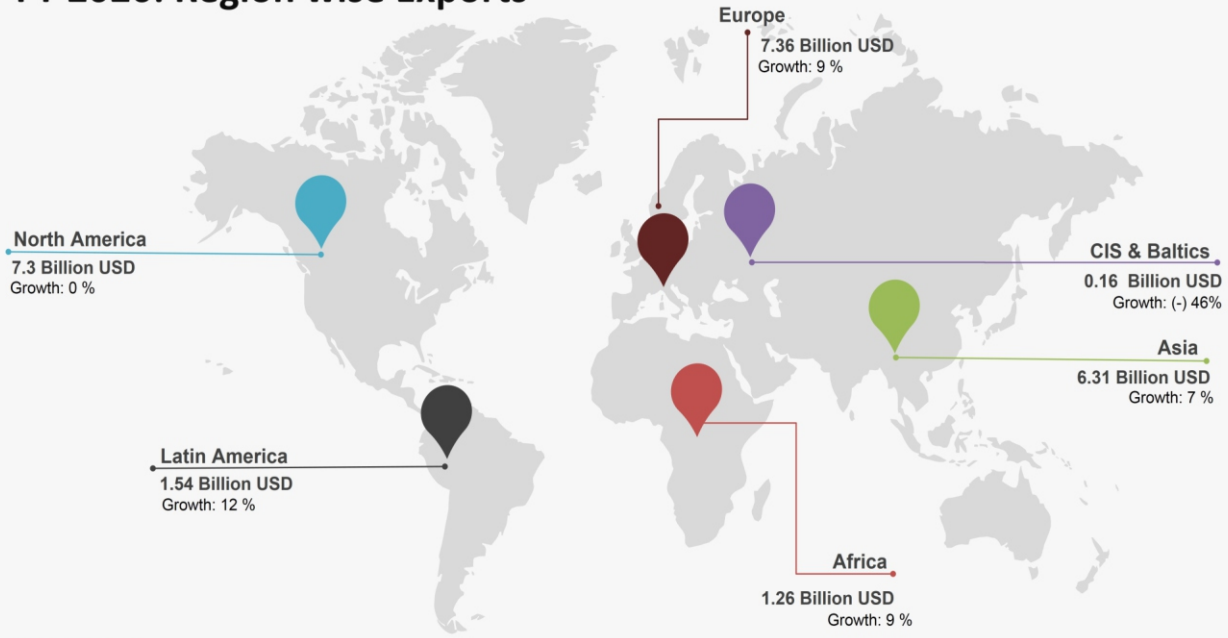
FY 2026: Region wise Exports



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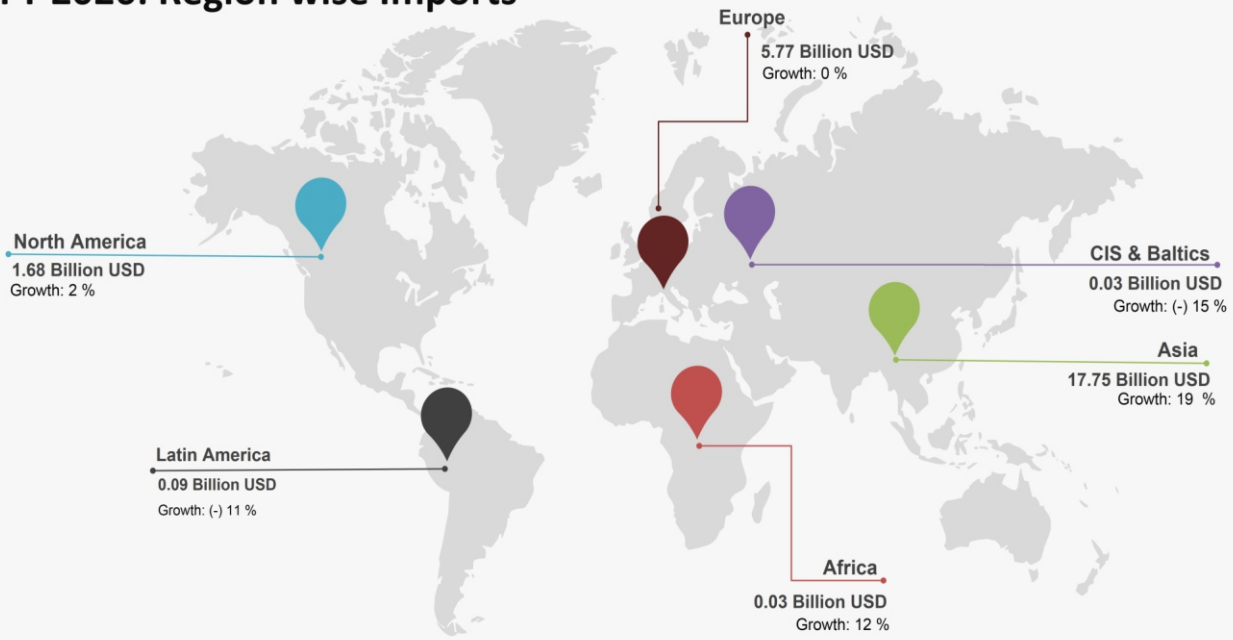
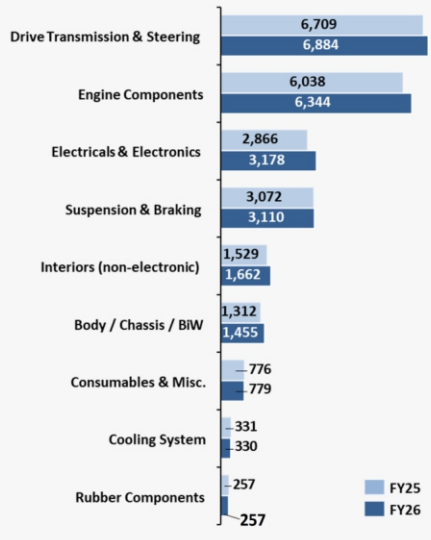
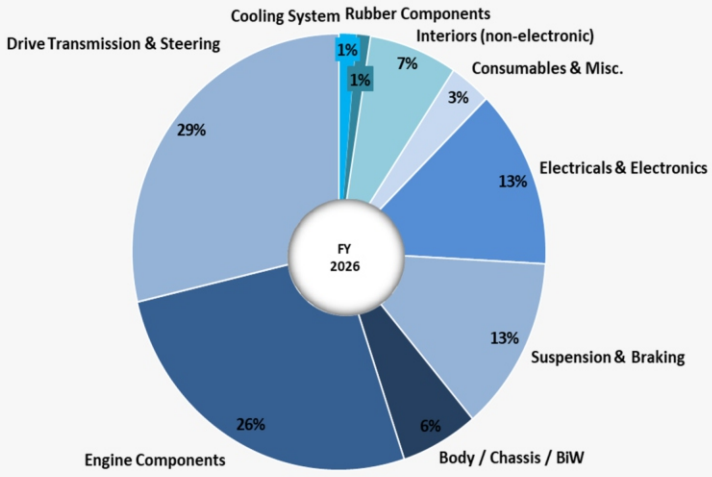
FY 2026: Region wise Imports



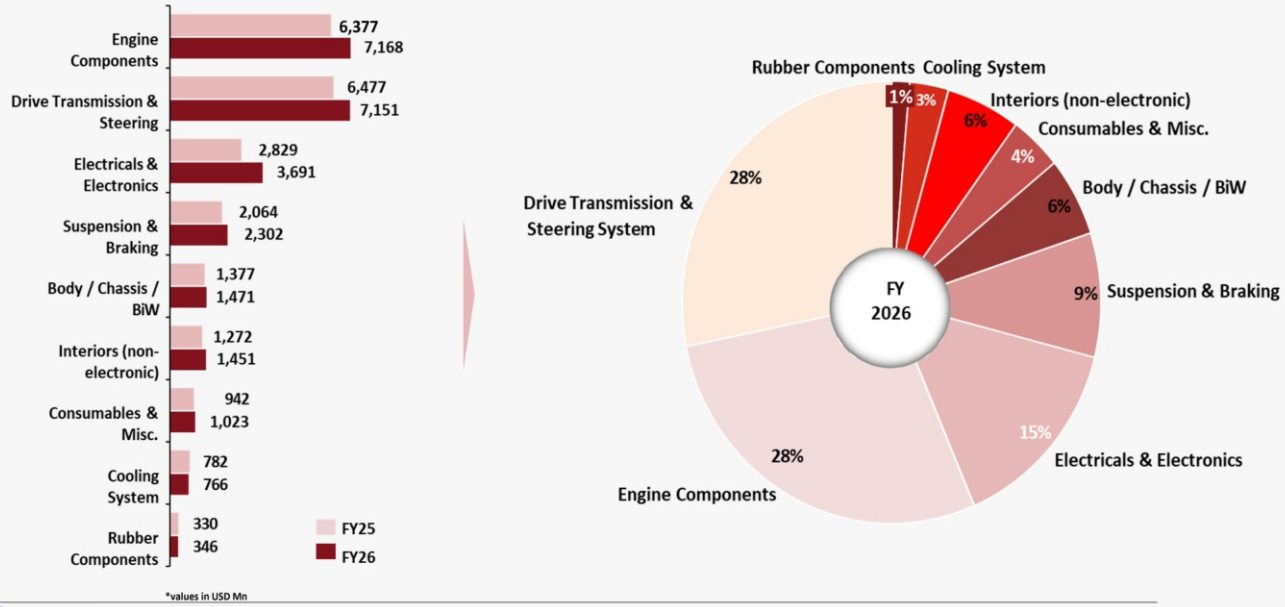
FY 2026: Exports Segmentation by Product Type



*values in USD Mn

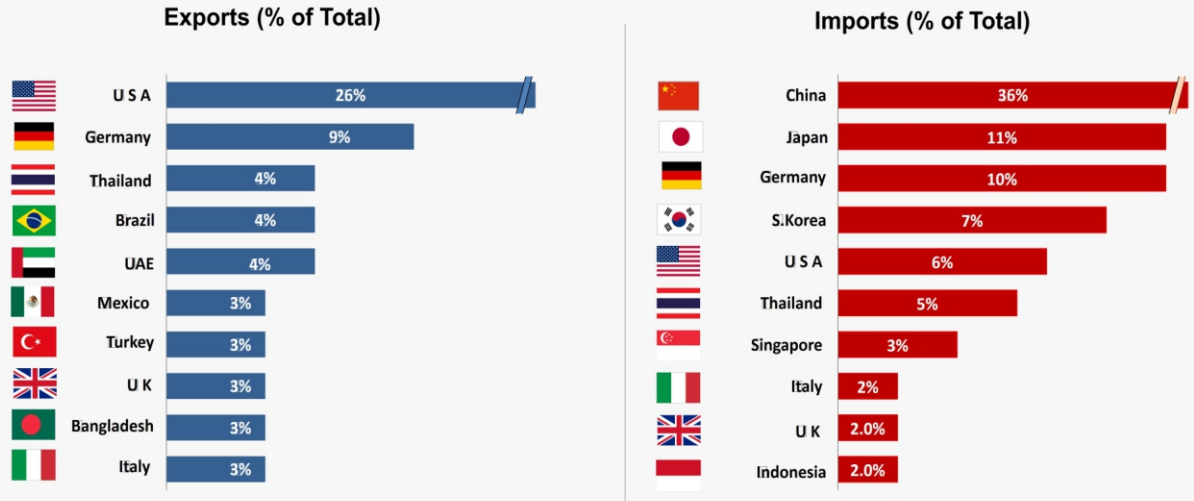


FY 2026: Imports Segmentation by Product Type



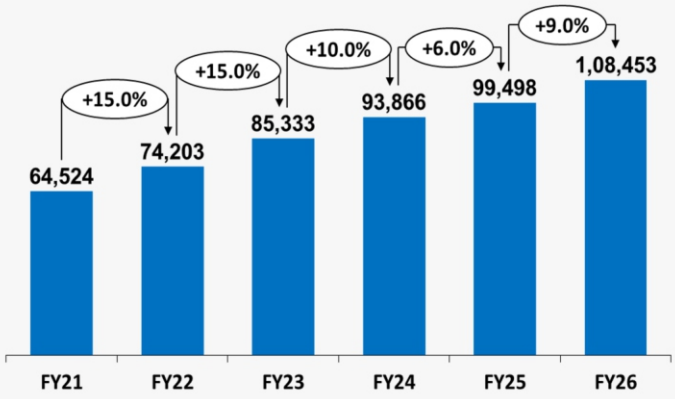
Top 10 Country wise: Imports & Exports

USA is key destination for exports while China is key source of imports



FY 2026 : Indian Auto Component Aftermarket

Aftermarket | INR Cr



FY26 Aftermarket

- Growth in the aftermarket segment can be attributed to:
  - Rise in demand for used vehicles
  - Shift in preferences towards larger/more powerful vehicles,
  - Increasing formalization of the repair and maintenance market

Summary: FY 2026 vs FY 2025

Figures in INR Crore	FY 2026	FY 2025	Growth Rate
Auto Components Supply to OEMs	662,893	570,145	16.3%
Aftermarket	108,453	99,498	9.0%
Exports	212,176	192,326	10.3%
Imports	224,287	188,412	19.0%
Industry Turnover	**759,234**	**673,557**	**12.7%**

Figures in USD Billion	FY 2026	FY 2025	Growth Rate
Auto Components Supply to OEMs	75	67.9	10.5%
Aftermarket	12.3	11.8	3.6%
Exports	24	22.9	4.8%
Imports	25.4	22.4	13.1%
Industry Turnover	**85.9**	**80.2**	**7.1%**

Tailwinds & Headwinds

Tailwinds

- Govt Focus: Carbon Neutrality
- FTAs deepening/opening new markets
- Emphasis on infrastructure development
- Growing Domestic Demand/Vehicle sales
- Largely Stable international demand/Exports
- Increased Investments and Capacity Expansion
- New entrants in mobility space

Headwinds

- Geo-political challenges – Russia-Ukraine/West Asia/US Tariffs/Chinese Trade restrictions..
- Non-availability of Rare Earth Magnets
- Raw Material Price Volatility
- Increasing Insurance & Freight Costs
- Labour Shortage

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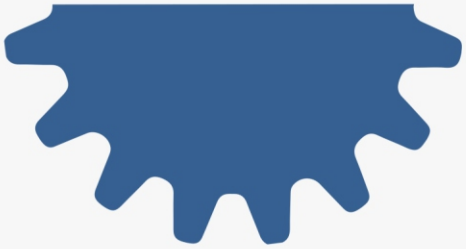

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Market Dynamics and Growth Prospects

By

Crisil
Intelligence

Crisil Intelligence

Indian automotive industry

Market dynamics and growth prospects

August 2026



by S&P Global



Crisil Intelligence

Analytical contacts:

Hemal Thakkar
Senior Practice Leader – Mobility & Logistics Consulting
Hemal.Thakkar@crisil.com

Arpita Mathur
Associate Director
Arpita.Mathur@crisil.com

Mihir Patil
Associate Director
Mihir.Patil@crisil.com

Vishal Gori
Associate Director
Vishal.Gori@crisil.com



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Macroeconomic overview

Global economy

After witnessing steady growth in calendar year 2025, the global economy is expected to decelerate in calendar years 2026 and 2027, impacted by the conflict in West Asia.

According to the January 2026 update of the International Monetary Fund's (IMF) World Economic Outlook, the global economy grew 3.3% (updated to 3.5% in July report) in calendar year 2025 and was projected to maintain this trajectory. However, the onset of the West Asia conflict in February this year introduced notable downside risks. The conflict impacted economic stability through damage to critical infrastructure, triggered disruptions in transportation and supply chains, and escalated humanitarian challenges. These factors contributed to higher commodity prices, increased inflationary pressures and heightened market volatility, with import-dependent developing economies taking a bigger hit.

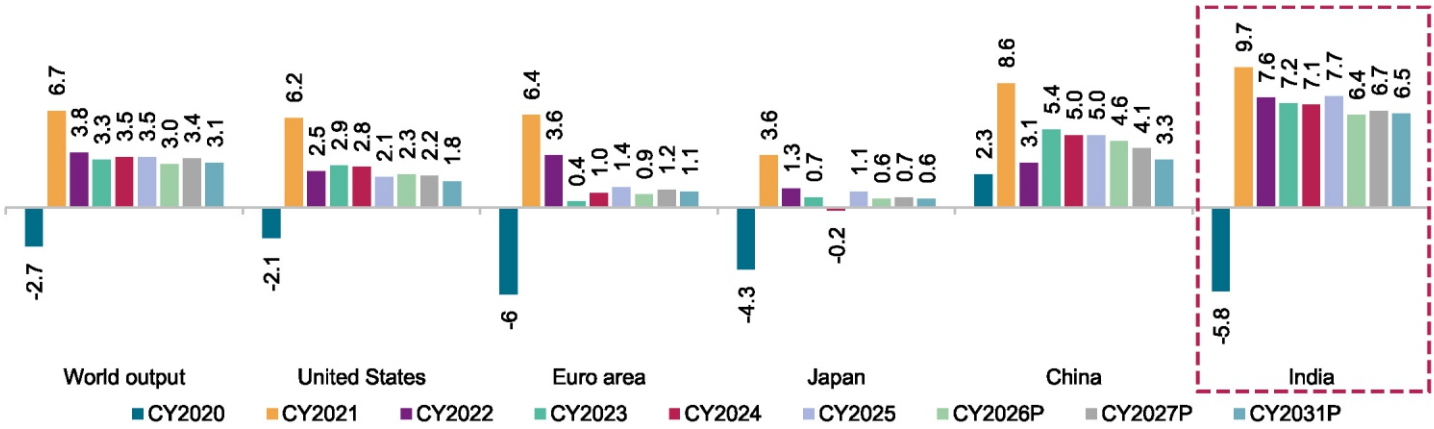
The IMF's July 2026 update projects global gross domestic product (GDP) growth at 3% for calendar year 2026 and 3.4% for calendar year 2027. Though global growth is expected to slow down this calendar year, artificial intelligence-(AI) related investments may provide some support. Nevertheless, trade uncertainties, macroeconomic policies and geopolitical developments are expected to have an impact through calendar year 2027.

Advanced economies, which include the United States (US), the United Kingdom (UK), the Euro area and Japan, are projected to grow 1.7% in calendar year 2026 and 1.8% in calendar year 2027. However, growth is expected to be supported by fiscal policy, accommodative financial conditions and technology-related investments.

In emerging markets and developing economies—such as China, Russia, Brazil, Mexico and India—growth is expected to moderate to 3.8% this calendar year before recovering to 4.5% in the next.

The conflict's impact is expected to vary across economies, depending on factors such as geographic proximity, trade and financial linkages, remittance flows and energy dependencies. Despite the uncertain global environment, India's growth outlook remains relatively resilient. The country is witnessing continued economic expansion, supported by robust private consumption, increasing investment activities and sustained government focus on infrastructure development.

Divergent growth trends



P - projected

*Note: CY: calendar year. *Euro area comprises 19 member countries of the European Union*

Source: IMF, World Economic Outlook – July 2026 update



United States

The US revised upwards its real GDP growth to 2.1% (annualised) in the first quarter of this calendar year 2026 from the earlier 1.6%, primarily due to a downward revision in imports. Exports remained weak because of tariffs and softer demand owing to the West Asia conflict. The Purchasing Managers' Index (PMI) for manufacturing stood at 53.9 in June this year, remaining in the expansion territory despite easing from 55.1 in May, as output and new orders grew at a slower pace. Services PMI rose to 51.2 from 50.7, supported by faster growth in new orders. The services activity continued to be driven largely by domestic demand, while new export business declined further. The Consumer Price Index (CPI) eased for the first time in five months to 3.5% in June from 4.2% in May, as energy inflation moderated to 15.7% from 23.5%. Core inflation (CPI excluding food and energy) also improved to 2.6% from 2.9%. Imports rose 3.3% in June, while exports declined 3.2%, widening the trade deficit to a seasonally adjusted $77.6 billion in May—the highest level since March 2025—from $54.6 billion in April 2026.

Eurozone

The eurozone's GDP growth remained flat in the first quarter of this calendar year 2026 compared with a 0.2% growth witnessed in the fourth quarter of the previous calendar year 2025. Inflation eased to 2.8% in June from 3.2% in May, driven by slower inflation in energy (8.7% vs 10.8%), core prices (2.4% vs 2.6%), and food, alcohol and tobacco (1.6% vs 1.9%). Within the core category, services inflation moderated to 3.2% from 3.5% in June. Besides, the European Central Bank (ECB) raised rates by 25 basis points during the month, the first hike since calendar year 2023. The deposit rate stood at 2.25%, while the main refinancing facility at 2.4%.

Japan

Japan's GDP growth rose to 1.8% in the first quarter of this calendar year from 0.7% in the previous quarter. Manufacturing PMI rose to 54.8 in June from 54.5 in May, marking the second-highest reading since January 2022. Inventory accumulation continued to provide support. Services PMI rose to 52.2 in June from 50.0 in May as new orders rose sharply, supported by domestic demand. CPI inflation rose to 1.5% in May from 1.4% in April as energy deflation moderated (-2.5% vs -3.9%). Core inflation, excluding fresh food, remained unchanged.

China

China's growth moderated to 4.3% in the second quarter of this calendar year 2026 from 4.5% in the first quarter, marking the slowest expansion since the fourth quarter of calendar year 2022.The general manufacturing PMI was broadly stable at 51.7 in June from 51.8 in May and general services PMI eased to 54.1 in June vs 54.4 in May. Inflation fell to a three-month low of 1% (from 1.2%), driven by softer non-food inflation (1.5% vs 1.9%). However, food prices continued to decline on-year (-1.6% vs -1.7%). The People's Bank of China kept its key policy rates unchanged in June. While the seven-day repurchase rate stood at 1.4%, the one-year loan prime rate remained at 3%.

Crude oil prices

Brent crude oil prices fell sharply and averaged $85.4 per barrel in June compared with $107.5 per barrel in May, as the uncertainties in West Asia eased. A significant surge was witnessed in March, with the prices rising 46% to $103.6 per barrel on average from $71.1 per barrel in February. The sharp hike was driven by fears over possible disruptions to oil flows through the strategically vital Strait of Hormuz, which prompted investors to incorporate a substantial risk premium. With the Strait effectively closed, the prices rose further in April, triggering one of the largest supply shocks in history. However, in May, the prices fell 11% to $108 per barrel as the supply disruptions eased. By end-June, they declined further to $85.4 per barrel, down 22% on-month, as a de-escalation in West Asia fuelled hopes of steady supply.

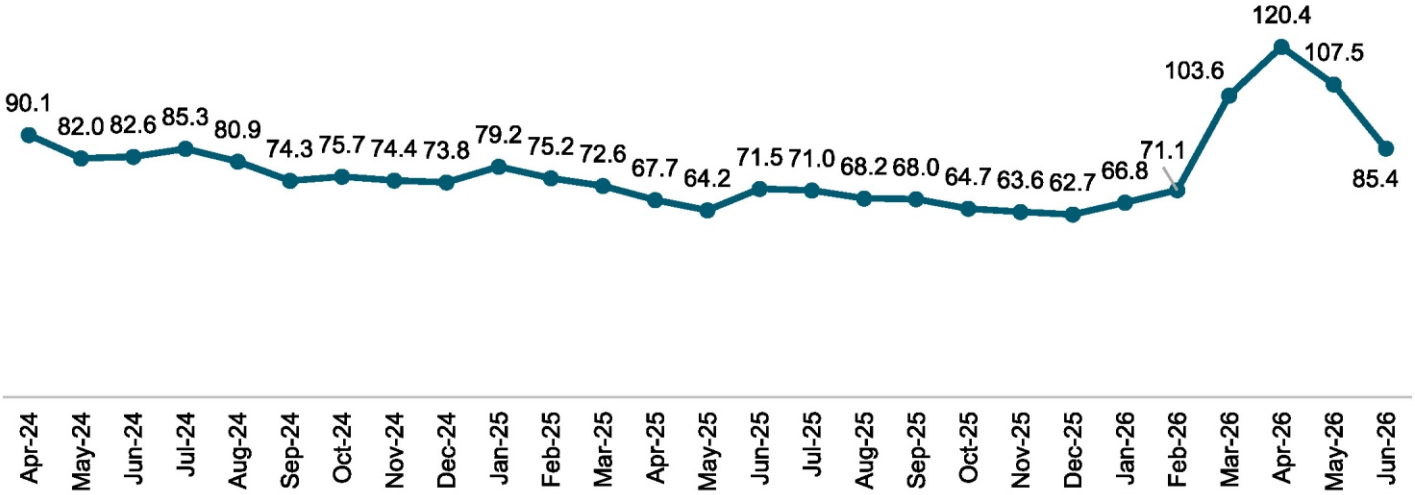
Crude oil prices moderated to $70 per barrel on average in fiscal 2026 from $79 per barrel in fiscal 2025. The decline was primarily supported by subdued demand growth, which was impacted by trade uncertainties arising from tariffs, as well as



a stable supply environment—particularly from the non-Organization of the Petroleum Exporting Countries (OPEC) producers.

In the first quarter of fiscal 2027, crude oil prices were $104.4 per barrel, up 54% from $67.8 per barrel during the same period last fiscal. In the full fiscal 2027, crude oil prices are expected to average $82-87 per barrel, up around 20% from the fiscal 2026 levels. The outlook for fiscal 2027 is based on assumptions of uninterrupted operations in key shipping routes, a gradual recovery in West Asia crude exports and steady rebuilding of global inventories as supply conditions improve. However, any fresh uncertainty in West Asia, possible supply disruption through the Strait of Hormuz, tighter sanctions, slower inventory rebuilding and stronger-than-expected Chinese crude demand remain key risks.

Brent crude prices ($ per barrel)



Sources: Crisil Intelligence

From a demand perspective, global crude oil consumption continues to be heavily influenced by aviation fuel requirements. However, the ongoing transition towards alternative energy sources and increasing electric vehicle (EV) penetration may put downward pressure on traditional transportation fuel demand over the longer term.

Continued disruptions in the supply and transit conditions could sustain the upward pressure on oil prices, while improvements—particularly, the reopening or normalisation of transit routes such as the Strait of Hormuz—may provide support. However, in the near term, oil prices are expected to remain volatile, driven by persistent geopolitical risks and uncertainty regarding the duration and severity of the supply disruptions.

Navigating the West Asia conflict

Global economic growth, previously expected to remain steady, is now projected to moderate to 3.0% in 2026 from 3.5% in 2025. This downward revision reflects a deterioration in the external environment, owing to a severe energy market shock and rising geopolitical risk.

A major disruption to global energy supply has emerged following the partial destruction and shutdown of a key liquefied natural gas (LNG) facility in Qatar, alongside closures of select oil production assets in West Asia. Compounding these supply-side constraints, maritime traffic through the Strait of Hormuz has become restricted, with passage limited to certain vessels. Given that the Strait of Hormuz accounts for approximately one-fifth of global oil flows, any sustained impairment to transit through this corridor represents a systemic shock to global energy markets.



The impact of the disruption is expected to be most acute in Europe and Asia, where economies remain structurally dependent on imported energy. Reduced availability of oil and LNG, combined with elevated risk premiums, is likely to exert upward pressure on energy prices, increase import bills, and weigh on household and corporate purchasing power.

For Asia-Pacific, the shock is particularly significant. The region continues to benefit from resilient domestic activity and robust demand for technology-related exports. However, these supportive factors are increasingly being offset by the economic consequences of the conflict in West Asia, higher energy costs, and uncertainty surrounding changes in the US trade policy, including tariff measures.

Several major Asian economies—including India, Indonesia, Japan, Malaysia and Thailand—are exposed to higher energy prices due to their reliance on energy imports from West Asia. A prolonged increase in crude oil and gas prices would likely weaken real incomes, compress corporate margins, and dampen domestic consumption and investment. It would also place additional pressure on fiscal balances, particularly in countries where governments provide fuel subsidies or other energy-related support measures.

The inflationary impact is likely to vary across economies, depending on energy intensity, exchange-rate movements, subsidy frameworks and the degree of pass-through to consumers. While inflation remains relatively constrained in much of the region, central banks may need to remain vigilant against any indirect impact on the individual economies, particularly if higher energy prices become embedded in broader price expectations.

At this stage, monetary authorities retain the scope to adopt a measured approach, given the still-benign inflation environment in many Asian markets. However, policy flexibility could narrow if energy prices remain elevated or if currency depreciation intensifies imported inflation pressures. Exchange rates across the region may come under renewed downward pressure as higher energy import costs widen current account deficits and increase demand for foreign currency.

West Asia is a crucial supplier of energy (including crude oil and petroleum products and natural gas), fertilisers and industrial raw materials. The Indian economy has deep linkages to West Asia through trade, remittances and investments.

Domestic requirement of energy and supply through the Strait of Hormuz in fiscal 2026

Energy source	Domestic requirements imported	Imports through the Strait of Hormuz
Crude oil	89.8%	45-50%
LPG	64.1%	85-90%
LNG	51.5%	52-54%

Source: Petroleum Planning and Analysis Cell, Ministry of Petroleum and Natural Gas, Crisil Intelligence

Under an adverse scenario in which the conflict in West Asia persists, causing deeper supply disruptions and a slower recovery in regional energy exports, India would face a more prolonged and broad-based energy shock. Following an initial price spike, Brent crude is expected to average $82-87 per barrel during fiscal 2027.

Over time, the shock is likely to evolve from an initial oil price shock and gas supply shock into a more entrenched and broad-based energy price shock. Elevated input costs are expected to persist through much of the fiscal, compressing producer margins across energy-intensive sectors. At the same time, the ability of firms to pass on higher costs to consumers may be constrained as inflationary pressures build and household purchasing power weakens.

As a result, India's GDP growth is expected to moderate to 6.6% in fiscal 2027 under this scenario, reflecting weaker domestic demand, tighter cost conditions for businesses and softer external demand.

Higher prices for crude oil, natural gas and downstream energy-linked inputs would raise production costs across major sectors of the economy. The impact would extend beyond direct fuel use, with second-round effects visible in



transportation, logistics, packaging, petrochemical-based inputs and other raw materials. Although crude prices have eased from their recent peak, they remain elevated on-year.

Exports may face headwinds from slower global growth, higher shipping costs and continued logistics constraints. Energy-related disruptions could also weaken external competitiveness by raising production and transport costs for Indian exporters.

On the domestic front, private consumption—currently the strongest driver of growth—could soften. The main reasons would be slower agricultural income growth, higher retail fuel and food prices, and reduced discretionary spending by households. This would be particularly relevant for lower- and middle-income consumers, who are more sensitive to energy and food inflation.

Impact on the automotive industry

The ongoing conflict in West Asia is having a notable impact on India's automotive industry, primarily through elevated crude oil prices and rising input costs. Given India's significant dependence on crude oil imports, any sustained increase in global oil prices may translate into higher domestic fuel prices. Fuel prices have already risen by approximately Rs 10 per litre since the start of the West Asia conflict.

Rising fuel costs increase the overall cost of vehicle ownership, thereby affecting demand, especially in price-sensitive segments such as two-wheelers and entry-level passenger vehicles. Consumers in these categories may postpone or reassess purchase decisions in response to higher recurring expenses, potentially leading to moderation in volume growth.

On the supply side, the sector is facing mounting pressures from higher raw material costs. Key inputs such as steel, aluminium and petrochemical derivatives are expected to witness price increases in the range of 5-15% in fiscal 2027. This escalation is likely to compress margins of automakers and could necessitate further vehicle price hikes to partially offset rising costs.

Although demand has remained relatively stable thus far, persistently high oil prices and broader inflationary pressures pose a downside risk to future growth.

Indian economy

The Indian economy logged a compound annual growth rate (CAGR) of 7.3% between fiscals 2023 and 2026 (as per the new GDP series with base year fiscal 2023), supported by benign crude oil prices, soft interest rates and low current account deficit. The Indian government also undertook key reforms and initiatives focused on infrastructure, green growth (economic growth ensuring sustainable use of natural resources), youth empowerment, financial inclusion, and gradual opening of sectors such as retail, e-commerce, defence, railways and insurance for FDIs.

The National Statistical Office (NSO) has estimated GDP growth for fiscal 2026 at 7.7%, slightly higher than the second advance estimate of 7.6% released in February 2026. The upward revision reflects higher-than-expected growth in the fourth quarter of fiscal 2026.

Growth outperformed expectations in fiscal 2026 due to fiscal support to private consumption, rate cuts by the Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI), healthy global growth, low inflation, a favourable monsoon and low crude oil prices. This fiscal, many of these factors are expected to turn adverse and weigh on growth.

Growth is likely to weaken this fiscal amid multiple headwinds, including higher prices of crude oil and other commodities, softer global growth, and the forecast of a below-normal monsoon. Global supply-chain disruptions are already intensifying cost pressures and reduced input availability is expected to add to the pressure.

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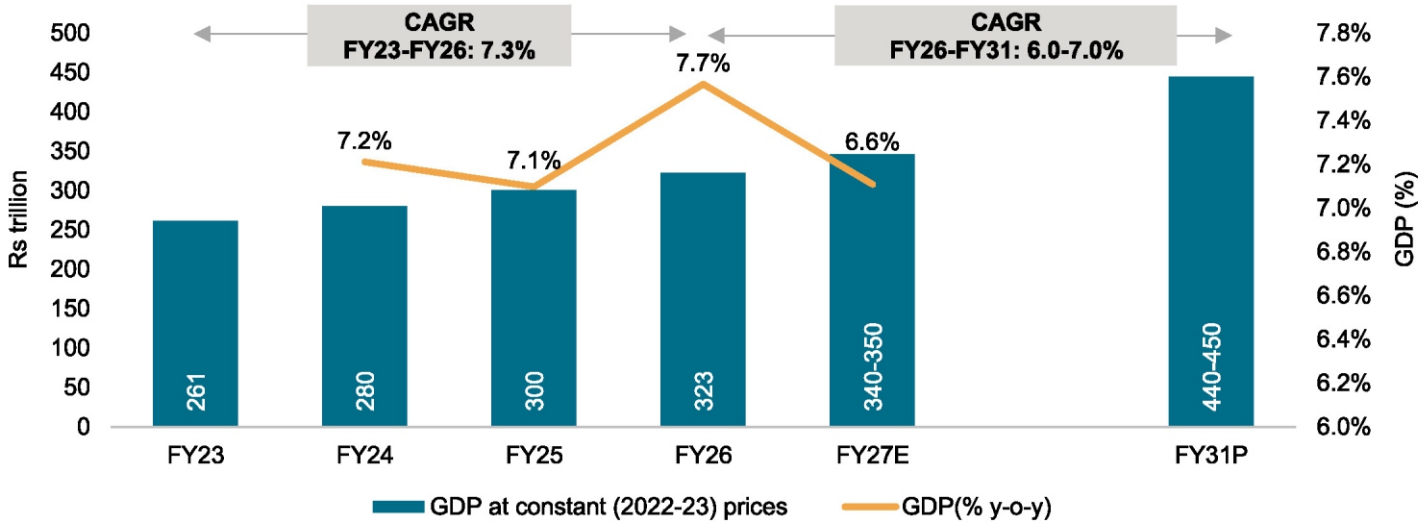
We expect GDP to grow 6.6% this fiscal. Despite the slowdown in real GDP, nominal GDP growth is set to be higher due to higher inflation based on both the Wholesale Price Index (WPI) and CPI.

India's GDP growth trend and outlook



E – estimated; P – projected

Note: A new national accounts series has been released with 2022-23 as the base year, superseding the 2011-12 series, with figures available fiscal 2023 onwards

Source: NSO, IMF, Crisil Intelligence

Growth drivers

- Domestic demand is expected to remain the primary engine of India's economic expansion, positioning the country to outperform its peer economies over the medium term
- The growth outlook is further strengthened by sustained government-led capital expenditure on infrastructure and asset creation. Such investments are likely to yield strong economic multipliers and catalyse private sector participation
- The government's capacity to maintain elevated capital spending is supported by structural improvements, including enhanced tax buoyancy, rationalised tax frameworks with lower effective rates, ongoing tariff reforms, and increasing digitisation of the tax administration and filing ecosystem
- The investment climate remains conducive, driven by continued public capital expenditure initiatives, steady progress under the Production Linked Incentive (PLI) scheme, improved corporate balance sheets and a well-capitalised banking sector characterised by low levels of non-performing assets.

Steady growth in industrial and services GVA

The industrial sector continues to play a pivotal role in the Indian economy, contributing ~30% to the overall gross value added (GVA). Over fiscals 2023-2026, the sector GVA demonstrated strong performance, registering a CAGR of 9.2%. In fiscal 2026, industrial GVA growth remained healthy at 8.8%. However, the manufacturing segment began to face emerging challenges, primarily due to rising input costs driven by supply-chain disruptions and escalating global commodity prices amid the West Asia conflict.

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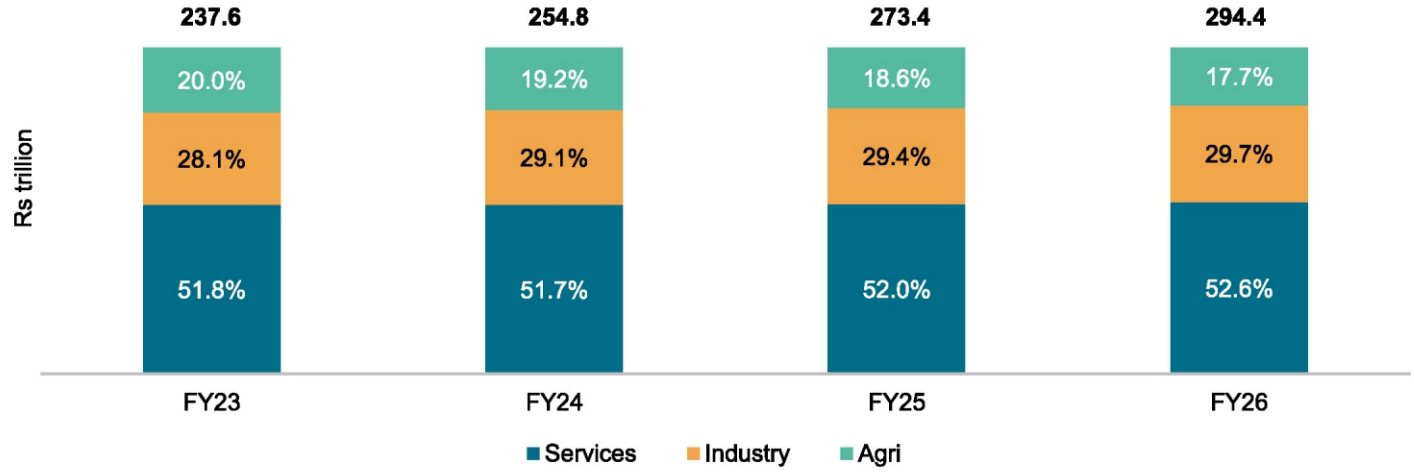
The services sector, which accounts for nearly 53% of the total GVA in fiscal 2026, also exhibited robust growth. During fiscal 2023-2026, it logged a CAGR of ~8%. In fiscal 2026, services GVA grew an impressive 9%, compared with 7.9% in fiscal 2025, underscoring the sector's resilience and its contribution to overall economic expansion.

Agriculture and allied sectors have performed consistently over recent years, supported by largely favourable monsoon conditions. Rainfall patterns have remained within acceptable deviation limits, contributing to steady agricultural output. Over fiscals 2023-2026, the sector clocked a CAGR of 3.1%, despite a relatively modest growth of 2.5% in fiscal 2024.

The spatial distribution of rainfall during the southwest monsoon was uneven in fiscal 2024, with the overall precipitation recorded at 6% below the long-period average (LPA). However, in fiscal 2025, rainfall stood at 108% of the LPA.

In fiscal 2026, the country experienced normal rainfall, with total precipitation reaching 108% of the LPA. These favourable climatic conditions supported agricultural activity, resulting in GVA growth of 2.4%, following a robust 4.6% growth in fiscal 2025. Looking ahead to fiscal 2027, likely El Niño conditions are expected to adversely impact monsoon patterns, which, in turn, may exert pressure on agricultural output and growth in the sector.

Share of sector in GVA at constant prices



Note: A new national accounts series has been released with 2022-23 as the base year, superseding the 2011-12 series, with figures available fiscal 2023 onwards.

Source: NSO

Outlook on GDP

According to our estimates, India's GDP growth is projected to moderate to 6.6% in fiscal 2027, due to elevated energy prices, supply chain disruption and uncertainties linked to the conflict in West Asia.

While real GDP growth is expected to decelerate, nominal GDP growth is likely to remain relatively elevated, supported by higher inflation as reflected in both the WPI and the CPI.

The expected slowdown in growth can be attributed to a combination of factors, including elevated crude oil and commodity prices, weakening global economic conditions and expectations of a below-normal monsoon. Persistent global supply chain disruptions are further intensifying input cost pressures, while constraints on input availability are expected to weigh on industrial output.

Growth in fiscal 2026 exceeded expectations, supported by favourable macroeconomic conditions such as fiscal measures boosting private consumption, monetary easing through policy rate cuts by the MPC, robust global demand, low inflation, a favourable monsoon and subdued crude oil prices. However, many of these supportive factors are expected to reverse in fiscal 2027 and exert pressure on overall economic activity.



The Indian economy benefitted from relatively low crude oil prices in fiscal 2026, averaging around $70 per barrel. In contrast, following the West Asia conflict, oil prices have surged to multi-year highs and we expect to remain elevated in fiscal 2027, averaging $82-87 per barrel. This is likely to contribute to heightened inflationary pressures and impact economic stability.

On the agricultural front, the India Meteorological Department (IMD) has projected rainfall at around 90% of the LPA during the 2026 southwest monsoon season, indicating below-normal precipitation. The potential onset of El Niño conditions further exacerbates risks to agricultural output. A weaker monsoon, coupled with El Niño conditions and a low base, is expected to push up food inflation, limiting the scope for an accommodative monetary policy.

Global demand is expected to soften in calendar year 2026, partly due to geopolitical uncertainty stemming from the West Asia conflict, which may adversely affect India's exports. Nevertheless, fiscal policy is expected to play a supportive role. Continued focus on capital expenditure by the central government, goods and services tax (GST) rationalisation and direct income support measures by state governments are likely to help cushion growth and sustain domestic demand.

Monetary policy constraints

The global tightening of monetary policy, exacerbated by geopolitical uncertainties, has limited the flexibility of central banks, including the RBI. With inflationary pressures expected to rise due to supply-side disruptions and elevated energy prices, the central bank is likely to adopt a calibrated and cautious approach to monetary policy.

The MPC kept its policy rates unchanged at its August 2026 review meeting. The repo rate stands at 5.25%, and RBI is expected to maintain its policy stance in the near term, with limited scope for rate cuts, thereby keeping financial conditions relatively tight.

Rising inflationary pressures

Near-term review and outlook on inflation

India's retail inflation rose past the RBI 's marker line of 4% in June with CPI inflation rising to 4.4% from 3.9% in May. Fuel-related inflation witnessed a sharp rise led by both cooking and transportation fuels.

The revised inflation outlook is primarily driven by an upward revision in crude oil price assumptions and the associated spillover effects for fiscal 2027, compounded by persistent geopolitical uncertainties. Global fuel prices have continued to rise, exerting significant pressure on transportation costs, particularly petrol, diesel, compressed natural gas (CNG), and airfares.

We expect CPI-based inflation to average 5.1% in fiscal 2027, compared with 2.1% in fiscal 2026. This projected rise is largely attributed to a low base in the previous year, coupled with expectations of intensifying price pressures across key consumption segments, as higher fuel costs are passed on to consumers and manufacturers transfer elevated input costs through price increases.

Elevated input cost pressures, as indicated by the sharp rise in WPI-based inflation, are expected to gradually transmit into core inflation, as producers seek to protect margins. The rise in crude oil prices is already being reflected in retail fuel prices, particularly petrol and diesel, which together carry a weight of ~4.8% in the CPI basket. Though crude oil prices have eased from their recent peaks, they remain elevated on-year. Producers are gradually passing on the sharp rise in the cost of energy and other inputs, as well as transportation, to consumers, which should push core inflation higher.

Weather-related risks also pose upside pressures to inflation. The expectation of below-normal monsoon, coupled with the likelihood of El Niño conditions and heatwave trends, could adversely impact agricultural output and elevate food inflation.

Considering these evolving macroeconomic dynamics and rising inflationary pressures, the MPC is likely to remain cautious and keep policy rates unchanged in the near term.

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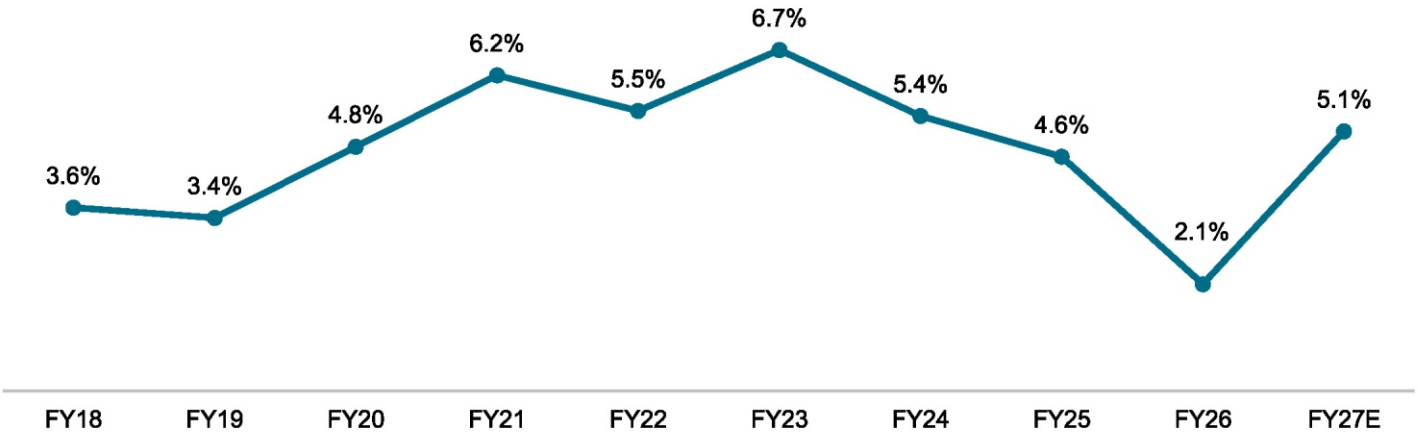
CPI trend



E – estimated

Source: Ministry of Statistics and Programme Implementation (MOSPI), RBI, Crisil Intelligence

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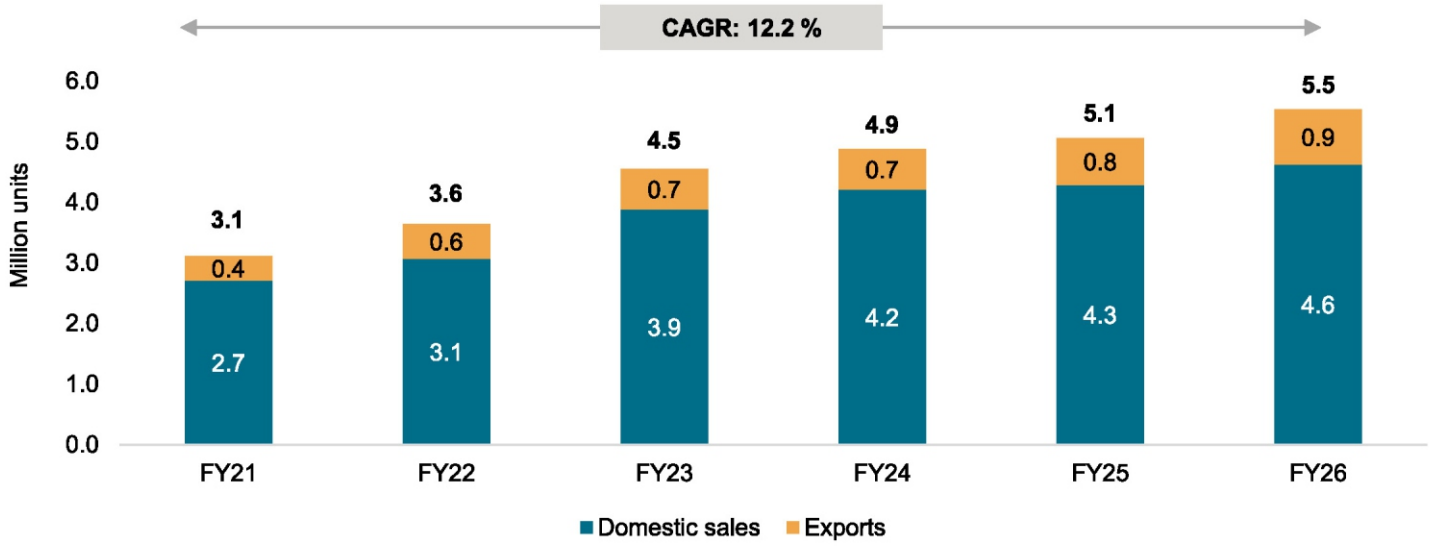
Passenger vehicle industry: Review and outlook

Current landscape

Domestic sales and exports of passenger vehicles (fiscal 2021-2026)

India's total passenger vehicle (PV) sales, comprising domestic sales and exports, logged a CAGR of 12.2% between fiscals 2021 and 2026, rising to 5.5 million units from 3.1 million. Domestic sales grew from 2.7 million to 4.6 million units over this period, while exports rose from 0.4 million to 0.9 million units. Domestic sales continued to account for most of the total volumes over the period. As of fiscal 2026, domestic sales accounted for 83.6% of total volumes, with exports making up the remaining 16.4%.

Total sales trend



Source: The Society of Indian Automobile Manufacturers (SIAM)

Review of domestic PV sales volume

India's domestic PV sales clocked a 11.3% CAGR between fiscals 2021 and 2026. From the low base of fiscal 2021, PV sales rebounded and grew at a healthy pace to reach a historical high of 4.6 million units in fiscal 2026.

In fiscal 2021, domestic sales were affected by the first wave of the pandemic—a countrywide lockdown, mobility curbs and supply chain disruptions, chiefly a shortage of semiconductors, forced production cuts that weighed on the year's sales. While demand picked up somewhat in the second half of fiscal 2021 as the economy reopened and personal mobility needs rose, overall volumes still fell ~2% on-year.

The second wave of the pandemic struck early in fiscal 2022, and state-level lockdowns, economic instability and a global semiconductor crunch stretched delivery timelines, hitting sales hardest in the first half. Conditions improved through the second half as markets reopened. A combination of pent-up demand, greater reliance on personal vehicles amid infection concerns and easing supply constraints lifted PV sales 13% over the low base of fiscal 2021.

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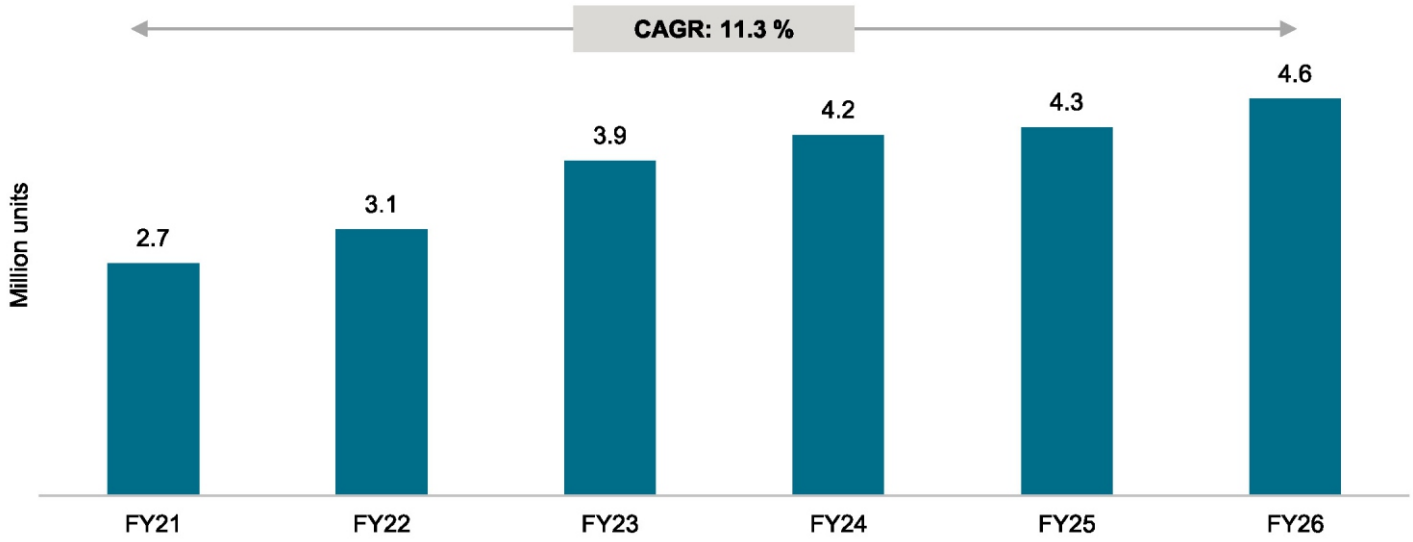
Domestic sales trend



Source: SIAM

The industry's recovery gathered pace in fiscal 2023, with sales rising 27% on-year, more than double the previous year's 13% growth. Original equipment manufacturers (OEMs) saw sustained momentum, supported by a strong pipeline of new launches in the sport utility vehicle (SUV) segment, along with model facelifts and improving semiconductor availability. Wholesale volumes touched a then-record 3.9 million units for the year.

Fiscal 2024 delivered a third straight year of growth, up 8% on an already high base. A range of new launches in the utility vehicle (UV) segment, continued facelift activity and easing chip supplies helped the industry post record sales in every quarter of the year.

Growth held up in fiscal 2025 as well, though at a moderate pace, supported by sustained SUV demand, periodic new launches and rising disposable incomes. Building on the elevated fiscal 2024 base, the industry grew ~2% to a record 4.3 million units in volume terms.

The industry's growth continued in fiscal 2026, with volumes reaching a fresh record of 4.6 million units, growing ~8% over fiscal 2025. Growth was uneven through the year, as domestic sales contracted ~1% in the first half amid elevated inventory levels carried over from the end of fiscal 2025 and subdued retail demand during the period. Momentum picked up sharply in the second half, driven by the GST 2.0 reform, which gave a boost to entry-level and small-segment demand, particularly during the festive season, while UVs also witnessed accelerated momentum. The second-half recovery offset the slow start and lifted the industry to its fresh full-year high in fiscal 2026. The industry's inventory scenario was favourable at the end of fiscal 2026, with a normal 30-day inventory with the dealers.

The momentum carried into fiscal 2027, with domestic PV sales rising 25.8% on-year in the first quarter, driven by strong growth in the UV segment and a favourable base given the slower start to fiscal 2026.

Segmental shifts within the domestic PV industry amid premiumisation

PVs in India are broadly grouped by body type into hatchbacks, sedans, SUVs, multipurpose vehicles (MPVs) and vans. Domestic buyers have traditionally been price-sensitive, with mileage and upfront purchase costs being the two biggest factors shaping their choice. This dynamic enabled hatchbacks to dominate PV sales for many years, driven by their affordability and lower operating costs, which made them the preferred choice for a large segment of Indian households.

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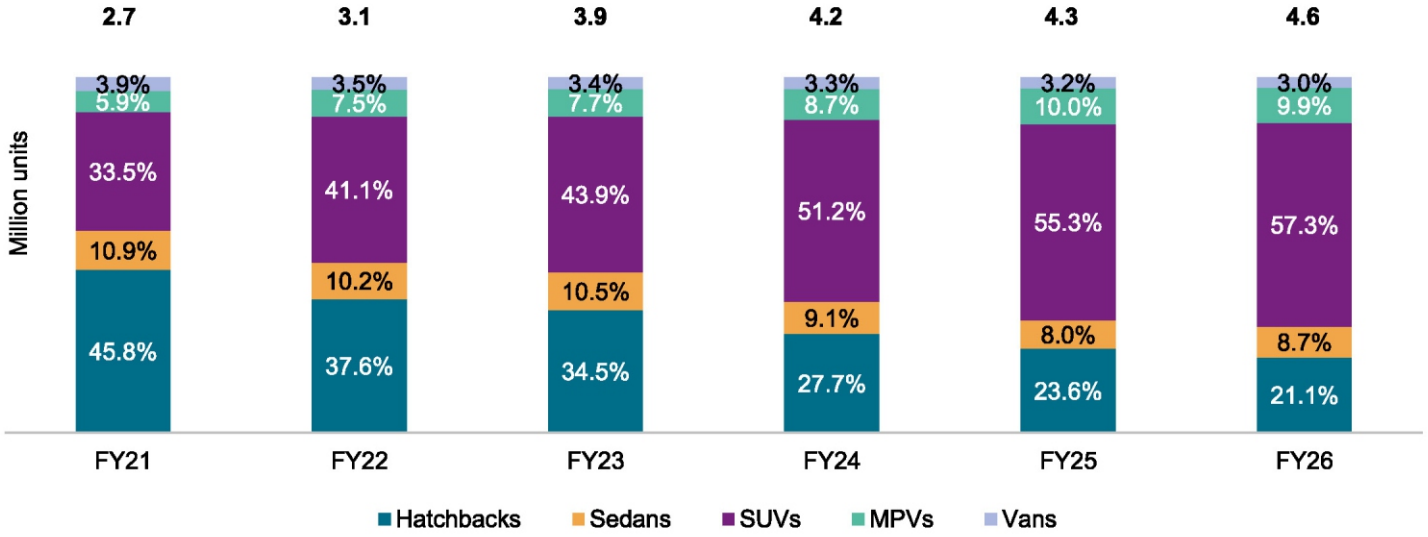
However, a growing base of younger buyers with greater exposure to global trends is placing more weight on factors beyond price, such as driving experience, safety, styling and ride comfort, particularly given the poor condition of roads in several parts of the country. This shift is steadily reshaping how buying decisions are made.

In response, OEMs have started building stronger safety features into their newer launches, and several carmakers have introduced advanced technology in top variants and gradually rolled it out to mid variants as well. Rising disposable incomes have further fuelled demand for SUVs.

Buying behaviour is also evolving, with customers increasingly weighing experience and technology over sticker price, showing greater willingness to pay more and wait longer to get the vehicle they want. A growing number of buyers are now choosing mid to top variants within their budget, driving both a shift across segments and within them. This growing preference for feature-rich vehicles is fuelling the broader premiumisation trend across the industry.

Segmental shifts within the domestic PV industry



Notes:
The figures above the bars denote sales volume.
Compact sub-4m sedans such as Dzire are included in the sedan segment.
Source: SIAM

CAGR for segment-wise trends in India's total PV sales volume (fiscals 2021-2026)

	Hatchbacks	Sedans	SUVs	MPVs	Vans
FY21-26 CAGR	-4.6%	6.2%	23.9%	23.3%	5.9%

Source: SIAM, Crisil Intelligence

Slowdown in hatchbacks

Hatchback, once the leading segment in the Indian PV industry, has steadily lost market share over the past several years. This reflects a combination of factors, including a lack of new model launches, frequent price increases, rising compliance costs from tightening emission and safety norms, rising operating costs amid fuel price hikes and a broader macroeconomic environment weighing on the price-sensitive entry-level customer base. As a result, the segment's share declined to ~21% in fiscal 2026 from ~46% in fiscal 2021. A shifting consumer preference towards SUVs, growing premiumisation and limited focus from OEMs on this segment further compounded the decline.



Further, acquisition costs for hatchbacks rose sharply following the implementation of Bharat Stage VI (BS-VI) emission norms, layered on top of the general annual price increases undertaken by OEMs. Rising raw material costs added further pressure, while operating costs climbed, too, amid higher fuel prices. The income levels of this entry-level customer base were also significantly affected during the pandemic, adding to the strain on demand.

The growing pre-owned car market has emerged as a viable alternative for price-sensitive buyers. Greater transparency, improved vehicle quality and an expanding organised segment have made pre-owned vehicles more attractive, further restricting growth in the hatchback segment, particularly compact hatchbacks.

However, the GST 2.0 reform in fiscal 2026 provided some push during the second half of the fiscal. This trend continued into the first quarter of fiscal 2027, with hatchback sales growing 26.6% on-year, and is expected to support the segment going forward.

Lower demand for sedans

Sedans are a relatively premium category, appealing largely to upper-middle-class and affluent buyers, along with customers that opt for compact sub-4-metre (m) sedans such as the Maruti Suzuki Dzire, Hyundai Aura, Hyundai Xcent and Honda Amaze, particularly for commercial use.

Sedan sales have been constrained by the broader shift towards SUVs and a limited pipeline of new launches, partially offset by the demand for sub-4 m vehicles primarily for commercial use. As a result, the segment's contribution to overall PV sales fell to 8.7% in fiscal 2026 from 10.9% in fiscal 2021.

This trend persisted into the first quarter of fiscal 2027, with sedan sales growing a comparatively modest 15.3% on-year, trailing the hatchback and SUV segments, reflecting the gradual decline in share.

Rise of SUVs

The SUV segment, which has traditionally appealed to customers seeking larger seating capacity and the ability to drive on rough terrain, has steadily gained favour with Indian buyers over the years. The compact SUV sub-segment, in particular, has brought the sought-after SUV body style within the reach of a wider set of consumers at competitive price points.

Recognising this shift in preference, OEMs have increasingly directed their launch pipelines towards the SUV segment relative to other categories, further fuelling its expansion. Given the segment's sustained and healthy growth, most new model launches across the industry in recent years have been concentrated in SUVs. This concentration was evident in the first quarter of fiscal 2027 as well, with new launches and facelifts spanning the compact, mid and premium SUV tiers, with a far thinner pipeline for hatchbacks and sedans during the same period. The trend is expected to continue through the rest of the fiscal, with several more SUV launches lined up across OEMs. The entry of global players such as Kia and MG, with dedicated SUV portfolios, has lent additional support to the segment's growth over the years.

Over fiscals 2021-2026, while the industry logged a CAGR of 11.3%, the SUV segment expanded at a much faster 23.9% CAGR, with its share of overall PV sales rising to 57.3% in fiscal 2026 from 33.5% in fiscal 2021. This momentum carried into the first quarter of fiscal 2027, with SUV sales rising 28.3% on-year, once again outpacing the broader industry and extending the segment's ongoing gain in share.

Sales of MPVs, comprising vehicles such as the Toyota Innova and Maruti Suzuki Ertiga and catering largely to the tourist and office transport segment, were hit during the pandemic as mobility declined sharply. Demand recovered over the following years as offices reopened and tourism picked up.

Over fiscals 2021-2026, MPV sales logged a CAGR of 23.3%, with new additions and periodic upgrades to existing models providing further support to the segment.



Vans typically account for 3-5% of overall PV sales. The discontinuation of the Maruti Suzuki Omni from fiscal 2020, following the implementation of BS-VI norms, weighed on the segment's market share. Even so, the Maruti Suzuki Eeco, now the sole model in the vans segment, has continued to find traction for commercial use following Omni's exit. Overall, the segment clocked a modest CAGR of 5.9% between fiscals 2021 and 2026.

Together, sales of MPVs and vans rose 15.9% on-year in the first quarter of fiscal 2027, pointing to a more moderate growth pace for both segments relative to SUVs and hatchbacks.

Changing powertrain mix in the Indian PV industry

Petrol and diesel have powered the bulk of India's PV industry for decades. Petrol vehicles held the edge for much of this period, despite diesel working out cheaper to run, largely because petrol models came with a lower purchase price. However, the preference for diesel vehicles surged over fiscals 2012-2014 due to rising petrol prices and growing price gap with diesel. Further, diesel vehicles offered better mileage, and the difference between the acquisition cost of diesel and petrol vehicles was only marginal.

This preference for diesel did not last, though. The Supreme Court's restrictions on diesel vehicles in the National Capital Region in 2015, aimed at curbing air pollution, combined with sharper price increases for diesel models following the rollout of BS-IV and BS-VI emission norms, drove consumers back towards petrol from fiscal 2015 onwards. As a result, diesel's share of PV retails fell to 37% in fiscal 2019 from 48% in fiscal 2015.

Several OEMs, including Maruti Suzuki, subsequently shifted their focus away from diesel toward petrol vehicles, with some discontinuing diesel models altogether on stricter BS-VI norms, pushing the decline in diesel even further. By fiscal 2026, diesel's share of retail volume had slid to just 18%, down from 32% in fiscal 2020. This trend continued in the first quarter of fiscal 2027, with diesel's share falling to 16.7%. In contrast, petrol continued to hold the largest share at 50.7%.

Over the period, though, CNG has emerged as one of the fastest growing powertrain options, with its share in overall retail sales rising from ~8.3% in fiscal 2021 to 21.7% in fiscal 2026, and further to 23.4% in the first quarter of fiscal 2027.

While the demand for CNG vehicles was earlier concentrated to the commercial taxi segment, the introduction of CNG variants in the top trims of premium hatchbacks and SUVs, including Exter, Punch, Brezza, Fronx, Altroz and Baleno, has since widened its appeal among personal vehicle buyers. A cut in CNG fuel prices following the Kirit Parikh panel recommendation gave the segment a further push from fiscal 2024 onward, supported by continued expansion of refuelling infrastructure across the country.

Electric vehicles (EVs) and strong hybrids have also carved out a growing, if still modest, share of the powertrain mix over the period, together accounting for ~9.2% of retail sales in the first quarter of fiscal 2027, with EVs at 7.0% and strong hybrids at 2.2%. EV penetration climbed steadily on the back of new model launches, expanding charging infrastructure and rising environmental awareness among buyers.

Strong hybrids are a more recent addition, introduced through models such as the Maruti Suzuki Grand Vitara, Toyota Innova Hycross and Honda City, and have found healthy traction among consumers drawn to better mileage at relatively affordable prices, along with the environmental benefits of electrification without the range anxiety or charging dependency tied to EVs.

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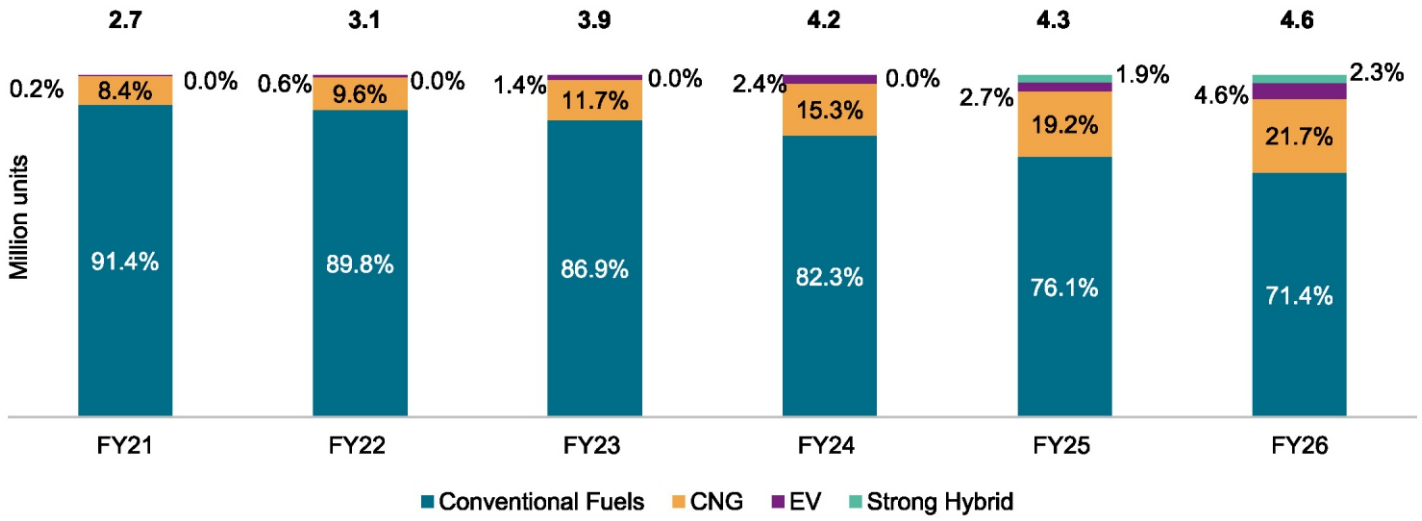
Powertrain mix trend of PV industry retails



Note: Strong hybrid: Vehicles have a combustion engine as well as an electric motor. The vehicle can be powered by the engine or the battery, or by both simultaneously. The battery of the vehicle is charged by the combustion engine and not by an external power source.

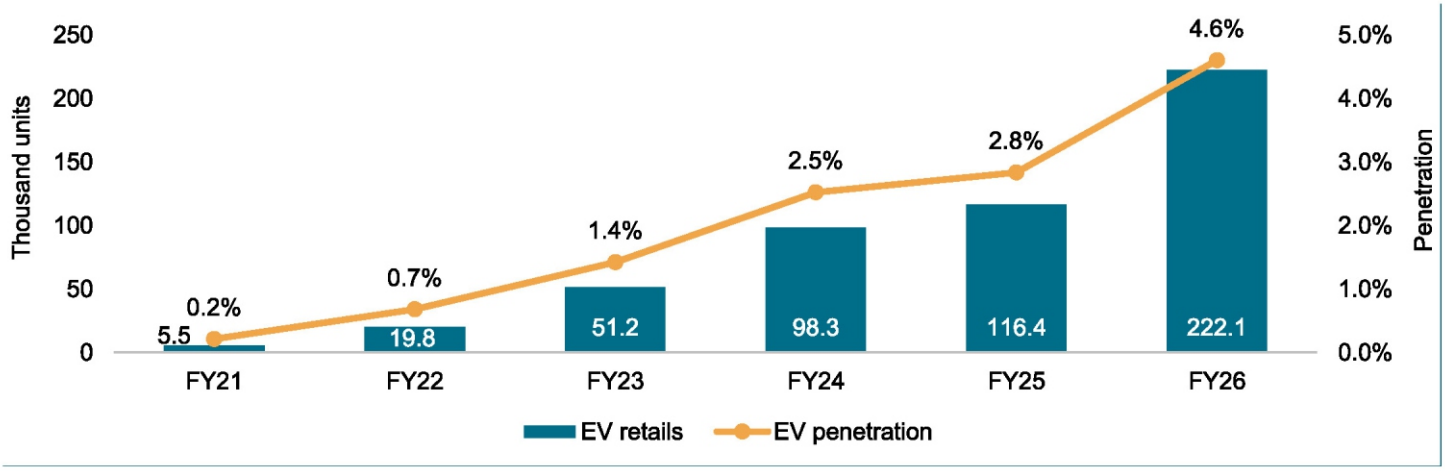
Source: VAHAN, Crisil Intelligence

Electrification in the domestic PV market

Amid rising environmental concerns, EVs are gaining traction globally, including in India. The country is one of the signatories to the Paris Agreement under the United Nations Framework Convention on Climate Change. It is also a part of the EV30@30 campaign, targeting a 30% sales share for EVs by 2030, a global initiative that NITI Aayog has since adopted.

EV adoption in India is led by two- and three-wheelers; however, PVs are fast catching up. EV penetration in the PV segment was insignificant until fiscal 2021 amid a limited vehicle portfolio, along with lower customer awareness. However, a rapid expansion of the portfolio, rising environmental awareness, government support and expanding EV infrastructure have led to a sharp rise in EV adoption. In turn, the penetration of EVs within the retail industry rose to 4.6% by fiscal 2026 from 0.2% in fiscal 2021.

Domestic EV retail and penetration of PVs



Source: VAHAN, Crisil Intelligence



EV adoption in the passenger vehicle space was barely a factor in fiscal 2019, with just a handful of models such as the Reva and E Verito available to buyers. This began to change with the launch of the Nexon EV in the second half of fiscal 2020, a model that went on to become one of India's best-selling EVs and gave a concerted push to PV electrification. The Kona Electric, launched in the first half of fiscal 2020, and the ZS EV, Tigor EV (for commercial buyers) launched in the second half, added further momentum that year. Sustained demand for these models carried EV retail growth through fiscal 2021, though the pandemic subsequently slowed the pace of adoption as high vehicle prices, constrained production and financial strain on consumers weighed on demand.

Fiscal 2022 marked the turning point for EV adoption. A gradual recovery in the broader economy, an improving macroeconomic backdrop, rising mobility levels, a wider EV portfolio and continued government support all fed into a stronger uptake. Rising prices for conventional internal combustion engine (ICE) vehicles, sharp increases in petrol and diesel prices, growing customer awareness and a younger buyer base added further tailwinds.

The entry of new players such as BYD, along with the launch of models such as Tiago EV, Tigor EV, Punch EV, XUV400, Comet EV, eC3, Ioniq and Atto 3 within a short span gave EV adoption a meaningful boost. The Tiago and Comet, in particular, extended EVs' reach into the hatchback segment, whereas the Tigor did the same for sub 4-metre sedans, widening the customer base for EVs considerably. Tigor also gained traction in commercial fleet use, adding to this momentum. A fresh wave of launches in the second half of fiscal 2025, including the Windsor, Creta EV, BE6 and 9E, further supported the rise in EV penetration that year.

Fiscal 2026 built further on this momentum, with EV penetration rising to 4.6% for the year. This growth was supported by continued improvements in EV models, entry of players like MSIL, wider product availability and growing customer awareness, alongside a strengthening ecosystem, including expanding charging infrastructure, advancements in battery technology and rising localisation of EV components. Notably, this growth held up even as the GST 2.0 reform left EV rates unchanged while lowering rates for small petrol and diesel vehicles.

The segment carried this momentum into fiscal 2027, with EV retail sales reaching ~87 thousand units and penetration touching 7% in the first quarter itself, a strong signal for the year ahead.

Demand drivers and trends

The performance of the Indian passenger vehicle industry is shaped by a wide range of economic and structural factors, including income levels, financing availability, evolving consumer preferences, regulatory change and the pace of new product launches. While some of these forces play out over the near term, others, such as rising incomes and premiumisation, are structural shifts expected to support demand over the longer term:

Macroeconomic support: A stable macroeconomic backdrop continues to support PV demand. The Monetary Policy Committee of the Reserve Bank of India has kept the repo rate steady at 5.25% since a rate cut in December 2025, keeping vehicle financing affordable. Retail inflation also eased to multi-year lows toward the end of fiscal 2026, but has since picked up again across both rural and urban areas, with rural prices rising faster, a trend worth watching, given its impact on rural spending power.

India's GDP is expected to grow at 6-7% through fiscal 2031, which should keep supporting consumer spending and, in turn, PV demand. This is expected to translate into a meaningful rise in per capita income as well, with the IMF projecting growth at a 6.7% CAGR between 2025 and 2031, taking India's per capita income to ~$4,500 by fiscal 2031 and pushing the country into the upper middle-income category, a shift that should directly support vehicle affordability and ownership over the outlook period.

Rising incomes and premiumisation: Rising per capita income has been a key driver of the industry's shift toward feature-rich, higher trim vehicles over the past several years. This trend supported a healthy 6-8% increase in the average selling price of PVs between fiscals 2021 and 2026, as buyers increasingly opted for space, comfort, connectivity and



safety content over entry level affordability. This shift has been particularly pronounced among younger buyers, who are increasingly prioritising design, technology and driving experience over pure affordability, further reinforcing the move toward higher trim vehicles.

Finance availability: Financing continues to widen access to vehicle ownership, supported by the expanding reach of banks, non-banking financing companies (NBFCs) and fintech players, along with sustained high loan-to-value ratios. Improved digital credit assessment has also helped lenders extend financing more efficiently across customer segments, reinforcing this as a durable support for demand.

Regulatory tailwinds: Evolving regulation continues to shape both cost structures and demand patterns. The earlier shift to BS-VI emission norms, which skipped an entire generation of standards to align India with global benchmarks, pushed up vehicle costs but also accelerated the shift toward cleaner, more efficient vehicles. The industry now anticipates a further transition to BS-VII norms in the coming years. Safety regulations have moved in parallel, with the Bharat New Car Assessment Programme encouraging competition among OEMs on safety performance, further reinforcing the case for feature-rich, higher trim vehicles.

GST 2.0 reforms: The government's overhaul of the GST structure for passenger vehicles, effective September 2025, meaningfully lowered the tax burden across categories, with the relief skewed most heavily toward smaller vehicles. EVs, already taxed favourably, were left unchanged at 5%. With entry-level and compact vehicles seeing the steepest proportional cut, this reform is expected to provide sustained support to the hatchback segment, in particular, helping offset some of the structural pressures, such as premiumisation and the shift toward SUVs, that have weighed on its volumes in recent years. This impact was already visible in fiscal 2026 itself. Demand stayed subdued through the first half of the year amid elevated inventory and soft retail sentiment, but the GST cut sparked a sharp recovery in the second half, particularly during the festive season, helping the industry close the year at a record 4.6 million units.

New model launches: New model activity, particularly in the SUV segment, has been a consistent driver of industry growth in recent years. Recent quarters saw a wave of launches and facelifts, including the Seltos, Duster, Sierra EV, e-Vitara and Exter facelift, among others. This momentum is expected to continue through the rest of the fiscal, with further launches planned across OEMs, including the Baleno facelift, Sorento, Syros EV, Scorpio N facelift, Safari EV, Fortuner facelift, Altroz EV and Avinya EV. As with recent years, the pipeline remains heavily weighted toward SUVs and increasingly toward EVs, reinforcing both the segmental and powertrain shifts already underway in the industry.

Manufacturing capacity expansion: OEMs continue to invest in capacity to meet rising demand. Maruti Suzuki has expanded its Kharkhoda facility to 500,000 units of annual capacity as of mid-2026, taking its total production capacity across India to ~2.65 million units. Hyundai's new Talegaon plant near Pune became operational in October 2025 with an initial capacity of 170,000 units, and the company is planning to expand the capacity to 250,000 units by 2028. Toyota Kirloskar Motor has also announced a new plant in the Bidkin industrial area near Aurangabad, Maharashtra, with a planned capacity of 100,000 units, expected to start production in the first half of 2029. Continued expansion of this kind across OEMs is expected to support the industry's ability to meet rising demand without significant supply constraints.

Rising EV adoption: Electrification has moved from a negligible share of PV sales to a genuine structural trend, with penetration rising from just 0.2% in fiscal 2021 to 4.6% in fiscal 2026, and further to 7% in the first quarter of fiscal 2027 alone. This pace of adoption reflects both a widening range of models across price points and improving charging infrastructure nationally. Continued government support for charging infrastructure is expected to further ease range-related concerns among customers, sustaining this momentum.

Rising rural demand: Rural markets have become an increasingly important growth pocket for the industry, supported by improving rural infrastructure and connectivity. Favourable monsoons in fiscals 2025 and 2026 supported farm incomes and rural purchasing power, though a strong El Niño is expected to weigh on the monsoon in fiscal 2027, with the India Meteorological Department forecasting below-normal rainfall, making rural demand a key near-term monitorable.



Shorter replacement cycles: The average vehicle replacement cycle has meaningfully shortened over the past decade, supported by broader model portfolios, more frequent refreshes, improved access to financing, younger buyers and rising premiumisation. The government's push to scrap older vehicles, with regulations mandating compulsory scrapping of vehicles above 15 years of age, is expected to shorten replacement cycles further and add to demand.

Our outlook on the domestic PV industry

Domestic PV sales clocked 11.3% CAGR between fiscals 2021 and 2026, despite the sharp slowdown early during the period due to the pandemic. This growth was led by a combination of factors such as healthy macroeconomic growth, subdued inflation, rising disposable incomes, a steady stream of new vehicle launches and continued support from financiers. Strong traction in the SUV segment, in particular, drove the overall PV sales higher, helping the industry touch a historical high of ~4.6 million vehicles in fiscal 2026.

This period of growth has also been accompanied by a steady rise in premiumisation, with buyers increasingly opting for feature-rich, higher-trim vehicles over entry-level, price-sensitive purchases. Supporting infrastructure has expanded alongside this shift in demand, with the number of CNG stations in India rising from ~2,200 in fiscal 2020 to 8,980 as of June 2026, further strengthening the case for alternate fuel adoption.

Despite this growth, India's car penetration remains well below global peers. At 26 cars per 1,000 people as of fiscal 2024, India trails developed markets (as of 2023) such as the US (589), France (556) and Japan (501) by a wide margin, and also lags emerging economies such as Brazil (293) and Mexico (293).

Penetration in India is estimated to have risen to 27-29 cars per 1,000 people by fiscal 2026, though still leaving substantial headroom for sustained volume growth as incomes rise and ownership deepens across the country.

We expect the macroeconomic scenario to remain supportive of industry growth during fiscals 2026 to 2031. India's GDP growth is projected to outpace most major economies over the next five years, at 6 to 7%. Although a strong El Niño is expected to weigh on the 2026 southwest monsoon, with the India Meteorological Department forecasting below-normal rainfall, we have factored-in a broader normalisation of monsoon patterns over the remainder of the outlook period. Rural demand, which remains sensitive to monsoon performance, stays a key monitorable in the near term. Taken together, these factors are expected to support consumer disposable income.

Beyond the macroeconomic picture, sustained government support through favourable policy, along with continued public expenditure and investment, is expected to further boost the industry. India's favourable demographic profile adds to this advantage and should help propel PV demand over the outlook period. Evolving regulation is also expected to play a role in shaping demand.

OEMs are also expected to keep introducing feature-rich, competitively priced vehicles, which should support the overall growth in demand.

The financing environment is likely to stay supportive as well, with financiers continuing to expand their reach and maintain high loan-to-value ratios, lending further tailwind to the industry.

Shifting market dynamics, such as a younger customer base, growing premiumisation, shortening replacement cycles and rising electrification are expected to provide additional impetus to demand.

Capacity expansion by players such as Maruti Suzuki, Hyundai and Tata Motors is also expected to support the growing demand for vehicles. Besides, the expansion of supporting infrastructure such as EV charging stations and CNG pumps should further widen customer choice across powertrains.

We expect domestic sales to clock 5-7% CAGR between fiscals 2026 and 2031 to 6.0-6.5 million vehicles. In the near term, domestic sales are estimated to grow 10-12% in fiscal 2027 to ~5-5.2 million vehicles, building on the momentum of

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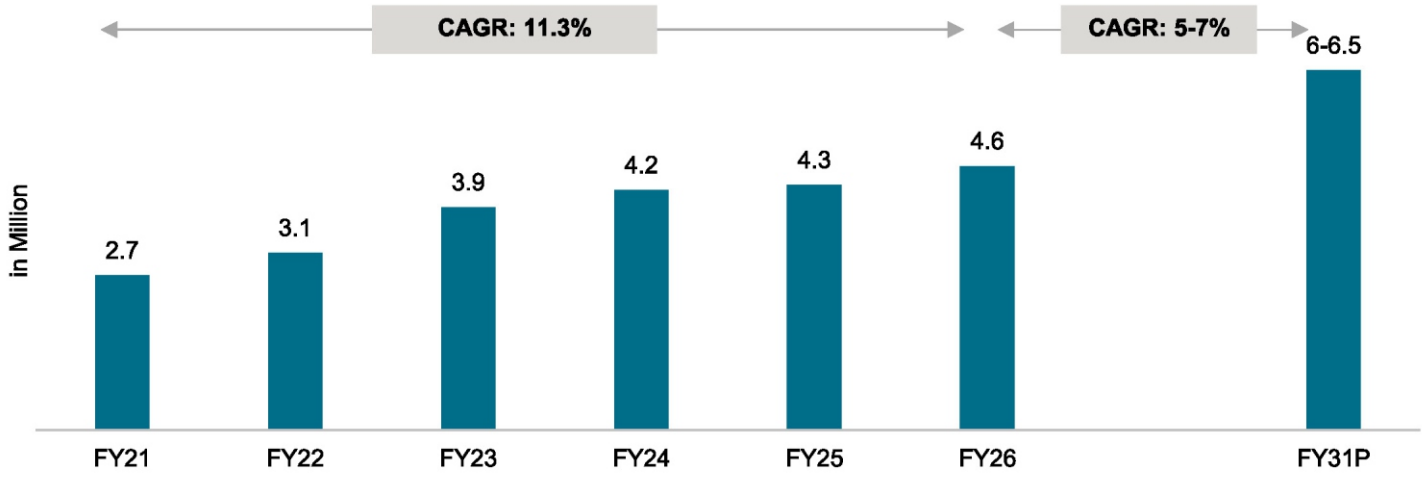
GST 2.0 reforms and continuing strength in the SUV segment. Lower inventory at the end of fiscal 2026 and continued retail momentum are expected to provide support to the industry's growth during the year.

Outlook for domestic PV industry



Source: SIAM, Crisil Intelligence

Over the next five years, SUVs are expected to solidify their position as the primary growth engine of the domestic PV industry, with the MPV segment also contributing meaningfully to this expansion. This shift toward larger, premium and utility-oriented vehicles is likely to be reinforced by rising income, evolving urban lifestyles and a greater emphasis on safety and comfort features. In contrast, the hatchback, sedan and van segments are expected to see modest or muted growth over this period.

Outlook on electrification in the industry

The electric PV segment is set for a significant acceleration in growth over the next five years, aided by a supportive policy environment, falling battery costs, a widening charging network and growing consumer acceptance. OEMs are stepping up investment in EV R&D and expanding their electric vehicle portfolios aggressively, with numerous launches planned across segments over the coming years.

Declining battery costs are also expected to offset the impact of reduced government subsidies, improving the competitiveness of battery electric vehicles and lowering their total cost of ownership further. This should continue to make the shift toward electrification more attractive for buyers. Ride-hailing platforms such as Uber and Ola are increasingly adopting EVs, given the total cost of ownership benefits they offer, and the growing fleet electrification is expected to add further momentum to the industry's transition towards EVs.

Competitive intensity within the EV segment is also rising sharply as the market scales. VinFast's share of EV retails climbed to 4.6% in the first quarter of fiscal 2027 from 1.2% in fiscal 2026, while Maruti Suzuki's entry into the segment saw its share jump to 5.7% from under 1% over the same period.

Continued government support for expanding charging infrastructure should also help ease range-related concerns among customers, further supporting EV adoption. Within this evolving landscape, the entry of global players such as Tesla and VinFast is likely to add to the competitive intensity and aid electrification over the long term.

However, the impact of the current global political scenario remains a key monitorable.

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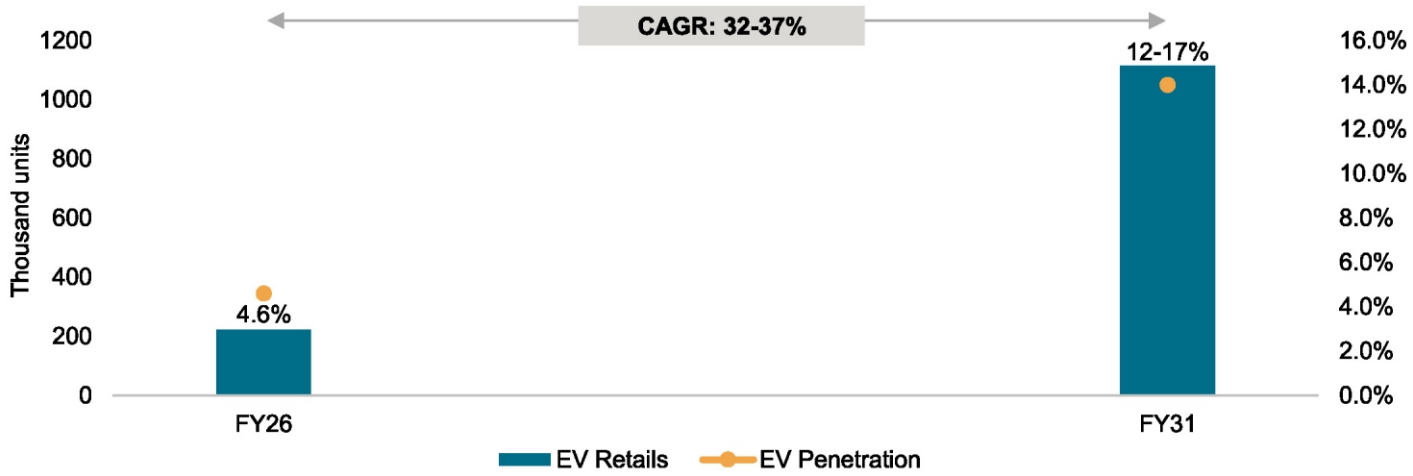
Over the long term, EVs are projected to account for 12-17% of total passenger car sales by fiscal 2031, up from 4.8% in fiscal 2026. EV sales are expected to reach 1,100 to 1,120 thousand units by fiscal 2031, logging a CAGR of 32-37% over this period.

EV penetration outlook for PVs

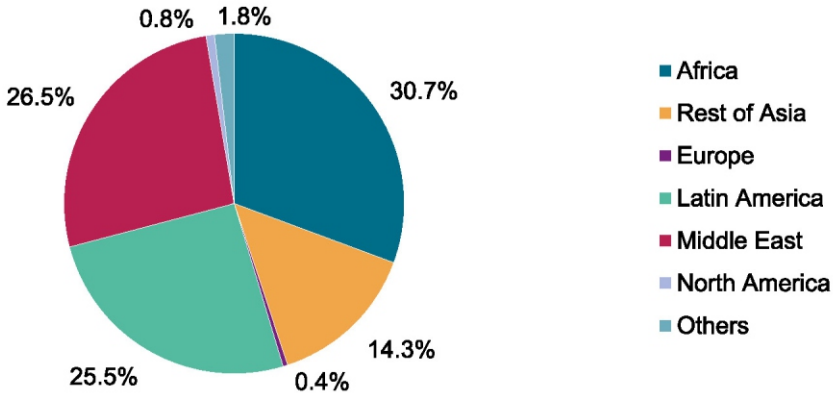


Source: VAHAN, Crisil Intelligence

Exports

India's PV exports are primarily directed toward developing regions, with Africa, Latin America and Asia together accounting for more than 90% of the country's PV exports.

Geographical split of Indian PV export volumes (fiscal 2026)



Note: Rest of Asia—Entire Asia, except Middle East
Source: Ministry of Commerce and Industry, Crisil Intelligence

A few years back, India was a major export hub for hatchbacks and compact sedans. However, it has successfully transitioned to become a large vehicle (premium sedans and SUVs) exporter over the past 5-6 years. OEMs are actively broadening their portfolios to cater to changing consumer preferences in both domestic and global markets. SUV sales are accelerating exports, and models such as the Hyundai Creta, Maruti Suzuki Grand Vitara, Hyundai Venue, Toyota Urban Cruiser HyRyder, Maruti Suzuki Jimny, Maruti Suzuki Fronx and Volkswagen Taigun have gained strong traction in the export markets. Premium sedans such as the Hyundai Verna and Volkswagen Virtus are key models driving the market for large cars. Further, models such as Ertiga, Carens and XL6 are driving demand for MPVs.

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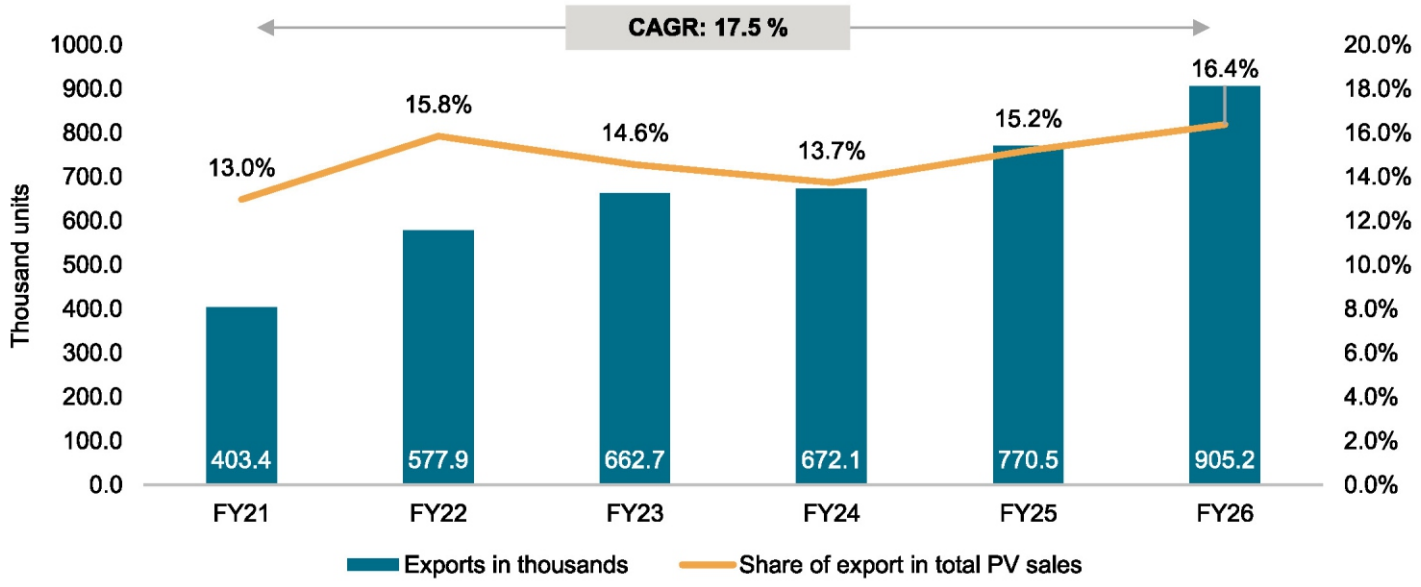
Exports accounted for 13-17% of the overall PV sales in India during fiscals 2021 to 2026. Over the period, PV exports clocked a CAGR of 17.5%, rising from 403.4 thousand units in fiscal 2021 to 905.2 thousand units in fiscal 2026.

Export volumes witnessed steady growth during the period, increasing from 577.9 thousand units in fiscal 2022 to 662.7 thousand units in fiscal 2023, 672.1 thousand units in fiscal 2024, 770.5 thousand units in fiscal 2025, and 905.2 thousand units in fiscal 2026, the highest level during the five-year period.

During fiscals 2021 to 2026, the share of exports in total passenger vehicle sales remained broadly stable, ranging between 13% and 17%. After declining from 15.8% in fiscal 2022 to 13.7% in fiscal 2024, the export share recovered to 15.2% in fiscal 2025 and increased further to 16.3% in fiscal 2026, the highest level during the period. Within this, UVs have steadily gained share relative to cars, accounting for ~50% of export volumes in fiscal 2026, up from just 35% in fiscal 2021, as expanding UV portfolios and rising overseas demand for the segment reshaped the export mix.

Export growth momentum moderated somewhat in the first quarter of fiscal 2027, with PV exports growing 8.8% on-year to 222.4 thousand units, and growth once again being led by UVs. PV exports are projected to grow 8-10% on-year in fiscal 2027, moderating from the robust ~17% growth recorded in fiscal 2026. The slowdown is expected to stem from softer demand in the Middle East, partially offset by stable demand from key export markets such as South Africa, Mexico and Japan.

Exports trend



Source: SIAM, Crisil Intelligence

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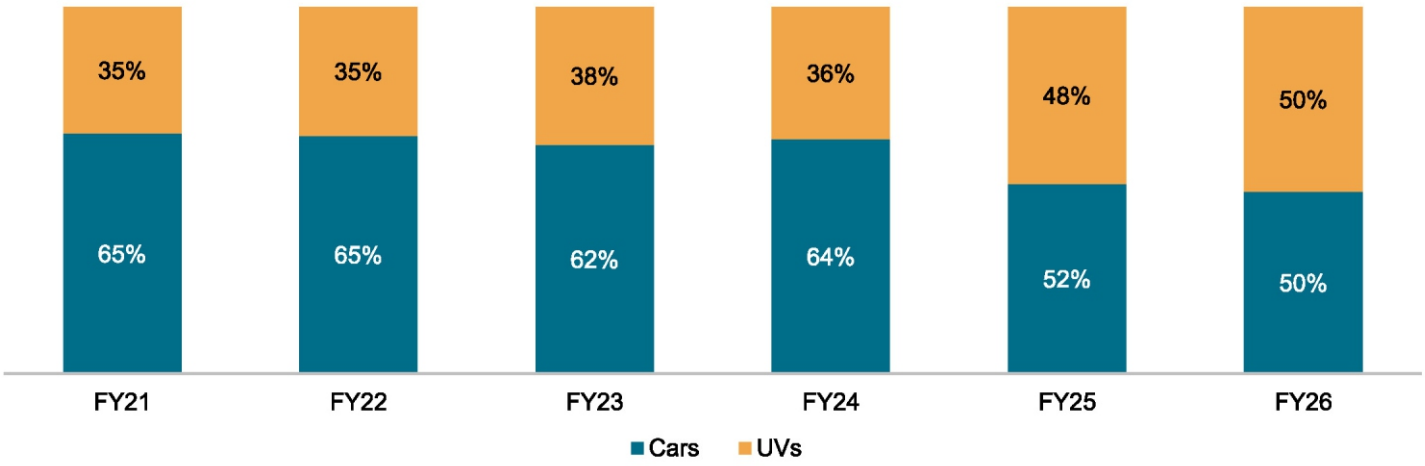
Segmental split in exports



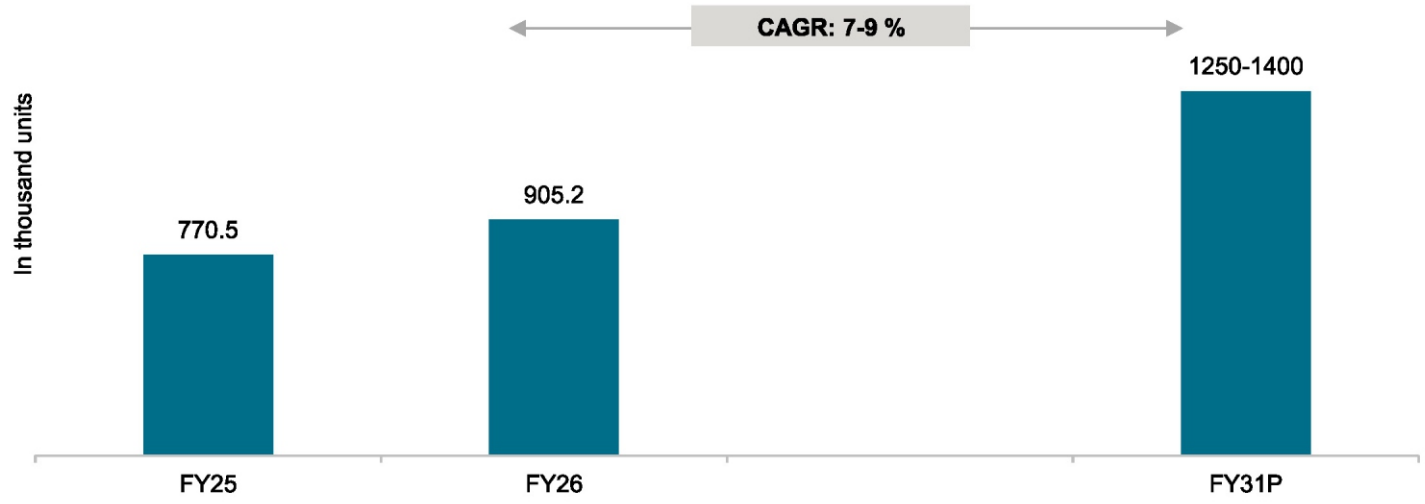
Source: SIAM, Crisil Intelligence

On a longer horizon, we expect PV exports to log a CAGR of 7-9% between fiscals 2026 and 2031, reaching approximately 1,250-1,400 thousand units by fiscal 2031, from 905.2 thousand units in fiscal 2026. Growth is expected to be supported by sustained demand from Africa, Latin America and other export markets, along with continued expansion in the exports portfolio. Going ahead, EV exports will provide a fillip to industry exports.

Expanding capacity among domestic OEMs, several of whom are increasingly positioning India as a manufacturing and export base, is expected to provide support to growth over the outlook period. Government policy support, including the Production Linked Incentive scheme covering the broader EV ecosystem, automobiles, auto components and advanced cell batteries alike, are also expected to strengthen India's cost competitiveness as an export base over time, alongside its existing trade agreements with several export destination markets.

However, demand from key markets in the Middle East remains a monitorable, given the region's weight within India's overall export mix, alongside the broader risk of rising crude oil prices pushing up fuel costs and inflationary pressure in the destination markets.

Exports outlook



Source: SIAM, Crisil Intelligence

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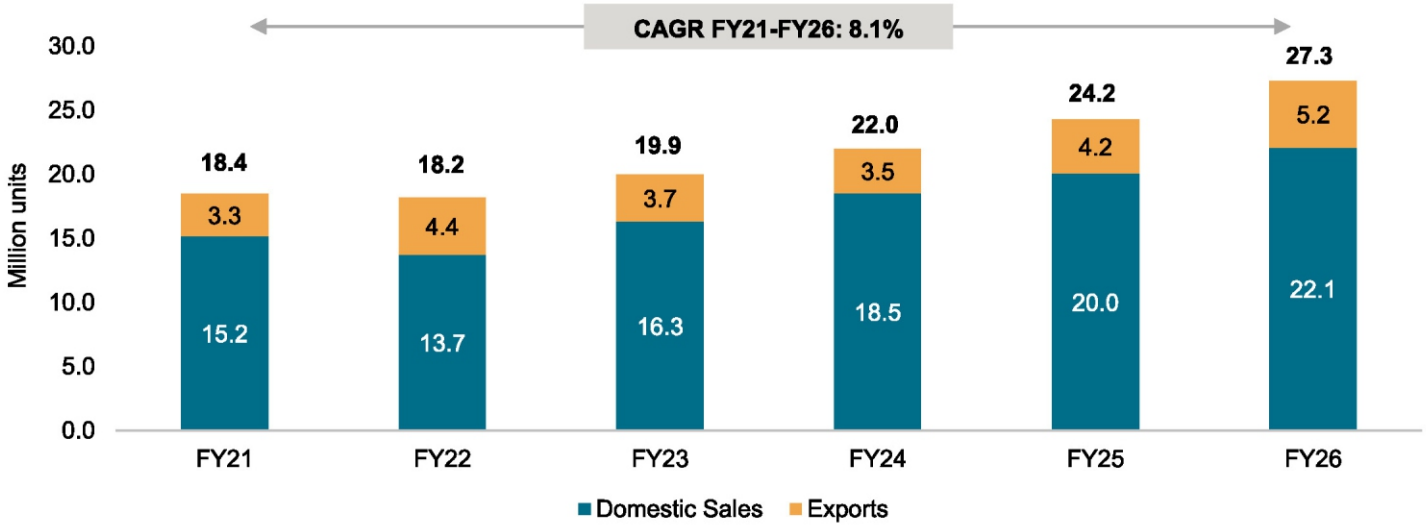
Two-wheeler industry: Review and outlook

Current landscape

The two-wheeler segment continues to witness strong demand in India and remains the preferred mode of transportation for a large portion of the population, particularly for daily commuting. This preference is driven by several factors, including lower purchase costs, superior fuel efficiency, reduced maintenance expenses, ease of manoeuvring through congested traffic, convenient parking and better adaptability to uneven and rugged road conditions compared to four-wheelers.

The two-wheeler industry logged a CAGR of 8.1% in total sales (domestic + exports) between fiscals 2021 and 2026 and reached a volume of 27.3 million in fiscal 2026. Domestic sales, which contributed more than 80% of the total sales in the industry in fiscal 2026, clocked a CAGR of 7.8% during the period, while the smaller exports segment logged a faster 9.5% growth off the low base.

Domestic sales and exports of two-wheelers (fiscal 2021-2026)



Note: Data for ICE and EVs has been taken from the retail data available on VAHAN; exports are based on the numbers reported by SIAM.
Source: SIAM, VAHAN, CRISIL Intelligence

Following the pandemic-induced slowdown in fiscal 2022, India's domestic two-wheeler industry rebounded strongly in fiscal 2023, recording an 18.8% y-o-y growth, driven by improving consumer sentiment, normalisation of economic activities, increased mobility and pent-up demand. The reopening of colleges and offices boosted scooter demand, while the need for last-mile mobility remained strong despite the restoration of public transport services. Rapid growth in EV sales further supported overall industry performance. Building on this momentum, the two-wheeler market expanded at a CAGR of 7.8% between fiscals 2021 and 2026, aided by an improving macroeconomic environment, stronger rural demand and sustained preference for motorcycles with engine capacities of 125cc and above, along with scooters.

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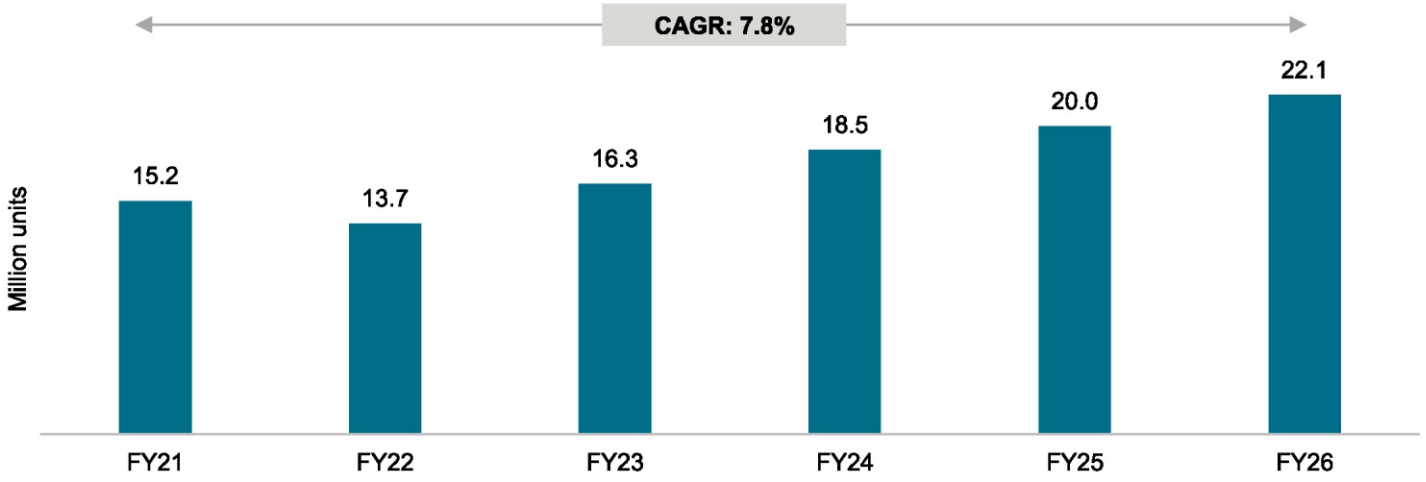
Domestic sales trend



Note: Data for ICE and EVs has been taken from the retail data available on VAHAN
Source: SIAM, VAHAN, Crisil Intelligence

In fiscal 2025, industry sales reached 20 million units, reflecting an 8.3% y-o-y increase, while retail sales rose 7.6% y-o-y. In fiscal 2026, domestic sales of 22.1 million units were recorded. While demand remained relatively subdued during the first half of the year amid cautious consumer sentiment, the second half witnessed a marked recovery following the introduction of GST 2.0 in September 2025. The reduction in GST rates on ICE vehicles improved affordability and provided a significant impetus to demand. This, coupled with the festive season, led to a strong pick-up in vehicle purchases during October and November, particularly in the ICE segment. The industry's performance was further supported by sustained momentum in rural markets, driven by improved agricultural productivity, diversification towards horticultural crops, government income support schemes and structural initiatives, such as PM-KISAN, eNAM, and the Pradhan Mantri Fasal Bima Yojana (PMFBY), which strengthened rural incomes and supported demand growth.

Over the last five years, electrification within the industry has contributed significantly to growth in overall industry sales. Electric two-wheelers achieved the highest growth in fiscal 2022. The sharp rise in EVs was driven by the government's push for EV adoption and increasing consumer interest in EVs. Even during the years when ICE vehicle sales declined slightly, the sharp rise in EV retails restricted the drop in the overall 2W sales volume.

Between fiscals 2021 and 2026, the ICE segment clocked a moderate 6.4% CAGR. However, EV retails logged a 99.1% CAGR for the same period. For fiscal 2026, EV penetration reached 6.6% and EV volumes stood at 1.47 million units.

In the first quarter of fiscal 2027, domestic sales reached 5.8 million units, reflecting a 20.4% y-o-y growth. Within this, the ICE segment grew 17.1% y-o-y to 5.2 million units, while the EV segment recorded a robust 68% y-o-y growth, reaching 524 thousand units. The strong growth in EV sales was driven by rising fuel costs and improved ownership economics. As a result, EV penetration increased to 9.1% in the first quarter of fiscal 2027, compared with 6.5% in the corresponding period last year.

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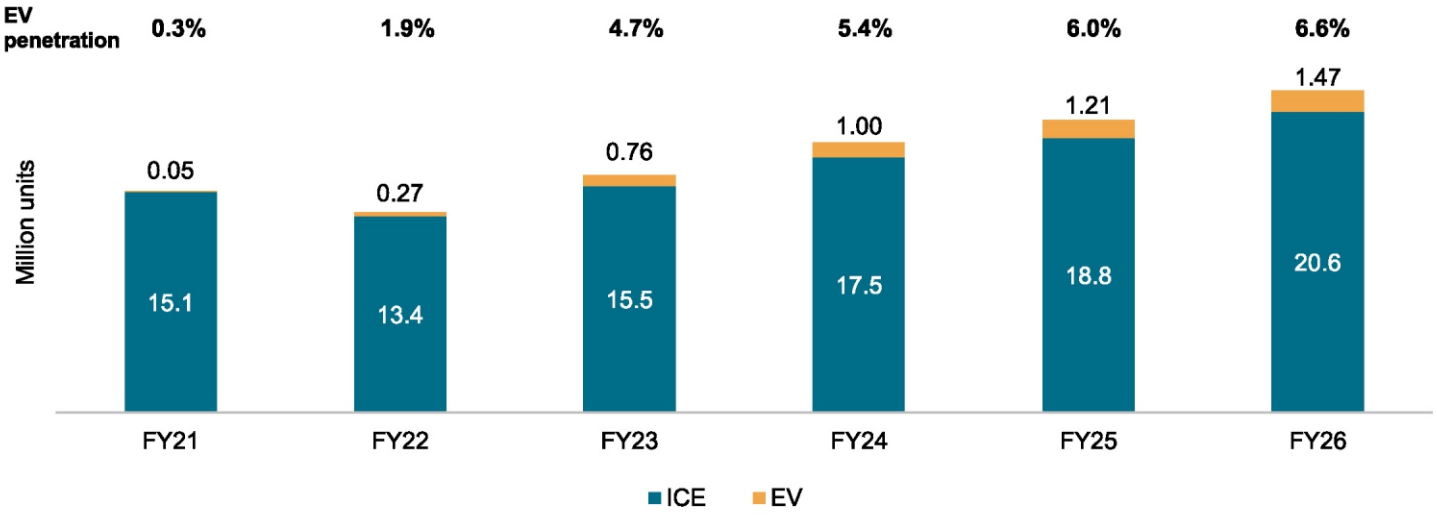
Domestic two-wheeler sales volume trend (ICE vs EV)



Source: SIAM, VAHAN, Crisil Intelligence

Y-o-y growth trend (ICE vs EV)

Y-o-y growth	FY21	FY22	FY23	FY24	FY25	FY26	FY21-FY26 CAGR
ICE	-13.2%	-11.1%	15.5%	12.7%	7.5%	9.5%	6.4%
EV	74.8%	466.0%	186.9%	31.3%	21.0%	21.2%	99.1%

Source: SIAM, VAHAN, Crisil Intelligence

Electrification within the Indian two-wheeler market has been significantly more pronounced in the scooter segment, with adoption in motorcycles remaining relatively limited. Within the broader two-wheeler landscape, scooters were the first to witness the introduction of electric models. This early adoption was driven by an already well-established consumer preference spanning diverse demographics, including women, men, students and working professionals, along with increasing usage as a secondary vehicle for intracity commuting.

This trend is reflected in overall EV retail sales, where motorcycles continue to account for a marginal share. As of fiscal 2026, electric motorcycles and bikes contributed 2–3% of total EV sales, while scooters overwhelmingly dominated the segment, accounting for over 97% of total volumes.

Segment-wise domestic sales trend

Motorcycles dominate the domestic two-wheeler industry sales with ~60% contribution to the annual domestic sales volumes. However, their contribution gradually contracted over the years, from 66.1% in fiscal 2021 to 59.3% in fiscal 2026. On the other hand, the scooters segment expanded its presence over the long-term horizon, from 29.8% in fiscal 2021 to 38.3% in fiscal 2026. The mopeds segment also lost some ground to scooters over the years, from 4.1% in fiscal 2021 to 2.4% in fiscal 2026.

In the first quarter of fiscal 2027, the share of scooters increased further to ~40% of total two-wheeler sales, while motorcycles continued to cede market share, accounting for ~58% during the quarter. The sustained momentum in EV adoption provided an additional boost to scooter sales, strengthening their contribution to the overall product mix.

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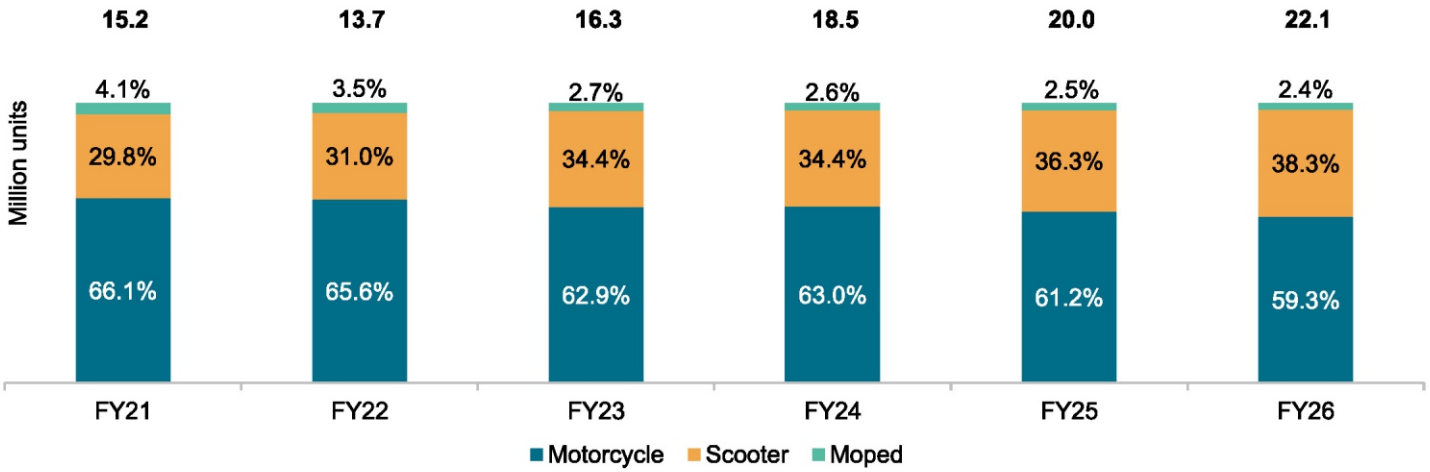
Domestic two-wheeler sales segmental trend–fiscals 2021 to fiscal 2026



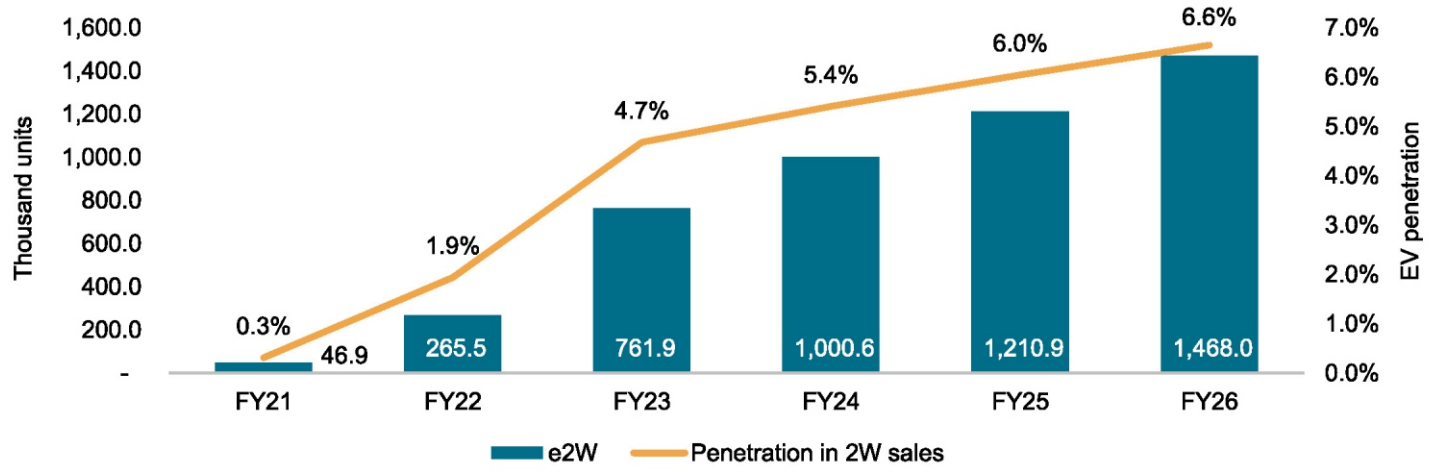
Note: Data includes ICE and EVs; EV retail data from VAHAN have been considered.
Source: SIAM, VAHAN, Crisil Intelligence

Electrification in the two-wheeler industry

EVs are gaining global interest amid the need to curb pollution. They are also getting popular in India, as the government is extending support through the Faster Adoption and Manufacturing of Hybrid and Electric vehicles (FAME II) scheme, Electric Mobility Promotion Scheme (EMPS) subsidy, the latest PM's E-drive subsidy, state subsidy and tax rate cuts to encourage EV adoption. Further, growing awareness and concerns about environmental issues are likely to drive electrification in the country.

EV sales have grown, especially post-pandemic, aided by the rising awareness, government support and expanding EV portfolio of the industry. The entry of the new age, non-traditional OEMs, such as Ola, Ather and Ampere, provided an additional boost to the EV segment.

EV retails trend



Note: Only two high-speed EVs have been considered for the analysis
Source: VAHAN, Crisil Intelligence

Crisil Intelligence

Over the past six years, electric two-wheelers (e2Ws) have emerged as a key growth driver for the Indian two-wheeler industry, with retail sales increasing from ~47 thousand units in fiscal 2021 to 1.47 million units in fiscal 2026, representing a robust CAGR of 99%. This rapid adoption was supported by increasing consumer awareness, continued government incentives, improving charging infrastructure, lower total cost of ownership compared with internal combustion engine (ICE) vehicles, a narrowing acquisition cost gap between EVs and their ICE counterparts, lower maintenance requirements, advanced technology features and an expanding range of product offerings. The entry and scale-up of new-age OEMs, such as Ola Electric, Ather Energy and Ampere further accelerated the growth of the segment by enhancing product availability and consumer acceptance.

As a result, EV penetration in the two-wheeler industry increased significantly from 0.3% in fiscal 2021 to 6.6% in fiscal 2026. The strong growth momentum continued in the first quarter of fiscal 2027, driven by elevated fuel costs and increasingly attractive ownership economics, which supported higher EV adoption. Consequently, EV penetration reached 9.1% in the first quarter of fiscal 2027, compared with 6.5% in the corresponding period of the previous year, highlighting the continued shift in consumer preference towards electric mobility.

The rise in electrification is estimated to contribute significantly to the industry growth over the long term.

Demand drivers and trends in the domestic two-wheeler market

The performance of the Indian two-wheeler industry is dependent on numerous social and economic factors, including demographic trends and preferences, income levels, affordability of two-wheelers for customers, changes in government policies, overall economic conditions and the availability of finance and interest rates. General macroeconomic and consumer trends also have a direct impact on the demand of two-wheelers.

- **Two-wheeler penetration:** We estimate that 2W penetration in India reached 150-155 two-wheelers for every 1000 people in fiscal 2026 compared with~145 two-wheelers for every 1000 people in fiscal 2024. This is much lower than countries such as Indonesia (473 per 1,000 people), Thailand (315), Sri Lanka (275) and Brazil (157) as of calendar year 2023, providing a sizeable headroom for the two-wheeler industry to grow going forward
- **Macroeconomic support:** Macroeconomic growth has been a key enabler of two-wheeler demand, driven by improving affordability, disposable incomes and consumer spending. During fiscals 2023-2026, India's GDP grew at a 7.3% CAGR, supporting a corresponding rise in private consumption expenditure and driving the domestic two-wheeler industry to clock a CAGR of 6.3%. Looking ahead, India's GDP is expected to expand at a CAGR of 6-7% through fiscal 2026-2031, providing sustained support for long-term growth in two-wheeler sales
- **Private consumption:** Private final consumption expenditure (PFCE), a key indicator of household spending capacity, plays a crucial role in driving two-wheeler demand. Rising per capita income and discretionary spending have increased consumer expenditure on automobiles and premium products, supporting higher two-wheeler penetration and premiumisation trends. Continued growth in household consumption sustained demand, with PFCE growing 7.7% y-o-y in fiscal 2026, following 5.8% y-o-y growth in fiscal 2025, provided a strong foundation for future industry expansion
- **Rising per capita income:** It is expected to be a major driver of two-wheeler demand by enhancing disposable income, purchasing power and consumer spending on personal mobility. While per capita income is expected to grow 8.3% in calendar year 2026, following a 4.6% growth in calendar year 2025, the IMF projects it to expand at a 6.7% CAGR during 2025-2031. Supported by India's expected GDP growth of 6-7% and the economy crossing the $5 trillion-mark, per capita income is projected to reach ~$ 4,500 by fiscal 2031, elevating the country into the upper middle-income category. This income growth is likely to accelerate vehicle ownership, increase two-wheeler penetration and support premiumisation as consumers upgrade to higher-value models with advanced features
- **Finance availability:** Financing has emerged as a key demand driver for the Indian two-wheeler industry, supported by the expanding reach of banks, NBFCs and fintech players across urban and rural markets. Increased finance



penetration has improved affordability, broadened access to vehicle ownership and reduced lending risks through digital tracking and credit assessment capabilities. As financing becomes more accessible across customer segments, it is expected to continue supporting growth and profitability in the two-wheeler market

- **Growing gig economy:** The growing gig economy and rapid expansion of e-commerce have emerged as significant demand drivers for the two-wheeler industry, particularly for last-mile delivery applications. According to NITI Aayog, India had ~7.7 million gig workers in fiscal 2021, which is expected to rise to 23.5 million by fiscal 2030, driven by growth in food delivery, grocery, electronics and e-commerce services.

  The Indian e-commerce market, estimated at ~Rs 5.5-6.0 trillion in fiscal 2026, has expanded more than 2.5 times between fiscal 2021 and 2026 and is projected to reach `Rs 11.5-12.5 trillion by fiscal 2030 at a CAGR of 20-25%. Supported by increasing internet penetration, rising online shopping adoption, improving consumer sentiment, and moderating inflation, this growth is creating substantial opportunities for the two-wheeler industry, particularly EVs, in the rapidly expanding last-mile mobility segment.

- **Inflation:** High inflation adversely affects consumers' disposable income and affordability, constraining overall demand. However, in India, inflation moderated significantly in the recent years after peaking during the post-pandemic recovery phase, when supply chain disruptions, elevated commodity prices and geopolitical uncertainties exerted upward pressure on costs.

  Over the past two years, inflation has followed a favourable trajectory, declining to ~2.1% in fiscal 2026. This relatively stable inflationary environment has supported consumer spending, strengthened purchasing power and created a more conducive backdrop for economic growth and demand across sectors.

  While the West Asia conflict may exert some upward pressure on inflation expectations in fiscal 2027, a gradual normalisation of inflation over the medium to long term is anticipated. Such stability is expected to provide sustained support to growth in the two-wheeler industry by improving affordability and encouraging demand expansion over the longer horizon

- **Shrinking replacement cycles:** Shortening replacement cycles have emerged as a significant growth driver for the two-wheeler industry, supported by broader product portfolios, frequent model refreshes, technological advancements, improved access to financing and evolving consumer preferences. The increasing popularity of scooters, along with rising premiumisation and the transition toward electrification, has further incentivised customers to upgrade more frequently.

  Consequently, the average replacement cycle been declining over the past decade. This shift has contributed to higher sales volumes and sustained industry growth by accelerating the adoption of newer, feature-rich and technologically advanced vehicles

- **Rising rural incomes:** Rural India remains a critical growth engine for the two-wheeler industry, contributing 55-60% of total sales, with demand supported by improving rural infrastructure, road connectivity, agricultural income growth and government-led rural development initiatives. Enhanced affordability and connectivity have increased two-wheeler penetration in Tier 3 and Tier 4 markets, while electrification has further expanded demand in rural regions. As agriculture remains heavily dependent on monsoons, favourable rainfall continues to play a key role in supporting farm incomes and vehicle purchases. Following a weak monsoon in fiscal 2024, rainfall improved significantly in fiscal 2025 and 2026, with an 8% positive deviation from the long-term average, boosting crop output, farm profitability and rural purchasing power, strengthening two-wheeler demand. In fiscal 2027, while the monsoon season has advanced steadily, concerns have emerged regarding the uneven distribution of rainfall across certain regions. Any prolonged rainfall shortfall in key agricultural states could defer vehicle purchases, particularly in rural markets

- **Rural infrastructure:** Rural infrastructure development continues to be a key enabler of two-wheeler demand by improving connectivity, mobility and economic activity in rural regions. Government initiatives such as the Pradhan



Mantri Gram Sadak Yojana (PMGSY) have significantly expanded the rural road network, with 26,000 km of roads constructed in fiscal 2024 (89% of the annual target) and an additional 18,000 km and 16,000 km completed in fiscal 2025 and fiscal 2026, respectively. Improved infrastructure supports two-wheeler sales by generating rural employment and income during road construction, while also enhancing accessibility and transportation needs, thereby creating a strong foundation for long-term demand growth in rural markets

- **Women participation in the workforce:** The increasing participation of women in India's workforce has emerged as a significant demand driver for the two-wheeler industry, particularly the scooter segment. Scooters have gained popularity among working women due to their ease of use, lightweight design, manoeuvrability and practicality. Rising female employment, supported by corporate initiatives and greater workforce inclusion, has not only boosted direct demand for personal mobility solutions but also increased household incomes, further supporting overall two-wheeler sales growth in the country
- **Advancements in vehicle technology:** Advancements in vehicle technology are increasingly shaping demand in the two-wheeler industry, particularly among younger, tech-savvy consumers who seek connected features, modern designs, enhanced performance and personalised mobility solutions. In response, OEMs have significantly increased investments in R&D, spending 1-2% of their annual operating income over the past six years to develop advanced technologies, improve safety and introduce innovative features. Both ICE and EV models now offer digital instrument clusters, navigation, Bluetooth connectivity, USB charging ports, cruise control and other smart features, making vehicles safer, more efficient and more appealing. Continuous technological innovation, coupled with shorter replacement cycles and frequent new product launches, is expected to remain a key driver of long-term growth in the two-wheeler industry
- **Electrification in the two-wheeler industry:** Electrification is emerging as a key growth driver for the Indian two-wheeler industry, supported by government initiatives (such as PM E-DRIVE), tax benefits, increasing environmental awareness and the need to reduce pollution. EV adoption has accelerated significantly in the post-pandemic period, driven by expanding product portfolios, rising consumer acceptance, and strong participation from new-age manufacturers such as Ola, Ather and Ampere. With continued policy support, technological advancements and growing consumer preference for sustainable mobility, electrification is expected to contribute substantially to long-term growth and transformation of the two-wheeler market
- **R&D support:** R&D investments have become increasingly critical in the two-wheeler industry, driven by the evolving expectations of younger, technology-oriented consumers who demand advanced features, connected capabilities, enhanced safety and regular product innovation. To remain competitive and effectively respond to shortening replacement cycles, OEMs typically allocate 1-2% of their revenues towards R&D. These investments are directed at improving vehicle design, integrating innovative technologies, enhancing rider safety and supporting a steady pipeline of new product launches. Sustained focus on R&D is therefore essential for driving innovation, aligning with evolving consumer preferences, and ensuring long-term growth and competitiveness within the industry

Our outlook on the domestic two-wheeler industry

The industry is expected to continue its growth momentum over the long term, led by a positive microeconomic and macroeconomic environment, favourable rural demand, premiumisation, intermittent launches, shrinking replacement cycles, and continued support from financers. Continued R&D investments by OEMs and technological advancements in the industry will also support growth over the long term.

Additionally, the rapidly growing EV segment, driven by legacy players expanding their EV portfolios and new-age players increasing capacity, will accelerate industry growth. The entry of legacy players such as HMSI, Suzuki, Yamaha and Royal Enfield in the EV space will provide an additional boost to segment growth.

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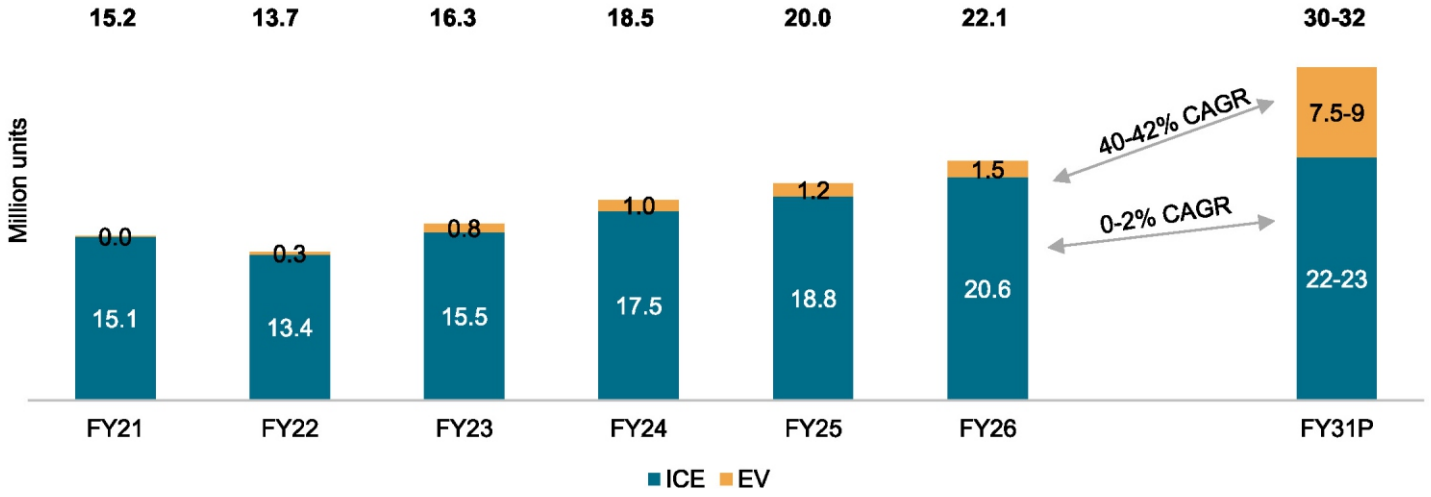
Domestic two-wheeler sales volume trend and outlook (ICE vs EV)



Source: SIAM, VAHAN, Crisil Intelligence

The two-wheeler industry grew a healthy 10% on year in fiscal 2026. Building on a low base, it grew a strong ~20% on-year in the first quarter of this fiscal. For the full fiscal, we expect the industry to grow 7-9% on-year. While growth is expected to remain robust in the first half of this fiscal, it is likely to moderate on-year in the second half due to a high base.

The ongoing electrification of the sector is expected to provide a significant boost to industry volume this fiscal, driven by increasing consumer acceptance, a wider range of product offerings and continued improvements in charging infrastructure.

Over the longer term, supported by favourable industry fundamentals, two-wheeler sales are projected to grow at a CAGR of 6-8% to 30-32 million units by fiscal 2031. While the e2W segment is expected to log a robust CAGR of 40-42%, the ICE two-wheeler segment is likely to clock a moderate CAGR of 0-2% on an elevated base.

With the rapid expansion of the e2W segment, EV penetration in the two-wheeler industry is expected to increase to 25-30% of total industry sales by fiscal 2031, significantly reshaping the industry's product mix and growth trajectory.

Outlook on the e2W segment

e2W retail sales logged a high CAGR of 99.1% between fiscals 2021 and fiscal 2026, albeit on a low base of fiscal 2021. The segment's growth momentum is expected to continue over the long term, driven by increasing EV acceptance, rising awareness, improving TCO of EVs, a narrowing acquisition cost gap between EVs and ICE counterparts, a broader vehicle portfolio, expanding charging infrastructure, growing financing support, increasing EV manufacturing capacity, and sustained government support.

We expect EV retail sales to clock a CAGR of 40-42% between fiscals 2026 and 2031, reaching 7.5-9 million units by fiscal 2031. Consequently, EV penetration is expected to rise to 25-30% by fiscal 2031, positioning e2Ws as one of the fastest-growing segments in India's automotive industry.

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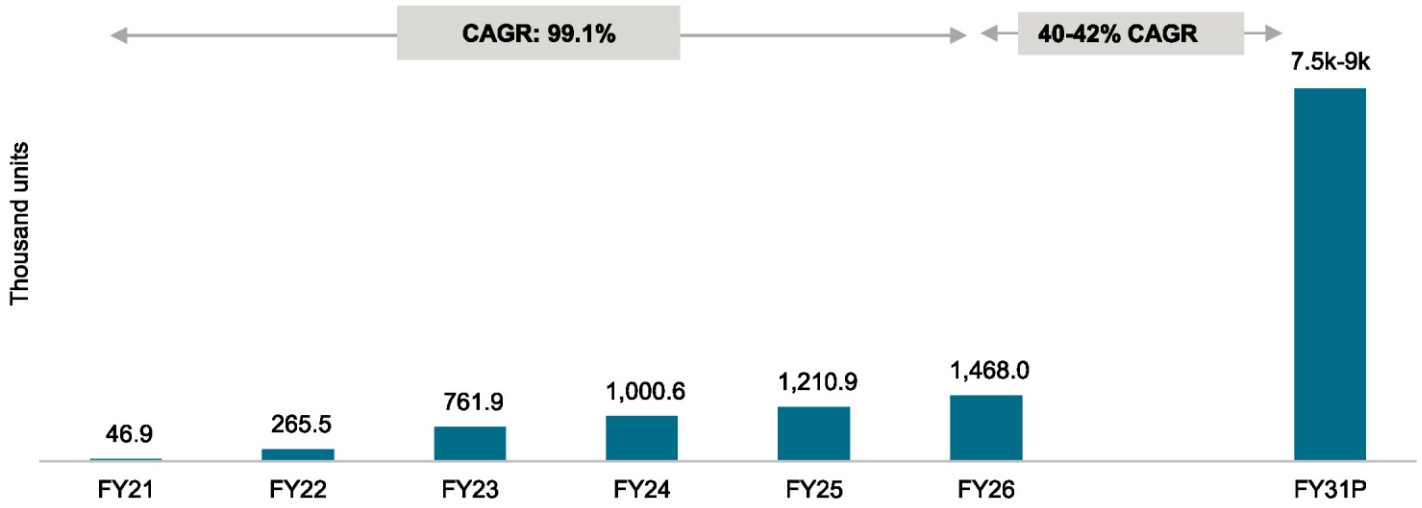
e2W sales volume trend and outlook



Note: Only high-speed e2Ws have been considered for analysis
Source: SIAM, VAHAN, Crisil Intelligence

Exports

Exports typically constitute 15-20% of India's two-wheeler sales. India exports two-wheelers primarily to developing countries across the globe. Africa, Asia and Latin America account for a sizeable part of exports from India.

India's two-wheeler exports increased to 5.2 million units in fiscal 2026 from 3.3 million in fiscal 2021, logging a CAGR of 9.5%, driven by an increase in global demand, expansion of the export portfolio, and entry into newer markets such as the US, Europe and Middle East.

Moreover, joint ventures with global brands such as KTM, Husqvarna and BMW, and catering to global demand for these brands from India, have given an additional thrust to two-wheeler exports.

However, the tightening global monetary conditions after the inflation spiral and forex unavailability have restricted exports in recent years. Geopolitical uncertainties have also been impacting overseas demand.

During fiscals 2021-26, the share of exports in total sales remained range-bound at 15-20%, with an exception in fiscal 2022, when the share rose to a healthy 24% as OEMs focused on exports amid a slowdown in the domestic market.

Exports touched their highest level of 5.2 million units in fiscal 2026, up ~23% on-year, accounting for 19% of total sales.

In the first quarter of this fiscal, exports grew a strong 36.6% on-year to 1.6 million units. Consequently, exports accounted for 21% of total sales during the quarter, highlighting the continued strength of demand in international markets.

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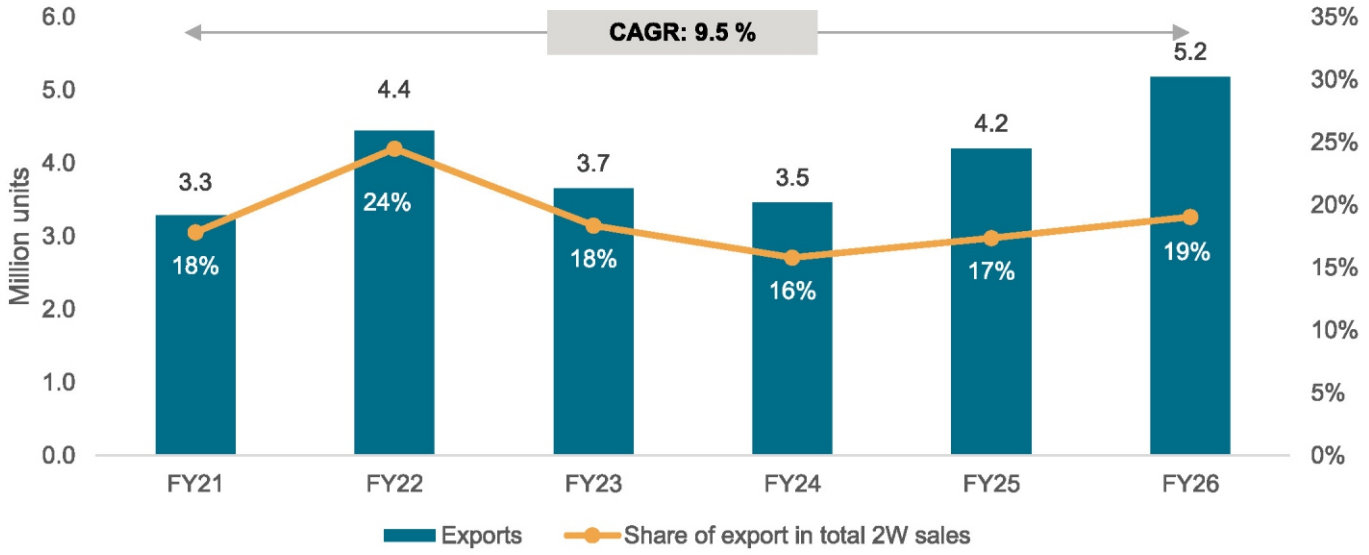
Two-wheeler export trend

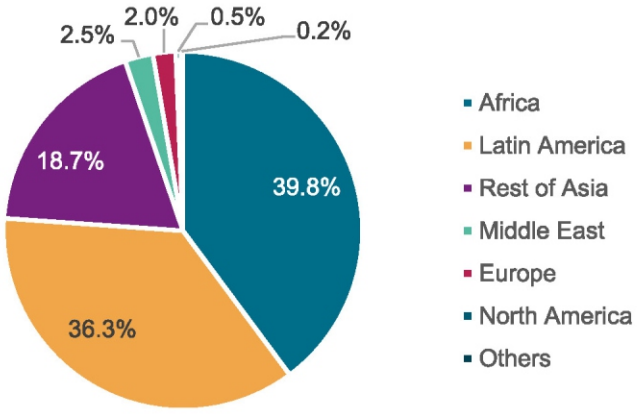


Source: SIAM, Crisil Intelligence

India exports two-wheelers primarily to developing countries, with Latin America and Africa accounting for the major share. Last fiscal, Latin America emerged as the second-largest destination, accounting for 36% of total exports. By country, Colombia was the largest destination with a 13.1% share, followed by Nigeria at 7.7% and Mexico at 6.3%.

The share of Africa remained 40%. However, exports to Africa have been under pressure amidst a slowdown in its economy, a surge in inflation and unavailability of forex in Nigeria, the leading two-wheeler importer from India.

Geographical split for Indian two-wheeler export volumes (fiscal 2026)



Country	Share in FY26
Colombia	13.1%
Nigeria	7.7%
Mexico	6.3%
Guinea	6.1%
Sri Lanka DSR	5.5%
Nepal	5.2%
Philippines	4.8%
DR Congo	4.4%
Brazil	4.2%
Kenya	3.7%

Note: Rest of Asia includes entire Asia except the Middle East
Source: Ministry of Commerce and Industry, Crisil Intelligence

India also exports a sizeable portion to Southeast Asian countries such as the Philippines, Sri Lanka and Nepal, with Rest of Asia accounting for approximately 19% of exports in fiscal 2026. The Philippines accounted for 4.8% of total exports, while Nepal accounted for 5.2%. The Middle East, Europe and North America together accounted for ~5% of two-wheeler exports in fiscal 2026.

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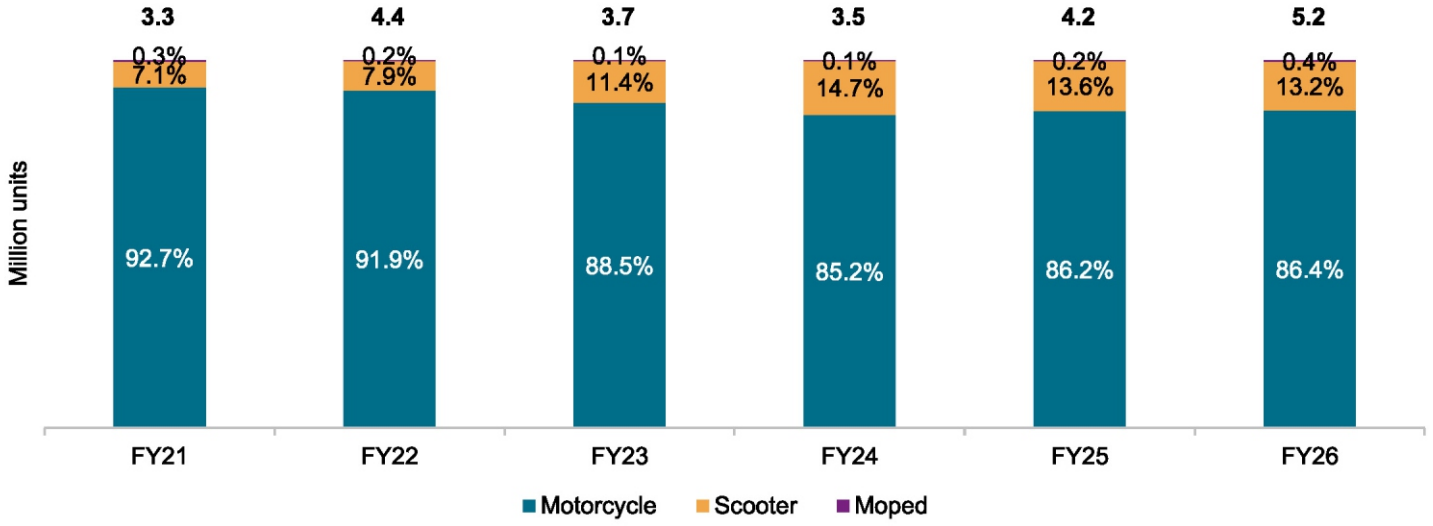
Segment-wise export share over fiscals 2021-2026



Source: SIAM, Crisil Intelligence

Export outlook

The two-wheeler export market logged a steady CAGR of 9.5% between fiscals 2021 and 2026. Geographical expansion by Indian OEMs into new markets, along with deeper penetration in existing overseas markets through the launch of new models, is expected to drive export growth of 24-26% on-year in fiscal 2027.

We anticipate this trend to continue over the long term, with exports projected to reach 7.0-9.0 million units by fiscal 2031, representing an 8-10% CAGR between fiscals 2026 and 2031. This growth is expected to be driven by macroeconomic improvements in export markets, geographical expansion by OEMs, and an increase in the number of vehicle models being shipped. Furthermore, the rapidly growing EV segment is anticipated to make a notable contribution to exports, driven by capacity expansion by players, a sharpening focus on exports and a surge in the number of EV models. Recent free trade agreements signed with India are also expected to further boost industry exports.

India, as one of the largest two-wheeler markets globally, is well-positioned to capitalise on its scale, cost efficiencies and manufacturing capabilities to emerge as a key production hub for electric two-wheelers, catering to both domestic demand and export markets.

The government's PLI scheme is strengthening domestic OEMs' ability to manufacture and export EVs by offering incentives across the EV value chain, including automobiles, auto components and advanced chemistry cell batteries.

However, geopolitical tensions and volatility in oil prices could raise inflation in major importing countries, which may affect demand for vehicles in the near term. India's two-wheeler exports have limited exposure to the Middle East, partially cushioning the impact of regional conflicts. Ongoing global conflicts and trade wars also remain key monitorables that could potentially impact the growth trajectory of two-wheeler exports.

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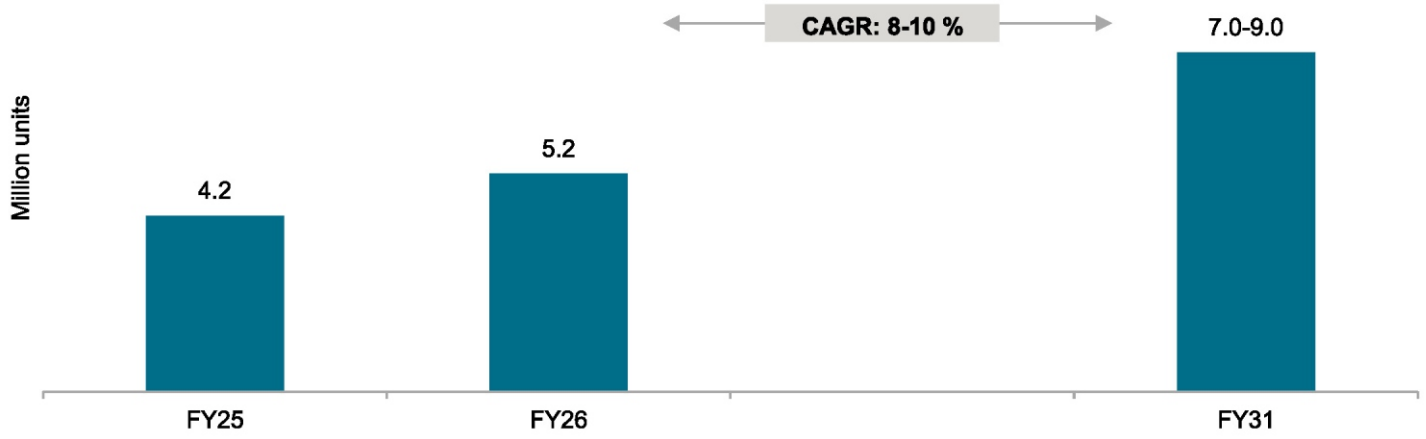
Outlook on exports



Source: SIAM, Crisil Intelligence

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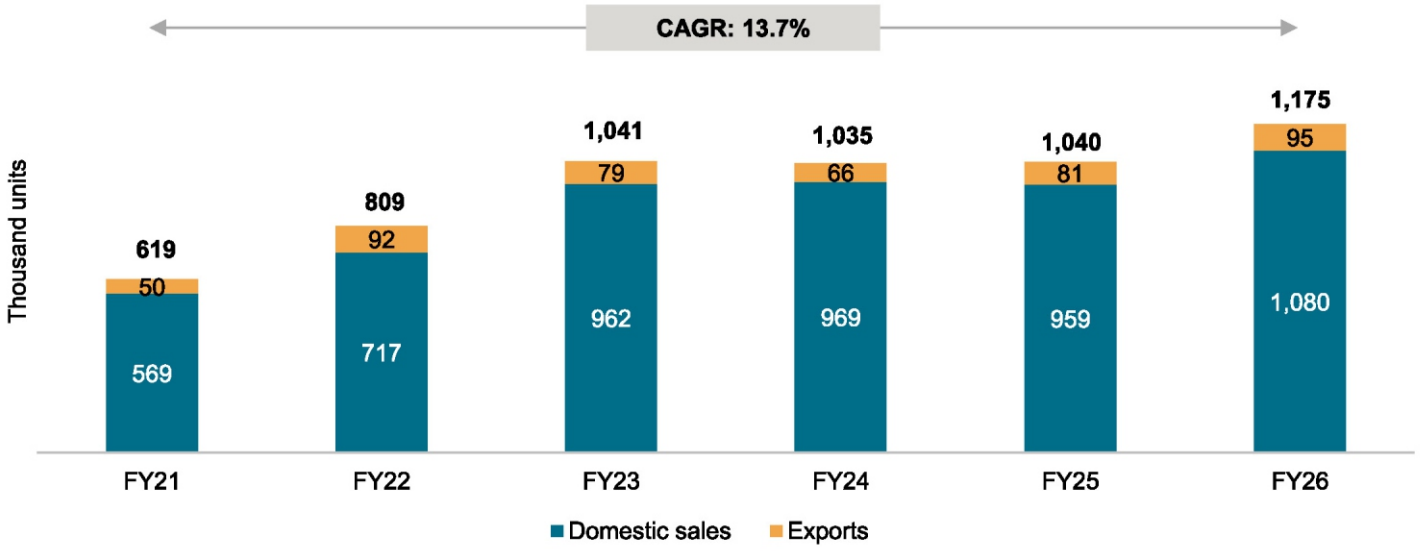
Commercial vehicle industry: Review and outlook

Current landscape

India is the third-largest commercial vehicle (CV) market globally. Over fiscals 2021-2026, the industry demonstrated a strong recovery and growth trajectory, logging a CAGR of 13.7%. Total CV sales (domestic sales and exports) increased to 1.17 million units in fiscal 2026 from 619 thousand units in fiscal 2021, reflecting a rebound from the pandemic-led slowdown and sustained demand supported by economic recovery, infrastructure spending and logistics growth. While the industry witnessed some moderation in fiscals 2024 and 2025, with volumes remaining largely stable at around 1.04 million units, growth resumed in fiscal 2026, driven primarily by robust domestic demand.

Trend in total CV sales



Note: Numbers above bars represent total sales (domestic + exports)
Source: SIAM, Crisil Intelligence

The domestic market continues to dominate the industry, accounting for more than 90% of total volumes during fiscal 2021 to 2026, while exports have remained relatively stable, contributing 6-9% to overall sales during the period.

India's CV industry entered fiscal 2027 from a position of strength after domestic sales crossed 1 million units in fiscal 2026. The recovery was not merely cyclical but driven by structural factors, including sustained infrastructure investment, formalisation of logistics, robust freight movement, growth in e-commerce and quick-commerce channels, and healthy replacement demand. The implementation of GST 2.0 improved vehicle affordability, lowered effective acquisition costs and strengthened lender confidence, resulting in improved financing access for small fleet operators and first-time buyers.

The positive momentum continued into the first quarter of fiscal 2027, with sales increasing 18.3% on-year to 265 thousand units, despite fuel price uncertainty arising from geopolitical developments in West Asia. Freight availability remained healthy, fleet utilisation levels stayed elevated, and economic activity across manufacturing, construction and consumption-driven sectors continued to support demand.

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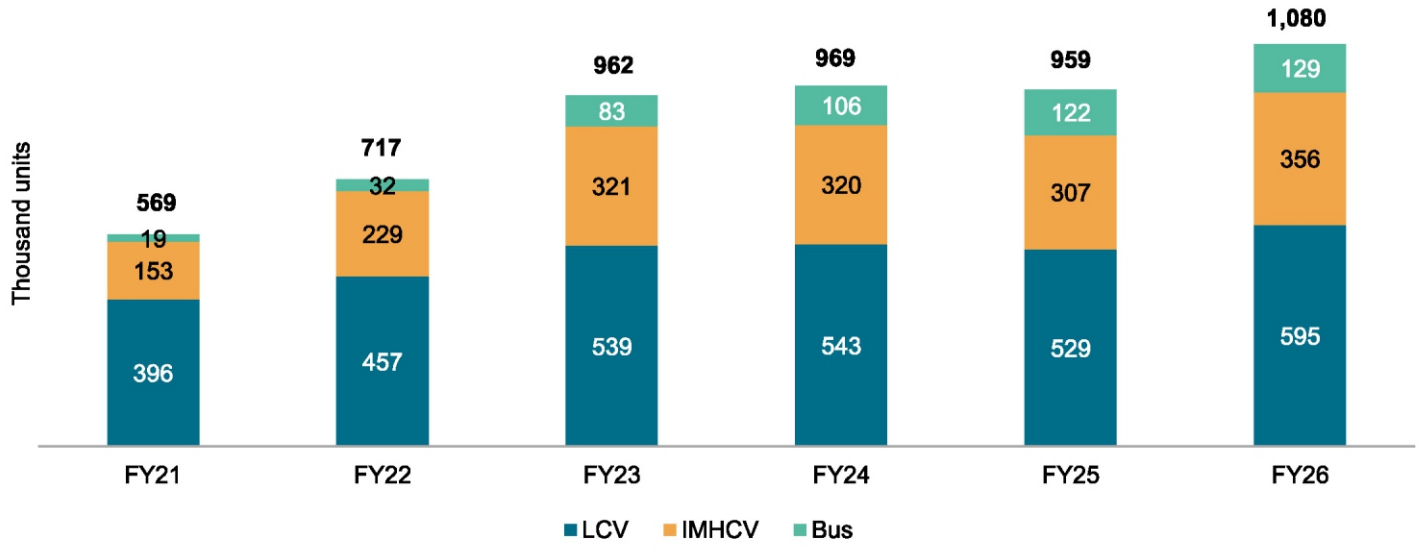
The market is split into three segments: Light commercial vehicles (LCVs; <7.5 tonne), Intermediate, Medium and Heavy Commercial Vehicles (IMHCVs; >7.5 tonne) and buses. The sharp rise in the domestic sales after the pandemic was led by the bus segment, which clocked a robust 46.1% CAGR between fiscals 2021 and 2026, followed by the IMHCV segment (18.3% CAGR). LCV, the largest segment, clocked an 8.5% CAGR during the period.

The LCV segment, which includes goods carriers less than 7.5 tonne, saw a notable shift in its market share from fiscal 2021 to fiscal 2026. In fiscal 2021, economic conditions deteriorated and LCV penetration surged to 70% as businesses prioritised smaller vehicles to maintain operational flexibility amid declining freight availability. The post-pandemic recovery in fiscal 2022 and beyond saw the LCV market share gradually normalise to 55% by fiscal 2026. LCV sales volumes in fiscal 2026 suggest potential challenges due to financing constraints and evolving fleet preferences.

LCV sales rose 12.5% in fiscal 2026 after an on-year degrowth of 2.6% in fiscal 2025. LCV growth in fiscal 2026 was led by agriculture, fast-moving consumer goods (FMCG) distribution, e-commerce and last-mile logistics. GST 2.0 reduced ownership costs and improved financing accessibility. Growth was further supported by product launches, rising quick-commerce penetration in Tier 2 and 3 cities, and migration towards sub-1 tonne electric cargo vehicles. Also, the emergence of the 3.5-3.8 tonne category in recent years provided an added push which reflected customer preference for higher payload productivity and superior economics.

LCV sales grew 21.9% on-year in the first quarter of fiscal 2027, supported by sustained consumption momentum, increased freight movement, and continued growth in e-commerce and distribution activities.

Domestic sales split by segment



Note: Numbers above bars represent total domestic sales
Source: SIAM, Crisil Intelligence

The IMHCV market staged a strong recovery from the pandemic-induced low of 153 thousand units in fiscal 2021, with sales more than doubling to 321 thousand units by fiscal 2023. The rebound was driven by improved freight availability, a gradual pick-up in infrastructure and construction activities, robust replacement demand and higher fleet utilisation. However, the segment witnessed a moderation in fiscal 2025, reflecting a maturing demand cycle amid cautious fleet expansion and softer economic activity. Demand regained momentum in fiscal 2026, supported by a revival in economic activity, increased infrastructure and construction spending, and traction in replacement demand, resulting in a 16% on-year growth in IMHCV sales. Demand recovery was also supported by replacement purchases deferred during earlier

periods of uncertainty. Fleet operators increasingly preferred higher-gross-vehicle-weight (GVW) platforms to enhance payload efficiency and reduce logistics costs per tonne-km, creating a structural shift towards high-productivity vehicles.

IMHCV sales grew 19.6% on-year in the first quarter of fiscal 2027, supported by robust demand from the infrastructure, mining, cement and steel sectors, alongside strong freight availability and an ongoing fleet replacement cycle.

In the bus segment, the gradual rebound from the Covid-19 pandemic began in fiscal 2022 and gained momentum from fiscal 2023, with sales improving to 83 thousand units in the fiscal. Sales reached 129 thousand units in fiscal 2026, supported by public transport services, growing demand for low-emission buses (CNG and electric) in metro and Tier 2 cities, and fleet modernisation initiatives.

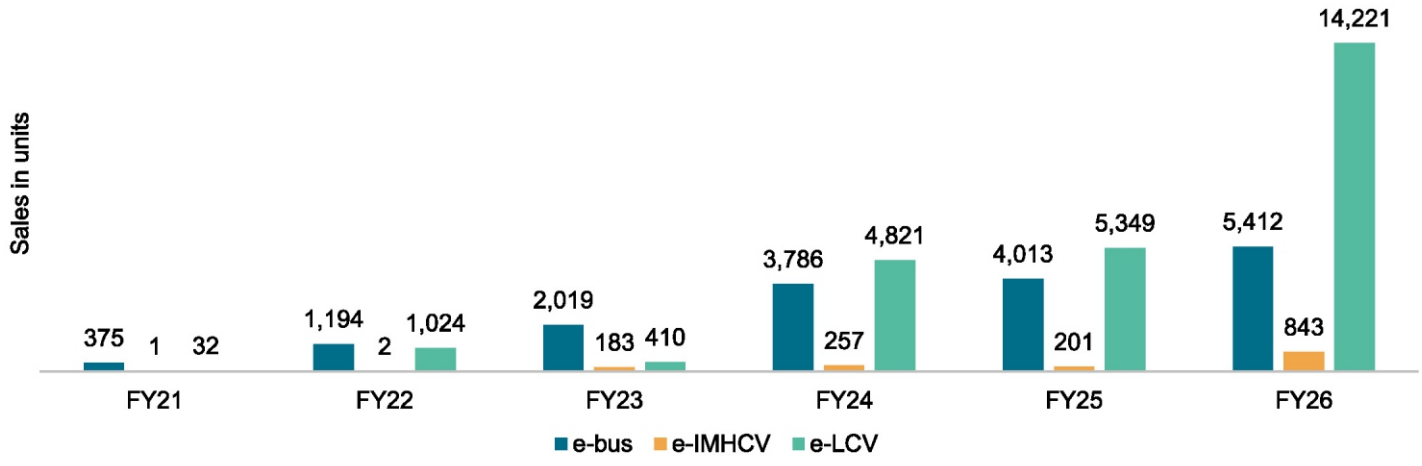
The share of buses in total domestic sales increased to 12% in fiscal 2026 from 3% in fiscal 2021, led by a sharp rise in sales. Bus sales reached 37 thousand units in the first quarter of fiscal 2027, logging 3.2% on-year growth. Growth was primarily driven by demand in the LCV and intermediate commercial vehicle (ICV) bus segment, supported by higher tourism-related travel during the summer vacation and school season transportation requirements.

Electrification in the domestic CV industry

Electrification in the domestic CV industry has progressed at a relatively slow pace compared with PVs, primarily due to higher upfront vehicle costs, range limitations and inadequate charging infrastructure on long-haul freight corridors. However, the industry has seen steady adoption over the past five years, with total electric CV volumes increasing to 20,476 units in fiscal 2026 from 408 units in fiscal 2021. Consequently, EV penetration in the overall CV industry improved to 1.98% from 0.09%, supported by government incentives, improving TCO and an expanding charging ecosystem.

Among CVs, buses were the early adopters of electrification, aided by procurement from state transport undertakings (STUs) under the gross cost contracting (GCC) model and government-led initiatives. E-bus volumes increased to 5,412 units in fiscal 2026 from 375 units in fiscal 2021, resulting in EV penetration rising to 7.2% from 4.5%. Although penetration remains significantly higher than other CV segments, volume growth has moderated in recent years as adoption expands gradually across public transport fleets.

EV sales by segment



Source: VAHAN, Crisil Intelligence

The electric LCV (e-LCV) segment has emerged as the key growth driver for CV electrification. Volumes grew from a mere 32 units in fiscal 2021 to 14,221 units in fiscal 2026, accounting for nearly 70% of total electric CV sales. The sharp increase has been driven by favourable TCO economics in intra-city operations, rapid growth in e-commerce and quick-

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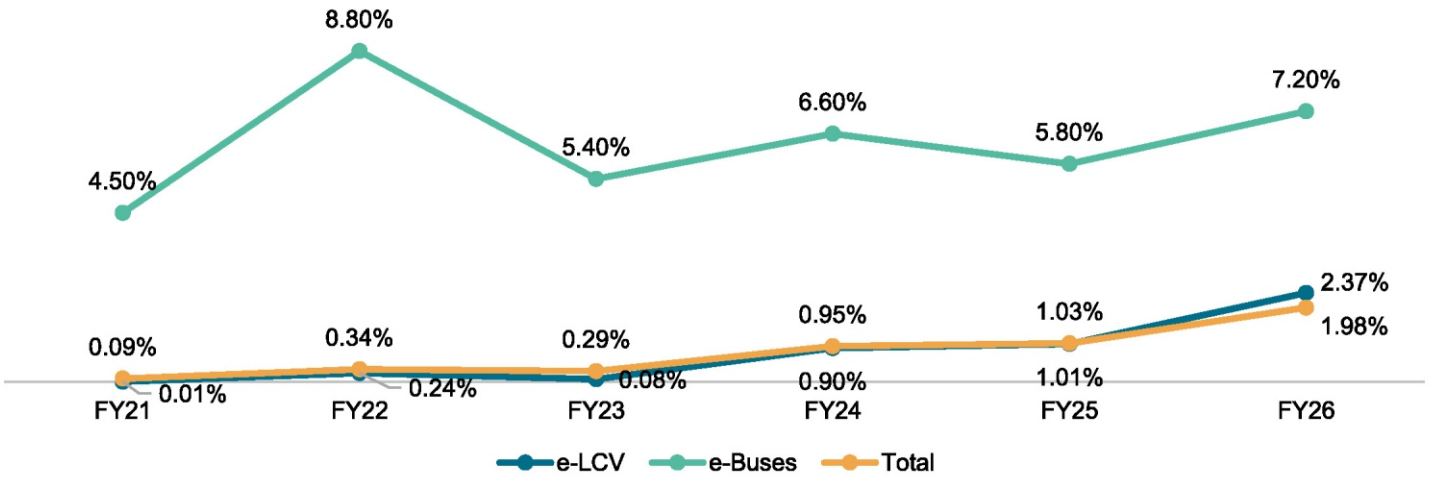
commerce logistics, fleet electrification targets of large corporates and improving charging infrastructure for last-mile delivery applications. EV penetration in the LCV segment rose from 0.01% in fiscal 2021 to 2.37% in fiscal 2026.

Electrification in the intermediate and medium and heavy commercial vehicle (IMHCV) segment remains at a nascent stage due to operational challenges such as higher battery requirements, long-distance operating cycles and limited public charging infrastructure. Nevertheless, adoption has begun to gain traction, with electric IMHCV volumes increasing from only one unit in fiscal 2021 to 843 units in fiscal 2026, supported by pilot deployments in municipal, logistics and industrial applications.

EV penetration



Source: SIAM, VAHAN, Crisil Intelligence

The momentum in the CV space continued into the first quarter of this fiscal, with total electric CV sales reaching 8,018 units. e-LCVs remained the dominant segment with sales of 6,314 units, followed by e-buses at 1,424 units and e-I&MHCVs at 280 units. The continued growth in electric CV adoption across segments reflects improving product availability, supportive policies, increasing fleet operator acceptance and ongoing investment in charging infrastructure, positioning the industry for further electrification in coming years.

Our outlook on the domestic CV industry

The CV industry is expected to grow from 1.08 million units in fiscal 2026 to 1,460-1,560 units in fiscal 2031 at 6-8% CAGR. Continued infrastructure spending, increasing freight intensity, expansion of organised logistics, increasing consumption demand due to rising disposable income and ongoing fleet replacement will support growth. Road, mining, cement, steel, ports and warehousing investments are expected to sustain freight generation across vehicle categories.

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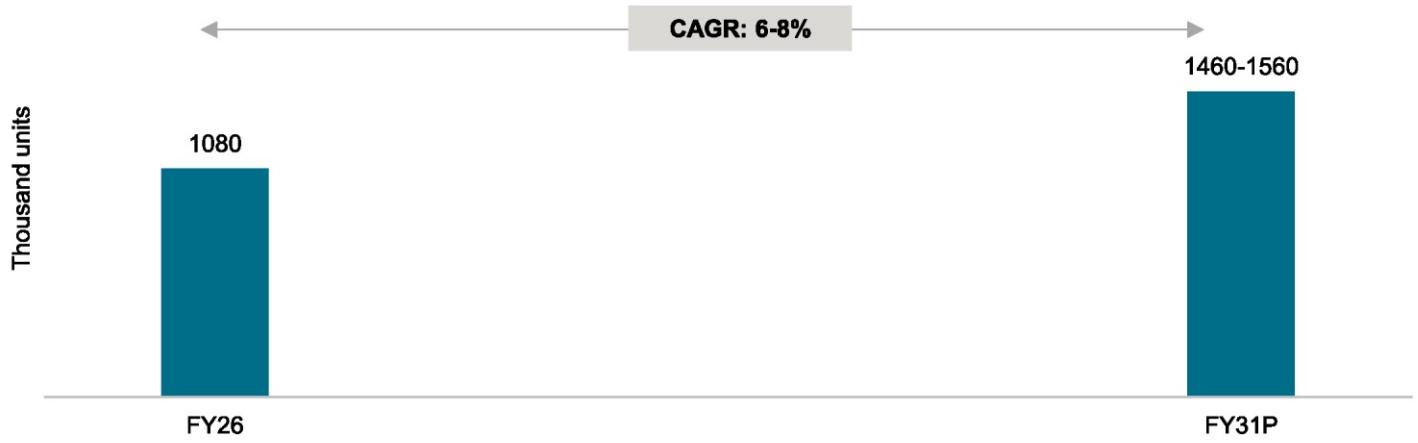
CV outlook



P: Projected

Source: SIAM, Crisil Intelligence

Demand drivers in the CV industry

- **Government infrastructure push:** Large-scale investments under the National Infrastructure Pipeline, Pradhan Mantri Awaas Yojana and ongoing road construction programmes such as PMGSY-IV continue to drive demand for heavy trucks, tippers and haulage vehicles. Road construction supports freight movement and construction activity
- **Construction and mining activity:** Increased spending on roads, railways, urban infrastructure, housing and mining projects boosts demand for MHCVs. The government's continued focus on capital expenditure remains a key industry tailwind
- **Growth in freight and logistics:** India's logistics sector is benefiting from GST implementation, expansion of warehousing infrastructure, development of multi-modal logistics parks and growth in organised logistics. Rising freight availability and improved fleet utilisation are supporting replacement and fleet expansion cycles, contributing to the increasing demand
- **E-commerce and last-mile delivery expansion:** Rapid growth of e-commerce, quick-commerce and third-party logistics providers is driving demand for light commercial vehicles. India's e-commerce market is expected to maintain double-digit growth, creating sustained demand for distribution and delivery vehicles
- **Manufacturing growth and industrialisation:** Government initiatives such as PLI schemes and increasing private sector investments are supporting industrial output and cargo transportation requirements
- **Replacement demand:** A large number of vehicles sold during fiscals 2017-2019 are entering their replacement cycle. Combined with vehicle scrappage policies and mandatory fitness requirements for older vehicles, this is expected to create a sustained replacement demand cycle across the LCV, trucks and bus segments
- **Agriculture and the rural economy:** Strong agricultural output, rural infrastructure development and improving farm incomes support demand for small commercial vehicles used in agricultural and rural logistics
- **Urbanisation and real estate development:** Growth in residential and commercial real estate, smart cities and urban infrastructure projects drives demand for construction-related CVs and material transport trucks
- **Public transport investments:** Demand for buses is supported by government initiatives such as the PM e-Bus Sewa Scheme, fleet modernisation programmes of STUs and growing investment in urban mobility



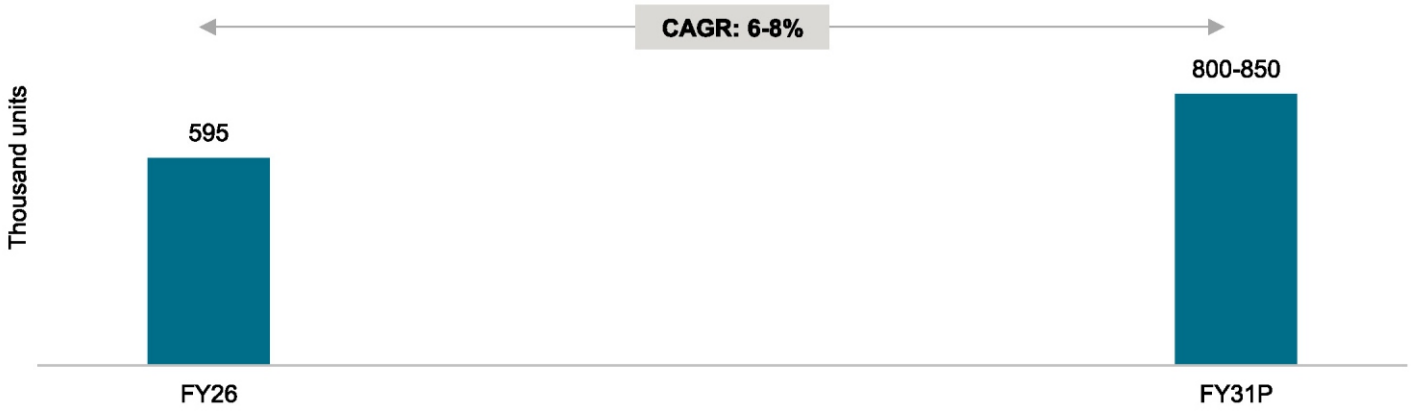
- **Export opportunities:** Indian CV manufacturers continue to expand exports to Africa, south Asia, southeast Asia and the Middle East, leveraging competitive manufacturing costs and a widening dealer and service network.

LCV segment outlook

LCV demand is expected to log 6-8% CAGR between fiscals 2026 and 2031. The segment clocked 8.5% CAGR between fiscals 2021 and 2026 due to sustained demand, increased e-commerce activity and GST reforms in fiscal 2026.

In fiscal 2027, the LCV segment is projected to grow by a significant 10.5-12.5%, driven by increased economic and commercial activities. This growth is expected to be driven by replacement volumes from the healthy sales over fiscals 2017 to 2019 and the resumption of government spending to usual levels. Additionally, the low repo rate and revision of GST structure are expected to contribute. LCV growth is also expected to be supported by rising e-commerce penetration, quick-commerce expansion, urban consumption and electrification of last-mile logistics.

LCV outlook



P: Projected
Source: SIAM, Crisil Intelligence

IMHCV segment outlook

Despite economic and geopolitical fluctuations, the performance of the IMHCV segment has been resilient in recent years. In fiscal 2025, growth slowed, reflecting the impact of economic headwinds and supply-side challenges, but the industry grew 16% in fiscal 2026, indicating strong demand.

The sustained push for infrastructure development, increased logistics digitisation and policy-driven fleet modernisation is expected to shape the segment-wise trends in the coming years.

The IMHCV segment is expected to clock healthy growth with a projected 6-8% CAGR from fiscals 2026 to 2031. Long-term IMHCV sales are likely to be driven by improving industrial activity, consistent agricultural output and the government's continued emphasis on infrastructure development, among other factors.

However, volume growth may be limited by efficiencies gained from the implementation and rationalisation of the GST, the development of improved road infrastructure and the commissioning of the dedicated goods corridors. The industry remains on a promising growth trajectory.

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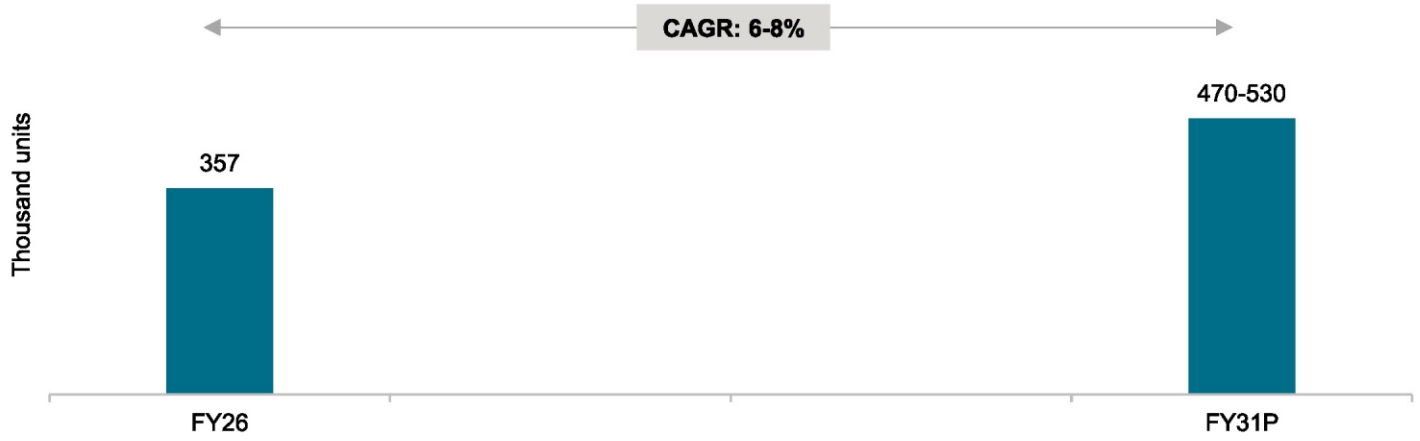
IMHCV outlook



P: Projected
Source: SIAM, Crisil Intelligence

Growth in end-use industries

Key end-use segments and outlook		
Sectors	**Growth outlook (FY26-31)**	**Key aspects**
Coal	2.5-3.5%	Non-power thermal coal demand is expected to grow modestly, supported by consumption from steel, cement, sponge iron and captive power plants where coal remains a key fuel source
Steel	6.5-8.5%	Building and construction is the major demand creator in this segment
Cement	7.5-8.5%	Demand to be driven by rural housing/ affordable housing and commercialisation of Tier 3 and 4 cities Infrastructure demand also plays an important factor
Port movement	3-5%*	Container traffic to drive growth. Containers and POL (Petroleum, Oil and Lubricants) to contribute major share
Road investment	8-10%	Strong growth momentum is being driven by a healthy pipeline of HSC (High Speed Corridor) projects and sustained government spending on road infrastructure, with PMGSY-IV expected to provide an additional boost to road investments
E-commerce	20-25%	The rapidly expanding quick commerce segment is expected to be a key contributor to e-commerce demand, while the growing presence of e-retail and quick commerce in Tier 2 and 3 cities is likely to provide an additional boost

*Note: *The growth outlook is for FY26-28*
Source: Crisil Intelligence

Bus segment outlook

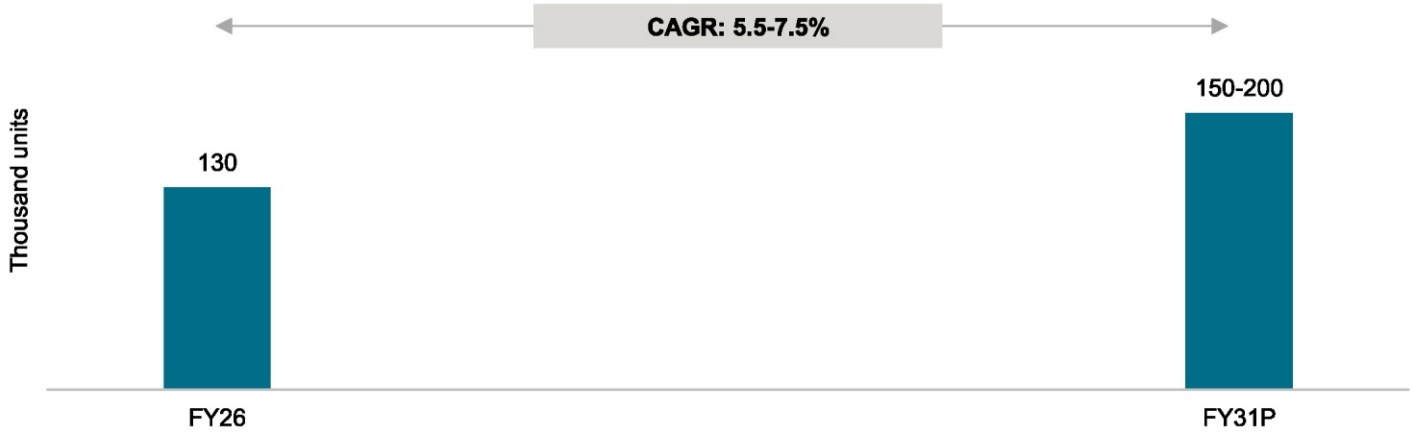
The bus segment is expected to clock a relatively moderate 5.5-7.5% CAGR between fiscals 2026 and 2031, compared with 8.4% CAGR between fiscals 2020 and 2026. It is projected to expand from ~130 thousand units in fiscal 2026 to 150-200 thousand units by fiscal 2031.

The segment's growth is expected to be gradual as STUs and private operators incrementally replace ageing fleets and respond to growing urban and intercity transportation needs. The segment may see further momentum through central and state-led procurement schemes, with a stronger push for cleaner public transport. However, due to slower penetration



of e-buses outside STUs and higher acquisition costs, the segment's growth may remain modest compared with goods vehicles.

Bus outlook



P: Projected
Source: SIAM, Crisil Intelligence

Emerging trends in the CV industry

- **Connected and software-defined vehicles**: Fleet operators are increasingly adopting telematics, predictive maintenance, remote diagnostics and fleet management solutions to improve vehicle utilisation, reduce downtime and optimise operating costs. This is driving higher electronic and software content per vehicle
- **Shift towards cleaner powertrains:** Alongside electrification, there is increasing adoption of CNG, LNG and emerging hydrogen-based solutions, particularly in medium and heavy commercial vehicles. OEMs are developing multiple powertrain options to comply with evolving emission regulations and meet sustainability goals
- **Regulation-led technology adoption**: Upcoming ADAS (advanced driver assistance system) mandates, expected BS-VII emission norms and proposed CAFE (Corporate Average Fuel Economy) regulations are accelerating fleet modernisation and increasing the adoption of advanced safety systems, sensors, telematics, and fuel-efficient technologies across commercial vehicles
- **Fleet productivity and asset optimisation**: Fleet operators are increasingly prioritising payload optimisation, uptime, fuel efficiency and lifecycle economics over upfront acquisition costs. This is resulting in a growing preference for higher-GVW vehicles, advanced fleet management solutions and technology-enabled operations
- **Rapid growth of last-mile logistics**: The expansion of e-commerce and quick-commerce platforms is reshaping freight movement patterns and driving demand for smaller, technologically advanced LCVs and electric delivery vehicles, particularly in urban and semi-urban markets
- **ESG-driven fleet electrification**: Large logistics companies, e-commerce players, and corporate fleet operators are accelerating EV adoption to meet sustainability and carbon reduction targets. This trend is expected to remain a key contributor to commercial vehicle electrification over the medium term

Outlook on electrification

The electrification of the domestic CV industry is expected to accelerate significantly over the next five years, supported by policy incentives, improving charging infrastructure, rising corporate ESG commitments, declining TCO and a broader

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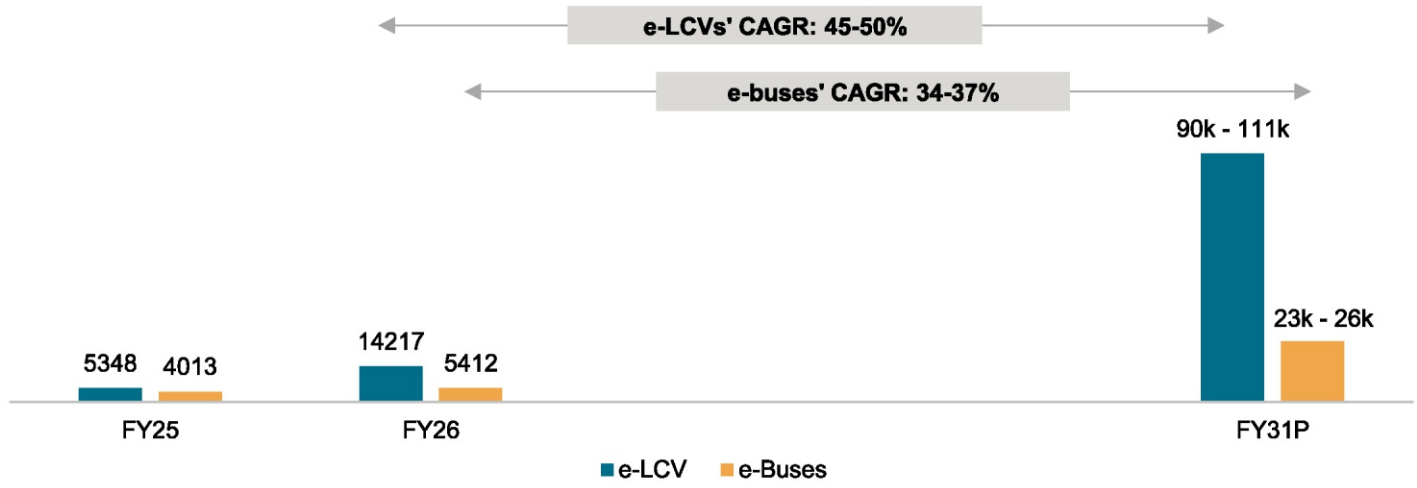
range of EV offerings from OEMs. Adoption is likely to remain strongest in applications characterised by predictable routes and high vehicle utilisation, where the economics of electrification are most compelling.

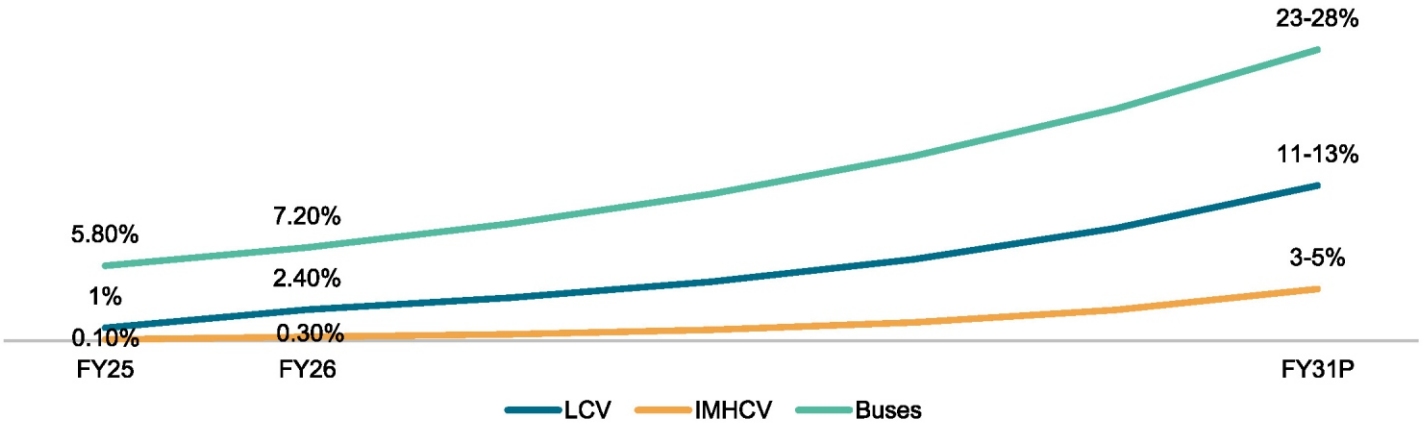
Outlook on e-LCVs and e-buses



P: Projected
Source: VAHAN, Crisil Intelligence

The e-LCV segment is expected to lead the transition, driven by growing demand from e-commerce, quick commerce and urban logistics operators. Volumes of e-LCVs are expected to increase to 90,000-111,000 units by fiscal 2031 from 14,217 units in fiscal 2026, logging a CAGR of 45-50%. Consequently, EV penetration in the LCV segment is projected to rise to 11-13% by fiscal 2031 from 2.4% in fiscal 2026, supported by fleet electrification initiatives, favourable operating economics and expansion of charging infrastructure.

Outlook on CV penetration



P: Projected
Source: VAHAN, Crisil Intelligence

The e-bus segment is also expected to witness robust growth, aided by sustained procurement from STUs and focus on decarbonising public transport. Volumes in the segment are projected to increase to 23 -26 thousand units by fiscal 2031 from 5,412 units in fiscal 2026, translating into a CAGR of 34-37%. EV penetration in buses is expected to increase to 23-28% by fiscal 2031 from 7.2% in fiscal 2026, making buses the most electrified segment within the domestic CV industry.



While electrification in the I&MHCV segment is expected to trail buses and LCVs due to higher battery requirements, range considerations and charging infrastructure constraints, adoption is likely to improve gradually over the medium term. EV penetration in the segment is projected to increase to 3-5% by fiscal 2031 from 0.3% in fiscal 2026, aided by use cases such as municipal operations, mining, construction and short-haul freight applications.

Overall, the domestic CV industry is expected to witness a broad-based increase in EV adoption across segments over the next five years, with buses and LCVs driving majority electrification volumes, while IMHCVs progressively gain traction as technology and infrastructure mature.

Demand drivers for electrification

- **Favourable TCO:** Despite higher upfront costs, e-CVs offer significantly reduced running and maintenance expenses owing to fewer moving parts and lower energy costs. Over a vehicle's lifecycle, the TCO for e-CVs is becoming increasingly attractive compared with ICEs, especially for high-utilisation commercial applications
- **Advancements in battery technology:** Improvements in battery life, energy density, charging speed and reliability, coupled with declining battery costs, are enhancing the practicality and affordability of e-CVs across applications
- **Regulatory push and government incentives:** Stricter emission norms, fuel efficiency standards and government initiatives in the form of subsidies, tax benefits, registration fee exemptions and public procurement programmes are encouraging the adoption of e-CVs
- **Replacement opportunity in ageing fleet base:** A large portion of the existing CV fleet is approaching its replacement cycle. This presents a significant opportunity for fleet operators to transition from ICE vehicles to EVs while benefitting from lower lifecycle costs
- **Growth of e-commerce and last-mile delivery:** Rapid expansion of e-commerce, quick commerce and hyperlocal delivery services is driving demand for efficient, low-operating-cost vehicles. Electric LCVs are well suited for urban delivery operations, characterised by frequent stop-and-go usage
- **Expansion of charging and battery-swapping infrastructure:** Continued investments in public charging stations, depot charging solutions and battery-swapping networks are reducing operational constraints and improving the viability of commercial EV deployments
- **Corporate ESG commitments and sustainability goals:** Logistics companies, fleet operators and large corporates are increasingly adopting EVs to reduce carbon emissions, meet sustainability targets and align with customer and investor expectations
- **Rising diesel prices and fuel cost volatility:** Increasing fuel prices and uncertainty in diesel costs are strengthening the business case for electrification by improving the relative operating cost advantage of EVs
- **Increasing availability of EV models across segments:** Growing participation from OEMs and a wider range of EV offerings across the LCV, bus, and MHCV segments are improving customer choice, confidence and adoption
- **Urban air quality concerns and low-emission zones:** Rising concerns around urban pollution and the introduction of low-emission zones and clean mobility initiatives are encouraging fleet operators to shift towards EVs, particularly for intra-city transportation

Exports

Exports, which account for 7-8% of the overall CV industry, increased to 95 thousand units in fiscal 2026 from 50 thousand units in fiscal 2021 at a CAGR of 13.5%. The growth was driven by rising demand for Indian CVs across emerging markets, strategic investments in product localisation and the improving cost and quality competitiveness of

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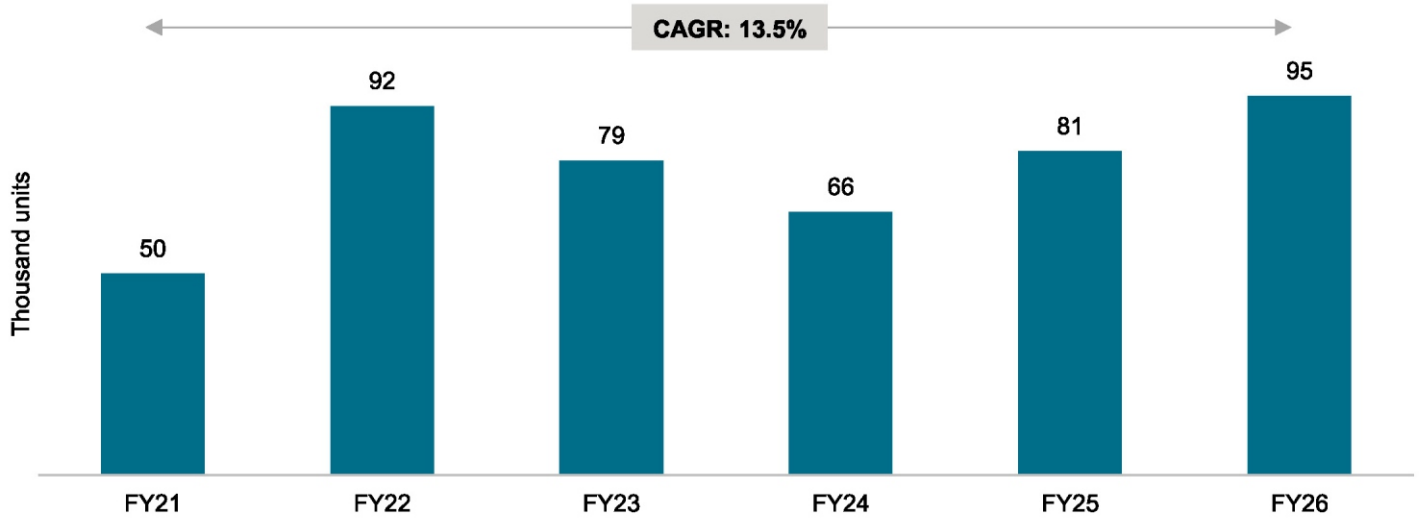
Indian OEMs. Export volumes declined sharply in fiscal 2021 due to disruptions caused by Covid-19 but rebounded strongly in fiscal 2022, supported by pent-up demand and the reopening of key international markets.

Following consecutive declines in fiscals 2023 and 2024, largely owing to the high base effect of fiscal 2022, industry exports regained momentum, growing by a robust 23% in fiscal 2025 and a further 17% in fiscal 2026. This recovery was supported by a strong revival in cargo vehicle exports and an improving macroeconomic environment across key export markets. Healthy increase in bus segment exports in recent years further boosted industry exports.

The positive trend continued into the first quarter of fiscal 2027, with exports rising 43% on-year, albeit on a relatively low base in the year-ago period. Growth during the quarter was primarily driven by the cargo segment, while bus segment exports witnessed some contraction amidst higher exposure towards the Middle Eastern markets.

Trend in exports



Source: SIAM, Crisil Intelligence

Within the export mix, the bus segment has gradually strengthened its contribution, while the LCV cargo segment remains the largest contributor. Over the past few years, MHCV cargo exports have recovered steadily, with their share increasing to 18% in fiscal 2026 from 12% in fiscal 2024. In contrast, the share of LCV cargo exports declined to 60% from 67% during the same period, reflecting a gradual shift towards higher-tonnage vehicle exports.

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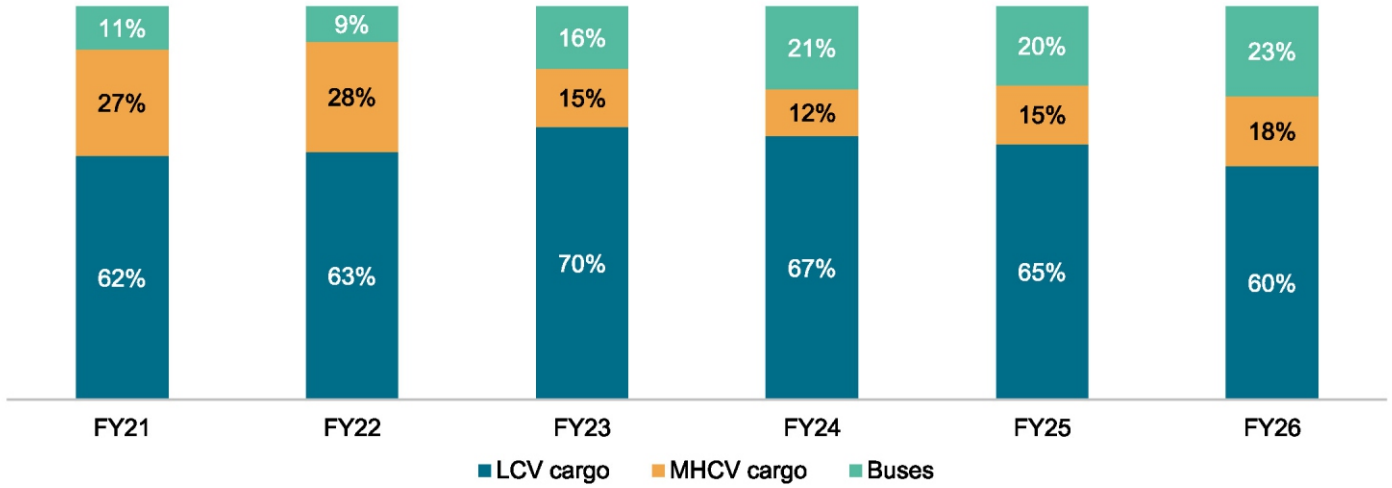
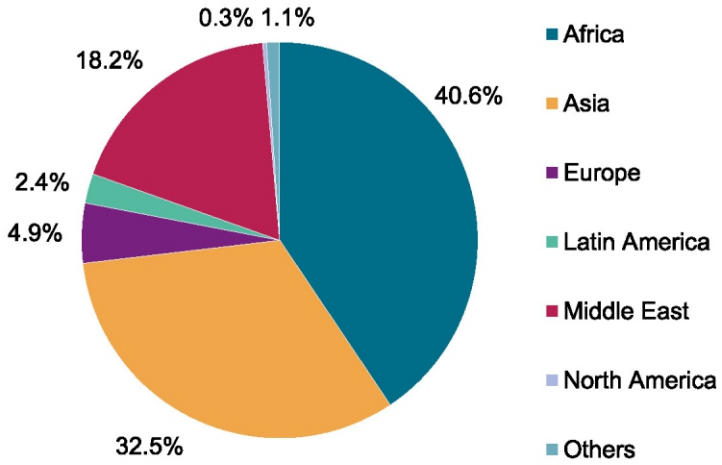
Segment-wise exports from India



Source: SIAM, Crisil Intelligence

India's CV exports are predominantly focused on developing regions such as the Middle East, Africa and Asia. Domestic OEMs are increasingly investing in expanding their footprint beyond neighbouring countries such as Bangladesh, Nepal and Sri Lanka and into larger markets across Asia, Africa and the Middle East. Several manufacturers are also evaluating overseas assembly operations to strengthen local market presence and improve competitiveness. In addition, upcoming product launches and technology upgrades are expected to support the entry of Indian CV manufacturers into relatively advanced south-east Asian markets.

Geographical split for the Indian cargo segment exports volumes



Country	Share in FY26
South Africa	25.4%
Bangladesh	12.5%
Saudi Arabia	12.5%
Nepal	7.7%
Sri Lanka	5.5%
Netherlands	4.4%
United Arab Emirates (UAE)	4.0%
Indonesia	3.9%
Djibouti	2.8%
Kenya	1.8%
Bhutan	1.6%
Nigeria	1.3%
Morocco	1.3%
Others	15.2%

Source: Directorate General of Foreign Trade (DGFT), Crisil Intelligence

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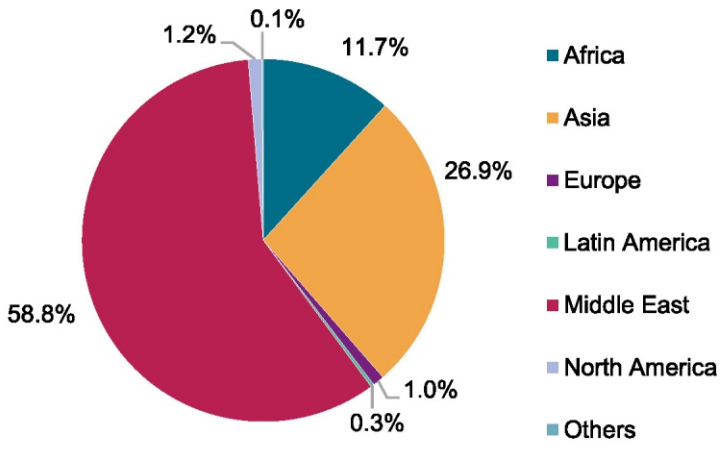
Geographical split for Indian buses exports volumes



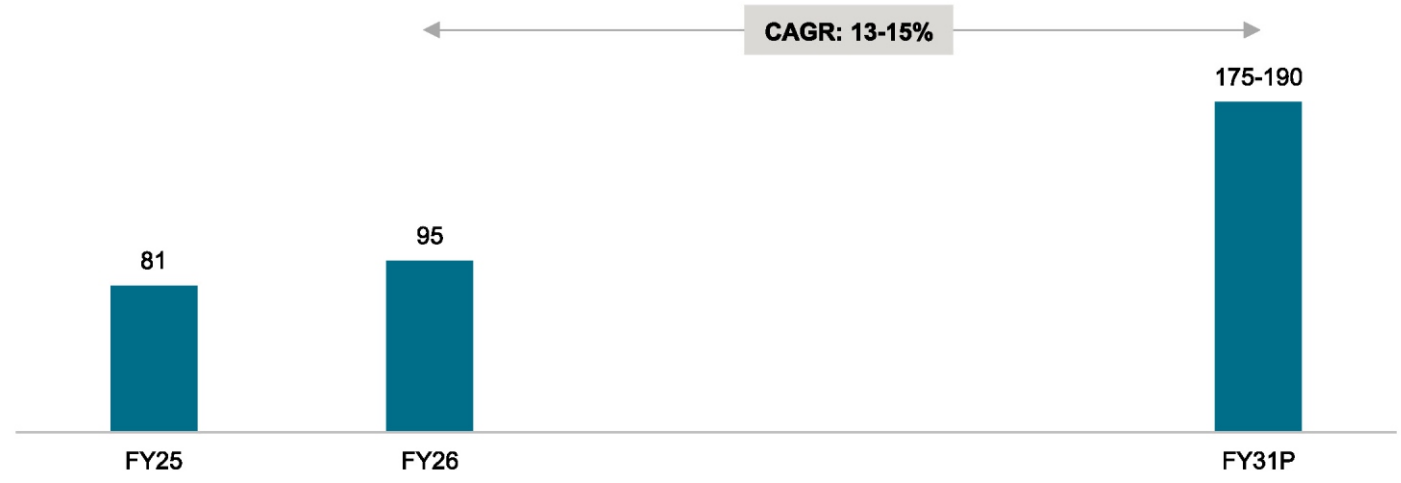
Country	Share in FY26
UAE	51.9%
Bangladesh	11.5%
Nepal	9.1%
Sri Lanka	4.4%
Tanzania	4.2%
Saudi Arabia	2.8%
Qatar	2.0%
Kuwait	1.3%
Canada	1.2%
Indonesia	1.2%
Others	10.6%

Source: DGFT, Crisil Intelligence

Cargo export trends in fiscal 2026 highlight a notable diversification in India's export portfolio. At a regional level, Africa's contribution declined to 40.6% in fiscal 2026 from 57.4% in fiscal 2025, reflecting a broadening of export presence across other geographies. Meanwhile, Asia's share increased to 32.5% from 18.3%, led by stronger demand from the neighbouring and regional markets. Europe and the Middle East also recorded modest gains, resulting in a more balanced export mix and reducing concentration risk across destinations. In fiscal 2026, neighbouring countries such as Nepal, Bangladesh and Sri Lanka increased their share in India's export basket.

However, the bus segment, remained heavily dependent on the Middle East, with the UAE accounting for more than 50% of total bus exports. Nevertheless, the export portfolio continued to diversify, with Bangladesh and Nepal contributing 11.5% and 9.1% of bus exports, respectively. Exports also expanded to markets such as Sri Lanka, Tanzania, Saudi Arabia, Canada and Indonesia, indicating broader geographic penetration and growing acceptance of Indian buses across international markets.

Outlook on CV exports



P: Projected
Source: SIAM, Crisil Intelligence



Exports are expected to remain a key growth pillar for the Indian CV industry, supported by increasing demand across emerging markets, expanding geographical reach of domestic OEMs and continued investments in product localisation and technology upgrades. Industry exports are expected to grow 20-25% in fiscal 2027, driven by continued strength in the cargo segment. However, bus exports are likely to remain relatively subdued, given their higher dependence on the Middle East, where demand conditions remain a key monitorable.

Over the long term, Indian CV exports are projected to log a CAGR of 13-15% between fiscals 2026 and 2031, supported by strengthening distribution networks, growing brand acceptance and favourable demand trends across key export destinations. However, geopolitical developments, global trade policies, tariff structures, currency fluctuations and economic conditions in major export markets will remain key monitorables for the sector.

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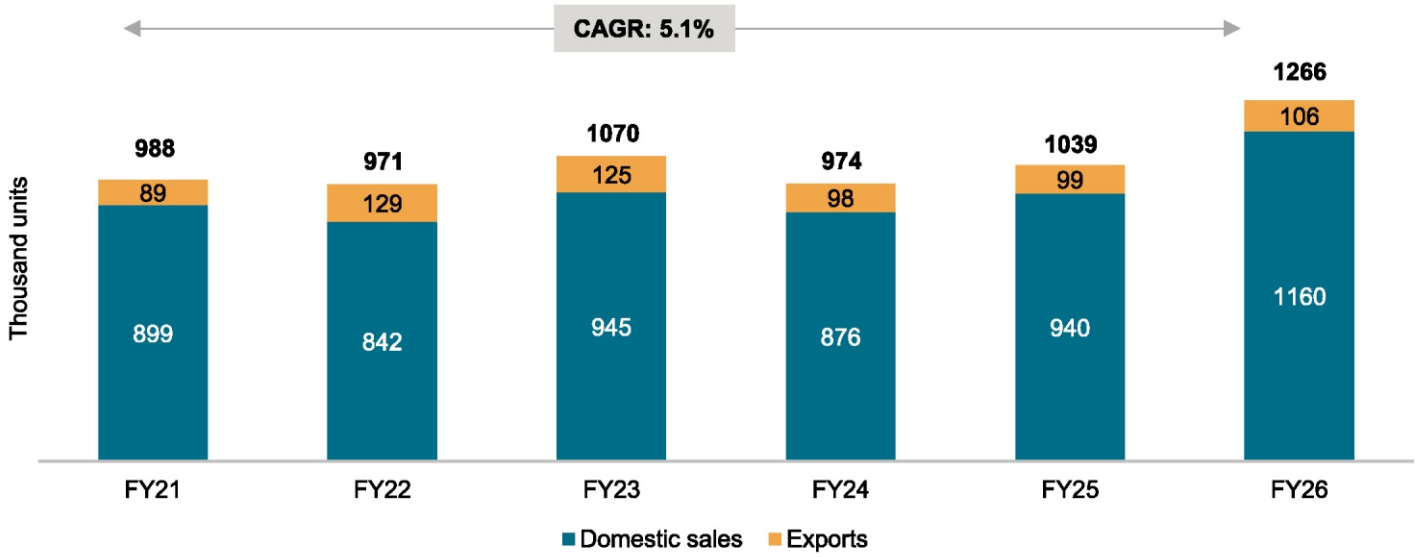
Tractor industry: Review and outlook

Current landscape

The Indian tractor industry has witnessed sustained growth over the past few years, supported by increasing farm mechanisation and a resilient agriculture sector. The total sales (domestic sales and exports) of tractors in fiscal 2021 stood at 988 thousand units. By fiscal 2026, this figure had increased to 1,266 thousand units, representing a notable 5.1% CAGR surge in demand.

The impressive growth in sales is a testament to the industry's resilience and adaptability, as well as the government's initiatives to promote agricultural development and exports.

Trend in tractor sales (domestic + export)



Source: TMA, Crisil Intelligence

Domestic tractor sales which account for 85-90% of the tractor industry sales, grew to 1,160 thousand units in fiscal 2026 from 899 thousand units in fiscal 2021, clocking a CAGR of 5.2%. This growth has been driven by several factors, including the government's focus on rural development and agricultural advancement, which has encouraged farmers to invest in modern equipment. Furthermore, technological innovations, improved product offerings and attractive financing options have expanded tractor accessibility, supporting higher demand across farming communities.

The agriculture sector was resilient during the Covid-19 pandemic, resulting in only a limited impact on tractor demand. However, after growing a robust 26.8% in fiscal 2021, domestic tractor sales declined 6.3% in fiscal 2022. The slowdown was due to OEM price increases, elevated dealer inventory levels, weaker commercial demand, negative farmer sentiment caused by rising cultivation costs and fertiliser shortages.

The market rebounded in fiscal 2023, with sales increasing 12.2% on-year to a record high of 945 thousand units. Farmer sentiment was positive, supported by favourable crop prices, healthy reservoir levels following above-normal monsoon rainfall, higher minimum support prices (MSPs) and improved rabi acreage. Festive season demand was also strong, aided by attractive promotional schemes and discounts. Nevertheless, commercial demand was stagnant due to slower retail activity in eastern India and crackdowns on illegal sand mining in Bihar, Jharkhand and Uttar Pradesh, among other states.

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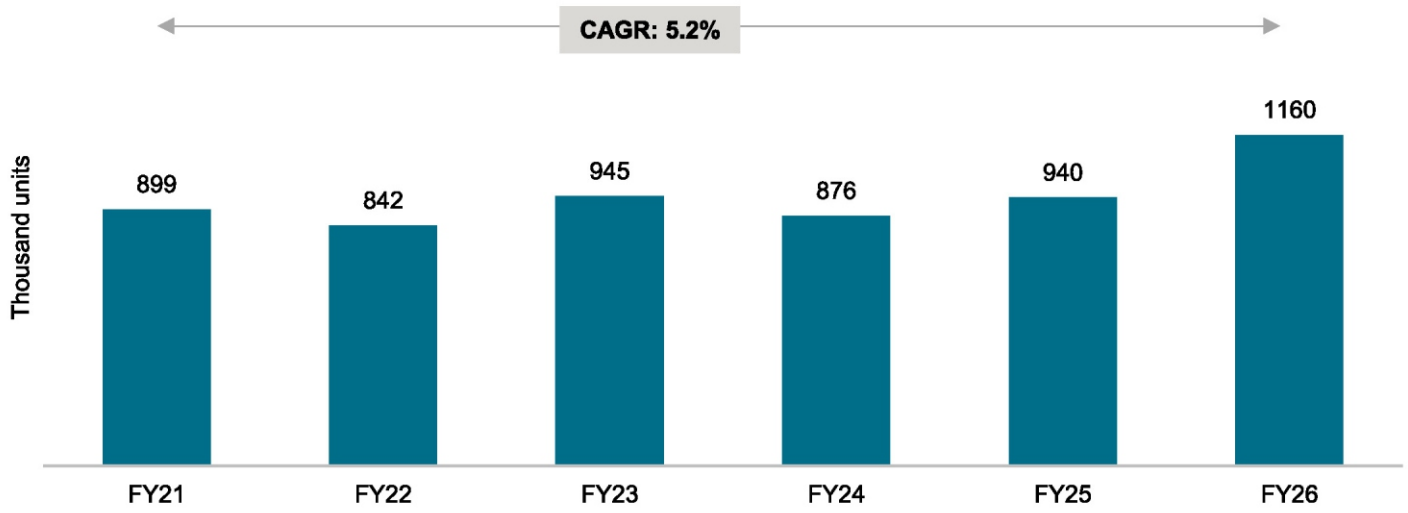
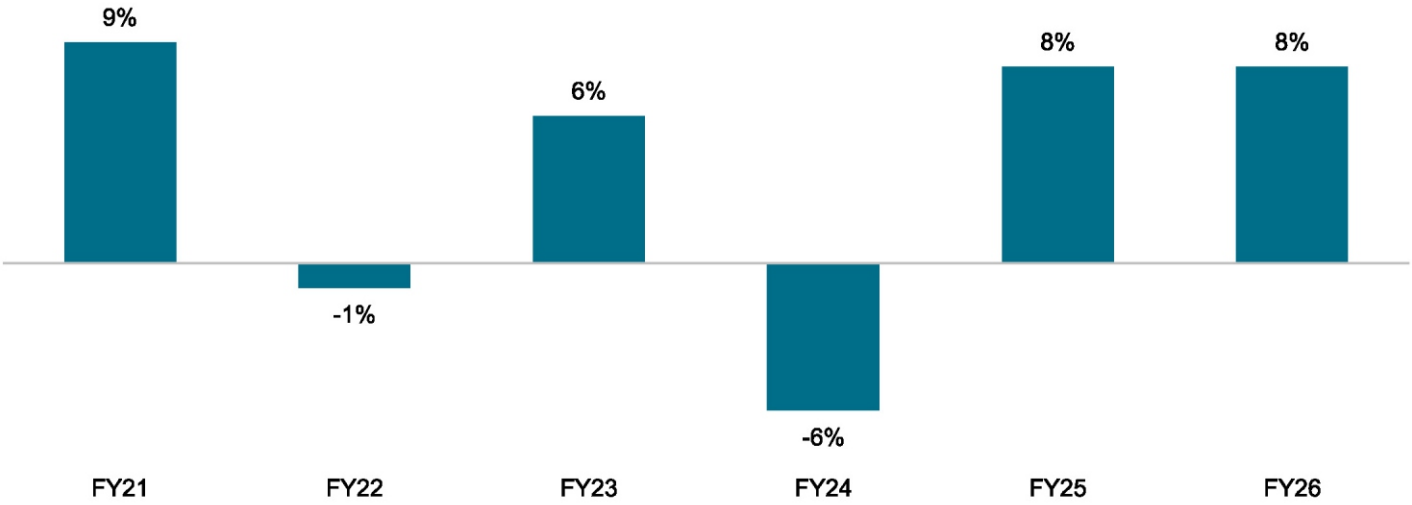
Trend in domestic tractor sales



Source: TMA, Crisil Intelligence

In fiscal 2024, domestic tractor sales declined 7.3% on-year to 876 thousand units, attributable to lower reservoir levels, uneven monsoon distribution, and weakened farmer sentiment. Monsoon rainfall was 6% below normal, with deficient rains in most regions, except north-west and central India. Subdued reservoir levels impacted agricultural activity, resulting in weaker tractor demand. Festive season sales during September, October and November were also affected, declining 6% compared with the previous year. In addition, erratic rainfall patterns, lower water availability and reduced rabi acreage contributed to the contraction in demand.

Favourable monsoon in fiscal 2026 aided positive farmer sentiment



Note: % show the deviation of rainfall from Long Period Average
Source: IMD, CRISIL Intelligence

The market regained momentum in fiscal 2025, with domestic tractor sales growing 7.3% on-year to 940 thousand units. Healthy monsoon significantly improved farmer sentiment and supported agricultural output. Replacement demand also contributed to volume growth. Strong kharif production, aided by favourable rainfall, coupled with higher reservoir levels that enhanced rabi crop profitability, and strengthened farm incomes. Government initiatives, including increased crop

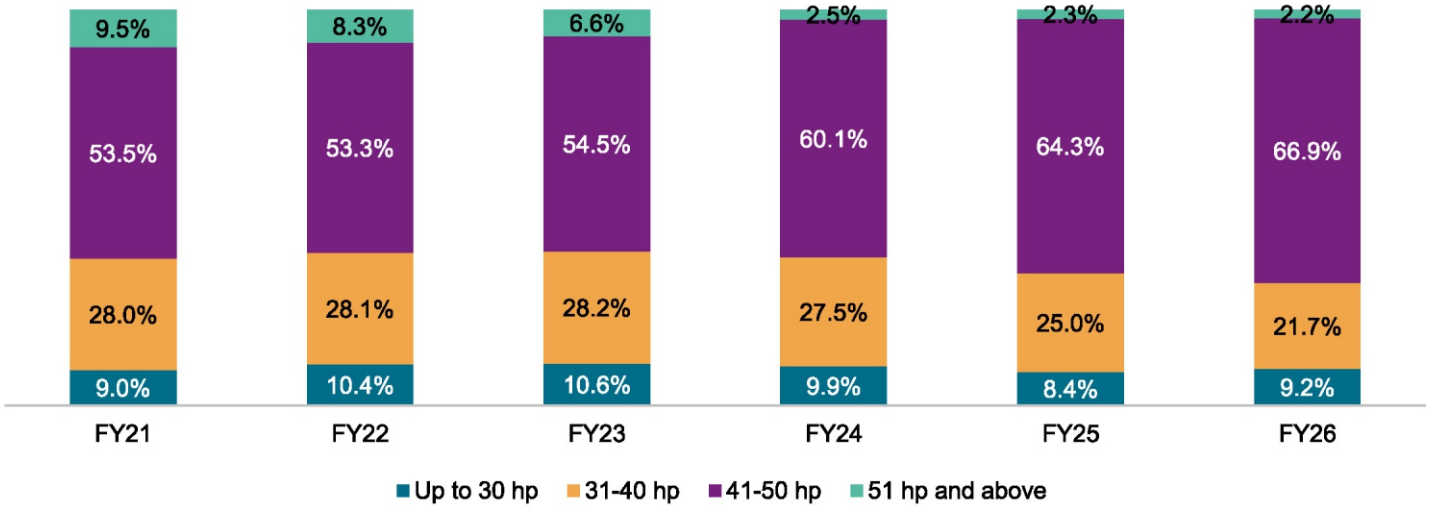


procurement and higher MSPs for the rabi season, improved farmers' cash flows and drove healthy retail demand throughout the year.

Tractor demand grew 23.5% on-year in fiscal 2026, supported by 8% above long period average rainfall, and improved farm cashflows and sentiment. Additionally, the reduction in the GST rate on tractors from 12% to 5%, along with continued government financing schemes, aided demand. Higher reservoir storage levels supported rabi crop prospects, while higher MSPs, stronger kharif and rabi acreage, and increased government procurement boosted rural incomes and purchase intent.

The first quarter of fiscal 2027 marked a strong start for the domestic tractor industry, with sales growing 19% on-year, led by healthy agricultural activity, improved farmer sentiment, favourable crop economics, strong rural liquidity and a low base from the previous year. However, growth is likely to moderate in the subsequent quarters due to a higher base effect and normalisation of demand. The industry is also cautious of the evolving El Niño conditions during the fiscal, which could result in below normal and uneven rainfall distribution during the latter half of the monsoon season. Such conditions may impact crop output, reservoir levels and farm incomes, thereby posing a potential risk to tractor demand. As of August 9, 2026, cumulative rainfall across the country was ~11% below the long-period average, while reservoir storage levels stood at ~44% of capacity compared with 68% during the corresponding period in fiscal 2026.

Segment-wise tractor sales show a shift towards 41-50 hp tractors



Source: TMA, Crisil Intelligence

The tractor industry is broadly divided into four horsepower (hp) segments: up to 30 hp, 31-40 hp, 41-50 hp and above 50 hp. The 41-50 hp segment dominates the market, accounting for over half of industry volumes and increasing its share to 66.9% in fiscal 2026 from 53.5% in fiscal 2021. This dominance reflects the segment's versatility, offering an optimal balance of power, fuel efficiency and affordability for a wide range of agricultural applications. In contrast, the share of the 31-40 hp segment gradually declined to 21.7% from 28.0%, while the above-50 hp segment contracted significantly to 2.2% from 9.5%. The up to-30 hp segment has remained relatively stable, fluctuating between 8-11% of industry volumes.

Since fiscal 2021, there has been a noticeable shift toward higher hp tractors, driven primarily by the growing adoption of implements that require greater power. This trend has also been supported by improved farmer affordability and government support measures. GST rate reduction has also motivated buyers to shift towards higher hp segments. Tractors in the sub-20 hp category target specific applications such as orchard farming and inter-cultivation. However,



owing to economic and functional considerations, these tractors also find favour among farmers with 0.8-2.0 hectares of land.

In fiscal 2026, the share of the above-51 hp tractor segment was 2% while the share of 41-50 hp segment rose to 67% from 64% in the previous year. The share of tractors of 51 hp and above has declined over the past few years, as they are less amenable to multipurpose applications, unlike 41-50 hp tractors. Further, with the implementation of the Tractor Emission Stage IV (TREM IV) norms, the price of above-51 hp tractors has gone up by Rs 1-1.5 lakh, further leading to farmers shifting to 41-50 hp tractors. As a result, the share of above-51 hp tractors slumped to 2% after fiscal 2023, as against 8% on average for the past 20 years. Further, rising demand for tractor-mounted farm equipment has contributed towards the shift in demand to the 41-50 hp segment from smaller tractors.

Key demand drivers for the tractor industry

- **Monsoon outlook and rainfall distribution** remain the most critical demand drivers for the tractor industry. Although monsoon activity has progressed this fiscal, the spatial distribution of rainfall has been uneven, with significant deficits reported in key agricultural states such as Uttar Pradesh, Haryana, Punjab, Andhra Pradesh, Karnataka and Kerala, posing a potential risk to agricultural output and rural sentiment. Tractor demand is generally strongest when rainfall is timely and well distributed, as this supports sowing, acreage expansion and farm cash flows. Prolonged rainfall deficiency in key agricultural states could delay purchases, especially among small and marginal farmers. However, healthy reservoir levels and continued rainfall during the remainder of the season could offset some of these concerns
- **Farm incomes remain supported by MSP increases** for major kharif crops. Higher MSPs improve farmer profitability and purchasing power, particularly in grain-producing regions such as Punjab, Haryana, Uttar Pradesh and Madhya Pradesh. This should help cushion the impact of localised weather-related weaknesses
- **Agricultural output was healthy,** supported by favourable crop production trends in recent seasons. Strong foodgrain production has improved rural liquidity, creating a foundation for tractor purchases despite near-term weather uncertainties
- **Credit availability is supportive,** with tractors continuing to be financed largely through banks and NBFCs. Stable credit access is particularly important in the current environment, where some farmers may delay outright purchases due to rainfall uncertainties but can still access financing for mechanisation investments
- **Farm mechanisation is a structural growth driver,** irrespective of annual monsoon fluctuations. India's mechanisation penetration is below developed agricultural markets, leaving significant headroom for long-term growth. The need to improve productivity and optimise farm operations continues to drive tractor adoption
- **Agricultural labour shortages and rising wage costs** continue to accelerate mechanisation. Migration of labour away from farming and rising rural wages are encouraging farmers to rely more on tractors and farm equipment, particularly during peak sowing and harvesting periods. This trend remains largely independent of short-term weather conditions
- **Non-farm applications are becoming increasingly important,** reducing the industry's dependence on agricultural cycles. Tractors are widely used for transportation, construction activities, road development and haulage in rural India. High government expenditure on infrastructure and rural development supports this stream of incremental demand.
- **Replacement demand** drives 70-80% of domestic tractor sales in a market with a typical holding period of 6-9 years. Regional variations exist, with high-penetration states such as Punjab and Haryana exhibiting a 90% replacement rate and lower-income states having a shorter replacement rate. Higher sales in fiscals 2017, 2018 and 2019 led to healthy replacement volumes in fiscal 2026. Higher replacement demand is likely this fiscal as well due to the

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postponement of replacement purchases last fiscal, owing to decline in pre-owned tractor prices following GST rate rationalisation.

- **Government support** for mechanisation and rural development remains favourable. Various subsidy schemes, farm mechanisation programmes, irrigation investments and rural infrastructure spending continue to support demand for farm equipment over the long term.

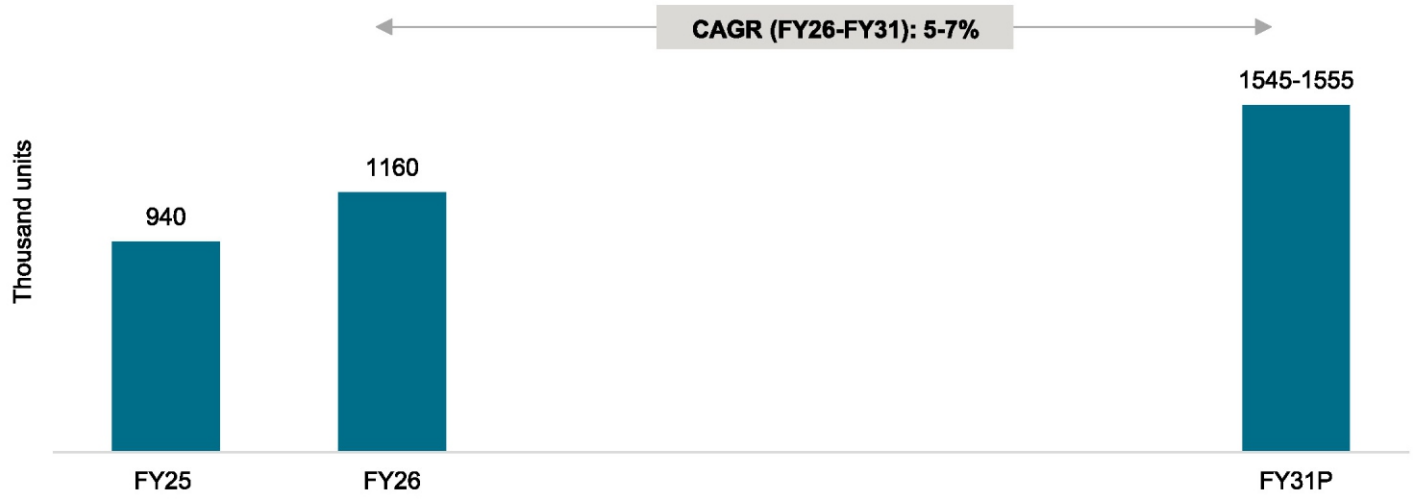
Our outlook on the domestic tractor industry

The tractor industry is expected to maintain a steady growth trajectory over the long term, supported by fundamentals and increasing mechanisation in the agricultural sector. We project domestic sales to clock a CAGR of 5-7% between fiscals 2026 and 2031, supported by sustained demand from the agriculture sector. The forecast assumes one to two years of erratic monsoon conditions during the period, with the remaining years benefiting from normal to healthy rainfall. Notably, the industry delivered a healthy CAGR of 5.2% during fiscals 2021-2026, reflecting its resilience despite weather-related disruptions and cyclical market challenges.

In fiscal 2027, the domestic tractor industry's growth is expected to remain modest at 0-5%, reflecting a high base effect from the previous year and the potential impact of El Niño conditions on rainfall distribution and reservoir levels. Nevertheless, demand is expected to be supported by continued subsidy initiatives from state governments, favourable agricultural economics and election-related spending in states that account for nearly 18% of industry volumes, helping sustain rural sentiment and tractor offtake.

The deferment of TREM V emission norms is likely to provide additional support to the industry as it removes near-term cost escalation. Furthermore, the norms apply primarily to tractor categories below 25 hp and above 75 hp, which together constitute less than 10% of industry volumes, leaving the core market largely unaffected. At the same time, the decline in the prices of used tractors has weakened trade-in economics for farmers, encouraging them to postpone replacement purchases and extend the operating life of existing equipment. This trend is expected to create latent replacement demand that could support industry growth in fiscal 2027 and beyond. While the IMD's forecast of the fiscal 2027 monsoon is at 90% of the long-period average points to a below-normal season, the extent of the impact will depend on the spatial and temporal distribution of rainfall, with El Niño remaining a key monitorable risk.

Domestic tractor sales



P – Projected
Source: TMA, Crisil Intelligence

Crisil Intelligence

The industry's long-term outlook remains favourable, supported by strong structural drivers within the agricultural ecosystem. Sustained growth in farm mechanisation, improving rural prosperity, increasing demand for higher productivity and efficiency in farming operations, and a persistent shortage in farm labour continue to strengthen tractor adoption across regions. Additionally, ongoing government focus on agriculture through subsidies, rural development initiatives, and support for farm modernisation is expected to remain a key demand enabler.

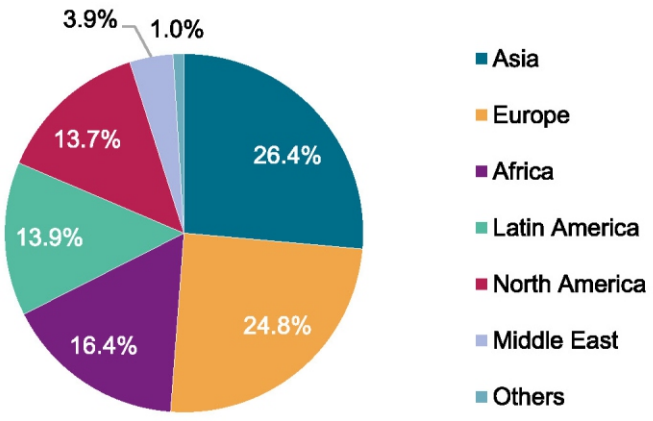
The industry's demonstrated ability to recover from cyclical downturns highlights its resilience. It sees temporary demand disruptions that are typically followed by periods of recovery as agricultural activity normalises. As a result, the sector remains well-positioned for steady long-term growth, notwithstanding periodic fluctuations arising from monsoon variability and broader macroeconomic conditions.

Exports

Exports accounted for about 8% of tractor sales in fiscal 2026. During fiscals 2021-2026, domestic sales clocked a CAGR of 5.2% compared with 3.6% CAGR for exports.

Exports rose ~7% on-year in fiscal 2026 to 106 thousand units on a low base of fiscal 2025, which recorded a 21% on-year decline. Revival in demand from the US, Europe and Asia supported this growth, along with the rising demand from the African and SAARC nations. However, it was not enough to push the number back to the high levels seen in fiscal 2022.

Geographical split for tractor export volumes (fiscal 2026)



Country	Share in fiscal 2026
USA	13.3%
Brazil	6.4%
Bangladesh	6.2%
Sri Lanka	5.5%
Italy	4.0%
Nepal	3.8%
South Africa	3.7%
Thailand	3.5%
Mexico	3.4%
Belgium	3.2%

Note: Rest of Asia is entire Asia except the Middle East
Source: Ministry of Commerce and Industry, Crisil Intelligence

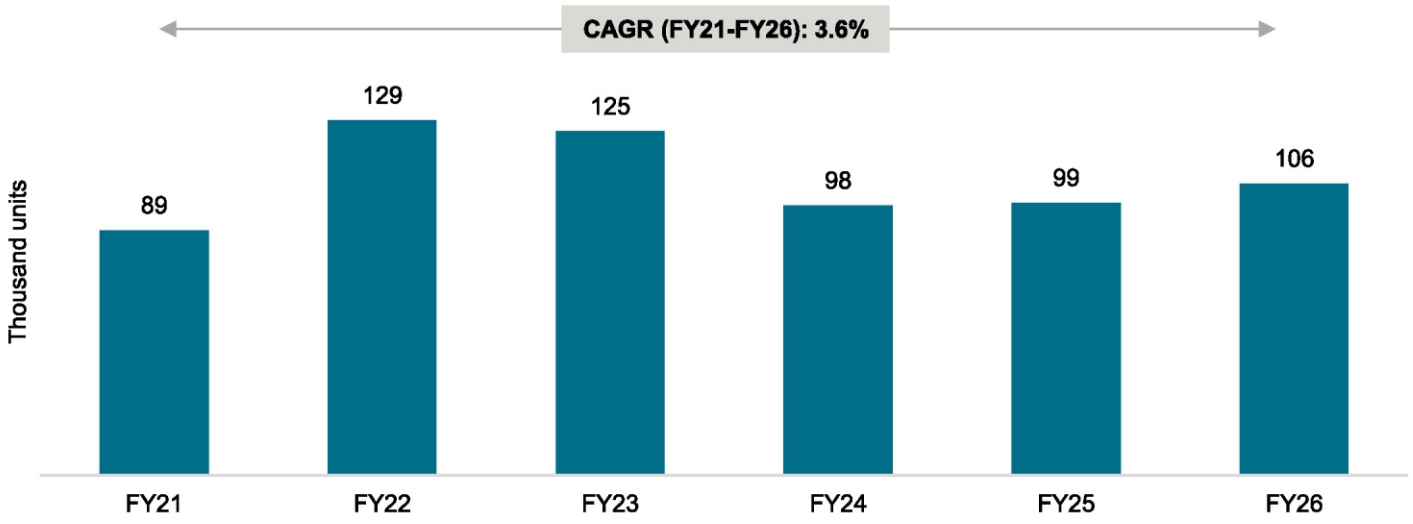
The volatility in tractor exports over the years has largely been influenced by changing global demand patterns, currency fluctuations, geopolitical developments and economic conditions across key export markets. Despite these challenges, domestic manufacturers have demonstrated resilience by strengthening their product offerings, enhancing quality standards and expanding their presence in international markets. As a result, exports have witnessed a gradual recovery in recent years, reinforcing India's position as a key export hub for cost-effective and reliable agricultural machinery.

To cater to growing global demand, industry participants continue to pursue strategic initiatives such as expanding overseas operations, strengthening distribution networks and increasing their focus on export-oriented product development. Furthermore, compliance with stringent international emission and regulatory standards has improved the competitiveness of India-made tractors in developed markets. Brands such as Solis (ITL) have established a strong



foothold in Europe and other international markets, supporting export growth and enhancing the global presence of the domestic industry.

Tractor exports



Source: TMA, Crisil Intelligence

Outlook on exports

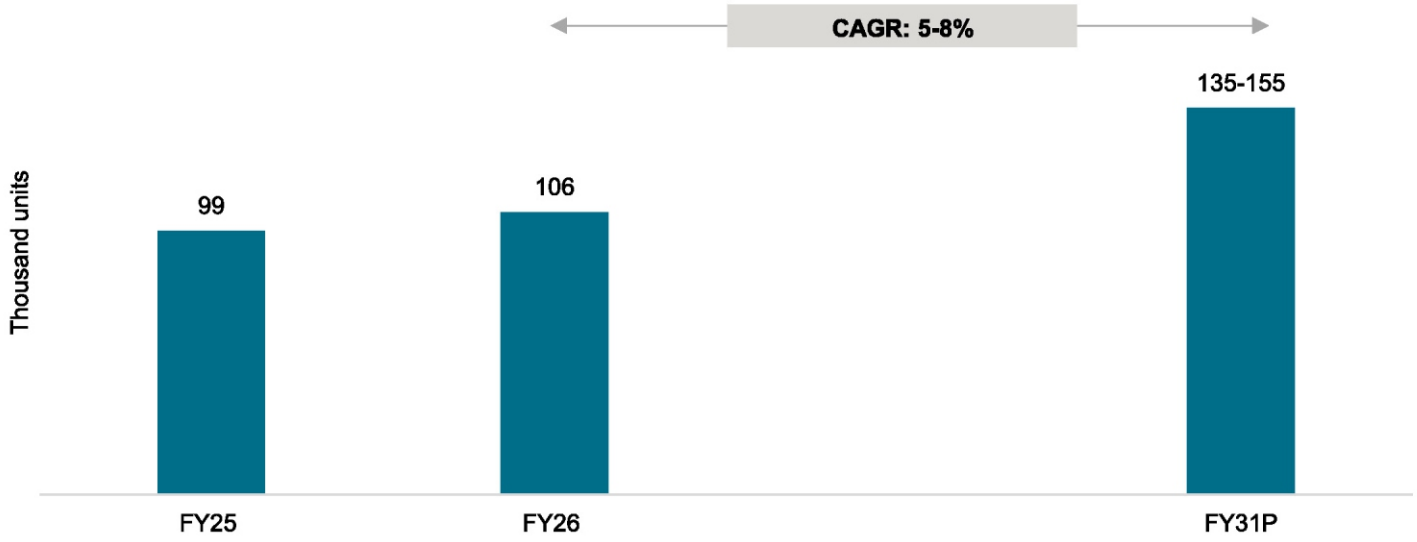
Exports are projected to increase 6-9% in fiscal 2027, driven by improving demand in emerging agricultural economies, continued farm mechanisation initiatives and the competitive positioning of Indian manufacturers in global markets. Growth is expected to be partially offset by geopolitical uncertainties, logistics disruptions and trade policy developments across key export regions.

To meet expanding global demand, industry participants are implementing strategic initiatives such as establishing overseas operations, which is anticipated to further enhance export volumes. Additionally, India has positioned itself as a viable alternative to Chinese exports, given the ongoing complexities and disruptions in China. With most manufacturers now compliant with TREM IV standards, export growth has accelerated in recent years.

We anticipate tractor exports to clock a CAGR of 5-8% between fiscals 2026 and 2031, supported by sustained demand from key markets, including the US, Africa and Asia. India's growing role as an export hub for small tractors (30-75 hp), along with increased focus by leading companies on international expansion, such as the introduction of 90-120 hp models (which are the preferred hp models in major importing countries), is expected to underpin steady export growth over the next five years. Furthermore, the rising demand for tractors under 30 hp, particularly for gardening and hobby farming, is likely to further contribute to export growth.

Crisil Intelligence

Exports are projected to clock a CAGR of 5-8% from fiscals 2026-2031



Source: TMA, Crisil Intelligence

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How Digital Thread Can Shape the Next Decade of India's Automotive Component Industry

By

Deloitte.

Deloitte.



Digital thread – Next move for automotive industry in India

How digital thread can shape the next decade of India's automotive component industry

August 2026

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India's competitiveness in the automotive value chain: From manufacturing scale to engineering ownership

> "The next automotive export opportunity is not another component. It is intellectual property embedded in a component."

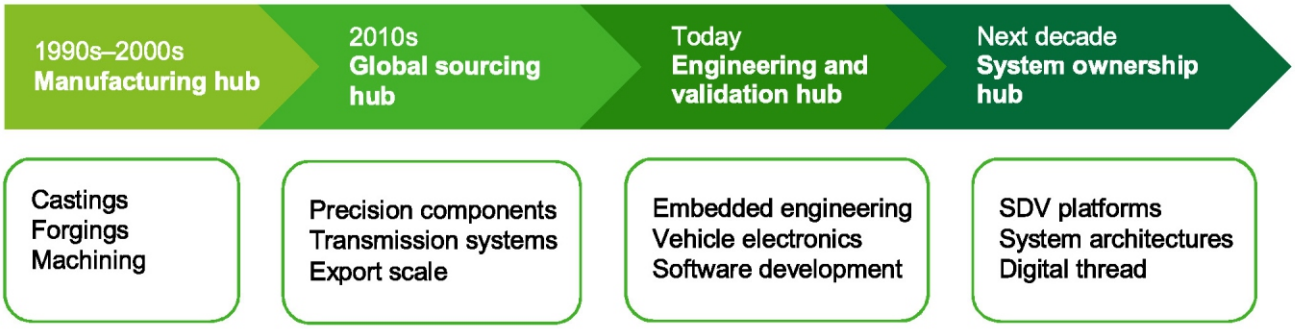
Introduction

The global automotive industry is entering a new phase of transformation. According to NITI Aayog estimates, the global automotive components market was valued at ~US$2 trillion in 2023, with ~US$700 billion in internationally traded components.[1] Electrification, connected mobility and Software Defined Vehicles (SDVs) are reshaping vehicle architectures and creating new opportunities beyond traditional mechanical systems.

India enters this transition from a position of strength. Over the past five years, India's automotive component industry has more than doubled in size, reaching US$85.9 billion in FY2026.[2] The industry today occupies an important place in global supply chains and has established itself as a trusted manufacturing and sourcing base for automotive OEMs and tier suppliers across markets.

NITI Aayog projects India's automotive component production could reach US$145 billion by 2030, supported by a significant expansion in exports and deeper participation in global value chains.[3] Exports, which stood at US$24 billion in FY2026, are expected to reach US$60 billion by 2030, with India's share of the global automotive value chain increasing from roughly 3 percent to 8 percent.[4,5]

Figure 1: India's automotive value migration journey



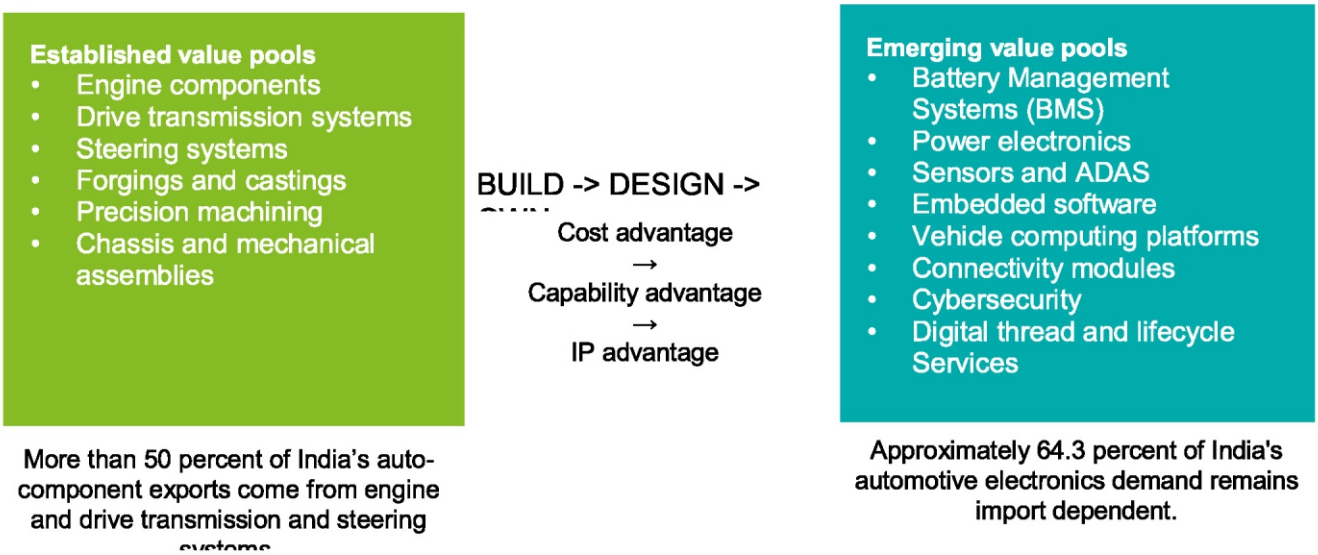
[1] NITI Aayog (2025), *Automotive Industry: Powering India's Participation in Global Value Chains*.
[2] https://www.business-standard.com/industry/auto/india-auto-component-industry-turnover-rises-13-to-rs-7-6-trillion-in-fy26-126070700577_1.html
[3] NITI Aayog (2025), *Automotive Industry: Powering India's Participation in Global Value Chains*.
[4] https://www.financialexpress.com/business/industry-auto-component-industry-grows-12-7-in-fy26-slips-into-137-bn-trade-deficit-4285880/
[5] NITI Aayog (2025), *Automotive Industry: Powering India's Participation in Global Value Chains*.

Much of India's success has been built on manufacturing excellence. Engine components, drive transmission systems, forgings, castings and precision-machined products form the backbone of the country's export portfolio. These capabilities have been developed over decades through investments in quality, supplier ecosystems and process discipline. They remain important and will continue to underpin the industry's competitiveness.

Yet the industry's centre of gravity is slowly shifting. Future growth is expected to come from increasing participation in areas such as vehicle electronics, embedded software, systems engineering, connectivity and lifecycle services. Electrification is driving demand for battery management systems and power electronics, while SDV architectures are expanding the roles of software, sensors, computing platforms and cybersecurity. Increasingly, the question is not who manufactures a component, but who owns the engineering, intelligence and system architecture behind it.

Imports of automotive components stood at US$25.4 billion in FY2026, with automotive electronics being heavily import-dependent. ACMA estimated that ~64.3 percent of domestic demand is met through imports.[6] There is a need to build stronger capabilities in technology-intensive segments where a growing share of future value is likely to reside.

Figure 2: Future automotive value pools



As products become more software-intensive and system-centric, competitive advantage will increasingly depend on how effectively organisations connect engineering decisions with manufacturing outcomes and real-world product performance. Product development, validation, production, supplier management and field operations can no longer operate as isolated functions. The ability to learn continuously across the lifecycle is becoming as important as the ability to manufacture efficiently.

This is where digital thread is gaining importance. By connecting requirements, engineering models, validation results, manufacturing records, supplier information and field performance data, digital thread creates continuity across the product lifecycle. Information generated at one stage can be traced, reused and acted upon at the next stage, enabling faster learning, stronger traceability and more informed decision-making.

India is well placed to benefit from this shift. Through its extensive network of Global Capability Centres (GCCs) and engineering organisations, the country has built significant expertise in digital engineering, digital manufacturing, advanced supply chain and AI-enabled operations. The opportunity now lies in applying these capabilities to strengthen indigenous product development, engineering ownership and lifecycle management across the automotive ecosystem. In that journey, digital thread can serve as an important foundation, helping bridge the gap between manufacturing excellence and the next frontier of automotive competitiveness.

[6] https://www.acma.in/uploads/ciculer-attachement/Annexure%20II%20GT%20Presentation.pdf

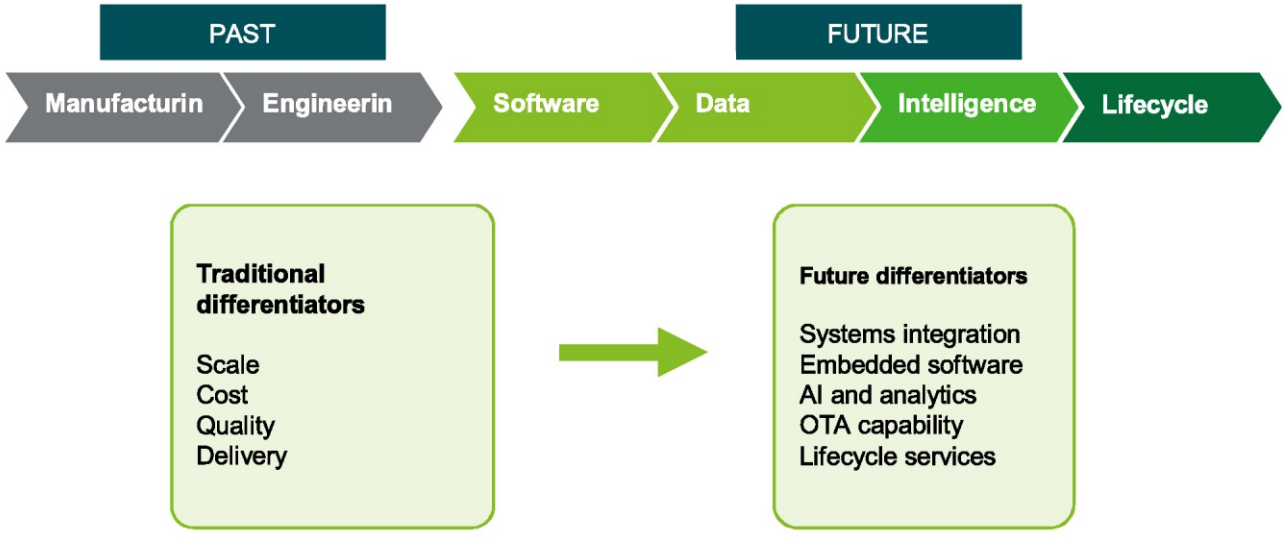
The great transition

> While manufacturing scale, quality, cost efficiency and supply reliability remain critical, they are no longer sufficient to secure long-term value creation.

The automotive component industry stands at the intersection of two powerful forces. Suppliers face mounting profitability pressures, uncertain vehicle-volume growth and rising technology investments, even as the industry undergoes one of the most significant technological transformations in its history through electrification, SDVs, connectivity and data-driven business models.

Average automotive supplier Earnings Before Interest and Taxes (EBIT) margins are estimated at 4.7 percent in 2024, down from 5.3 percent in 2023 and approximately two percentage points below pre-COVID levels. The study analysed about 600 suppliers globally.[7] At a time when profitability remains under pressure, suppliers are simultaneously being required to invest in software, Advanced Driver Assistance Systems (ADAS), connectivity and electrification technologies.

Figure 3: The evolution of the automotive value chain



For decades, competitiveness in the automotive sector was primarily determined by manufacturing scale, quality, cost efficiency and supply reliability. While these fundamentals remain critical, they are no longer sufficient to secure long-term value creation.

The emergence of SDVs is changing where value is created in the automotive industry. Historically, competitive advantage was tied to the design and manufacture of individual components. Now, the difference stems from integrated

[7] https://www.lazard.com/news-announcements/global-automotive-supplier-study-average-industry-profit-margin-drops-to-just-47/

systems, embedded software and the after-life services. Vehicles are becoming connected, which can be upgraded regularly, supplying data for future enhancements.

This shift is altering expectations from automotive suppliers. Original Equipment Manufacturers (OEMs) are looking beyond manufacturing capabilities and focusing on engineering expertise, software development and systems integration. As a result, value is gradually migrating from ownership of individual components to ownership of the systems and architectures that integrate those components.

Connected vehicle technologies are also extending value creation well beyond the point of sale. Capabilities such as over-the-air updates, predictive maintenance, remote diagnostics and software-enabled features are creating new opportunities to enhance product performance and customer experience throughout the vehicle lifecycle. In an industry where value was traditionally realised at production and shipment, lifecycle engagement is becoming an increasingly important source of differentiation.

In 2024, automotive OEMs spent ~US$57.9 billion in warranty costs, which was 18 percent higher than the previous year. Meanwhile, industry-wide warranty claim rates of vehicle sales revenue rose from 1.9 percent to 2.2 percent.[8] Electronics and software are becoming critical architectures because of their significant financial impact.

These trends point to a broader shift in how performance is measured. Success can no longer be assessed solely through manufacturing metrics such as quality, cost and delivery. Increasingly, it depends on how products perform across their entire lifecycle, including reliability, maintainability, serviceability and customer outcomes in real-world operating conditions.

For suppliers, this expands the scope of quality management from ensuring manufacturing excellence to managing lifecycle performance. The ability to detect issues earlier, trace root causes, anticipate failures and continuously refine products using operational data will play an increasingly important role in shaping competitiveness and profitability.

[8] https://warrantyweek.com/archive/ww20251030.html

The supplier role has expanded faster than the operating model

> Greater supplier responsibility creates a greater need for consistent information across organisational boundaries.

As automotive value shifts towards integrated systems, software and lifecycle performance, supplier responsibility is extending across a broader product decision chain. Depending on the programme, the automotive supplier's involvement may now begin with requirements interpretation and engineering validation, continue through sourcing and industrialisation, and extend into system integration and product support.

This wider role requires commercial, engineering, purchasing, manufacturing and quality teams to make coordinated decisions before production begins. Commercial teams need credible programme economics. Engineering teams must validate product assumptions and changes. Purchasing must establish supplier feasibility and material costs. Manufacturing must confirm capacity and process capability, while quality teams must define the required controls and evidence.

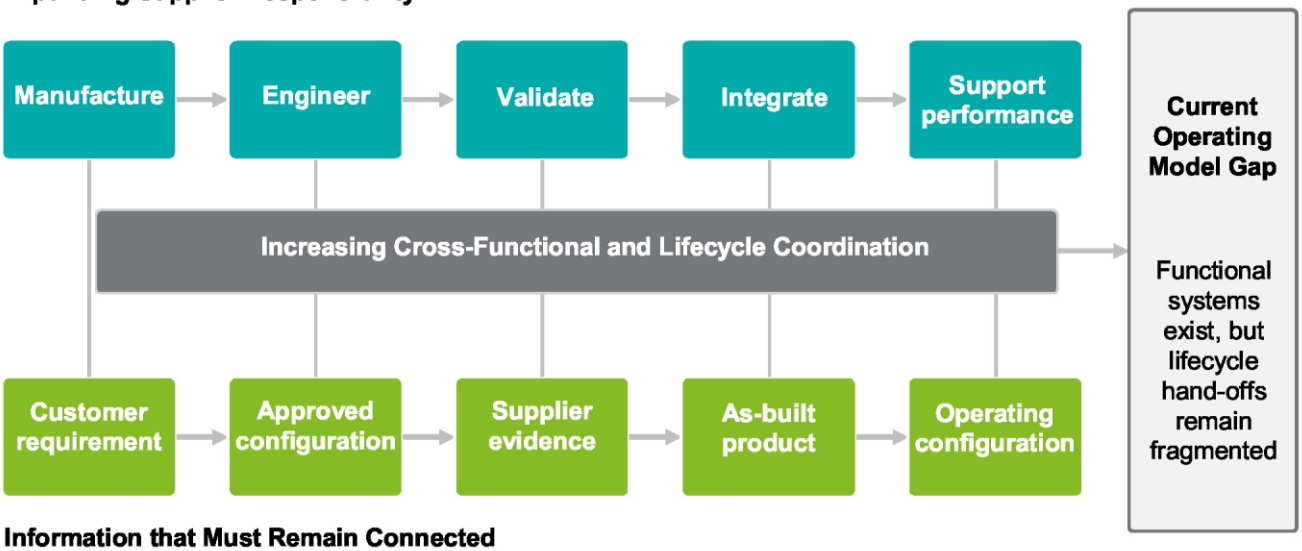
The RFQ process provides an early indicator of this coordination burden because commercial, engineering, purchasing and manufacturing assumptions must be aligned before a supplier commits to delivery. A 2025 Centre for Automotive Research study found that surveyed suppliers typically processed more than 800 RFQs annually, compared with 495 in its 2002 baseline. Average labour effort increased from 134 to 157 hours per RFQ as more functions became involved. Higher win rates were achieved through greater organisational effort rather than corresponding improvements in process efficiency.[9]

The coordination requirement can continue after production. A 2025 Wards Intelligence survey involving more than 500 automotive professionals across Asia, Europe and North America found that 67 percent of respondents reported OTA updates were already deployed in their vehicles. For suppliers supporting software-enabled systems, this means the effective product configuration may continue to change after shipment.[10]

Expanded responsibility, therefore, places new demands on the supplier operating model. Customer requirements must remain connected to approved configurations, supplier and validation evidence, production records and the configuration operating in the field. Individual functions may already be digitally capable, but the emerging constraint lies in the hand-offs between them.

[9] https://www.cargroup.org/wp-content/uploads/2025/09/Automotive-Suppliers-and-the-RA-Process-2025-Update.pdf
[10] https://www.sonatus.com/company/press-release/2025-sdv-survey/

Figure 4: Expanding responsibility and the operating-model gap



The supplier role has expanded faster than the information connections supporting it. The resulting gap affects development speed, industrialisation, configuration accuracy, change execution and product accountability. The next section examines where continuity breaks between requirements and quality evidence, engineering changes and execution, suppliers and sub-tiers, hardware and software, and product genealogy and field performance.

Challenges in the current operating model

> India's suppliers face several digital gaps: uneven enterprise-application adoption, weak value-oriented configuration, and disconnected lifecycle information.

Challenge 1: Enterprise-application adoption

Larger and more advanced suppliers may already operate Enterprise Resource Planning (ERP), Product Lifecycle Management (PLM), Manufacturing Execution Systems (MES), Quality Management Systems (QMS) and other specialist systems. On the other hand, many smaller Tier 2 and Tier 3 firms lack the foundational enterprise applications needed for reliable digital operations. A UNIDO–ACMA–Ministry of Heavy Industries survey found that midsized and large companies (with annual sales exceeding INR750 million) have implemented ERP systems. Meanwhile, less than 50 percent of smaller companies (annual sales of less than INR500 million) use ERP systems.[11]

A critical example is Bill of Materials (BOM) accuracy: a mismatch among engineering, manufacturing and ERP structures can lead to inefficiencies at every level – incorrect procurement, inventory mismatches, rework & scrap, weak traceability, customer dissatisfaction and higher failure & warranty exposure.

Challenge 2: Functional systems work; lifecycle hand-offs do not

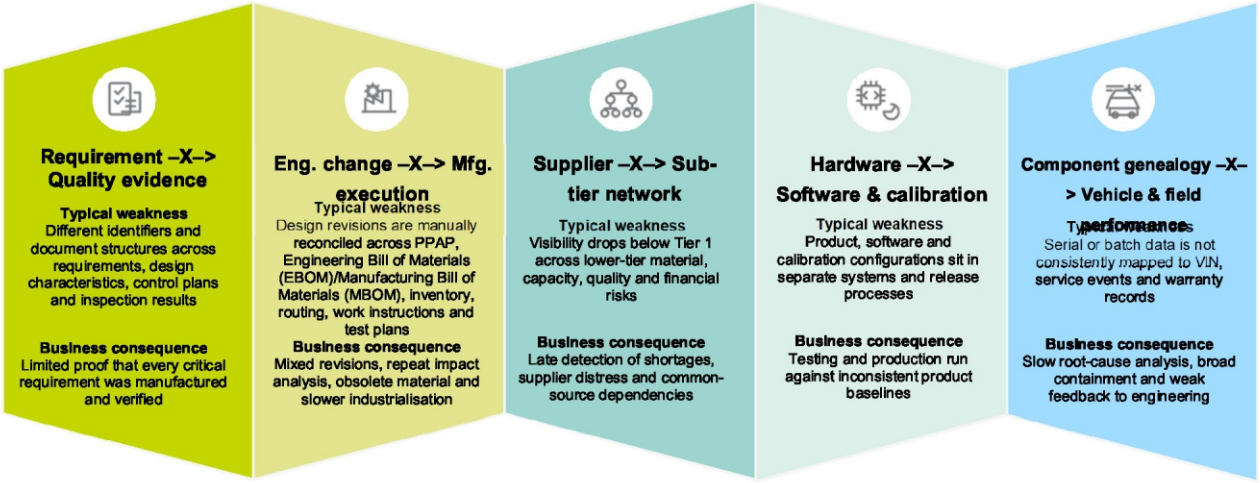
The internal "golden thread" use case illustrates that a closed-loop process requires coordinated connections among requirements management, PLM, Application Lifecycle Management (ALM), ERP, Advanced Planning and Scheduling (APS), MES, quality and as-built records – connections that conventional point-to-point operating models do not consistently provide.[12]

This challenge is becoming more material as vehicles combine mechanical components, electronics, embedded software and calibration data. Research by the National Institute of Standards and Technology (NIST) shows that lifecycle information still tends to flow in one direction, and gaps among design, manufacturing and product-support processes prevent the enterprise-wide use of available information.[13]

These hand-offs reflect disconnected process ownership, inconsistent data standards and limited cross-functional governance, in which a technically valid change in one domain may become an operationally incomplete change in another when considered across the full product lifecycle.

[11] https://hub.unido.org/sites/default/files/publications/Assessment%20_4IR_India.pdf
[12] https://www.mobilityglobal.com/en-us/automotive-insights/blog/digital-twins-in-the-automotive-industry-explained
[13] https://www.nist.gov/programs-projects/digital-thread-smart-manufacturing

Figure 5: Five disconnected hand-offs that constrain the current operating model



Challenge 3: Supplier visibility remains the weakest link globally

Despite being the world's fourth-largest automobile producer, after China, the U.S. and Japan, India holds only a 3% share, approximately US$20 billion, of the global traded auto-component market. This highlights India's limited participation in the global auto-component trade. Engine components, along with drive, transmission and steering systems, account for 60% of the total auto-component trade. India's share in these critical, high-precision segments remains relatively low at 2–4%.[14] Given the stringent quality and precision requirements for these components, India's limited presence indicates a gap in competitiveness. Supplier visibility remains a persistent challenge in the Indian context. As India strives to increase its participation in the global automotive value chain from 3% to at least 8%, supplier visibility will be important in addressing this challenge.

If we take the case of North America, which is a very large market, nearly 23 percent of surveyed automotive suppliers reported full supply-chain visibility, and another 60 percent reported partial visibility.[15] Indian suppliers are behind the curve in achieving full or partial visibility, as most do not have a proper system of records in place. If an Indian supplier needs to compete globally, they need to overcome barriers such as limited participation in data exchange, inconsistent data formats and standards, and reliance on manual processes, which impede the accurate flow of information.

Figure 6: Key Challenges across India's automotive supplier network



[14] NITI Aayog (2025), *Automotive Industry: Powering India's Participation in Global Value Chains*.
[15] https://www.mema.org/system/files/Q4%202025%20MEMA%20Supplier%20Barometer%20-%20Supply%20Chain%20Globalization%20Sustainability-Final-No%20appx.pdf

Challenge 4: The cost is higher than the administrative effort

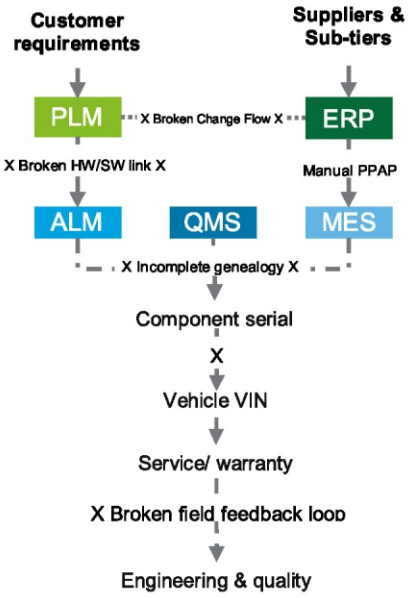
A manufacturing process involves multiple technical requirements and information flows, both digital and manual. These often include supplier approvals, material lot numbers, process parameters, inspection records, hardware and software specifications, and VINs and customer complaints – yet they are frequently disconnected. In this situation, the employees manually reconstruct the product history. Until that reconstruction is complete, they may have to cover more inventory or vehicles than the technically affected population. It shifts quality specialists' time from technical analysis to finding and validating evidence.

On the other hand, a connected automotive thread will link requirements, engineering structures, supplier records, production genealogy, VIN-level configuration and field performance so that teams can determine what changed, where it was implemented and which products are affected. The effect is particularly significant for root-cause analysis.

> "System-level accountability cannot be achieved when evidence must be reconstructed one hand-off at a time."

This suggests that simply buying more standalone applications will not address the operating-model constraints. Automotive suppliers must restore continuity at critical points, such as quality requirements, transitions from change to execution, hardware-to-software and component-to-VIN and field performance.

Figure 7: Disconnected Hand-offs



Digital thread as the operating backbone

> Digital thread turns separate systems of record into a connected environment for lifecycle decisions.

The world is entering a phase in which competitiveness will depend on manufacturing efficiency and the ability to manage product complexity across mechanical, electrical, electronic and software domains. Global OEMs are raising expectations on traceability, quality, speed and sustainability, while Indian suppliers must simultaneously support shorter development cycles and increasingly volatile supply networks.

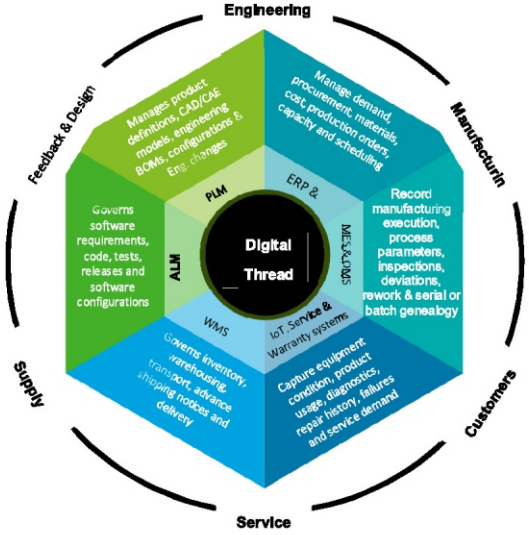
Recent industry research indicates that more than two-thirds of surveyed Indian auto-component companies have already progressed beyond experimentation into pilot, scale-up or integrated stages of smart-factory adoption. However, isolated digital initiatives will not create lifecycle continuity unless the underlying data, processes and decisions are connected. [16]

Digital thread is a business architecture, not another IT platform

A digital thread is the governed, interconnected flow of authoritative information that defines a product and its associated processes across the lifecycle, from customer need and engineering definition through sourcing, manufacturing, delivery, operation, service and end-of-life. It connects information upstream and downstream so that each lifecycle decision can be understood in the context of the requirements, configurations, changes and evidence that preceded it.

The digital thread should therefore be understood as a business and information architecture where each enterprise platform remains authoritative for the information it owns.

Figure 8: The concept of digital Thread



The digital thread connects these systems through shared identifiers, configuration and effectivity rules, data ownership, secure interfaces and coordinated workflows. This architecture is important because lifecycle information is too heterogeneous and distributed to be managed effectively by simply storing all records in a single database. Research from the US National Institute of Standards and Technology shows that standards-based linkage can support information round-

[16] https://www.fortuneindia.com/auto/indian-auto-component-industry-grows-14-cagr-to-80-billion-two-third-firms-adopt-smart-factories-as-exports-target-100-billion-by-fy30-acmabcg-study/130314

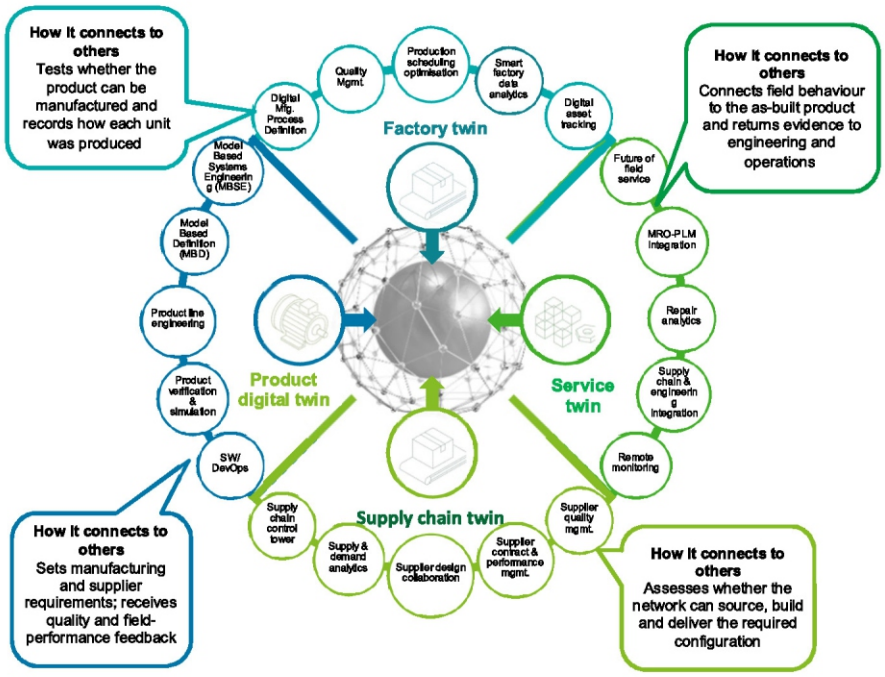
trips between design, manufacturing and quality teams while avoiding the burden of continuously reconciling multiple central repositories.[17, 18]

In practice, this architecture creates a traceable relationship between what was required, what was designed, what was approved, what was manufactured, what was delivered and how the component performed in service. The digital thread consequently becomes bidirectional: engineering intent flows downstream, while operational evidence and lifecycle learning flow upstream.

Connecting four digital twins

The digital thread is the information fabric; the digital twins are the dynamic models that consume and enrich this information. The digital thread provides a backbone for the product, factory, supply chain and service twins. The twins are useful only when their models remain connected to actual product configurations and operating evidence.

Figure 9: Four types of digital twins



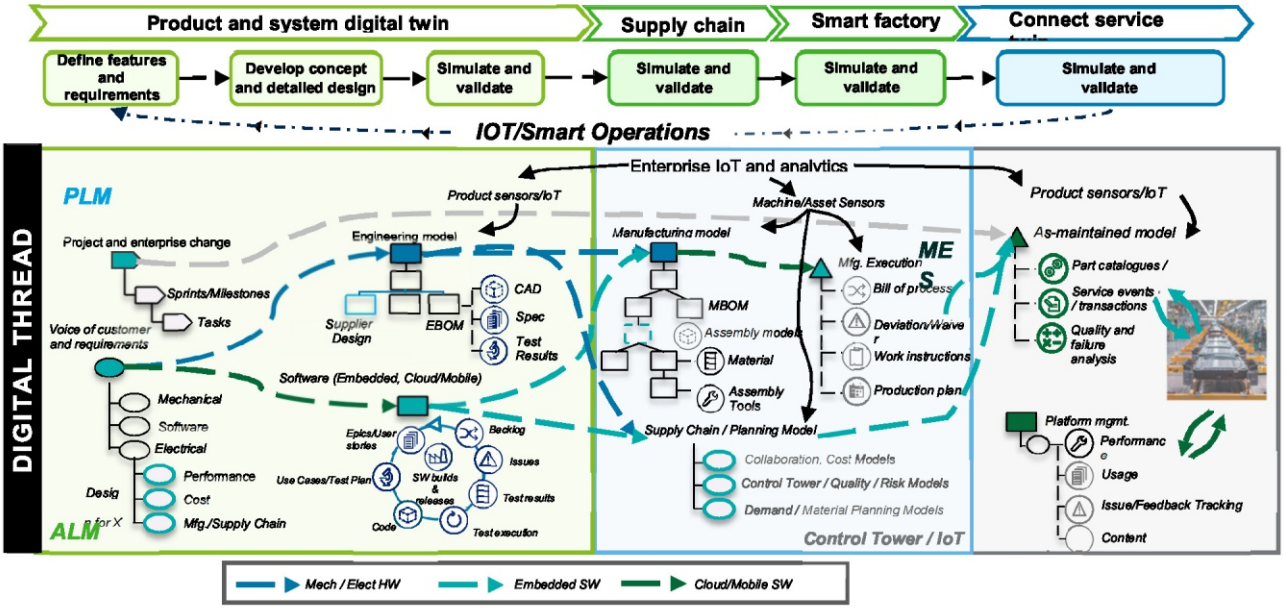
Interlinking digital twins with digital thread improves efficiency, productivity and quality, and reduces costs and NVAs by unlocking capabilities such as traceability, real-time visibility, instantaneous impact assessments, simulations and predictive modelling.

Supply-chain value and technology foundation

For the supply chain, value arises from converting disconnected operational platforms into coordinated decisions. The technology foundation must therefore combine interoperability standards, master data governance, common identifiers, Application Programming Interface (API)-based integration, cybersecurity, configuration control and role-based access. Implementation should begin with high-value lifecycle decisions, such as engineering-change synchronisation, APQP/Production Part Approval Process (PPAP) visibility, launch readiness, serial genealogy, and warranty root-cause analysis, rather than an enterprise-wide platform replacement. Connecting them progressively creates an extensible, digital operating backbone and enables benefits to be measured against defined operational outcomes.

[17] https://www.nist.gov/programs-projects/digital-thread-manufacturing
[18] https://tsapps.nist.gov/publication/get_pdf.cfm?pub_id=926810

Figure 10: Illustrative digital thread



From traceability to lifecycle intelligence: A foundational use case of digital thread

> Traceability establishes the product record. Digital thread connects that record across the lifecycle, transforming manufacturing history into lifecycle intelligence.

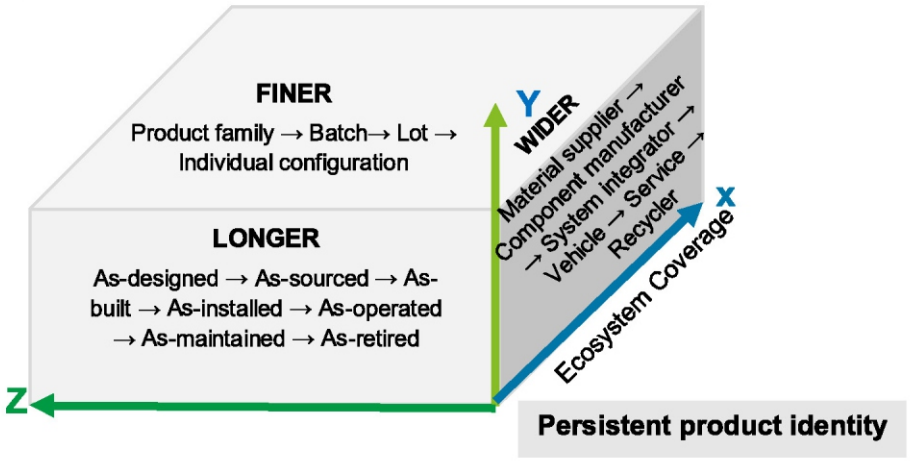
Traceability is one of the most practical applications of digital thread. By connecting product identity with engineering, supplier, manufacturing, software and field information, traceability can evolve from a production record into lifecycle intelligence. The automotive suppliers already use serial, batch and lot controls, digital identifiers and manufacturing systems to reconstruct how a component was produced, tested and delivered. This capability remains essential for quality, compliance and customer assurance. However, the software-enabled products require a broader record. Two components produced to the same hardware revision may operate differently when firmware, calibration or update histories differ.

Conventional traceability establishes where, when and how a product was manufactured. Lifecycle intelligence identifies the design, supplier, material, software, manufacturing and field conditions that apply to each product configuration.

Traceability must therefore evolve in three directions: finer, longer and wider. Finer is moving towards individual configuration where product risk justifies it; wider is connecting all stakeholders across the value stream; and longer is linking the product's as-designed, as-built, as-operated, as-maintained and as-retired states.

The objective is to preserve the information required for quality, compliance and lifecycle decisions.

Figure 11: Three dimensions of traceability



Connectivity is the current limitation. Product and process information may already exist across manufacturing systems, supplier portals and service platforms, but inconsistent identities and organisational boundaries make the complete product record difficult to retrieve.

When lifecycle relationships are preserved, engineers can determine whether affected units share a supplier lot, engineering revision, manufacturing condition, firmware, calibration or update history. Digital connectivity does not replace physical investigation or engineering judgement. It reduces the time required to establish the relevant population and the evidence behind it.

From 18 February 2027, in-scope Electric Vehicle (EV), light-means-of-transport and industrial batteries placed on the EU market must have an electronic battery passport linked to a unique identifier.[19] The required information may originate from material suppliers, cell manufacturers, electronics producers, system integrators, service operators and recyclers. For Indian suppliers, this means customers may increasingly expect proof and records showing how a product was designed, made, tested and managed throughout its lifecycle.

Manufacturing traceability explains how a product was built. Lifecycle intelligence explains how it was designed, configured, operated, maintained and retired. Traceability establishes the product's lifecycle record. Digital thread turns that connected record into a foundation for differentiated customer value, leading suppliers towards distinct roles in process excellence, engineering ownership and lifecycle responsibility.

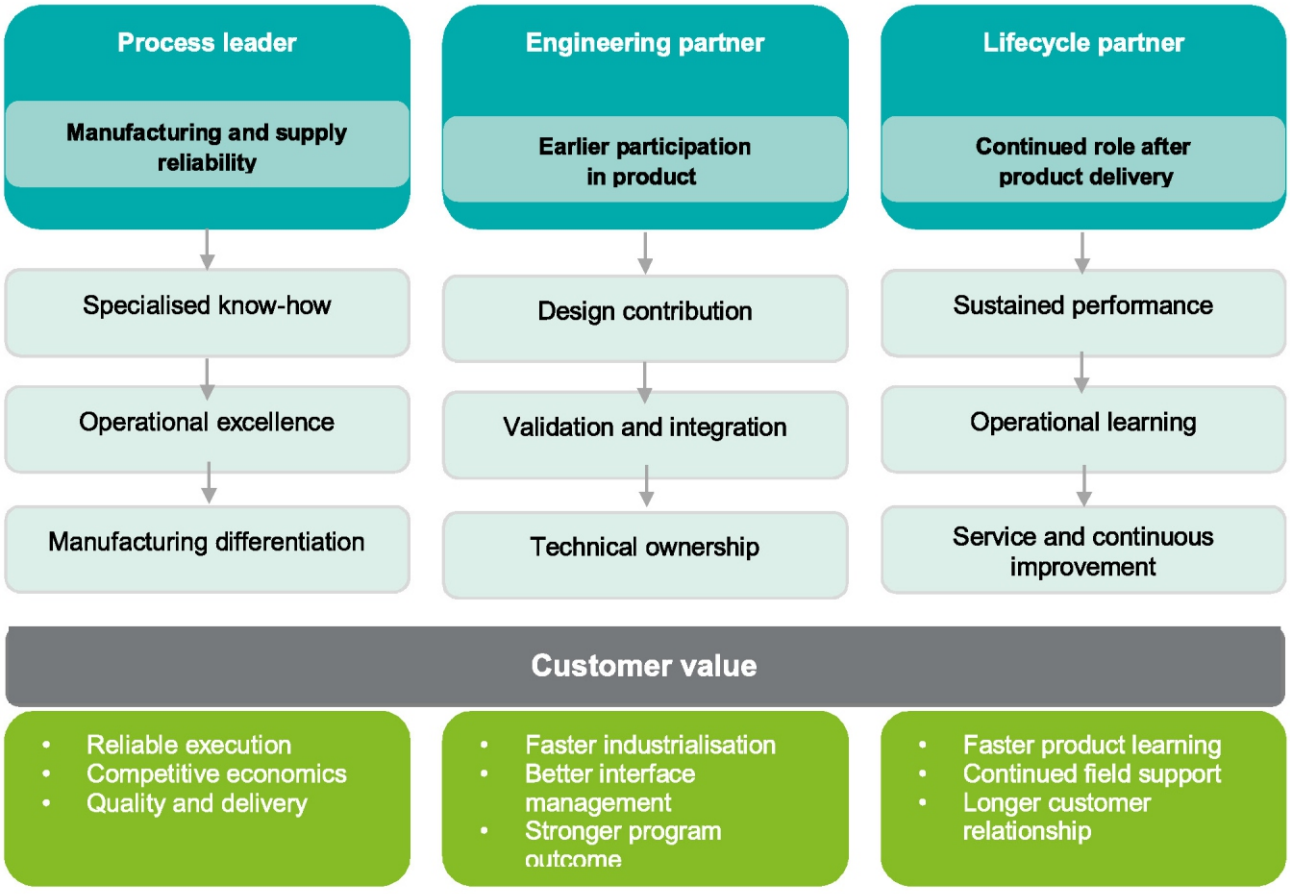
[19] https://opendpp-node.eu/battery-passport

Three paths to defensible supplier leadership

> Supplier leadership will depend on choosing where connected information creates defensible customer value: through process excellence, engineering ownership or lifecycle responsibility.

Lifecycle intelligence expands the range of roles suppliers can perform. Once product information can be connected across engineering, production and service, suppliers can use it to strengthen process execution, assume greater engineering responsibility or support product performance after delivery. Three positions are likely to coexist: **Process leader, engineering partner and lifecycle partner**.

Figure 12: Three paths to supplier leadership



These positions are not maturity levels, and one is not automatically superior to another. Each can create a defensible customer proposition when aligned with the product's economics, complexity and future expectations. Not every supplier must become a Tier 0.5 or full-system partner, but every supplier needs a clearly defined and digitally trustworthy role.

A process leader can connect approved supplier inputs with manufacturing and quality evidence. An engineering partner can preserve continuity among requirements, design changes, validation and industrialisation. A lifecycle partner can relate field performance to the specific product configuration that was delivered. The appropriate position should be selected by product family rather than through a single company-wide label. A diversified supplier may operate as a process leader in mature mechanical products, an engineering partner in power electronics and a lifecycle partner in connected systems. As most established suppliers already use digital tools, the meaningful distinction is whether connected information strengthens a clearly defined customer proposition.

Different supplier roles require different capabilities, but each depends on trusted information flowing across customers, suppliers, plants and lifecycle stages. Scaling these models, therefore, shifts the challenge from individual supplier strategy to ecosystem readiness.

India is ready to lead, but not yet connected

Manufacturing scale, engineering talent, export competitiveness and improving industrial infrastructure have established India as a trusted partner in global automotive value chains. Installed power capacity reached 476 GW in 2025, while energy shortages declined from 4.2 percent in FY2014 to just 0.1 percent in FY2025, further strengthening industrial readiness.[20]

Many leading OEMs and Tier-1 suppliers have already made significant investments in digital engineering, manufacturing execution, automation and analytics. As a result, manufacturing capability, engineering talent, infrastructure and technology adoption among industry leaders are increasingly areas of strength. However, ecosystem readiness remains uneven. Supplier digitisation across Tier-2 and Tier-3 networks, data governance, interoperability, cybersecurity maturity, systems engineering capability and lifecycle connectivity continue to vary widely, creating fragmentation across the value chain.

Most automotive organisations already possess large volumes of engineering, manufacturing, supplier and field-performance data. The issue lies in how that information is structured, governed and connected across the product lifecycle. Engineering records, manufacturing genealogy, software configurations and warranty data often reside in separate systems, creating visibility gaps and slowing decision-making.

As a result, many suppliers struggle to establish a consistent view of product performance from design through production and into the field. In an environment where lifecycle transparency and system-level accountability are becoming increasingly important, connected information is emerging as a key enabler of competitiveness.

Talent availability remains a competitive advantage for India, but the skills required by the automotive industry are evolving rapidly. Mercer's India Graduate Skill Index 2025 indicates that 42.6 percent of graduates are broadly employable, while 46.1 percent are considered ready for AI and machine learning roles. As products become increasingly software-driven and connected, suppliers will need to complement traditional engineering strengths with capabilities in systems engineering, cybersecurity, software development and data governance.[21]

India's next constraint is the ability to connect data, systems, skills and organisations across supplier tiers into a unified lifecycle ecosystem. Organisations that build this connected foundation will be best positioned to lead the next era of automotive innovation and global competitiveness.

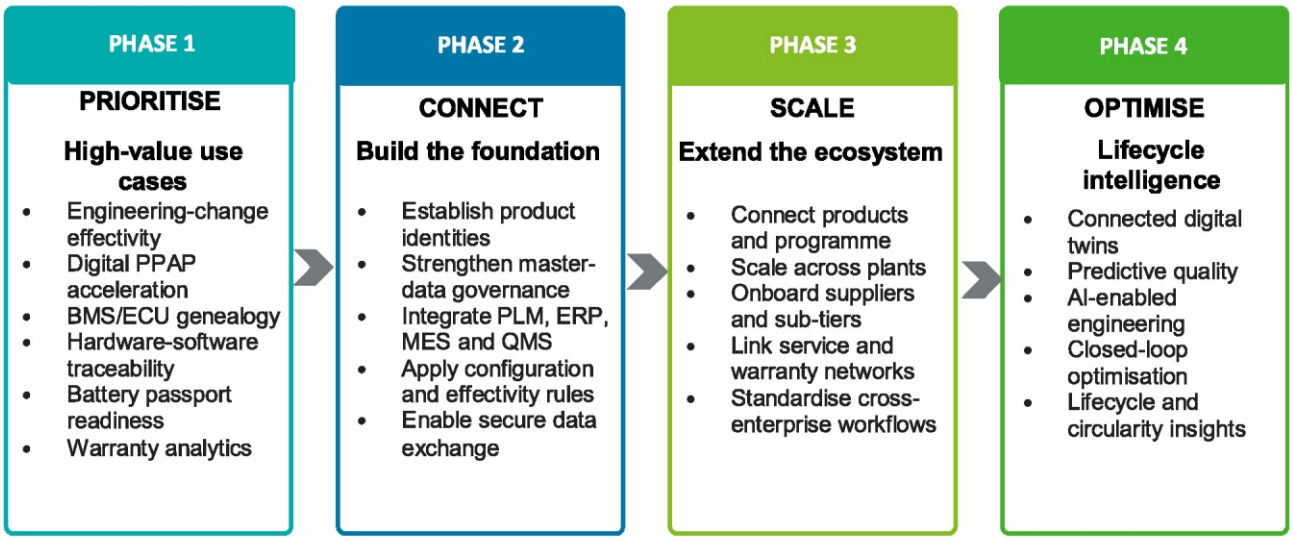
[20] Powering Growth with Sustainable Energy, PIB GoI, 22nd June 2025
[21] India's Graduate Skill Index 2025 , Mercer

Journey towards digital thread and recommendations

If digital thread is to become the operating backbone of the future automotive enterprise, adoption must begin with business priorities rather than technology deployment. The objective is the progressive creation of connected information that improves decision-making across engineering, manufacturing, quality and service functions.

Digital thread adoption should be approached as a business transformation journey. Organisations are most successful when they start with a few high-value use cases, establish a trusted data foundation and progressively extend connectivity across products, plants and suppliers. Over time, this connected ecosystem becomes the foundation for digital twins, predictive analytics and AI-enabled decision-making. The transformation pathway illustrated below provides a practical roadmap for suppliers to move from fragmented operations toward lifecycle intelligence and sustained competitive advantage.

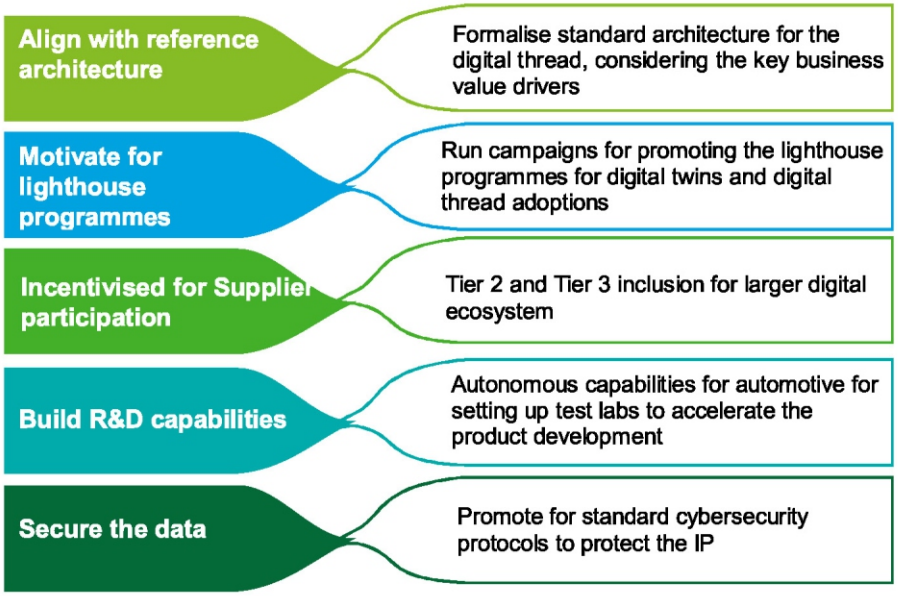
Figure 13: Phase-wise journey towards digital thread



The way ahead

Digital thread adoption cannot scale through individual enterprise initiatives alone. Ecosystem-scale progress will depend on common principles, demonstrable use cases, broader supplier participation, multidisciplinary capabilities and trusted data exchange. Five industry enablers can help convert separate projects into a connected automotive capability.

Figure 14: Five recommendations for digital thread adoption



Together, these five enablers can create a common foundation without requiring every supplier to adopt the same technology architecture. A shared reference framework can establish direction; lighthouse programmes can demonstrate value; supplier playbooks can broaden participation; capability development can strengthen execution; and trusted exchange standards can enable secure collaboration across organisational boundaries.

Conclusion: From manufacturing excellence to lifecycle leadership

The industry has established a strong global position through manufacturing excellence, operational resilience and export competitiveness. The next opportunity lies in strengthening the links between engineering, manufacturing, suppliers and field operations so that information can move seamlessly across the product lifecycle.

As vehicles incorporate higher levels of software, electronics and connectivity, the industry's focus is naturally expanding beyond production excellence to areas such as systems integration, traceability and lifecycle visibility. These capabilities increasingly influence customer expectations, regulatory compliance and long-term value creation. Progress will depend on building connected information flows, common standards, stronger ecosystem collaboration and the capabilities required to support them. Digital thread is the operating backbone that can enable India's evolution from a manufacturing powerhouse into a globally trusted engineering, systems and lifecycle-value leader.

We offer a detailed maturity assessment to identify gaps in the digital thread acr applications and define a bespoke, future-ready digital thread architecture. Scan the QR code your discretion to share your details with us

List of abbreviations

Abbreviation	Full form
ACMA	Automotive Component Manufacturers Association of India
ADAS	Advanced Driver Assistance Systems
AI	Artificial Intelligence
ALM	Application Lifecycle Management
APQP	Advanced Product Quality Planning
APS	Advanced Planning and Scheduling
API	Application Programming Interface
BCG	Boston Consulting Group
BMS	Battery Management System
BOM	Bill of Materials
CAD	Computer-Aided Design
CAE	Computer-Aided Engineering
EBIT	Earnings Before Interest and Taxes
EBOM	Engineering Bill of Materials
ERP	Enterprise Resource Planning
EV	Electric Vehicle
GCC	Global Capability Centre
IoT	Internet of Things
IT	Information Technology
MBOM	Manufacturing Bill of Materials
MBSE	Model-Based Systems Engineering
MEMA	Motor & Equipment Manufacturers Association
MES	Manufacturing Execution System
MBD	Model-Based Definition
MRO	Maintenance, Repair and Overhaul
MSME	Micro, Small and Medium Enterprise
NIST	National Institute of Standards and Technology
NITI	National Institution for Transforming India
NVA	Non-Value-Added Activity
OEM	Original Equipment Manufacturer
OTA	Over-the-Air
PLM	Product Lifecycle Management
PPAP	Production Part Approval Process
QMS	Quality Management System
RFQ	Request for Quotation
SDV	Software Defined Vehicle
SW	Software
UNIDO	United Nations Industrial Development Organisation
VIN	Vehicle Identification Number
WMS	Warehouse Management System

Connect with us

Rajat Mahajan
Partner and Automotive Sector Leader,
Deloitte India
rajatm@deloitte.com

Akash Srivastava
Partner and Leader - Supply Chain & Network Operations
Deloitte India
srivastavaakash@deloitte.com

Contributors

Dr Moumita Paul
Kumar Deepak
Rakesh Pandey
Sayantan Roy
Vaishnavi Patil
Vignesh Iyer

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Harsh Trivedi
Mou Chakravorty
Rahul Dhuria
Rishav Raj

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Government Incentives Chart Course to a More Integrated Auto Industry

By

EY

Shape the future with confidence

August 2026

Beyond resilience: Government incentives chart course to a more integrated auto industry

66th ACMA Annual Session: 2 September 2026, New Delhi

Theme: Beyond Resilience



The better the question. The better the answer.
The better the world works.

EY
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1. Introduction: From supply chain resilience to value chain integration

India's automotive industry is not merely a vehicle manufacturing sector. It is a large, employment-intensive industrial ecosystem that connects component suppliers, metals, electronics, chemicals, logistics, engineering services, dealerships and after-market networks. With an economic footprint of around 6% of India's GDP, nearly 30 million direct and indirect jobs[1], and significant manufacturing and export linkages, the sector sits at the center of India's manufacturing-led growth strategy. Its future competitiveness may therefore have implications beyond vehicle production. It might influence India's ability to build deeper industrial capabilities, participate in global value chains and strengthen strategic self-reliance in next-generation mobility.

Government support has been central to this growth journey. From de-licensing and 100% FDI under the automatic route to Make in India, Automotive Mission Plan, FAME, PLI-Auto, PLI-ACC and PM E-DRIVE, successive policy interventions have helped India move from a largely protected domestic market to one of the world's major automotive manufacturing hubs. Vehicle production[1] increased from about 2 million units in 1991-92 to around 28 million units in 2023-24, while automobile exports reached 4.5 million units in FY 2023-24. The sector has also attracted significant investment, supported EV adoption through lower GST rates and demand incentives, and enabled the auto component industry to grow into a globally connected manufacturing base. This policy-backed expansion demonstrates that government incentives have not merely supported short-term demand; they have helped create scale, localization, supplier depth and confidence for long-term investment across the automotive value chain.

Government support as a growth engine for India's automotive industry

Policy lever	What it enabled	Impact on industry growth
Liberalization and FDI	Opened the sector to global OEMs, technology partnerships and capital investment.	Help build manufacturing scale, supplier networks and export-oriented production capabilities.
Make in India and Automotive Mission Plans	Provided a long-term manufacturing and localization policy direction.	Supported India's transition into a major automotive production base with deeper domestic component participation.
FAME and PM E-DRIVE	Created demand-side support for EV adoption, charging infrastructure and testing capability.	Helped shift the growth narrative from conventional vehicles to clean, electric and technology-led mobility.
PLI-Auto and PLI-ACC	Linked incentives to advanced automotive technologies, domestic value addition and battery-cell capacity.	Encouraged investment in higher-value, future-facing segments beyond traditional assembly and standard components.
Semiconductors, critical minerals and R&D support	Expanded policy attention to upstream inputs, technology ownership and innovation capability.	Signals the next phase of growth: from manufacturing scale to integrated, resilient and technology-led automotive value chains.

However, the recent global supply-chain crisis, particularly the semiconductor shortage, served as a wake-up call that exposed deep structural vulnerabilities within the global automotive industry. For India, which has built significant manufacturing scale and a large domestic market, the episode showed that scale in assembly does not automatically translate into control over the critical technologies, materials and strategic inputs that increasingly determine competitiveness.

The semiconductor shortage was not an isolated event. It was part of a broader set of disruptions that included the COVID-19 pandemic, geopolitical tensions, trade restrictions, logistics disruptions and growing competition for critical minerals, battery materials and advanced electronics. These developments changed the meaning of resilience for the automotive sector. Resilience can no longer be understood only as the ability to maintain inventories, diversify suppliers or recover quickly from a disruption. It now requires deeper visibility, participation and control across the value chain.

Historically, automotive supply chains were designed around efficiency, scale and cost optimization. The dominant operating model was often described as "just-in-time", where lean inventories, synchronized production and globally optimized sourcing networks were considered essential to competitiveness. While this model supported operational efficiency and

[1] Source: PIB dt 25 Mar 2025: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2114919&reg=48&lang=2

working capital discipline, recent disruptions have shown that excessive reliance on lean and globally dispersed supply chains can create vulnerability when critical inputs are delayed, restricted or geographically concentrated.

The industry's immediate response has been a shift towards "just-in-case" planning, involving higher inventory buffers, alternate vendors and wider sourcing options. These measures are useful as near-term risk-mitigation tools. However, they do not fully address structural dependence on imported technologies, advanced materials and strategically important sub-components. A manufacturer may hold additional inventory of a critical component, but if the underlying semiconductor, battery material or rare-earth input remains dependent on limited global sources, the vulnerability is only deferred rather than resolved.

The next phase of India's automotive growth may be defined not by assembly capabilities alone, but by control over critical technologies, materials, component ecosystems, IP and resilient supply chains.

Consequently, the next phase of automotive resilience lies in value-chain integration. The strategic question is no longer whether vehicles and components can be assembled domestically, but whether India can build, attract and scale capabilities across the upstream and midstream layers that increasingly determine competitiveness. These include semiconductor design, assembly, testing and packaging; battery cell manufacturing and battery components; critical mineral processing and materials refining; power electronics, motors and thermal systems; embedded software, cybersecurity and connected vehicle technologies; and world-class testing, validation and R&D infrastructure.

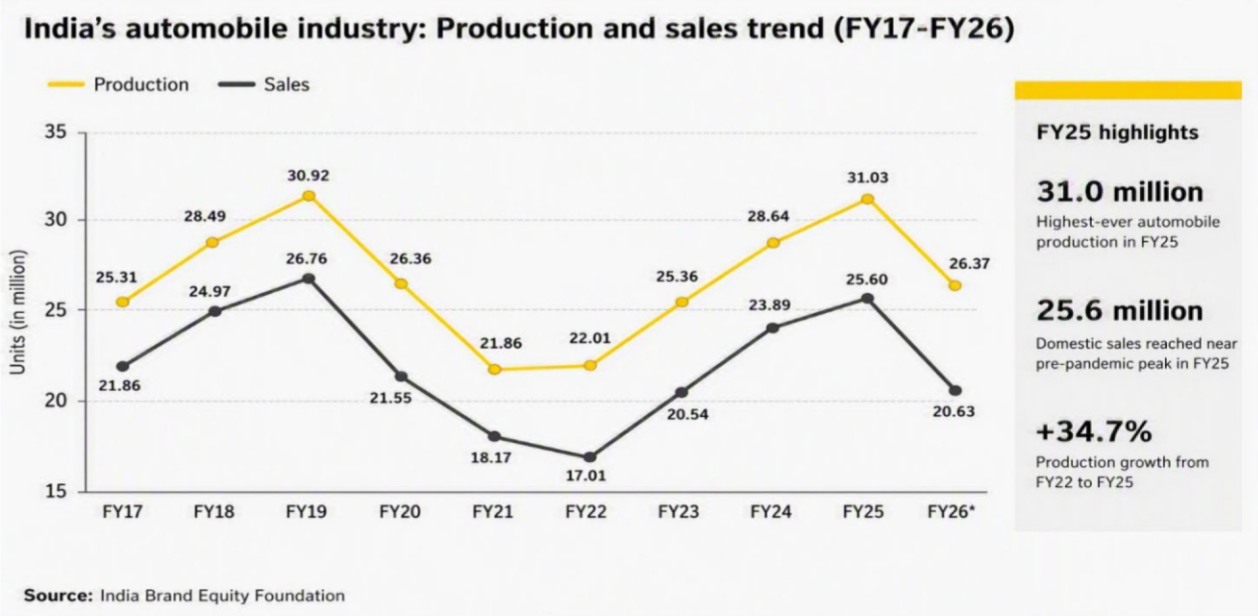
This transition has become particularly important because the vehicle itself is undergoing a fundamental transformation. The traditional internal combustion engine ecosystem was largely built around mechanical engineering, engine components, transmission systems and conventional supplier networks. The emerging mobility ecosystem is substantially different. Electric vehicles depend on battery cells, battery management systems, motors, power electronics and thermal management systems. Connected and software-defined vehicles rely on semiconductors, sensors, embedded software, cybersecurity and data architecture. Advanced safety and driver-assistance systems require sophisticated electronics, control units and validation infrastructure. As vehicles become increasingly electric, electronic and software-led, long-term competitiveness might depend not only on manufacturing vehicles, but also on securing access to the technologies, materials, intellectual property and supplier ecosystems that underpin them.

India's policy direction increasingly reflects this reality. The objectives of **Aatmanirbhar Bharat** and **Make in India** are supported by an evolving incentive architecture that extends beyond factory-level manufacturing support. The focus is gradually shifting from **manufacturing promotion** to **ecosystem creation** by encouraging domestic value addition, upstream input development, technology capability, research and innovation, testing infrastructure, talent development and supply-chain depth. The objective is not only to attract production facilities, but to build the broader industrial capabilities required to support next-generation mobility.

Viewed through this lens, the journey **beyond resilience** is not primarily about safeguarding the automotive industry against the next disruption. It is about leveraging the lessons of recent crises to build a more integrated, technologically capable and strategically secure automotive ecosystem. The next phase of India's automotive growth may be determined not only by its ability to manufacture vehicles, but by the extent to which it can build and retain control over the technologies, materials and component ecosystems that may define the future of mobility. In this context, value-chain integration and strategic backward integration are no longer optional pathways, but critical imperatives for sustaining India's long-term automotive competitiveness.

2. Industry outlook

India's automotive industry has entered a phase of sustained expansion, supported by rising domestic consumption, increasing electrification, robust exports and continued policy support. The sector recorded sales of approximately 2.56 crore vehicles in FY25 and remains one of the world's largest automotive markets[2], contributing around 6% to India's GDP while supporting more than 30 million direct and indirect jobs. The industry continues to benefit from favorable demographics, expanding access to financing, infrastructure development and growing consumer demand across vehicle segments.



The growth story extends beyond vehicle assembly. India's automotive value chain is increasingly moving towards higher localization, advanced manufacturing and technology-led mobility solutions. Domestic vehicle production exceeded 31 million units in FY25, while exports crossed 5.3 million units[2], reflecting India's growing role as a global manufacturing and export hub. The country has also emerged as a preferred sourcing base for automotive components, supported by competitive manufacturing costs, a large skilled workforce and improving integration with global supply chains.

Several structural trends are reinforcing this momentum[2]:

- Electrification accelerating value-chain transformation: Government initiatives such as PM E-DRIVE, PLI schemes and EV-focused incentives are driving investments across batteries, power electronics, electric drivetrains and charging infrastructure. India aims to achieve 30% EV penetration by 2030, creating significant opportunities for domestic manufacturing of next-generation automotive technologies.
- Auto-component industry scaling rapidly: India's auto-component industry reached approximately US$80.2 billion in FY25 and is projected to grow further on the back of rising domestic demand, localization initiatives and export opportunities. Industry assessments indicate the sector could reach US$200 billion by 2030, supported by increasing value addition, advanced manufacturing capabilities and demand from emerging mobility technologies.
- Exports becoming a key growth lever: More than a quarter of India's component production is exported annually. Auto-component exports reached US$22.9 billion in FY25, with increasing demand from North America, Europe and Asia. Ongoing supply-chain diversification and "friendshoring" trends are creating opportunities for Indian manufacturers to strengthen their participation in global automotive supply chains.
- Technology-driven localization: The industry is witnessing increasing investments in software-defined vehicles, advanced electronics, sensors, battery systems, precision engineering and lightweight materials. As OEMs expand local manufacturing and product development capabilities, India is gradually moving up the automotive value chain from assembly-focused operations to technology-intensive manufacturing.

This growth trajectory reinforces the need for deeper integration across India's automotive value chain. As vehicle production, electrification and exports continue to expand, strengthening domestic capabilities in batteries, semiconductors, critical minerals, electronics and advanced automotive components may be essential to capturing a larger share of value creation within the industry. Government incentive programs and localization-focused policies are expected to play a critical role in accelerating this transition.

[2] Source: IBEF https://www.ibef.org/industry/india-automobiles; https://www.ibef.org/industry/autocomponents-india

3. The new imperative: Why backward integration matters

The automotive industry is undergoing a structural transformation in which value creation is increasingly concentrated in technology-intensive segments such as batteries, semiconductors, power electronics, advanced materials, software, testing capabilities and intellectual property. As mobility technologies evolve, competitive advantage may depend not only on vehicle manufacturing but also on participation in these upstream and adjacent segments of the value chain. In this context, backward integration is emerging as a strategic pathway for strengthening industrial capabilities, capturing greater domestic value addition and positioning India more effectively within global automotive and mobility value chains.

Several interrelated factors are driving the growing emphasis on backward integration across the automotive and mobility ecosystem.

3.1. Reducing import dependence

One of the primary drivers for backward integration is the need to reduce dependence on strategic imports. While final vehicle assembly may occur in India, a substantial portion of value can still reside outside the country.

This distinction is becoming increasingly important because future mobility technologies rely on high-value and technology-intensive inputs that are often concentrated in a limited number of countries. Assembly-level localization alone may create manufacturing activity, but it may not secure technology ownership, supply stability or meaningful domestic value addition.

Key areas of strategic import dependence in the automotive sector include electronics and semiconductors, battery cells and battery materials, critical minerals such as lithium, nickel, cobalt, graphite and rare earth elements, advanced materials and specialty chemicals, as well as certain high-precision components and manufacturing equipment. These inputs are becoming increasingly important as they influence not only cost and supply availability, but also technology capabilities, product performance and the ability of manufacturers to meet evolving global market requirements.

The objective may not be to localize every component or achieve complete self-sufficiency. Rather, the focus may be on strengthening capabilities in strategic segments that account for a significant share of value creation, technology intensity or supply concentration. Targeted integration in these areas can improve domestic value capture while reducing exposure to critical external dependencies.

3.2. Strengthening supply chain security

Global supply chains have become increasingly exposed to geopolitical tensions, trade restrictions, logistics disruptions and resource concentration risks. The automotive sector is particularly vulnerable because several critical inputs, including semiconductors, battery materials and rare earth elements, originate from a limited number of countries and suppliers.

While inventory management and supplier diversification remain important risk-management tools, companies are increasingly seeking greater visibility and control over critical inputs. Backward integration can strengthen supply-chain resilience by reducing exposure to external disruptions and improving continuity of operations during periods of market volatility.

The automotive sector faces several key risks:

- **Geopolitical risks:** Concentration of strategic inputs in a few geographies
- **Trade disruptions:** Export controls, tariffs and policy-driven restrictions
- **Currency exposure:** Dependence on imported inputs priced in foreign currency
- **Logistics volatility:** Disruptions and cost escalation in globally dispersed supply chains

Developing stronger domestic and regional value chains can reduce these vulnerabilities while improving production planning, quality assurance and responsiveness to market demand. Importantly, backward integration should not be viewed as a retreat from globalization. Instead, it should enable India to participate in global value chains from a position of greater resilience and strategic strength.

3.3. Enhancing competitiveness and innovation

Backward integration is not solely a risk mitigation strategy; it can also become a powerful source of competitive advantage. Greater control over critical inputs can improve cost visibility, reduce supply uncertainty and accelerate product-development cycles. It also facilitates collaboration across design, engineering, material science, electronics and manufacturing functions.

This capability is particularly important as electric, connected and software-defined vehicles continue to evolve. Future competitiveness may depend on the speed at which companies can adapt to advances in battery technology, power electronics, software integration, safety systems, lightweight materials and testing standards.

Backward integration supports competitiveness through:

- **Cost optimization:** Greater control over input costs and value addition
- **Faster innovation cycles:** Closer integration between technology development and manufacturing
- **Export competitiveness:** Stronger quality systems, supply assurance and compliance with global standards

For India, the long-term opportunity lies not merely in expanding manufacturing volumes, but in developing capabilities across the higher-value layers of the mobility ecosystem. Building strength in technology, materials, design, testing and intellectual property can enable a transition from assembly-led growth to innovation-led industrial development.

3.4. Supporting sustainability and circularity

Sustainability is increasingly becoming a commercial and strategic requirement rather than merely a compliance obligation. Automotive value chains are now evaluated on emissions intensity, resource efficiency, responsible sourcing, recyclability, traceability and overall lifecycle impact.

Backward integration can play a critical role in meeting these expectations by enabling greater visibility over materials, localization of critical processes and stronger environmental oversight across the value chain. This is especially relevant for batteries, electronics and critical minerals, where future demand is expected to grow significantly.

As EV adoption accelerates, reliance on virgin mineral imports could create both environmental and resource-security challenges. Developing domestic recycling, reuse and recovery ecosystems can address these concerns while creating secondary sources of strategic materials.

Backward integration can support sustainability through:

- **Localization and reduced logistics intensity:** Shorter and more traceable supply chains
- **Resource efficiency:** improved utilization of materials and reduced waste
- **Circular economy models:** Recycling, reuse and recovery of batteries, electronics and critical minerals
- **Sustainable material security:** Enhanced recovery, traceability and responsible sourcing of critical materials through recycling and circular value chains

In this context, sustainability and industrial strategy are becoming increasingly interconnected. The ability to build circular, traceable and resilient value chains can strengthen not only environmental performance but also long-term economic competitiveness.

4. Government incentives as strategic enablers of ecosystem development

Earlier industrial-policy interventions were principally designed to attract manufacturing capacity, reduce the initial cost of investment and create economies of scale. These objectives remain relevant, but are no longer sufficient to address the competitive requirements of next-generation mobility. The emerging automotive ecosystem is increasingly dependent on capabilities that sit beneath the vehicle itself including advanced materials, battery technologies, power electronics, semiconductors, software, critical minerals, testing, recycling and research and development. Consequently, the policy question is evolving from "How can India attract more manufacturing?" to "How can India develop the interconnected capabilities required to make that manufacturing globally competitive and sustainable?"

This evolution is visible in the way government incentives are now being structured: not merely as financial support for individual projects, but as strategic instruments to build the interconnected layers of the automotive value chain. This shift can be understood through the following transitions in policy design and expected outcomes.

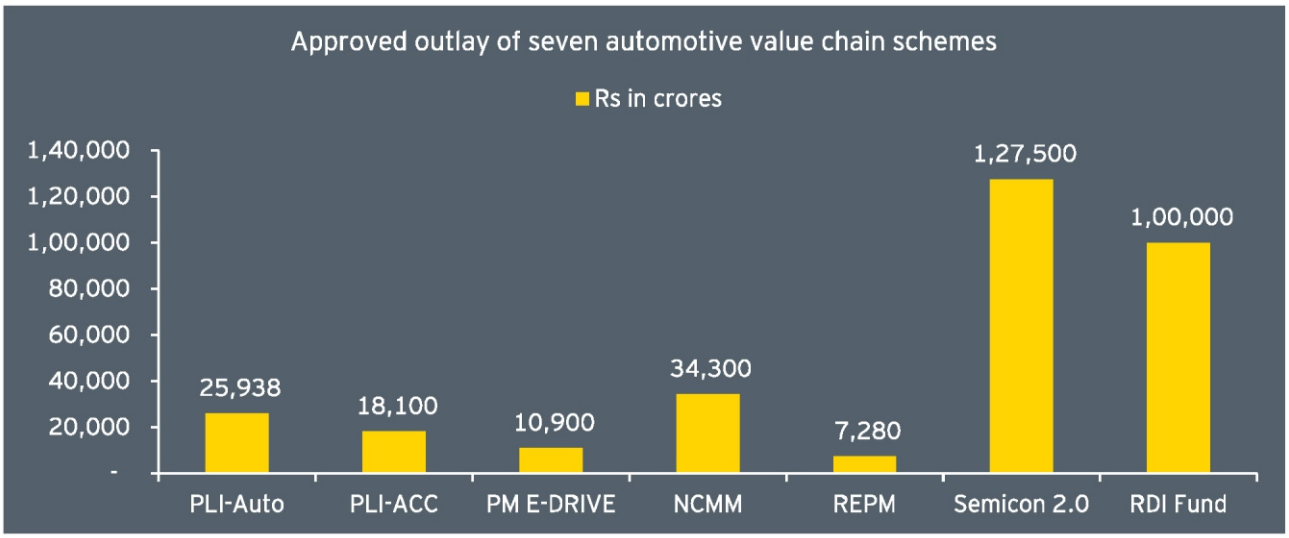
- **Shift from project-level to ecosystem-level incentives:** Government incentives are increasingly moving beyond supporting standalone manufacturing projects to strengthen the wider industrial ecosystem around them.
- **Industrial linkages drive value creation:** Investments in batteries, semiconductors and other strategic sectors generate maximum value when supported by upstream suppliers, technology providers, enabling infrastructure and downstream demand.
- **Policy operates as a layered stack:** Manufacturing incentives, demand creation measures, resource-security initiatives, state subsidies and R&D support work together to enhance overall competitiveness.
- **Focus is moving from capacity to capability building:** Policy emphasis is evolving from merely adding manufacturing capacity to building technology ownership, resilient supply chains, innovation capability and domestic value creation.
- **Value-chain localization is the new objective:** India's strategy is not complete self-sufficiency, but developing critical domestic capabilities that improve resilience, competitiveness, exports and integration into global value chains.

India's automotive incentive architecture reflects this broader transition and is increasingly being designed to strengthen multiple layers of the value chain rather than support standalone manufacturing facilities. Through initiatives such as PLI-Auto, PLI-ACC, PM E-DRIVE, the National Critical Mineral Mission, the REPM Scheme, Semicon 2.0 and the Research, Development, and Innovation Fund, policy support now extends across advanced manufacturing, batteries, semiconductors, critical minerals, innovation and demand creation. The objective is to create a virtuous cycle where incentives catalyze investment, investment drives scale, scale enables localization and localization strengthens technology capability, competitiveness, exports and supply-chain resilience.

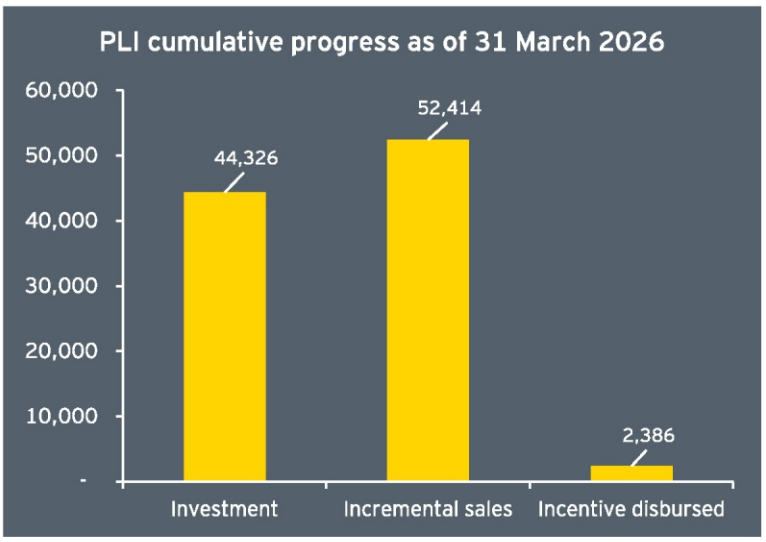
5. Building the automotive value chain: Incentives across the ecosystem

The shift from project-level incentives to ecosystem-level support becomes clearer when India's key incentive schemes are viewed together. Each scheme addresses a different requirement within the automotive value chain, including manufacturing scale, technology capability, demand creation, testing infrastructure, upstream resource security and innovation support. Collectively, these interventions reflect a policy approach that seeks to build the broader ecosystem required for next-generation mobility, rather than support vehicle or component manufacturing in isolation.

The following schemes illustrate how India's evolving incentive framework supports different layers of the automotive value chain, from resource security and technology development to manufacturing scale and market creation.



5.1. Production Linked Incentive Scheme for Automobile and Auto Components: Building the Advanced Automotive Manufacturing Base



The PLI-Auto scheme represents one of the key policy interventions aimed at moving India's automobile industry towards advanced automotive technology manufacturing and deeper domestic value addition. Approved by Union Cabinet on 15 September 2021 and notified on 23 September 2021 with an outlay of INR25,938 crore, PLI-Auto rewards incremental sales of Advanced Automotive Technology (AAT) products rather than upfront capital, with a mandatory minimum 50% Domestic Value Addition (DVA). As of 31 March 2026, the scheme had attracted cumulative investment of INR44,326 crore – already exceeding its INR42,500 crore target ahead of the March 2027 investment milestone, notwithstanding the subsequent extension of the scheme period until 31 March 2028 – alongside incremental sales of INR52,414 crore and 67,820 jobs across 225 manufacturing units. Incentives of INR2,386.36 crore have been disbursed[3] and 18 applicants held DVA certificates covering 155 product variants as of 28 July 2026.[4]

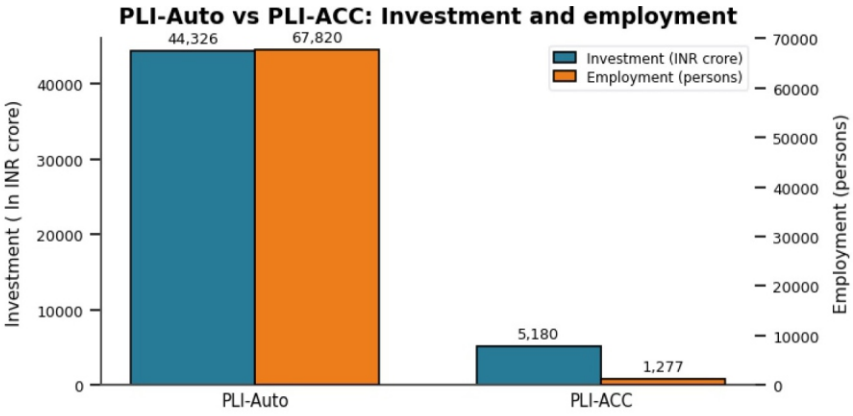
[3] PIB Press Release dt 21 Jul 2026, https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2287137&reg=48&lang=1
[4] Lok Sabha Unstarred Question No. 2689, answered on 04 Augu 2026 by the Ministry of Heavy Industries on "Manufacturing of Flex-Fuel and Electric Vehicles." https://heavyindustries.gov.in/sites/default/files/2026-08/lsauq_2689.pdf

A potential Auto PLI 2.0 could represent the next stage of India's automotive industrial strategy by building upon the ecosystem created through existing interventions across advanced manufacturing, batteries, critical minerals, semiconductors, demand creation and innovation. As the industry transitions towards electric, connected and software-defined mobility, a renewed framework could support fresh investments in advanced vehicle platforms, battery systems, power electronics and other next-generation automotive technologies. Such an approach would help translate the benefits of multiple incentive programs into deeper value-chain integration, stronger domestic capabilities and globally competitive automotive manufacturing.

Key relevance for the automotive value chain:

- **Scale creation:** Incentivizes commercially viable production rather than capacity creation alone.
- **Localization:** 50% minimum Domestic Value Addition requirement embeds localization within the scheme architecture.
- **Technology transition:** Supports Advanced Automotive Technology products and next-generation mobility applications.
- **Supplier opportunity:** Creates downstream demand that can support investment by Tier-1, Tier-2 and Tier-3 suppliers in adjacent technologies.
- **Strategic implication:** The next stage may be to deepen the upstream linkages created around advanced automotive manufacturing.

5.2. Production Linked Incentive scheme for Advanced Chemistry Cell battery storage: Creating the foundation for EV localization



Source: Ministry of Heavy Industries, Lok Sabha reply, 4 Aug 2026 (PIB). PLI-Auto: 31 Mar 2026; PLI-ACC: 31 May 2026.

Battery-cell manufacturing is central to EV localization because batteries represent a critical technology, cost and supply-chain layer within the electric mobility ecosystem. Approved in May 2021 with an outlay of INR18,100 crore to build 50 GWh of domestic battery-cell capacity (40 GWh already awarded to four beneficiaries), PLI-ACC aims to reduce import dependence and seed a wider ecosystem spanning cathodes, anodes, electrolytes and battery/thermal-management systems. As of 31 May 2026, beneficiaries had invested INR5,180 crore and created 1,277 direct jobs, but no incentive had yet been claimed[5] – reflecting the long gestation of cell manufacturing (technology selection, commissioning, qualification and scale-up).

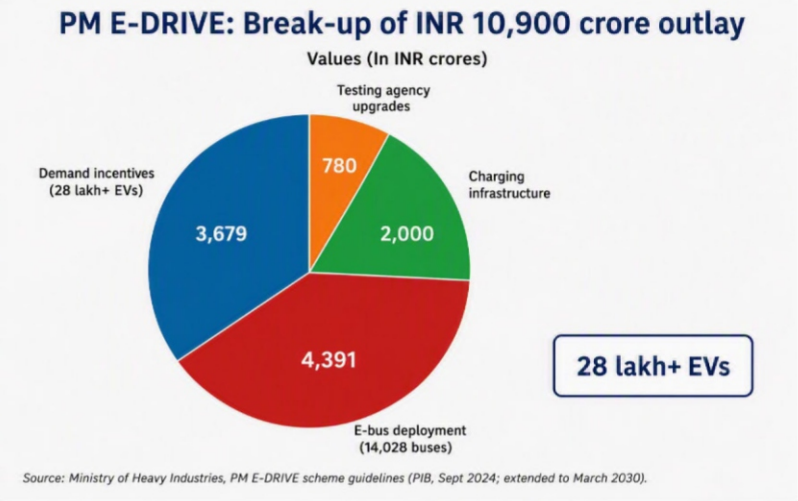
Key relevance for the automotive value chain:

- **Strategic input:** Addresses one of the most critical technology-intensive components of an EV.
- **Ecosystem multiplier:** Creates potential demand for materials, cell components, electronics and thermal-management systems.
- **Localization opportunity:** Enables component manufacturers to move into new EV-specific product categories.
- **Execution lesson:** Upstream ecosystem development requires longer policy horizons than conventional manufacturing incentives.
- **Strategic implication:** Battery policy may evolve from cell capacity creation towards localization of the wider battery-material and component ecosystem.

[5] PIB dt 21 Jul 2026, "PLI Scheme for Automobile and Auto Components and Battery Storage" https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2287137&reg=48&lang=1; and PIB Press Release dt 19 Aug 2025: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2157962&reg=48&lang=2

5.3. PM E-DRIVE: Connecting Demand Creation with Domestic Manufacturing

EV adoption cannot be accelerated through manufacturing-side incentives alone. While PLI-Auto and PLI-ACC seek to build domestic capability in advanced automotive technologies and battery-cell manufacturing, market scale depends equally on demand creation, charging availability, testing infrastructure and user confidence. PM E-DRIVE therefore plays an important complementary role by supporting the demand and infrastructure side of the EV ecosystem, helping convert manufacturing capacity into actual market adoption.



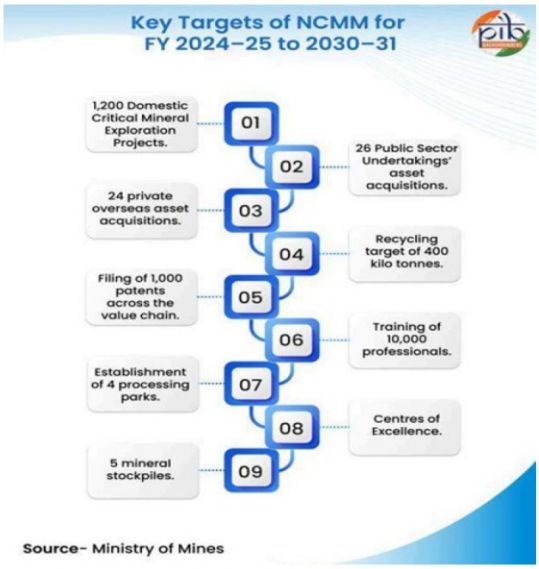
Notified in September 2024 with an outlay of INR10,900 crore – extended from March 2026 to March 2028[6] within the same sanctioned outlay – PM E-DRIVE is the principal demand-side complement to PLI-Auto/ACC. It allocates INR3,679 crore for demand incentives on 28+ lakh EVs, INR4,391 crore for deploying 14,028 e-buses, INR2,000 crore for public charging infrastructure and INR780 crore for upgrading automotive testing agencies.[7]

Key relevance for the automotive value chain:

- **Demand creation:** Provides market-side support for EV adoption.
- **Infrastructure:** Supports public charging infrastructure and testing capability.
- **Manufacturing linkage:** Creates demand visibility for EV manufacturers and suppliers.
- **Scale effect:** Higher domestic demand can support economies of scale and supplier localization.
- **Strategic implication:** Demand, infrastructure and manufacturing incentives move in tandem.

5.4. National Critical Mineral Mission: Addressing the upstream resource constraint

As India's automotive sector moves towards electric, electronic and software-defined mobility, upstream resource security is becoming as important as manufacturing capacity. Critical minerals such as lithium, cobalt, nickel, graphite and rare-earth elements sit at the base of multiple technology layers, including battery cells, electric motors, power electronics and advanced vehicle systems. The policy challenge, therefore, is not only to secure access to these minerals, but to develop domestic capabilities across processing, beneficiation, recycling and recovery so that resource availability can support deeper value-chain localization.



Approved in January 2025 with a seven-year outlay of INR34,300 crore (INR16,300 crore government expenditure plus an expected INR18,000 crore from PSUs and other stakeholders)[8], NCMM covers the full critical-minerals value chain – exploration, mining, beneficiation, processing and recovery from end-of-life products. Lithium, cobalt, nickel, graphite and rare-earth elements are increasingly strategic inputs for batteries, motors and power electronics. By emphasizing processing capability and recycling – not only resource identification – NCMM opens participation for component makers, metal and chemical companies and recyclers, alongside miners.

[6] PM E-DRIVE Scheme Notifications, "Extension of Scheme till 31.03.2028", released on 7 Aug 2025. https://pmedrive.heavyindustries.gov.in/docs/policy_document/Extension%20of%20Scheme%20till%2031%2003%202028%20dated%2007%2008%202025.pdf

[7] PIB dated 11 Sep 2024: https://pmedrive.heavyindustries.gov.in/docs/press_release/Press%20Release_Press%20Information%20Bureau.pdf

[8] PIB dated 6 Sep 2025: https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=155158&ModuleId=3&reg=3&lang=2

Key relevance for the automotive value chain:

- **Resource security:** Strengthens availability of strategic minerals required for future mobility.
- **Processing capability:** Addresses the gap between resource availability and usable industrial inputs.
- **Circularity:** Creates opportunities for recovery of materials from end-of-life batteries and products.
- **Industry expansion:** Opens opportunities for metal, chemical, recycling and component companies.
- **Strategic implication:** Critical minerals may increasingly be viewed as an integral part of automotive industrial policy.

5.5. Scheme for promoting manufacturing of sintered Rare Earth Permanent Magnets (REPM): Securing a critical input for electric powertrains

Rare earth permanent magnets (REPM) are a small but critical input in the electric mobility value chain, particularly for EV motors and other high-performance powertrain applications. The REPM scheme is therefore relevant not as a vehicle-manufacturing incentive, but as an upstream localization measure that strengthens India's access to specialized materials required for next-generation mobility.

Approved in November 2025 with an outlay of INR7,280 crore[9] (INR6,450 crore sales-linked incentives plus INR750 crore capital subsidy), the REPM scheme targets 6,000 MTPA of integrated rare-earth magnet manufacturing – from oxides to finished magnets across five beneficiaries selected through competitive bidding. India today imports nearly all its permanent-magnet requirement; localization reduces exposure for EV motors, steering systems, defense and aerospace applications, and illustrates that supply-chain resilience can hinge on small but indispensable inputs, not only finished-product capacity.

Key relevance for the automotive value chain:

- **EV powertrain security:** Supports domestic availability of a critical motor input.
- **Upstream integration:** Creates capability beyond simple downstream motor assembly.
- **Strategic material:** Addresses a concentrated global supply risk.
- **Supplier opportunity:** Opens space for component companies across motors and electromechanical systems.
- **Strategic implication:** Critical "small-ticket" inputs can have disproportionately large consequences for automotive production.

5.6. Semicon 2.0: Localizing the digital backbone of the automobile

Semiconductors are becoming the digital backbone of modern automobiles, enabling functions across battery management, power electronics, sensors, control systems, connectivity and advanced driver-assistance technologies. As vehicles become increasingly electric, connected and software-defined, chip availability is no longer only a procurement issue but a strategic capability for automotive competitiveness and supply-chain resilience.

Approved in July 2026 with a total outlay of INR1,27,500 crore, Semicon 2.0 builds India's semiconductor design and manufacturing ecosystem across six pillars – design, machines & materials, fabs, ATMP/OSAT, R&D and talent. As vehicles become more connected, electrified and software-defined, semiconductors span control systems, battery-management systems, power electronics, sensors and driver-assistance functions, making chip supply a strategic issue rather than a procurement one. Twelve[10] manufacturing units (over INR1.64 lakh crore cumulative investment) are already approved, with three in commercial production – deepening the convergence between automotive and electronics value chains.

Key relevance for the automotive value chain:

- **Digital backbone:** Supports technologies underpinning software-defined vehicles.
- **Supply security:** Reduces exposure to concentrated international semiconductor supply chains.
- **Higher-value participation:** Creates opportunities in design, packaging, testing and electronics.
- **Industry convergence:** Brings automotive manufacturers closer to semiconductor and electronics ecosystems.
- **Strategic implication:** Semiconductor policy may be viewed as automotive industrial policy in an increasingly electronic vehicle landscape.

[9] Source: Press Information Board dated 27 Dec 2025: https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=156753&ModuleId=3&reg=3&lang=1
[10] Source: Press Information Board dated 15 Jul 2026: https://pib.gov.in/PressReleasePage.aspx?PRID=2284784

5.7. Research, Development and Innovation Fund (RDI Fund): Moving from local manufacturing to local technology

As the automotive industry advances towards software-defined and technology-intensive mobility, building domestic innovation capability is becoming as important as manufacturing scale. The RDI Fund seeks to support this transition by enabling Indian companies to develop, commercialize and own next-generation technologies.

Approved by the Union Cabinet in July 2025 with an outlay of INR1 lakh crore over six years and launched in November 2025[11], the RDI Fund channels concessional, long-term capital to private R&D through the Anusandhan National Research Foundation. The Technology Development Board (TDB) and BIRAC were sanctioned[12] INR1,000 crore each as Focused Research Organisations, of which INR500 crore had been disbursed to TDB by March 2026, which has approved 22 projects costing INR4,744 crore (providing INR2,192 crore RDI support), while BIRAC has shortlisted eight projects costing INR390.35 crore. For the automotive sector, this can fund battery-management systems, power electronics, sensors, autonomous-driving systems and next-generation propulsion, helping Indian firms move from contract manufacturing toward owning proprietary technology.

Key relevance for the automotive value chain:

- **Technology ownership:** Supports the transition from manufacturing to proprietary IP.
- **Innovation:** Enables investment in high-risk and longer-gestation technologies.
- **Global competitiveness:** Can strengthen India's position in technology-intensive automotive exports.
- **Opportunity:** Encourages component companies to establish dedicated R&D and engineering capabilities.
- **Strategic implication:** "Designed and developed in India" may increasingly complement "Made in India".

From a portfolio of incentives to an integrated automotive value-chain strategy

Viewed individually, these interventions address different constraints; viewed collectively, they represent an emerging industrial architecture for the future automotive ecosystem. PLI-Auto addresses advanced vehicle and component manufacturing; PLI-ACC seeks to establish the battery-cell layer; PM E-DRIVE supports demand and charging infrastructure; the National Critical Mineral Mission addresses resource security; the Rare Earth Permanent Magnet scheme targets a strategic input for electric motors; Semicon 2.0 addresses the semiconductor and electronics backbone; and the RDI Fund addresses technology creation. The individual programs therefore have the potential to reinforce one another across the value chain.

The multiplier effect may be significant. A stronger critical mineral ecosystem can support battery and magnet manufacturing; battery manufacturing can support EV scale-up; EV scale-up can improve the economics of downstream components; semiconductor localization can strengthen power electronics and vehicle-control systems; and R&D capability can allow Indian suppliers to convert these manufacturing opportunities into proprietary technologies. The strategic objective is consequently not to increase participation in any one incentive scheme, but to identify the points at which multiple schemes can be combined to create commercially viable and globally competitive value chains.

The strategic opportunity is therefore to move from a scheme-by-scheme approach to an ecosystem approach. Government incentives can provide the catalyst, but industry should determine where to deploy capital, technology and collaborations to create durable competitive advantage.

The ultimate objective may be to move from resilience supported by policy to competitiveness sustained by capability – where Indian companies are not merely able to withstand disruptions, but increasingly control the technologies, materials and intellectual property that determine the competitiveness of the next generation of mobility.

Government incentives across the automotive value chain

Strategic lens	Government policy anchor	Why it matters
Auto PLI policy support	PLI Auto was approved with an outlay of **INR25,938[13] crore.** As of **31 March 2026[14]**, cumulative investment of **INR44,326 crore**, employment generation of **67,820** persons and incentive disbursement of **INR2,386.36 crore** had been reported.	Shows that advanced automotive technology manufacturing has already been recognized as a priority area for policy-backed industrial development and performance-linked incentives can support capital deployment and manufacturing outcomes in advanced automotive technologies.

[11] PIB dated 23 Jul 2026: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2288307&reg=48&lang=1
[12] Source: Press Information Board dated 29 Jul2026: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2291145&reg=48&lang=2
[13] Scheme Notification: https://pliauto.in/docs/guidelines/Notification.pdf
[14] PIB dated 21 Jul 2026: https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2287137&reg=48&lang=1

Strategic lens	Government policy anchor	Why it matters
Potential Auto PLI 2.0 policy relevance	A potential Auto PLI 2.0, if introduced, could support the next investment cycle in advanced and EV-led automotive manufacturing, particularly in areas such as vehicle platforms, power electronics, battery systems, software-led mobility and advanced components.	It would link policy continuity with the evolving investment cycle in EVs, power electronics, software-led platforms and advanced components.
Battery manufacturing support	PLI ACC was approved with an outlay of **INR18,100 crore** for **50 GWh capacity**[15]. As reported by beneficiary firms, investment of **INR5,180 crore** and direct employment of **1,277** had been achieved till **31 May 2026**;[16] no beneficiary firm had claimed incentive as per the government update.	Supports domestic battery cell manufacturing, a critical layer of the EV value chain and future mobility ecosystem.
PM E-DRIVE continuation/ demand-side EV support	PM E-DRIVE was approved with a financial outlay of **INR10,900 crore**[17] to accelerate EV adoption, establish charging infrastructure and build a robust EV manufacturing ecosystem. The scheme came into effect from **1 October 2024** and was extended to **31 March 2028**[18] within the same sanctioned outlay.	Complements manufacturing-side support by creating demand-side pull for EV adoption, charging infrastructure and testing ecosystem.
Critical mineral security	The National Critical Mineral Mission was approved with an expenditure of **INR16,300 crore** and expected investment of **INR18,000 crore** by PSUs and others, aggregating to **INR34,300 crore**[19] over seven years. The Mission covers exploration, mining, beneficiation, processing and recovery from end-of-life products. Geological Survey of India planned **227 projects for FY 2025-26** for various critical minerals.	Addresses upstream mineral security, processing and recovery, which are essential for batteries, clean mobility and advanced manufacturing.
Rare earth magnet/ electric powertrain input security	The Rare Earth Permanent Magnet scheme was approved with an outlay of **INR7,280 crore** to create 6,000 MTPA[20] of integrated rare earth permanent magnet manufacturing capacity, covering the value chain from rare earth oxides to finished magnets.	Secures a critical input for electric vehicle motors and advanced mobility applications, strengthening upstream value chain localization and reducing import dependence in a strategically important material.
Semiconductor ecosystem support	Semicon 2.0 has been approved with a total budget outlay of **INR1,27,500 crore**[21] for India's semiconductor design and manufacturing ecosystem. It is structured around six pillars: **design, machines and materials, more fabs, Assembly, Testing, Marking, and Packaging/ Outsourced Semiconductor Assembly and Test, R&D and talent development.**	Supports the electronics and semiconductor layer that is increasingly central to electric, connected and software-defined vehicles.

[15] PIB dated 19 Aug 2025: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2157962&reg=48&lang=2
[16] PIB dated 21 Jul 2026: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2287137&lang=1&reg=1
[17] PIB dated 11 Sep 2024: https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2053959&reg=48&lang=2; https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=153264&ModuleId=3&reg=3&lang=1
[18] Notification dated 7 Aug 2025: https://pmedrive.heavyindustries.gov.in/docs/policy_document/Extension%20of%20Scheme%20till%2031%2003%202028%20dated%2007%2008%202025.pdf & https://www.pib.gov.in/PressReleasePage.aspx?PRID=2154408&reg=48&lang=2
[19] PIB dt 29 Jan 2025: https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2097309&reg=48&lang=2
[20] PIB dt 26 Nov 2025: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2194684&reg=3&lang=2
[21] PIB dt 15 Jul 2026: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2284784&reg=48&lang=2

Strategic lens	Government policy anchor	Why it matters
R&D and innovation capability	The RDI Scheme was approved with a corpus of **INR1 lakh crore**. During **FY2026**, PIB reported that INR500 crore was disbursed to the Technology Development Board (TDB) and that TDB approved **22 projects** with a total project cost of **INR4,744 crore**, including Research Development and Innovation Fund support of **INR2,192 crore.**[22]	Reinforces that future competitiveness may depend on technology ownership, applied R&D, testing, validation and product-development capability.

6. The matters The multiplier effect: Central and state incentives working together

The effectiveness of industrial policy is often determined not only by the strength of a single incentive program, but by the degree of alignment between different layers of policy support. In the automotive sector, investment decisions are influenced by a combination of central incentives, state-level policies, infrastructure availability, logistics connectivity, skill ecosystems and market demand. Consequently, the economic impact of automotive incentives can be amplified where central and state governments operate as complementary enablers rather than as independent policy actors.

This interaction is particularly relevant for emerging automotive value chain segments such as advanced automotive technologies, batteries, semiconductors, critical minerals, power electronics and technology-led components. Unlike conventional vehicle assembly operations, these segments typically involve higher capital intensity, longer gestation periods, specialized infrastructure requirements and deeper technology collaborations. Investors therefore may need to evaluate projects based on the cumulative attractiveness of the overall investment ecosystem rather than any single incentive scheme.

6.1. Central incentives as ecosystem anchors

The central programs discussed in Section 5 collectively demonstrate a shift from supporting individual manufacturing activities toward building integrated industrial ecosystems – spanning technologies, materials, energy storage, electronics, innovation and supply chain resilience, rather than vehicle production alone.

6.2. State industrial policies as investment accelerators

While central schemes establish the strategic direction of industrial development, state governments play an equally important role in determining project viability. State industrial policies typically support investment through mechanisms such as land facilitation, infrastructure development, power-related incentives, stamp duty concessions, skill development support, employment-linked incentives and SGST-linked or capital subsidy mechanisms. The exact form and quantum of support differs by state and by sector, but the policy intent is generally to improve project economics, reduce implementation friction and create a supportive operating environment.

This is visible across several state-level policy ecosystems. Gujarat's semiconductor policy provides fiscal and non-fiscal support for semiconductor and display fab ecosystem projects, including capital-linked assistance, stamp duty reimbursement, power tariff support and land facilitation. Tamil Nadu's EV Policy 2023 aims to position the state as a preferred EV manufacturing destination, accelerate EV adoption, develop the EV ecosystem and attract EV manufacturing investment. Haryana's EV Policy 2022 seeks to promote EV and component manufacturing through a combination of fiscal and infrastructure incentives. Key measures include net SGST reimbursement, capital subsidies, employment-generation incentives, electricity duty exemptions, stamp duty reimbursements and support for charging and battery-swapping infrastructure, with the objective of developing an integrated e-mobility ecosystem across the state. Karnataka's official Electronics System Design and Manufacturingcluster framework identifies electronics manufacturing clusters across locations such as Mysuru, Dharwad, Tumakuru and Bengaluru Rural to support electronics manufacturing, prototyping, testing and innovation. States such as Maharashtra, Telangana and Uttar Pradesh also maintain broader industrial and sectoral policy frameworks aimed at investment facilitation and manufacturing-led growth.

[22] PIB dt 23 Jul 2026: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2288307&reg=48&lang=1

From a policy perspective, this interaction is significant because central incentives generally support strategic sectors and national capability creation, while states provide the enabling environment required for implementation. The combination of the two can materially improve project execution and investment attractiveness, particularly where the investment requires land, utilities, skilled manpower, faster approvals, logistics connectivity and supplier ecosystems.

6.3. The emerging policy model

A notable feature of India's industrial policy landscape is the increasing convergence between national and state-level policy objectives. Rather than operating as standalone initiatives, central and state governments are increasingly addressing different components of the investment lifecycle in a complementary manner. While central interventions help create strategic direction, scale and investor confidence in priority sectors, state policies focus on translating investment intent into operational reality through infrastructure, land, utilities, skilling, approvals and local ecosystem development.

This layered approach is particularly relevant for the automotive sector, where investment decisions are influenced by a broad range of factors extending beyond fiscal incentives alone. Manufacturers and suppliers increasingly evaluate locations based on the availability of integrated ecosystems comprising technology collaborators, skilled workforce, logistics connectivity, supporting industries and ease of execution. In this environment, the effectiveness of industrial policy is determined not merely by the strength of individual incentives, but by the extent to which different layers of government support reinforce one another.

As automotive value chains become more technology-intensive and interconnected, the ability to attract investment may increasingly depend on coordinated ecosystem development rather than isolated policy interventions. The evolving alignment between central and state governments reflects a broader shift toward a more integrated model of industrial development, where multiple policy levers operate together to support investment, localization, innovation and long-term competitiveness.

7. Emerging opportunities for ACMA members

The transformation of India's automotive sector, supported by a series of government initiatives focused on advanced manufacturing, EVs, semiconductors, batteries, critical minerals and innovation, is creating new opportunities across the supplier ecosystem. While the nature of these opportunities might vary based on capability, scale and positioning within the value chain, the broader direction of industrial policy indicates that future growth is increasingly likely to be concentrated in technology-intensive and value-added segments of mobility manufacturing.

The opportunities emerging from these policy initiatives can be viewed from three perspectives: established Tier 1 suppliers, Tier 2 and Tier 3 manufacturers and new entrants seeking to participate in the evolving mobility ecosystem.

7.1. Opportunities for Tier 1 suppliers

7.1.1. Electronics and electronic systems

As vehicles become more connected and electronics-intensive, demand is expected to increase for electronic control units (ECUs), sensors, telematics modules, battery management systems, vehicle communication systems and embedded electronics. Government initiatives such as Semicon India and Semicon 2.0 seek to support semiconductor design, fabrication, packaging, testing and the development of a broader semiconductor ecosystem, creating potential demand across the automotive electronics value chain.

For Tier 1 suppliers, this creates opportunities to expand beyond conventional mechanical assemblies and participate in electronics integration, control systems and software-enabled components.

7.1.2. Power electronics

The shift toward Battery Electric Vehicles (BEVs) increases the importance of inverters, converters, onboard chargers, power modules and thermal management systems. These systems operate at the intersection of semiconductors, software and vehicle engineering.

Given the policy emphasis on Advanced Automotive Technology products under the PLI-Auto framework, power electronics is expected to remain a strategically important segment within India's future mobility ecosystem.

7.1.3. Battery systems integration

The ACC Battery Storage Programme seeks to develop domestic cell manufacturing capacity with domestic value addition requirements. As battery manufacturing scales, demand is also expected to increase for battery packs, battery management systems, enclosure systems, thermal management solutions and vehicle-level battery integration.

For established Tier 1 suppliers, battery system integration is expected to emerge as one of the most significant value-added opportunities arising from the EV transition.

7.2. Opportunities for Tier 2 and Tier 3 suppliers

7.2.1. Battery components and sub-systems

While large-scale cell manufacturing may be concentrated among a limited number of players, the battery ecosystem requires a broad supplier base supporting components, enclosures, connectors, thermal materials, busbars, electronics interfaces and related systems. The government's emphasis on domestic value addition under the ACC framework suggests increasing localization opportunities across supporting battery supply chains.

7.2.2. Precision engineering

Many emerging automotive technologies continue to require high-precision manufacturing capabilities. Semiconductor equipment, battery manufacturing systems, EV drivetrains, thermal systems and advanced automotive components all rely on precision engineering capabilities. As domestic manufacturing capabilities deepen under programs such as Semicon India and PLI-Auto, precision engineering suppliers may increasingly find opportunities across multiple advanced manufacturing sectors beyond conventional automotive applications.

7.2.3. Advanced materials and specialty inputs

The government's semiconductor framework recognizes the importance of materials, specialty chemicals, industrial gases and manufacturing inputs as part of the broader semiconductor ecosystem. Similarly, battery manufacturing requires specialized materials, chemicals and engineered inputs.

This creates opportunities for Tier 2 and Tier 3 suppliers to move into higher-value materials and process-oriented segments rather than remaining solely dependent on traditional automotive component categories.

7.3. Opportunities for new entrants

7.3.1. Chemical companies

The growth of semiconductor manufacturing, battery production and advanced materials creates potential opportunities for specialty chemical manufacturers. Semicon 2.0 specifically identifies materials, chemicals and gases as part of the semiconductor ecosystem targeted for development.

As automotive manufacturing becomes increasingly linked to batteries and electronics, chemical companies may find new participation avenues within mobility-related supply chains.

7.3.2. Technology and engineering firms

The **Research, Development and Innovation Fund** Scheme and the broader shift toward software-defined vehicles indicate growing importance of engineering services, embedded software, artificial intelligence, simulation, testing and digital technologies. The RDI Scheme specifically seeks to support strategic and sunrise sectors through long-term financing for innovation and technology development.

For technology companies, automotive is increasingly becoming a platform where software, electronics and digital services converge with manufacturing. The increasing convergence of hardware, software and mobility technologies creates opportunities not only for traditional engineering service providers but also for companies specializing in artificial intelligence, digital engineering, simulation and industrial software.

7.3.3. Recycling and circular economy players

The National Critical Mineral Mission and the recently approved Critical Mineral Recycling Incentive Scheme indicate a growing policy emphasis on recovery, recycling and resource security. The recycling scheme is intended to develop domestic capacity for extraction of critical minerals from secondary sources, including lithium-ion battery scrap and end-of-life products.

This opens opportunities for recyclers, waste-management companies and resource-recovery businesses to participate in emerging circular value chains linked to batteries, electronics and critical materials.

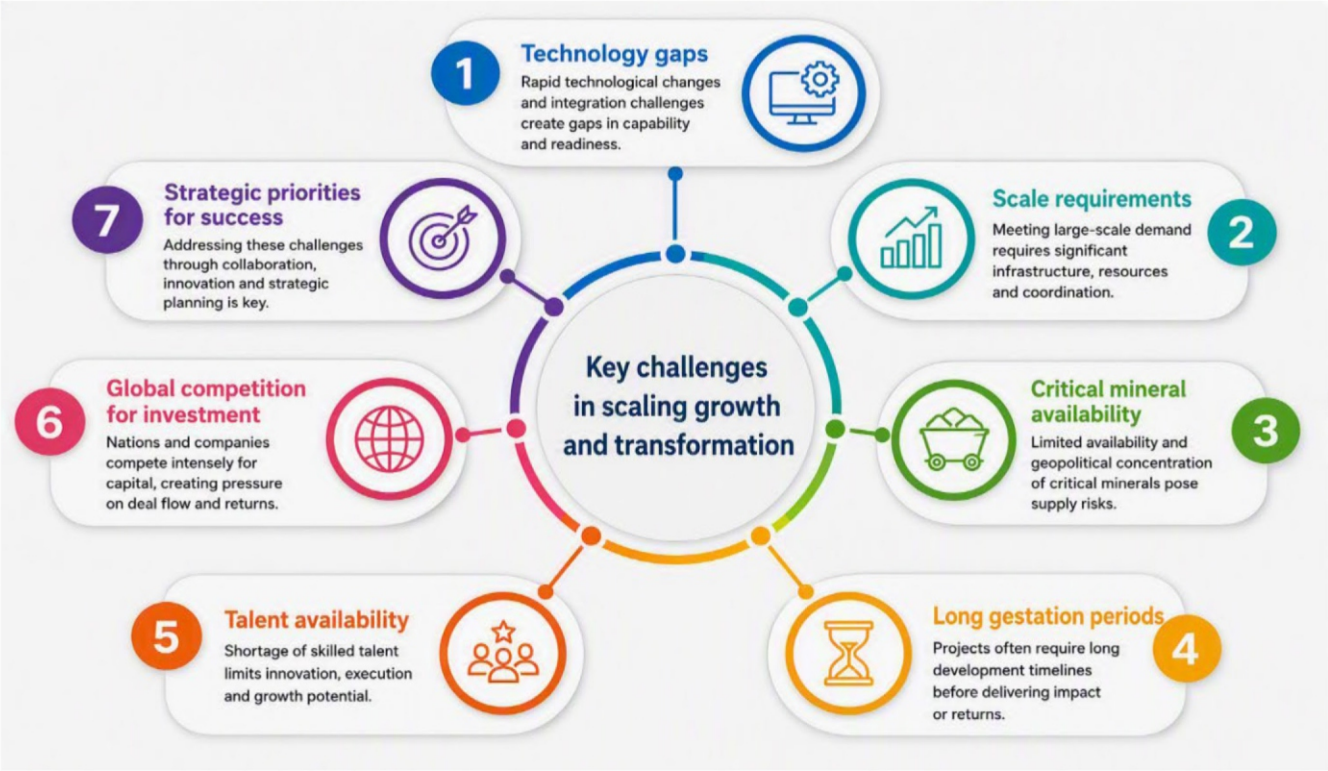
7.3.4. Energy storage companies

The ACC Battery Storage Programme is not restricted to automotive applications and can support energy storage systems beyond EVs. Government sources note that awarded ACC capacity can be utilized across e-mobility, stationary energy storage and other sectors.

As domestic battery manufacturing scales up, energy storage companies may benefit from improved access to locally manufactured cells, battery systems and associated technologies. This could support the growth of both e-mobility and stationary storage applications while creating opportunities for greater integration between the automotive and energy sectors.

8. Challenges on the road to integration

The movement from resilience to value chain integration creates significant opportunities, but it also raises execution challenges. India might need to build capabilities in areas where the entry barriers are high, the investment cycles are long, and the technology requirements are complex. The challenge is not limited to creating capacity. It includes developing technology ownership, intellectual property, talent, testing infrastructure, supplier depth, critical mineral security and commercial viability across emerging automotive value chain layers.



8.1. Technology and intellectual property gaps

The most fundamental challenge is the technology gap in high-value and emerging segments. India has strong capabilities in engineering services, machining, forging, casting, software development and process improvement. However, dependence remains significant in areas such as automotive semiconductors, advanced sensors, power electronics, battery materials, precision electronics, rare-earth magnets and certain specialized manufacturing processes.

This gap is not only about the absence of production capacity. It also includes:

- Limited ownership of automotive-grade intellectual property
- Insufficient experience in technology qualification and validation
- Dependence on imported design tools and production equipment
- Gaps in functional safety, cybersecurity and systems engineering
- Limited domestic capability in advanced materials and battery chemistry
- Weak linkages between research institutions and industrial applications

As vehicles become software-defined, a traditional manufacturing advantage may become insufficient. Suppliers may increasingly need to combine mechanical engineering with electronics, software, data analytics and systems integration.

The challenge is particularly acute for smaller and mid-sized component manufacturers. The capital required to develop a new electronic, battery or semiconductor-related product is materially higher than the investment required for conventional component production. In addition, the period between initial R&D expenditure and customer revenue can be considerably longer.

8.2. Scale, capital intensity and commercial viability

Many segments of the new automotive value chain require substantial scale before they become globally competitive. Semiconductor fabrication, battery-cell manufacturing, cathode-material production, advanced testing and recycling are capital-intensive businesses with demanding yield and quality requirements.

The Indian component sector has a broad supplier base, but its structure remains fragmented in several categories. This can limit investment capacity and make it difficult for individual companies to finance large technology transitions. Consolidation, strategic acquisitions, platform-based collaboration and shared infrastructure may therefore become increasingly important.

Scale should also be understood in terms of learning effects. Battery manufacturing, semiconductor packaging and advanced electronics become more competitive as companies accumulate production data, improve yields and reduce defects. Delayed investment can therefore create a disadvantage: companies that enter later may face higher costs and a steeper learning curve.

8.3. Critical mineral and material security

Critical minerals represent one of the most significant structural risks for the EV ecosystem. India's proposed processing initiatives can strengthen domestic capability, but mineral security may require a combination of local exploration, international collaborations, recycling, substitution and long-term supply arrangements.

The transition to electric mobility increases dependence on minerals and materials such as lithium, nickel, cobalt, graphite, copper and rare earth elements. India's National Critical Mineral Mission recognizes this challenge by covering exploration, mining, beneficiation, processing and recovery from end-of-life products. However, mineral security may not be achieved through access to deposits alone. India may also need refining, processing, precursor material capability, recycling, responsible sourcing and strategic collaborations. In the absence of these layers, cell manufacturing and EV component localization may remain exposed to imported processed inputs.

8.4. Long gestation and implementation risk

Deep localization projects typically require land and environmental approvals, technology tie-ups, equipment sourcing, plant stabilization, customer validation and product certification before commercial production can scale. Policy certainty, timely clarifications, predictable evaluation mechanisms and efficient incentive disbursement might therefore be as important as the headline quantum of support. If implementation timelines are not aligned with practical project cycles, the impact of incentives may remain below their full potential.

Government incentives can improve project economics, but companies might not treat incentives as a substitute for a robust commercial model. Investment decisions should be based on customer commitments, technology readiness, total lifecycle economics, potential export demand and the ability to achieve performance milestones.

8.5. Talent, testing and institutional capacity

Integrated automotive manufacturing requires skills beyond the traditional supplier base. Electronics, electrochemistry, materials science, embedded software, cybersecurity, automation, testing and sustainability may all become important capability areas. The semiconductor ecosystem's talent programs, including Chips to Startup, underline the scale of specialized capability building required. Industry-led curricula, applied research platforms, testing laboratories and stronger collaboration among manufacturers, universities, startups and technical institutions may be necessary to convert policy support into enduring industrial capability.

There is also a managerial dimension. Companies may need leaders who can manage collaborations among automotive OEMs, technology firms, research institutions, universities and global suppliers. Traditional organizational structures may not be sufficient for businesses that combine manufacturing, software, electronics, materials science and data.

8.6. Global competition for investment

India is not the only jurisdiction seeking to attract investments in EVs, semiconductors, batteries, critical minerals and advanced manufacturing. Competing economies are also offering policy support, infrastructure and market access. India's advantage may therefore depend on the combined strength of its domestic market, supplier base, central and state incentives, logistics, talent and policy predictability. The challenge is to convert policy intent into execution confidence for investors and suppliers across the value chain.

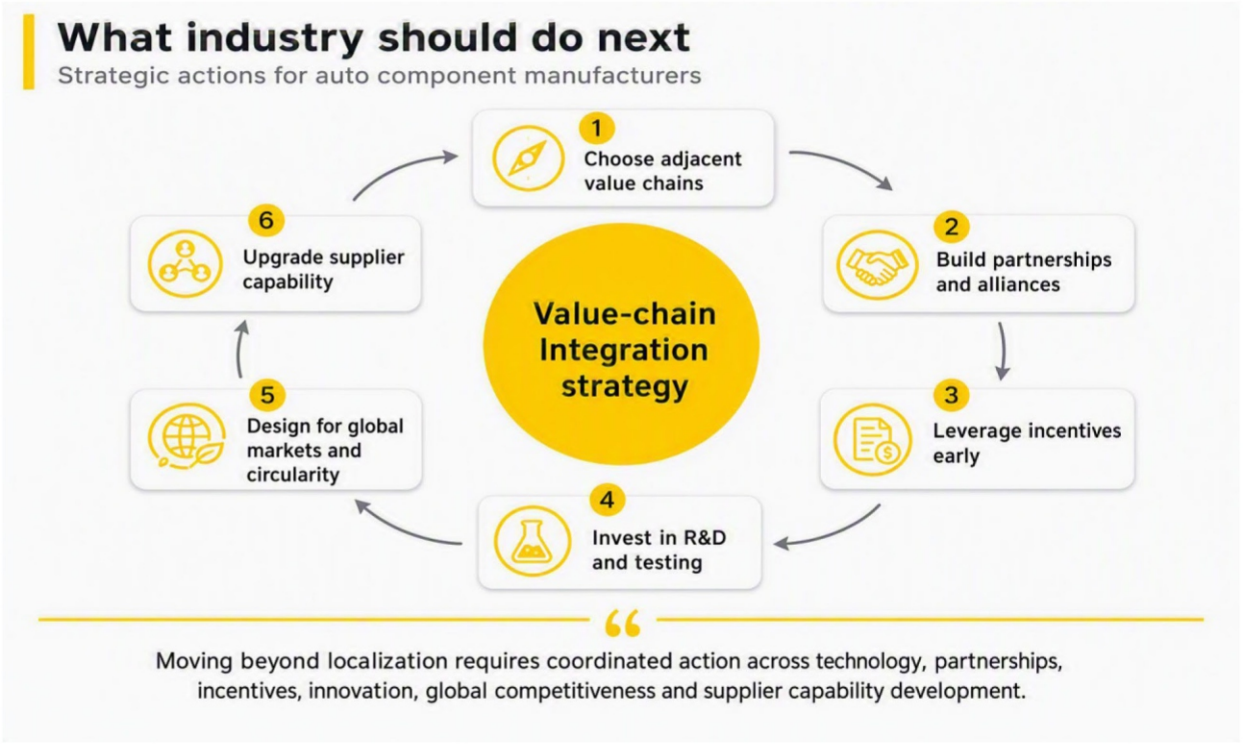
These challenges do not dilute the opportunity before the sector. Rather, they indicate that the next phase of automotive integration may require coordinated action across policy, industry, technology providers, financial institutions and academia. India has already demonstrated that targeted incentives can mobilize investment in advanced automotive technologies. The next test might be whether such investments translate into domestic value addition, supplier depth, technology ownership and globally competitive products.

8.7. Strategic priorities for success

At the same time, the shift toward backward integration should be pursued with strategic discipline. Deepening participation in upstream inputs, materials, electronics or technology-intensive processes can strengthen supply security, but it may also divert capital, management attention and specialized talent away from established core competencies. For many automotive companies, competitive advantage continues to rest on product engineering, manufacturing excellence, customer relationships, cost discipline and innovation capability. If backward integration is pursued without a clear fit with these strengths, it may dilute focus, stretch organizational resources and slow the very innovation capabilities that are essential for long-term competitiveness in the automotive industry.

9. What industry should do next

Government incentives can improve project economics, but they cannot substitute for enterprise strategy. Companies need to identify where value is migrating, choose the right adjacencies, build collaborations, engage early with the incentive architecture, invest in R&D and testing and design products for global markets and circularity. The companies that combine manufacturing discipline with technology access, collaborative scale, early use of incentives, R&D capability and export orientation might be better placed to capture the opportunities created by India's transition from component localization to full value chain integration.



9.1. Define adjacency-led growth strategies

Companies should begin with a realistic assessment of their existing capabilities and identify adjacent opportunities that can be scaled with manageable execution risk. Precision engineering, thermal management, coatings, tooling, electronics assembly, process control and quality systems can provide entry points into power electronics, battery packs, battery management systems, charging components, semiconductor packaging support, lightweight materials and recycling. A focused adjacency strategy can help suppliers move into higher-value segments without losing the operating discipline built in conventional automotive manufacturing.

9.2. Build consortiums and technology alliances

The capital intensity and technological complexity of new value chains may make standalone investments difficult, particularly for small and mid-sized suppliers. Joint ventures, technology licensing arrangements, industry consortiums and long-term customer collaborations can help combine capital, market access, engineering know-how and validation capability. Collaboration with chemical, electronics, energy storage, software and technology companies may be especially relevant as the boundaries of the traditional automotive supply chain continue to expand.

Priority areas for collaboration include:

- Embedded software
- Cloud-connected vehicle systems
- Battery analytics
- Digital twins
- Predictive maintenance
- Advanced driver-assistance systems
- Robotics and automation
- Semiconductor design
- Advanced manufacturing and inspection

Such collaboration may be structured around defined commercial outcomes. Examples include a validated battery-management platform, a production-ready power module, a qualified sensor system or an export-compliant software product. Collaborations that remain limited to exploratory discussions might not close the technology gap.

9.3. Engage early with the incentive architecture

Incentive-linked projects require more than an application submitted near the investment decision. Companies should undertake early eligibility assessment, align product and investment plans with scheme requirements, establish domestic value-addition tracking and build documentation into enterprise systems. Central schemes should also be evaluated together with state-level support for capital investment, employment, power, stamp duty, land, infrastructure and skilling so that the complete project proposition is assessed before finalizing investment plans.

9.4. Strengthen R&D, testing and localization of intellectual property

Future competitiveness may be shaped not only by where a product is manufactured, but also by where it is designed, validated and improved. Companies should create technology roadmaps, protect intellectual property, use simulation and digital engineering, and participate in collaborative research with academic and technical institutions. Testing, certification and validation capability should be treated as strategic infrastructure, particularly for battery systems, power electronics, safety-critical components and software-led vehicle systems.

9.5. Design for global markets and circularity

India's ambition to increase its participation in global automotive value chains may require products that meet international standards on quality, safety, traceability and sustainability. Manufacturers may build export certification, responsible sourcing, lifecycle assessment, repairability and recycling considerations into product development from the outset. Circular business models can reduce material dependence, improve environmental performance and create new revenue streams, particularly in batteries, electronics and end-of-life vehicle material recovery.

9.6. Upgrade supplier capability and governance

As supply chains become more technology-intensive, documentation, traceability, domestic value-addition records, quality systems, ESG (Environmental, Social and Governance) disclosures and cybersecurity processes may become important for both incentive compliance and customer qualification. Industry participants might therefore invest in digital systems, quality governance, workforce reskilling and supplier-development programs so that smaller suppliers can participate in the emerging ecosystem rather than being left behind by the technology transition.

For the automotive industry, the way forward is therefore both strategic and practical. Companies that combine manufacturing discipline with technology access, collaborative scale, early use of incentives, R&D capability and export orientation might be better positioned to capture the opportunities created by India's transition from component localization to full value chain integration.



Conclusion

Beyond resilience to strategic self-reliance

India's automotive industry stands at an inflection point. The sector's earlier growth was built on manufacturing scale, cost competitiveness and integration into global value chains. The next phase of growth, however, might be defined by the ability to move deeper into technology-intensive segments, strengthen domestic supply chains and build capabilities in strategic areas such as semiconductors, advanced batteries, electronics and critical minerals.

Government's incentive architecture, spanning vehicle and component manufacturing, battery cells, semiconductors, critical minerals and research and development, is increasingly evolving from manufacturing support toward ecosystem development. Rather than focusing solely on production capacity, current policy measures aim to encourage technology acquisition, strengthen supply chain resilience, foster innovation and create globally competitive manufacturing ecosystems through coordinated action between the Centre and states.

The road beyond resilience is therefore a road towards integration. If government and industry act with a shared long-term vision, India can strengthen its position not only as a global manufacturing hub but also as a significant contributor to the technologies, materials and ecosystems that might define the future of mobility. Success may ultimately depend on the ability of industry to leverage these policy opportunities, build technological depth and integrate more deeply across the automotive value chain, transforming resilience into long-term competitiveness and sustainable growth.

Glossary

AAT	Advanced Automotive Technology
ATMP	Assembly, Testing, Marking and Packaging
BEVs	Battery Electric Vehicles
BIRAC	Biotechnology Industry Research Assistance Council
DVA	Domestic Value Addition
ECUs	Electronic Control Units
ESDM	Electronics System Design and Manufacturing
FAME	Faster Adoption and Manufacturing of Electric Vehicles
MTPA	Metric Tonnes per Annum
NCMM	National Critical Mineral Mission
OEMs	Original Equipment Manufacturers
OSAT	Outsourced Semiconductor Assembly and Test
PLI-ACC	Production Linked Incentive Scheme for Advanced Chemistry Cell Battery Storage
PLI-Auto	Production Linked Incentive Scheme for Automobile and Auto Components
PM E-DRIVE	PM Electric Drive Revolution in Innovative Vehicle Enhancement
RDI	Research, Development and Innovation
RDIF	Research, Development and Innovation Fund
REPM	Rare Earth Permanent Magnets
TDB	Technology Development Board

Our offices

Ahmedabad
22nd Floor, B Wing, Privilon
Ambli BRT Road, Behind Iskcon Temple
Off SG Highway, Ahmedabad - 380 059
Tel: + 91 79 6608 3800

Gandhinagar
8th Floor, Building No. 14A
Block 14, Zone 1
Brigade International Financial Centre
GIFT City SEZ
Gandhinagar - 382 355
Tel: + 91 79 6608 3800

Bengaluru
12th & 13th Floor
"UB City", Canberra Block
No.24 Vittal Mallya Road
Bengaluru - 560 001
Tel: + 91 80 6727 5000

Ground & 1st Floor
11, 'A' wing
Divyasree Chambers
Langford Town
Bengaluru - 560 025
Tel: + 91 80 6727 5000

3rd & 4th Floor
MARKSQUARE
#61, St. Mark's Road
Shantala Nagar
Bengaluru - 560 001
Tel: + 91 80 6727 5000

1st & 8th Floor, Tower A
Prestige Shantiniketan
Mahadevapura Post
Whitefield, Bengaluru - 560 048
Tel: + 91 80 6727 5000

Ecospace
1st Floor, Campus 1C
Ecospace Business Park
Outer Ring Road,
Bellandur - Sarjapura Area,
Varthur Hobli,
Bengaluru Urban - 560103

Bhubaneswar
8th Floor, O-Hub, Tower A
Chandaka SEZ, Bhubaneswar - 751024
Tel: + 91 674 274 4490

Chandigarh
Elante offices, Unit No. B-613 & 614
6th Floor, Plot No- 178-178A
Industrial & Business Park, Phase-I
Chandigarh - 160 002
Tel: + 91 172 6717800

Chennai
6th & 7th Floor, A Block,
Tidel Park, No.4, Rajiv Gandhi Salai
Taramani, Chennai - 600 113
Tel: + 91 44 6654 8100

Delhi NCR
Aikyam
Ground Floor
67, Institutional Area
Sector 44, Gurugram - 122 003
Tel: + 91 124 443 4000
3rd & 6th Floor, Worldmark-1
IGI Airport Hospitality District
Aerocity, New Delhi - 110 037
Tel: + 91 11 4731 8000

4th & 5th Floor, Plot No 2B
Tower 2, Sector 126
Gautam Budh Nagar
Noida - 201 304
Tel: + 91 120 671 7000

Hyderabad
THE SKYVIEW 10
18th Floor, "SOUTH LOBBY"
Survey No 83/1, Raidurgam
Hyderabad - 500 032
Tel: + 91 40 6736 2000

THE SKYVIEW 20
2nd Floor, 201 & 202
Right Wing, Survey No 83/1
Raidurgam, Hyderabad - 500 032
Tel: + 91 40 6736 2000

Jaipur
9th floor, Jewel of India
Horizon Tower, JLN Marg
Opp Jaipur Stock Exchange
Jaipur - 302018

Kochi
7th Floor, ABAD Nucleus
NH-49, Maradu PO
Kochi - 682 304
Tel: + 91 484 433 4000

Kolkata
22 Camac Street
3rd Floor, Block 'C'
Kolkata - 700 016
Tel: + 91 33 6615 3400

6th floor, Sector V,
Building Omega, Bengal Intelligent Park,
Salt Lake Electronics Complex,
Bidhan Nagar
Kolkata - 700 091
Tel: + 91 33 6615 3400

Mumbai
14th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (W), Mumbai - 400 028
Tel: + 91 22 6192 0000

5th Floor, Block B-2
Nirlon Knowledge Park
Off. Western Express Highway
Goregaon (E)
Mumbai - 400 063
Tel: + 91 22 6192 0000

3rd Floor, Unit No.301
Building No.1, Mindspace-Gigaplex
IT Park, MIDC, Plot No. IT-5
Airoli Knowledge Park
Airoli West, Navi Mumbai - 400 708
Tel: + 91 22 6192 0003

18th Floor, Altimus
Pandurang Budhkar Marg
Worli, Mumbai - 400 018
Tel: + 91 22 6192 0503

Pune
C-401, 4th Floor
Panchshil Tech Park, Yerwada
(Near Don Bosco School)
Pune - 411 006
Tel: + 91 20 4912 6000

10th Floor, Smartworks
M-Agile, Pan Card Club Road
Baner, Pune - 411 045
Tel: + 91 20 4912 6800

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Contact Us:



Saurabh Agarwal
Partner,
Policies, Regulation & Capex Program & Auto Tax Leader
+91 9958599245



Parul Nagpal
Partner,
Indirect Taxes & Incentives
+91 9971185284



Anshul Girotra
Senior Manager,
Indirect Taxes & Incentives
+91 8376926163



Jatin Rajpal
Senior Consultant,
Indirect Taxes & Incentives
+91 9399175845

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Indian Automotive Aftermarket Growth Opportunities

By

FROST & SULLIVAN



INDIAN AUTOMOTIVE AFTERMARKET GROWTH OPPORTUNITIES

Authored by: Turab Ali Khan, Principal Consultant, Mobility Growth Advisory, Frost & Sullivan

Prepared Exclusively for:

ACMA

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EXECUTIVE SUMMARY

This report examines the Indian automotive aftermarket through five simultaneous shifts - Ageing, Premiumisation, Formalisation, Digitalisation and Technology Transition - that together shape both the size and the composition of demand through 2030.

₹1,10,741 Cr	₹1,46,900 Cr	~5.8%	~390 Mn+
FY26 Aftermarket Size	2030 Forecast	2025-30 CAGR	Total Vehicle Parc

Source: Frost & Sullivan Analysis

Overview

India's automotive aftermarket is entering a structurally favourable phase through 2030, underpinned by a large and ageing vehicle parc, resilient GDP growth (7.6% in FY2025-26, with RBI projecting 6.9-7.0% H1 growth for FY2026-27), rate cuts that have lowered vehicle ownership costs, and a landmark GST 2.0 reform that simplified tax slabs and narrowed the price gap between genuine and counterfeit parts. Component demand, estimated at ₹1,10,741 crore in 2025, is projected to grow at roughly 5.8% CAGR to ₹1,46,900 crore by 2030, broadly in line with independent industry forecasts of 4-8% CAGR for the period.

Macro Tailwinds

- **Robust growth momentum:** India's real GDP grew 7.6% in FY2025-26, the fastest since FY2021-22, supported by GST 2.0, RBI rate cuts (repo rate down 125 bps to 5.25%), and a new US-India trade deal.[1]
- **GST 2.0 reset pricing:** The September 2025 GST reform cut rates on small cars and two-wheelers from 28% to 18%, triggering a 40.5% festive-season sales jump; this compresses the tax-arbitrage advantage previously enjoyed by spurious/counterfeit parts.[2]
- **Infrastructure build-out:** The National Highway network grew 60% over the past decade and construction pace nearly tripled, directly increasing kilometres driven and accelerating replacement cycles for tyres, brakes, and suspension components.
- **Scrappage policy is a double-edged sword:** Nearly 4 lakh vehicles have been scrapped since the policy's 2021-22 launch[3]; vehicles in the 12–19-year band are now in peak maintenance years,

[1] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2163763&lang=2&reg=3&utm

[2] https://economictimes.indiatimes.com/industry/auto/auto-news/october-vehicle-retail-sales-in-india-hit-an-all-time-high/articleshow/125166324.cms?utm

[3] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2209837&lang=2&reg=48&utm

sustaining near-term parts demand even as the oldest, most counterfeit-prone vehicles exit the parc.

Aftermarket Market Structure & Forecast

Passenger cars command the largest and fastest-compounding share of the aftermarket (43.4% in 2025, rising to 44.7% by 2030), followed by commercial vehicles (30.1%, the only segment losing share), two-wheelers (20.6%, growing as fast as passenger cars), and three-wheelers (5.9%, the fastest-growing segment off a small base). No segment is expected to decline over the forecast period — growth is broad-based rather than concentrated in one category.

Segment	CAGR	2030 Share	2030 (₹ Cr)
Passenger Cars	6.4%	44.7%	65,600
Commercial Vehicles	4.4%	28.1%	41,300
2 Wheelers	6.4%	21.2%	31,100
3 Wheelers	6.5%	6.1%	8,900

The market remains a hybrid structure: an organised/branded segment (OEM aftermarket divisions, Tier-1 branded parts, multi-brand retail, e-commerce) is gaining share but still trails the ~80% formalisation level seen on the OEM-supply side. The unorganised segment — informal distributors, unbranded/counterfeit parts, roadside garages — continues to dominate day-to-day servicing outside major metros, particularly for two-wheelers.

Key Trends Reshaping the Industry

- **EV transition — gradual, segment-specific:** EV penetration reached ~8.5% of vehicle sales in FY26 and is projected to hit 10-12% in FY27[4], led by three-wheelers (62-65%). The aftermarket impact will be gradual — 2026-2028 sees limited disruption, 2029-2032 brings a noticeable mix shift, and material structural change follows post-2032 as early EV cohorts age. Engine and transmission parts face the greatest exposure; electricals, thermal management, and suspension/braking are best positioned.
- **Digital & UPI penetration:** UPI processed over 24,162 crore transactions worth ~₹314 lakh crore in FY2025-26. Combined with e-commerce/quick-commerce platforms (Boodmo, Amazon, Flipkart)

[4] https://www.autocarpro.in/news/india-ev-penetration-expected-to-reach-10-12-percent-in-fy27-ind-ra-133711?utm

reaching Tier 2/3 markets, price transparency is eroding the information asymmetry that previously protected spurious parts.[5]

- **Regulatory tightening:** BS-VI Phase 2 (RDE testing, mandatory OBD2 including for two-wheelers) is raising the technical bar for repairs, creating high-value diagnostic and emissions-component categories while disadvantaging under-equipped independent garages.
- **Value chain evolution:** Tier-1 suppliers are shifting from distributor-led sales to owned warehouses and direct-to-market strategies, while introducing budget "Type 2" sub-brands to compete with IAM/local parts — with mixed success where channel separation is unclear.

Challenges

- **Counterfeit parts:** An industry-consensus range rather than a precisely measured statistic suggests that 20-30% of the market involves counterfeit or low-grade parts, undermining safety, trust, and organised-player margins. (*Industry-body and trade commentary; no single systematically audited source.)*
- **Skills gap:** An acute shortage of technicians trained on BS-VI, ADAS, and high-voltage EV systems risks capacity-constraining the aftermarket even as demand rises; broader mobility estimates point to a need for 100,000-200,000 EV-related professionals by 2030.[6]
- **Import dependence:** China accounts for roughly 36% of auto component imports; electronics, ECUs, and high-value components remain import-dependent, exposing the sector to raw-material and geopolitical volatility.[7]

Opportunities & Growth Trajectory

The 2026-2030 window favours players who move beyond pure parts trading toward quality, digital enablement, and electrification readiness. Priority opportunity areas include localisation of electronics, ECUs, and EV components under PLI incentives; expansion of organised multi-brand service and e-commerce distribution into Tier 2/3 markets; remanufacturing and circular-economy models; and Right to Repair-style data access that would strengthen the independent channel. Overall, the Indian automotive aftermarket is positioned for solid mid-to-high single-digit growth through 2030 — success will favour stakeholders who invest now in capability, trust, and technology readiness rather than compete purely on price.

[5] https://www.pib.gov.in/FactsheetDetails.aspx?ModuleId=16&NoteId=150840&id=150840&lang=2&reg=48&utm

[6] https://economictimes.indiatimes.com/jobs/fresher/demand-for-200000-skilled-workers-by-2030-in-the-ev-industry/articleshow/116996465.cms?from=mdr&utm

[7] https://www.autocarpro.in/news/china-solidifies-its-grip-as-indias-primary-source-for-auto-components-with-a-dominant-36-percent-share-of-total-imports-133464?amp=1&utm

SECTION 1: MACRO OVERVIEW

1a. Macro Economy - GDP, Inflation, Investments & Other Relevant Parameters

i) Historical Trends (FY2020–FY2025) and FY2026–FY2030 Forecasts

India's macroeconomic trajectory over the five years from FY2020 to FY2025 has been marked by extraordinary volatility followed by equally extraordinary resilience. The COVID-19 pandemic caused a contraction of approximately 5.8% in FY2020-21, the sharpest annual decline in modern Indian economic history before the economy rebounded with a 9.7% expansion in FY2021-22. The subsequent years saw progressively normalising but still robust growth: 7.0% in FY2022-23, 8.2% in FY2023-24, and 6.5% in FY2024-25, per MoSPI data. In FY2025-26, GDP accelerated to 7.6% - the highest since FY2021-22 driven by private expenditure growth of 7.7%, gross fixed capital formation growth of 7.1%, and sustained public expenditure.

The National Statistics Office (NSO) of the Ministry of Statistics and Programme Implementation (MoSPI) released its First Advance Estimates for FY2024-25 in January 2025, projecting 6.4% real GDP growth, with actual First Revised Estimates coming in slightly higher at 6.5%. The nominal GDP growth rate for FY2024-25 was estimated at 9.9%, indicating healthy current-price expansion.

GDP Growth Trend: FY2020 to FY2026 (Real GDP, % change)

India Real GDP Growth Rate (%) - FY2020 to FY2026

FY2019-20		4.0%
FY2020-21		-5.8%
FY2021-22		9.7%
FY2022-23		7.0%
FY2023-24		8.2%
FY2024-25		6.5%
FY2025-26		7.6%

Source: MoSPI National Accounts Statistics; Ministry of Statistics & Programme Implementation via NewsonAir; FY26 data from MoSPI via TradingEconomics citing MOSPI; RBI Monetary Policy Report Feb 2026

Looking ahead, the Reserve Bank of India revised its GDP growth forecast for FY2025-26 upward to 7.4% at its February 2026 Monetary Policy Committee meeting (with actual FY26 data later confirmed at 7.6% by MoSPI's Second Revised Estimate). For the forward period FY2026-27, the RBI projected H1 growth of 6.9–7.0%. Several structural tailwinds including a new US-India trade deal, continued public infrastructure investment, accommodative monetary policy with the repo rate cut to 5.25%, and inflation staying well within the 2%–6% tolerance band at 1.33% in December 2025 — underpin this outlook. These macroeconomic conditions are strongly positive for the automotive sector, as consumer confidence, financing costs, and business activity collectively drive vehicle demand and, by extension, aftermarket spend.

Fiscal Year	Real GDP Growth	Nominal GDP Growth	Key Driver / Event
FY2019-20	4.0%	~7.2%	Pre-COVID slowdown; BS-IV to BS-VI transition
FY2020-21	-5.8%	-1.4%	COVID-19 pandemic; nationwide lockdowns
FY2021-22	+9.7%	~19.5%	Post-pandemic recovery; pent-up demand
FY2022-23	+7.0%	~16.1%	Inflationary pressures; RBI rate hikes
FY2023-24	+8.2%	+9.6%	Manufacturing surge; highest in 12 years (ex-FY22)
FY2024-25	+6.5%	+9.9%	Normalised growth; strong rural demand
FY2025-26	+7.6%	~10%	GST 2.0, RBI rate cuts, US-India trade deal
FY2026-30 (Projected)	6.4–7.0% p.a.	~9–11% p.a.	Infrastructure push, formalisation, EV transition

Source: MoSPI / NewsonAir.gov.in; RBI; MoSPI Second Revised Estimates FY26

ii) Sectoral Contribution – Manufacturing, Logistics & Consumer Spending

Manufacturing, a direct upstream driver of the auto component industry witnessed 9.9% growth in FY2023-24, according to Finance Minister Nirmala Sitharaman, making it the standout sectoral performer that year. The automotive sector (vehicle manufacturing, OEM component supply, aftermarket, dealerships and allied services combined - not the aftermarket alone) is estimated to contribute approximately 7.1% of India's GDP directly and indirectly, employing around 35 million people across the value chain. The government's Production Linked Incentive (PLI) scheme for the automobile and auto components sector, with an outlay of Rs. 25,938 crores are specifically designed to boost domestic manufacturing value-add and has attracted significant OEM and Tier-1 investment commitments.

Logistics, critical for parts distribution across India's vast geography has benefited enormously from infrastructure investment. The National Logistics Policy (NLP), launched in September 2022, set a target of reducing logistics costs from approximately 13-14% of GDP to under 8% of GDP by 2030. The Ministry of Road Transport and Highways (MoRTH) plans to develop 35 Multimodal Logistics Parks under Bharatmala Pariyojana at a total investment of approximately Rs. 46,000 crores, capable of handling 700 million metric tonnes of cargo when fully operational. This will meaningfully reduce distribution costs for auto parts, potentially improving aftermarket margin structures for organised players.

Consumer spending on vehicle maintenance is shaped by per-capita income levels, vehicle age profiles, fuel costs, and availability of credit. India's private final consumption expenditure grew 7.7% in real terms in FY2025-26 — the fastest pace in three years — reflecting improving household balance sheets

and the income tax relief provided in the Union Budget 2025-26, which reduced tax outgo for the middle class.

i) Fiscal & Monetary Policy Impact on the Automotive Sector

Fiscal Policy: GST 2.0 Was the Big Lever

September 3, 2025 GST Council reforms collapsed a messy four-slab structure into essentially two rates and abolished the compensation cess:

- **Small cars** (petrol ≤1200cc/≤4m, diesel ≤1500cc/≤4m): cut from 28% to **18%**
- **Two-wheelers up to 350cc**: cut from 28% to **18%**
- **Larger cars/SUVs**: moved to a flat **40%**, replacing 28% + 15–22% cess (roughly a wash for luxury, but far simpler)
- **Commercial vehicles, buses, tractors, three-wheelers**: also rationalized down, tractors falling from 12% to just 5%

The response was sharp, retail auto sales jumped 40.5% during the festive season, with two-wheelers up 52% and passenger vehicles up 11.5%. Passenger vehicle sales then posted three straight months of double-digit growth (17–22.8%) through Q4 2025, with sub-4-metre SUVs surging 24% YoY as their effective tax rate fell 11–13 points. Analysts note this was largely a one-time price reset rather than a permanent deflationary shift prices have already started drifting back up toward pre-GST levels as incentives fade.

The **Union Budget 2026-27** added more targeted, EV-focused fiscal support rather than broad rate cuts (since GST had just done that work): customs duty exemptions on capital goods for processing lithium, cobalt, and rare earths; continued duty relief for lithium-ion cell manufacturing; a ₹10,000 crore SME Growth Fund for auto component suppliers; and an expanded Electronics Components Manufacturing Scheme (raised to ₹40,000 crore) that feeds into semiconductor supply for vehicles. Industry is still pushing for a fix to the EV sector's **inverted duty structure** (5% GST on EVs vs. 18% on many components), which remains unresolved.

Monetary Policy: Rate Cuts Lowered the Cost of Ownership

The RBI cut the repo rate four times in 2025, a cumulative **125 basis points**, taking it from 6.5% down to **5.25%**, where it has held steady through mid-2026. It also cut the CRR by 100 bps at one point, releasing roughly ₹2.5 lakh crore of liquidity.

For autos specifically, this fed through as:

- Cheaper auto loan EMIs on repo-linked floating-rate loans (each 25 bps cut trims a ₹5-10 lakh, 5-year loan's EMI modestly but meaningfully over the loan term)
- Auto stocks (NIFTY Auto) rallying on rate-cut days alongside banking and real estate, as investors price in stronger financed demand
- Combined with GST cuts, easier credit is cited by analysts (industry executives) as a joint driver of the rural and urban demand recovery

1b. Change Drivers and Impact on Stakeholders

i) Roads and Infrastructure Development

India's road infrastructure has undergone a transformation of historic scale. The National Highway network expanded from 91,287 km in March 2014 to 1,46,195 km as of end-2024 - a 60% increase in a decade - making India the world's second-largest National Highway network, as stated in the MoRTH Year-End Review released on January 9, 2025. Construction pace tripled from 11.6 km/day in FY2013-14 to approximately 34 km/day in 2025. High-speed corridors (expressways) grew from just 93 km in 2014 to 2,474 km in 2024.[8]

The MoRTH's budgetary investment in road infrastructure increased 6.4 times between FY2013-14 and FY2024-25, with Rs. 2.72 lakh crore allocated in the Union Budget FY2024-25 alone. The Bharatmala Pariyojana programme (approved for 34,800 km of highways) is a key vehicle for corridor development. As of December 2024, 190 projects spanning 3,848 km were active across the eight northeastern states alone at a cost of Rs. 82,452 crores.

The aftermarket implications are direct and material: better roads mean vehicles travel longer distances, accumulate kilometres faster, and require periodic servicing sooner. Expressway expansion also draws fleet operators to build service outposts along corridors, creating new aftermarket demand nodes away from traditional urban centres.

Impact Summary (Four Key Segments)

Stakeholder	Key Impacts
Fleet Operators / Logistics	Faster turnaround; trucks may cover **800 km/day** vs **300-350 km**. Lower fuel & transit costs.
CV OEMs & Dealers	Higher freight demand drives commercial vehicle sales; larger, higher-capacity trucks needed.
Aftermarket / Service	More km driven on highways increases service intervals; tyre, brake, suspension demand rises.
State Highway Operators	Revenue shift to national corridors; GPS tolling may disrupt existing plaza-based models.

ii) Economy – GDP, Mining, Construction & Logistics Growth

India's mining sector growth (driven by the infrastructure investment boom in coal, iron ore, and limestone for cement) stimulates demand for heavy off-road construction and mining equipment, which feeds into aftermarket demand for filters, hydraulics, and wear parts. The Indian Railways achieved an all-time high freight loading of 1,617.38 MT in FY2024-25, while the government's goal of reducing

[8] https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=2091508&lang=2&reg=48&utm

logistics costs from 13-14% to sub-8% of GDP by 2030 creates structural demand for fleet expansion and fleet management efficiency tools, all of which have aftermarket implications.[9]

Sector	FY24 Growth	FY25 Growth	FY26 (EST.)	Share of GVA	Automotive Link
Real GDP (Overall)	9.2%	6.5%	7.6%	—	Broad demand driver
Construction	9.9%	9.4%	~10%	~8%	CV/tipper/mixer demand
Manufacturing	9.9%	~5%	~7%	~17%	Fleet & LCV demand
Mining & Quarrying	7.2%	~2%	~4%	~2.5%	Dump truck; cyclical
Trade/Transport/Hotels	5.7%	~6%	~7%	~18%	Ride-hailing & bus demand
Financial/Real Estate	12.6%	7.2%	~7%	~15%	Premium PV demand

Source: MoSPI / NewsonAir.gov.in; RBI;

Logistics cost opportunity: India's logistics cost stands at 14–16% of GDP[10]; government targets 8–10% by 2030 through Bharatmala & PM GatiShakti. Reducing this will expand freight volumes, raising CV fleet utilisation and aftermarket revenue.

iii) Vehicle Age Profile and Scrappage Policy Impact

India's Vehicle Scrappage Policy, formally launched in FY2021-22, mandates that commercial vehicles older than 15 years and private vehicles older than 20 years must pass automated fitness tests or be scrapped. From April 1, 2023, Heavy Commercial Vehicles mandatorily undergo testing at Automated Testing Stations (ATSs). From June 1, 2024, this was extended to all categories. As of December 2025, nearly 4 lakh vehicles had been scrapped since the policy's inception, per government data.

Vehicle Category	Age Threshold	Fitness Test From	Eligible Fleet	Scrapped by Jul 2025	Policy Incentive
Heavy Commercial Vehicles	15 years	Apr 2023	~1.1 million M&HCVs	~46,000	15% tax rebate on new CV

[9] https://www.pib.gov.in/PressNoteDetails.aspx?ModuleId=3&NoteId=154624&id=154624&lang=2&reg=48&utm

[10] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2225419&lang=1&reg=1&utm

Government Vehicles	15 years	Apr 2023 (Phase 1)	~900,000+	~12,000	Mandatory scrapping
Other Commercial Vehicles	15 years	Jun 2024	Part of 7.5 Mn LV pool	~65,000 private total	25% road tax concession
Private / Passenger Vehicles	20 years	Jun 2024	~5.1 million LMVs >20 yrs	Minimal so far	4–6% OEM discount
Defence Vehicles	15 years	Phase 1	Significant fleet	~59,000	Regulatory compliance

Source: MoSPI / NewsonAir.gov.in; RBI; MoSPI Second Revised Estimates FY26

For the aftermarket, the scrappage policy is a double-edged sword. On one hand, it removes very old (20+ year) vehicles that represent a significant portion of the spurious/counterfeit parts market- these vehicles were often maintained with low-quality generic parts. On the other hand, vehicles approaching but not yet at the scrappage threshold (12–19 years old) are in their peak maintenance years, generating high parts demand as owners invest in keeping their vehicles roadworthy through fitness tests. The government estimates that this policy could generate vehicle sales growth of up to 18%, expanding the new vehicle fleet and shifting future maintenance demand toward more sophisticated BS6-compliant vehicles.

Scrappage Policy Key Provisions

Commercial Vehicles: Mandatory fitness test every 2 years for first 8 years; annually thereafter. De-registration if >15 years and fails test. Private Vehicles: Mandatory automated fitness test if >20 years. Incentive: Up to 25% Motor Vehicle Tax concession for non-transport vehicle owners purchasing a new vehicle against Certificate of Deposit. Government vehicles scrappage (>15 years) applicable from April 1, 2022. Source: MoRTH / PIB.

iv) Annual Kilometres Driven by Segment

Annual vehicle usage varies significantly by segment. Commercial vehicles, particularly M&HCVs used in long-haul logistics accumulate approximately 80,000–1,20,000 km per year, making them extremely high-value aftermarket customers with frequent parts replacement cycles. LCVs typically cover 40,000–70,000 km per year. Passenger vehicles in urban India average approximately 12,000–18,000 km per year, while rural passenger vehicles may average 8,000–12,000 km. Two-wheelers used for commuting cover approximately 8,000–15,000 km annually, while two-wheelers used by quick-commerce delivery riders can cover 25,000–40,000 km per year.

Segment	AVG Annual KM	Typical Service Interval	Service Events/YR	Aftermarket Value
Taxi / Ride-hailing (4W)	~50,000 – 80,000 km	Every 5,000 – 7,500 km	12–24×	**Very High**

Trucks (M&HCV)	~80,000 – 1,20,000 km	Every 10,000 – 20,000 km	6–15×	**Very High**
3-Wheelers (commercial)	~30,000 – 50,000 km	Every 4,000 – 6,000 km	8–15×	**High**
LCV (delivery / e-com)	~40,000 – 70,000 km	Every 5,000 – 10,000 km	5–14×	**High**
Private PV (personal use)	~12,000 – 16,000 km	Every 10,000 – 13,000 km	1–2×	**Moderate**
2-Wheelers	~8,000 – 12,000 km	Every 3,000 – 5,000 km	2–5×	**Low-Moderate**

Source: Frost & Sullivan Analysis

v) The Large Taxi / Ride-Hailing Segment

India's cab aggregator industry led by Ola and Uber has created a large fleet of intensively used passenger vehicles operating as de-facto commercial vehicles with much higher annual kilometre accumulation than private cars. Ride-hailing vehicles typically cover 50,000–80,000 km per year and require significantly higher maintenance frequency. This segment is also a major buyer of replacement parts and represents a high-value, organised aftermarket customer, often serviced by multi-brand service chains rather than roadside workshops.[11]

South India accounts for nearly 40% of the country's ride-hailing activity, led by Bengaluru, Chennai, and Hyderabad. In 2025, online bookings represented 70.8% of the market, while ride-hailing platforms captured approximately 65.1% of the mobility segment. Additionally, the Motor Vehicle Aggregator Guidelines 2025 have increased regulatory and compliance requirements, creating entry barriers for smaller operators and strengthening the position of established platforms.[12]

Fleet operators are increasingly favouring authorised workshops and organised multi-brand service networks, reducing reliance on informal and independent repair outlets. Fleet operators increasingly require predictable maintenance schedules and rapid turnaround times, driving the shift toward structured B2B service agreements with organised quick-service networks.

vi) Willingness to Spend on Maintenance and Repairs

Rising incomes and the premiumisation of the vehicle fleet (toward SUVs and larger two-wheelers) are shifting consumer maintenance behaviour. Owners of higher-value vehicles are increasingly willing to spend on genuine OE parts and authorised service centres, whereas lower-income two-wheeler owners remain highly price-sensitive and may gravitate toward IAM or local parts. The formalisation of the economy post-GST, combined with the growth of multi-brand service chains like Bosch Car Service,

[11] https://vahanbazaar.in/tips/ola-uber-driver-car-maintenance-india-vahanbazaar?utm

[12] https://www.psmarketresearch.com/market-analysis/india-shared-mobility-market?utm

Mahindra First Choice, 3M Car Care, and others, is gradually shifting maintenance spend toward the organised channel.

Segment	Spend Propensity	Primary Service Channel	Key Trend
Ride-hailing / Fleet Operators	**Very High**	Authorised service centres and B2B maintenance contracts	↑ Rising BS-VI compliance and maintenance costs are increasing dependence on organised service networks
Long-Haul Truck Fleets	**High**	Roadside assistance providers and OEM-certified workshops	↑ Stricter axle-load regulations are increasing demand for preventive maintenance
Owner-Operator Trucks	**Medium**	Independent garages and roadside mechanics	Gradual migration towards organised service channels and branded spare parts
Private Passenger Vehicles (Premium Segment)	**High**	Authorised dealerships	↑ Increasing vehicle technology complexity is driving dealership retention
Private Passenger Vehicles (Mass Market)	**Medium**	Independent workshops	Stable market dynamics with rising adoption of e-commerce spare parts channels
Two-Wheeler Owners	**Low - Medium**	Informal local garages	Slight movement towards organised servicing as EV penetration and technical complexity increase
Three-Wheeler Owners	**Low**	Informal local garages	Slight movement towards organised servicing as EV penetration and technical complexity increase

vii) Segment-Specific Drivers: Axle Load Norms in CVs, BS-VI Compliance

The revised axle load norms, notified by MoRTH in July 2018, permitted payload increases of 15–25% for multi-axle trucks, significantly impacting vehicle stress and accelerating wear on tyres, suspensions, brakes, and chassis components. BS-VI Phase 2 (Real Driving Emissions testing and OBD2 mandatory from April 2023) introduced significantly more sophisticated engine management and after-treatment systems (Diesel Particulate Filters, Selective Catalytic Reduction) that represent new, high-value aftermarket categories while also requiring specialised diagnostic tools for repair. OBD2 was made mandatory for two-wheelers under BS6 Phase 2, fundamentally changing the complexity of two-wheeler maintenance.

Regulation / Driver	Segment Affected	Key Change	Parts and Service Impact	Stakeholder Impact
BS-VI Phase 2 (RDE) – April 2023	All vehicle categories	Introduction of Real Driving Emissions (RDE) testing, Portable Emission Measurement Systems (PEMS), and OBD-II/III requirements	Increased demand for DPF, SCR, EGR components, sensors, and AdBlue systems; average service parts value rises by 10–20%	Organised aftermarket players benefit from higher technical complexity and diagnostic requirements
Axle Load Norm Revision (2018)	Medium & Heavy Commercial Vehicles (M&HCVs), trucks	Permissible axle loads increased by 20–25%, enabling higher cargo carrying capacity per trip	Greater stress on tyres, suspension systems, bearings, and drivetrain components, resulting in higher replacement frequency	Increased demand for wear-and-tear components and preventive maintenance services
CMVR Safety Regulations (ABS, ESC, Airbags)	Passenger Vehicles and Commercial Buses	Mandatory ABS across vehicle categories, ESC for M&HCVs, and standardisation of airbags	Emergence of new safety-related replacement parts and calibration services following repairs or collisions	Expansion of the safety components aftermarket and growth in specialised service capabilities
EV Adoption Initiatives (FAME II / PM e-Drive)	Electric 2W, 3W, and Bus Segments	Government incentives accelerating fleet electrification; electric three-wheeler sales grew by 48.6% YoY in December 2025	Shift in demand from conventional ICE components to battery packs, electric motors, controllers, and specialised diagnostic tools	Creates growth opportunities in EV servicing while increasing obsolescence risks for traditional ICE parts suppliers

Automated Vehicle Fitness Testing (ATS Mandate)	Commercial Vehicles and Passenger Vehicles older than 15–20 years	Automated Testing Stations replacing manual fitness inspections	Vehicles failing fitness tests either undergo repairs, increasing parts demand, or are scrapped, stimulating new vehicle sales	Generates dual demand through repair activity and replacement vehicle purchases
Overloading Enforcement and GPS-Based Monitoring	Trucking and Logistics Fleets	Integration with VAHAN database, e-way bills, and weigh-in-motion systems to strengthen load compliance	Encourages preventive maintenance and legal load management, extending vehicle life and improving operational efficiency	Enhances overall fleet quality and promotes adoption of organised maintenance practices

viii) EV/CNG/Hydrogen & Infrastructure Readiness

India's alternative fuel ecosystem is multi-pronged. CNG vehicles, predominantly in the taxi and three-wheeler segments in major cities, represent a significant installed base served by an expanding CNG network (City Gas Distribution networks cover 295+ geographical areas)[13]. Ethanol blending under the government's programme has reached E20 (20% ethanol blend) across the nation, per MoRTH-backed rollout plans, which requires fuel system compatibility adjustments — an aftermarket consideration. Hydrogen-powered vehicles remain in pilot/developmental stage in India, with no significant aftermarket implication in the near term.

ix) Vehicle Technology Evolution

ADAS (Advanced Driver Assistance Systems), including autonomous emergency braking, lane-keeping assist, and blind-spot detection are being mandated under India's BNVSAP (Bharat New Vehicle Safety Assessment Programme) and are now increasingly standard on new SUVs and premium vehicles. These systems, while reducing accident frequency (a traditional aftermarket driver), introduce new electronic aftermarket categories for sensors, cameras, radar modules, and ECUs.

Driver	Parts / Service Categories Impacted	Impact Direction	Primary Channel Beneficiary	Timeframe
BS-VI Adoption in	DPF, SCR, EGR systems, AdBlue,	↑ Strong growth in emissions-related	Authorised OEM service centres	Present – 2027

[13] https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1846990&lang=2&reg=48&utm

Commercial Vehicles	OBD sensors, fuel injectors	components and diagnostics		
Rising EV Fleet (2W/3W)	Battery packs, electric motors, controllers, power electronics; declining demand for fuel filters, clutches, and engine-related parts	↑ Growth in EV components / ↓ Decline in conventional ICE parts	EV-certified workshops and specialised service networks	Present – 2028
ADAS Adoption	Cameras, radars, LiDAR sensors, ECUs, and post-collision calibration services	↑ Emergence of a new high-value replacement category	Authorised workshops with advanced diagnostic and calibration capabilities	2025 – 2030
Over-the-Air (OTA) Software Updates	Reduced need for certain mechanical repairs; increasing importance of cybersecurity and software-related components	↓ Lower service visit frequency for software-resolvable issues	OEM direct channels and digital platforms	2026 – 2030
Axle Load Norms (Higher Payloads)	Tyres, suspension components, bearings, brake pads, and other wear parts	↑ Higher replacement frequency and wear-parts demand	Both authorised workshops and independent aftermarket channels	Ongoing
Vehicle Scrappage Policy (Gradual Adoption)	Legacy components for ageing BS-IV and older vehicles	↑ Sustained near-term demand for replacement parts	Independent workshops and roadside repair networks	Present – 2027
Ride-Hailing Fleet Expansion	Tyres, brake components, lubricants, filters, and routine maintenance items	↑ Higher service frequency and parts consumption due to intensive vehicle usage	B2B maintenance contracts and organised fleet service providers	Ongoing
Connected Diagnostics	Predictive maintenance	↑ Improved maintenance	Technology-enabled	2025 – 2030

and Telematics	solutions, sensors, and digital service records	planning and parts inventory management	workshops and organised service chains	

The skills gap: India's aftermarket faces an acute mechanic training deficit for BS-VI, ADAS, and EV technologies. OEMs, BSC certification bodies, and government ITIs must scale technician training or the aftermarket will be capacity-constrained even as demand rises.

Charging infrastructure for EVs, while expanding rapidly under the PM E-DRIVE scheme, remained unevenly distributed as of 2025, concentrated in top 20 cities. India had approximately 29,277 public EV charging stations as of 2025[14], with targets to expand significantly under government schemes. The EV aftermarket is nascent, focused on battery servicing, motor replacements, and controller diagnostics, and currently served predominantly by OEM dealer networks.

1c. Indian Aftermarket Overview

i) Current Market Structure

Scope of the Study, Methodology and Growth Basis

Aftermarket Universe - What Is (and Is Not) Included

This study sizes the replacement/spare-parts component aftermarket for the four vehicle segments covered (Includes select periodical service and maintenance part shown in Appendix;41 PV components, 49 CV components and 21 2W select components; does not include tires, batteries and lubes), i.e. the value of aftermarket parts sold across the seven program areas profiled in this report (Engine, Drive Transmission & Steering, Suspension & Braking, Cooling, Electricals, Consumables & Miscellaneous, Rubber). The following scope conventions apply; the underlying data-collection methodology used for this study is Government data for vehicle parc (Vahan), Interviews with Industry Stakeholders like garages, retailers, distributors and parts manufacturers/suppliers field personal

- **Included:** Replacement and repair components across the program areas listed above, sold through both organised and unorganised channels.
- **Excluded / tracked separately (to be confirmed):** Tyres, batteries and lubricants are large adjacent categories that are typically sized and reported separately in industry practice; unless stated otherwise, the figures in this report should be read as excluding these three categories. Where included, these should be clearly flagged and quantified as a separate line.
- **Labour/service charges:** The market size represents parts value, not labour or service charges billed by workshops, unless explicitly stated
- **Accessories and collision/body parts:** Lifestyle accessories (audio, styling) and collision/body-shop parts (panels, glass, paint) are not included;

Methodology Note

The market-sizing approach underlying this report combines:

- **Bottom-up parc-based estimation:** vehicle parc by segment and age × an assumed replacement/failure rate per component category × average part price, aggregated to the program-area and segment totals shown in this section.

[14] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2151390&lang=2&reg=3&utm_source

- **Top-down triangulation:** cross-checking against industry-association data trade estimates and the emerging-market benchmarking exercise.
- **Frost & Sullivans repository of data base from past engagements**
- **Organised/unorganised split:** estimated through channel-level trade data and qualitative input from distributors and industry participants, rather than a single audited source (see the counterfeit/unorganised-share caveats noted elsewhere in this report).

Nature of the Growth Forecast

Unless stated otherwise, the 2025-2030 growth rates and CAGR figures in this report should be read as constant-price estimates - i.e. they are not adjusted for inflation or incremental price increase. The ~5.8% overall aftermarket CAGR reflects several compounding factors, though their precise individual contribution has not been separately quantified here:

- **Vehicle parc growth:** the expanding on-road vehicle base (~390 Mn+ today, toward ~430 Mn by 2030) is the single largest structural driver.
- **Ageing of the parc:** a rising share of vehicles moving past warranty and into peak replacement years.
- **Higher utilisation:** rising annual kilometres driven, particularly in commercial and ride-hailing/taxi use.
- **Premiumisation:** the shift toward SUVs/UVs and more feature-rich, electronics-dense vehicles raises aftermarket value per vehicle (see the Premiumisation section below).
- **Formalisation:** share migration from unorganised to organised/branded channels, which typically carries higher realised prices.

I. Evolution of the market and future trajectory to 2030

Phase 1: Fragmented, unbranded, mechanic-led (pre-2000s to early 2010s). For decades the aftermarket was dominated by neighbourhood mechanics, roadside garages, and local spare-parts shops sourcing largely unbranded or "compatible" parts. Trust was personal (relationship with the mechanic), not brand based. Counterfeiting was rampant and remains a structural challenge today.

Phase 2: Branded consumables and OEM-authorized formalisation (2010s). Tire, battery, and lubricant companies (MRF, Apollo, Exide, Amaron/Amara Raja, Castrol) built genuine nationwide distribution and brand pull, effectively "organizing" the highest-turnover consumable categories first. OEMs simultaneously expanded authorized service networks and genuine-parts programs (Maruti Suzuki, Tata Motors Genuine Parts, Mahindra First Choice) to capture post-warranty service revenue and defend against the independent channel.

Phase 3: Multi-brand retail and organized service chains (mid-to-late 2010s). Multi-brand service formats (Mahindra First Choice, Bosch Car Service, GoMechanic-type aggregators) and organized retail began penetrating beyond metros, offering warranty-safe repairs and standardized pricing as a value proposition against both authorized dealers (expensive) and roadside garages (inconsistent quality).

Phase 4: Digital and e-commerce disruption (2018–present). Online B2C and B2B platforms (Amazon, Flipkart, and automotive-specialist players such as Boodmo) began offering genuine and compatible parts with price transparency, cross-referencing, and doorstep delivery, a major shift from the historically opaque, negotiation-driven local retail model. This has been reinforced by

India's broader digital-commerce infrastructure: UPI's dominance in retail payments, deep logistics penetration, and quick-commerce networks now extending into Tier 2/3 cities.

Phase 5: Current state (2024–2026): hybrid, formalizing, still majority-unorganized. Today's market is best described as a dual-track structure:

The organized/branded segment (OEM aftermarket divisions, Tier-1 component makers selling under their own brands, national multi-brand retail, e-commerce) is growing faster than the market overall and gaining share but still trails the OEM-supply side of the industry in formalisation. For context, the organized sector accounts for roughly 80% of the OEM-supply component market, whereas the unorganized sector still primarily serves the aftermarket segment with lower-value parts and accessories i.e., formalisation has progressed much further in components-for-manufacturing than in components-for-repair.

The unorganized segment, informal distributors, unbranded/counterfeit parts, and independent roadside garages still handle a large share of day-to-day servicing and parts distribution, especially outside major metros and for older, price-sensitive vehicles (two-wheelers in particular).

II. Structural Demand Drivers Underpinning the Market

Vehicle parc growth and aging fleet: India's on-road vehicle base has expanded from roughly 250 million (2021) toward 390 million+ recently cited, with two-wheelers dominating volume and passenger vehicles dominating value. As vehicles age past the warranty window, aftermarket (vs. OEM dealer) servicing becomes more attractive.

Harsh usage conditions: Congested traffic, poor road quality, heat, and dust shorten replacement cycles for brakes, suspension, filters, tires, batteries, and clutches relative to mature markets — a structural tailwind independent of new-vehicle sales cycles.

Rising incomes and vehicle complexity: Wealthier, more safety- and performance-conscious consumers are driving demand for genuine parts, customisation, and organized service quality — not just the cheapest available part.

Regulatory tightening: BS-VI emission norms, the Bharat New Vehicle Safety Assessment Program (BNVSAP), and mandatory periodic fitness/servicing requirements are gradually pushing owners toward compliant, traceable parts and away from informal-channel substitutes.

Growing used-vehicle market: A larger pre-owned car market extends the effective vehicle life in circulation and adds a layer of demand for reconditioning, certified pre-owned servicing, and replacement parts.

III. Trajectory to 2030: Key Shifts to Watch

Continued (but gradual) formalisation. Organized retail, e-commerce, and multi-brand service chains will keep taking share from informal channels, aided by warranty-safety concerns, counterfeit-part fatigue, and BNVSAP-style regulation, but the unorganized sector will not disappear; it will persist strongly in Tier 3/4 towns and in the two-wheeler segment.

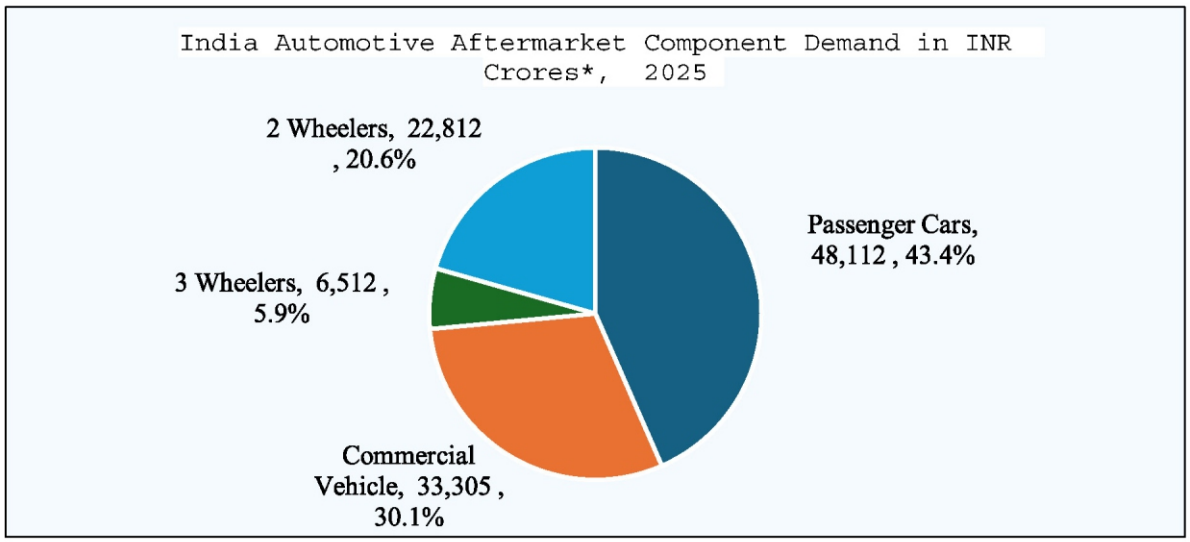
- E-commerce and quick-commerce penetration into parts distribution. India's broader e-commerce infrastructure (UPI penetration, dark-store/quick-commerce logistics reaching 200+ cities) is a transferable asset for the auto-parts vertical; specialist platforms (Boodmo, Carorbis) alongside horizontal players (Amazon, Flipkart) are expected to keep growing distribution reach into Tier 2/3 markets faster than physical retail can.

- Electric vehicle transition reshaping demand mix. EVs currently form a small share of the parc, but their maintenance profile is structurally different with fewer moving/wear parts (no engine oil changes, simplified transmissions, regenerative braking reducing brake-pad wear) but new demand pools in battery health diagnostics, thermal management, and power-electronics servicing. This will gradually erode demand for traditional engine/transmission consumables while creating a new, currently under-built EV-aftermarket ecosystem (independent workshops today are largely unequipped for high-voltage systems).
- Rising average vehicle age extending replacement-parts demand, independent of new vehicle sales cycles, a buffer against any slowdown in fresh vehicle purchases.
- Export and manufacturing scale-up spillover (macro policy context, not an aftermarket estimate). Government targets (Automotive Mission Plan, PLI scheme for auto components) aim to grow total component production - covering OE supply and exports as well as aftermarket - to roughly US$145 billion (Niti Aayog Projections) with exports tripling from US$20 billion to US$60 billion by 2030, lifting India's share of the global automotive value chain from about 3% to 8%. These are total-industry manufacturing and export targets, not a forecast of aftermarket demand; qualitatively, a stronger domestic component manufacturing base tends to deepen genuine-parts availability and price competitiveness in the domestic aftermarket as well.
- Skills and training gap. A recognized structural bottleneck is the shortage of trained mechanics for increasingly complex vehicles (BS-VI systems, ADAS, EV powertrains) — training initiatives are shifting from informal peer networks toward digital/video-based learning, but the gap remains a drag on service quality in the unorganized segment.
- Counterfeit parts remain the single biggest quality/trust challenge, and the tension between cheaper informal/counterfeit supply and safety-and-warranty-conscious organized supply will be a defining competitive axis through 2030.

i) Indian Aftermarket Demand Analysis

a) India Automotive Aftermarket Component Demand - 2025

The Indian automotive aftermarket continues to demonstrate robust fundamentals in 2025, with total component demand projected at approximately ₹1,10,741 Crore. The market reflects the structural realities of India's vehicle parc: a massive base of personal mobility vehicles, a strong commercial transport backbone, and the enduring dominance of two-wheelers.



*Source: Frost &Sullivan Analysis; * Includes select periodical service and maintenance part;41 PV components, 49 CV components and 21 2W select components; does not include tires, batteries and lubes*

b) Passenger Cars (43.4% share)

Passenger vehicles command the largest slice of India's aftermarket, consistent with industry estimates that put PVs at 70%+ share in some value-based segmentations. Rising vehicle ownership is a key driver of the aftermarket, with passenger vehicle sales expected to hit 3.8 million units in 2025, and India's low car ownership per capita (roughly 22 per 1,000 people) signals significant headroom for growth.

This segment's dominance is being reinforced by two structural shifts: rising vehicle complexity — more electronics, ADAS, connected-car features — is pushing up the value per service visit even as unit volumes grow steadily rather than explosively; and premiumisation (SUVs, feature-rich hatchbacks) is lengthening the list of serviceable/replaceable components per vehicle. As the vehicle parc matures (many cars from the 2015–2020 sales boom are now out of warranty), this segment should keep gaining share of high-value, high-margin work like electronics diagnostics and body/collision repair.

c) Commercial Vehicles (30.1% share)

CVs punch well above their unit-volume weight in the aftermarket because of usage intensity. Commercial vehicles — especially medium and heavy trucks — represent a structurally important segment with high-value aftermarket demand driven by fleet uptime requirements, long-distance usage, and wear-intensive operating conditions.

This is the segment where "cost of downtime" logic dominates: fleet operators prioritize uptime over unit repair cost, sustaining demand for genuine/certified parts and organized service networks (as opposed to price-driven, unorganized-channel behavior more common in two-wheelers). Freight and logistics sector growth, e-commerce-driven last-mile delivery expansion,

and stricter emission/fitness compliance norms are all tailwinds keeping this segment's aftermarket value elevated relative to its vehicle-parc share.

d) 2 Wheelers (20.6% share)

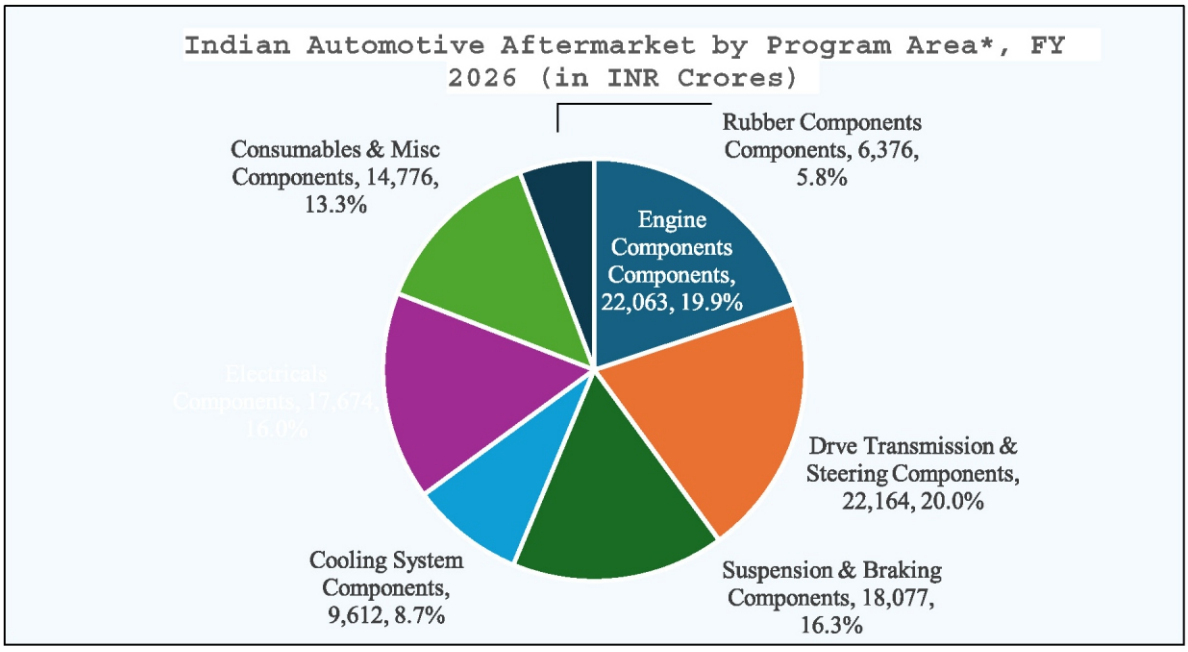
Two-wheelers tell an interesting "volume vs. value" story: they dominate India's vehicle parc and servicing frequency by a wide margin, yet convert into only about a fifth of aftermarket value. Two-wheelers account for the largest share of aftermarket demand in volume terms due to their dominant presence in India's mobility mix and frequent service cycles, but ticket sizes per service are far lower than four-wheelers.

Consumables (lubricants, filters) dominate spend rather than higher-value electronics or body work. A large share of 2W servicing also still runs through unorganized roadside mechanics rather than certified channels, capping realized aftermarket value even as unit-level service frequency is highest of all segments.

e) 3 Wheelers (5.9% share)

The smallest segment by design — a much smaller vehicle parc, lower per-unit part complexity, and concentrated usage in commercial/shared-mobility applications (autos, goods carriers) keep this segment's absolute value modest. However, it's worth noting 3-wheelers are often early movers in electrification (especially in last-mile delivery and urban passenger use), so component replacement cycles here may shift faster than in other segments as the underlying vehicle technology changes.

f) Indian Automotive Aftermarket by Program area



*Source: Frost & Sullivan Analysis; * Includes select periodical service and maintenance part;41 PV components, 49 CV components and 21 2W select components; does not include tires, batteries and lubes*

The market shows a balanced spread, with no single category commanding overwhelming dominance, a sign of a mature, diversified aftermarket ecosystem where wear-and-tear replacement cycles across multiple vehicle systems drive steady demand. The pie chart reveals a clear hierarchy: mechanical and safety-critical systems dominate, while consumables and specialised components fill supporting roles. This structure aligns closely with industry observations that replacement demand is concentrated in high-wear, high-mileage parts.

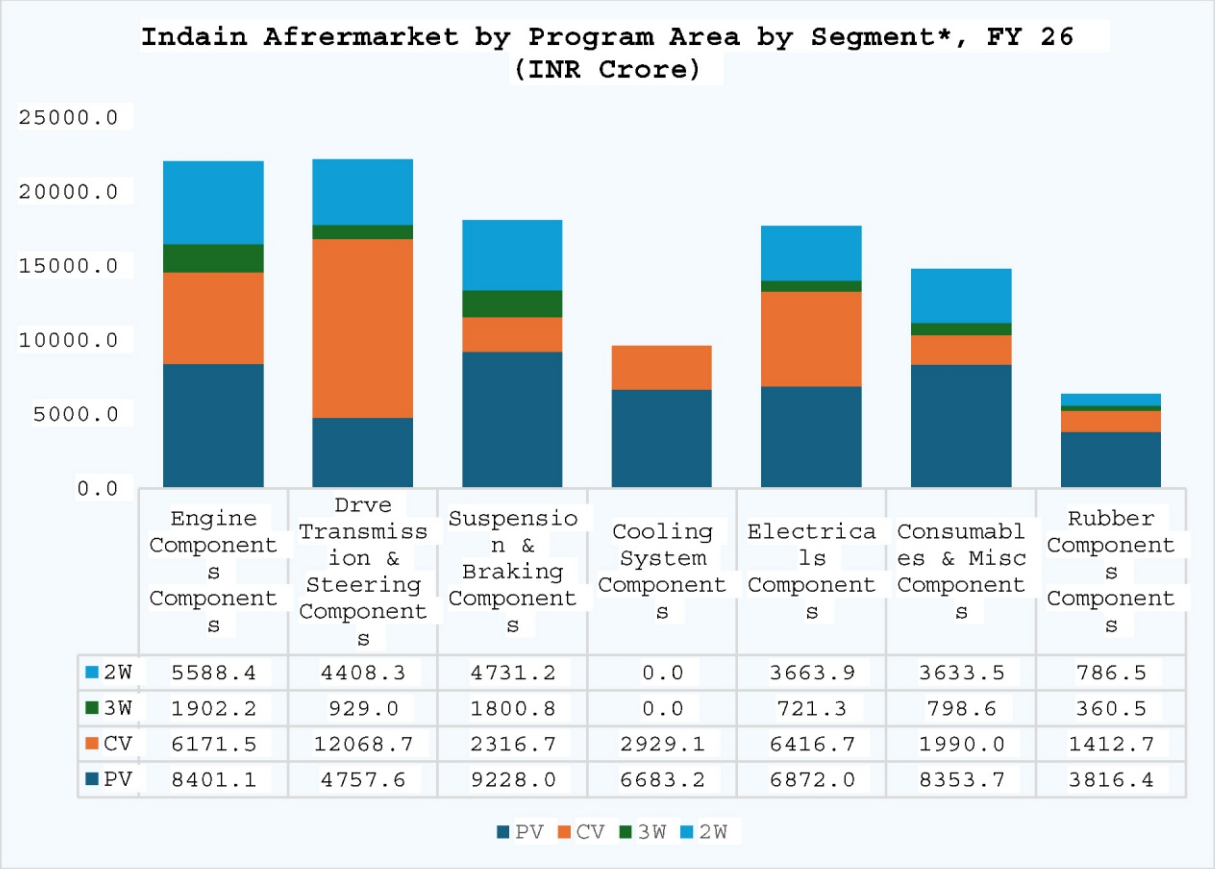
Ageing fleet and utilisation intensity remain the primary engines of growth. India's vehicle parc continues to expand while average ownership periods lengthen. Higher daily commuting in urban centres and growing rural/highway commercial activity accelerate replacement of transmission, suspension, braking, and engine parts. Longer vehicle life, improved preventive maintenance, and rising electronics/safety content are expanding the replacement pie

Formalisation and channel evolution are reshaping economics. Organised multi-brand workshops, digital spare-parts platforms, and OEM-authorised service networks are capturing a larger share of value. This trend favours quality-certified parts over purely price-driven unorganised supply, supporting better realisations in electricals, braking, and premium consumables. Premiumisation (LED lighting, better filtration, higher-spec suspension) is visible even in the aftermarket as owners "tech-refresh" older vehicles.

Import dependence and localisation opportunity are pronounced in higher-value categories. Electricals and electronic control units still see significant imports from Europe and East Asia. This creates a clear runway for Indian suppliers to localise, especially under PLI and Make-in-India incentives. Meanwhile, mechanical categories (drive transmission, engine, suspension/braking) remain more domestically sourced and export competitive.

Regional and vehicle-type nuances matter. Passenger vehicles and two-wheelers dominate volume, but commercial vehicles contribute in value for transmission, suspension, braking, and rubber components because of higher utilisation. North India leads in absolute demand due to vehicle density; South and West are growing faster with urbanisation and rising incomes. Rural and semi-urban demand is increasingly served by e-commerce and organised last-mile distribution

II. *Indian Automotive Aftermarket by Program area by Segment*



	Engine Components Components	Drve Transmission & Steering Components	Suspension & Braking Components	Cooling System Components	Electricals Components	Consumables & Misc Components	Rubber Components Components
2W	5588.4	4408.3	4731.2	0.0	3663.9	3633.5	786.5
3W	1902.2	929.0	1800.8	0.0	721.3	798.6	360.5
CV	6171.5	12068.7	2316.7	2929.1	6416.7	1990.0	1412.7
PV	8401.1	4757.6	9228.0	6683.2	6872.0	8353.7	3816.4

*Source: Frost & Sullivan Analysis; * Includes select periodical service and maintenance part;41 PV components, 49 CV components and 21 2W select components; does not include tires, batteries and lubes*

This stacked bar chart reveals a clear segmentation of demand driven by differences in parc size, average utilisation, vehicle complexity, and replacement cycles.

Utilisation intensity versus parc size shapes the mix. CV demand is utilisation-driven (high mileage, heavy duty), while 2W and PV demand is more parc-size and age-driven. This explains why CV leads a high-value category such as Drive Transmission & Steering even though its absolute vehicle population is far smaller than 2W or PV.

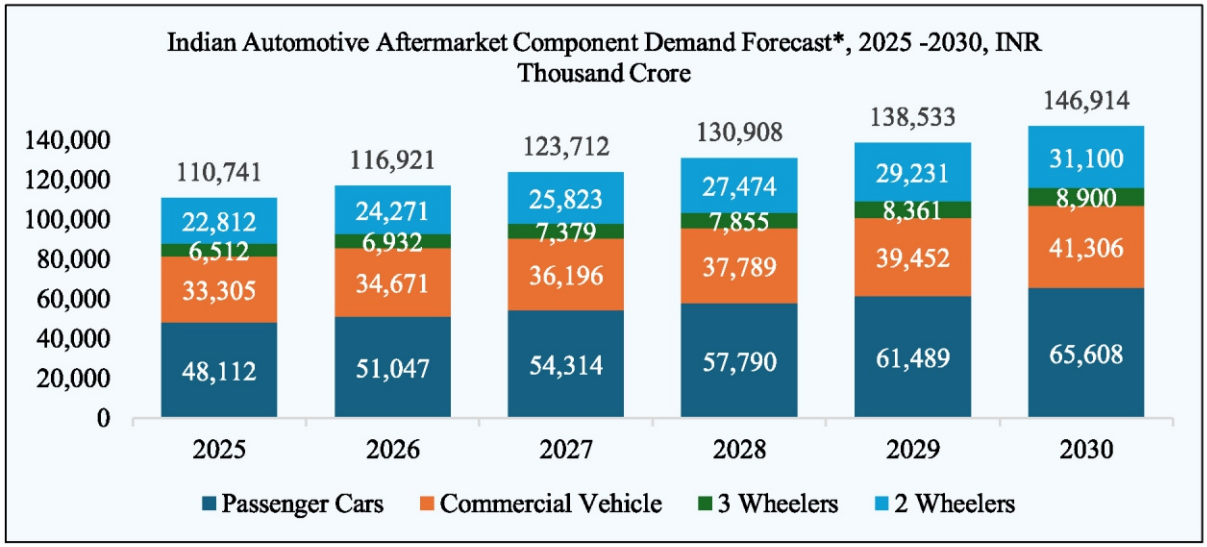
Cooling Systems are almost exclusively a four-wheeler story. aftermarket cooling demand is concentrated in liquid-cooled PV and CV engines/radiators that face thermal stress from traffic congestion, higher ambient temperatures, and longer trip lengths.

Electricals show balanced participation. PV and CV lead, but 2W remains significant. Rising electronic content (lighting, charging systems, sensors, and basic connectivity) across all segments is expanding this category, with "tech-refresh" behaviour particularly visible in PV and premium 2W.

Consumables and Rubber remain volume plays. PV and 2W dominate Consumables, while PV leads Rubber. These are high-frequency, lower-ticket items whose demand scales with the sheer number of vehicles on the road and scheduled maintenance culture.

Overall, the chart confirms that India's aftermarket is not monolithic. It is a composite of four distinct demand pools: a large, ageing PV base; a high-intensity CV fleet that drives mechanical value; a massive 2W volume engine; and a smaller but resilient 3W segment.

III. Indian Aftermarket Demand Forecast Analysis



*Source: Frost & Sullivan Analysis; * Includes select periodical service and maintenance part;41 PV components, 49 CV components and 21 2W select components; does not include tires, batteries and lubes*

The market is projected to grow from ₹110.7K crore in 2025 to ₹146.9K crore in 2030 **around 5.8% CAGR** over the five-year window, with drivers like rising vehicle ownership, urbanisation, and logistics/e-commerce growth cited consistently.

IV. Segment-by-Segment Aftermarket Demand

Passenger Cars (₹48.1K → ₹65.6K crore, ~6.4% CAGR)

PCs are not just the largest segment, it's also compounding faster than the total market, which means its shares expand over the forecast, from 43.4% in 2025 to 44.7% by 2030. It contributes the single largest chunk of the market's incremental growth (₹17.5K crore of the ₹36.2K crore added, roughly 48% of total growth). With passenger vehicle sales rising steadily through 2030 this reflects the same structural story as before: rising ownership, premiumisation, and increasing vehicle electronics content pushing up value per vehicle serviced.

V. Commercial Vehicles (₹33.3K → ₹41.3K crore, ~4.4% CAGR)

This segment, the one most exposed to cyclicality, CV demand is tightly linked to freight volumes, infrastructure spend, and diesel/EV transition costs in fleets, so a slower compounding rate here is plausible if fleet electrification or overcapacity in trucking softens replacement-part intensity per vehicle.

VI. 2 Wheelers (₹22.8K → ₹31.1K crore, ~6.4% CAGR)

2W matches PC's growth rate almost exactly, holding its share roughly flat (20.6% → 21.2%). Plausible qualitative drivers: rural 2W demand recovery, rising formalisation of 2W servicing (branded service chains, online parts platforms), and a large 2W parc that continues to age and require replacement parts, especially batteries and tires.

VII. 3 Wheelers (₹6.5K → ₹8.9K crore, ~6.5% CAGR)

Consistent with the 3W segment's outsized role in last-mile delivery and shared urban mobility, a segment growing off a small base but benefiting disproportionately from e-commerce logistics expansion and last mile connectivity

Looking at the segments together rather than one at a time, three patterns stand out:

1. **Growth is broad-based, not concentrated.** Every segment grows every year, there's no segment plateauing or declining, which suggests underlying vehicle-parc growth and servicing-frequency assumptions are holding steady across the whole forecast rather than being driven by one outlier category.
2. **PC and CV are diverging in importance.** PC pulling ahead of CV in share is the single biggest structural shift in this table.
3. **The "big three" growth drivers implied here match what's showing up across industry reports:** rising vehicle ownership and parc size, e-commerce/logistics-led demand for CVs and 3Ws, and a shift toward organized, technology-enabled servicing (diagnostics, connected vehicle data, digital parts distribution) rather than pure unit growth. None of the segments show deceleration, which is itself a signal that the forecast assumes continued formalisation of the aftermarket rather than saturation.

Consumption Market Shifts

The geography of aftermarket consumption is evolving with India's urbanisation. Secondary cities and peripheries of major metros are now accounting for a larger share of vehicle ownership and maintenance activity. The rapid growth of India's middle class in Tier 2 and Tier 3 cities like Indore, Lucknow, Surat, Coimbatore, Kochi, Bhubaneswar is creating new aftermarket nodes with significantly underserved organised distribution. E-commerce and quick-commerce platforms are beginning to bridge this geographical gap, making genuine parts accessible in markets previously dominated by local/spurious parts.

The shift from sedans to SUVs in the passenger vehicle market has a direct impact on which parts are most demanded in the aftermarket: larger wheels and tyres, more complex suspension components, turbocharged engines requiring premium oil and filters, and ADAS-related electronics are all gaining share of aftermarket spend relative to the simpler components of entry-level hatchbacks.

1. Comparison: India vs Similar Emerging Aftermarkets

Parameter	India	Vietnam	Thailand	Indonesia	Africa (Key Markets)
Total Parc (Approx.)	~390 mn	~62 mn	~48 mn	~172 mn	Fragmented; Nigeria ~12mn cars
Aftermarket Size	USD 11.8 Bn (FY25)	~USD 1.5 Bn	~USD 5 Bn	~USD 6 Bn	Fragmented
Dominant Segment	2W (~74% of parc)	2W (>90% of parc)	2W dominant	2W + 4W	2W + Used 4W
IAM Maturity	Growing; ~15% of auto comp output	Low	Medium-High	Medium	Low; import-dependent
EV Penetration (New Vehicles)	~8% (2025)	<2%	~2-3%	~3%	<1%
Key Aftermarket Trends	Formalisation, e-comm, OBD2	Rapid motorisation	Japanese OEM dominance	Organised chains growing	Import dependency

Source: India data: MoRTH e-Vahan. Vietnam/Thailand/Indonesia/Africa: industry-level data based on publicly available government trade statistics from respective transport ministries; please cross-verify with MoCI/DPIIT bilateral trade data.

1d. Additional Aftermarket Dimensions

The five dimensions below extend the market-sizing analysis above. Read together with the rest of Section 1c, they can be organised around five simultaneous shifts reshaping the Indian aftermarket - Ageing, Premiumisation, Formalisation, Digitalisation and Technology Transition - which this report uses as a recurring lens rather than a one-time sizing exercise.

I. Product-Category (Program Area) Breakdown and Growth Trajectory, 2025

The chart in the preceding "Indian Automotive Aftermarket by Program Area" section is based on the following FY26 base-year values (₹ crore), which sum to the reconciled market total:

Program Area	2025 Value (₹ Cr)	Share	Directional Growth Outlook to 2030
Drive Transmission & Steering	22,164	20.0%	Mixed - CV/PC segments resilient; 2W/3W clutch & gearbox content pressured by EV e-axles (see EV matrix above)

Engine	22,063	19.9%	Slowest-growing / declining share - most EV-exposed category, particularly in 2W/3W
Suspension & Braking	18,077	16.3%	Above-average growth - powertrain-agnostic, supported by rising vehicle weight and parc expansion
Electricals	17,674	16.0%	Fastest-growing category - EV content (BMS, inverters, sensors) plus rising vehicle electronics
Consumables & Miscellaneous	14,776	13.3%	Below-average growth - oil/fuel filter intensity declines with EV penetration, partially offset by cabin/EV fluids
Cooling	9,612	8.7%	Transforming rather than shrinking - engine radiator decline offset by battery/power-electronics thermal management
Rubber	6,376	5.8%	Broadly in line with market average - milder EV impact than powertrain categories

Note: the "Directional Growth Outlook" column is a qualitative read-through from the EV component-level impact assessment above and the segment CAGRs elsewhere in this report; it is not a separately modelled category-level CAGR. If category-specific 2030 forecasts are required, they should be built as an extension of the parc-based model referenced in the Methodology Note, rather than inferred qualitatively as done here.

II. Vehicle-Age-Based Aftermarket Opportunity (Ageing)

Ageing of the parc is a core demand driver (e.g. the Vehicle Age Profile and Scrappage Policy Impact section, Section 1b(iii)). The indicative age-band framework below synthesises that logic; it is directional rather than based on a primary age-band repair survey

Age Band	Warranty / Ownership Stage	Relative Replacement Intensity	Aftermarket Implication
0-5 years	Predominantly under OEM warranty / first ownership	Low	IAM largely locked out; OEM-authorised channel dominates
6-10 years	Post-warranty transition; frequent change of hands	Rising	Prime window for IAM share gain as owners become price-sensitive

11-15 years	Peak maintenance years; second/third ownership common	Highest	Core volume driver for independent workshops and unorganised channel
15+ years	Scrappage-eligible (CV >15 yrs, private >20 yrs per policy)	Declining / exit	Volumes taper as vehicles are scrapped; some replacement-intensive "last-mile" demand persists until exit

III. Channel Structure and Formalisation

The organised/independent aftermarket channel (branded distributors, e-commerce) is gaining share but still trails the ~80% formalisation level seen on the OEM-supply side, and that the IAM accounts for roughly 15% of total auto-component output. Given the digitalisation and formalisation trends discussed elsewhere, organised independent aftermarket players and digital/B2B platforms should gain share fastest, at the expense of purely informal, cash-based local distribution - particularly in urban and Tier-1 markets.

IV. Tier-2/Tier-3 and Rural Market Opportunity (Formalisation + Ageing)

- **Demand growth:** Tier-2/3 and rural markets carry an older average vehicle age and higher share of 2W/3W in the parc, both of which skew toward high aftermarket replacement intensity per the age-band framework above.
- **Distribution reach:** these markets remain more dependent on traditional multi-tier distributor networks, which is why distributors should prioritise hybrid physical-digital models and partnerships with local stockists here.
- **Branded-product availability:** lower penetration of organised/branded parts and workshops leaves these markets more exposed to counterfeit/low-grade product risk (see the counterfeit caveats above), making formalisation and brand education a particular priority here.
- **Workshop capability:** skilling gaps are likely more acute outside major metros; ASDC-led training scale-up (already recommended to ACMA) should explicitly prioritise Tier-2/3 reach.

V. Localisation Opportunity Shortlist (Technology Transition)

Based on the import-dependence and technology themes already discussed in this report (Vehicle Technology Evolution, EV impact, and PLI/export sections), the following categories stand out as high-potential localisation priorities.

Category	Why Import-Dependent Today	Localisation Horizon (Indicative)
EV motors, inverters & power electronics	Nascent domestic supply base; concentrated in a few global suppliers	Medium-term (3-5 yrs), aided by PLI
Battery Management Systems (BMS) & battery cells	High-tech electronics content; cell manufacturing still scaling in India	Medium-to-long-term (5+ yrs)

ADAS sensors (radar, camera, LiDAR modules)	Precision-electronics manufacturing and calibration capability still developing	Long-term, tied to ADAS mandate timeline
High-voltage wiring harnesses & connectors	Specialised materials/certification requirements	Short-to-medium-term (1-3 yrs) - lower technology barrier
Advanced ECUs / vehicle software-electronics	Semiconductor and software-stack dependence	Long-term, linked to broader electronics manufacturing policy

Independent Workshop and Mechanic Perspective (Digitalisation)

The rising technical demands on repairs (Section 2b) and the technician shortfall raised in the challenges section both bear directly on this stakeholder group. Key points worth drawing together:

- **Brand selection and price-quality trade-off:** mechanics and workshops are frequently the actual decision-maker on which brand/part is fitted, especially in the unorganised channel; their trust in a brand is as important as end-consumer brand awareness.
- **Availability:** workshops favour distributors/brands that can guarantee fast, reliable local availability over marginally cheaper but slower-moving alternatives.
- **Diagnostic capability:** rising electronics content is shifting the value-add from mechanical skill toward diagnostic/software competence - already flagged in this report as a capacity constraint ("OEMs...must scale technician training or the aftermarket will be capacity-constrained").
- **Skilling and BS-VI/EV/electronics readiness:** this report's recommendations already call for OEM-led training academies and ACMA/ASDC-scaled certification; independent workshops are the primary intended beneficiary of these programmes.

I. Aftermarket Export Opportunity (Technology Transition)

The government has set a target of tripling component exports from US$20 billion to US$60 billion by 2030, lifting India's share of the global automotive value chain from ~3% to ~8%[15] (see Section 1c; this is a total-industry, not aftermarket-only, target). For the aftermarket specifically:

- **Priority categories:** categories where India already has cost and manufacturing-scale advantages - suspension & braking, rubber components, and electricals/wiring harnesses - are natural early movers for aftermarket-brand exports, building on existing OE-export capability.
- **Priority geographies:** the emerging-market comparator table in this report (Vietnam, Thailand, Indonesia, Africa) suggests these markets, alongside the Middle East, are logical near-term targets given similar vehicle parc profiles (2W/3W-heavy, ageing ICE fleets).
- **Path to scale:** Indian aftermarket brands scaling globally will likely need to combine the cost advantage already cited with quality certification and export-market distribution partnerships - consistent with the "explore export-oriented aftermarket strategies" recommendation already made to OEMs/Tier-1s.

[15] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2120977&lang=2&reg=48&utm

II. Premiumisation and Increasing Content per Vehicle (Premiumisation)

Passenger vehicle GST moved larger cars/SUVs to a flat 40% slab, SUV sales posted double-digit growth (17-22.8%) through Q4 2025, and the shift from sedans to SUVs is reshaping the passenger-vehicle aftermarket. Rising incomes and premiumisation toward SUVs and feature-rich hatchbacks are lengthening the list of serviceable content per vehicle, across several areas:

- **Electronics & sensors:** higher trims add ADAS features (per Bharat NCAP 2.0), parking sensors, cameras and infotainment electronics - all captured in the fast-growing Electricals program area (16.0% share, above-average growth per the table above).
- **Suspension & braking:** SUVs and heavier, more feature-rich vehicles increase suspension and braking component demand per vehicle, reinforcing the above-average growth outlook for that category.
- **Lighting:** LED/projector lighting systems on premium trims raise both part complexity and replacement value versus basic halogen units.
- **Thermal management:** larger cabins, advanced climate control and (for EVs) battery thermal systems add content, consistent with the “transforming” outlook for the Cooling category above.

SECTION 2: TRENDS IMPACTING THE AUTOCOMP INDUSTRY

2a. EV / Emission Technologies (CNG, Ethanol, Hydrogen)

i. Environmental Impact and AQI Trends

India's urban air quality remains a critical policy concern. The Central Pollution Control Board (CPCB) and the National Clean Air Programme (NCAP) have set targets to reduce Particulate Matter (PM2.5 and PM10) concentrations by 40% in 131 non-attainment cities by 2026. Vehicular emissions are a primary contributor to urban AQI deterioration, particularly in Delhi NCR, Mumbai, Kolkata, and other major industrial cities. The transition to BS6 emission norms (from April 1, 2020) brought a substantial reduction in permissible NOx emissions — from 80 mg/km (BS4) to 60 mg/km for petrol and 80 mg/km for diesel under BS6, with further tightening under BS6 Phase 2's Real Driving Emissions (RDE) standards.

For the aftermarket, tighter emission regulations mean that properly functioning emission control components — including catalytic converters, diesel particulate filters, EGR valves, and oxygen sensors — are now mandatory for legal vehicle operation. The OBD2 system, mandatory under BS6 Phase 2, alerts owners to emission-related malfunctions, driving demand for diagnostic-led repairs and genuine parts — a positive for organised aftermarket players. OBD2 was explicitly mandated for two-wheelers, which account for the largest aftermarket volume.

ii. Alternate Fuel Technology Adoption Roadmap

Technology	Now (FY2025–26)	Near-term (2027–28)	Mid-term (2029–30)	Long-term (2031–35)
BEV 2W/3W	1.97M EV units registered in FY2024-25 (SIAM/Vahan), 16.9% YoY growth	PM E-DRIVE: ₹2,000 crore for ~72,000 public chargers along 50 highway corridors; ~24.79 lakh e-2Ws targeted for incentives	Government's stated 30% EV-penetration ambition for 2030	Scheme runs through March 2026; successor scheme expected to extend targets
BEV Passenger Cars	Electric PV registrations crossed 1 lakh units in FY2024-25, +18.2% YoY (SIAM)	PM E-DRIVE funds 22,100 fast chargers (e-4W) specifically	EV component localisation (excl. batteries) at 4.6% of domestic OEM supply and rising (ACMA, FY25-26)	Battery/ACC PLI-driven cost reduction expected to close ICE-EV price gap
CNG	5,665 CNG stations recorded as of March 2023 (PNGRB); CGD networks cover 407	PNGRB Minimum Work Programme (MWP) target: 18,336 CNG stations	Continued City Gas Distribution bidding rounds (9th–12th rounds already awarded)	Ministry target: raise natural gas share of energy mix from ~6% to 15%

Technology	Now (FY2025–26)	Near-term (2027–28)	Mid-term (2029–30)	Long-term (2031–35)
	districts per Ministry of Petroleum & Natural Gas	nationally by 2034		
Ethanol / Flex-Fuel (E20→E85/E100)	E20 (20% ethanol blending) achieved in Ethanol Supply Year 2025-26, five years ahead of original 2030 target (Ministry of Petroleum & Natural Gas)	Motor Vehicle Rules being amended to formally define Flex-Fuel Vehicles (FFVs); E22–E30 blends exempted from excise duty; E85 pilot pumps live in Delhi	E85/E100 regulatory framework to be fully notified	Possible move toward E30 as standard, pending feedstock/food-security review
Green Hydrogen (Heavy Trucks)	First "Hydrogen Highway" launched 26 Sept 2025 (MoRTH); 37 trucks across 10 routes, ₹500 crore outlay, 9 refueling stations planned	18–24 month pilot trials (Tata Motors, Ashok Leyland, Volvo) conclude ~2026-27	National Green Hydrogen Mission target: 5 MMT/year green hydrogen production capacity by 2030 (Cabinet-approved, ₹19,744 crore outlay) — though MNRE has flagged this may slip to 2032	Broader HCV corridor rollout contingent on cost curve; hydrogen mobility remains one pilot component within the larger Mission
ADAS (L1/L2)	MoRTH draft notification (G.S.R. 184(E)) proposes mandatory ADAS/AEBS/stability systems for commercial vehicles	Bharat NCAP 2.0 (AIS-197 Rev 1) takes effect ~October 2027: ESC + curtain airbags mandatory for any star rating; AEB, LDW, FCW needed to reach 5 stars even though not strictly mandated	5-star threshold rises from 70/100 to 80/100 points (2029–2031)	ARAI's dedicated ADAS Test City (near Pune) scaling up national test capacity

Technology	Now (FY2025–26)	Near-term (2027–28)	Mid-term (2029–30)	Long-term (2031–35)
Connected Vehicles / OTA	AIS-140 (VLTD) mandatory for all commercial/transport-category vehicles (MoRTH notification GSR 979(E), 2018, since amended); GNSS tracking must combine GPS + India's NavIC constellation	AIS-140 enforcement deadlines tightening (Oct 2025 deadline for pre-2025 vehicles already passed; ongoing state-level enforcement)	Broader push toward telematics-enabled vehicles as 5G rollout continues under Digital India / DoT programs	Software-defined vehicle architectures and V2X maturing alongside smart-city rollouts

iii. Implications for the Aftermarket

- Mandatory telematics and ADAS regulation is a bigger near-term aftermarket driver than voluntary EV adoption Because AIS-140 (VLTD) is a hard legal requirement for all transport-category vehicles — not a consumer preference — the retrofit and compliance-verification market (GPS+NavIC units, ARAI-certified installers, panic-button integrators) has an assured, regulation-driven revenue base regardless of how fast EV or ADAS adoption grows organically. Similarly, once Bharat NCAP 2.0 takes effect in October 2027, any garage or workshop wanting to service ADAS-equipped vehicles (camera/radar recalibration after windshield or bumper work) will need certified tooling, creating a compliance-driven aftermarket opportunity with a fairly precise regulatory deadline to plan around, rather than an open-ended "growth trend."
- CNG remains the dominant alternative fuel for urban cabs, three-wheelers, and city buses, with City Gas Distribution infrastructure across 295+ cities.
- The government's Ethanol Blending Programme has set a target of E20 (20% ethanol blend in petrol) by 2025, which is being rolled out nationwide. Vehicles manufactured after 2023 are designed to be E20-compatible.
- The National Green Hydrogen Mission, with a total outlay of Rs. 19,744 crore and a target of producing 5 MMT of green hydrogen per year by 2030, positions hydrogen as a long-term, large-scale fuel option with a nearer-term focus on buses and trucks in dedicated corridors.

The aftermarket needs to prepare for regulation-driven change more than demand-driven change Unlike markets where aftermarket growth mainly tracks vehicle-parc aging and consumer choice, several of India's biggest near-term aftermarket shifts — AIS-140 telematics compliance, Bharat NCAP 2.0 ADAS recalibration, and PNGRB-mandated CNG buildout — are driven by specific government notifications with fixed compliance deadlines. Aftermarket players who track MoRTH/PNGRB/MNRE notifications directly (rather than relying solely on market-sizing forecasts) will have a clearer, earlier read on where certified new revenue lines are opening up.

Impact of EV Penetration on the Indian Automotive Aftermarket

India’s automotive aftermarket is shaped by a large and still-expanding vehicle parc that is predominantly internal-combustion engine (ICE) based. Electric vehicles (EVs) are rising rapidly in new

sales, but their impact on replacement demand will be gradual and highly segment-specific because of the lag between new-vehicle electrification and the ageing of the on-road fleet.

Current Penetration and Near-Term Roadmap

Electrification is still nascent in the aftermarket but already influencing product mix. Traditional engine, transmission, and certain cooling/rubber volumes will face gradual pressure as EV penetration rises. However, new categories like battery diagnostics, thermal management for packs, power electronics, regenerative braking components are emerging. The cooling-system segment is particularly interesting because it spans both ICE radiators and future EV thermal management needs. Overall EV aftermarket remains small today but is expected to grow rapidly from a low base

Because the aftermarket is driven by the existing parc rather than new sales, the full effect of today's EV sales will only become material in the late 2020s and early 2030s as those vehicles enter higher-mileage replacement cycles.

Program-Wise Impact on Aftermarket Categories

At-a-glance summary (detail and timeline below):

Component Category	EV Impact (2026-2032)	Why
Engine components	Declining	Eliminated in EVs (pistons, injectors, spark plugs, filters); most exposed category, fastest in 2W/3W
Drive transmission & steering	Mixed / Declining	Clutch & multi-speed gearbox parts decline (EVs use e-axles); steering systems remain needed
Suspension & braking	Resilient / Growing	Powertrain-agnostic; EV weight raises suspension wear even as regen braking extends pad life
Cooling systems	Transforming	Engine radiator demand declines but battery/inverter/motor thermal management is a new, higher-value category
Electricals & electronics	Growing	EVs add high-voltage wiring, BMS, inverters, onboard chargers, sensors - clearest growth area
Consumables & miscellaneous	Moderate headwind	Oil/fuel filters decline; cabin filters and new EV-specific fluids partially offset
Rubber components	Limited impact	Bushings, mounts, seals remain necessary; milder impact than pure powertrain parts

- Engine Components (largest or near-largest traditional category): This is the most exposed segment. EVs eliminate the need for pistons, rings, valves, fuel injectors, spark plugs, timing

components, oil filters, and related parts. As EV share of the parc rises, absolute demand for conventional engine spares will plateau and eventually decline, particularly in two- and three-wheelers where electrification is fastest. Passenger-vehicle and commercial-vehicle engine aftermarket demand will remain resilient longer because of the large existing ICE fleet and slower EV penetration in those segments.

- Drive Transmission & Steering Components: Traditional clutch, gearbox, and related mechanical transmission parts face structural pressure, especially in the 2W and 3W segments. EVs use simpler single-speed or multi-speed reductions and e-axles. However, steering systems (including electronic power steering) and certain driveline elements continue to be required. Commercial-vehicle transmission aftermarket (already the largest contributor in the FY26 data) will be less affected in the near term because heavy-duty electrification is slower.
- Suspension & Braking Components: These categories are relatively powertrain-agnostic and are expected to remain robust. EVs are typically heavier (battery mass), which can increase suspension wear and tyre demand. Regenerative braking reduces mechanical brake-pad and disc wear, lengthening replacement intervals, but brakes remain essential safety components. Overall, suspension and braking should see continued volume growth supported by the expanding parc and higher average vehicle weights.
- Cooling System Components: Traditional engine radiators, water pumps, and thermostats will decline with ICE penetration. However, EVs introduce sophisticated thermal-management systems for battery packs, inverters, and motors. This creates a shift rather than pure contraction: demand moves from conventional engine cooling toward battery and power-electronics cooling circuits, pumps, hoses, sensors, and specialised coolants. The net effect on the broader "cooling" category is likely to be a transformation with new higher-value content.
- Electricals Components: This is one of the clearest growth areas. EVs dramatically increase electrical and electronic content—high-voltage wiring, battery management systems (BMS), inverters, onboard chargers, DC-DC converters, sensors, and more sophisticated low-voltage architecture. Even conventional electrical items (lighting, starters/alternators in residual ICE vehicles) remain relevant. The electricals category is therefore positioned for both volume and value expansion as the vehicle mix electrifies and as owners pursue "tech-refresh" upgrades.
- Consumables & Miscellaneous Components: Oil filters, air filters, fuel filters, and engine lubricants will see declining demand intensity. Cabin filters, brake fluids, and certain other consumables continue. New consumables linked to battery thermal management and specialised EV fluids will partially offset the loss. Overall, this category faces moderate structural headwinds but remains supported by the sheer size of the ICE parc for many years.
- Rubber Components: Bushings, mounts, seals, and hoses remain necessary. Battery weight and different vibration characteristics can alter wear patterns. Some traditional engine-related rubber parts decline, while chassis and suspension rubber parts stay relevant. Net impact is expected to be milder than for pure powertrain components.

Timeline and Magnitude of Change

- 2026–2028: Limited aftermarket impact. New EV sales grow, but the parc remains overwhelmingly ICE. Traditional categories continue to expand with the overall vehicle population and rising average age/utilisation.
- 2029–2032: Noticeable mix shift begins, especially in 2W and 3W aftermarket. Engine and transmission parts growth slows; electricals, thermal management, and high-voltage components accelerate.

- Post-2032: Material structural change as early EV cohorts reach higher mileage. ICE powertrain aftermarket share declines meaningfully, while EV-specific and powertrain-agnostic categories gain share.
- Even under optimistic EV adoption scenarios, absolute demand for many traditional parts is likely to keep growing for several more years because of parc expansion and longer vehicle life. The relative share of ICE-centric components will fall.

Implications for Aftermarket Players

- Suppliers heavily exposed to engine, conventional transmission, exhaust, and pure ICE cooling face the greatest transition risk and need diversification into EV thermal management, power electronics, or powertrain-agnostic chassis/electrical products.
- Electricals, suspension/braking, and thermal-management specialists are better positioned for the next decade.
- Independent workshops and distributors must invest in high-voltage safety training, diagnostic tools, and software capabilities; the service model is shifting from mechanical repair toward electronics and systems diagnostics.
- Localisation opportunities are significant in motors, inverters, BMS, and thermal systems as India scales domestic EV component manufacturing.
- CNG and flex-fuel pathways provide a parallel buffer, sustaining demand for modified but still largely conventional powertrain parts in the passenger-vehicle and light-commercial segments.

In summary, EV penetration will not cause an abrupt collapse of the Indian aftermarket. It will produce a gradual but irreversible shift in product mix: contraction in classic ICE mechanical content, expansion and higher value-add in electrical, electronic, and thermal systems, and relative resilience in chassis and safety components. The next five to seven years remain a window of coexistence in which the large ICE parc continues to support traditional volumes while new EV-related aftermarket categories begin to scale. Players that adapt their portfolios, technical capabilities, and channel strategies early will capture the emerging value; those that remain purely ICE-centric will face progressive share erosion.

Service Cost Changes: BOQ, Brake Consumption, Parts Replacement Frequency

Electric vehicles have fundamentally different maintenance BOQs (Bill of Quantities) compared to ICE vehicles. EVs eliminate engine oil changes, spark plugs, fuel filters, timing belts, exhaust systems, and conventional transmission fluid changes. However, they retain and, in some cases, amplify demand for tyres (EVs are heavier, generating higher tyre wear), brake fluid, wiper blades, cabin air filters, battery coolant, and suspension components. The brake consumption of EVs is lower due to regenerative braking, which reduces wear on brake pads by 50-70% for typical urban cycles. This shift in parts-mix composition is a medium-term challenge for brake pad, filter, and oil manufacturers catering to the two-wheeler and passenger vehicle segments as EV penetration rises.

Higher Dependence on Electronics, Diagnostics & Software for Repairs

BS6 Phase 2 vehicles are equipped with complex engine management systems, electronic throttle bodies, and mandatory OBD2 diagnostic ports. This fundamentally raises the technical barrier for independent garages: a repair without a calibrated OBD scanner is no longer possible for emission-related faults. Workshops that invest in diagnostic equipment and technician training gain a significant competitive advantage. The aftermarket is responding — global brands like Bosch and Continental,

along with domestic players, are actively marketing scan tools and diagnostic solutions to Indian garages. This creates a new product and training services opportunity for Tier-1 auto component companies with aftermarket divisions.

2b. Digital Penetration / UPI and the Cashless Economy

i) UPI & Digital Payments – Macro Snapshot

The digital payments transformation in India is among the fastest in the world. UPI, launched by NPCI on April 11, 2016, has scaled exponentially: transaction volume grew from a mere 2 crore transactions in FY2016-17 to over 24,162 crore transactions in FY2025-26 — nearly a 12,000-fold increase. Transaction value grew from Rs. 0.07 lakh crore to approximately Rs. 314 lakh crores in the same period, per a PIB press release marking UPI's 10th anniversary (April 2026). UPI now powers approximately 81% of all digital payment volumes in India (FY2024-25 data) and approximately 85% of digital transactions in the country[16].

The average ticket size on UPI dropped to Rs. 1,293 in 2025, reflecting deep penetration into low-value everyday transactions — including auto parts purchases at local retailers. Daily average transactions reached approximately 698 million in 2025, and the platform recorded its first 707 million transaction day in August 2025. The number of banks live on UPI grew from 44 in FY2016-17 to 703 by FY2025-26[17].

UPI Transaction Volume (Crore) — FY2020 to FY2026

FY2019-20		**1,252 Cr**
FY2020-21		**~2,200 Cr**
FY2021-22		**~4,600 Cr**
FY2022-23		**~8,374 Cr**
FY2023-24		**~13,113 Cr**
FY2024-25		**18,586 Cr**
FY2025-26		**24,162 Cr**

Source: PIB, Government of India; NewsonAir.gov.in

ii) E-Commerce & Mechanic Apps – Aftermarket Impact

The proliferation of e-commerce and quick-commerce platforms is reshaping the auto parts retail landscape. Platforms such as SpareParts24, Boodmo (now partially acquired by large groups), and marketplaces on Amazon and Flipkart are making spare parts from branded manufacturers directly

[16] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2257087&lang=2&reg=48&utm

[17] https://financialservices.gov.in/sites/default/files/2026-01/Annual-Report-2024-25.pdf?utm

accessible to consumers and small garages across India's Tier 2–5 markets. This disintermediation of the traditional multi-tier distribution channel (manufacturer → C&F agent → distributor → sub-distributor → retailer → mechanic) is compressing margins across the chain but expanding the geographic market for organised parts.

Mechanic-booking apps and multi-brand service aggregators are also growing. These platforms — connecting car owners with screened mechanics at home or at nearby workshops — are creating a data trail on vehicle service needs, which is increasingly valuable for spare parts demand forecasting. The convenience vs. cost trade-off is resolving in favour of channels for urban consumers with higher-value vehicles, while price sensitivity remains dominant in rural and semi-urban markets for older two-wheelers.

iii) Impact on Distribution Channels & Price Disparity Erosion

Perhaps the most structurally significant impact of digitisation is on the price visibility of spare parts. When a mechanic or vehicle owner can check prices across multiple channels on a smartphone, the price premium previously commanded by spurious parts through information asymmetry (the vehicle owner did not know the genuine part's price) is eroded. GST's invoice trail requirement further constrains off-the-books spurious parts transactions. The combined effect is gradual price convergence and a shift toward organised, quality-assured parts - a structural positive for ACMA member companies.

2c. Impact of Tech Trends on the Aftermarket

Telematics, the integration of GPS tracking, vehicle diagnostics data transmission, and fleet management software is transforming how fleet operators manage their vehicles. Fleet Management Systems (FMS) used by large logistics operators provide real-time engine health data, enabling predictive maintenance rather than reactive repairs. This shift reduces unplanned breakdowns (historically a major driver of roadside workshop revenue) but increases the frequency of planned maintenance, which benefits organised service centres and genuine parts suppliers. The government's VAHAN and Parivahan platforms provide digital registration and fitness certification infrastructure that is also beginning to integrate with fleet telematics systems.

Connected vehicles, particularly premium passenger vehicles and new generation commercial vehicles come with over-the-air (OTA) update capability and embedded vehicle health monitoring systems. As the share of connected vehicles in the parc grows, OEMs will increasingly attempt to capture post-warranty service revenue through their dealer networks using data-driven customer outreach, posing a competitive challenge to the independent aftermarket.

2d. Supply Chain Evolution

The auto parts supply chain is undergoing structural evolution. The traditional model manufacturer distributing through a C&F agent to stockists/distributors, then to retailers, and finally to mechanics is being challenged by Tier-1 suppliers setting up their own warehouses and service centres. This direct-to-channel approach by manufacturers reduces distribution costs, improves brand control, and provides better sell-out data.

E-commerce platforms are enabling at-home repair services for simpler maintenance tasks (oil changes, filter replacements, minor electrical work) for passenger vehicles in metropolitan areas. This convenience-driven service format appeals to urban professionals but is not yet economically viable for complex repairs or for the two-wheeler market. Consolidated repair chains (multi-brand service centres)

are growing in Tier 1 and Tier 2 cities, offering professional diagnostics, standardised pricing, and warranty on labour — building consumer trust in the organised aftermarket.

SECTION 3: REGULATORY ENVIRONMENT

3a. Impact of GST – Effect on Spurious Brands

The Goods and Services Tax, implemented in July 2017, was the single most significant tax reform affecting the auto components aftermarket in the decade. Before GST, the tax structure for auto parts was fragmented: parts attracted Central Excise Duty, VAT (varying 12-14.5% by state), CST on inter-state movement, and various local levies. The total tax incidence for organised manufacturers was 25–35%, while unregistered manufacturers operating in the spurious market bore no tax — creating a structural price advantage for counterfeit and low-quality parts.

GST unified this system under the GSTN network with mandatory invoice trails. Auto components were placed under the 28% GST slab (for complete vehicles), while most auto parts and accessories were placed at 28% GST (parts for motor vehicles), with some rationalisation over subsequent GST Council meetings. The GST reforms of 2025, a landmark change further rationalised all car spare parts under a single 18% slab, reducing confusion, making pricing more transparent, and lowering costs for many commonly replaced parts, as summarised by various industry observers. This rationalisation directly undercuts the tax-arbitrage advantage that spurious/counterfeit parts previously enjoyed, as the price gap between genuine and fake parts narrows.

The government's PIB has published GST reform details for the automotive sector, including rate revisions for motor vehicles sub-categories and clarifications under Ministry of Heavy Industries.

3b. Emission Norms – BS-VI and Future BS-VII

Bharat Stage VI (BS6) emission standards — equivalent to Euro VI — came into force for all new vehicles nationwide from April 1, 2020, as mandated by MoRTH. This represented a leap of two stages (from BS4), bypassing BS5, and was implemented on an accelerated timeline. BS6 standards require dramatic reductions in nitrogen oxide (NOx), hydrocarbon (HC), and particulate matter (PM) emissions versus BS4.

BS6 Phase 2, effective from April 1, 2023, introduced Real Driving Emissions (RDE) testing — where vehicles must meet emission standards under actual on-road conditions rather than only in laboratory settings — along with enhanced OBD2 diagnostics. This phase also made OBD2 mandatory for two-wheelers for the first time, fundamentally changing the diagnostic capability required for two-wheeler workshops. NOx limits under BS6 are 60 mg/km for petrol vehicles and 80 mg/km for diesel vehicles.

Looking ahead, Transport Minister Nitin Gadkari publicly called on automakers to prepare for BS7 (Bharat Stage 7) norms, aligned with the European Union's Euro 7 framework. BS7 is expected to impose stricter controls on both petrol and diesel vehicles and will require an Advanced Emission Control System on affected vehicles, pushing repair complexity and genuine parts reliance further upward.

3c. Safety Regulations: Crash Testing, ADAS, PLI Schemes

India's BNVSAP (Bharat New Vehicle Safety Assessment Programme) — modelled on the global NCAP framework — is progressively mandating occupant protection standards for new vehicles. AIS-145 and AIS-190 standards introduced mandatory fitment of Electronic Stability Control (ESC) for vehicles above 3,500 kg GVW, reverse parking sensors, and requirements for structural crash protection across vehicle categories. These regulations raise both the complexity and cost of new vehicles, but more significantly

for the aftermarket, they introduce new categories of electronic components (sensors, airbag control modules, ABS/ESC units) that require specialised repair expertise.

The Production Linked Incentive (PLI) scheme for automobile and auto components, with a government outlay of Rs. 25,938 crore, targets new-age technology manufacturing including Advanced Chemistry Cell batteries, EV drive systems, ADAS components, and safety electronics. ACMA member companies have been significant beneficiaries of PLI incentives, enabling them to develop manufacturing capabilities for domestically produced ADAS modules and safety electronics that will eventually feed the aftermarket.

3d. Regulations in the Pipeline and ACMA's Policy Role

ACMA, as the apex body of the auto component industry representing over 1,100 manufacturers contributing more than 90% of the organised sector's turnover, plays a proactive role in shaping the regulatory environment. ACMA has been a vocal advocate for the Right to Repair legislation, joining global associations in formally supporting the movement. Right to Repair — if legislated — would mandate OEMs to share vehicle technical data with independent service providers, significantly boosting the independent aftermarket's competitiveness.

Mandatory periodic vehicle inspection — a policy ACMA has advocated for — would require vehicle owners to certify roadworthiness annually, driving preventive maintenance demand and benefiting the organised aftermarket. Automated Testing Stations (ATSs) under the Scrappage Policy framework are a precursor to this system. ACMA has also engaged with MoRTH on extended producer responsibility (EPR) frameworks for End-of-Life Vehicles, catalytic converter recycling standards, and localisation requirements for EV components under the PLI scheme.

Regulatory & Policy Status Reference

Legend: Notified & in force | Notified, future effective date | Proposed / draft under consideration | Industry recommendation / advocacy position (not government policy)

Status	Topic	Status Detail	Section
Notified & in force	BS-VI (original)	In force nationwide since April 1, 2020 (MoRTH mandate)	1b(vii)
Notified & in force	BS-VI Phase 2 (RDE + OBD2)	In force since April 1, 2023; OBD2 extended to two-wheelers	1b(vii)
Proposed / draft	BS-VII	Ministerial statement (public call to prepare); no draft notification issued yet	1b(ix)
Proposed / draft	ADAS/AEBS mandate for CVs	Draft notification G.S.R. 184(E) - proposed, not finalised	2a

Notified, future effective date	Bharat NCAP 2.0 (AIS-197 Rev 1)	Notified standard; effective date ~Oct 2027 (approximate - confirm before citing as fixed)	2a
Notified, future effective date	5-star NCAP threshold to 80/100 pts	Roadmap target for 2029-2031	2a
Proposed / draft	BNVSAP ADAS mandate (general ref.)	Should be reconciled with the draft-notification status above rather than stated as settled	1b(ix)
Notified & in force	Vehicle Scrappage Policy	In force since FY2021-22; phased effective dates (Apr 2023, Jun 2024) confirmed	1b(iii)
Industry recommendation	Right to Repair	ACMA advocacy position; "if legislated" - not enacted	3d; Recs 5c
Industry recommendation	Mandatory periodic vehicle inspection	ACMA-advocated policy; not yet mandated	3d
Industry recommendation	EV inverted duty structure fix	Industry ask; explicitly unresolved	1a
Notified & in force	AIS-140 (VLTD) mandate	Notified via MoRTH GSR 979(E), 2018; enforcement deadlines tightening	2a
Notified & in force	GST 2.0 reforms	Notified and implemented September 3, 2025	1a; 3a
Notified & in force	PLI Scheme (auto components)	Notified and operational; ₹25,938 crore outlay	1a; 3c
Notified, future effective date	National Green Hydrogen Mission	Cabinet-approved; target 5 MMT/yr by 2030, possible slippage to 2032 flagged in-text	2a
Notified & in force	Axle Load Norm revision	Notified by MoRTH, July 2018	1b(vii)
Notified & in force	Ethanol E20 blending	Achieved in ESY 2025-26, ahead of original target	2a

Proposed / draft	Flex-Fuel Vehicle (FFV) rules	Motor Vehicle Rules amendment in progress; formal definition not yet notified	2a
Proposed / draft	E30 ethanol standard	Under review, pending feedstock/food-security assessment; no decision taken	2a
Notified, future effective date	CNG station rollout (PNGRB target)	Regulatory framework exists; 18,336-station target dated 2034	2a

Note: the ADAS/AEBS mandate for commercial vehicles and the general BNVSAP ADAS reference (Section 1b(ix)) describe the same regulation; both should be read as 'proposed / draft' until MoRTH finalises the notification.

SECTION 4: KEY VALUE CHAIN TRENDS (PAST → PRESENT → FUTURE)

4a. Vehicles

i) Shared Mobility and Ride-Hailing

India's ride-hailing sector, dominated by Ola and Uber, with emerging challengers has created a massive fleet of semi-commercial passenger vehicles operating far above typical private-vehicle usage intensity. These vehicles, typically compact SUVs or sedans, accumulate 60,000–100,000 km per year and require maintenance every 2-3 months rather than the typical 6-monthly service schedule of private cars. The ride-hailing segment thus represents an extremely high-frequency, high-value aftermarket customer segment. As the formal economy grows and the gig economy expands, this segment will continue to grow.

ii) Two-Wheelers Becoming Commercial

One of the most significant demand-side shifts of the post-COVID decade has been the commercialisation of two-wheelers. The explosive growth of quick-commerce delivery (Zomato, Swiggy, Blinkit, Zepto, BigBasket) and e-commerce last-mile delivery has created a large, new class of high-usage commercial two-wheelers. These vehicles typically 110-125cc motorcycles or scooters, may accumulate 40,000–60,000 km per year in delivery service, compared to 10,000–15,000 km for a typical commuter two-wheeler. This dramatically compresses the replacement cycle for filters, tyres, brake pads, spark plugs, and engine oil, creating a disproportionately large aftermarket demand relative to fleet size.

The shift toward electric two-wheelers in delivery fleets is also gaining traction, as lower fuel and maintenance costs make EVs economically attractive at high usage intensities. This will over time reduce demand for certain high-volume traditional parts (oil filters, spark plugs, engine oil) for the delivery two-wheeler segment, even as the fleet itself expands.

iii) Fleets – Organised Logistics, On-Demand Models, Trailer Changes

India's logistics sector is undergoing consolidation from fragmented owner-operators toward larger, organised fleet operators. The National Logistics Policy (NLP) and Goods and Services Tax (which eliminated check-posts and unified the national market) have both catalysed this consolidation. Larger fleet operators with professional maintenance contracts, negotiated parts pricing, and preventive maintenance schedules are increasingly important customers for Tier-1 aftermarket brands. They also have the purchasing power and digital infrastructure to participate in organised digital procurement platforms, bypassing traditional distribution chains.

4b. OEMs

i) OEM Focus on Aftermarket – Warranty Extension, Black-Box Diagnostics

Vehicle manufacturers are increasingly viewing the aftermarket as a strategic revenue stream rather than a secondary consideration. Extended warranties, subscription-based service plans, and connected vehicle diagnostic platforms are all mechanisms through which OEMs are attempting to retain vehicle owners within their dealer service ecosystem beyond the initial warranty period. Some OEMs have introduced 'black-box' or proprietary diagnostic systems that generate fault codes readable only by their authorised scan tools, effectively limiting independent garage repair capabilities- a practice that industry association and the Right to Repair movement actively oppose.

ii) Consolidation Through High-Value Bundled Products

OEMs are increasingly offering maintenance packages that bundle labour and parts into fixed-price service contracts at attractive price points, leveraging their scale and parts margins. This retention strategy is effective for urban, higher-income vehicle owners but less relevant for rural markets and older vehicles. For the IAM, the response has been to position on quality assurance, faster turnaround, and lower overall cost.

4c. Tier-1 Suppliers

i) Evolution: Distributor Sales to Own Warehouses & Direct-to-Market Strategies

Tier-1 auto component suppliers — such as Bosch, Motherson, Minda Industries, Varroc, and Endurance Technologies — have progressively extended their value chains into the aftermarket. The traditional model relied on selling to a network of C&F agents and stockists who bore warehousing and credit risk. Increasingly, Tier-1 companies are establishing their own regional distribution centres, reducing distributor margins, improving fill rates, and gaining direct market intelligence. Bosch Automotive Aftermarket India, for instance, operates a dedicated aftermarket division with its own service network (Bosch Car Service) across major cities.

ii) Introduction of Budget Brand (Type 2)

A significant strategic response to competition from spurious and local parts has been the introduction of 'Type 2' or economy-range sub-brands by leading Tier-1 suppliers. These products use the same quality assurance standards as premium brands but are positioned at lower price points to compete with IAM and local brands in price-sensitive markets. Reception has been mixed — brand credibility is difficult to simultaneously maintain for premium and economy products from the same manufacturer. Success cases exist where clear brand and channel separation has been maintained; challenges arise where Type 2 products are sold through the same retail channels as premium products, causing consumer confusion and premium product cannibalisation.

4d. Distributors

i) Consolidation and Expanding Roles

India's auto parts distribution network — a complex multi-tier structure involving over tens of thousands of distributors, sub-distributors, and retailers — is undergoing significant consolidation. Larger, organised distributors with digital inventory management, strong OEM relationships, and value-added services (mechanic training, credit financing, market data) are gaining share at the expense of small, single-product distributors operating on thin margins. Leading distributors are increasingly acting as quasi-banks — extending credit to garages and retailers — and as logistics hubs, with digitised inventory systems linked to manufacturer ERP systems for real-time stock management.

OEM-driven indenting systems — where a vehicle manufacturer's dealer management system automatically generates purchase orders to authorised parts distributors based on sales data and service schedules — represent the leading edge of demand-driven distribution efficiency. This model, analogous to FMCG distribution evolution, is being piloted by several OEMs and Tier-1 suppliers and once scaled, will fundamentally alter the economics and power dynamics of the distribution chain.

SECTION 5: CHALLENGES & OPPORTUNITIES

India's vehicle parc is among the world's largest (hundreds of millions of two-wheelers plus ~50 million+ cars, with projections toward ~430 million total vehicles by 2030). Longer vehicle life, rising personal/commercial usage, urbanisation, and a growing used-vehicle market sustain replacement demand, particularly in drive transmission/steering, electricals, suspension, braking, filters, and emerging electronics/comfort features.

The market remains heavily unorganized/fragmented but is professionalizing through organized workshops, e-commerce/marketplaces, service chains, OEM-aligned networks, and digital tools. Ev aftermarket is nascent (very small base) but expected to grow rapidly as EV penetration rises.

5a. Consolidated challenges across the ecosystem

Challenges are interconnected across OEMS/tier-1s, distributors, retailers/mechanics, and the broader value chain:

- The market remains highly fragmented: thousands of small workshops, stockists, and multi-brand retailers operate with limited standardisation, inconsistent quality, and low scale, creating inventory inefficiencies, poor last-mile reach in tier-2/3 and rural areas, and variable customer experiences.
- Trade bodies and industry commentary put the counterfeit and low-grade share of the market at roughly 20-30%, though no single audited source confirms this precisely. These undermine trust, create safety risks, erode margins for genuine players, and complicate brand differentiation. Price sensitivity amplifies the problem as customers often prioritize cost over quality.
- There is an acute shortage of trained technicians, especially for modern vehicles with electronics, ADAS, diagnostics, and high-voltage EV systems. Independent garages risk being left behind, since many lack tools, software access, and certification, and upskilling needs are massive - estimates put the requirement at 100,000–200,000 EV-related professionals by 2030 across broader mobility.
- EVs bring their own transition challenges: they have fewer traditional moving parts, reducing some ICE replacement demand, but introduce new requirements such as battery diagnostics, thermal management, power electronics, software/calibration, and high-voltage safety. Independent workshops often lack access to OEM diagnostics/software and the capital for equipment, putting pressure on service revenue models for dealers and workshops alike.
- Heavy reliance on imports for electronics, ECUs, and certain high-value components leaves the market exposed - China's share of auto component imports was recently around 36%. Raw material volatility, semiconductor constraints, logistics costs, and geopolitical risks affect availability and pricing, and shortening technology product lifecycles are raising expectations for rapid availability.
- Consumers and workshops remain highly cost-conscious, and a lack of pricing transparency combined with inconsistent service quality breeds mistrust. Organised players struggle against cheaper alternatives even as they invest in quality, branding, and digitalisation.
- A handful of other structural issues persist: limited formalisation in rural/semi-urban areas, slow technology adoption in many workshops, challenges in reverse logistics/remanufacturing scale, talent competition from other sectors, and a continuing need for better data on vehicle parc applications and parts fitment.

These challenges constrain efficiency, quality, safety, and the ability of the ecosystem to capture full value from the growing parc.

5b. High-potential opportunities for stakeholders (2026–2030)

The period offers strong structural tailwinds:

- Expanding and aging vehicle parc + higher utilisation: core driver of steady overall aftermarket growth (~5.8% CAGR, 2025-30), with the organised/formal channel growing faster than the market average as it gains share from unorganised players. Replacement demand in core categories (transmission, electricals, suspension, braking) remains robust. Pre-owned vehicle growth and longer ownership cycles further support demand.
- Formalisation, premiumisation, and organized channels: shift toward branded/genuine parts, organized multi-brand workshops, service chains, and digital platforms. Customers increasingly seek quality, warranties, and convenience, especially in urban/semi-urban markets. "tech-refresh" of existing vehicles (led lighting, infotainment, comfort/safety upgrades, CNG solutions) is gaining traction.
- Digitalisation and new service models: e-commerce/marketplaces, inventory visibility platforms, predictive maintenance via telematics, digital twins for workshops, and b2b spare-parts commerce. These improve efficiency, reach, and customer experience.
- EV and alternative powertrain aftermarket: nascent but high growth (projected strong CAGRS from a small base). Opportunities in battery systems, thermal management, power electronics, regenerative braking components, charging accessories, diagnostics, and specialized service. Coexistence of ice, CNG, and EV creates hybrid demand.
- Localisation and export growth: opportunity to localize high-value electronics and advanced components (reducing import dependence). Broader auto components exports remain strong; aftermarket players can target select international markets. Global supply-chain diversification (china+1) and FTAS support Indian competitiveness.
- Circular economy and value-added services: remanufacturing, refurbishing, second-life batteries, and component recycling. Value-added services (diagnostics, predictive maintenance, warranties, fleet solutions) can improve margins and stickiness.
- Policy and ecosystem support: PLI schemes, localisation pushes, safety regulations, and skill initiatives create tailwinds for quality players and capacity investments.

Overall, the market is shifting from pure volume/price competition toward technology, quality, service, and ecosystem integration.

5c. Recommendations

i) For OEMs / Tier-1s

- Deepen aftermarket presence with dedicated branded/OES parts programs, multi-channel distribution (including independent networks), and competitive pricing/warranty offerings to counter counterfeits and capture share from unorganized players.
- Invest in localisation of electronics, ECUS, and EV-specific components while building modular portfolios that serve both ice and EV/hybrid needs.
- Develop or partner on diagnostics/software access models that enable independent workshops (under controlled conditions) rather than fully restricting them, expanding the serviceable ecosystem.

- Launch training academies, certification programs, and toolkits for mechanics focused on electronics, ADAS, and high-voltage systems.
- Pursue tech-refresh/retrofit kits (lighting, connectivity, comfort, CNG) and circular solutions (reman programs).
- Strengthen data-driven demand sensing and inventory collaboration with distributors to reduce stockouts and obsolescence.
- Explore export-oriented aftermarket strategies leveraging cost and quality advantages.

ii) For distributors

- Accelerate digitalisation: real-time inventory visibility, e-commerce/b2b platforms, last-mile garage delivery, and data analytics for demand forecasting and SKU rationalisation.
- Form strategic alliances (e.g., with international groups or tech platforms) to access best practices, broader portfolios, and garage networks while building scale.
- Prioritise genuine/branded portfolios with strong anti-counterfeit features (packaging, authentication) and educate the channel on quality/safety risks of fakes.
- Expand reach into tier-2/3 and rural markets through hybrid physical-digital models and partnerships with local stockists.
- Offer value-added services: training support for retailers/mechanics, credit solutions, technical advisory, and predictive stocking based on vehicle parc data.
- Diversify into EV/electronics categories early and build capabilities in reman/reverse logistics.
- Improve working capital and margin management through better inventory turns and category mix (higher-value electronics/services).

iii) For retailers and mechanics

- Invest in upskilling and certification (especially electronics, diagnostics, EV high-voltage safety) via OEM, industry association, or skill council programs; this will be a key differentiator as vehicles become more complex.
- Adopt digital tools for inventory, customer management, service booking, and diagnostics to improve efficiency and trust.
- Focus on transparency (clear pricing, genuine parts with warranties) and quality service to build loyalty and command better margins versus pure price competition.
- Specialise or multi-brand strategically: develop capabilities in high-growth areas (electronics, EV service, fleet maintenance, tech upgrades) while maintaining broad coverage where feasible.
- Partner with organised distributors/platforms for reliable supply, training, and marketing support rather than relying solely on informal channels.
- Explore value-added offerings (preventive maintenance packages, roadside assistance tie-ups, accessories installation) to offset potential declines in pure ice repair volumes.
- Collaborate in networks or chains where possible to gain scale, branding, and access to better tools/capital.

iv) For policymakers and industry bodies (ACMA)

- Strengthen anti-counterfeit measures: stricter enforcement, mandatory authentication standards/packaging features, public awareness campaigns on safety risks, and faster legal recourse.

- Scale skill development aggressively through ASDC and partnerships: standardised curricula for EV/electronics/diagnostics, large-scale training infrastructure, and incentives for workshops to certify staff. Target the projected technician shortfall.
- Support localisation of critical electronics and advanced components via PLI extensions, R&D incentives, and ease of doing business for high-tech manufacturing. Address import concentration risks.
- Facilitate formalisation: standards for workshops, simplified compliance for small players transitioning to organized status, and incentives for digital adoption and quality certification.
- Promote circular economy policies (reman standards, recycling infrastructure for batteries/components) and safety regulations that favor genuine/certified parts.
- Enable data and ecosystem platforms: better vehicle parc/parts application data sharing, support for digital aftermarket infrastructure, and balanced access frameworks for independent repair (diagnostics/software) that protect IP while enabling competition and consumer choice.
- Continue export promotion, FTA leverage, and global positioning of Indian aftermarket capabilities. Monitor and mitigate geopolitical/supply-chain risks.
- ACMA can lead collaborative initiatives: industry-wide training programs, anti-counterfeit task forces, EV aftermarket readiness roadmaps, and regular market intelligence reports to guide stakeholders.

v) Action Priorities by Stakeholder Group and Time Horizon

The detailed recommendations above are consolidated below into three stakeholder groups - Industry/ACMA Members, ACMA, and Government - each sequenced by time horizon, to make the roadmap more directly actionable.

Time Horizon	Industry / ACMA Members (OEMs, Tier-1s, distributors, retailers & mechanics)	ACMA	Government
Immediate (0-12 months)	- Deepen branded/genuine parts programs and competitive pricing to counter counterfeits - Prioritise genuine/branded portfolios with anti-counterfeit packaging - Adopt digital tools for inventory, customer management and diagnostics - Accelerate distributor digitalisation: real-time inventory, e-commerce/B2B platforms	- Strengthen anti-counterfeit enforcement advocacy and public safety-risk awareness campaigns - Continue formal advocacy for Right to Repair and periodic vehicle inspection	- Finalise the draft ADAS/AEBS notification (G.S.R. 184(E)) for commercial vehicles - Close GST-driven tax-arbitrage loopholes that favour counterfeit/unregistered manufacturers

Medium-term **(1-3 years)**	- Launch OEM training academies/certification for electronics, ADAS and high-voltage systems - Expand distributor reach into Tier-2/3 and rural markets via hybrid physical-digital models - Upskill retailers/mechanics in electronics, diagnostics and EV high-voltage safety - Diversify distributor portfolios into EV/electronics; build reman/reverse-logistics capability	- Scale skill development with ASDC: standardised curricula for EV/electronics/diagnostics at scale, targeting the projected technician shortfall - Facilitate formalisation support (workshop standards, simplified compliance) for small players	- Extend PLI incentives to critical electronics/EV component localisation - Progress Bharat NCAP 2.0 and 5-star threshold roadmap implementation support
Longer-term **(3-5 years)**	- Localise electronics, ECUs and EV-specific components; build modular ICE/EV portfolios - Pursue export-oriented aftermarket strategies leveraging cost and quality advantages - Retailers to specialise/multi-brand strategically in high-growth categories and collaborate in networks for scale	- Lead an industry-wide EV aftermarket readiness roadmap and recurring market-intelligence reporting - Continue export promotion and FTA leverage for Indian aftermarket brands globally	- Consider Right to Repair legislation based on ACMA/industry advocacy outcomes - Advance circular-economy policy (reman standards, battery/component recycling infrastructure) - Plan BS-VII transition timeline once technical norms are finalised

Taken together, the preceding sections point to an aftermarket shaped by five overlapping shifts: an ageing parc, premiumisation, formalisation, digitalisation, and an early-stage technology transition. None of these moves in isolation, and none is likely to move in a straight line, but their combined effect is a market that rewards patience and investment over short-term price competition. Fragmentation, counterfeits, skills gaps, and import dependence remain real constraints, addressable only through coordinated action by OEMs, channel partners, and policymakers alike. The players who build capability, trust, and technology readiness now stand to capture a disproportionate share of the growth between 2026 and 2030.

1. COMPONENTS COVERED AS PART OF THE STUDY:

Components Cluster	Engine Components	Drive Transmission & Steering	Suspension & Braking	Cooling Systems	Electricals	Consumables & Misc	Rubber Components
PV Components (51)	Pistons	Clutch Assembly	Brake Pads	Radiators	Starter	Air Filter	Hose
	Piston Rings	Clutch Plate	Brake Shoe	Water Pump	Alternator	Fuel Filter	Strut mountings
	Cyl Head Gaskets	Crown Wheel Pinion	Master Cylinder Repair Kit	Oil Pump	Head lamp Assembly	Oil Filter	Molded rubber parts (front door Moulding)
	Engine Bearing		Shock Absorbers	Viscous Fan Assembly	Tail Lamp assembly	Cabin Filter	Extruded rubber - Profiles
	Engine Valves		Struts		Ignition coils	Wheel Bearing	Oil seals
			Wheel Cylinder Repair kIT		Horns	Wiper Blades	Engine mountings
							Transmission mountings
							Exhaust rubber mounts
CV Components (49)	Pistons	Clutch Assembly	Brake Lining	Radiators	Starter	Air Filters	Hose
	Piston Rings	Clutch Plate	Master Cylinder Repair Kit	Water pump	Alternator	Oil Filter	Molded rubber parts
	Cylinder Liners	Crown Wheel Pinion	Wheel Cylinder Repair Kit	Oil Pump	Head LampAssembly	Fuel Filter	Extruded rubber - Profiles
	Cyl Head Gaskets	Power Steering Universal Joint	Leaf Spring	Viscous Fan Assembly	Tail Lamp assembly	Wheel Bearing	Oil seals
	Engine Bearing	Drive Axle Shaft			Ignition coils	Wiper Blades	Engine mountings
	Engine Valves	Drive Shaft Slip Yoke			Horns		Transmission mountings
	Crank shaft	Spider Kit			Armature		Exhaust rubber mounts
	Connecting Rods	UJ Cross					Control arm bushes
	Cylinder heads	Ball Suspension Joints					
	Tappets	Control Arm					
2W Components (21) & 3W Components (21)	Pistons	Clutch Plate	Brake Pads/Lining/Shoe	Head Lamp		Filters Air	Oil seals
	Piston Rings		Shock Absorbers	Tail Lamp		Wheel Bearing	Mechanical Control Cables
	Engine Gaskets			Ignition coils			
	Engine Bearing			Horns			
	Engine Valves						
	Chain sprocket						
	Connecting Rods						
	Cylinder heads						
	Tappets						

2. Parc by Segment and Parc by States

i. State Wise Passenger 2W VIO (June 2026)

S No	State	2W VIO as of June 2026
1	ANDAMAN & NICOBAR ISLAND	131,276
2	ANDHRA PRADESH	15,026,582
3	ARUNACHAL PRADESH	209,967
4	ASSAM	4,974,238
5	BIHAR	12,586,628
6	CHANDIGARH	490,206
7	CHHATTISGARH	7,412,999
8	DELHI	10,450,632
9	GOA	977,164
10	GUJARAT	20,016,605
11	HARYANA	9,142,082
12	HIMACHAL PRADESH	1,364,880
13	JAMMU AND KASHMIR	1,347,955

14	JHARKHAND	6,822,743
15	KARNATAKA	25,270,776
16	KERALA	12,604,819
17	LADAKH	9,036
18	LAKSHADWEEP	8,987
19	MADHYA PRADESH	20,160,574
20	MAHARASHTRA	31,233,576
21	MANIPUR	430,504
22	MEGHALAYA	274,434
23	MIZORAM	298,596
24	NAGALAND	94,734
25	ODISHA	10,504,567
26	PUDUCHERRY	1,260,674
27	PUNJAB	10,998,166
28	RAJASTHAN	17,270,612
29	SIKKIM	46,507
30	TAMIL NADU	28,478,483
31	TELANGANA	11,121,265
32	TRIPURA	624,125
33	UT OF DNH AND DD	266,158
34	UTTARAKHAND	3,178,615
35	UTTAR PRADESH	43,506,394
36	WEST BENGAL	14,400,039
	Total	322,995,598

Source: Vahan Dashboard

ii. State Wise 3 WHEELER (June 2026)

S No	State	3W VIO as of June 2026
1	ANDAMAN & NICOBAR ISLAND	6,452
2	ANDHRA PRADESH	952,026
3	ARUNACHAL PRADESH	6,842
4	ASSAM	492,082

5	BIHAR	965,511
6	CHANDIGARH	22,722
7	CHHATTISGARH	122,620
8	DELHI	618,298
9	GOA	4,230
10	GUJARAT	1,131,668
11	HARYANA	362,155
12	HIMACHAL PRADESH	11,520
13	JAMMU AND KASHMIR	92,382
14	JHARKHAND	343,522
15	KARNATAKA	1,207,581
16	KERALA	1,141,713
17	LADAKH	8
18	LAKSHADWEEP	735
19	MADHYA PRADESH	484,805
20	MAHARASHTRA	1,232,906
21	MANIPUR	23,480
22	MEGHALAYA	22,076
23	MIZORAM	9,113
24	NAGALAND	13,742
25	ODISHA	350,160
26	PUDUCHERRY	10,025
27	PUNJAB	188,971
28	RAJASTHAN	446,467
29	SIKKIM	0
30	TAMIL NADU	731,702
31	TELANGANA	739,131
32	TRIPURA	101,048
33	UT OF DNH AND DD	5,506
34	UTTARAKHAND	112,926
35	UTTAR PRADESH	2,066,866

36	WEST BENGAL	437,019
	Total	14,458,010

Source: Vahan Dashboard

iii. State Wise LMV (passenger Cars) (June 2026)

S No	State	LMV (PC) VIO as of June 2026
1	ANDAMAN & NICOBAR ISLAND	36,723
2	ANDHRA PRADESH	2,270,652
3	ARUNACHAL PRADESH	144,913
4	ASSAM	1,168,230
5	BIHAR	1,074,434
6	CHANDIGARH	446,389
7	CHHATTISGARH	1,325,341
8	DELHI	4,412,424
9	GOA	388,022
10	GUJARAT	5,999,037
11	HARYANA	4,120,141
12	HIMACHAL PRADESH	888,063
13	JAMMU AND KASHMIR	904,664
14	JHARKHAND	957,700
15	KARNATAKA	6,389,066
16	KERALA	4,557,038
17	LADAKH	30,027
18	LAKSHADWEEP	545
19	MADHYA PRADESH	4,318,232
20	MAHARASHTRA	8,447,908
21	MANIPUR	164,181
22	MEGHALAYA	231,773
23	MIZORAM	81,744
24	NAGALAND	143,579
25	ODISHA	1,133,142
26	PUDUCHERRY	218,080

27	PUNJAB	3,161,308
28	RAJASTHAN	4,755,712
29	SIKKIM	60,442
30	TAMIL NADU	4,724,951
31	TELANGANA	3,196,923
32	TRIPURA	96,680
33	UT OF DNH AND DD	115,439
34	UTTARAKHAND	915,884
35	UTTAR PRADESH	8,008,255
36	WEST BENGAL	2,403,154
	Total	77,290,796

Source: Vahan Dashboard

iv. State Wise LCV (June 2026)

S No	State	M&HCV (PC) VIO as of June 2026
1	ANDAMAN & NICOBAR ISLAND	10,010
2	ANDHRA PRADESH	608,137
3	ARUNACHAL PRADESH	24,879
4	ASSAM	426,658
5	BIHAR	990,852
6	CHANDIGARH	17,381
7	CHHATTISGARH	327,551
8	DELHI	547,029
9	GOA	78,625
10	GUJARAT	950,898
11	HARYANA	559,618
12	HIMACHAL PRADESH	227,861
13	JAMMU AND KASHMIR	173,226
14	JHARKHAND	529,014
15	KARNATAKA	1,565,550
16	KERALA	732,397
17	LADAKH	13,995
18	LAKSHADWEEP	372
19	MADHYA PRADESH	700,017
20	MAHARASHTRA	1,660,859
21	MANIPUR	21,395
22	MEGHALAYA	80,025
23	MIZORAM	38,240
24	NAGALAND	31,440
25	ODISHA	749,189
26	PUDUCHERRY	30,280
27	PUNJAB	482,870
28	RAJASTHAN	820,397
29	SIKKIM	28,223

30	TAMIL NADU	1,397,888
31	TELANGANA	577,113
32	TRIPURA	46,292
33	UT OF DNH AND DD	20,856
34	UTTARAKHAND	204,451
35	UTTAR PRADESH	1,114,142
36	WEST BENGAL	933,880
	Total	16,721,610

Source: Vahan Dashboard

v. State Wise M&HCV (June 2026)

S No	State	M&HCV (PC) VIO as of June 2026
1	ANDAMAN & NICOBAR ISLAND	2,695
2	ANDHRA PRADESH	381,073
3	ARUNACHAL PRADESH	25,197
4	ASSAM	132,559
5	BIHAR	309,944
6	CHANDIGARH	7,498
7	CHHATTISGARH	242,570
8	DELHI	135,865
9	GOA	27,976
10	GUJARAT	612,710
11	HARYANA	551,912
12	HIMACHAL PRADESH	110,249
13	JAMMU AND KASHMIR	75,522
14	JHARKHAND	222,661
15	KARNATAKA	778,423
16	KERALA	256,756
17	LADAKH	4,964
18	LAKSHADWEEP	18
19	MADHYA PRADESH	357,385
20	MAHARASHTRA	856,435

21	MANIPUR	12,270
22	MEGHALAYA	33,792
23	MIZORAM	10,580
24	NAGALAND	210,604
25	ODISHA	351,642
26	PUDUCHERRY	12,375
27	PUNJAB	236,500
28	RAJASTHAN	599,358
29	SIKKIM	5,679
30	TAMIL NADU	790,043
31	TELANGANA	301,633
32	TRIPURA	21,510
33	UT OF DNH AND DD	37,368
34	UTTARAKHAND	101,234
35	UTTAR PRADESH	691,527
36	WEST BENGAL	553,175
	Total	9,061,702

Source: Vahan Dashboard

Term	Definition/Expansion
OEM	Original Equipment Manufacturer
OES	Original Equipment Spares
IAM	Independent Aftermarket
LATAM	Latin America
ASEAN	Association of South-East Asian Nations
EU	European Union
NCR	National Capital Region
IMF	International Monetary Fund
RBI	Reserve Bank of India
SIAM	Society of Indian Automobile Manufacturers
TMA	Tractor Manufacturers Association
NATRiP	National Automotive Testing and R&D Infrastructure Project
CPCB	Central Pollution Control Board
NSSO	National Sample Survey Organisation
ILO	International Labour Organization
PSU	Public Sector Undertaking
GoI	Government of India
GDP	Gross Domestic Product
FDI	Foreign Direct Investment
FII	Foreign Institutional Investor
MSP	Minimum Support Price
NPA	Non-Performing Asset
LPA	Lakhs per Annum
CAGR	Compound Annual Growth Rate
GVW	Gross Vehicle Weight
HP	Horse Power
2W	Two Wheeler
3W	Three Wheeler (Auto-rickshaw)
PV	Passenger Vehicle

SUV	Sports Utility Vehicles
MPV	Multi-Purpose Vehicle
PSU	Public Sector Undertaking
GoI	Government of India
GDP	Gross Domestic Product
FDI	Foreign Direct Investment
FII	Foreign Institutional Investor
MSP	Minimum Support Price

Term	Definition/Expansion
CV	Commercial Vehicle
LCV	Light Commercial Vehicle
SCV	Small Commercial Vehicle
M&HCV	Medium and Heavy Commercial Vehicle
GC	Goods Carrier
PC	Passenger Carrier
POL	Petroleum, Oil and Lubricants
LPG	Liquefied Petroleum Gas
CNG	Compressed Natural Gas
BS-IV/V	Bharath Stage IV/V
NEDC	New European Driving Cycle
WLTP	Worldwide harmonized Light Vehicle Test Procedures
DPF	Diesel Particulate Filter
EGR	Exhaust Gas Recirculation
NCAP	New Car Assessment Program
ABS	Anti-lock Braking System
SBR	Seat Belt Reminder
ESC	Electronic Stability Control
EBD	Electronic Brakeforce Distribution
AOP	Adult Occupant Protection
TCS	Traction Control System

ESP	Electronic Stability Program
EV	Electric Vehicle
PHEV	Plug-in Hybrid Electric Vehicle
NMEM	National Mission for Electric Mobility
FAME	Faster Adoption and Manufacturing of Hybrid and Electric Vehicles
BEV	Battery Electric Vehicles
HEV	Hybrid Electric Vehicles
R&D	Research and Development
FMS	Fleet Management System
ERP	Enterprise Resource Planning
CRM	Customer Relationship Management
POD	Proof of Delivery
GPS	Global Positioning System
H/W	Hardware
S/W	Software
OBD	On-Board Diagnostics
B2B	Business to Business
B2C	Business to Customer

Term	Definition/Expansion
MT	Manual Transmission
AMT	Automated Manual Transmission
DCT	Dual Clutch Transmission
CVT	Continuously Variable Transmission
S-AT	Stepped Automatic Transmission
UI	User Interface
IRF	Independent Repair Facility
DIY	Do It Yourself
DIFM	Do It For Me
VAT	Value Added Tax
GST	Goods and Services Tax

CGST	Central Goods and Services Tax
SGST	State Goods and Services Tax
IGST	Integrated Goods and Services Tax

1. Definition of Brands

OE Spares

Parts that are sold by vehicle manufacturer under their components label

E.g. Tata Genuine Parts, Maruti Genuine Parts (MGP), Leyparts etc.

Aftermarket Branded

Parts sold by established component manufacturers under their respective brands

E.g. Bosch, Lucas, Hella, Mahle, Minda, Gabriel, Federal Mogul etc.

Local Parts

Parts manufactured and sold by small manufacturers under their own brands

These include businesses that manufacture parts and are out of excise net due to declared turnovers less than INR 1.5 Crore

Some of the players choose to open parallel labels once they hit the excise limits and also do not pay VAT

Spurious

Parts illegally sold under the banner of established brands, such as local parts sold as Bosch without proper licensing

Reconditioned/Refurbished

Parts that are repaired/rebuilt and sold as used parts after being salvaged or recovered from used vehicles or during general part replacements

Reconditioned/refurbished parts have not been included in the scope of this study

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OUR TEAM:



Priya Shylesh
Vice President – Investor Transformation, Customer Engagement
Frost & Sullivan
Priya.Shylesh@frost.com



Ajit Chander Swaminathan
Associate Partner (Americas) & South Asia Lead, Mobility Growth Advisory
Frost & Sullivan
Ajit.Swaminathan@frost.com



Leveraging AI Towards Building the Next-Gen Enterprise

By

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Beyond Automation

Leveraging AI Towards Building the Next-Gen Enterprise



Executive Summary

Artificial intelligence is rapidly transitioning from an emerging technology to a strategic business capability within manufacturing. As automotive manufacturers and suppliers navigate increasing competitive pressures, supply chain complexity, cost optimisation requirements and evolving customer expectations, AI is becoming a critical enabler of operational excellence and long-term competitiveness.

To better understand industry priorities, readiness levels and adoption challenges, a survey was conducted among automotive and manufacturing stakeholders, complemented by discussions with industry leaders and an assessment of global best practices. The findings indicate that while organisations are actively exploring AI opportunities, adoption maturity remains uneven and scaling initiatives beyond pilot programmes continues to be a challenge.

Key findings include:

- Digital maturity varies significantly across organisations
- AI investments are primarily focused on manufacturing, quality, supply chain and procurement functions
- Data readiness, systems integration and talent availability remain significant barriers
- Organisations are prioritising practical, outcome-driven AI applications over experimental deployments
- Industry leaders increasingly view AI as a business transformation agenda rather than a technology initiative

Global manufacturers have demonstrated that AI can generate measurable value across quality management, predictive maintenance, production planning, supply chain optimisation and workforce enablement. However, successful adoption requires strong data foundations, clear governance frameworks and an organisation-wide approach to scaling. As India's auto component industry seeks to strengthen its position within global value chains, AI presents an opportunity to improve productivity, enhance quality, increase resilience and accelerate innovation.

Introduction

Manufacturing is entering a new era where competitiveness is increasingly defined not by automation alone, but by the ability to harness data, intelligence and technology to drive faster decisions, higher productivity and greater resilience. As manufacturers navigate supply chain disruptions, rising quality expectations, evolving customer requirements and mounting cost pressures, AI is emerging as a critical enabler of operational transformation and long-term growth.

Globally, manufacturers are accelerating investments in intelligent and connected operations. Frontier technologies such as Artificial Intelligence, Digital Twins, Robotics and Advanced Materials are expected to play a pivotal role in shaping the next generation of manufacturing ecosystems and global value chains. The opportunity is significant, with advanced technology adoption estimated to unlock substantial gains in productivity, competitiveness and export growth. Conversely, delayed adoption could result in a potential loss of up to USD 270 billion in additional manufacturing GDP
by 2035.

For India, the stakes are particularly high. Manufacturing currently contributes approximately 15-17% of GDP, with ambitions to increase this to 25% as part of the country's long-term growth agenda. At the same time, the Government of India is actively strengthening the AI ecosystem through the IndiaAI Mission, backed by an investment of INR 10,300 crore to expand AI infrastructure, computing capacity, datasets, research and talent development.

Within India's auto component industry, AI represents more than a technology upgrade. It offers an opportunity to improve quality, reduce downtime, optimise procurement and supply chains, strengthen operational resilience and enhance competitiveness within increasingly digital and intelligence-driven global value chains. As OEM expectations evolve and global competition intensifies, organisations that successfully scale AI across their operations will be better positioned to drive productivity, innovation and sustainable growth.

This paper examines the current state of AI adoption within the automotive manufacturing ecosystem, drawing on industry survey findings, stakeholder perspectives and global practices to identify priority use cases, key adoption barriers and actions required to translate AI ambition into measurable business outcomes

Industry context: Why AI matters now - Manufacturing's next competitive frontier

Manufacturing has traditionally competed based on scale, engineering excellence, operational efficiency and cost competitiveness. Increasingly, however, competitive advantage is being shaped by an organisation's ability to leverage data and intelligence across its operations. AI enables manufacturers to move from reactive decision-making towards predictive and autonomous operations, creating opportunities to improve productivity, quality, agility and resilience.

Transformation of the automotive ecosystem

The automotive industry is currently undergoing multiple structural shifts:

- Electrification and new mobility technologies
- Greater product complexity
- Increased customer expectations
- Supply chain volatility
- Heightened quality standards
- Margin pressures across the value chain

These trends are compelling manufacturers and suppliers to rethink traditional operating models and seek new sources of competitiveness.

AI across the manufacturing value chain

Artificial intelligence is influencing nearly every stage of manufacturing operations, including:

Design and engineering	Procurement and supply chain	Manufacturing operations	Quality management	Workforce enablement
Generative design	Demand forecasting	Predictive maintenance	Computer-vision inspection	AI workflow enablement tools
Simulation and testing	Inventory optimisation	Production planning	Defect prediction	Knowledge management
Product-development acceleration	Supplier risk management	Process optimisation	Root cause analysis	Digital work instructions

Survey findings and quantitative analysis

To better understand industry sentiment, a survey was conducted among 15 automotive and manufacturing stakeholders to assess digital maturity, automation priorities, adoption challenges and emerging areas of interest. This was followed by an in-person roundtable discussion where 20 industry experts and stakeholders shared their views on deploying AI on a scalable basis. The findings provide a snapshot of how organisations are moving beyond conversations about AI's potential and focusing on how to generate measurable value while overcoming implementation challenges.

Digital maturity remains uneven: Survey responses indicate that the industry is still at a relatively early stage of digital maturity, with respondents reporting an **average maturity score of 2.5 out of 5**. Over half of respondents (55%) rated their organisation's digital maturity at initial stages, while only 9% considered themselves highly mature. These findings suggest that while interest in AI is growing, many organisations are still strengthening the digital foundations required to support large-scale deployment.

Automation is focused on core business operations: The survey highlights a strong emphasis on operational functions as the primary target for automation and AI investments. **Procurement emerged as the leading priority, selected by 73% of respondents, followed by Manufacturing (55%) and Supply Chain (45%).** Vendor management, finance, human capital and customer relationship management were identified less frequently. **This indicates that organisations are approaching AI through the lens of operational impact, focusing on functions where improvements in efficiency, productivity and decision-making can deliver measurable business outcomes.**

Scaling challenges persist: Respondents identified several barriers to wider AI adoption, underscoring the gap between interest and enterprise-scale implementation. Key barriers, as shared by the respondents include:

- Lack of skills and organisational bandwidth
- System integration and automation challenges
- Data management and readiness issues
- Absence of a clear AI strategy
- Budget and ROI considerations
- Adoption and change management

These findings suggest that the primary challenge is no longer awareness of AI. Instead, organisations are focusing on how to build the skills, technology foundations and governance mechanisms necessary to translate ambition into scalable outcomes.

A strong preference for practical use cases: Qualitative responses reveal an industry focused on tangible business value rather than experimentation. Respondents expressed interest in identifying proven AI use cases, understanding where the strongest return on investment can be achieved, automating operational processes, strengthening data security and learning from successful implementations that have scaled beyond pilot stages. Several participants also highlighted concerns around AI governance, accountability, cybersecurity and human oversight, reflecting a growing awareness of the risks that accompany adoption.

Taken together, the survey findings point to an industry that is moving beyond the exploration phase. **While digital maturity levels vary, there is a clear appetite to deploy AI in operationally critical functions. The next phase of adoption will depend on organisations' ability to address foundational challenges relating to skills, data, systems integration and governance while demonstrating measurable business value.**

What industry leaders are telling us

While the survey provides a quantitative view of industry priorities, discussions with industry stakeholders reveal the practical realities shaping AI adoption decisions. The findings suggest that organisations are moving beyond conversations about AI's potential and focusing on how to generate measurable value while overcoming implementation challenges.

AI adoption is being driven by operational priorities: Organisations are prioritising AI applications within procurement, manufacturing and supply chain functions, indicating a strong focus on operational impact rather than experimental deployments. Industry leaders echoed this perspective, emphasising that AI investments are increasingly linked to productivity improvement, cost

optimisation, quality enhancement and operational efficiency. Rather than adopting AI for its own sake, organisations are seeking solutions that address critical business challenges and strengthen competitiveness.

Organisations want proven business outcomes: Several respondents specifically sought examples of successful AI deployments, validated use cases and areas where organisations have achieved measurable return on investment. Questions around identifying the "best use cases" and understanding where AI can deliver the greatest returns featured prominently in industry discussions. These findings suggest that organisations are becoming increasingly selective in their AI investments, favouring practical applications with clearly defined business outcomes over broad experimentation.

Data and integration continue to be foundational challenges: System integration challenges were identified by 64% of survey respondents, while 36% cited data management issues as key barriers to adoption. Industry discussions reinforce the view that AI success depends heavily on the quality, accessibility and integration of enterprise data. Organisations with fragmented systems and inconsistent data environments often struggle to scale AI initiatives beyond individual pilots.

Skills and workforce readiness are emerging constraints: **Lack of skills and organisational bandwidth emerged as the most frequently cited adoption challenge, identified by 73% of respondents.** Additionally, respondents highlighted change management and user adoption challenges. These findings reinforce that AI transformation is as much about people as technology. Building internal capabilities, improving AI literacy and supporting workforce adoption will be essential for long-term success.

Trust, governance and security are increasingly important: Several respondents highlighted concerns relating to cybersecurity, data security, accountability for AI-driven decisions, governance frameworks and human oversight of AI systems. As AI becomes increasingly integrated into operational processes, leaders emphasise the importance of responsible AI frameworks that balance innovation with security, compliance and risk management.

Key themes emerging from industry conversations: The survey and stakeholder discussions reveal a manufacturing sector that is pragmatic in its approach to AI. Organisations are prioritising operational use cases with measurable business impact, while simultaneously navigating challenges related to skills, systems integration, data readiness and governance. The findings suggest that competitive advantage will increasingly accrue to organisations that can combine technological capability with organisational readiness and execution discipline.

"AI is no longer a technology discussion, it is a business transformation agenda. The most successful organisations are embedding AI into core functions such as product development, supply chain management and operations to accelerate decision-making, improve responsiveness and create competitive advantage. However, value creation must remain at the centre of every initiative. Organisations that clearly define business outcomes and establish a robust value-realisation framework before scaling will be best positioned to unlock sustainable impact."
- Kartikeya Joshi, President and Head Corporate Planning & Group Strategy, Uno Minda

""AI investments are increasingly being evaluated through the lens of productivity, quality and operational resilience. Success will not be determined by the number of pilots launched, but by the ability to demonstrate tangible returns and embed AI into everyday decision-making."
- Group CFO, Tier-I Auto-component Company

Global best practices

The survey findings indicate that manufacturers are primarily focused on applying AI within core operational functions, particularly procurement, manufacturing and supply chain management. At the same time, respondents identified skills shortages, systems integration challenges and data readiness as key barriers to scaling adoption. These challenges are not unique to India's automotive ecosystem. Leading manufacturers globally have faced similar constraints and have demonstrated that sustainable value is achieved when AI is embedded within manufacturing operations, supported by strong data foundations and scaled across the enterprise.

1. AI-powered quality excellence

Quality management remains one of the most mature and commercially proven applications of artificial intelligence in manufacturing. By combining computer vision, machine learning and real-time analytics, manufacturers are significantly improving defect detection accuracy while reducing inspection times and quality-related costs.

BMW has integrated AI-driven quality inspection systems across its production network, using computer vision and advanced analytics to detect defects, identify root causes and improve process consistency. AI is embedded throughout production operations, transforming quality management from a reactive process into a predictive capability.

Toyota has applied AI and machine learning to production monitoring and quality assurance processes, helping operators identify anomalies, improve process control and enhance continuous improvement initiatives through data-driven insights.

Foxconn, one of the world's largest electronics manufacturers, has deployed AI-powered visual inspection systems at scale to identify product defects and manufacturing anomalies with greater speed and accuracy than traditional manual inspection methods.

Key lessons

- Improve defect detection accuracy and consistency
- Reduce dependence on manual inspection
- Accelerate root-cause identification
- Improve first-pass yield and product quality

2. Predictive and autonomous maintenance

Unplanned equipment downtime remains one of the costliest challenges in manufacturing. AI-enabled predictive maintenance is helping organisations move from scheduled maintenance programmes to condition-based interventions.

Bosch has deployed AI-enabled predictive maintenance and process monitoring solutions across more than 1,400 production lines globally. By analysing machine performance data in real time, Bosch can anticipate failures, optimise maintenance schedules and reduce operational disruptions.

Siemens uses AI-enabled asset intelligence platforms to monitor critical equipment, detect abnormal operating conditions and predict potential failures before they impact production.

Schneider Electric has leveraged AI-powered monitoring systems across manufacturing facilities to improve equipment reliability, optimise plant performance and increase asset utilisation.

Key lessons

- Reduce downtime and production interruptions
- Extend asset life cycles
- Improve maintenance effectiveness
- Increase production availability

3. Intelligent production planning and smart manufacturing

Beyond maintenance and quality control, manufacturers are increasingly applying AI to optimise production scheduling, improve throughput and enhance factory efficiency.

Mercedes-Benz, through its MO360 manufacturing platform, has connected manufacturing operations across multiple plants through a common digital backbone. The company is integrating generative AI, digital twins and advanced analytics to support production planning, factory monitoring and operational decision-making.

Unilever uses AI-powered forecasting and planning systems to improve production scheduling, reduce bottlenecks and optimise inventory levels across manufacturing networks.

Increasingly, manufacturers are applying AI to real-time production scheduling, capacity optimisation, bottleneck identification, factory performance monitoring and autonomous workflow management.

Key lessons

- Improve throughput and resource utilisation
- Increase agility and responsiveness
- Reduce production inefficiencies
- Enable real-time operational decision-making

4. Supply chain intelligence and procurement transformation

Notably, procurement was identified as the highest automation priority amongst survey respondents, with 73% selecting it as a key area of focus. Supply chain management was also identified as a key focus area. This mirrors global trends, where manufacturers are increasingly using AI to create more resilient and intelligent supply chains.

Schneider Electric applies AI to demand forecasting, inventory optimisation and supply chain visibility, helping improve planning accuracy and resilience.

DHL uses AI across logistics operations to improve route optimisation, warehouse productivity and delivery planning.

Maersk is leveraging AI-driven forecasting and supply chain intelligence tools to improve operational efficiency and better manage disruptions across global logistics networks.

Common use cases include demand forecasting, inventory optimisation, supplier risk monitoring, procurement analytics, logistics planning and dynamic sourcing decisions.

Key lessons

- Improve planning accuracy
- Reduce excess inventory
- Strengthen supply chain resilience
- Enhance supplier visibility

5. Digital twins and factory simulation

As manufacturing operations become increasingly complex, organisations are looking beyond traditional automation tools towards technologies that enable predictive and scenario-based decision-making. Digital twins have emerged as one of the most promising enablers of this shift. By creating virtual representations of factories, production lines, equipment and operational processes, manufacturers can simulate changes, test scenarios and optimise performance in a risk-free environment before implementing them in the physical world.

Unlike conventional planning approaches, digital twins continuously integrate real-time operational data, enabling organisations to monitor performance, identify bottlenecks and evaluate the impact of process changes with greater speed and accuracy. This capability is becoming particularly valuable as manufacturers contend with shorter product lifecycles, increasingly complex production environments and the need for greater operational agility.

BMW is leveraging digital twin technology to model and optimise factory operations, enabling production teams to evaluate layout changes, improve material flows and increase overall manufacturing efficiency. These virtual environments allow potential issues to be identified and resolved before they affect physical operations, reducing implementation risk and minimising disruption.

Siemens has developed industrial digital twin capabilities that connect engineering, production and operational data across the manufacturing lifecycle. By creating a virtual representation of assets and production systems, the company enables manufacturers to optimise production planning, improve asset utilisation and identify opportunities for continuous improvement before deploying changes on the shop floor.

The broader manufacturing ecosystem is also being transformed through platforms such as **NVIDIA Omniverse**, which enables manufacturers to create highly detailed, collaborative digital representations of factories and production environments. These platforms support advanced simulation, capacity planning and operational optimisation, helping organisations accelerate innovation while reducing the cost and risk associated with physical experimentation.

Applications include factory layout optimisation, capacity planning, production-line design, resource allocation and new product introduction.

Key lessons

- Improve planning accuracy
- Reduce implementation risk
- Accelerate factory optimisation
- Support data-driven investment decisions

6. Generative AI on the shop floor

While predictive analytics and computer vision have dominated the first wave of AI adoption in manufacturing, generative AI is emerging as a powerful tool for enhancing workforce productivity and decision-making. Unlike traditional AI applications that focus on machines and processes, generative AI is centred on empowering employees by providing real-time access to information, operational guidance and institutional knowledge.

Manufacturing environments often rely on decades of accumulated expertise that resides within experienced engineers, technicians and operators. Generative AI is helping organisations capture this knowledge and make it available at scale through conversational assistants, intelligent search tools and contextual decision-support systems. As workforce demographics evolve and skills shortages become more pronounced, these capabilities are becoming increasingly valuable.

Mercedes-Benz has incorporated generative AI capabilities within its MO360 digital production ecosystem to support factory operations, improve knowledge accessibility and assist employees in identifying and resolving operational issues. By providing faster access to relevant information, these tools help reduce response times and improve productivity across manufacturing environments.

Bosch is applying generative AI to support technicians, maintenance teams and manufacturing personnel through intelligent knowledge repositories and AI-powered troubleshooting systems. These capabilities enable employees to access technical information, historical maintenance records and recommended actions more efficiently, reducing the time required to diagnose and resolve issues.

Honeywell has integrated generative AI capabilities into connected worker solutions designed to provide contextual guidance, operational recommendations and maintenance support. These tools help frontline workers navigate complex operating environments while improving consistency and decision quality.

Across manufacturing environments, generative AI is increasingly being applied to maintenance troubleshooting and diagnostics, operator assistance and decision support, standard operating procedure guidance, technical knowledge retrieval, workforce training and upskilling, engineering and maintenance documentation, root-cause analysis support, cross-functional collaboration and knowledge sharing.

Key lessons

- Enhance workforce productivity through faster access to information
- Reduce dependence on individual expert knowledge
- Accelerate troubleshooting and issue resolution
- Improve workforce capability and skills development
- Strengthen knowledge retention across the organisation
- Enable more consistent and informed decision-making
- Support a more connected and digitally empowered workforce

Lessons from global leaders

Despite operating across different industries and geographies, leading manufacturers demonstrate several common characteristics in their AI journeys:

- **AI initiatives are linked to clearly defined business outcomes**
- **Strong data governance foundations are established before scaling**
- **Digital platforms are integrated across operational systems**
- **Workforce adoption and change management receive significant attention**
- **Successful pilots are systematically scaled across sites and functions**
- **Leadership sponsorship remains critical to long-term success**

These lessons align closely with the survey findings, where respondents identified skills constraints, system integration challenges, data management issues and the lack of a clear AI strategy as key barriers to adoption.

Key AI use cases across manufacturing

The survey findings indicate that organisations are prioritising AI initiatives that deliver measurable operational benefits, particularly across procurement, manufacturing and supply chain functions. Rather than viewing AI as a standalone technology investment, manufacturers are increasingly deploying it to address specific business challenges, improve decision-making and enhance operational performance.

1. Quality management: Moving from reactive to predictive quality control

Quality management remains one of the most mature and highest-impact applications of AI in manufacturing. Traditional quality assurance processes often rely on manual inspection and retrospective analysis, limiting an organisation's ability to identify and address issues before they affect production outcomes. AI is enabling manufacturers shift towards predictive quality management through the use of computer vision, defect classification algorithms and automated root-cause analysis.

By analysing production data and inspection results in real time, AI can identify anomalies that may be difficult for human operators to detect, allowing manufacturers to intervene earlier and improve process consistency. These capabilities help reduce defect rates, improve product quality, accelerate inspections and minimise warranty-related costs, making quality management one of the most compelling use cases for AI adoption.

2. Maintenance and asset performance: Reducing downtime through predictive intelligence

Equipment reliability is critical to maintaining productivity and minimising operational disruptions. Traditionally, maintenance activities have been either reactive, responding to failures after they occur or preventive, based on fixed schedules that may not reflect actual equipment conditions.

AI-powered predictive maintenance allows manufacturers to continuously monitor machine performance, detect early warning signs of failure and optimise maintenance interventions. By combining condition monitoring, failure prediction and spare-parts optimisation, organisations can reduce unplanned downtime, improve equipment utilisation and lower maintenance costs. As manufacturing environments become increasingly automated and interconnected, predictive maintenance is emerging as a foundational capability for intelligent operations.

3. Manufacturing operations: Optimising production performance

Manufacturers are increasingly leveraging AI to improve the efficiency and responsiveness of production operations. From production scheduling and capacity planning to process optimisation and throughput monitoring, AI provides greater visibility into factory performance and enables faster, data-driven decision-making.

The ability to analyse real-time production data allows organisations to identify bottlenecks, optimise resource utilisation and dynamically adjust production plans based on changing requirements. As a result, manufacturers can improve productivity, increase throughput and enhance operational agility while maintaining consistency across complex production environments.

4. Procurement and supplier management: Creating more intelligent sourcing functions

With procurement teams navigating supply chain disruptions, cost pressures and increasingly complex supplier ecosystems, AI offers significant opportunities to improve visibility and decision-making.

AI-enabled procurement solutions can analyse spending patterns, assess supplier performance, monitor supply risks and extract insights from contracts and procurement data. These capabilities support better purchasing decisions, reduce procurement cycle times and strengthen supplier resilience. As manufacturers seek to build more responsive and cost-efficient operations, procurement is expected to remain a key area of AI investment.

5. Supply chain and logistics: Enhancing resilience and visibility

Supply chains have become increasingly complex and vulnerable to disruption, making visibility and responsiveness critical competitive differentiators. AI is helping manufacturers build more intelligent supply chains by improving forecasting accuracy, optimising inventory levels and enhancing logistics planning.

Through advanced analytics and machine learning, organisations can identify demand patterns, proactively manage inventory and respond more effectively to changing market conditions. These capabilities not only reduce inventory costs and improve service levels but also strengthen operational resilience by enabling faster and more informed decision-making across the supply chain.

6. Engineering and product development: Accelerating innovation

AI is increasingly transforming engineering and product development functions by reducing design complexity and accelerating innovation cycles. Technologies such as generative design, engineering simulation and intelligent product lifecycle management enable organisations to explore a greater number of design alternatives while reducing development timelines.

By automating aspects of product design and validation, manufacturers can optimise product performance, improve resource utilisation and shorten time-to-market. These capabilities are becoming particularly valuable as manufacturers respond to rapid changes in customer expectations, technological innovation and product complexity.

7. Energy and sustainability management: Driving efficient and responsible operations

As manufacturers face increasing pressure to improve sustainability performance while controlling costs, AI is playing an important role in energy management and resource optimisation. By analysing consumption patterns across facilities and production processes, AI can identify inefficiencies and recommend interventions that reduce energy usage and operational costs.

Applications such as predictive energy optimisation, emission monitoring and intelligent utility management are enabling organisations to improve resource efficiency while advancing sustainability objectives. As environmental performance becomes an increasingly important business priority, AI is expected to play a critical role in supporting greener and more efficient manufacturing operations.

8. Workforce productivity and decision support: Empowering the connected worker

Beyond optimising machines and processes, AI is increasingly being used to augment human capabilities. Workflow automation tools, intelligent assistants and knowledge management platforms are transforming how employees access information, solve problems and make decisions.

These solutions enable operators, engineers and maintenance personnel to retrieve technical information more quickly, access real-time guidance and resolve issues more efficiently. As many organisations face skills shortages and growing operational complexity, AI-powered workforce tools can help improve productivity, reduce training requirements and preserve institutional knowledge. This is particularly relevant given that a lack of skills and organisational bandwidth was identified as the most significant adoption challenge by survey respondents.

These examples demonstrate that AI's impact extends across the entire manufacturing value chain, rather than being limited to isolated production applications. From procurement and planning to quality management, logistics and workforce enablement, organisations are increasingly embedding AI into core business processes to drive efficiency, resilience and competitiveness. Notably, these applications closely align with the priorities emerging from the survey, where respondents expressed the greatest interest in procurement, manufacturing and supply-chain-focused use cases capable of delivering tangible business outcomes.

More importantly, the most successful AI deployments share a common characteristic: they are implemented to solve specific business problems rather than to showcase technology. As manufacturers continue to advance their digital transformation journeys, the ability to prioritise high-value use cases, scale successful implementations and integrate AI into day-to-day operations will increasingly determine who captures sustainable competitive advantage.

Challenges to scale

Although organisations recognise the potential of AI, the survey findings highlight several barriers preventing widespread enterprise adoption.

1. Skills and organisational readiness: The most significant challenge identified by respondents was a lack of skills and organisational bandwidth, cited by nearly three-quarters (73%) of participants. Many organisations are still developing internal capabilities related to AI, data science, analytics and digital transformation. In addition, operational teams often face competing priorities that limit their ability to support AI implementation programmes.

   To address this challenge, organisations will need to invest in workforce development, leadership alignment and change management initiatives alongside technology deployment.

2. Technology and systems integration: Nearly two-thirds (64%) of respondents identified system integration challenges as a major obstacle to adoption. Many manufacturing organisations operate complex technology environments comprising legacy systems, Enterprise Resource Planning platforms, manufacturing execution systems, supplier portals and operational technologies. Integrating AI solutions across these systems remains a significant challenge.

   Without connected digital ecosystems, organisations may struggle to generate the real-time insights required to support advanced AI use cases.

3. Data readiness and strategic direction: Data management challenges were cited by 36% of respondents, while another 36% highlighted the absence of a clear AI strategy. These findings suggest that many organisations are still building foundational capabilities around data governance, data quality and strategic prioritisation.

   As AI initiatives scale, robust data architectures and clearly defined implementation roadmaps will become increasingly important.

4. Demonstrating return on investment: Budget and ROI concerns were highlighted by 36% of survey participants. Survey responses indicate that many organisations are seeking greater visibility into which use cases generate the strongest returns and how successful pilots can be translated into enterprise-wide business value.

   Demonstrating measurable outcomes will therefore be critical for sustaining investment and scaling adoption.

5. Governance, security and responsible AI: The survey also revealed growing concerns related to cybersecurity, data privacy, accountability, governance and human oversight. Respondents specifically raised questions around ownership of AI-driven decisions, safeguarding enterprise data and protecting AI systems from cyber threats.

   As organisations move towards larger-scale deployments, governance frameworks will be required to ensure transparency, accountability and responsible use of AI technologies.

The road ahead for India's auto component industry

The survey findings indicate that AI adoption within the sector remains at an important inflection point. With an average digital maturity score of approximately 2.5 out of 5, many organisations are still strengthening the foundational capabilities required to deploy AI at scale.

At the same time, our analysis indicate a clear appetite for AI deployment. Procurement, manufacturing and supply chain functions emerged as the leading areas of focus, reflecting a desire to improve productivity, decision-making and operational performance.

For India's auto component industry, AI adoption is likely to become increasingly important as global Original Equipment Manufacturers seek suppliers capable of delivering enhanced quality, greater visibility, faster responsiveness and higher levels of operational efficiency.

1. Build strong digital foundations: Industry experts are highlighting the importance of addressing data readiness and systems integration challenges before pursuing advanced AI initiatives. **Organisations that invest in robust digital infrastructure will be better positioned to scale AI successfully.**
2. Prioritise operationally relevant use cases: **Strongest interest lies within procurement, manufacturing and supply chain operations**. These functions are likely to provide the most immediate opportunities to generate measurable business value and building organisational confidence in AI.
3. Invest in workforce capabilities: Given that skills shortages were the most frequently cited barrier, organisations must prioritise AI literacy, digital skills development and workforce enablement programmes.
4. Establish governance frameworks early: As concerns around accountability, cybersecurity and data protection continue to grow, **governance should be embedded into AI programmes from the outset rather than treated as a later-stage consideration.**
5. Move beyond pilots and scale what works: Industry discussions indicate a strong interest in analysing proven use cases and successful production deployments. **Organisations that can systematically scale validated solutions across plants, business functions and supplier networks will become future leaders.**

AI maturity journey: For many organisations, the path forward is likely to follow a progressive maturity curve:

Stage 1: Digitise operations

Stage 2: Automate workflows

Stage 3: Generate predictive insights

Stage 4: Optimise decisions using AI

Stage 5: Move towards autonomous and self-improving operations



Conclusion

AI is set to become a defining source of competitiveness for India's auto component industry. While adoption is gathering momentum, the shift from isolated pilots to enterprise-wide impact will require more than technology investment. It will depend on strong data foundations, connected systems, workforce readiness, responsible governance and clear ownership of business outcomes.

The immediate priority is to focus on high-value applications across procurement, manufacturing and supply chains, demonstrate measurable returns and systematically scale what works. Organisations that embed AI into core operating decisions will be better positioned to improve quality, productivity, resilience and responsiveness across the value chain.

For the industry, this is not simply a technology transition. It is an opportunity to build the next generation of globally competitive auto component enterprises. The differentiator will be the speed and discipline with which organisations convert AI ambition into trusted, scalable and measurable business value. value

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Connect with our experts



Saket Mehra
Partner & Auto Industry Leader
Grant Thornton Bharat
E: saket.mehra@in.gt.com



Rahul Kapur
Partner & Business Consulting Leader
Grant Thornton Bharat
E: rahul.kapur@in.gt.com



Varun S
Partner, dGTL
Grant Thornton Bharat
E: varun.s@in.gt.com

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Navigating Earnings Turbulence Amidst Geopolitical Headwinds

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Navigating earnings turbulence amidst geopolitical headwinds
AUGUST 2026


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Trends in revenue growth and outlook
Hardening commodity index and its impact on margins
Typical cost structure of auto ancillaries
Forecast, opportunities and challenges



Steady revenue growth at a CAGR of 9.8% over the past seven years

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Exhibit 1: Indian auto component industry revenue trend

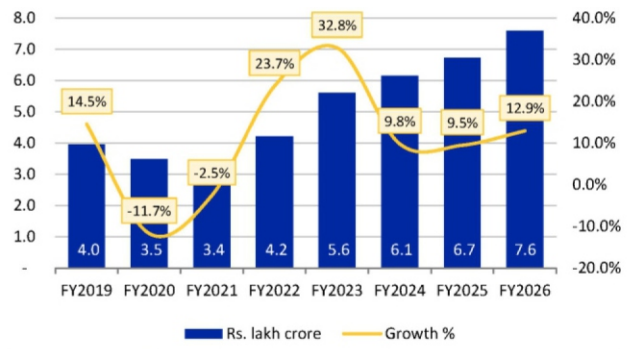
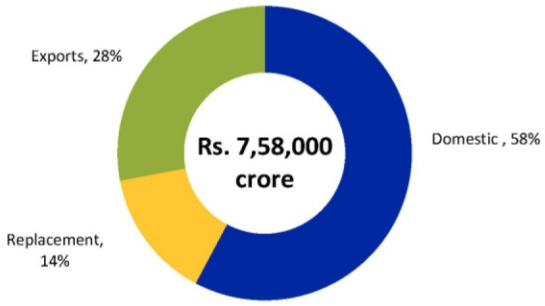


Exhibit 2: Demand sources for the Indian auto component industry (FY2026)



- The Indian auto component industry revenues grew at a compound annual growth rate (CAGR) of 9.8% over FY2019-FY2026.
- Sustained increase in vehicle production and vehicle parc in India, localisation initiatives, premiumisation of components, diversification strategy by global original equipment manufacturers (OEMs), enhanced acceptance of Indian products in overseas markets continue to drive demand for auto components.

Source: ACMA, ICRA Research

Domestic OE I Most segments to grow at mid-single digit rates in FY2027

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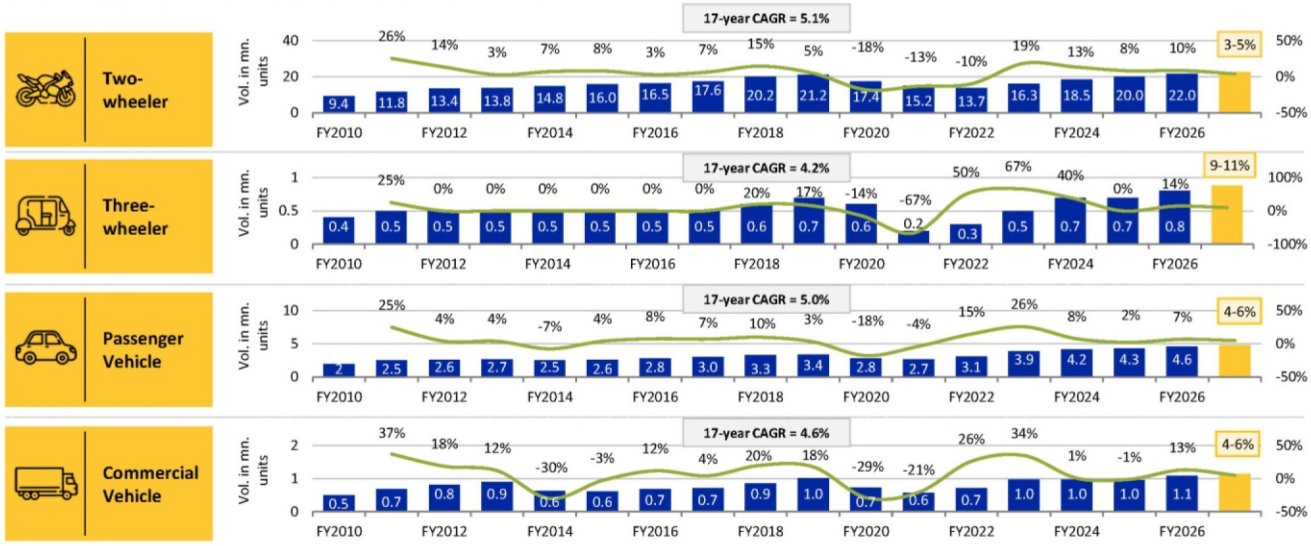
Exhibit 3: Long-term Trend in Automobile Sales Volumes – Domestic



Source: SIAM Data, ICRA Research

Demand drivers I Structural factors remain largely intact

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Exhibit 4: Demand drivers and challenges for automotive sub-segments

Consumer segments	Commercial segments	Auto components
Disposable income	Economic outlook/ Infrastructure	Premiumisation
Supply chain	Freight	EV opportunities
Monsoon guidance	Monsoon guidance	Localisation
Inventory levels	Regulations	Regulatory changes
Cost of ownership	Cost of ownership	Export market
Financing environment	Financing environment	Aftermarket

Source: ICRA Research

Domestic aftermarket I To grow at 9-11% in FY2027

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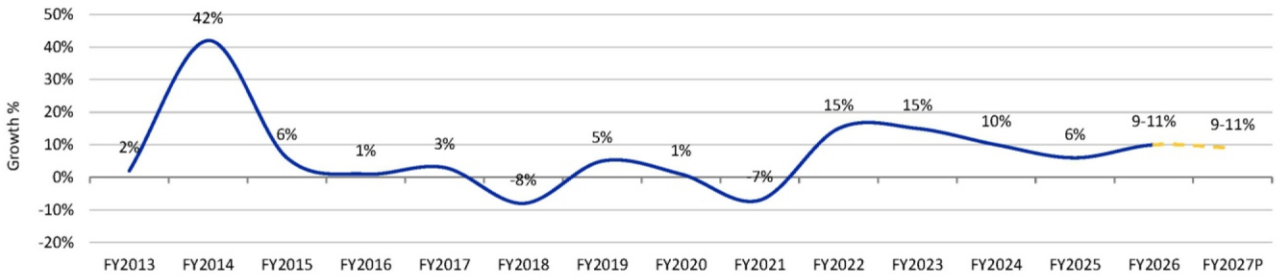
Exhibit 5: Aftermarket revenue growth trend



Source: ACMA, ICRA Research; excludes tyres and batteries

- For FY2027, ICRA expects aftermarket component growth to remain healthy at 9-11%, driven by an expanding vehicle parc, premiumisation trends and sustained underlying demand.
- Goods and Services Tax (GST) reforms are expected to enhance liquidity for consumers and accelerate formalisation, further aiding demand. Rural demand also supports replacement volumes.

Exports | Remain vulnerable to volatilities in global landscape

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Exhibit 6: Factors to drive growth for Indian auto component exports

Supplies to new platforms because of vendor diversification initiatives by global OEMs; ancillaries getting involved in early stages	Increase in value addition and higher content per vehicle driven by premiumisation of components	Increase in outsourcing by global Tier-1s and OEMs	Higher aftermarket potential in global markets with ageing of vehicles and increased sale of used vehicles	Opportunities for Indian players in metal casting and forgings because of several plant shutdowns in the European Union (EU) due to viability issues

Source: ICRA Research

Moderate revenue growth expectations for FY2027

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Exhibit 7: ICRA's Outlook for the Indian auto component industry for FY2027



ICRA's Outlook for FY2027P

Domestic OE	Domestic Aftermarket	Exports
7-9%	9-11%	7-9%

- ICRA expects the auto component industry's revenues to grow at 8-10% YoY in FY2027. Apart from base demand, the trends of increasing premiumisation and higher localisation, leading to higher content per vehicle, are likely to translate to growth for component suppliers.
- Export revenue growth to improve in FY2027, amidst a relatively lower base, geographical diversification and benefits of favourable currency movements. Nevertheless, likelihood of a weak monsoon impacting rural demand, inflationary pressures and ongoing geopolitical issues pose downside risks.

Source: ICRA Research



Major commodities have seen significant fluctuations in recent months

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Exhibit 8: Composition of key commodities in RM costs of passenger vehicles and their price variance in Q1 FY2027

Commodity	Application in PV	Composition to raw material cost of a typical PV	Price increase - Q1 FY2027 (YoY%)
Steel	Body, suspension, powertrain, wheels	35-40%	13%
Aluminium	Body, suspension, powertrain, wheels	15-20%	54%
Copper	Wiring harness, motors, radiators	12-20%	51%
Rubber	Tyres, suspension, mats	7-9%	27%
Plastics	Instrument panel, other interiors and exteriors	10-12%	35%

- The five above-mentioned commodities make up more than 80% of the raw material costs in a passenger vehicle, with the remaining items such as lead, glass, precious metals, etc. being the other manufacturing materials that influence the total bill of materials.
- The prices of these key commodities have seen significant volatility in recent months on account of the geopolitical headwinds, which have had a bearing on the manufacturing costs and earnings of auto component manufacturers. The extent of pass-through arrangements and negotiations with customers will determine the impact on its margins.

Source: SIAM, ICRA Research; Hot rolled steel prices considered for steel, polypropylene prices considered for plastics, natural rubber considered for rubber prices

Geopolitical factors push commodity index upward

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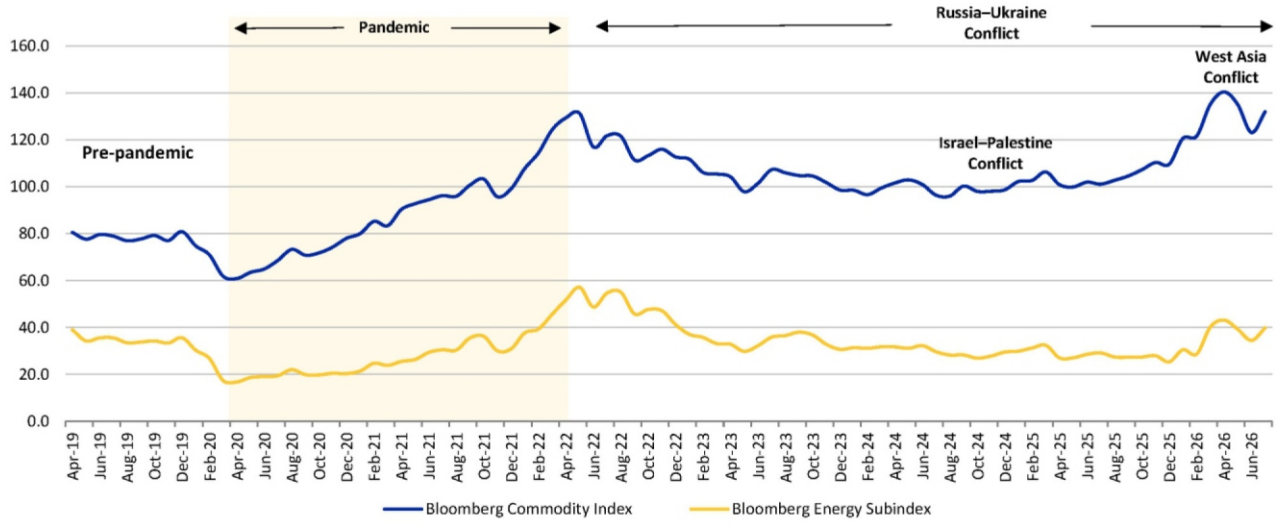
Exhibit 9: Trend in Bloomberg Commodity Index and Bloomberg Energy Index



Source: Bloomberg, ICRA Research

Steel| Domestic steel prices expected to increase by 3% in FY2027

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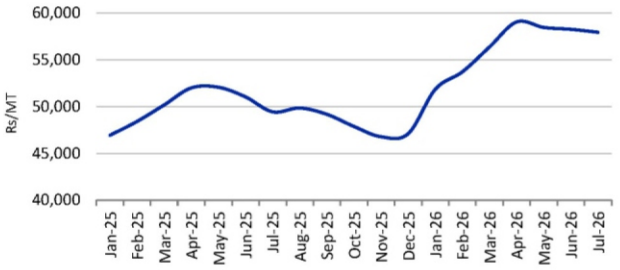
Exhibit 10: Trend in domestic/Chinese Hot-Rolled Coil (HRC) spot prices (ex-works, excl. duties/ taxes)



Exhibit 11: Trend in monthly domestic HRC spot prices (ex-works, excl. duties/ taxes)



Source: Bigmint, ICRA Research

- **Chinese HRC steel prices** decreased by approximately 6% YoY from $497/MT to around $466/MT in FY2026, primarily due to weak domestic demand (especially from the real estate sector) and persistent supply overcapacity despite continued production growth. However, prices rebounded by around 6% MoM to around $504/MT in April 2026, on account of the rising raw material costs and improved sentiments. Consequently, prices are estimated to recover moderately to $470/MT in FY2027, supported by cost pressures and gradual demand stabilisation.
- **Domestic HRC prices** continued to firm up at the start of FY2027, rising by approximately 5% MoM in April 2026 to around Rs. 59,000/MT before softening to around Rs. 58,000 in July 2026, extending the trend seen in Q4 FY2026, where prices increased approximately 14% QoQ to around Rs. 57,700/MT, on account of the higher input costs. The price hike followed the reimposition of the definitive safeguard duty in January 2026, after prices had declined sharply to a five-year low of around Rs. 45,750/MT in early December 2025 upon the expiry of the 12% provisional duty in November 2025. Prices have plateaued in recent weeks, drawing on the geopolitical situation, and remain elevated on a YoY basis. Going forward, prices are likely to remain range-bound in the near term, with some seasonal moderation expected during the monsoon.

Aluminium & Copper | Prices to remain high amid tight supply and strong demand

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Exhibit 12: Trend in domestic aluminium prices (Rs./kg) and aluminium realisation in LME (Spot in $/MT)

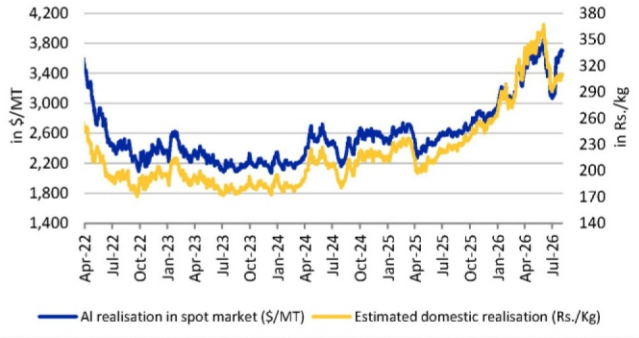
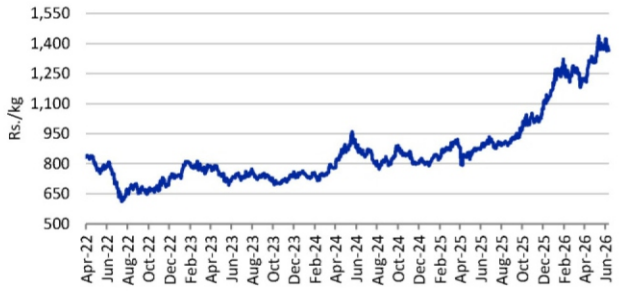


Exhibit 13: Trend in domestic copper prices (Rs./kg)



- **Aluminium prices** trended higher through FY2026, with London Market Exchange (LME) prices increasing by 10-15% to around $2,772/MT and domestic prices averaging Rs. 246/kg, on account of the tighter supply conditions and improving demand from key end-use sectors. This momentum extended into FY2027, with Q1 witnessing a sharp uptick, as LME aluminium crossed $3,600/MT and domestic prices moved up to around Rs. 345/kg, impacted by supply-side disruptions amidst steady demand. Despite some sequential softening in recent weeks, the prices remain elevated on a YoY basis.
- **Domestic copper prices** followed a similar trend, increasing by approximately 21% YoY in FY2026, on the back of higher global prices, supply-side tightness, and continued reliance on imports, which transmit global price movements into the domestic market. This trend strengthened in Q1 FY2027, with prices rising sharply (approximately 55% YoY), driven by continued supply disruptions and tightening availability, and remain elevated on a YoY basis.

Source: Refinitiv, ICRA Research

Rubber | Natural rubber prices continue to rise in recent months

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Exhibit 14: Annual trend in domestic and global NR prices

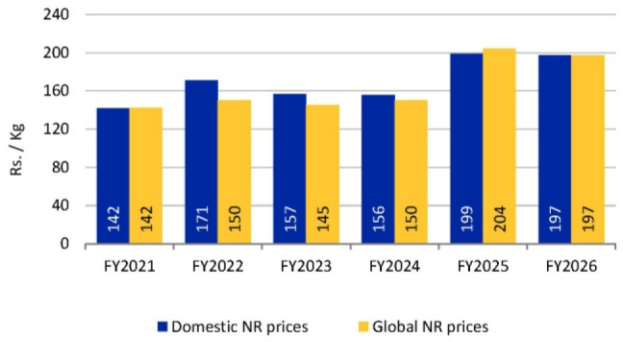
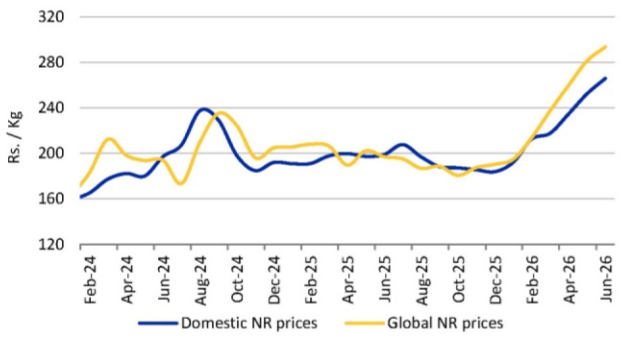


Exhibit 15: Monthly trend in domestic and global NR prices



- Historically, domestic NR prices mirrored the movement in global prices. Also, oil prices influence global NR prices with increased use of SR in global markets. Going forward, the global NR price movement will continue to influence domestic prices, given India's high import dependence.
- NR prices have surged significantly since January 2024 on account of global supply constraints, given the unfavourable weather conditions in key NR-producing nations. After touching historical-high levels of Rs. 235-240/kg in August 2024, domestic and international NR prices moderated to Rs. 180–190/kg in the first half of FY2026. However, the correction in prices was short-lived as prices increased to over Rs. 230/kg in March 2026 and further to over Rs. 290/kg in June 2026.
- Domestic NR prices are typically high during the monsoons as rainfall impacts tapping and constrains the supply.

Source: Rubber Board, ICRA Research NR: Natural Rubber; SR: Synthetic Rubber

Brent crude price surge amid geopolitical disruptions

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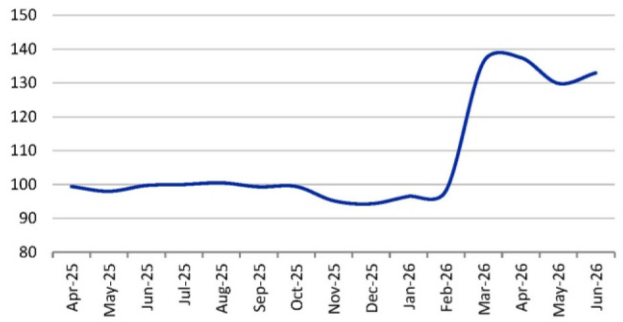
Exhibit 16: Brent crude price trend ($/bbl)



Exhibit 17: Polypropylene price trend (Rs./kg)



- Brent prices surged sharply from around $70/bbl in February 2026 to above $120/bbl by late March 2026, driven by the West Asia conflict, which triggered severe supply disruptions and a near-collapse in oil flows through the Strait of Hormuz.
- Prices peaked above $135/bbl in early April 2026 before partially correcting, as markets adjusted through emergency stock releases, vessel rerouting and early signs of demand destruction. The prices corrected back to $70/bbl in early July 2026 as signs of a peace deal materialised. However, the prices increased back to above $85/bbl due to resumption of conflict. Continued geopolitical risks keep prices elevated above pre-conflict levels.
- Elevated crude prices can have a direct bearing on input costs in the automotive sector, given increase in freight costs as well as in prices of crude derivatives such as plastics. Polypropylene prices rose by around 35% in Q1 FY2027 on a YoY basis.

Source: Energy Information Administration (EIA), ICRA Research

Forex | Rupee depreciation make imports more expensive

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Exhibit 18: USD vs. INR trend

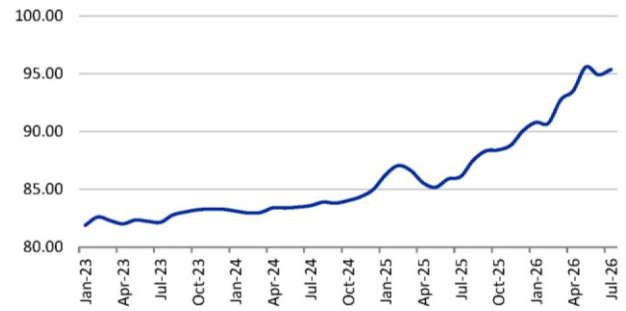

Exhibit 19: Euro vs. INR trend



- The rupee has weakened to record lows in recent months, driven by sustained Foreign Institutional Investor (FII) outflows, a stronger US dollar and heightened geopolitical uncertainty in global markets. While this depreciation is expected to support Indian exporters by improving their global price competitiveness, potentially aiding revenue growth subject to external demand conditions, it impacts the importers negatively.
- Companies reliant on higher imports face higher cost pressures on account of the weaker rupee. However, with net importers engaging in hedging to manage currency-related volatilities and increasing trends of localisation as a structural positive, the impact is likely to remain contained.

Source: RBI, ICRA Research

Freight | Shipping costs climbed amid West Asia conflict and Hormuz route closure

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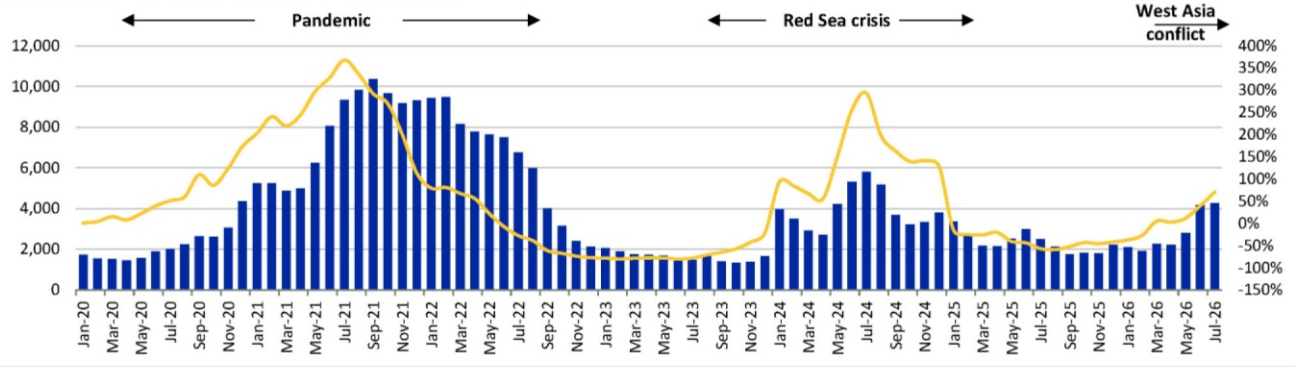
Exhibit 20: Trend in freight cost per 40-ft container (in $)



- Freight rates rose to $2,800 in May 2026, reversing the easing trend seen through CY2025, caused by West Asian geopolitical tensions, which disrupted key shipping lanes, extended transit times and tightened effective container capacity. The rates further rose to $4,000-$4200 in June-July 2026, driven by front-loading of shipments ahead of the US tariff deadline in July 2026 and capacity constraints.
- Given two-thirds of auto component exports and one-third of imports are linked to North America and Europe, elevated freight rate volatility could exert pressure on margins, especially for export-oriented players with limited near-term pass-through ability, and for players with higher import dependence and limited local substitutes.

Source: Drewry, ICRA Research



Margins of auto ancillaries impacted by various cost heads

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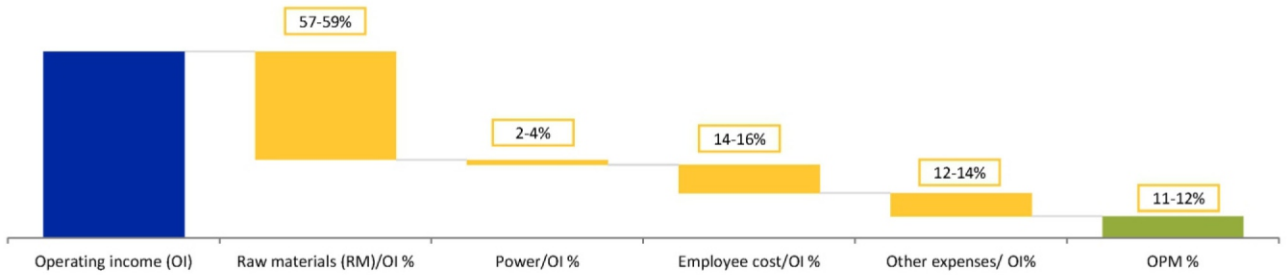
Exhibit 21: Broad cost structure for Indian auto component players



Source: ICRA Research Note: Based on sample set of 46 listed Indian auto component companies; % shown as a percentage of OI OI represents Operating Income (revenues plus other operating income)

- Raw materials are the largest cost head for the auto component manufacturers, which comprises various commodities and materials consumed to manufacture/assemble the final product being sold. The gross profit is driven by the trend in key raw material prices and the company's ability to pass through the fluctuations to its customers. The inward freight, import duties and other handling costs also impact the gross profit margins. Typical gross margins in the sector range from 38-42%, with significant variance between commoditised products (25-30%) and complex, value-added components (around 50-60%).
- The employees are key to any manufacturing plant driving daily production while maintaining safety and quality standards. Inflationary environment, availability of skilled resources, social security and staff welfare are the key areas that impact employee costs, over and above regular salaries.
- Other expenses impact a company's earnings depending on the nature of its business and customer base. Major recurring expenses include outward freight, power and fuel, selling costs and business promotion, royalty payments, repairs and maintenance, etc., while fixed overheads are in the nature of general & administrative expenses, such as rentals, corporate costs, travel and conveyance, etc.

Auto component manufacturers focus on value addition to protect gross margins

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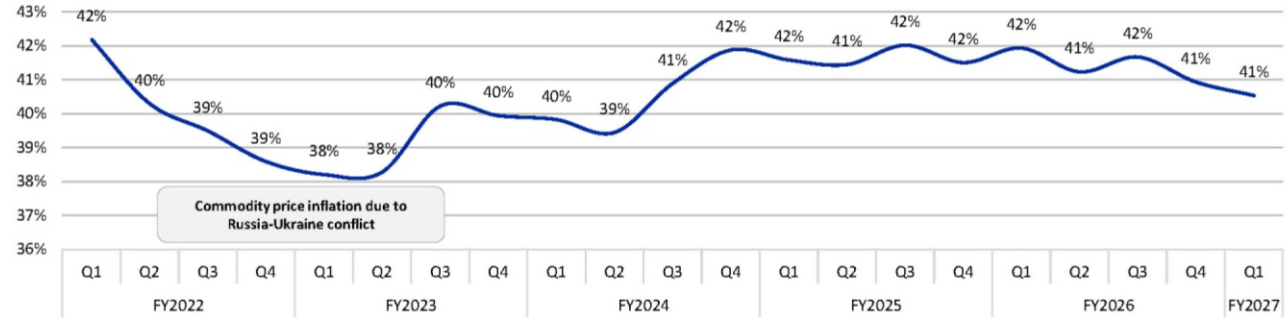
Exhibit 22: Quarterly gross margin trend for ICRA's sample set



Auto component manufacturers typically have commodity price pass-throughs built into their pricing arrangements with OEMs, albeit with a lag of one or two quarters, reflected in the largely range-bound gross margin profile. The correction in commodity index had provided some relief to auto ancillaries over FY2025-FY2026, although the escalations post commencement of the West Asia conflict have again exerted pressures. Given the elevated volatility in commodity prices over recent months, the auto ancillaries are negotiating an increased frequency (monthly or bi-monthly) in pass-through of commodity variations to customers to iron out the impact on their margins. The gross margins, going forward, would depend on commodity price movements, pass-through arrangements with customers and value addition by component suppliers.

Source: ICRA Research, Ace Equity; Based on 46 large auto ancillaries with aggregate annual revenues of over Rs. 3,76,000 crore in FY2026

Availability and wages of skilled labour have exerted pressure in recent months

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Exhibit 23: Employee cost as a % of sales trend

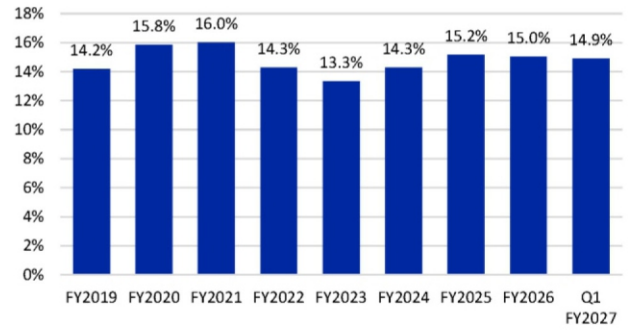
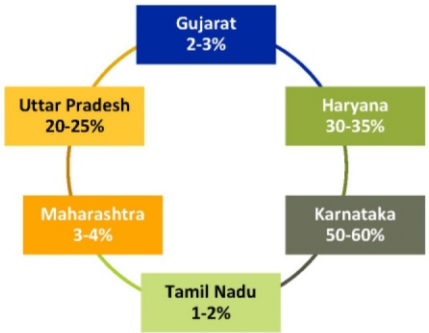


Exhibit 24: Hike in minimum skilled worker wages in key auto hubs



- The employees are key to any manufacturing plant driving daily production while maintaining safety and quality standards. Reported employee costs typically include costs relating to both operational and corporate support staff. The hike in minimum wages in certain states, the introduction of new labour code, etc. in recent months, as well as labour availability issues on account of elections in certain states, have heightened employee costs for manufacturers. Given that employee cost changes are not built into the pricing contracts with customers, any such sharp increases need to be negotiated separately with customers or borne by the ancillary. Companies try to engage in automation initiatives to help reduce the dependence on labour; however, this also entails an incremental investment cost.
- While employee costs have typically trended between 14-16% of revenues for auto ancillaries, it is higher at 20-22% for ancillaries which have meaningful overseas manufacturing presence; however, the diversification benefits help to partially offset the same.

Source: Various State Government's notification on wages, ICRA Research

Energy and freight are other cost overheads witnessing inflationary pressures

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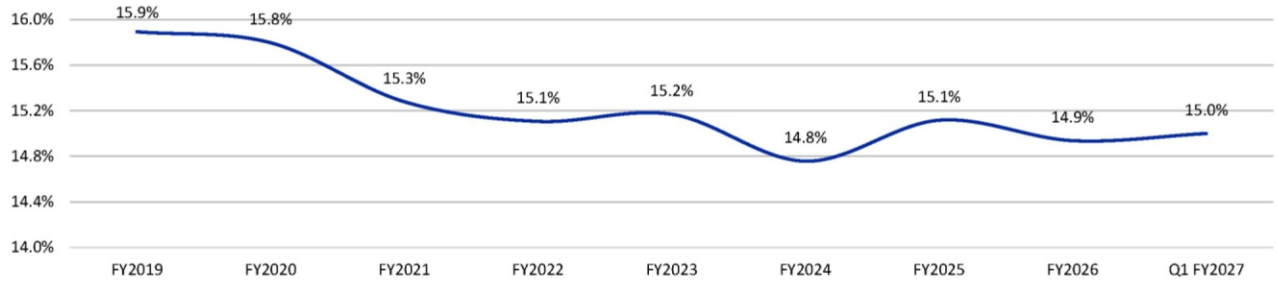
Exhibit 25: Other expenses as a % of sales trend



Source: ICRA Research, Ace Equity; Based on 46 large auto ancillaries with aggregate annual revenues of over Rs. 3,76,000 crore in FY2026

- Major costs forming part of other expenses include power and fuel, outward freight, repairs and maintenance and selling expenses for auto component companies. Repairs and maintenance are recurring expenses which are necessary to ensure smooth manufacturing without any operational bottlenecks.
- Better operating leverage, investments in automation continue to support companies in improving overhead absorption and maintain stable margins. However, power and fuel costs and freight are largely variable in nature, and with significant inflationary pressures on these on account of the geopolitical turbulence, which are not typically built into price pass-through arrangements with customers, auto ancillaries are engaging in pricing negotiations with customers to pass on the impact, at least partially.

Cost-saving initiatives play key role in controlling overheads

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Exhibit 26: Impact of various expenses on the auto component industry

Expense head	Impact
Fuel / Energy cost	▪ Power and fuel expenses as a % of OI vary across companies depending on the manufacturing process. Energy-intensive operations consume high power (5-6% of sales for forging/casting companies vis-à-vis 2-3% on an average for others) as against assembly operations, which consume relatively lesser power. ▪ With the rise in energy costs on account of the conflict, auto component manufacturers are engaging with their customers to pass on the increase partially, wherever the impact of the same is significant. However, most entities are trying to mitigate the impact through improvement in processes. ▪ Companies are adding captive renewable energy capacities and operationally power-efficient processes to reduce dependence on the grid and simultaneously meet tightening environmental, social, and governance (ESG) requirements.
Freight cost	▪ Outward freight costs for companies depend on the nature of products and customer base. Depending on the nature of product, the complexity of packaging for transportation also differs. ▪ Increasing fuel prices, fluctuating sea and air freight charges, transportation insurance as well as tariffs imposed by the importing countries are all factors that impact the freight costs. ▪ The impact of costs relating to freight and related insurance, tariffs, etc. depend on the International Commercial terms (Incoterms) agreed with the customers which includes Free on board (FOB), Delivery Duty Paid (DDP) among others. For products shipped on an FOB basis, the said costs are borne by customers, whereas under the DDP model, the charges are borne by the supplier. These terms have gained increasing prominence in recent periods, with the steep tariffs imposed by USA, sharp hike in freight and insurance rates etc. The extent of pass-through of aforementioned costs, based on negotiations with customers, have a bearing on the margins of auto component manufacturers.
Other overheads	▪ Selling expenses, including marketing, trade exhibitions, advertising and commission expenses, are incurred to drive sales for the components manufactured. Component manufacturers with some technical tie-ups also bear some royalty expenses which are paid to the technology partner. These costs are typically variable in nature. ▪ Repairs and maintenance are recurring expenses which are necessary to ensure smooth manufacturing without any operational bottlenecks. ▪ Other overheads relating to general and administration expenses, are typically fixed in nature. As such, optimising these and improving scale can yield operating leverage benefits which support enhancement in margins.

Source: ICRA Research

Optimisation of other costs is supporting stable margins, despite commodity price inflation

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Exhibit 27: Movement in OPM % - FY2025 to FY2026

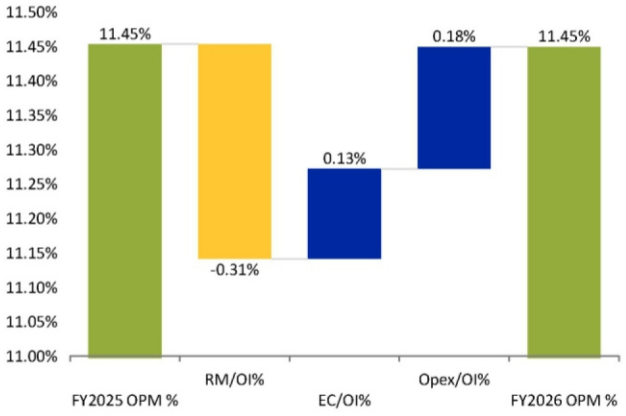
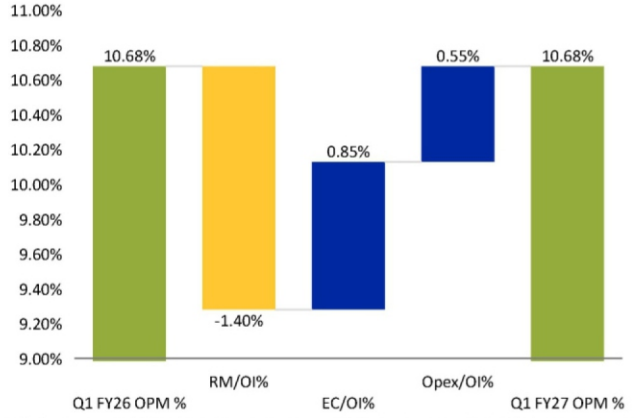


Exhibit 28: Movement in OPM % - Q1 FY2026 to Q1 FY2027



ICRA's sample reported largely stable operating profit margins on a YoY basis in FY2026 and Q1 FY2027, with some deterioration in gross margins offset by savings on fixed overheads. The ability to pass through commodity price inflation and cost saving measures to control overheads will support the operating margins of entities in the coming quarters.

Source: ICRA Research, Ace Equity; Based on 46 large auto ancillaries with aggregate annual revenues of over Rs. 3,76,000 crore in FY2026 EC: Employee costs; RM: Raw Material

Interest coverage indicator for the sector remains comfortable

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Exhibit 29: Interest coverage trend over recent quarters

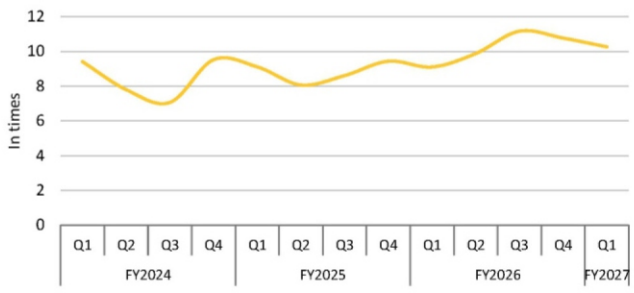
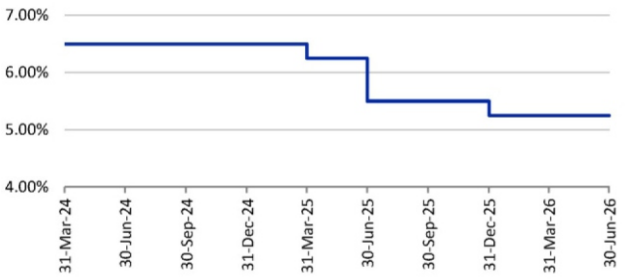
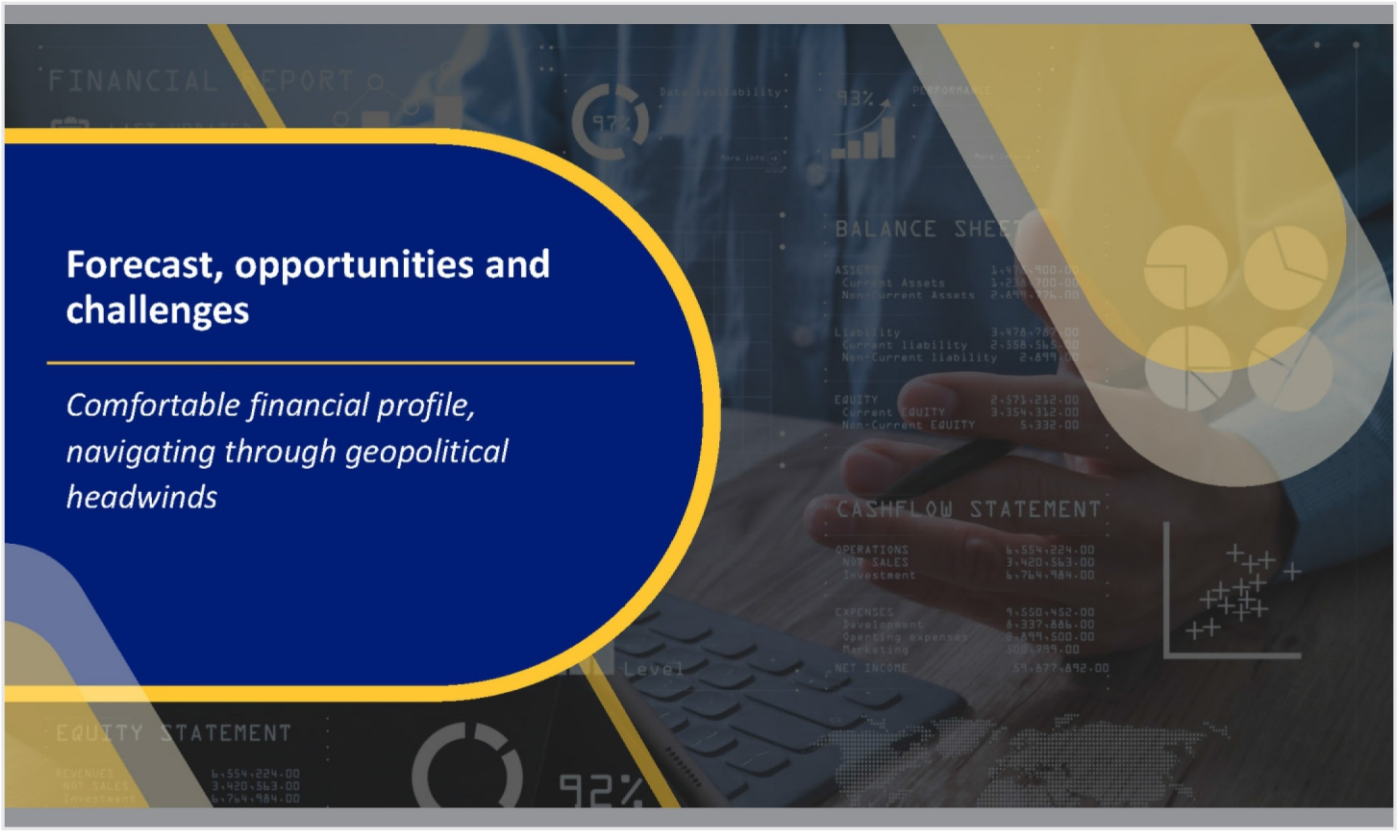


Exhibit 30: Repo rate % over the years



Source: ICRA Research, RBI, Ace Equity; Based on 46 large auto ancillaries with aggregate annual revenues of over Rs. 3,76,000 crore in FY2026

- The Reserve Bank of India engaged in multiple repo rate cuts during the past two years, resulting in an overall reduction of 125 bps to 5.25%. The rate remained unchanged in the Monetary Policy Committee's (MPC) meeting held in August 2026.
- The rate cuts, along with steadily improving operating margins, deleveraging initiatives and prudent funding mix adopted for capital expenditure have supported the coverage metrics. The interest cover for the sample set stood at 9.1 times in FY2025 and 9.8 times for FY2026.
- ICRA expects interest coverage for the sector to remain comfortable going forward as well, aided by healthy accruals and prudent funding mix adopted for capital expenditure.



Macro environment remains challenging amidst geopolitical uncertainties

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Exhibit 31: Key challenges for auto component manufacturers

Geopolitical uncertainties	▪ The geopolitical environment has been volatile over recent periods, with issues such as Red Sea crisis and tariffs in recent years, and the ongoing West Asia conflict and resultant disruptions in recent months. The ability of component manufacturers to navigate such volatilities and disruptions effectively remains critical to their competitiveness.
Fluctuating commodity prices	▪ The commodity prices are driven by various external factors such as geopolitical issues, demand-supply dynamics, etc. among others. Auto-ancillaries typically have price pass-through arrangements with customers for raw material price changes; however, this would typically happen with a lag of one or two quarters.
Availability of skilled labour	▪ Increasing cost of labour and limited availability of skilled labour are adding to the cost of manufacturers. However, companies are investing in in-house training, fair compensation, etc. to retain talent, as well as automation of certain tasks, in order to ensure efficient production operations.
Depreciating INR	▪ Depreciation of INR is expected to support Indian exporters by improving their global price competitiveness. However, the industry's dependence on imports for certain raw materials persists, which becomes more expensive with the rupee weakening. Localisation initiatives and hedging are steps taken by ancillaries to manage the risk.
Rising fuel prices	▪ Rising fuel prices have created inflationary pressures, especially for energy-intensive manufacturing operations. Investment in captive renewable energy are steps taken by entities to mitigate the same.
Inflationary impact on end-user demand	▪ While ancillaries have largely been passing on the inflationary pressures to their customers through price pass-through arrangements and negotiations, thereby protecting their margins, the OEMs have not passed on the same fully to the end-users. The impact of vehicle price hikes on end-user demand, when it materialises, remains a key monitorable.

Source: ICRA Research

Despite volatile global landscape, support is expected from critical opportunities

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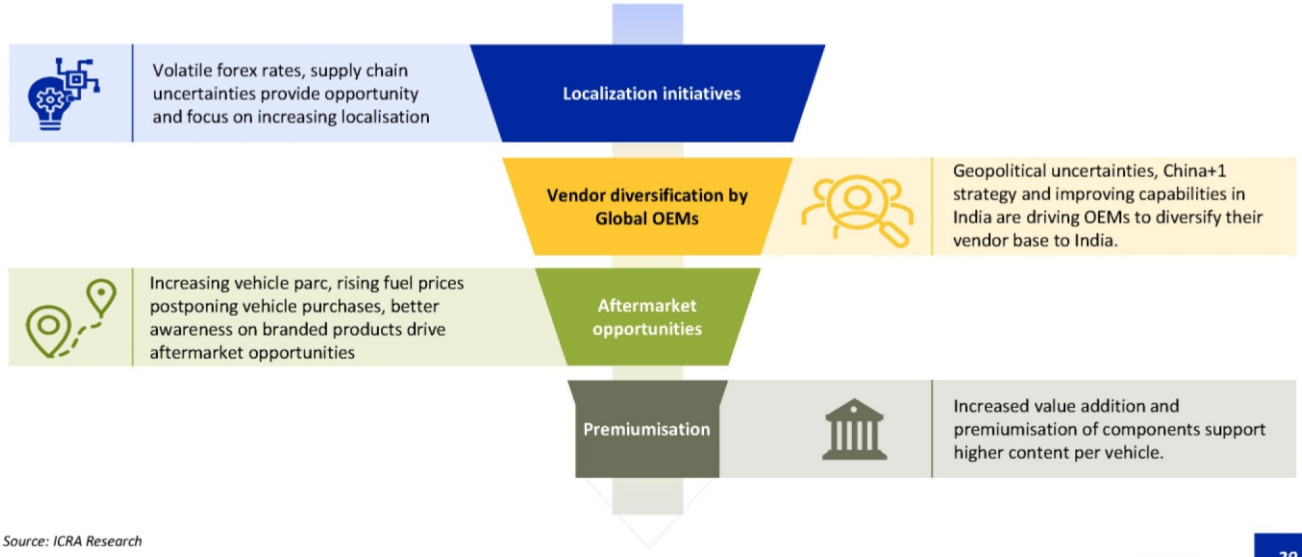
Exhibit 32: Key opportunities for auto component manufacturers



Source: ICRA Research

Industry to benefit from stable demand and higher content per vehicle over the medium term

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Exhibit 33: Annual revenue forecast for ICRA's sample set

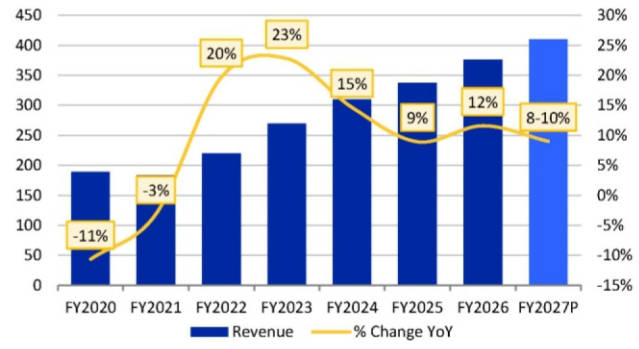
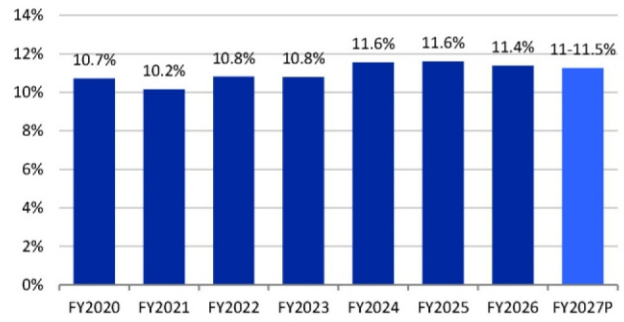


Exhibit 34: Operating margin forecast for ICRA's sample set



Operating margins are expected to remain range-bound between 11-11.5% in FY2027. The margins would continue to be supported by benefits from operating leverage, higher content per vehicle and value additions. However, it remains vulnerable to any significant, unfavourable movements in commodity prices, energy inflation and volatile forex rates.

Source: ICRA Research, Ace Equity; Based on 46 large auto ancillaries with aggregate annual revenues of over Rs. 3,76,000 crore in FY2026

Profitability and leverage metrics to remain comfortable for the industry

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Exhibit 35: Trend in return on capital employed (RoCE) for ICRA's sample set

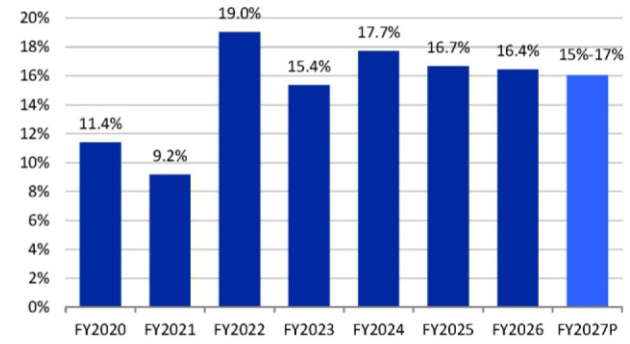
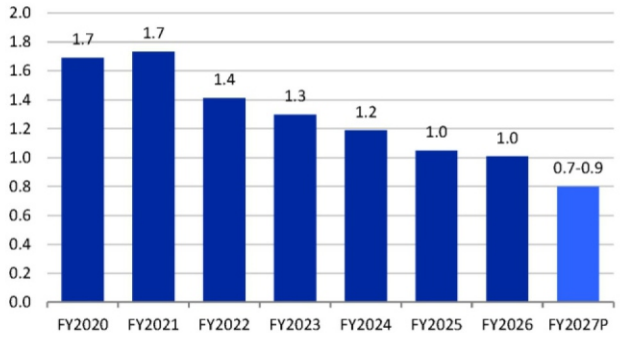


Exhibit 36: Trend in Total Debt/OPBITDA for ICRA's sample set



- Auto components is a sector where the reliance on debt has been fairly limited. Capital expenditure in the past was largely funded by internal accruals. Liquidity position remains largely comfortable.
- ICRA expects coverage metrics for the sector to remain comfortable going forward as well, aided by healthy accruals and relatively low incremental debt funding.

Source: ICRA Research, Ace Equity; Based on 46 large auto ancillaries with aggregate annual revenues of over Rs. 3,76,000 crore in FY2026

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Analytical Contact Details

Name	Designation	Email	Contact Number
Jitin Makkar	Senior Vice-President and Group Head	jitinm@icraindia.com	0124 – 4545 368
Srikumar K	Senior Vice-President and Co-Group Head	ksrikumar@icraindia.com	044 – 4596 4318
Sruthi Thomas	Vice-President and Sector Head	sruthi.thomas2@icraindia.com	080 – 4332 6430
Sriraman Mohan	Assistant Vice President	sriraman.mohan@icraindia.com	080 – 4332 6428
Nilesh Kumar Jain	Senior Analyst	nilesh.jain2@icraindia.com	044 – 4596 4312



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Business Development/Media Contact Details

Name	Designation	Email	Contact Number
L Shivakumar	Chief Business Officer	shivakumar@icraindia.com	022-61693304
Sai Krishna	Head - Research Sales and Investor Connect	sai.krishna1@icraindia.com	9840774883
Rohit Gupta	Head Business Development – Infrastructure Sector	rohitg@icraindia.com	0124-4545340
Vivek Bhalla	Head Business Development – Financial Sector	vivek.bhalla@icraindia.com	022-61693372
Vinita Baid	Head Business Development – East	vinita.baid@icraindia.com	033-65216801
Shivam Bhatia	Head Business Development – Corporate Sector – North & South	shivam.bhatia@icraindia.com	0124-4545803
Sanket Kulkarni	Head Business Development – Corporate Sector – West	sanket.kulkarni@icraindia.com	022-6169 3365
Naznin Prodhani	Head - Group Corporate Communications & Media Relations	communications@icraindia.com	0124-4545860



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Trends Shaping India's Light Vehicle Parc in the Next Decade

By

Mobility Global

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Trends shaping India's light vehicle parc in the next decade

Vehicles in operation, e-mobility and autonomy applications for the passenger vehicle and light commercial vehicle fleet



Vishal Sain, Technical Research Analyst
Vinita Kumari, Sr. Specialist, Technical Research
Nishant Parekh, Technical Research Analyst, AftermarketInsight

September 2026

Analysis overview

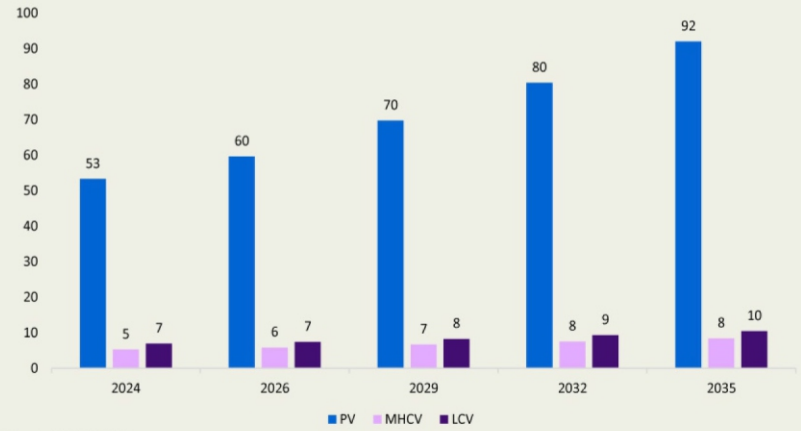
Examine how India's on-road light vehicle fleet is evolving from 2024–2035

Understand how size, age and powertrain mix shape fleet outcomes

Delve deeper into how ADAS and autonomy capabilities scale across the real-world vehicles in operation (VIO)

India's VIO or vehicle parc is projected to surpass **100 million** units by 2033

India VIO by vehicle type (million) 2024–35



Data compiled April 6, 2026.
Source: Mobility Global.

- **Sustained scale-up of VIO.** India's VIO increases from 66 million (2024) to 111 million (2035), adding about 45 million vehicles in the period, reflecting a steady long-term growth trajectory (5%).
- **Passenger vehicles as the primary growth driver.** PV VIO expands from 53 million to 92 million, accounting for about 86% of net VIO additions, with segment share rising from 81% to 83% by 2035, highlighting penetration-led growth and strong first-time buyer contribution.
- **Commercial vehicles grow in line with economic activity.** LCV and M&HCV VIO see a compound annual growth rate (CAGR) of 4%, adding a combined 6.6 million vehicles, while their collective share moderates from 19% to 17%, indicating stable demand but slower expansion relative to PVs.

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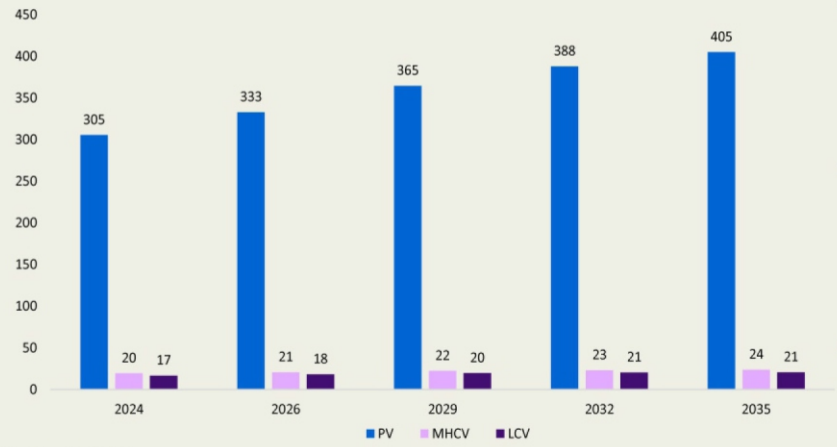
Mainland China remains the world's largest automotive market; four-wheeler fleet to surpass 420 million by 2035

China VIO by vehicle type (million) 2024–35



Data compiled April 6, 2026.
Source: Mobility Global.

- **China's VIO remains large and resilient through 2035.** While new vehicle sales mature, the in-use vehicle base continues to expand or hold at a high plateau, supported by penetration headroom in lower-tier cities and longer vehicle life cycles.
- **Electrification transforms the fleet mix, not the fleet size.** Rapid adoption of new-energy vehicles (NEVs) is reshaping propulsion composition across passenger and commercial segments, but EV additions outpace scrappage, preventing a near-term contraction in total vehicles in operation.
- **Logistics and freight sustain commercial VIO scale.** E-commerce, urban delivery, infrastructure activity, and electrification of trucks and vans support continued growth and retention of LCV and M&HCV fleets into the mid-2030s.

Note: Passenger Vehicle (PV), Light Commercial Vehicle (LCV) & Medium-Heavy Commercial Vehicle (MHCV), & New Energy Vehicles (NEV)

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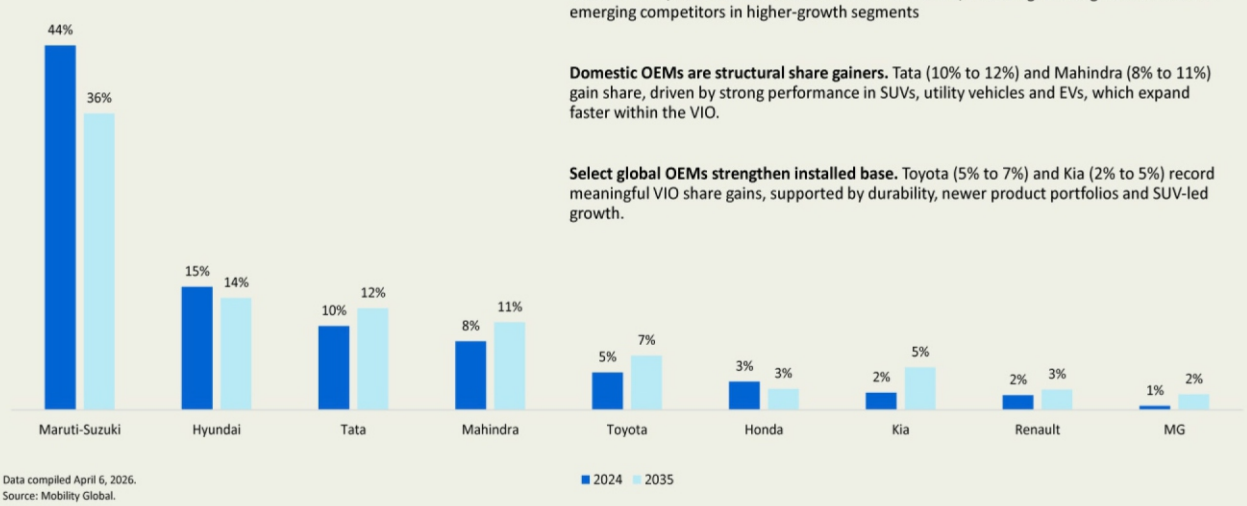
India's VIO landscape is gradually evolving from single-brand dominance to a multi-pillar structure

India passenger vehicle VIO brand share, 2024–35



Data compiled April 6, 2026.
Source: Mobility Global.

Leadership remains concentrated but gradually dilutes. Maruti-Suzuki remains the clear market leader, but VIO share declines from 44% to 36%, reflecting slower growth relative to emerging competitors in higher-growth segments

Domestic OEMs are structural share gainers. Tata (10% to 12%) and Mahindra (8% to 11%) gain share, driven by strong performance in SUVs, utility vehicles and EVs, which expand faster within the VIO.

Select global OEMs strengthen installed base. Toyota (5% to 7%) and Kia (2% to 5%) record meaningful VIO share gains, supported by durability, newer product portfolios and SUV-led growth.

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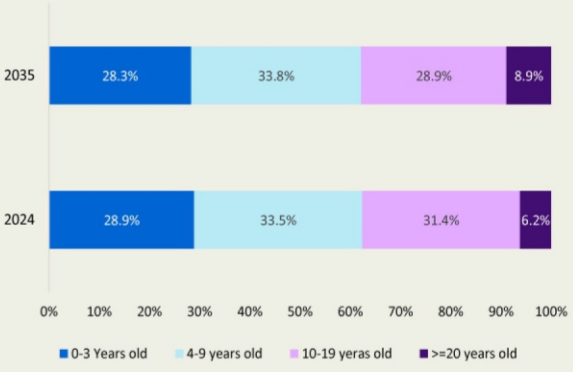
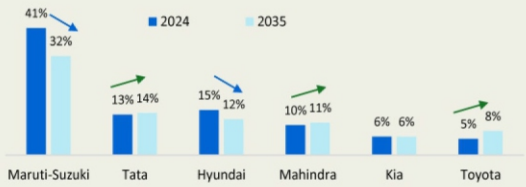
India passenger vehicle fleet, by age group

India passenger vehicle VIO share, by vehicle age group, 2024-35

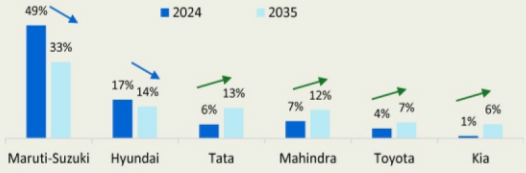


India's VIO age mix reflects a structurally durable fleet — anchored by steady new additions, a dominant mid-life fleet, and a growing tail of long-living vehicles — underscoring India's penetration-led growth and extended vehicle life cycles.

India, PV VIO brand share, 0 to 3 years old, 2024-35



India, PV VIO brand share, 4 to 9 years old, 2024-35



Strong share gains by Tata, Mahindra, Kia and Toyota reflect the sustained impact of SUV-led and diversified brand growth from the last vehicle cycle.

Data compiled April 6, 2026.
Source: Mobility Global.

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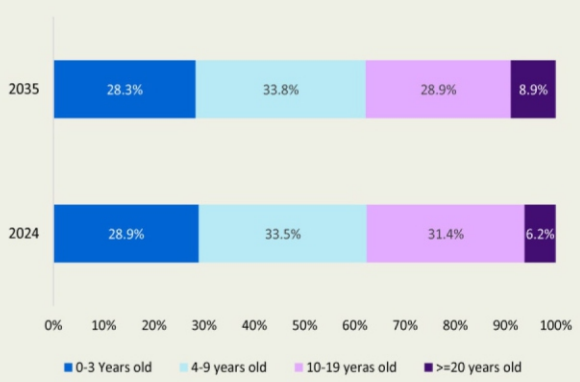
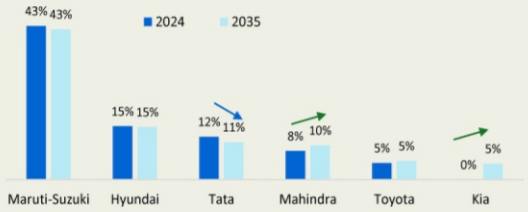
India passenger vehicle fleet, by age group

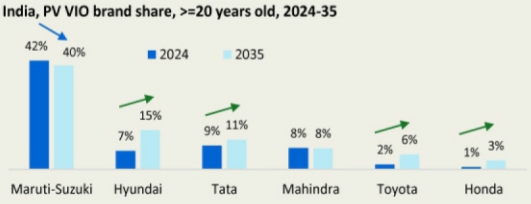
India passenger vehicle VIO share, by vehicle age group, 2024-35



India, PV VIO brand share, 10 to 19 years old, 2024-35



India, PV VIO brand share, >=20 years old, 2024-35



India's ≥10-year VIO segment reflects entrenched historical brand strength, led by Maruti-Suzuki and Hyundai, with gradual rebalancing as earlier growth phases of emerging OEMs such as Tata, Mahindra, Kia and Toyota mature into the older fleet.

Data compiled April 6, 2026.
Source: Mobility Global.

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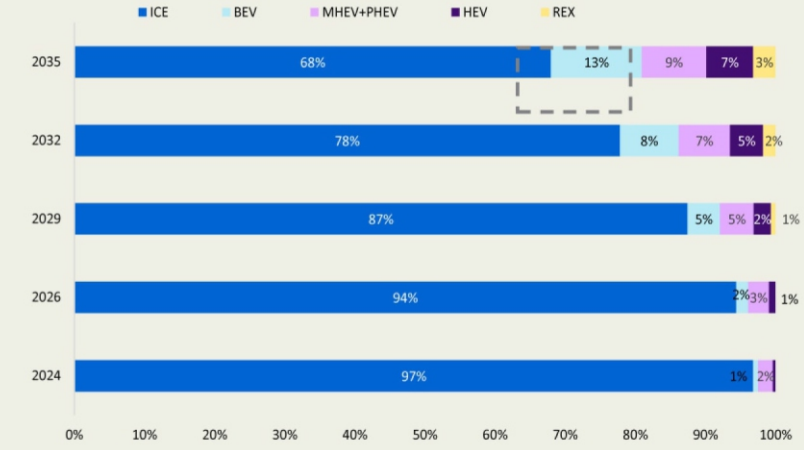
India VIO enters a multi-powertrain transition phase: increasing electrification

India passenger vehicle & LCV VIO share, by PSD*, 2024–35



Data compiled April 6, 2026.
Source: Mobility Global.

*Does not include unspecified fuel types

- **ICE dominance eases despite volume growth.** ICE vehicles continue to grow in absolute numbers, but VIO share declines from 97% (2024) to 68% (2035) as electrified powertrains scale faster within new additions.
- **BEVs drive structural change in the fleet.** BEV fleet expands rapidly from about 0.3 million (2024) to about 13 million by 2035, lifting share from 0.4% to 13% by 2035, making BEVs the largest contributor to propulsion-mix shift.
- **Electrified powertrains gain critical mass.** Combined BEV, MHEV and PHEV share rises from about 2% (2024) to about 16% (2035), reflecting widening OEM portfolios and growing charging coverage.
- **Policy and ecosystem enable acceleration.** Government EV targets (about 30% of new sales by 2030), incentive programs, PLI-led localization and rapid charging-infrastructure expansion underpin BEV adoption across the fleet.

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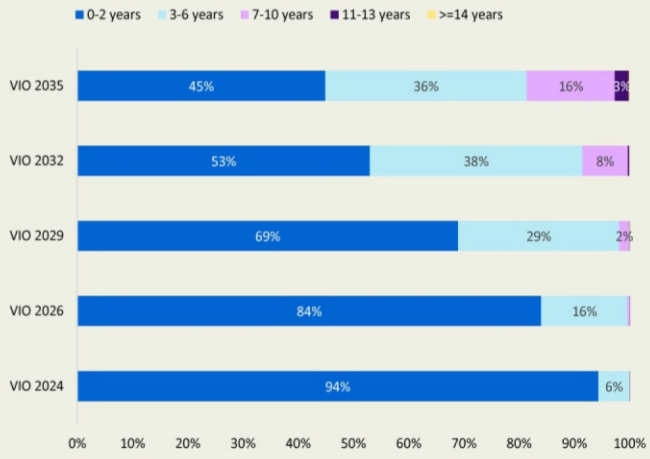
India passenger car & light commercial EV fleet transitions from youthful expansion to maturing value pools

India PV & LCV, by age group, 2024–35 (BEVs only)



Data compiled April 6, 2026.
Source: Mobility Global.

- **Phase 1**:

2024–2029 (Rapid adoption to young fleet).
0–2 years stays very high (96% to 69%).
Indicates EV sales growth outpaces the aging of existing EV stock.

- **Phase 2:**

2029–2032 (inflection to fleet maturity).
0–2 drops sharply (69% to 45%).
3-10 increases sharply (31% to 46%).
10–19 appears (0% to 2%)

- **Phase 3**:

2032–2035 (aftermarket-led value pool expands)
3-10 reaches majority 52% → largest "addressable" band for routine replacements
10–19 rises to 3% → early wave of deeper repairs and life-extension
Strategic shift: from "selling EVs" to "operating EVs efficiently" (uptime, cost/km, residual value)

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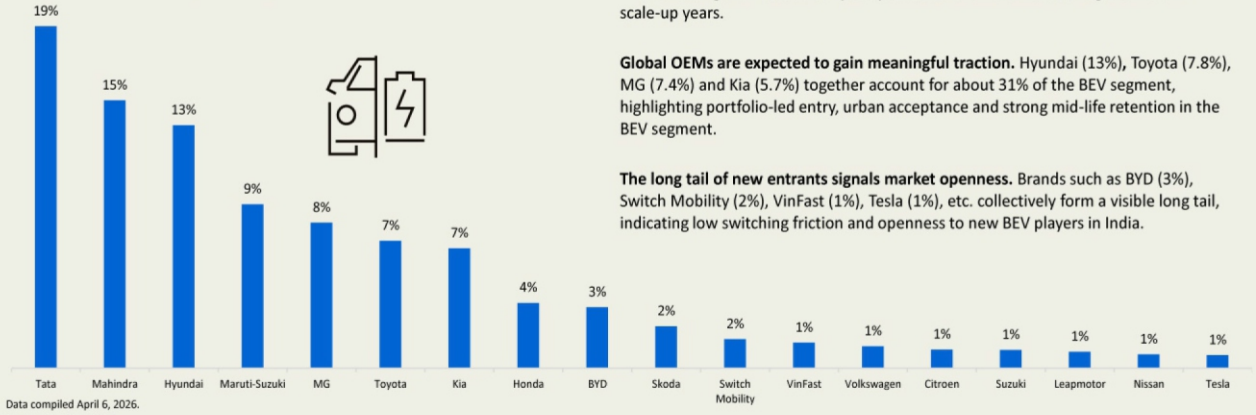
India passenger & light commercial vehicles BEV fleet (3–10 years): brand mix

India, PV & LCV VIO brand share, 3 to 10 years old, 2035 (BEVs only)

Early BEV leadership is more diffuse than in ICE markets. No single OEM dominates the mid-aged BEV VIO, indicating early-stage diversification across brands.



Data compiled April 6, 2026.
Source: Mobility Global.

Domestic OEMs are projected to form a strong core of the installed BEV base. Tata (19%) and Mahindra (15%) together account for about 34% of the 3-10-year-old BEV VIO, reflecting their role as early adopters and volume drivers during the initial BEV scale-up years.

Global OEMs are expected to gain meaningful traction. Hyundai (13%), Toyota (7.8%), MG (7.4%) and Kia (5.7%) together account for about 31% of the BEV segment, highlighting portfolio-led entry, urban acceptance and strong mid-life retention in the BEV segment.

The long tail of new entrants signals market openness. Brands such as BYD (3%), Switch Mobility (2%), VinFast (1%), Tesla (1%), etc. collectively form a visible long tail, indicating low switching friction and openness to new BEV players in India.

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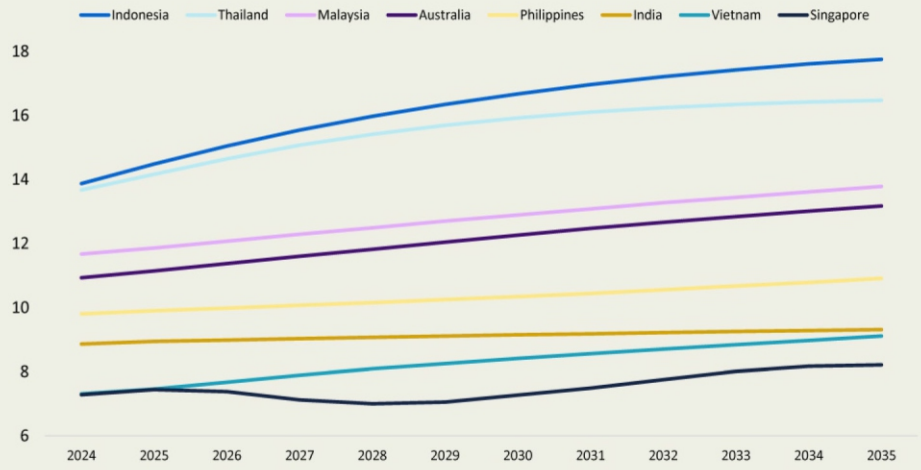
Average vehicle age and demand mix: key markets

Country-wise, average age, 2024–35



Data compiled April 6, 2026.
Source: Mobility Global.

- **Average vehicle age and demand mix are structurally linked.** Markets with younger fleets (India, Vietnam, Philippines; avg age <10 yrs by 2035) show new-demand–led growth (57%-67%), as vehicle additions outpace aging of the fleet.
- **High vehicle age reflects replacement friction, not weak demand.** Indonesia (17.8 years) and Thailand (16.5 years) still generate around 60% new demand, indicating affordability constraints and delayed scrappage rather than declining mobility demand.

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India accelerating the Asian VIO fleet with its aggressive demand-replacement mix

New demand vs. replacement demand (million units), 2024 & 2035

COUNTRY	2024 (VIO volume)	2035 (VIO volume)	New demand	Replacement demand	New vehicle sales 2024 to 2035	New demand share (%)
India	66	111	45	27	73	62%
Indonesia	31	39	8	5	13	62%
Australia	22	28	6	7	14	43%
Thailand	20	26	6	4	10	60%
Malaysia	13	17	4	5	9	44%
Philippines	6	10	4	2	6	67%
Vietnam	5	9	4	2	7	57%

Data compiled April 6, 2026.
Source: Mobility Global.

- **India is the clearest penetration-led growth market.** India adds about 45 million vehicles (2024–35), with 62% of sales coming from new demand, keeping average age low (9.3 years) despite rapid VIO expansion.
- **Replacement-led markets show controlled aging.** Australia's lower new-demand share (43%) and moderate aging (13.2 years) reflect a mature market where sales are driven mainly by replacement cycles rather than net additions.
- **Crossing around 12–13 years marks a structural inflection.** Markets below this threshold remain growth-led, while those above accumulate latent replacement demand, which emerges only when credit, policies or scrappage incentives improve.

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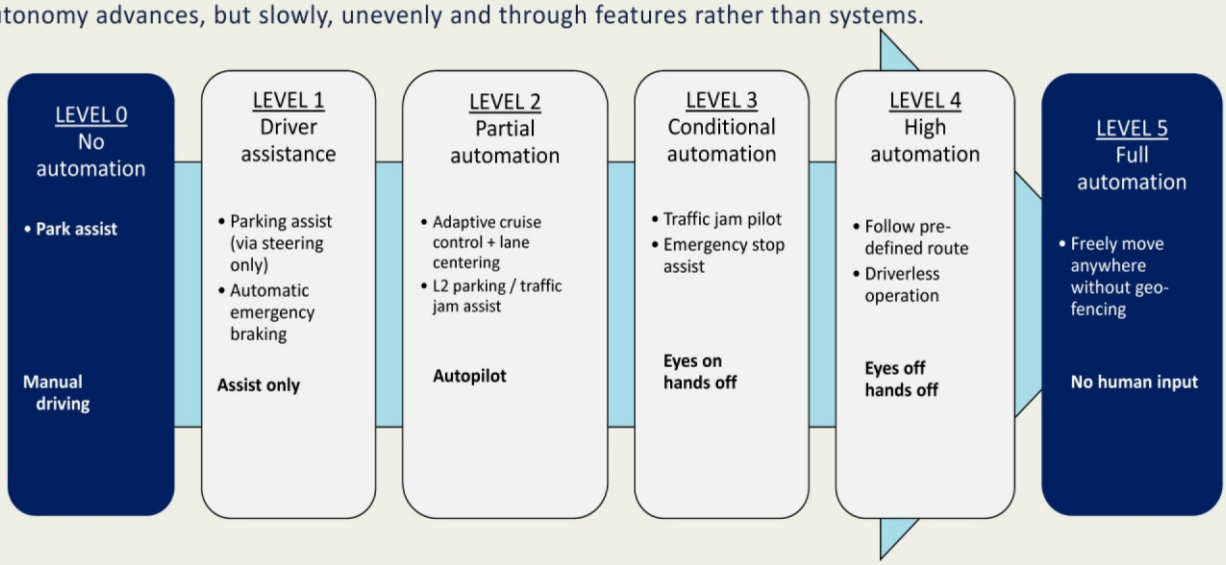
Autonomous driving level progression in the vehicle fleet

Autonomy advances, but slowly, unevenly and through features rather than systems.



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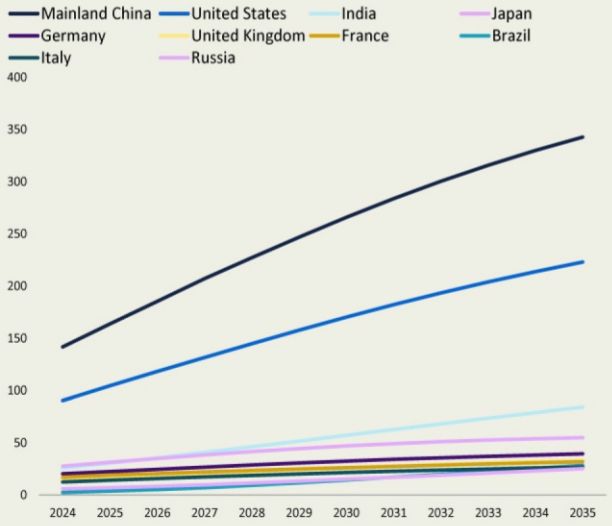
India to have largest ADAS fleet after mainland China, US by 2035

- ADAS adoption is increasing across all regions but notably faster in Mainland China.
- Mainland China is expected to account for the highest number of ADAS-equipped vehicles in its fleet, at over 340 million in 2035, followed by the US at over 220 million.
- ADAS vehicle volumes across major markets like mainland China, the US and Europe are significantly influenced by evolving government regulations and growing customer preference for additional safety. Growth in other markets is influenced more by OEM competition, especially for feature offerings among their vehicles.
- India is projected to have the third-highest number of vehicles equipped with ADAS after mainland China and the US at over 80 million vehicles in 2035.
- Market share for ADAS VIO across most countries is expected to cross 70% by 2035, with India being the highest at about 83%, with over 84 million vehicles.

Adas-equipped VIO forecast, by country, millions, 2024–35



Data compiled April 06, 2026.
Source: Mobility Global.

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Autonomy adoption in Indian light vehicle fleet in next decade

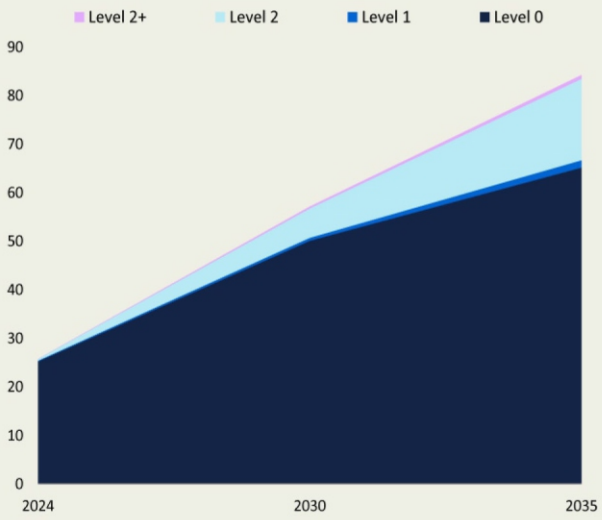
Autonomy advances incrementally across the fleet

- Large volumes of Level 0 and Level 1 vehicles persist. Level 0 systems account for over 70% of the fleet with some level of autonomy by 2035.
- Presence of Level 2 in the fleet increases rapidly after 2030, growing from 7% of the autonomy fleet in 2030 to 19% by 2035. As ADAS features steadily gain acceptance with Indian buyers, automakers are actively skipping Level 1 to deploy bundled Level 2 suites.

Higher autonomy remains limited in scale

- Level 2+ remains niche within the on-road fleet through 2035. Higher autonomy deployment is constrained by cost, infrastructure and regulatory readiness.

Autonomy adoption in India's light vehicle fleet, millions



Data compiled April 06, 2026.
Source: Mobility Global.

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Level-2 autonomy adoption varies across markets

Level-2 autonomy reaches scale selectively

- Market maturity, cost sensitivity, and policy differences drive uneven Level-2 adoption
- By 2035, Level-2 autonomy becomes mainstream in mature markets, exceeding 50% of the on-road fleet in China and Japan.

Adoption diverges sharply by market

- Other Asian markets show moderate to limited penetration, reflecting differences in affordability, segment mix and fleet turnover.

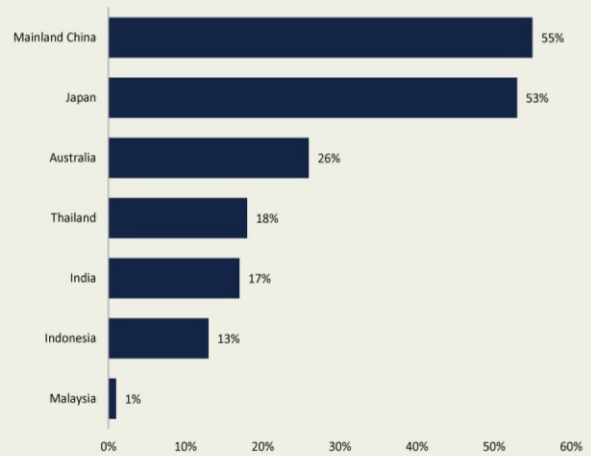
Market factors outweigh technology availability

- Uneven adoption is shaped more by market maturity, cost sensitivity, and policy environment than by technology readiness alone

Structural fragmentation persists

- These gaps highlight why autonomy adoption in Asia remains non-uniform, even as core technologies mature.

Level 2 autonomy adoption (2035)



Data compiled April 06, 2026.
Source: Mobility Global.

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Thank You

For more information, please contact:

Nishant Parekh (+917208818022)
nishant.parekh@mobilityglobal.com

Calum Macrae
calum.macrae@mobilityglobal.com

Debbie Capell
debbie.capell@mobilityglobal.com

mobilityglobal.com

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Building Future-Ready Automotive Supply Ecosystem

By

VECTOR CONSULTING GROUP



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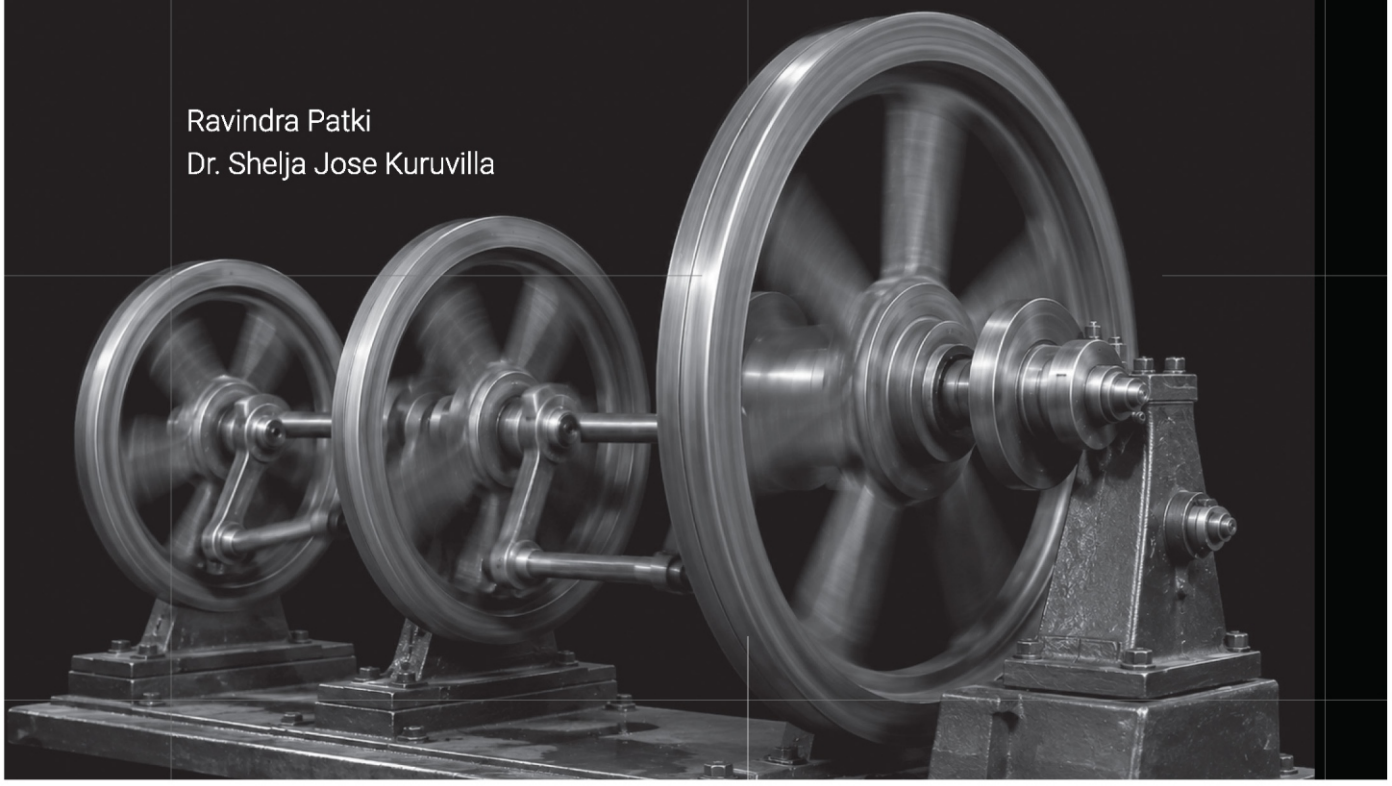
The broken flywheel

Building a **future-ready automotive supply ecosystem**

Ravindra Patki
Dr. Shelja Jose Kuruvilla



Executive summary

India's automotive industry is entering a technology-driven phase. Domestic OEM sourcing grew 16% to ₹6.63 lakh crore in FY26, while component exports reached ₹2.12 lakh crore. Yet, auto component imports, especially for EVs, are growing faster than exports, with China accounting for around 36% of India's auto component imports. This highlights a widening capability gap, particularly as vehicle value shifts towards batteries, power electronics, embedded software and advanced electronics.

Around 80% of India's auto component manufacturers are MSMEs, making their ability to upgrade critical to capturing these growing domestic and global opportunities. However, the capability gap is stark. While 81%-100% of surveyed leaders consider advanced engineering, electronics, embedded software and systems integration very important for future competitiveness, respondents estimate that fewer than half of India's MSME suppliers currently possess these capabilities. Only around 10% are estimated to have embedded software capabilities, whereas just 14% are estimated to have systems integration and product-development capabilities. Furthermore, 95% of respondents believe that MSMEs are not investing fast enough in future capabilities.

This paper argues that the industry's capability flywheel has been broken by chronic operational instability, creating persistent working capital pressure and weak returns for many MSMEs. Inventory levels, now reaching up to 60 days in some cases, lock up cash and constrain liquidity. At the same time, EBITDA margins hover around 12%, which is modest for a capital-intensive industry. This limits suppliers' ability and confidence to sustain investment in engineering, technology and product development needed to build the capabilities required for the next phase of automotive growth. Respondents estimate that only 10% of suppliers currently have the operational and financial capacity to invest consistently. The implications extend beyond individual MSMEs: a weak link at any tier can hold back the entire ecosystem.

The capability flywheel can be strengthened through three mutually reinforcing levers: improving operational flow to release ₹4,000-₹5,600 crore of inventory-linked working capital; strengthening supplier economics through a 15%-30% plant-wide productivity improvement using existing assets; and deploying the resulting surplus, along with external capital and ecosystem collaboration, to build advanced technological capabilities. The stronger financial performance enabled by the first two levers not only builds the confidence and ambition to grow but also makes MSMEs more capable of attracting external capital for long-term investment, supporting the third lever. At industry scale, a 30% productivity improvement across the MSME supplier base could enable ₹74,000-₹88,000 crore of additional annual output, creating an illustrative ₹29,000-₹44,000 crore value pool after material costs.

Together, these levers can fix the flywheel, enabling MSMEs to invest and scale while building the capabilities that will shape India's next automotive era.



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1 Introduction

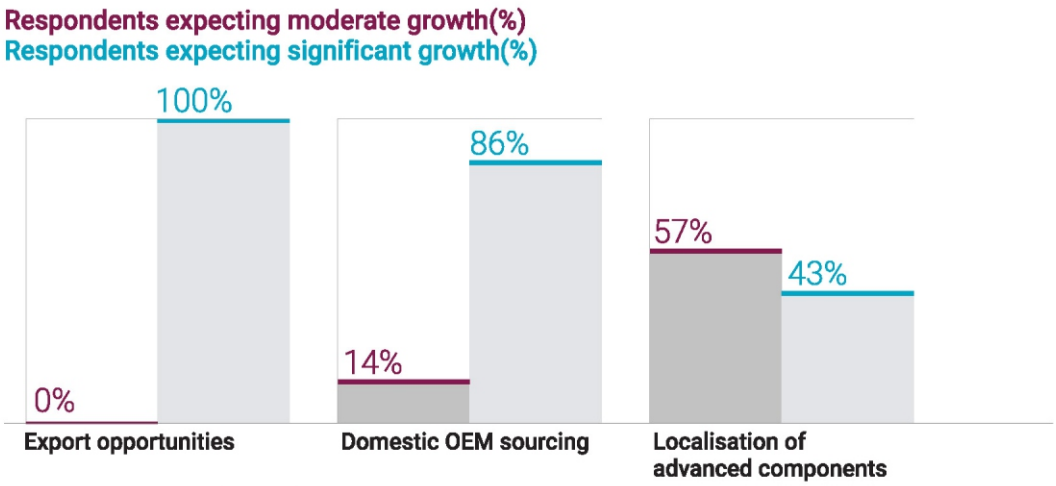
1.1 A growing opportunity...

India's automotive component industry is entering a new phase of growth, with two significant opportunities emerging simultaneously.

The first opportunity is domestic. Indian OEMs (Original Equipment Manufacturers) are expanding rapidly in India and globally, launching new vehicle platforms, entering new segments and increasing localisation across their supply chains. In FY26, supplies by the auto component industry to OEMs, its largest customer segment, grew by 16% to ₹6.63 lakh crore (around $75 billion),[1] reflecting both higher vehicle production and stronger domestic sourcing. This presents Indian component manufacturers with an opportunity to capture a larger share of OEM purchases.

The second opportunity is global. Indian suppliers have steadily strengthened their reputation for manufacturing quality, process discipline and execution while continuing to offer a competitive cost base. Many already supply global OEMs through their Indian operations, providing a natural pathway into those OEMs' worldwide sourcing networks. As manufacturers diversify their supply chains beyond China, India is increasingly viewed as a credible alternative sourcing base. However, although India's auto component exports reached ₹2.12 lakh crore (around $24 billion) in FY26,[1] they remain only a fraction of China's. Even modest shifts in global sourcing, therefore, could represent significant growth opportunities for Indian suppliers.

Figure 1: Expected growth opportunities



Source: Research@Vector; refer to Exhibit 1

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1.2
...but a widening capability gap

While demand is growing, the nature of that demand is changing because the 'vehicle' itself is changing.

India's supplier ecosystem built its global competitiveness around mechanical systems such as engines, transmissions, suspension systems, braking components, forgings and castings. These capabilities remain world class. Increasingly, however, value is shifting towards batteries, power electronics, embedded software and integrated electronic systems. At the same time, electrification, software-defined vehicles and alternative powertrains such as flex fuel and hydrogen are reshaping the automotive Bill of Materials (BOM). The supplier ecosystem therefore needs to build new capabilities while continuing to serve its existing businesses.

While Indian suppliers are making progress in these areas, particularly in electrification-related capabilities, their capabilities remain less mature than those of established automotive ecosystems in China, South Korea and parts of Europe.

Figure 2: Indian supplier maturity across technology categories

Indian supplier maturity	Component categories	Trend
Very high	Engine components, transmission & drivetrain, suspension, braking, forgings, castings	Mature, globally competitive
High	Body, chassis, interiors, exteriors, HVAC, lighting, conventional/low-voltage wiring harnesses, basic electrical systems	Strong localisation, incremental innovation
Moderate	Sensors, basic electronics, motor housings, DC-DC converters, onboard chargers (mechanical/assembly content)	Growing capability
Low	Motors (electromagnetics), inverters, BMS (hardware/assembly, excluding semiconductor content)	Rapidly expanding opportunity; capability still developing
Very low	Battery cells/packs, power electronics, semiconductor-intensive modules, ADAS, embedded software, vehicle computing platforms, rare-earth motor magnets	Highest future value; largest capability gap

Source: Various[2][3][4]

Importantly, these capability gaps are unlikely to be closed by an entirely new supplier base. They will need to be addressed by upgrading existing suppliers, as even conventional components increasingly depend on electronics, software and integrated systems. This shift is already underway: wiring-harness manufacturers are expanding into high-voltage architectures; precision machining firms into motor housings and battery components; forging and casting suppliers into lightweight electric vehicles (EVs) structures; and conventional electronics suppliers into software, sensors and control systems.[5][6][7][8] However, such initiatives are mostly being undertaken by larger, financially stronger firms. The broader ecosystem is not building capabilities fast enough, making India's lower maturity in these technologies a strategic challenge.

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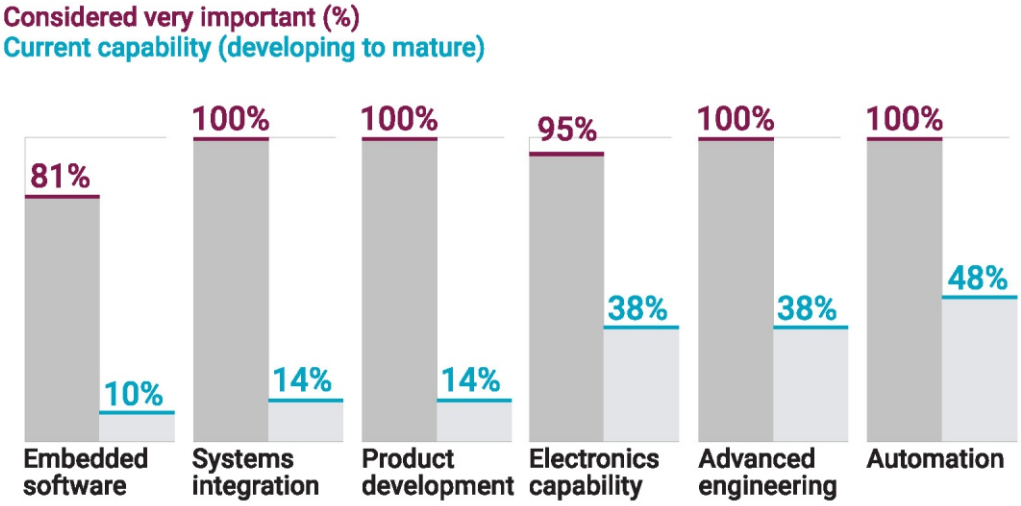
1.3

Why there is cause for concern

Around 80% of India's auto component manufacturers are MSMEs (Micro, Small, and Medium Enterprises).[9] Their ability to build next-generation capabilities is therefore critical to capturing India's growing domestic and global automotive opportunities. A Vector survey of 21 MSME auto component manufacturers, conducted alongside 10 in-depth interviews with CXO/MD-level executives, provides an indication of how respondents perceive the gap between the capabilities considered critical to future competitiveness and those currently available.

Figure 3: Gaps between the capabilities considered critical for future growth and those currently available in MSMEs



Source: Research@Vector
Note: Percentages based on survey respondents' perceptions about MSME's capability readiness; refer to Exhibit 1

Catching up will require sustained investment in engineering capability, technology and product development. If suppliers cannot build these capabilities quickly enough, Indian OEMs will become increasingly dependent on imported components, while global sourcing opportunities may shift towards competing manufacturing nations.

Industry leaders recognise this risk. Yet, a large majority of surveyed CXOs (95%) believe the MSME supplier ecosystem is not investing quickly enough to build the capabilities needed for the next phase of growth (refer to Figure 4).

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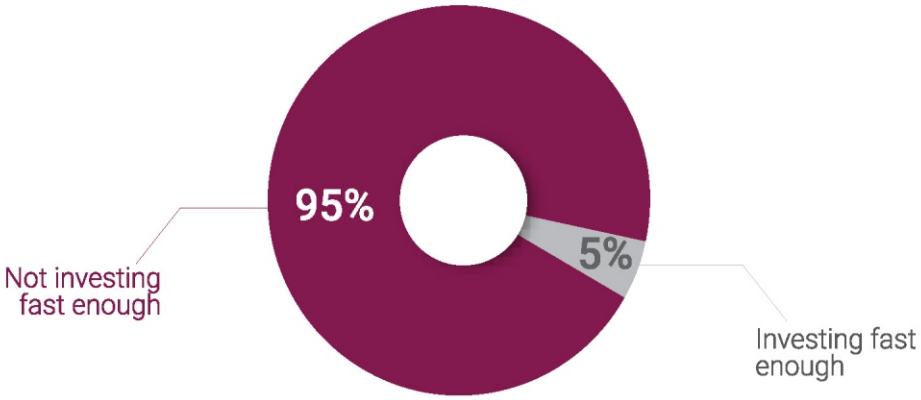
Figure 4: Perception of MSME investment in future capabilities



Source: Research@Vector; refer to Exhibit 1

The industry's trade performance suggests that this concern is well founded. Although the industry recorded its highest-ever turnover of ₹9.8 lakh crore (roughly $103 billion), excluding imports, in FY26,[1] imports grew faster than exports for the first time in three years, driven largely by electronics and EV-related components. China alone accounted for around 36% of India's automotive component imports.[10]

This raises the central question for the industry:

Why is much of India's supplier ecosystem unable to build these capabilities at the pace demanded by the market?



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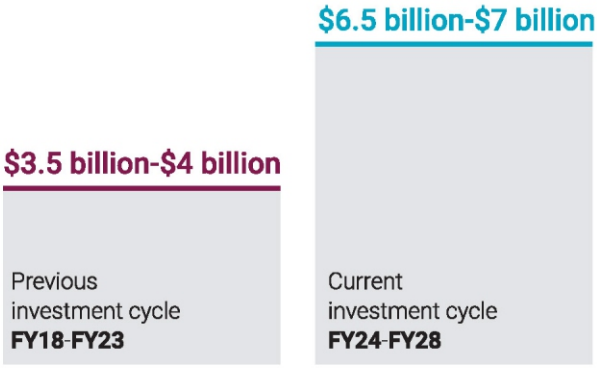
2 Why is the supplier ecosystem falling behind?

2.1 Is it really poor access to capital?

At first glance, the challenge appears to be access to external capital. The evidence, however, suggests that lack of capital is not the primary constraint. Industry-wide investment is expected to almost double from $3.5-$4 billion during FY18-FY23 to $6.5-$7 billion in the current investment cycle (FY24-FY28). While this does not mean that MSMEs face no capital constraints, the trend indicates that capital is available to firms with a strong business proposition.

Figure 5: Auto component industry investment across cycles



Source: HDFC Securities[11]

The evidence also does not point to a lack of awareness. Interviews with CXOs indicate that MSME suppliers clearly recognise the need to invest in engineering capability, technology and new product development. They are also generally familiar with conventional debt financing and, to varying degrees, equity funding options available to support such investments.

The real constraint lies elsewhere. Most firms lack the confidence or ability to commit to sustained investment. According to 90% of survey respondents, most MSMEs struggle to generate the recurring cash flows and profitability needed to invest consistently over multiple years (refer to Figure 6).

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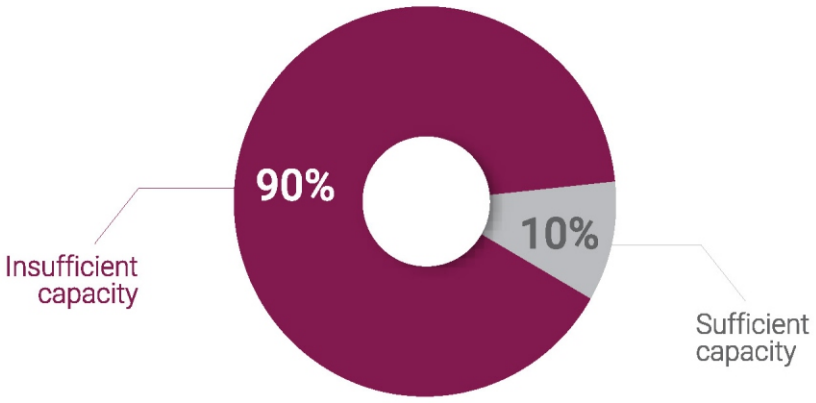
Figure 6: Ability of MSME suppliers to invest consistently



Source: Research@Vector; refer to Exhibit 1

2.2 Cascading uncertainty

Much of this pressure stems from the way market uncertainty is transmitted through the supply chain. Across multiple automotive-sector client engagements, Vector has observed that daily forecast accuracy at the SKU level generally falls within the 60%-70% range. As actual demand inevitably diverges from plan, production schedules are repeatedly revised. These revisions propagate upstream from OEMs to Tier-1 and Tier-2 suppliers and, according to all surveyed firms, become progressively amplified, creating the classic bullwhip effect.

This demand uncertainty results in inventory distortion across the system. Suppliers often find themselves carrying up to 60 days (refer to Exhibit 2) of finished goods inventory in some product lines while facing shortages in others. Inventory that is not immediately required often remains on supplier balance sheets or in transporter warehouses awaiting receipt. In effect, variability in demand is converted into variability in inventory.

This inventory has a direct financial consequence. Since payments are frequently triggered only after issuance of a Goods Receipt Note (GRN), suppliers continue financing inventory until the customer formally accepts it. Delays in receipt therefore translate directly into longer and more variable cash-to-cash cycles, creating stress, especially for smaller firms. About 71% of surveyed firms reported collecting receivables after more than 60 days (refer to Exhibit 2).

Firms also face supply-side uncertainty arising from supplier unreliability, geopolitical disruptions, trade restrictions, logistics bottlenecks and raw-material price volatility, which can make supplies less predictable and force firms to hold additional buffers to protect production.[12] All surveyed respondents agree that these inventory challenges, combined with transactional, price-led sourcing practices that keep margins under pressure, leaves suppliers with little investable surplus.

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These demand- and supply-side disruptions also create a capacity paradox: although suppliers have capacity on paper, utilisation often remains at 75%-85% because frequent changeovers, quality issues and rework erode effective capacity. As a result, 91% of surveyed CXOs still see capacity as a challenge (refer to Exhibit 3).

These pressures are most acute further upstream in the supply chain, where firms typically have less leverage in supply chain relationships. According to Vector interviews, while OEM-Tier-1 collaboration has improved, relationships between Tier-1 and Tier-2 suppliers remain largely transactional. As a result, inventory, working capital requirements, and risk are often pushed upstream. Ironically, this creates no real gain for anyone. Suppliers either pass the costs back through higher prices or become less competitive and financially fragile, increasing the risk of supply disruption.

The cumulative effect is that many suppliers operate under persistent financial and operational strain. Inventory distortions tie up cash, delayed receipts extend cash-to-cash cycles, and underutilised capacity weakens asset productivity. Together, these factors depress profitability and cash generation, reducing the returns generated by the business.

2.3 From operational instability to capability gaps

When returns are weaker than expected, promoters become more cautious about committing additional capital, particularly to investments whose benefits may take several years to materialise. Interviews conducted for this study indicate that, under these circumstances, promoters enter 'survival' mode. They become increasingly focused on protecting the business rather than expanding it. Attention is fixed on meeting the month's obligations, decisions are made defensively, and any proposal to expand is viewed not as an opportunity but as a larger version of the challenges already at hand. As a result, even when capital is available, promoters may choose not to pursue it. New projects are delayed, engineering teams remain small, and suppliers struggle to attract and retain experienced technical and managerial talent.

This limits their ability to build engineering, technology and product-development capabilities, making it harder to move into higher-value opportunities and improve returns. Consequently, investment in new capabilities remains below what the industry requires. This capability gap makes it harder for suppliers to improve productivity, move up the value chain and earn stronger returns. Weak returns then reinforce the same caution, creating a self-reinforcing cycle in which financial pressure suppresses investment and underinvestment limits future performance.

This may seem like a problem for smaller suppliers and MSMEs to solve on their own, or for MSME policy to address. It is not. The competitiveness of an automotive company is ultimately limited by the capability of the supply chain it depends on. OEMs cannot localise advanced technologies, and large Tier-1 suppliers cannot scale globally, without capable suppliers across multiple tiers. Strengthening the supplier ecosystem is therefore not an MSME agenda. It is an industry competitiveness agenda.

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The only sustainable fix: An ecosystem that can reinvest in itself

The objective of fixing the broken capability flywheel is not simply to help suppliers invest once through financing schemes, incentives or technology grants. The solution needs to create the conditions for continuous investment. Two things need to change:

First, the economics of the supplier business need to improve. Stronger profitability, healthier cash generation and lower working capital pressure are needed to give promoters the confidence to move from managing day-to-day survival to pursuing long-term growth.

Second, suppliers need to become capable of attracting and effectively deploying external capital. Stronger and more consistent financial performance can help build confidence among investors, technology partners and customers. However, suppliers also need clarity on the technologies, products, adjacent segments and partnerships that can provide a credible path to growth, so that capital can be directed towards opportunities with long-term potential.

Three levers can help create these conditions.

Three levers of capability development



Improve operational flow

What it does
Reduce variability and inventory

What it is for
Release working capital

What it creates
Released working capital
+
stability



Strengthen supplier economics

What it does
Recover lost productive capacity

What it is for
Lever 1
+
productivity
+
better commercial practices
↓
internal surplus

What it creates
Recurring surplus
+
better ROCE



Convert surplus into capability

What it does
Build technology, engineering and product capability

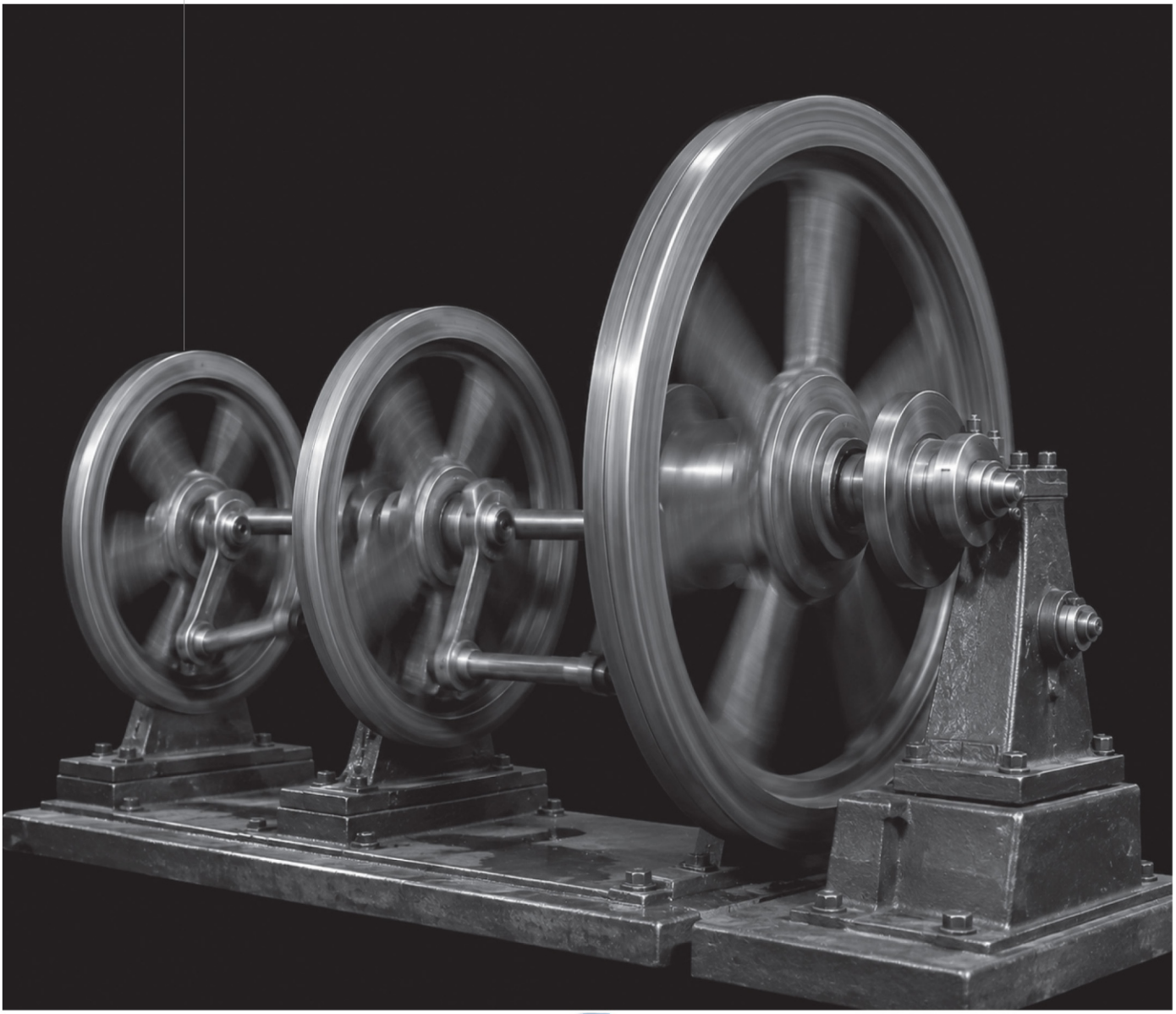
What it is for
Lever 2
+
access to capital
+
ecosystem support
↓
investment in advanced capabilities

What it creates
Higher-value business
+
competitiveness

Operational stability releases working capital and creates recurring surplus; surplus creates the confidence to pursue growth; strong financial performance and a credible growth agenda attract capital and ecosystem support; investment builds capabilities; capabilities improve returns; and stronger returns generate the surplus needed for the next cycle of growth. Together, these three mutually reinforcing levers can repair the industry's broken flywheel.

Lever 1

Improve operational flow





Every flywheel requires an initial force to overcome inertia. In India's automotive supplier ecosystem, that starting point is releasing working capital already trapped in operations.

As discussed, much of this working capital is tied up because planning decisions respond to uncertain forecasts issued by OEMs and cascaded across the supply chain. The answer, however, is not to eliminate forecast uncertainty. Automotive demand will always be uncertain. The more important challenge is to prevent uncertainty from disrupting production and triggering unnecessary inventory.

The industry, therefore, needs to reduce its dependence on forecasts as the primary driver of production. Forecasts often contain a significant amount of noise, but they can also contain genuine signals for specific SKUs and demand patterns. The challenge is to distinguish between the two. A system is needed that filters out noise from signal upfront - so that firms use only the signal component of the forecast in their production plans. Thereafter, production should not continually react to forecast revisions. Instead, it should be driven through replenishment to agreed inventory targets based on actual consumption.

This combination of intelligent demand sensing and consumption-based replenishment creates a decoupling effect between market volatility and factory operations. Variability in demand is absorbed before it reaches the shop floor, allowing production to operate with a more stable and predictable rhythm. As a result, firms can reduce the total inventory required while continuing to meet OEM and higher-tier offtake requirements despite forecasting errors.

Demand uncertainty is only one source of variability; supply-side uncertainty also needs to be addressed. A strategic buffer based on replenishment logic can absorb this uncertainty, reducing the inventory needed to protect against supply disruptions.

The opportunity is substantial. With inventory across the Indian automotive component industry estimated at approximately ₹98,000 crore (CMIE, FY25), experience from Vector's implementations indicates that firms adopting this approach typically reduce inventory by 30%-40%. Applied across the industry, this could potentially release ₹29,000-₹39,000 crore of working capital across the supply chain. MSME suppliers alone are estimated to hold approximately ₹14,000 crore of this inventory, implying a potential working capital release of ₹4,000-₹5,600 crore within the MSME ecosystem that could be redeployed towards investment. Unlike external financing, this is capital that already exists within the system. Improving operational flow simply unlocks it.

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Case in point

Vector client engagement (details anonymised)

A mid-sized automotive component supplier demonstrated that this approach is practical. The company established strategic finished goods buffers that decoupled manufacturing from volatile customer schedules and shifted from forecast-driven planning to replenishment based on actual consumption. As a result, inventory fell from 70 days to 30 days, delivery reliability improved to 100%, and premium freight was virtually eliminated, substantially reducing working capital requirements while freeing management from continual operational firefighting.

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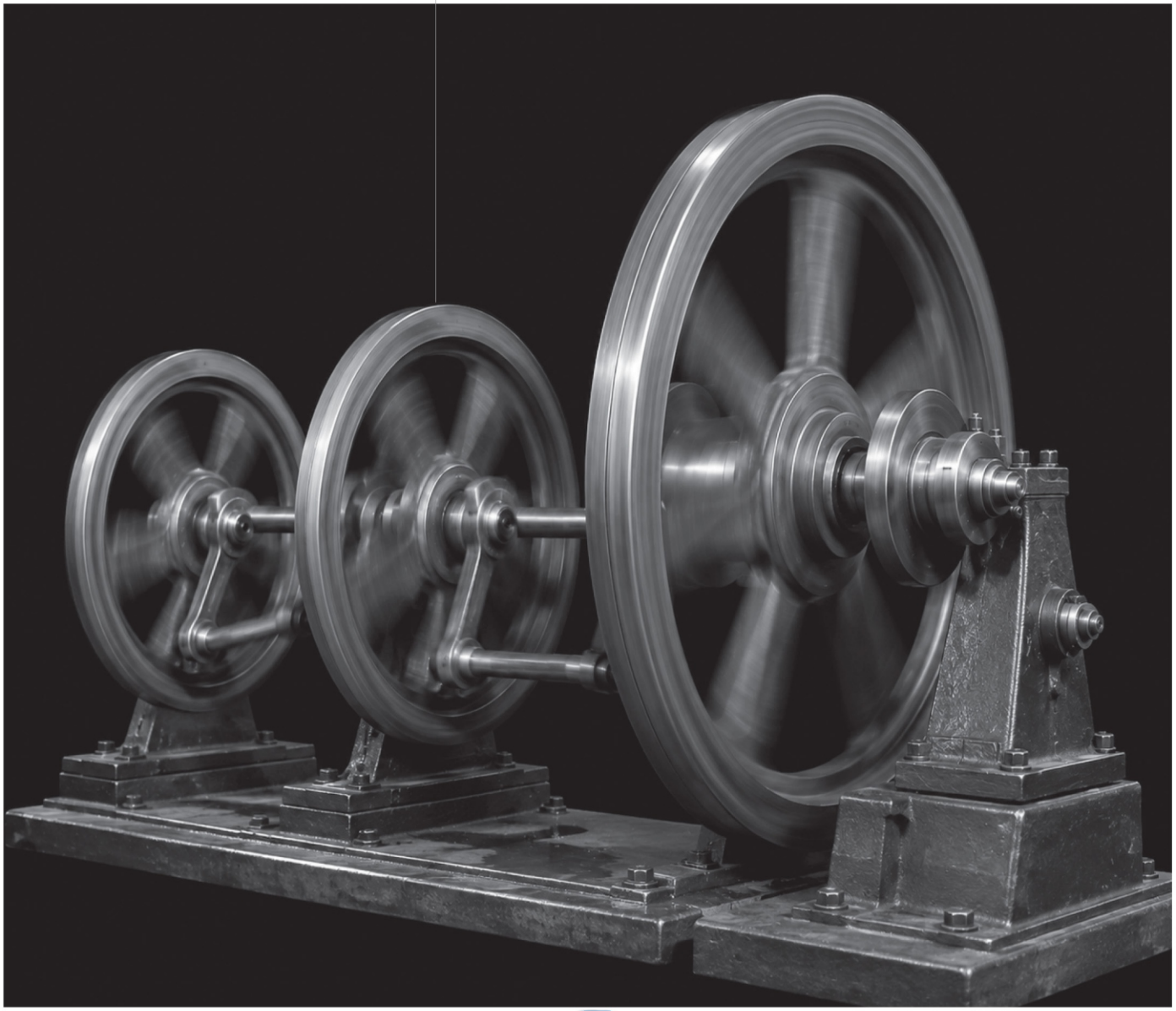
Lever 2

Strengthen supplier economics



However, working capital released from inventory is a one-time cash release. It can provide immediate relief, but it is unlikely by itself to give promoters the confidence to invest in future capabilities; without stronger and recurring returns, the focus is likely to remain on sustaining the existing business.

Changing this requires the second lever: generating recurring surplus through higher output and profitability from existing resources.

The first step is to consolidate suppliers that are currently retained mainly to maintain price competition. Many OEMs have already done this, rationalising their supplier base and concentrating business with fewer, more capable suppliers. Tier-1 suppliers can apply the same approach to their Tier-2 base by developing a smaller group of strategically important suppliers. Concentrating more volume with selected suppliers allows them to use more of their existing capacity, rather than spreading demand across too many plants. The resulting scale and more predictable demand also create stronger incentives and greater ability to invest in process improvements, quality and capacity. This improves productivity and supplier reliability, which in turn reduces production disruptions and capacity losses for the higher-tier customer.

Other sources of lost capacity can also be addressed, but these vary across plants. Some lose capacity through long changeovers, while others lose it through bottlenecks, quality losses or poor material flow. Stable schedules enabled by Lever 1 make these losses easier to identify and address through targeted improvement initiatives.

Hidden capacity opportunities in operations

Source of productive capacity loss	Typical productive capacity improvement opportunity*	Typical manifestations
Equipment inefficiencies	15%-20%	Long changeovers, unplanned downtime such as mechanical/electrical breakdowns
Quality losses	5%-15%	Rework, defects, inspection delays
Management and operational disciplines	2%-10%	Inconsistent work methods, poor workplace organisation, excessive motion

*Illustrative opportunity ranges based on typical manufacturing improvement programmes. These are not additive. Actual improvement potential depends on the dominant constraint and manufacturing process.

Many MSMEs, however, lack the industrial engineering capability and implementation expertise needed to drive these improvements independently. This must also become a cascading effort across the supply chain. Leading OEMs such as Maruti Suzuki and Toyota have long invested in strengthening Tier-1 suppliers through supplier development and manufacturing excellence programmes. The model must be extended downstream, with Tier-1 suppliers systematically transferring manufacturing knowledge, engineering expertise and operational disciplines to smaller Tier-2 suppliers, who, in turn, support small Tier-3 suppliers. Capability should spread through the supply chain like a relay race rather than remain concentrated within a few large firms.

While the opportunities identified above can be substantial, they vary across plants. Vector's implementation experience suggests that actual plant-wide productivity improvements typically range from 15%-30% without additional capital expenditure. As localisation and exports increase, the resulting capacity gains can defer and, in some cases, eliminate the need for immediate capacity expansion - a challenge cited by 91% of CXOs (refer to Exhibit 3). This enables companies to improve returns on capital employed (ROCE) without requiring OEMs to absorb higher prices.

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Case in point

Vector client engagement (details anonymised)

A leading manufacturer of mechanical power transmission and sealing solutions illustrates how stable operational flow can create the conditions for sustained productivity improvement alongside inventory reduction (discussed in Lever 1). After stabilising operational flow, the company focused on improving the performance of a constraint - an oil-seal curing press - using SMED (Single-Minute Exchange of Die) principles. By preparing moulds, tools and machine settings before stoppages and carrying out set-up activities in parallel, changeover time was reduced from 45 minutes to just 5 minutes.

The resulting increase in effective capacity improved throughput and delivery reliability while simultaneously reducing inventory. Stronger operational performance enabled the company to win additional business, improve cash flow and generate the financial surplus needed to sustain further investment in capability - without relying on higher prices or additional capital expenditure.

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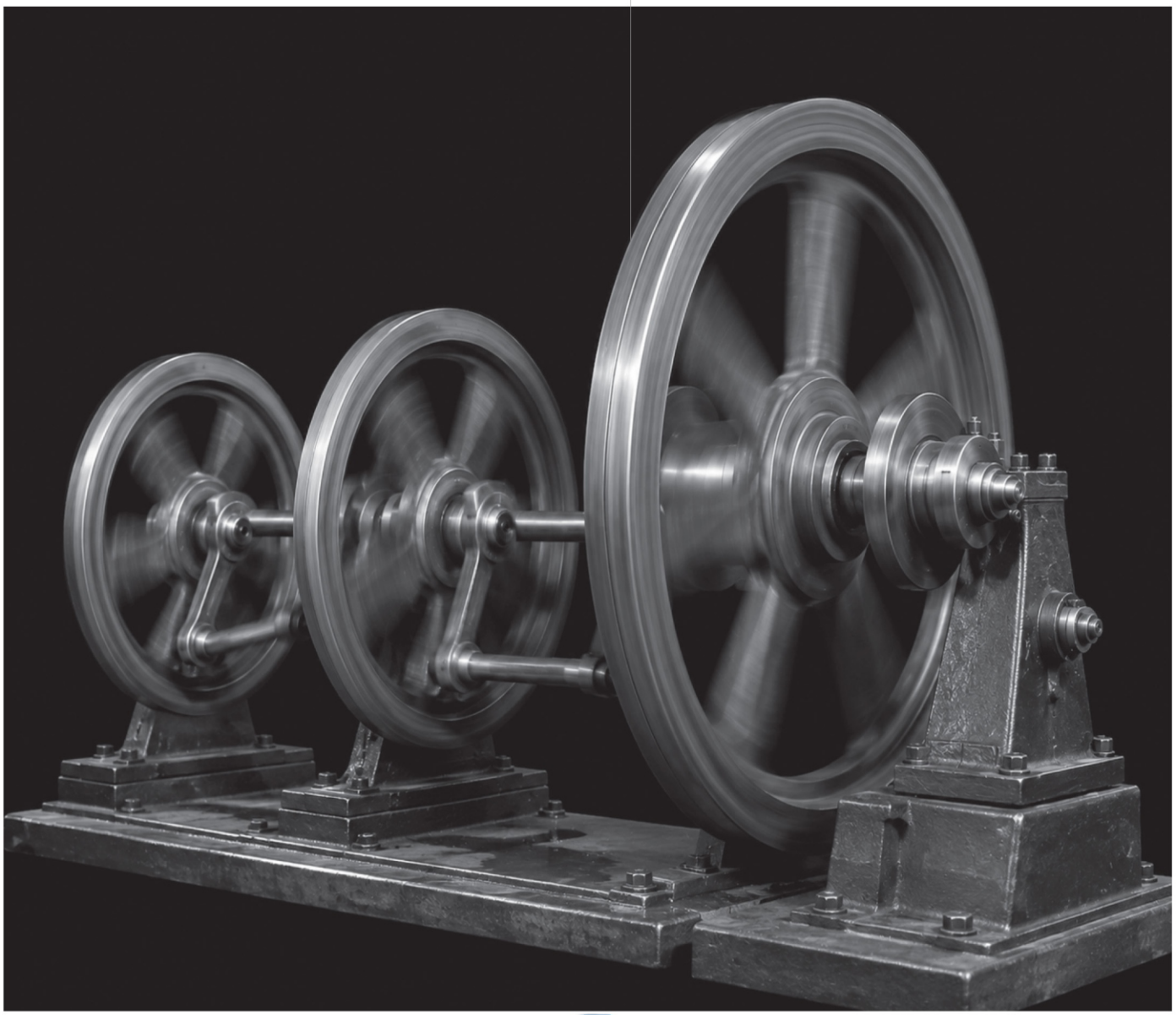
Lever 3

Convert surplus into capability





The first two levers create the financial foundation for growth. Releasing working capital provides immediate liquidity, while higher productivity creates recurring surplus and improves returns. Together, they strengthen the business and give promoters greater confidence to look beyond day-to-day operations and consider longer-term growth.

However, recurring surplus alone cannot fund all the capabilities required for the next phase of automotive growth. Battery systems, power electronics, embedded software, advanced materials and intelligent manufacturing require sustained investment over several years. Capability development also requires specialised talent, dedicated engineering resources and technology expertise that cannot always be built through incremental additions to existing operations. Capability development may also require dedicated resources separate from current operations, such as R&D centres, specialised engineering teams, technology partnerships and targeted acquisitions.

External capital is therefore an important part of the third lever. Stronger profitability, cash generation and returns from the first two levers can make firms more credible to investors, lenders, technology partners and customers. But financial performance alone is not enough. Capital also follows a credible vision for growth. Investors and partners need to understand where future growth will come from and why the supplier is well placed to capture it.

Many MSMEs may have the financial strength and willingness to grow but lack the strategic or technical expertise to identify the right technologies, products, adjacent segments or partnerships. The ecosystem can help bridge this gap through collaborative R&D, shared infrastructure, supplier-development programmes, technology partnerships and targeted capability-building involving OEMs, Tier-1 suppliers, industry bodies, universities, research institutions and technology partners. This gives MSMEs access to expertise and resources that would be difficult to develop independently.

Together, these elements create a self-reinforcing cycle. Stronger supplier economics improve firms' ability to attract capital; capital enables investment in technological capabilities; and ecosystem collaboration helps MSMEs build capabilities they cannot develop alone. As these capabilities deepen, suppliers can compete for higher-value opportunities, improve returns and generate the surplus needed for the next cycle of investment.

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The conclusion

Ultimately, the goal is to repair the industry's broken capability flywheel and create a supplier ecosystem capable of continuously investing in advanced automotive technologies.

The scale of the opportunity illustrates why this matters. India's auto component industry generated approximately ₹9.8 lakh crore in turnover in FY26, before considering imports,[1] with MSMEs accounting for an estimated 25%-30%,[9] representing a turnover base of roughly ₹2.4-₹2.9 lakh crore. If systematic productivity improvement released 30% additional capacity from this base, as discussed in Lever 2, it could enable approximately ₹74,000-₹88,000 crore of additional annual turnover. At material costs of 50%-60% of net sales,[13] typical in this industry, this represents an illustrative ₹29,000-₹44,000 crore incremental value pool after material costs.

Illustrative sizing of the potential output and value pool from MSME productivity improvement

Item	Value
Industry turnover (FY26)	₹9.8 lakh crore
MSME share of industry turnover	25%-30%
Current MSME turnover	₹2.4-₹2.9 lakh crore
Illustrative productivity improvement*	30%
Additional turnover enabled	₹74,000-₹88,000 crore
Material costs as % of net sales**	50%-60%
Value retained after material costs	40%-50%
Incremental value pool created	₹29,000-₹44,000 crore

*Based on Vector experience.
**Based on ACMA's financial analysis of firms in the ₹50-₹500 crore revenue bands.

Key assumptions: Existing fixed costs (plant, equipment, facilities, supervision, and overheads) remain largely unchanged; material costs are the primary variable cost and other variable costs are relatively small; and improvement in effective productive capacity translates into equivalent additional saleable output.

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The significance lies not in the precise numbers but in the mechanism they illustrate. Even if only a portion of this potential is realised, it could create a self-funding engine for capability building rather than one dependent on periodic policy support or one-time capital infusions.

Some Indian Tier-1 suppliers demonstrate how this transition can happen. Motherson has expanded from wiring harnesses into modules, polymer products, vision systems and integrated assemblies, supported by long-term technology partnerships such as its relationship with Sumitomo Wiring Systems, which dates back to 1983.[14] Similarly, Sona Comstar has built on its expertise in precision forgings, differential gears and starter motors to develop traction motors, inverters, electronically locking differentials and integrated electric powertrain systems.[15] These examples show how existing capabilities, combined with sustained investment, technology partnerships and knowledge transfer, can provide a path into higher-value technologies.

The challenge is to make this transition possible for a much broader set of suppliers. Many OEMs have already demonstrated the value of structured supplier development through closer collaboration with Tier-1 suppliers, including technical support, process improvement, quality systems, technology roadmaps and longer-term relationships. The next step is for this model to cascade through the supply chain: Tier-1 suppliers supporting smaller Tier-2 suppliers, and Tier-2 suppliers supporting their smaller suppliers. This can include engineering collaboration, technical mentoring, joint product development and knowledge transfer.

The objective is not to create a few technology leaders, but an ecosystem in which capability can spread and compound across the supply chain. As more suppliers improve their operations, generate surplus, invest in higher-value capabilities and help develop the next tier, the benefits extend beyond individual firms to strengthen the competitiveness and resilience of the industry as a whole. Ultimately, this will determine whether India can build the depth of engineering and technology capabilities needed to compete in the next phase of automotive growth.

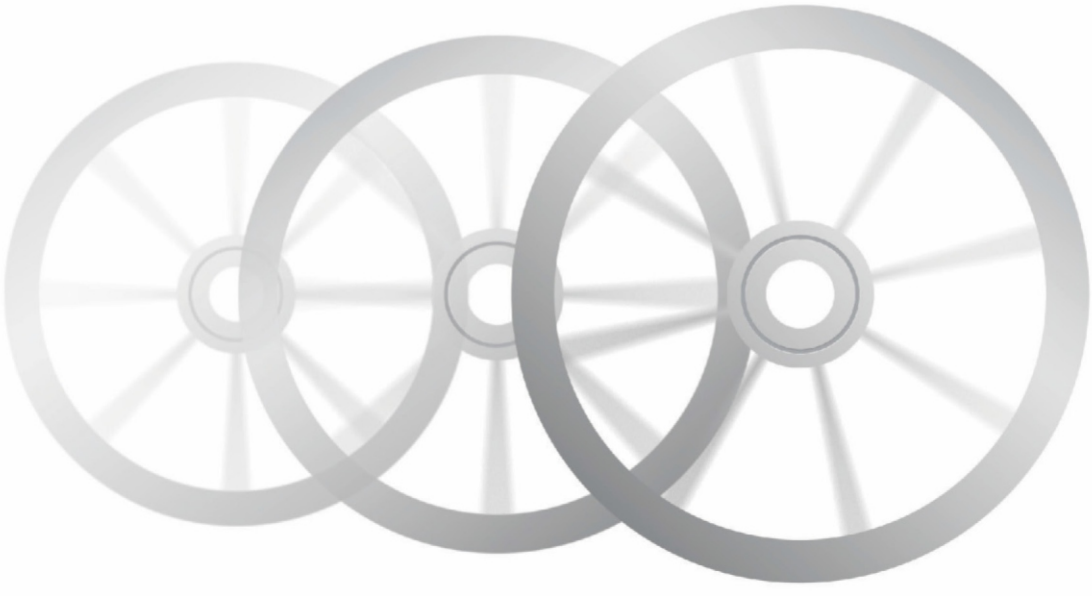

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Exhibit 1: Research design

Study focus: Understanding the factors influencing the competitiveness of automotive MSME component suppliers and identifying the ecosystem interventions required to strengthen supplier capability, operational performance, and sustainable growth.
Nature of study: Primary quantitative research
Total sample size: 21 senior industry executives
Study geography: Pan-India
Data collection period: July 2026-August 2026
Sampling method: Convenience sampling of senior executives from automotive component manufacturers responsible for business leadership, operations, manufacturing, or plant management.
Functional representation:
Respondents included CXOs (57.1%), Directors (33.3%), and Vice Presidents (Operations) (9.5%)
Business model representation and turnover range:
Micro enterprises (<₹10 crore): 9.5%
Small enterprises (₹11-₹100 crore): 61.9%
Medium enterprises (₹101-₹500 crore): 28.6%
Business coverage: Powertrain, chassis & structural components, precision machining, braking & suspension, castings & forgings, electrical & electronics, and other automotive components (including springs, wheel assemblies, rubber & engine mounts, and tooling).
Respondent experience: 15-20 years: 71.4%, 20+ years: 28.6%
Research instrument: Structured questionnaire administered to senior executives from automotive MSME supplier organisations.
Additional inputs:
Semi-structured qualitative discussions with 10 senior executives from Tier-1 and Tier-2 automotive component firms provided additional industry context and strategic perspectives.
Primary findings were triangulated using published data from ACMA, SIAM, CMIE, Government of India publications, company annual reports, and other relevant industry literature.
Research limitations: Findings are based on self-reported responses from senior executives representing automotive MSME supplier organisations across India. While the sample captures perspectives from experienced industry leaders, the findings should be interpreted as directional industry insights rather than statistically representative of the Indian automotive MSME supplier sector.

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Exhibit 2: Working capital profile

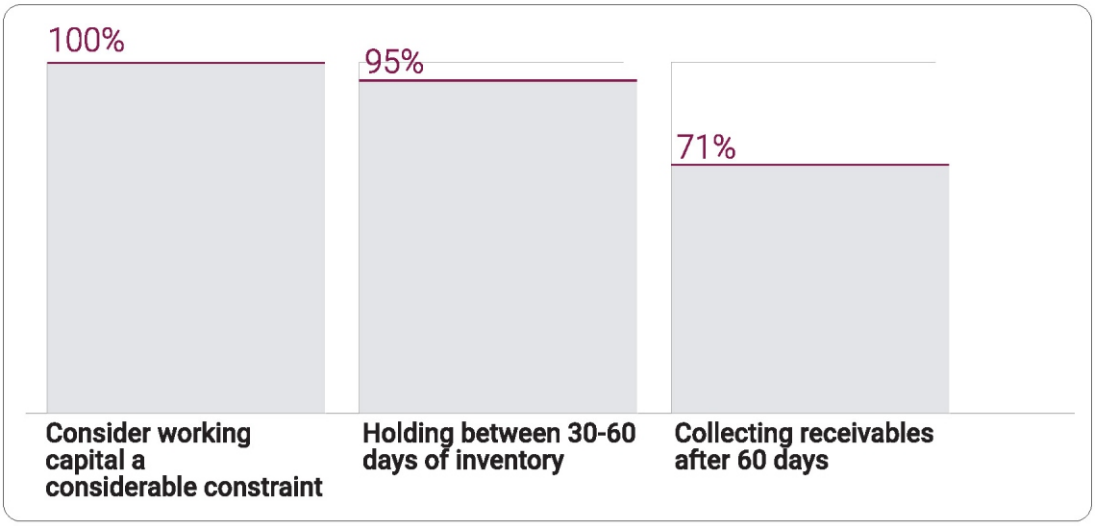
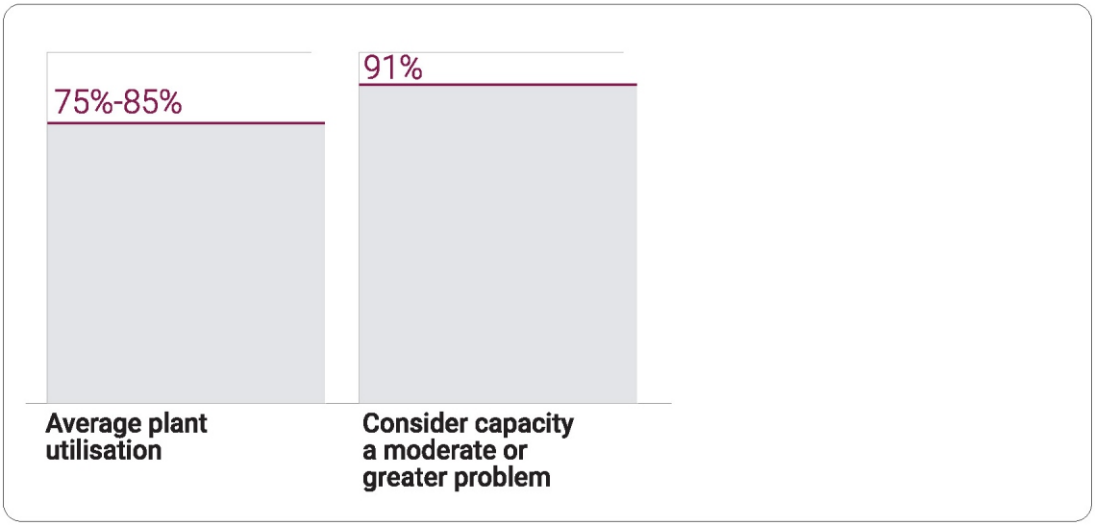


Exhibit 3: Capacity paradox



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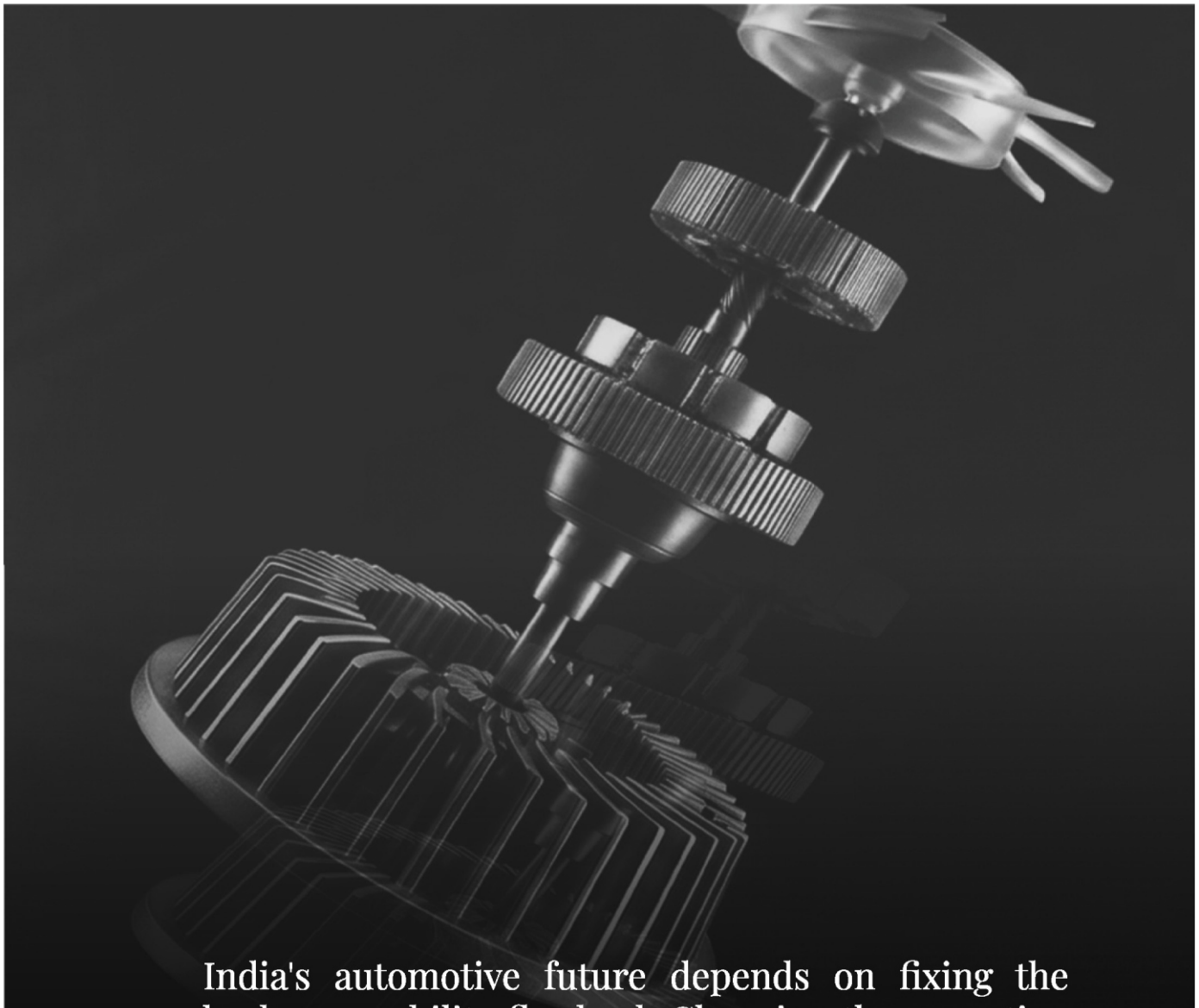

India's automotive future depends on fixing the broken capability flywheel. Changing the operating model releases investable surplus. That surplus does more than fund investment; it gives promoters the confidence to shift from survival mode to growth mode and the stability to form a credible vision. Vision, not surplus alone, is what attracts capital and serious technology partnerships. Capital, combined with vision and ecosystem collaboration, builds capabilities. Those capabilities will determine whether India merely participates in the next era of mobility – or helps define it.

Authored by



Ravindra Patki
Managing Partner
ravindra@vectorconsulting.in



Dr. Shelja Jose Kuruvilla
Head of Research & Knowledge
shelja@vectorconsulting.in

Key contributors

Tapan Mandavkar
Shubh Majumdarr (PhD)
Pawan Chawan

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FROM THE SHOP FLOOR TO GLOBAL SUPPLY CHAINS

Using India's Export Promotion Mission to convert export potential into sustainable orders

A practical perspective on the barriers to exporting and the changed support regime

Anurag Sehgal, Bharani V., Aparna Bhattacharya

India's auto-component industry turnover reached about ₹7.59 lakh crore (USD 85.9 billion) in FY2025–26, with exports reaching ₹2.13 lakh crore (USD 24 billion). Yet many smaller auto-component manufacturers continue to find direct participation in global supply chains difficult. They face high costs in finding buyers, financing export cycles, meeting standards, managing logistics and handling market risks. India's next export opportunity is not simply to sell more components overseas, but to enable a broader base of capable manufacturers to become reliable, compliant and bankable global suppliers. The Export Promotion Mission (EPM), with ₹25,060 crore through FY2030–31, can support that transition when its interventions are organised around identifiable export opportunities rather than pursued as standalone benefits.

₹7.59 lakh cr[1]	US$ 24 bn[1]	₹25,060 cr
Industry turnover | FY2025–26	Component exports | FY2025–26	EPM outlay | FY2025–26 to FY2030–31

Why exports matter

For MSME auto-component manufacturers, exporting expands markets, reduces dependence on domestic vehicle cycles, improves capacity utilisation and encourages technology, process and quality upgrades. Global automotive demand, however, is fragmented by vehicle platform, component, channel and regulation. Export success, therefore, requires selective targeting of product-market niches where a firm's cost, quality, lead time and compliance position are credible.

Before export revenue is realised, an MSME must manage several interlinked costs — buyer discovery, certification, finance, overseas stock, payment risk and bankability — making the EPM most useful when viewed across the full export journey.

[1] 'India's Automotive Sector – A Driving Force in the Country's Economy', Automotive Component Manufacturers Association of India, <https://www.acma.in/about-us.php>

Barrier 1: The market-intelligence gap



For MSMEs, the first export barrier is knowing which market to target, which buyer to approach, what standards apply and whether demand exists for a specific component.

Large suppliers manage this through export teams, data subscriptions, overseas offices and OEM relationships. Smaller firms typically rely on trade fairs, referrals and intermediaries, making discovery costly in terms of travel, samples, management time, buyer qualification and follow-up.

INSIGHT[2] can fund trade intelligence, analytics, digital knowledge systems, , capacity building, cluster-level facilitation, research and pilot interventions. For auto-component MSMEs, it can turn broad export ambition into a sharper product-market shortlist: which components to push, where to sell, what standards may apply and which buyer segments are realistic.

Practical tip! Use a Cluster lens!

Automotive manufacturing is concentrated in recognizable ecosystems such as Ludhiana, Faridabad-Manesar, Pune-Chakan, Rajkot and Hosur-Chennai. These clusters differ in product mix, export maturity and shared needs. Cluster-level diagnostics can therefore help identify common gaps in market intelligence, standards, finance and logistics for curation of tailor-made solutions.

Once priority markets and buyer categories are identified, MAS[3] can support structured engagement through fairs, buyer-seller meets, delegations and demonstrations. It can help shift MSMEs from opportunistic exhibition participation to curated buyer conversion, linked to a defined component basket, customer type and follow-up plan.

Barrier 2: The working-capital and financing trap

Auto-component production is low-margin and working-capital intensive. Materials, tooling, labour and utilities are funded before payment is received. Exports further lengthen this cycle as packaging, inland transport, customs, freight, insurance and documentation also arise before foreign receivables are realised. A profitable export order can therefore still strain liquidity. EPM's

[2] INSIGHT stands for Integrated Support for Trade Intelligence and Facilitation, and forms a part of Niryat Disha (enhancing export readiness and market competitiveness) sub-scheme under the Export Promotion Mission (EPM).
[3] MAS stands for Market Access Support and forms a part of Niryat Disha under EPM.

interest subvention support offers 2.75% per annum support on eligible pre- and post-shipment rupee export credit, capped at ₹50 lakh per MSME exporter per year.

Illustrative financing impact

Average eligible export credit	Illustrative bank rate	Gross saving at 2.75%	Benefit after annual cap
₹25 crore	9.0%	**₹68.75 lakh**	**₹50 lakh**
₹8 crore	10.0%	**₹22 lakh**	**₹22 lakh**

The benefit depends on actual credit utilisation, tenor, eligible transactions and the annual ceiling. It can improve pricing headroom but does not replace the need to map the order-level cash-conversion cycle and align credit facilities accordingly.

Barrier 3: The cost of proving compliance

In automotive supply chains, capability must be proven through testing, factory assessment, process certification, cyber-security assurance, product approval or conformity evidence. These market-entry costs are proportionately heavier for MSMEs entering a new programme or geography.

TRACE[4] is designed to partially address this cost for eligible expenditure and applicants. After the July 2026 amendment, 462 testing, inspection and certification entries – including automotive-relevant ISO 26262, TISAX, ISO 21434, AEC-Q, Australia ADR, China CCC and Taiwan VSCC – are eligible for support. Assistance is available up to 95% for micro and small enterprises and 80% for medium enterprises, subject to ceilings and a ₹50 lakh annual cap per IEC. Support is released after certification and exports linked to it.

What TRACE reimbursement can mean in practice

Year	Eligible spend	TRACE at 80%	Reimbursement after cap
1	₹62.5 lakh	₹50 lakh	₹50 lakh
2	₹62.5 lakh	₹50 lakh	₹50 lakh
3	₹62.5 lakh	₹50 lakh	₹50 lakh
4	₹12.5 lakh	₹10 lakh	₹10 lakh
Illustrative total spend: ₹2.00 crore | Potential reimbursement: ₹1.60 crore | Net cost: ₹40 lakh			

For an eligible micro or small enterprise incurring ₹40 lakh of qualifying expenditure on testing, audits and certification, assistance at 95% could reduce the net cost to ₹2 lakh, subject to the applicable ceiling, fulfilment of the prescribed conditions and approval. This can materially change compliance economics.

[4] TRACE stands for Trade Regulations, Accreditation & Compliance Enablement (TRACE). It is a support programme under EPM – Niryat Disha.

Barrier 4: The logistics penalty

For auto-component MSMEs, logistics affects credibility as much as cost. Buyers assess landed price, delivery reliability, replenishment speed, packaging, returns and service responsiveness. A supplier may be competitive at the factory gate but lose business if every urgent order requires shipment from India.

FLOW[5] treats fulfilment as shared export infrastructure. It supports overseas warehousing, fulfilment, display and market-facing infrastructure, including shared warehouses, pay-per-use models, just-in-time delivery, drop-shipping and ready-to-ship inventory. Eligible projects may receive 30% support within notified ceilings for up to three years.

For auto components, the export pathway will differ by customer segment. OEM opportunities typically require longer qualification and nomination cycles, while aftermarket and replenishment markets may offer faster entry but place greater emphasis on channel access, inventory availability, packaging and local fulfilment. For the latter, the strongest proposition may be a shared market-entry model in which export-ready suppliers pool inventory, fulfilment and local service capability in a priority aftermarket or replenishment market. This can reduce lead times, support local returns and convert trial orders into repeat business.

Barrier 5: Exploring new markets in an uncertain trading environment

Diversifying beyond traditional destinations can reduce market concentration and uncover underserved demand, but unfamiliar markets raise concerns over country risk, buyer credibility, payment channels and bank appetite. For MSMEs, the challenge is not only finding demand but making the transaction bankable.

Support for Emerging Export Opportunities strengthens trade finance in underserved markets through risk sharing by Exim Bank and National Credit Guarantee Trustee Company. It provides unconditional, irrevocable guarantees to partner banks covering 10% to 80% of transaction value, depending on risk scoring. Covered instruments include Letters of Credit (LC), LC Negotiation, LC confirmation, risk participation, stand-by LCs, Irrevocable Undertaking and Usance Payable at Sight LCs.

[5] FLOW stands for Facilitating Logistics, Overseas Warehousing & Fulfilment and is a support programme under EPM – Niryat Disha

This can expand the markets and buyers that banks are willing to support, while reinforcing the need for disciplined market entry assessment covering buyer due diligence, payment structure, credit terms and transaction economics.

Bringing the pieces together

EPM delivers the greatest value when its interventions are aligned around a clear export opportunity. To this end, market intelligence can help identify demand, MAS can enable buyer engagement, finance can support production and receivables, TRACE can reduce compliance costs, FLOW can strengthen fulfilment, and transaction-risk support can help firms enter less familiar markets.

While the sequence may vary by firm, the principle remains the same: start with a commercially viable product-market opportunity and systematically remove barriers to conversion. This is especially important for MSMEs, as export constraints are rarely isolated. What appears to be a financing challenge may stem from weak buyer qualification or certification gaps, while buyer interest may not translate into orders if firms cannot provide reliable delivered pricing or delivery timelines. Effective support should therefore work backwards from the export order, addressing the product, target buyer, standards, logistics route, and financing and payment structure required to complete the transaction.

What needs to be done next

The focus should be on building export-conversion pipelines rather than applying for individual schemes. For this, the next step should be to develop sector- and cluster-level programmes around a limited set of component families and priority markets. These programmes should combine demand validation, standards readiness, buyer engagement, export finance and fulfilment support around measurable commercial outcomes. **The output should be a cluster-level export opportunity map identifying priority component families, target markets, standards gaps, shared testing needs and potential fulfilment models**. EPM should serve as the enabling architecture for these programmes, rather than as a collection of disconnected applications.

	Action	What it involves
	Start with a diagnostic	Identify the binding constraint—market discovery, standards, buyer credibility, credit, fulfilment, payment risk or management bandwidth—by mapping products, capacity, certifications, customers, finances and logistics.
	Map product-market opportunities	Use data on demand, tariffs, standards, competitors, buyer concentration, aftermarket depth and routes to market to identify where Indian MSMEs can win.
	Sequence EPM support	Align INSIGHT, MAS, TRACE, finance, FLOW and risk-support tools around one export proposition instead of pursuing support independently.
	Develop a bankable project	Define the export problem, products, markets, firms, buyer segments, activities, costs, timelines, governance, documentation and outcomes.
	Pilot measurable models	MAS-led buyer conversion or FLOW-backed shared fulfilment pilots should have focused products, target geographies, eligibility filters, milestones and measurable outputs.
	Manage operating details	Build capacity for certification gaps, vendors, buyer outreach, pricing, credit alignment, documentation, logistics partners, reimbursement records and expenditure monitoring.
	Track commercial outcomes	Measure buyers contacted, quotations, sample approvals, certifications, credit sanctioned, fulfilment gains, export orders, reimbursements and repeat business—not only events or applications.


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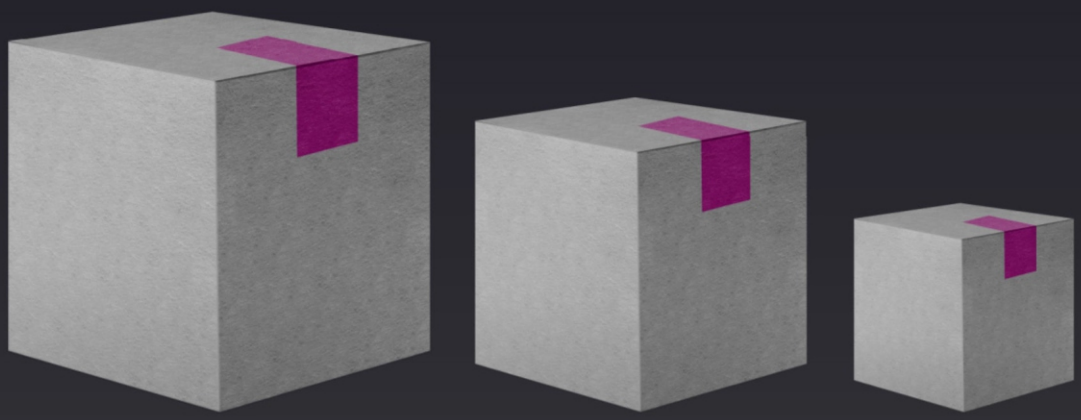

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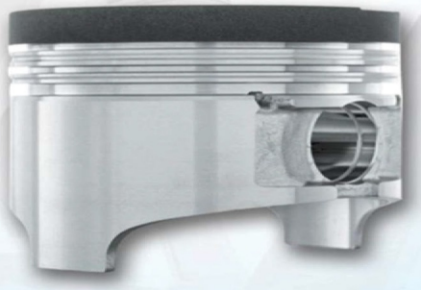





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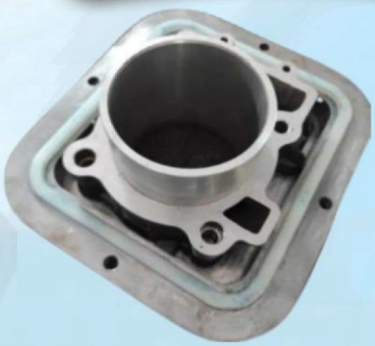

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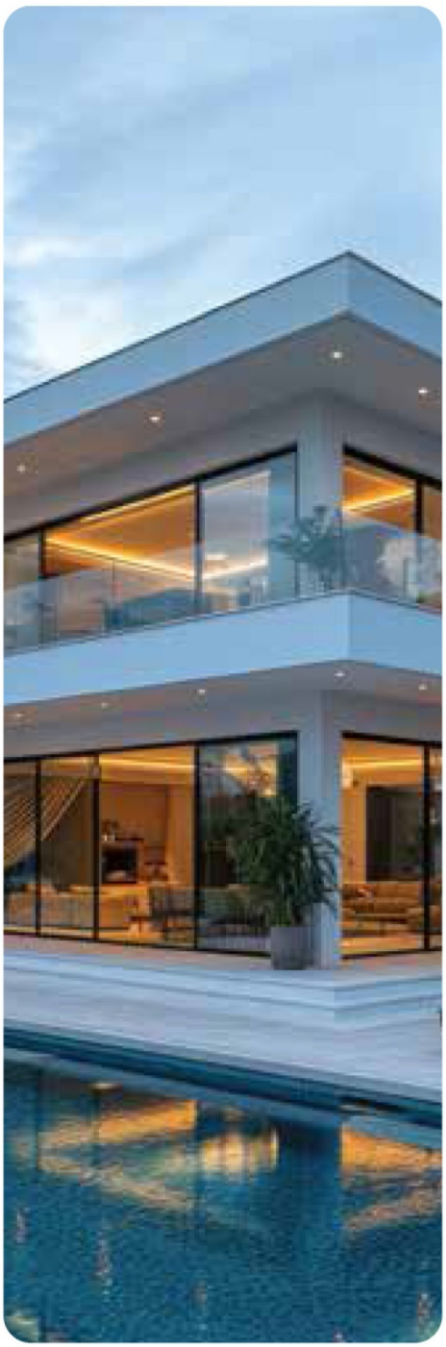



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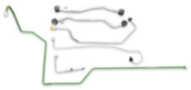

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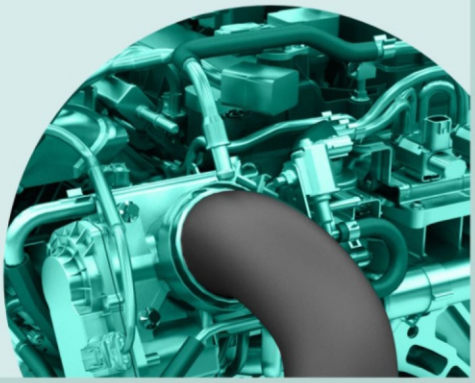

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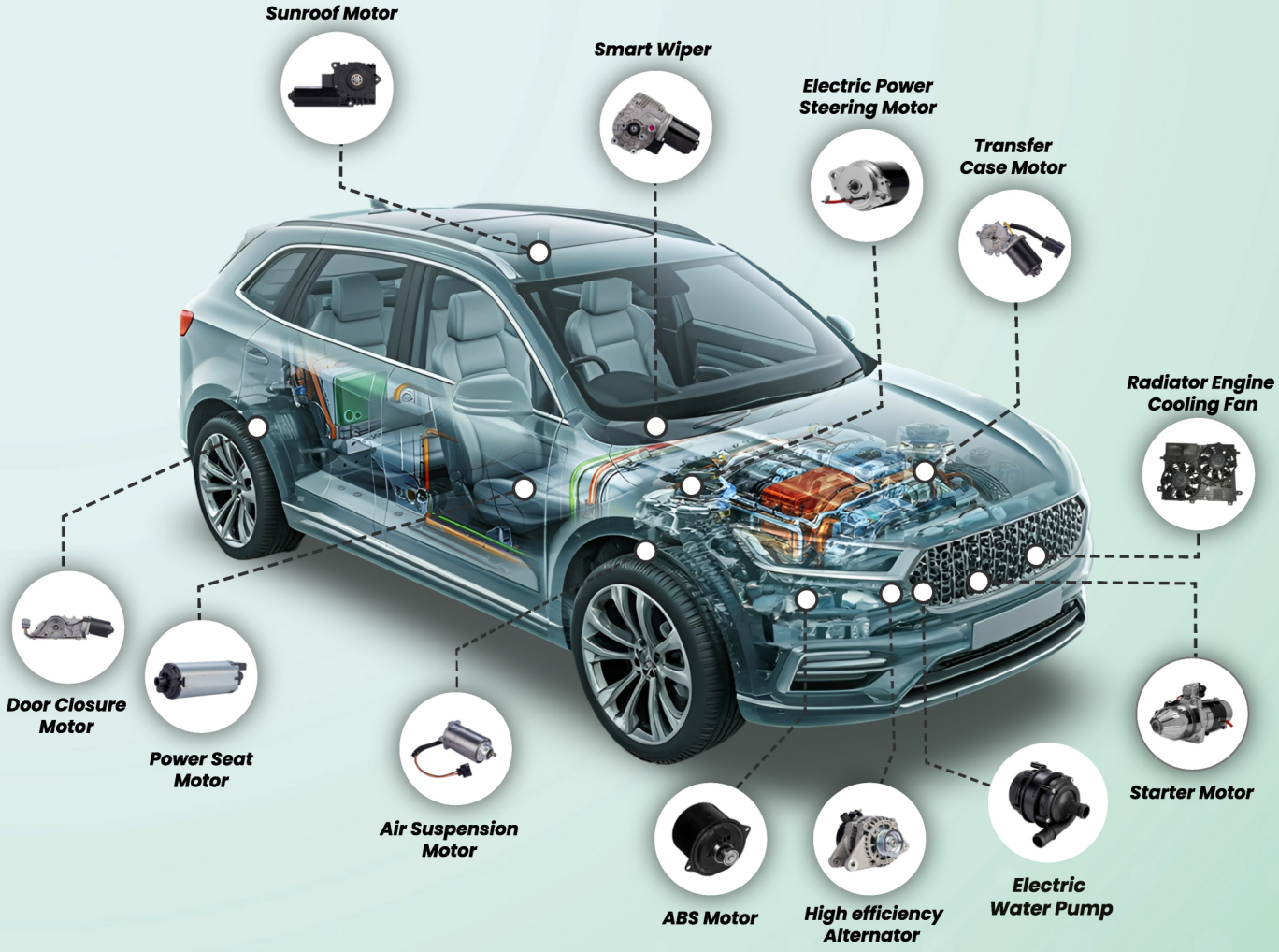

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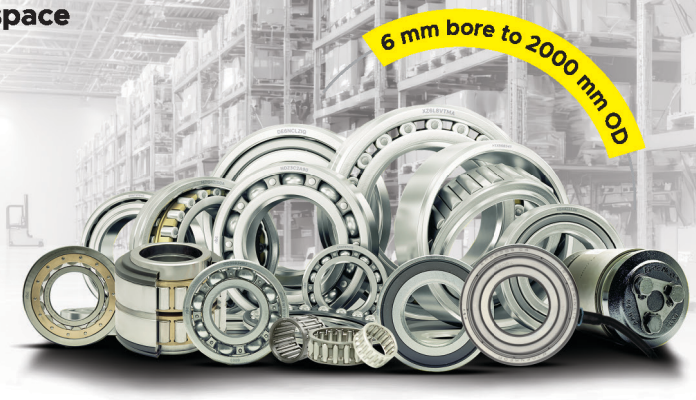

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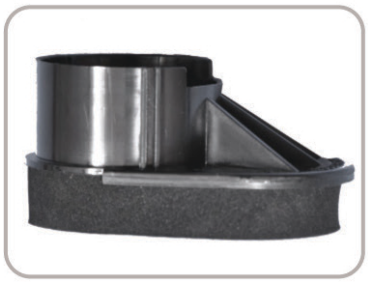

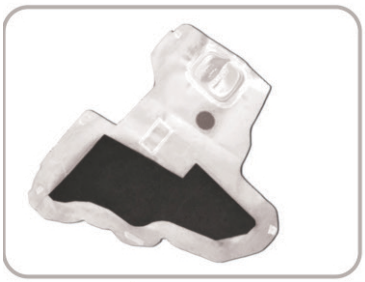





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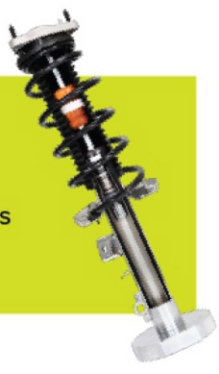

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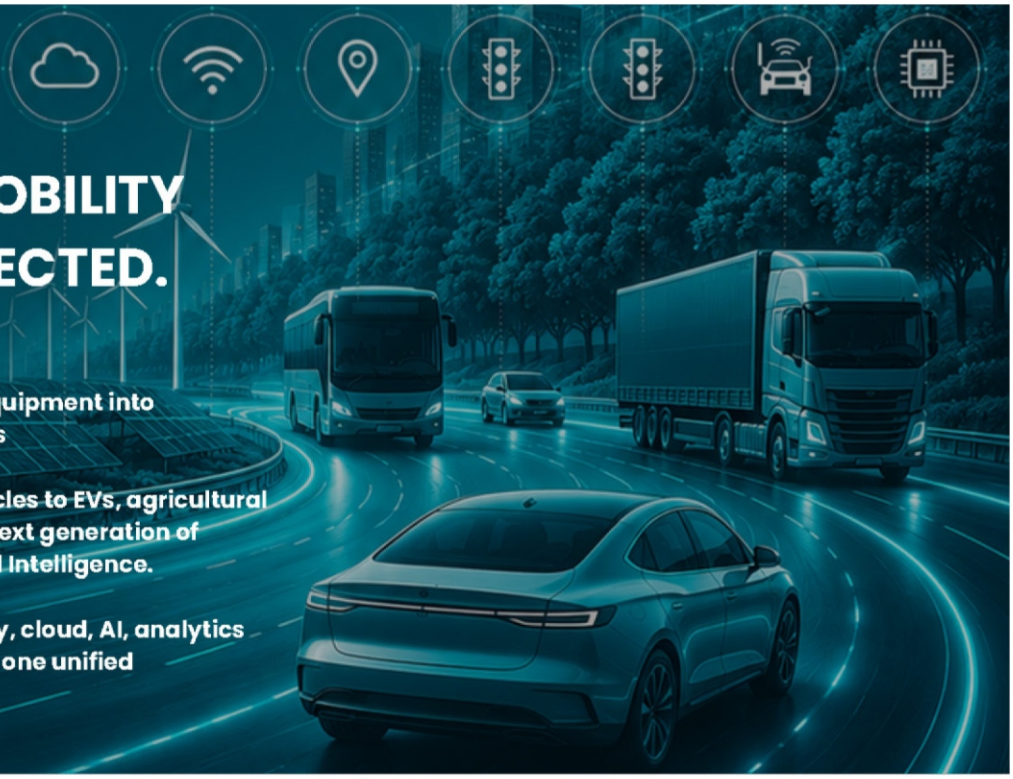

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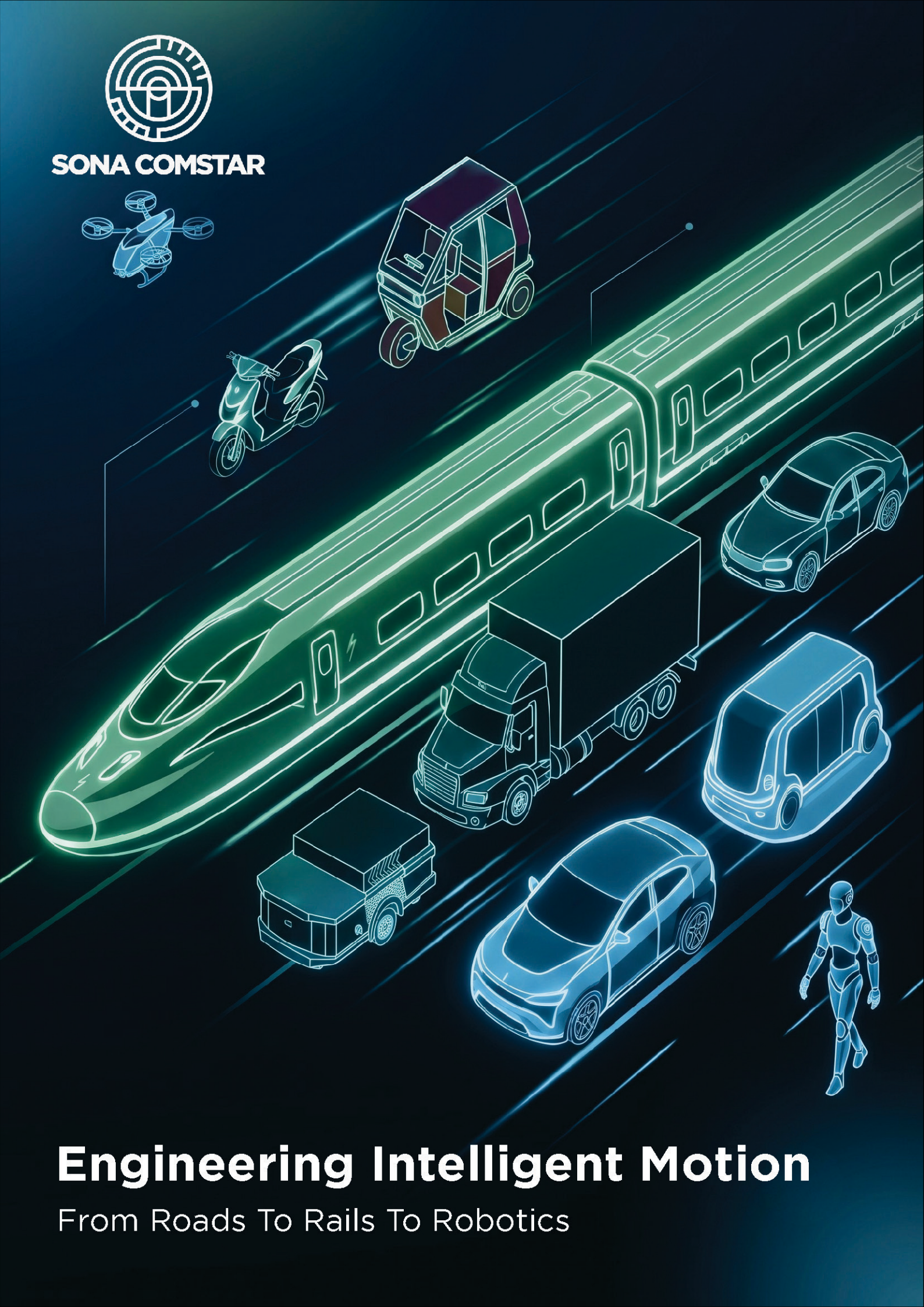

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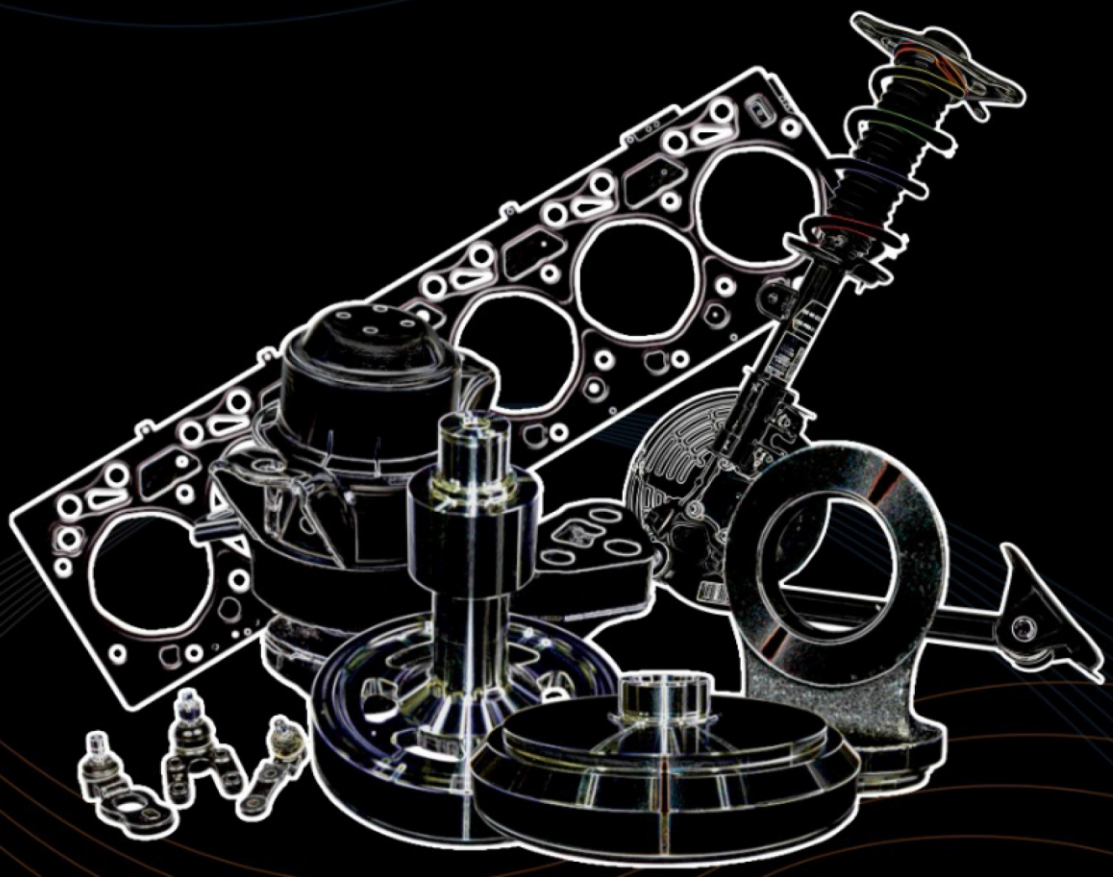

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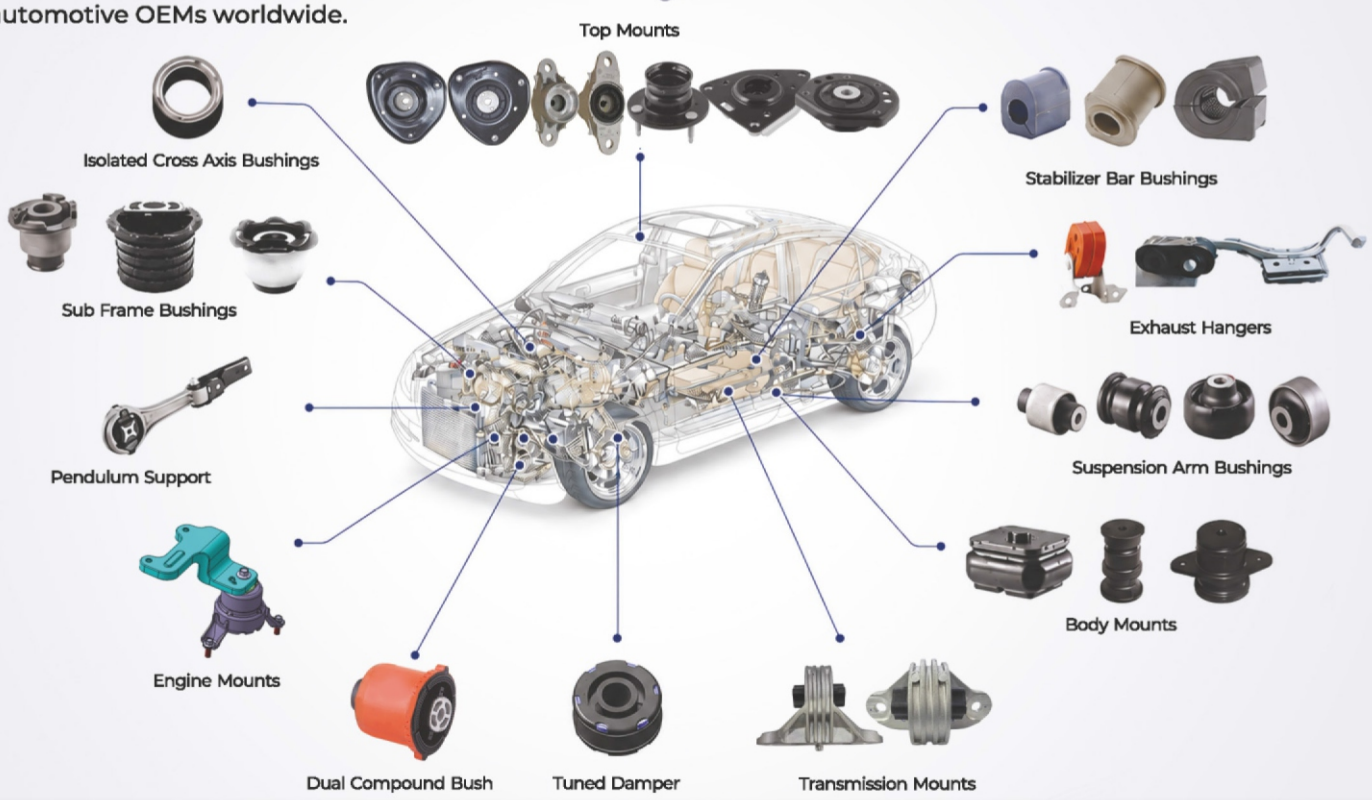

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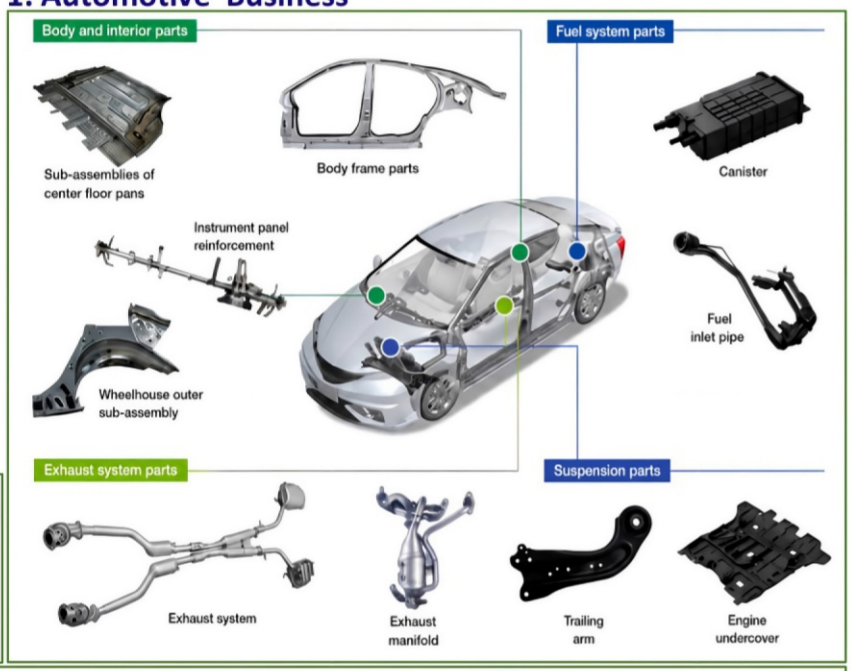
About Futaba

Futaba is a global leader in automotive parts, manufacturing equipment, and agricultural products. Our products and solutions contribute to cleaner mobility, efficient manufacturing, and sustainable agriculture.

With over 80 years of experience, we combine advanced technology with a commitment to quality, innovation, and sustainability to deliver value to customers worldwide.

Futaba Businesses

1. Automotive Business



2. Equipment and Agriculture Buisnesses

Equipment Business



Agriculture Business



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CO_2 system for greenhouse cultivation

Business activities (Futaba's value chain)



Futaba Global Manufacturing Footprint



Asia

China
1. Futaba (Tianjin) Co., Ltd.
2. Tianjin Futaba Shye Chan Mechanical Co., Ltd.
3. Guangzhou Futaba Auto Parts Co., Ltd.
4. Dongguan Futaba Metal Products Co., Ltd.

India
1. FMI Automotive Components Private Limited (FMI Manesar)
2. Futaba Industrial Gujarat Private Limited (FIG Hansalpur)
3. FMI Automotive Components Private Limited (FMI Kharkhoda)

Indonesia
1. PT. Futaba Industrial Indonesia

Japan
1. Okazaki Plant & HQ
2. Midori Plant
3. Mutsumi Plant
4. Chiryu Plant
5. Kota Plant, Engineering Center
6. Tahara Plant
7. Takahashi Plant
8. Sumi Plant
9. Futaba Kyusyu Corp. Nogata Plant
10. Futaba Kyusyu Corp. Imari Plant
11. Futaba Kyusyu Corp. Miyata Plant
12. Futaba Hiraizumi Corp.
13. Futaba General Co., Ltd.

North America

USA
1. Futaba North America Engineering & Marketing Co.
2. FIC America Corp.
3. Futaba Indiana of America Corp.
4. Futaba Industrial Texas Corp.

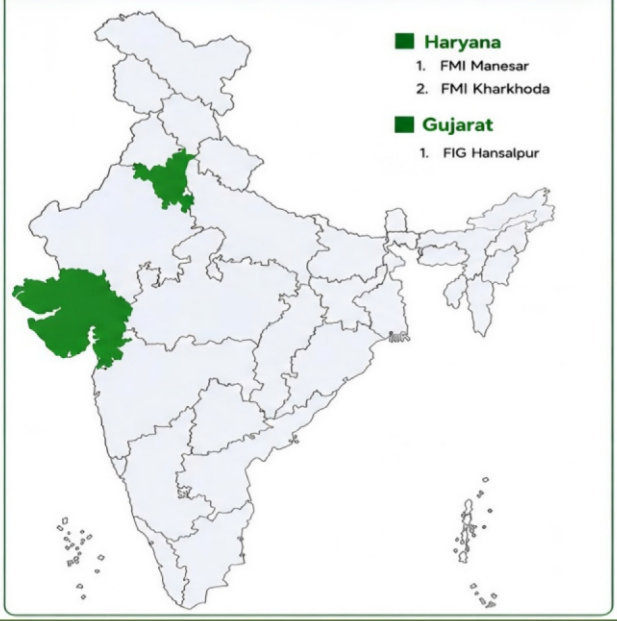
Canada
1. FIO Automotive Canada Corp.

Europe

United Kingdom
1. Futaba Manufacturing U.K., Ltd. (Burnley Plant)
2. Futaba Manufacturing U.K., Ltd. (Derby Plant)

Czech Republic
1. Futaba Czech s.r.o.

India's Manufacturing Footprint



Haryana
1. FMI Manesar
2. FMI Kharkhoda

Gujarat
1. FIG Hansalpur

Prashant Jain | Group Head (Sales and Marketing) | Prashant.Jain@fmi-automotive.co.in | www.Futabasangyo.com

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IATF 16949 : 2016
ISO 9001 : 2015
ISO 14001 : 2015
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- MILITARY TANKS
- GENERAL INDUSTRY

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- In-house ceramic core manufacturing facility.
- In-house NABL approved Facilities.
- In-house NADCAP approved Facilities.
- In-house X-ray (Radiography) facility.
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- Advanced quality, 3D Scan, 3D CMM, Layout Inspections, Simulation Software etc.

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- STATE-OF-THE-ART FACILITIES
- WORLD-CLASS QUALITY STANDARDS
- GLOBAL CUSTOMER TRUST

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Part Wall Thickness: 1.0–2.0 mm

Aluminium Melting Furnace (Make: Silarcb)



Capacity: 100 kg

Digital Radiography (Make: GE, USA)



450 KV X-Ray system with CR workstation

Hot Isostatic Pressing-HIP (Make: AIP, USA)



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CERTIFICATIONS

IATF 16949:2016 / EN 9100:2018 / ISO 45001:2018 / ISO 17025:2017 / ISO 14001:2015 / ISO 13485:2016 / ISO 9001:2015 / NADCAP-HT / NADCAP-NDT

RECOGNITIONS & AWARDS

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- ★ ICI Casting Contest Award 2014, USA.
- ★ SAME Gold Medal 2014 (ISRO).
- ★ Type Approval Certificate for Aerospace Castings–LCA, Tejas.
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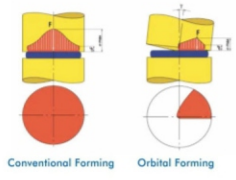
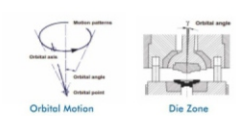
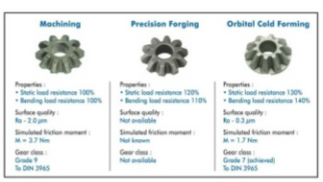
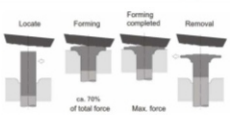

Conventional Forming Orbital Forming


Orbital Motion Die Zone





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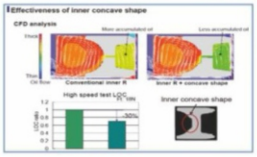
- Design and Manufacture in collaboration with NPR, Japan
- Advanced stage of validation of US EPA - CAFÉ norms for fuel efficiency with higher performance ringpacks

Crank pins for 2 wheelers









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- CrN - Porus & Columnar for Compression Rings
- CrN - Dense & Columnar for Oil rings
- Alloyed PVD of Cr - B - N improves Scuff Resistance by 18 ~ 22 MPa
- Multi-layered Cr - B - N PVD for Scuff Resistance > 22 Mpa

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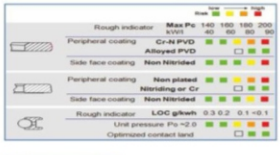
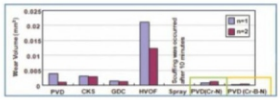
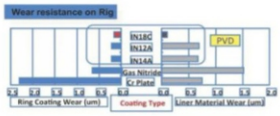
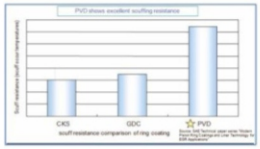
Thinner Rings through innovative material re-engineering - All Steel Pack

- Reduced contact area, gap and chamfer
- Reduced Friction
- Reduced Blow-by & LOC with specially coated Oil Rings









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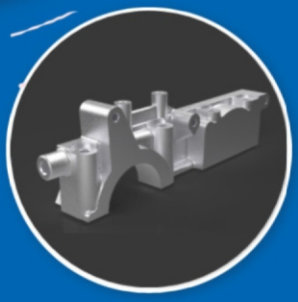

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Major Forthcoming Regional Activities 2026-27

Month / Year	Northern Region	Location
Oct-26	**Manufacturing Olympiad 2026-27** Hansraj Sarma | +91 7060508867 | hansraj.sarma@acma.in	Punjab & Himachal Pradesh, Delhi NCR & Rajasthan, Uttarakhand
Oct-26	**Conference on DPDP Act** Hemant Kumar | +91 8860791948 | hemant.kumar@acma.in	Delhi NCR
Nov-26	**Conference on 'Cybersecurity in the Era of AI'** Hansraj Sarma | +91 7060508867 | hansraj.sarma@acma.in	Delhi NCR
Nov-26	**AMF Tech Show with a Leading Tier-1** Mayank Nigam | +91 9711159124 | mayank.nigam@acma.in	Delhi NCR
Dec-26	**12th Kaizen Contest** Jairaj Kumar |+91 9873479790 | jairaj.kumar@acma.in	Delhi NCR & Rajasthan, Uttarakhand
Jan-27	**DARE 'Symposium on Defence & Automotive for Resilient Ecosystems'** Mayank Nigam | +91 9711159124 | mayank.nigam@acma.in	New Delhi
Feb-27	**9th PoKa YoKe & 13th SMED Contest** Jairaj Kumar |+91 9873479790 | jairaj.kumar@acma.in	Delhi NCR & Rajasthan
Feb-27	**3rd T-10 Cricket Tournament** Hemant Kumar | +91 8860791948 | hemant.kumar@acma.in	Delhi NCR

Month / Year	Eastern Region	Location
Sep-26	**One Day Program on Time Management & Critical Thinking** Rahul Kumar |+91 93348 18110| rahul.kumar@acma.in	Jamshedpur
Oct-26	**Program on Capability Building for Business Growth** Vadivelan Gounder |+91 9931112596| vadivelan.gounder@acma.in	Jamshedpur
Nov-26	**Workshop on Operations Excellence Foundation** Rahul Kumar |+91 93348 18110| rahul.kumar@acma.in	Jamshedpur
Dec-26	**3rd Aftermarket Show** Vadivelan Gounder |+91 9931112596| vadivelan.gounder@acma.in	Patna
Dec-26	**14th Regional Kaizen Competition** Vadivelan Gounder |+91 9931112596| vadivelan.gounder@acma.in	Jamshedpur
Jan-27	**6th Regional Competition on Poka-Yoke** Vadivelan Gounder |+91 9931112596| vadivelan.gounder@acma.in	Jamshedpur
Feb/Mar-27	**4th Regional Cricket Tournament** Vadivelan Gounder |+91 9931112596| vadivelan.gounder@acma.in	Jamshedpur
Mar-27	**Safety Convention: Accelerating Safety Excellence in Automotive Manufacturing** Rahul Kumar |+91 93348 18110| rahul.kumar@acma.in	Jamshedpur

Month / Year	Western Region	Location
Nov-26	**MILES 2026: Mobility & Integrated Logistics Solutions Symposium** Samarpita Goswami |+91 8420894749 | samarpita.goswami@acmamf.in	Pune
Nov-26	**OEM Interaction** Ashwini Kulkarni | +91 9923602443 | ashwini.kulkarni@acma.in	Pune
Nov-26	**13th Zonal Kaizen Competition** Alok Pawar |+91 9637125249 | alok.pawar@acma.in	Gujarat
Dec-26	**13th Invitational Golf Tournament** Ashwini Kulkarni | +91 9923602443 | ashwini.kulkarni@acma.in	Pune
Dec-26	**17th Regional Kaizen Competition & Six Sigma Competition** Alok Pawar |+91 9637125249 | alok.pawar@acma.in	Pune
Jan-27	**9th Indoor Games Competition** Manish Singh | +91 98233 82596 | manish.singh@acma.in	Pune
Jan-27	**2nd ACMA WR Cricket Tournament** Alok Pawar |+91 9637125249 | alok.pawar@acma.in Manish Singh | +91 98233 82596 | manish.singh@acma.in	Pune
Feb-27	**8th Best Practices Competition** Alok Pawar |+91 9637125249 | alok.pawar@acma.in	Gujarat
Feb-27	**18th Annual HR Summit** Manish Singh | +91 98233 82596 | manish.singh@acma.in	Pune
Mar-27	**11th Best Practices Competition & 7th Best HR Practices** Alok Pawar |+91 9637125249 | alok.pawar@acma.in	Pune

Month / Year	Southern Region	Location
Oct-26	**STEER South: The Largest Automotive Aftermarket Gathering in South India** Manikandan G |+91 97313 04333| gmani@acma.in	Chennai
Nov-26	**Future of Mobility Expo in collaboration with DAIMLER India Commercial Vehicles** Chris Saravanan | +91 9789808994 | saravanan.mv@acma.in	Chennai
Dec-26	**Supplier meet with a Leading Tier 1** Manikandan G |+91 97313 04333| gmani@acma.in	Chennai
Dec-26	**Technology Expo with VINFAST** Chris Saravanan | +91 9789808994 | saravanan.mv@acma.in	Chennai
Dec-26	**ACMA SR Regional Kaizen Contest** Manikandan G |+91 97313 04333| gmani@acma.in	Chennai
Jan-27	**3rd Edition of ACMA Industry Transformation Summit** Eniyan T | +91 63833 03298 | eniyan.t@acmamf.in	Bangalore
Feb-27	**ACMA SR SMED & Poka Yoke Competition** Harshita R |+91 99725 40404 | harshita.r@acmamf.in	Bangalore
Mar-27	**4th Edition of Automotive Women Entrepreneur and Employee Summit (AWESUM)** Sumathi D | +91 99621 12050 | sundarathammal.d@acma.in	Chennai
Mar-27	**Exclusive Interaction with a Leading OEM** Chris Saravanan | +91 9789808994 | saravanan.mv@acma.in	Chennai

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1st Edition

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09:30 AM onwards

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- Engage with Government & Defence Leaders
- Collaborate. Innovate. Grow.
- Showcase Capabilities & Technologies
- Unlock New Opportunities & Partnerships

KEY HIGHLIGHTS

- Keynote addresses by eminent leaders
- Panel discussions with industry, government & defence experts
- Insightful knowledge partner presentation
- Exhibition & business potential platform
- Networking lunch & interaction with stakeholders

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- Supply Chain & Logistics Leaders
- Packaging Companies
- Transport & Logistics Providers
- Infrastructure & Warehousing Firms
- Insurance & Risk Managers
- Technology Providers
- Government & Policy Stakeholders

KEY OBJECTIVES

- INDUSTRY INSIGHTS
- BEST PRACTICES
- POLICY IMPACT
- COST & EFFICIENCY
- STAKEHOLDER COLLABORATION
- FUTURE-READY NETWORKS

FOCUSED DISCUSSION

- PACKAGING & TRANSPORTATION
- INFRASTRUCTURE FOR FUTURE MOBILITY

INDUSTRY PARTNERSHIP OPPORTUNITIES

PRINCIPAL PARTNER Exclusive Association	₹7.50 Lakh + GST
STRATEGIC PARTNER Limited to 2 Partners	₹5.00 Lakh + GST
INTEGRATED LOGISTICS SOLUTIONS PARTNER Transportation | Packaging | Risk & Insurance Infrastructure | Digital Logistics & Visibility	₹3.00 Lakh + GST
SUSTAINABLE LOGISTICS PARTNER Exclusive Association	₹2.00 Lakh + GST
SESSION PARTNER Associate your brand with a key session	₹1.50 Lakh + GST
NETWORKING PARTNER Networking Lunch / Tea Partner	₹1.00 Lakh + GST
MILES SOLUTION SHOWCASE Display your solutions to the right audience	₹75,000 – ₹1.00 Lakh + GST

*Exclusive categories | Limited opportunities available

KEY BENEFITS FOR PARTNERS

- Brand visibility across event collateral & communication
- Complimentary delegate registrations
- Opportunity for panel / speaking slot (subject to curation)
- Direct access to automotive decision-makers
- Solution showcase / display opportunity
- Networking with industry leaders & ecosystem partners
- Company profile & social media visibility
- Post-event visibility & engagement

RSVP: 8420894749 | SAMARPITA.GOSWAMI@ACMAMF.IN

ACMA
(Southern Region)

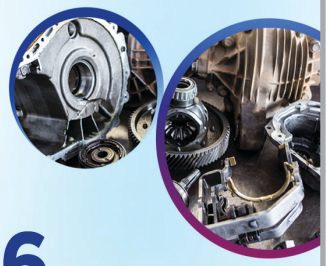
Scan to Register

STEER SOUTH

www.acma.in

THE LARGEST AUTOMOTIVE AFTERMARKET GATHERING IN SOUTH INDIA





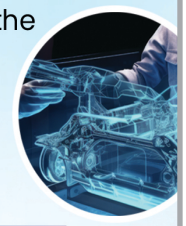
9th October 2026

Venue - Residency Tower, Chennai

AUTOAFTER 2026

SAFE | TECH | EMPOWER & ENGAGE | REACH

The four pillars Safe, Tech, Empower & Engage, Reach represents the future roadmap of the automotive aftermarket



CONFERENCE PROGRAMME

OPENING KEYNOTE

THE FUTURE OF INDIA'S AUTOMOTIVE AFTERMARKET

PANEL DISCUSSION

SAFE & TECH (FUTURE-READY AFTERMARKET: BUILDING SAFER MOBILITY THROUGH TECHNOLOGY)

FIRESIDE CHAT

EMPOWER & ENGAGE (LEADERSHIP CONVERSATION: WINNING CUSTOMER TRUST IN THE NEW MOBILITY ERA)

PANEL DISCUSSION

REACH (EXPANDING MARKET REACH: NEW CHANNELS, NEW CUSTOMERS, NEW OPPORTUNITIES)







The exhibition will facilitate B2B networking, product launches, live demonstrations, and business interactions with OEMs, distributors, retailers, workshops, fleet operators, and technology providers.



For more details:

Mr Manikandan G, M: +91 97313 04333 | E: gmani@acma.in



NOTES

ACMA

Explore and enhance your exports potential at the Joint **India Pavilion** as an exhibitor, with **ACMA** at the following shows:

IAA Hannover
15-20 September, 2026
Contact: sapna.vijh@acma.in

****Automechanika Dubai**
10-12 November, 2026
Contact: rupender.kaushik@acma.in

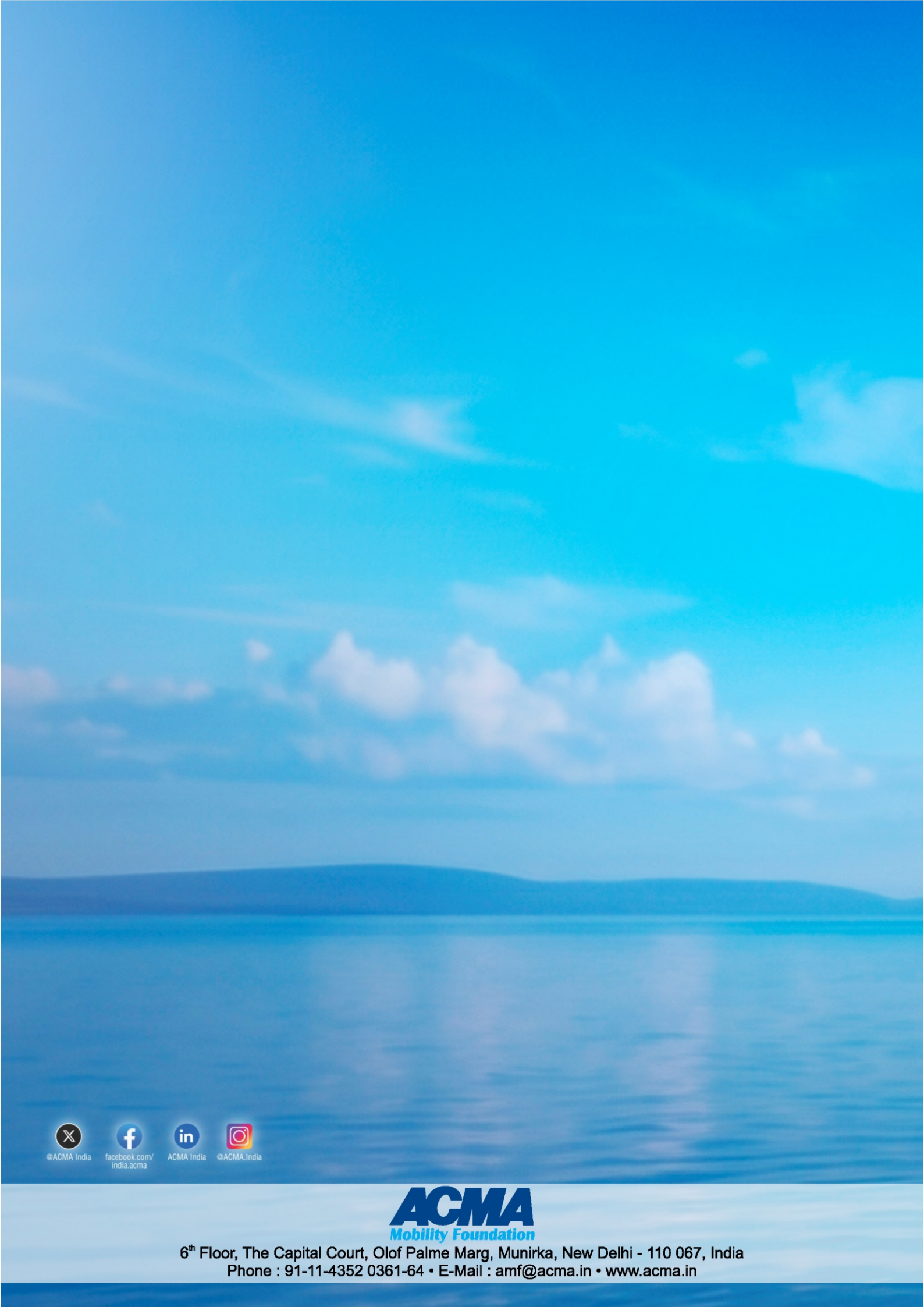
***AAPEX USA**
3-5 November, 2026
Contact: pooja.sharma@acma.in

****Automechanika Shanghai**
2-5 December, 2026
Contact: athira@acmamf.in

****Automechanika Istanbul**
24-27 March, 2027
Contact: vaibhav.sharma@acma.in

*Disbursement of Govt. subsidy post event, subject to criteria fulfilment, as per the scheme guidelines

**Applied for Govt. subsidy.



ACMA
Mobility Foundation
6th Floor, The Capital Court, Olof Palme Marg, Munirka, New Delhi - 110 067, India
Phone : 91-11-4352 0361-64 • E-Mail : amf@acma.in • www.acma.in