Winning in Auto Supplier GVC

Bain perspectives

24 January 2024

BAIN & COMPANY

Introductions

Mahadevan Seetharaman
Partner, Bengaluru

- 16+ years of consulting experience
- Leader in Bain India's Automotive practice
- Deep expertise in Strategy and transformation across auto related topics: EVs, Batteries, CV commercial excellence, Auto-components

Amit Shah
Partner, Mumbai

- 15+ years of industry and consulting experience
- Operating experience in automotive component manufacturing (fuel injection systems, transmissions)
- Deep experience in growth strategy, performance improvement, sales acceleration

Introducing Bain

We are one of the world's top management consulting firms; serving clients in India for ~30 years

We were founded in **1973** with a longstanding commitment to deliver results, not reports

Today, we work as one global team with **18,000 employees** across **64 cities** in **39 countries**

We've worked with over 7,300 companies, including **63% of the Global 500**

We have a **scale India presence: 3 offices (Delhi, Mumbai, Bangalore), ~1000 consultants**, deep experience across industries (Automotive, Consumer, Retail, Private Equity, Tech, Energy, Chemicals)

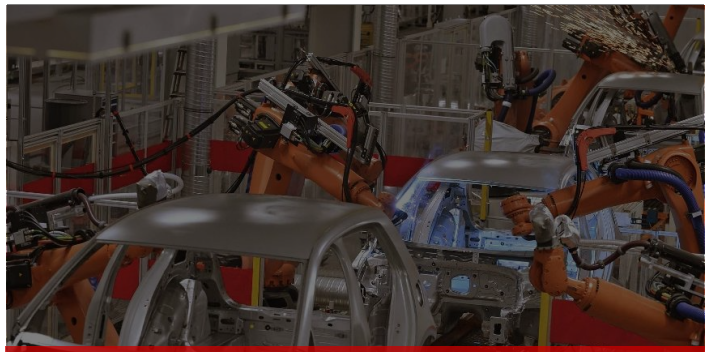
What differentiates us | Thought Leadership

Sharp point of view on key trends shaping the auto component industry

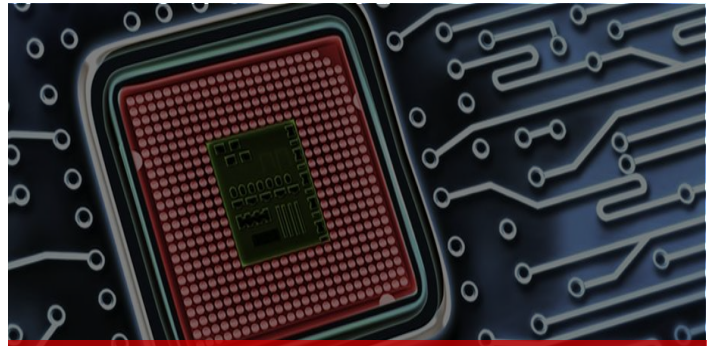
India EV in 2030: Opportunity and Imperatives

Mobility Endgame: Disruptions on Automotive industry

Automotive Growth Outlook Scenarios for OEMs, Auto Suppliers



Automotive Powertrain Technology Outlook



Automotive Platform Architecture Evolution

Sustainability Themes and Opportunity for Auto Suppliers

What differentiates us | Strategic, Commercial & Operational Excellence experience

Extensive experience supporting auto component players on their most critical topics

Strategy

Strategy review & development
Ambition, where-to-play how-to-win

Innovation/ R&D strategy
Revised R&D budget, Identify growth adjacencies

Product Portfolio Planning
Portfolio strategy with key choices – keep, scale, divest

EV ecosystem participation
Evaluation of choices across EV value chain

M&A and Divestitures
Screening, Diligence, Value Creation Plan, Divestitures

Operational Excellence

Direct and Indirect procurement
Significant spend reduction, increased transparency

D2X/ Product Complexity
Cost-optimized product design

Make/buy & global footprint strategy
In-sourcing vs outsourcing, footprint optimization – location, consolidation, disposal

Plant Performance
Improvement in operational KPIs

Supply Chain
Optimized material flow, inventory

Commercial Excellence

Bid Management, Costing and Pricing
RFQ prioritization, bid strategy

Contracts
Negotiation strategy, contract re-design

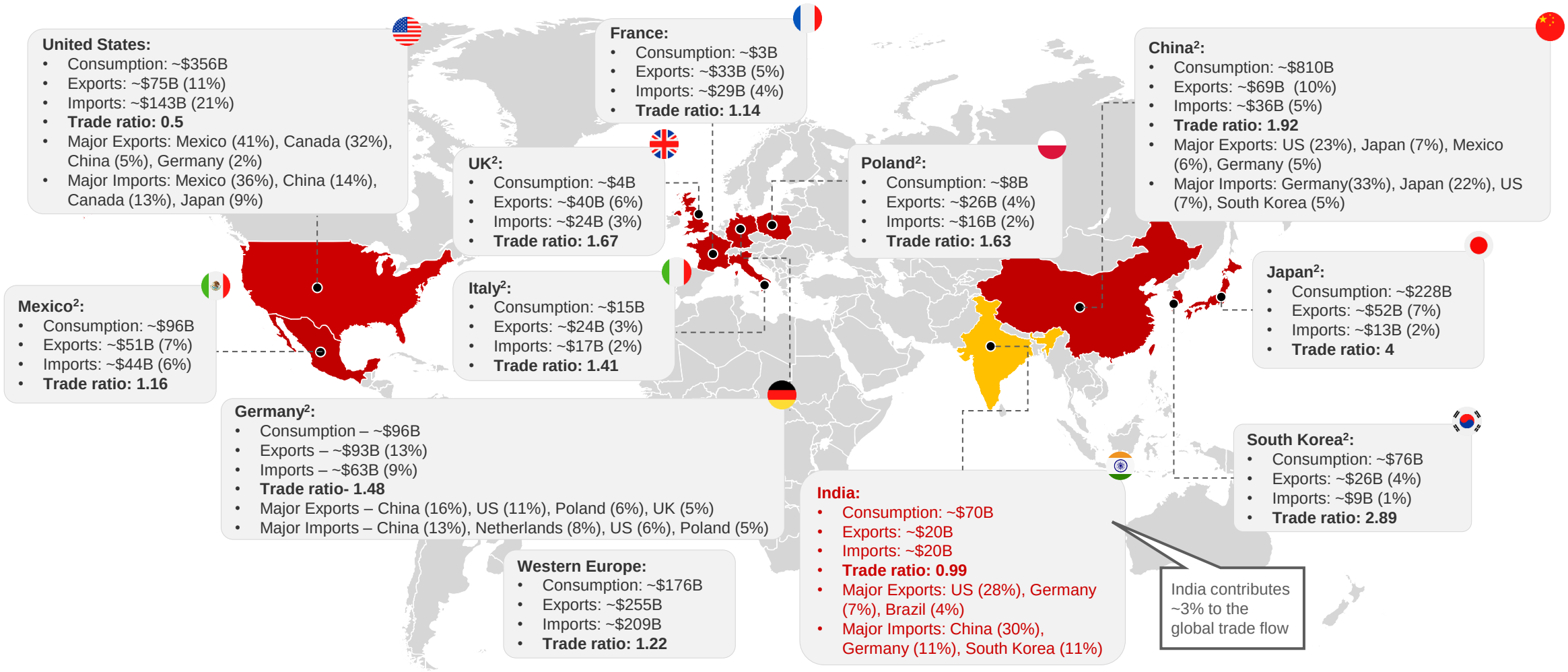
Change and claims management
Increased efficiency in claim preparation, claim prioritization framework

Program Portfolio Management
Identify profitability pattern - product-OEM-plant combinations for maximum profitability

Commercial Operating Model
Re-design operating model for commercial and employee excellence

Context: Auto components GVC

India exports $20B, ~3% of global exports



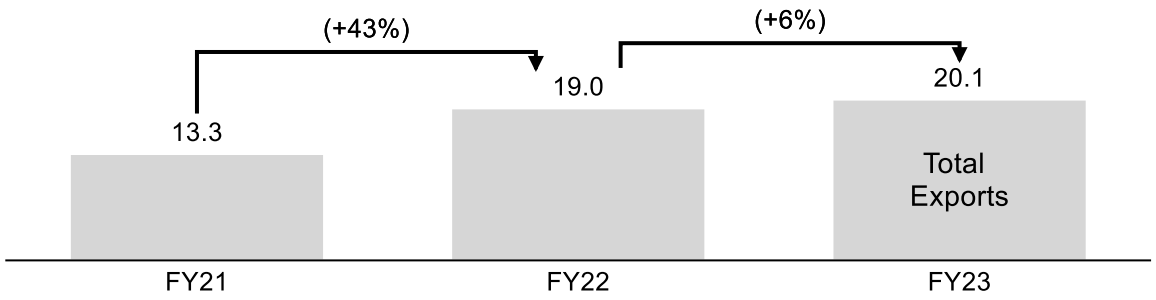
Note: 1. All data points are for CY 2022; 2. Forecasted numbers for CY 22, 3. Top 10 geos by export
Source: S&C Capital - Using the C293 SIEC code for Parts and accessories of motor vehicles

India's GVC play | ~$20B exports to North America, Europe

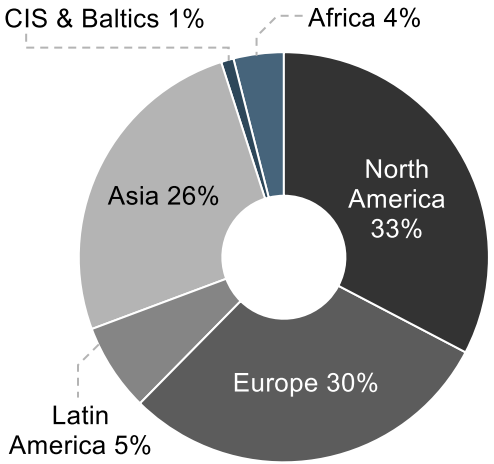
Equivalent imports from China, Germany and South Korea

~$20B Exports (~3% of global trade flow) primarily to North America, Europe

Total exports $ Bn



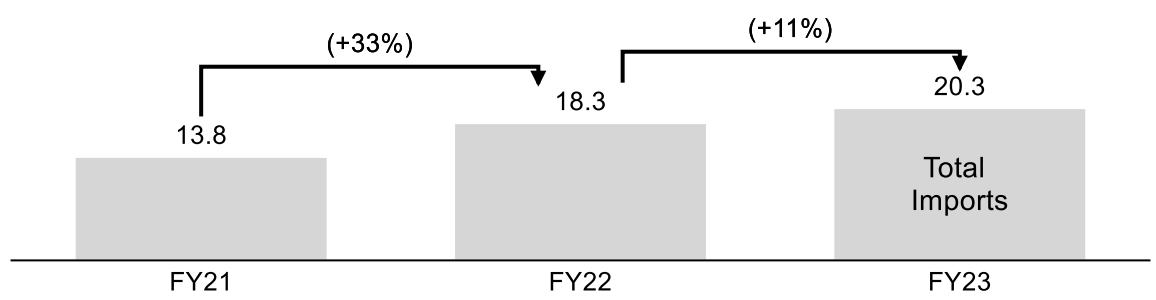
Share of exports by region / country, FY23



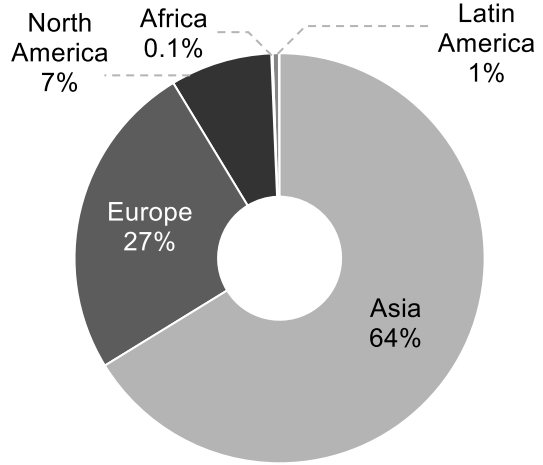
Top 10 Countries	Share of Exports	Value ($B)
US	28%	5.7
Germany	7%	1.5
Brazil	4%	0.8
Turkey	4%	0.8
UK	3%	0.7
Italy	3%	0.7
Bangladesh	3%	0.7
Thailand	3%	0.7
Mexico	3%	0.5
UAE	2%	0.5

~$20B imports primarily from China (~30%), Germany and South Korea

Total imports $ Bn



Share of imports by region / country, FY23

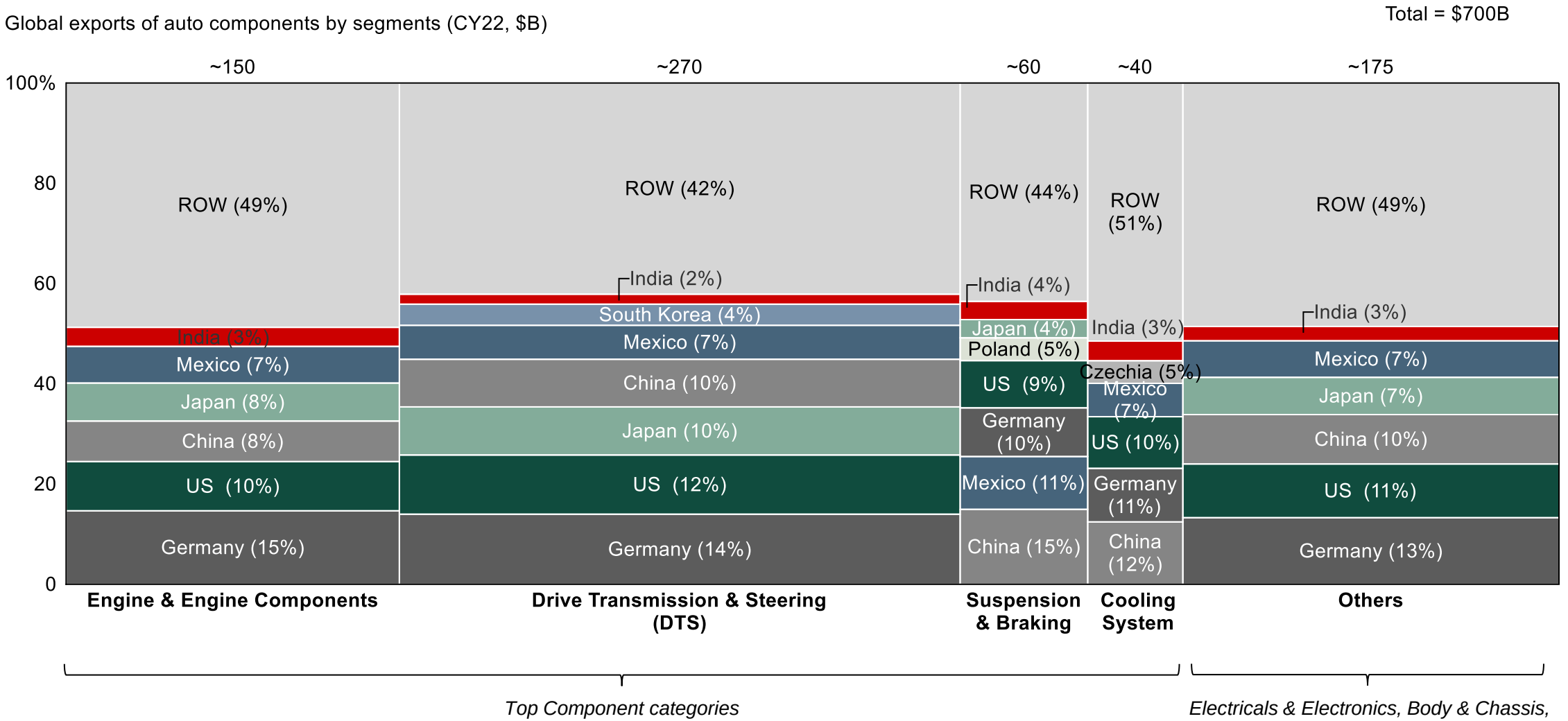


Top 10 Countries	Share of Imports	Value ($B)
China	30%	6.1
Germany	11%	2.1
South Korea	11%	2.1
Japan	9%	1.9
US	7%	1.5
Thailand	6%	1.2
Singapore	4%	0.9
Italy	3%	0.7
Czech Rep.	2%	0.4
UK	2%	0.4

Note: FY23 figures for region/country estimated basis 9M FY23 data
Source: ACMA

GVC exports by segment

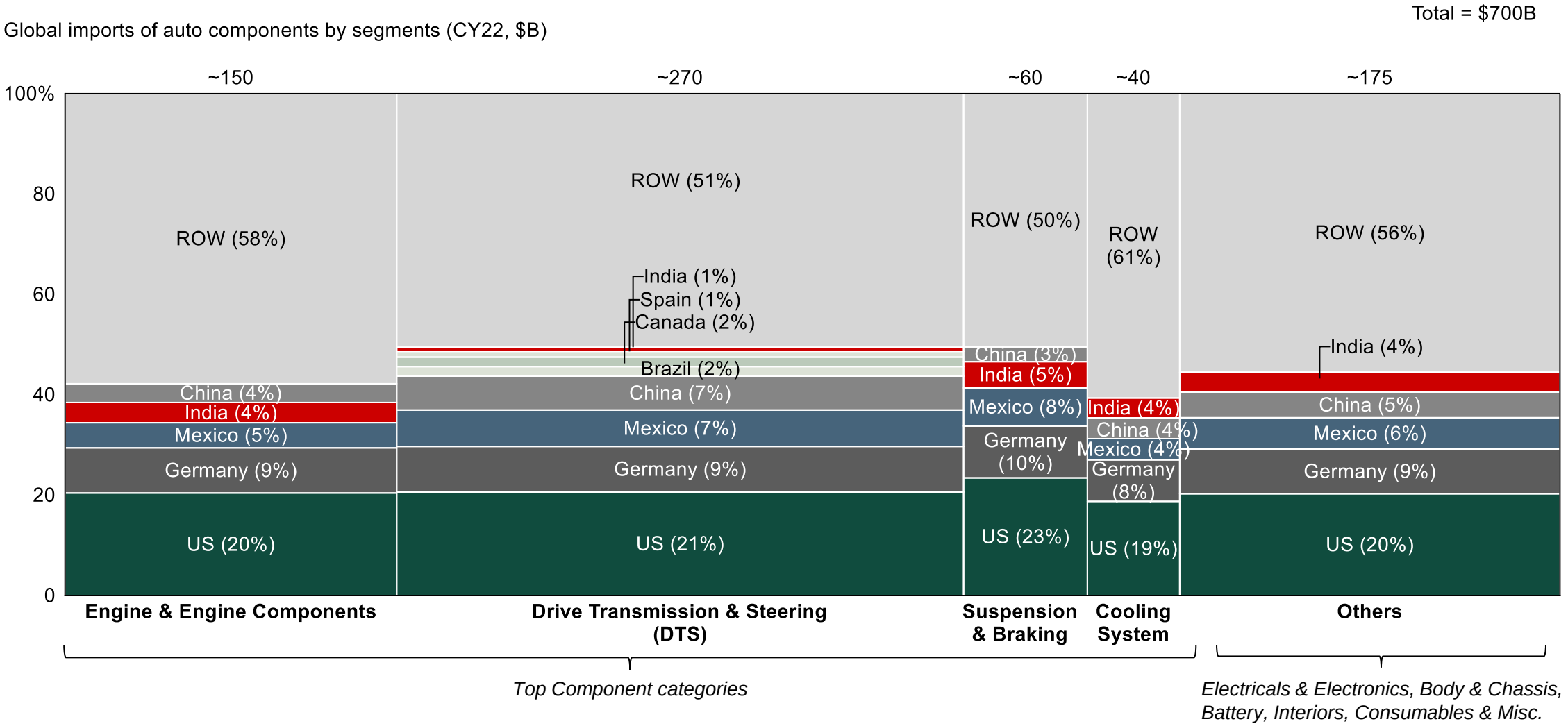
India's export share varies between 2-4% across top component categories



Note: ROW: Rest of the World; Total export and import numbers may vary vis-à-vis ACMA basis coverage of HSNs mapped;
Source: Trademap

GVC imports by segment

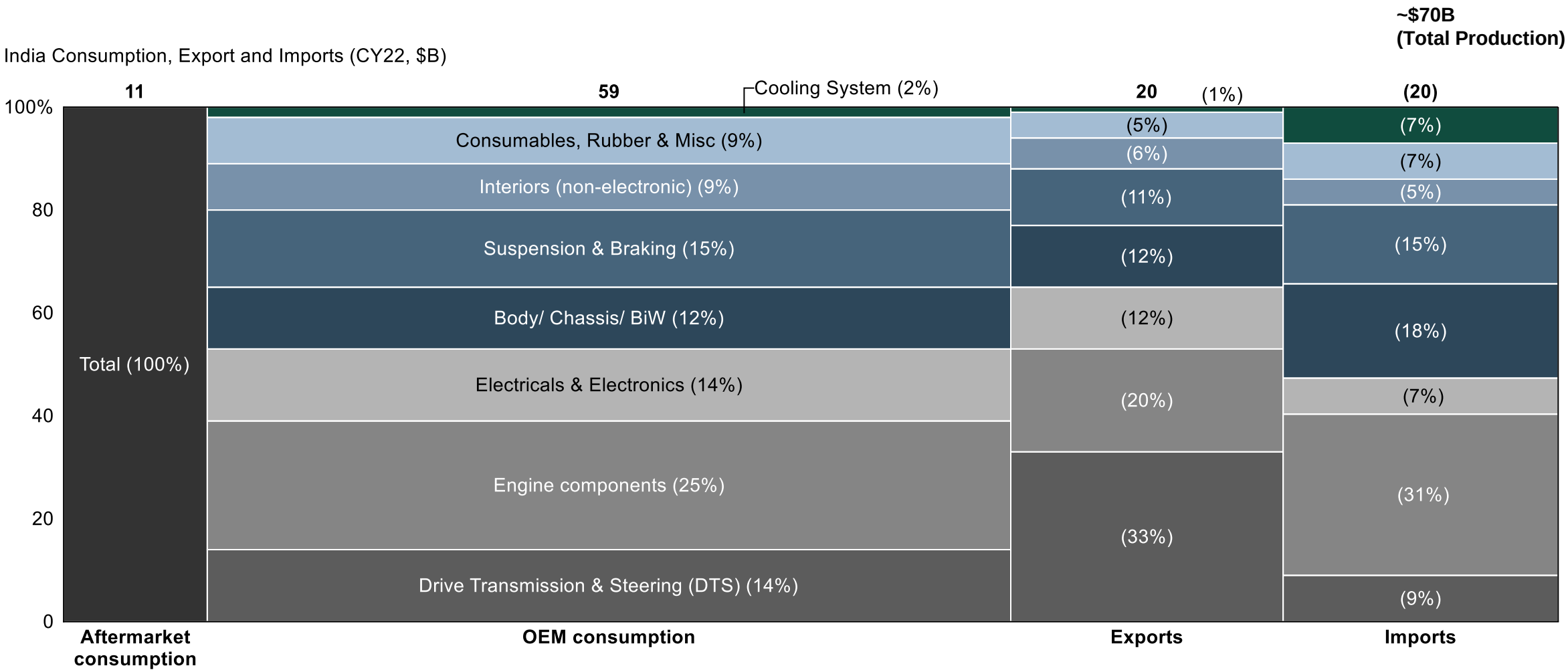
India's import share varies between 1-5% across top component categories



Note: ROW: Rest of the World; Total export and import numbers may vary vis-à-vis ACMA basis coverage of HSNs mapped;
Source: Trademap

India consumption landscape

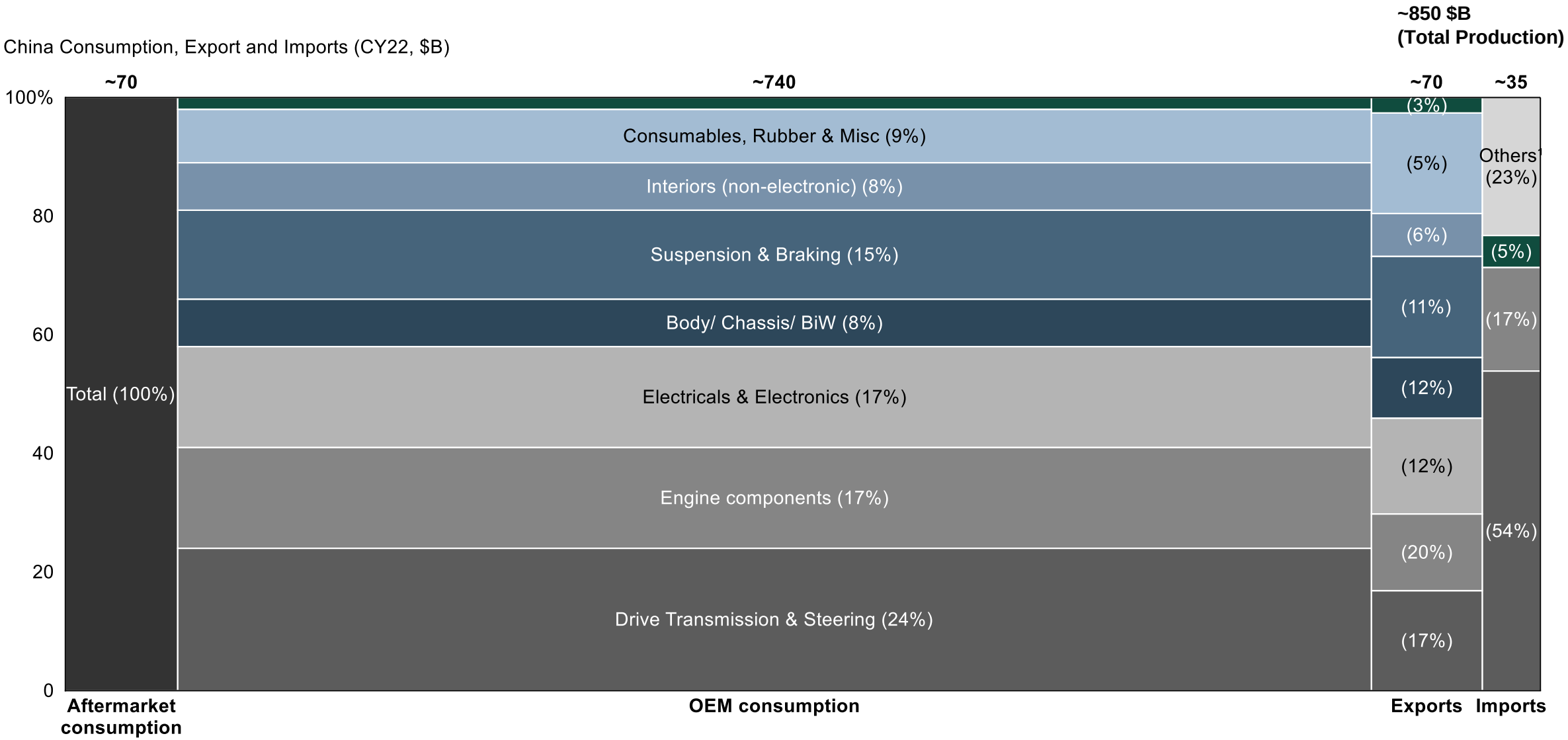
Net export driven by DTS; net imports driven by engine components



Note: FY23 EXIM percent for 9M FY23 data, Consumption percent split assumed same as FY22
Source: ACMA

China consumption landscape

Net exports driven by electricals, suspension, braking



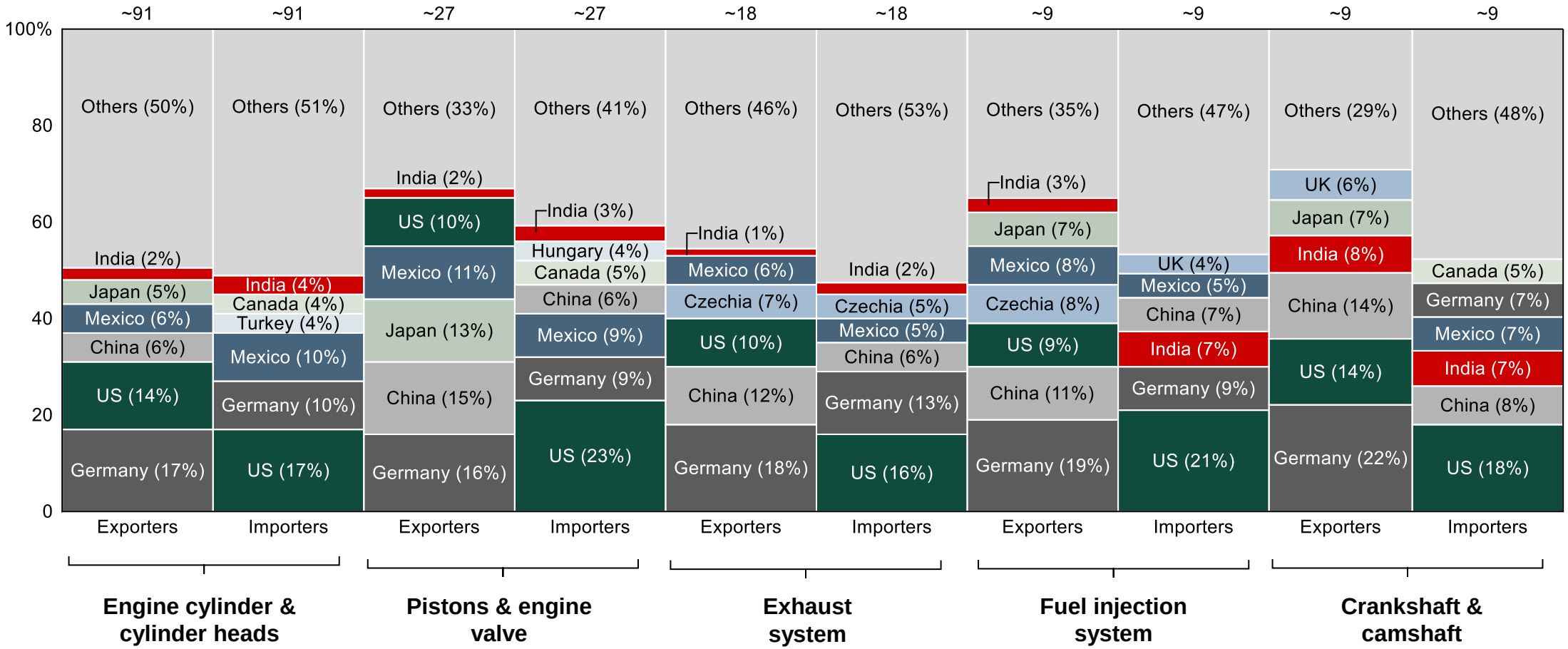
Note: Export splits assumed to be same as 2019; OEM consumptions split involve estimates based on research reports and industry standards; for (1) Others include Electricals & Electronics, Body & Chassis, Battery, Interiors, Consumables & Misc
Source: industry & Market Reports, S&P Global

Engine Component GVC

50% value driven by top 6-7 countries

Key exporters, importers of Engine & Engine components (CY22, $B)

Traded value: ~$150B



Note: Total export and import numbers may vary vis-à-vis ACMA basis coverage of HSNs mapped;
Source: Trademap

Mega disruptions are reshaping automotive industry

Will create "new" winners

India macro tailwinds

India consumption story → Strong domestic demand

$1.4T → $5.7T — Consumption spend 2018 → 2030

Growing middle class → Premiumization

55% → 80% — Share of middle class spend

Manufacturer for the world → Policy support for relocating global supply chains (China+1, Europe+1)

₹67k Cr — PLI pool for Auto and auto component sectors[5]

Investor support → Continued capital inflow

$70B — PE-VC investments in India in FY22

110 — Strategic M&A deals[2] in 2022

Global macro flux

Geopolitical tensions

- **China de-risking** *(supply pools shifting from China)*
- **Shipping bottlenecks** *(Conflicts in Russia-Ukraine; Middle-East)*
- **'Chip wars'** *(US-China semiconductor restrictions)*

Conflicting supplier priorities

Global consolidation (last man standing) vs. Localization

Net zero → ESG across supply chain

110 — Net zero emissions countries by 2050

05 — out of top 10 auto OEMs net zero value chain by 2050

Upcoming climate disclosure mandate in US and Europe (emission across all scopes)

Technology

Electric drive trains become dominant

3% → 40% → 80%

Global Light EV penetration 2020 → 2030 → 2040

ADAS, AD → Smarter vehicles

90% — ADAS enabled PV sold 2030[4]

$600 → $1200

Average semiconductor content per car 2022 → 2030

"EV-only" components become salient; ICE components eliminated

50% — Vehicle value from EV-only components[3]

190 — ICE components eliminated (engine/ fuel-related, exhaust)

Profit pool shift: Hardware → Software

$80B — Software TAM by 2030

30-40% — Share of auto profit pool by 2030

Components evolve

- **Lighter, stronger (Al)**
- **Thermal tolerance**
- **Automatic transmission**
- **ABS**

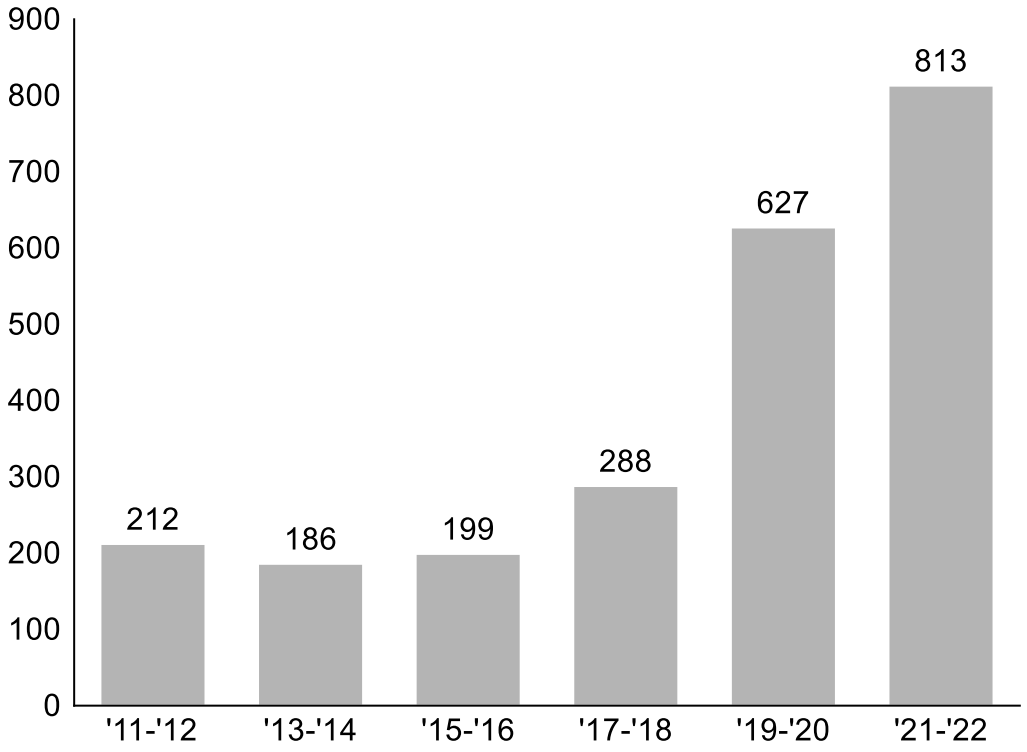
Note: 1) OEMs n=15; suppliers n=30; margins from S&P Capital IQ; 2) Deals >$75M; 3) EV only components include battery, motor, generator, converter, etc.; 4) Includes Level 2+ and AV ready passenger vehicles; 5) Electric vehicles covered

Geopolitical tensions with China expected to continue

Current policy signals suggest regulations on trade with China will continue to intensify

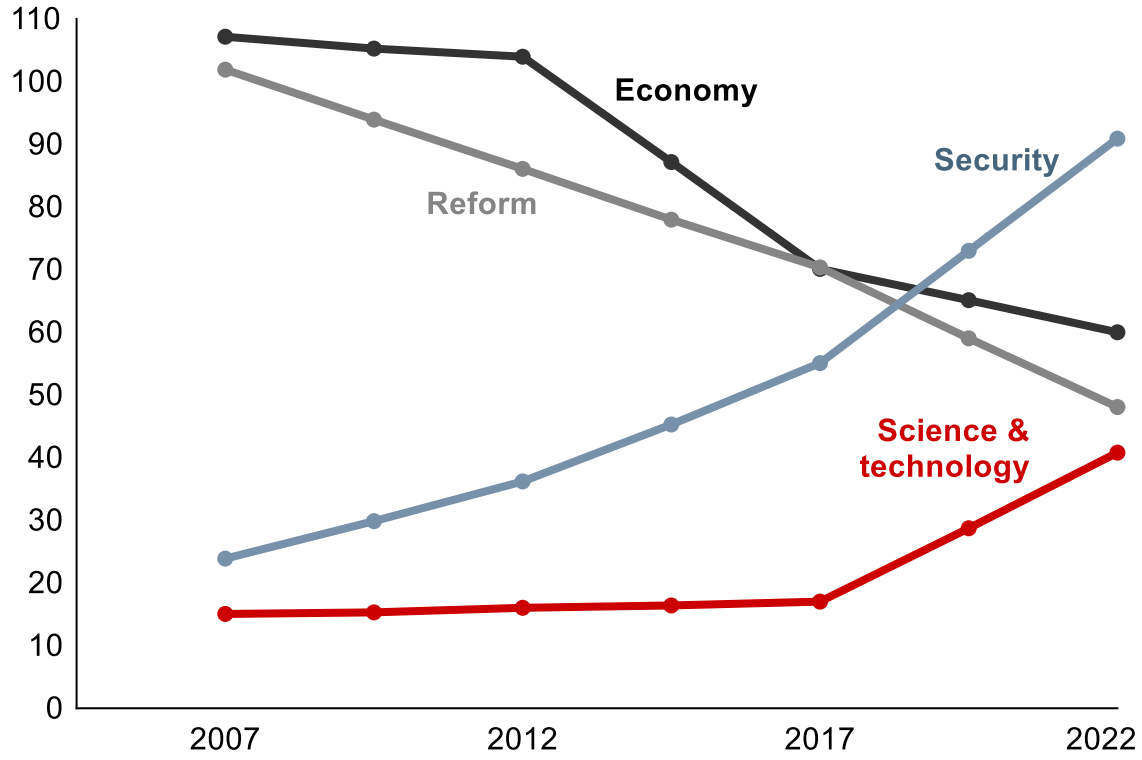
Bipartisan consensus in the US

 # US Bills Mentioning China



Heightened focus on national security and Technology self-reliance in China

Number of times each phrase appears in the Party Congress report



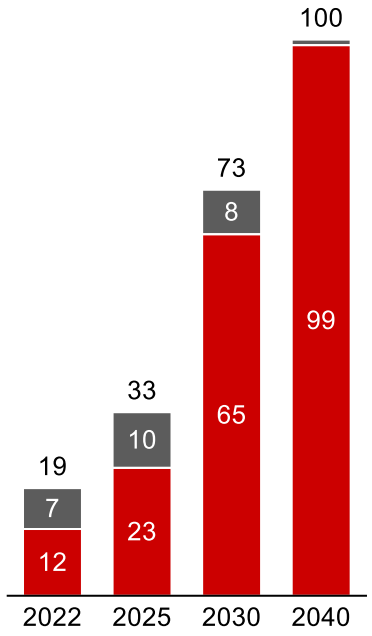
Note: US Bills represent active bills (introduced, passed senate, passed house, etc.) in the respective year
Source: Congress.gov; GavekalResearch

Global EV penetration

Major markets to scale to 50%+ by 2030

Europe[1]

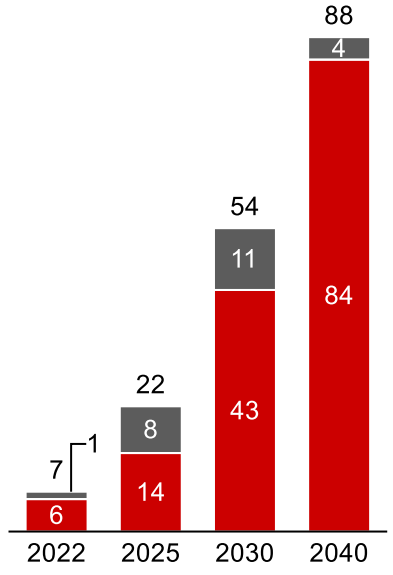
EV (LVs) sales penetration (%)



	2022	2025	2030	2040
EV Vol[2] (Mn)	2.5	5.1	11.3	13.3
ICE Vol (Mn)	10.4	10.3	4.1	0.0

USA

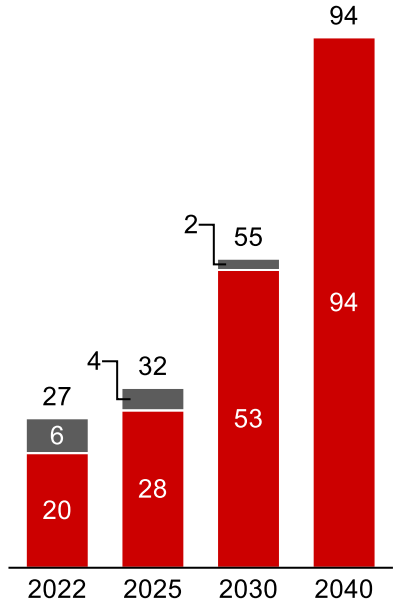
EV (LVs) sales penetration (%)



	2022	2025	2030	2040
EV Vol[2] (Mn)	1.0	3.6	8.7	11.7
ICE Vol (Mn)	12.9	12.7	7.3	1.6

China

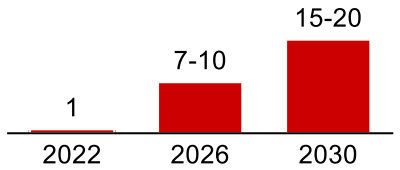
EV (LVs) sales penetration (%)



	2022	2025	2030	2040
EV Vol[2] (Mn)	6.5	9.0	17.1	27.2
ICE Vol (Mn)	18.1	19.0	13.5	1.2

India

EV (LVs) sales penetration (%)



	2022	2026	2030
EV Vol (Mn)	0.0	0.4	1.1
ICE Vol (Mn)	3.1	4.0	5.3

BEV PHEV

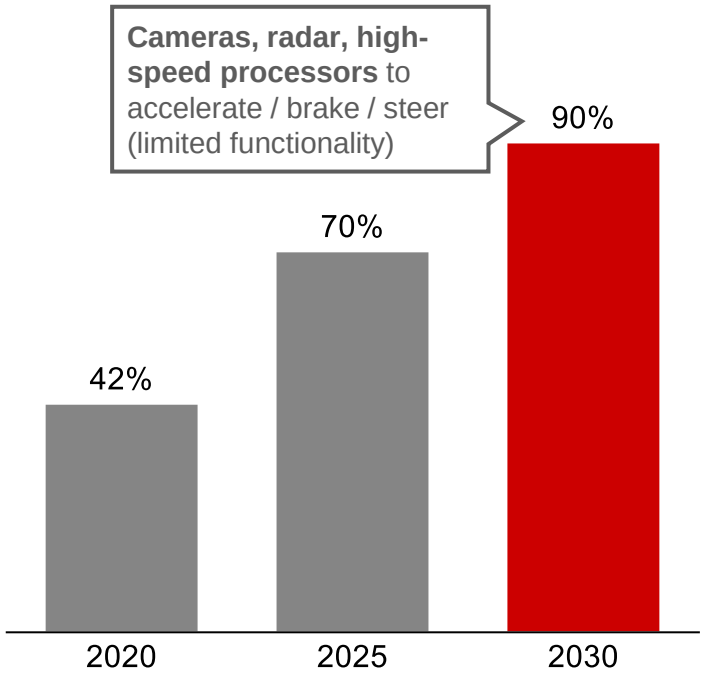
Note: 1) Includes European Union (EU) countries and 4 additional countries United Kingdom, Iceland, Norway and Switzerland; 2) Includes PHEV volumes
Source: Bain EV Market Model

New auto technologies becoming prevalent

ADAS, AD, EV to significantly scale by 2030

ADAS: 90% new vehicles

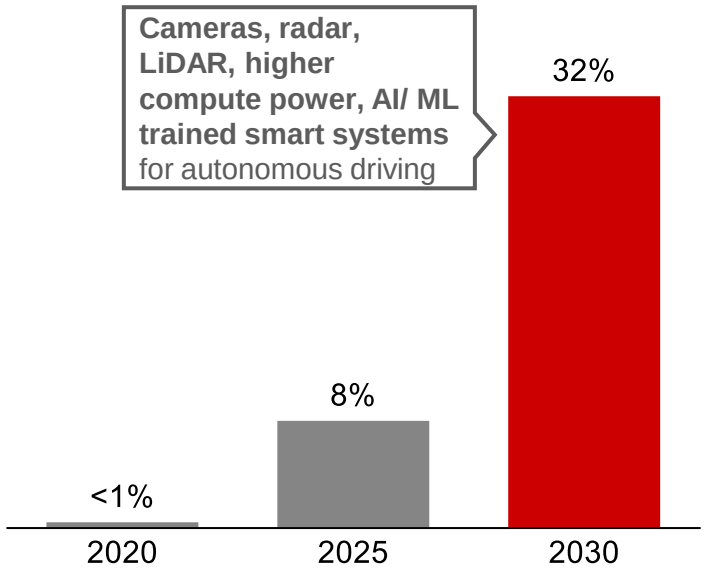
Share of ADAS
(% of new vehicle sales)



Auto-supplier driven

AD: 30%+ of new vehicles

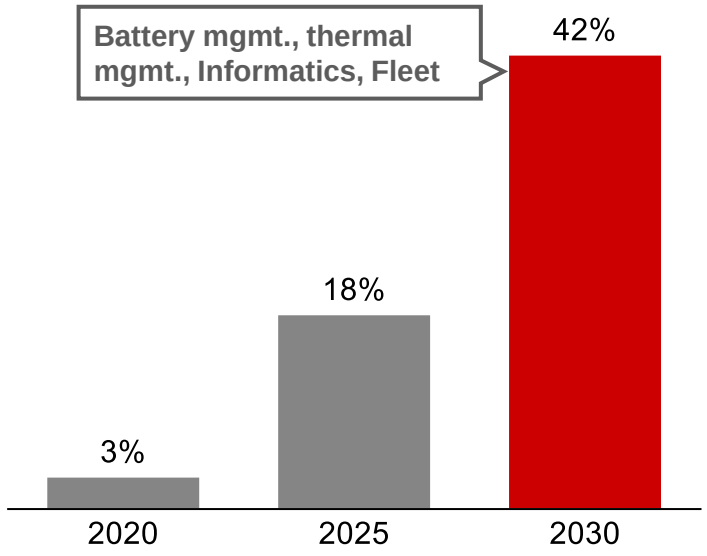
Share of AD
(% of new passenger vehicle sales)



OEM driven (via partnerships)

EV: 40%+ penetration

Share of battery electric vehicles
(% of light vehicle sales)



OEM + Battery players

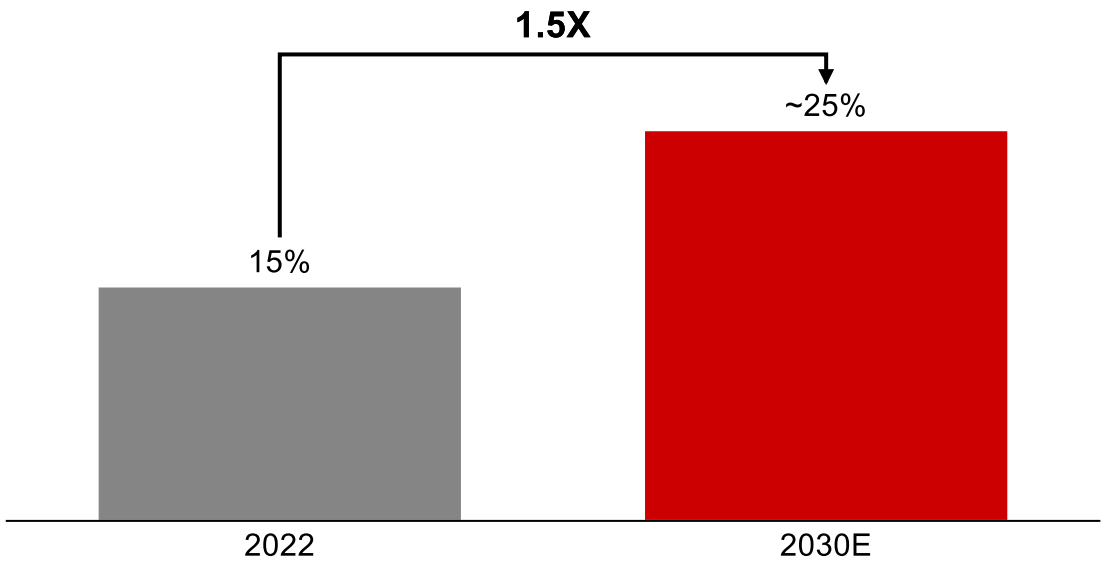
Note: Share of ADAS includes vehicles equipped with L1+ ADAS technology
Source: Bain analysis, analyst reports

Electronics and software content will double

30% of vehicle value from Electronics and Software

Electronics: 25% of vehicle value

Electronic content per vehicle (% of vehicle value)



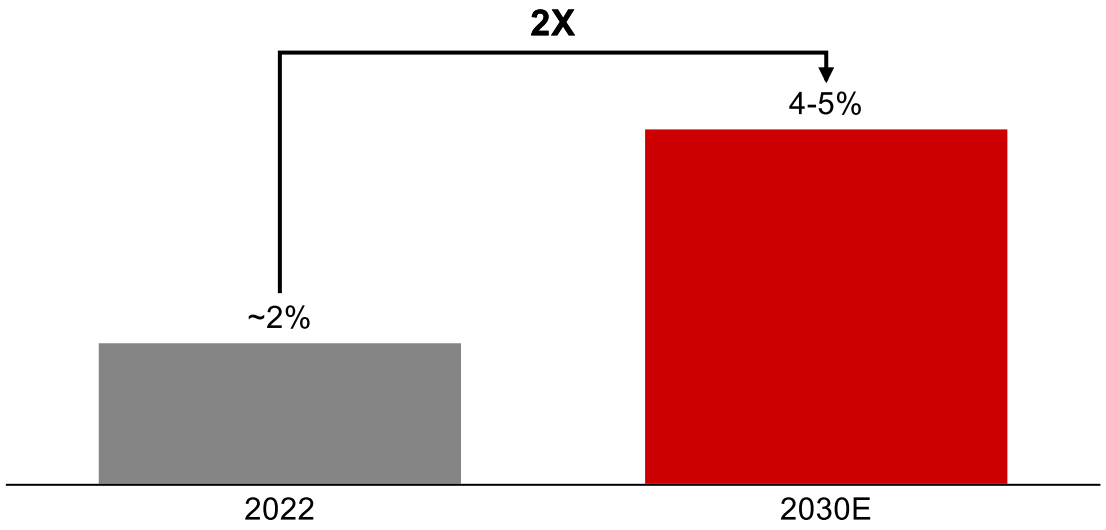
Average semi-conductor spend per vehicle (2022 → 2030)

$600 → **$1200**

Driven largely by ADAS / AD systems and electric powertrain

Software: 4-5% of vehicle value

Software content per vehicle (% of vehicle value)



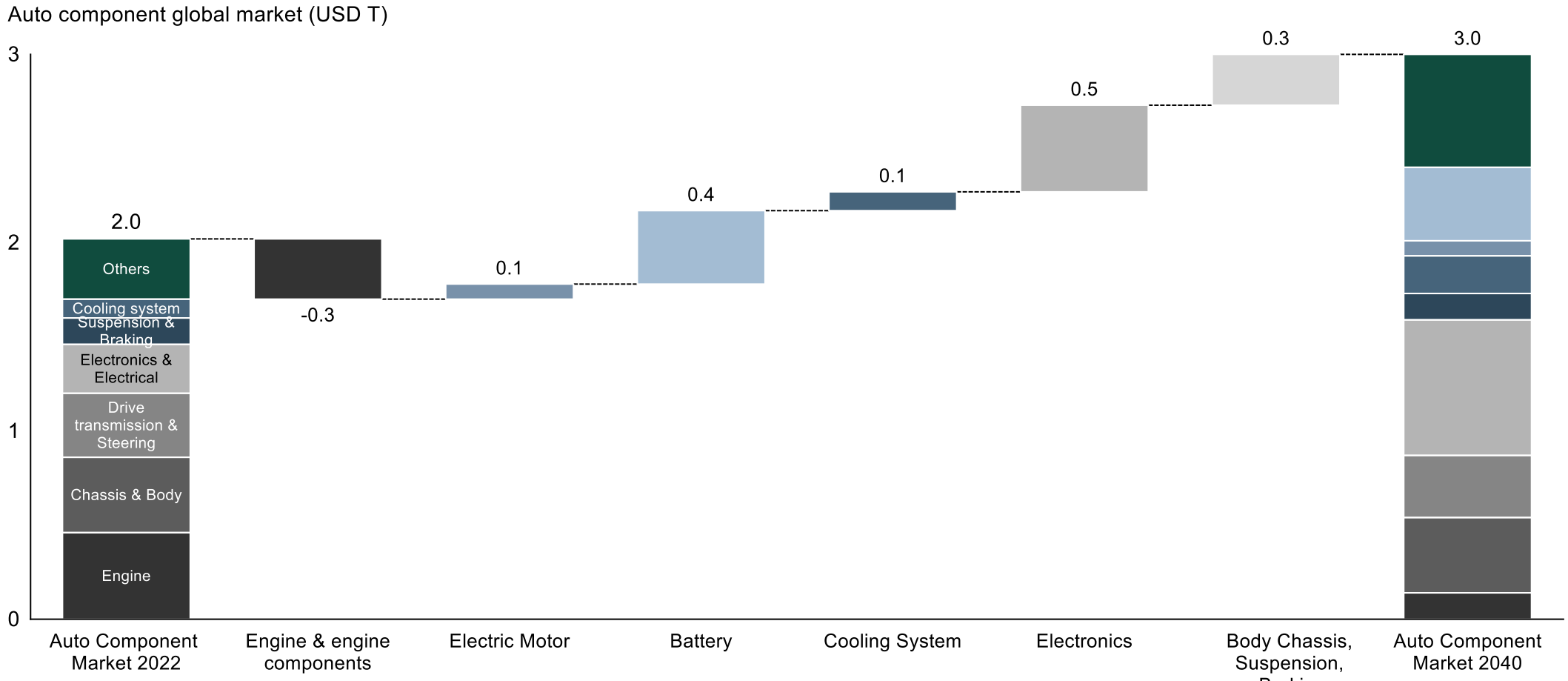
Additional software-led components in ADAS/ AD

Vehicle OS	Cloud connectivity, OTA update	AI / ML algorithm for intelligent systems
Telematics and infotainment	Cybersecurity	Energy/ thermal management

Source: Analyst reports (Morgan Stanley, Nomura)

Auto component GVC consumption market projected to reach ~$3T by 2040

Growth led by EV components and Electronics



Cost per Vehicle ($)	22,000							24,650
Number of Vehicles	71 M							96 M

Note: Assuming a CAGR of 1.7% from 2022 to 2040; Battery cost estimated to reduce by 50% by 2040
Source: Bain Analysis

Near-term implication of mega disruptions on industry health

Industry stress driven by supply rebound in economic slowdown

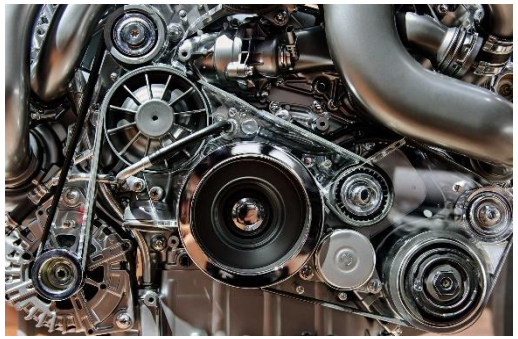
	Traditional auto industry (2010-2019)	Covid and aftermath (2021/22)	Economic slowdown (2023/24)
Supply	Capacity expanded ahead of demand: Structural over-supply in the industry e.g., in Europe 24% (4 M units)	Supply break-down due to supply-chain issues, supply shortage (chips), etc.	Supply shortage expected to fade early/ mid 2023
Demand	Global growth industry with unit growth of 2.4% p.a. 2010-2019, while Europe and North America have peaked already	Break-down of demand in 2020, but quick re-bound in 2021/22	Economic slowdown/ recession negatively impacting customer sentiment and willingness to buy
Price level	"Supply push" industry: Aggressive use of discounts to drive volume and capacity utilization results in "race to the bottom"	Entire industry increased avg. selling prices (better mix, higher prices), building price umbrella with strict pricing discipline	Price/ discount measures of OEMs to push plant utilization likely start a price downward spiral in the industry
Cost level	Ongoing cost reductions, but strict cost discipline varying by OEMs	Increasing cost for energy, material, etc., not fully compensated by cost reduction; often no massive structural measures	While some cost positions (e.g., personnel) will further increase, strict cost reduction measures required to reduce total cost and improve resilience
OEM margin (industry average)	**5.8%** ***"Supply push"***	**8.6%** ***"Demand pull"***	**avg. 4-6%** ***"Hurricane"*** ← *High spread across:* • *Volume: - 2 to +4%* • *Premium: + 6 to +12%*
Supplier margin (industry average)	**7.4%** ***"Steady-state"***	**5.3%** ***"Perfect storm"***	***avg. 3-5%*** ***"Hurricane"***

Source: Bain analysis

Implication for industry stakeholders

Different success factors for traditional ("Engine 1") and new business ("Engine 2")

Traditional business ("Engine 1")



- Today's **revenue, profit, cash**
- **Profit/ cash contribution often softening**, as peak volumes reached

- Build **leadership positions** to leverage economies of scale
- Accelerate **efficiency programs**
- Fundamentally **minimize complexity/variants**
- Execute **structural optimization**, incl. capacity adjustment

New business ("Engine 2")

- Trend-driven, **high growth business**, often not yet at the "Tipping Point"
- Often **less profitable** in the beginning
- Potential basis for **long-term success**

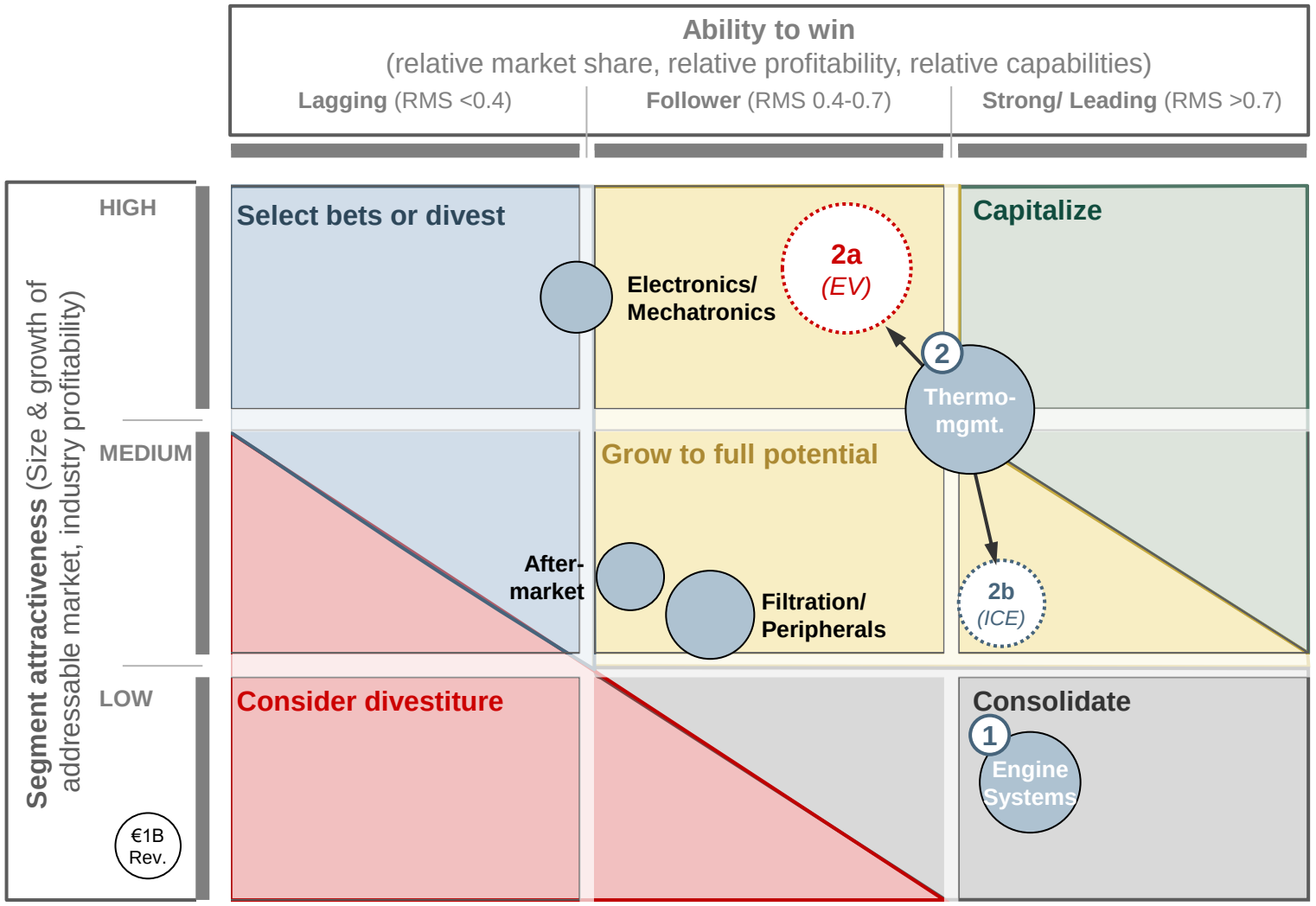
- **Focus on selected bets** – don't try everything in parallel
- Double-down and **invest accordingly** (R&D, CAPEX, …)
- Conduct **targeted acquisitions** (now good valuations)
- **Partner with the leaders** in the respective domain

**Suppliers need to cut complexity and build scale in "Engine 1"
to free up required funding for focused "Engine 2" investments**

Source: Bain analysis

Illustration: Portfolio choices for an industry major

Pursue "last man standing" approach for leading segments; pivot to growth opportunities for the rest



Choices

1. Capitalize on **strong market position in engine systems** and pursue **last-man-standing** approach
   - **Optimize cash flow generation** through minimal complexity across products and low fix-cost base
   - Engage in **partnerships with OEMs** to backward integrate their ICE component production
2. Reorient **Thermal management to fully address growing EV market** and **separate from ICE related components**
   - 2a **Cater to EV market needs** with integrated energy/ thermal mgmt. system, from battery to interior
   - 2b **Manage traditional ICE-related part** of thermal management **rigorously on costs**, potentially consolidate with other ICE related systems

Note: Qualitative outside-in assessment; RMS = relative market share, indexes a firm's market share against that of its largest competitor. If the firm is the market leader, it is indexed against the second largest player (RMS >1.0)

OEM KPC for auto supplier sourcing (China+1)

Cost competitiveness, quality, supply chain stability and reliability, local content understanding, ops excellence

Landed Cost Competitiveness

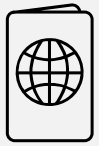
Across manufacturing (RM, capital, labor cost), logistics, duty structures

Consistent product quality

Consistently high-quality, production traceability, low rejection track record

Supply Chain Stability and Reliability

Robust, reliable and efficient supply chain (even during disruptions); Secured input RM supply in country of production (India)



Strong understanding of local content requirements

Demonstrated understanding of end-customer, regulatory and OEM specific requirements

Operations Excellence

Demonstrated history of OTIF International Delivery

Source: Bain analysis

Challenges limiting India's participation in auto GVC

Cost (Opex) competitiveness

- Poor productivity (offsetting lower cost) due to skilled labor shortfall
- Higher energy cost, impacting power intense segments (casting, forging)
- Duty structure: Parity relative to countries in FTA (e.g., Mexico in NAFTA), duty for factor inputs
- Inland logistic constraints (e.g., port connectivity)
- Tech sourcing vs. R&D cost tradeoff
- Working capital cost (relative to peers)

Cost (Capex) competitiveness

- Plug and play infrastructure for capacity creation
- Inadequate tool rooms (for faster TAT), testing facilities for approvals
- Machinery cost inflation due to import duties
- Limited / no subsidy for infra development and construction
- Domestic scale limiting volume benefits (e.g., EV components – batteries, motors)
- Cost of capital in absence of government support

Ease of business

- Capacity set up: Land acquisition process, regulatory approval TAT, transparency in approval process, last mile red-tape
- Operations: Consistent duty structure, custom clearance process (speed, transparency)
- Inconsistent long-term policy clarity / consistency (production incentives, trade policies, etc.)
- Global partnerships: Bilateral relationships with global auto-component players, preferential trade agreements enabling exports

Quality

- Variance in domestic quality standards from global norms, necessitating additional validation as well as line inefficiencies
- Ability to commit to consistent quality throughput (OEM liability agreements)
- Production systems with defect traceability, timeliness in debugging

Commercial rhythms

- 'Fit for purpose' sales and OEM engagement model (e.g., global front-end footprint)
- Institutional account management systems
- Active cross-border industry association collaboration

Innovation

- Inadequate R&D spend (0-2% vs 5% global norm), limiting participation in higher margin
- Incubators/ structured R&D focused on breakthrough topics (segment vs. company)
- Industry – academia partnerships around structural topics (vs. operational areas only)
- "Build to print" mindset

Source: Bain analysis

Recommended Way Forward

Identify "Where to Play"

Double down on the right component families (large opportunity, disruption, need for change, strong right to win from India)

- **Double down on sunrise segments (led by EV, premiumization):** Electricals and Electronics -> ~100B+ opportunity, Cooling systems (Power Electronics, Thermal mgmt., Battery cooling) -> ~$40B opportunity
- **Navigate "China + 1" and "Last man standing" trends to identify large sub-segments offering large opportunity and strong right to win from India** (across Engine components ($150B), DTS ($270B), Suspension and Braking parts (~$60B)

Establish right to win

Ensure cost competitiveness by having low input cost, utilization (scale), and low capital cost of manufacturing set up

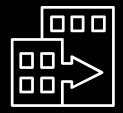
- **Right duty structure for factor inputs, to enable sourcing at globally competitive prices**
- **Scale in EV segments by (a) boosting domestic demand and (b) standardizing product** (par with global standards)
  - **(a1) 100% EV fleet (2030) for central and state government use** to signal strong intent (done in China and Norway)
  - **(a2) Adopt stringent fleet emission norms** at ~100 g CO2/km by 2030 in similar lines as USA (vs. 113 g CO2/km currently)
  - **(b1) Mandate global standards for prioritized components,** to maximize line utilization (drive global compatibility)
- **Optimize capital cost** through (a) **competitive duty** on imported specialized machinery, **(b) incentivizing development of scale tool rooms** in auto clusters (thereby reduce lead time substantially)

Improve India (risk) perception

- Ease land acquisition, regulatory and compliance requirements by **addressing delays and reducing TAT** in granting licenses, clearances
  - **Efficient customs and trade facilitation procedures (expected from SEZ2.0)** to expedite the movement of goods
- **Long-term policy clarity** (production incentives, trade policies, etc.) to reduce compliance cost

Recommended Way Forward

Develop supporting ecosystem (*to cement right to win*)



- **Develop hard infrastructure: Plug-and-play sites for EV and auto components**. This will reduce upfront capital costs, time to scale**,** incl. all clearances, permits, simplified legal procedures of land-use, environmental assessment, and equipped with power, HVAC, integrated warehouses, security, dormitories, waste handling etc.
- Robust, reliable and cost-efficient logistics lines to OEM locations (Europe, Japan, etc.) to **enable lean manufacturing and low TAT**
- **Testing facilities and incubator programs** in partnerships with OEMs/suppliers to **encourage end to end local development**
- **Promote comprehensive handholding for talent development** in the Auto/EV sector; resolve issues related to sourcing and skilling workers (e.g., diploma holders) **in partnership with OEMs and tech institutes**
- Enable **deeper R&D engagement in industry-academic programs to develop new tech / designs and focus on design / build to spec** (vs. build to print) by **channeling R&D funds to** both academia and industry

Policy support *(GOI led)*

- **Inclusion of EV in priority sector lending with RBI,** to increase adoption and investor confidence
- **Preferential trading arrangements** with key nations to increase priority component exports, attract investments, and foster innovation
- **Incentivize adoption of green technologies** (e.g., clean energy fund for capital support) to meet sustainability norms (sustainable upstream ecosystem, renewable energy, waste treatment, etc.) , as they are a mandate for international geos, primarily EU

Industry advocacy

- **Bilateral relationships** to facilitate **JVs and partnerships** with global auto component players with defined collaboration framework, expedited licenses, IP protection, ‘trusted’ status
- **Industry Association level collaboration** (e.g., ACMA – VDA) to drive market access and identify opportunities for Auto component manufacturers

Imperatives for Auto component manufacturers

Product prioritization, global GTM, product dev, application engineering, M&A for last man standing ICE play

Rebalance product portfolio: to balance cash generation and growth bets

Global Go-To-Market (GTM) Engine: Dedicated sales managers, robust key account management

Product development: Accelerate product development, conduct field trials with customers, demonstrate product reliability (vs competition)

Application Engineering: Dedicated application engineers for international markets to work with OEMs to address custom requirements

M&A for "last man standing" ICE play: Consolidate global supply for ICE systems
e.g., exhaust, engine, hydraulics

THANK YOU